



CITY OF MILWAUKIE

AGENDA

September 26, 2023

PLANNING COMMISSION

milwaukieoregon.gov

Hybrid Meeting Format: The Planning Commission will hold this meeting both in person at City Hall and through Zoom video. The public is invited to watch the meeting in person at City Hall, online through the City of Milwaukie YouTube page (https://www.youtube.com/channel/UCRFbfqe3OnDWLQKSB_m9cAw), or on Comcast Channel 30 within city limits.

If you wish to provide comments, the city encourages written comments via email at planning@milwaukieoregon.gov. Written comments should be submitted before the Planning Commission meeting begins to ensure that they can be provided to the Planning Commissioners ahead of time. To speak during the meeting, visit the meeting webpage (<https://www.milwaukieoregon.gov/planning/planning-commission-2>) and follow the Zoom webinar login instructions.

1.0 Call to Order – Procedural Matters — 6:30 PM

1.1 Native Lands Acknowledgment

2.0 Planning Commission Minutes – Motion Needed

2.1 July 25, 2023

3.0 Information Items

4.0 **Audience Participation** — This is an opportunity for the public to comment on any item not on the agenda

5.0 Community Involvement Advisory Committee (CIAC)

6.0 Hearing Items

6.1 WG-2023-001 – 1600 SE Lava Dr (Willamette Greenway Review)

Summary: Type III Willamette Greenway Review; Development Review; Lot Consolidation

Staff: Senior Planner Vera Kolias

7.0 Planning Department/Planning Commission Other Business/Updates

8.0 Forecast for Future Meetings

October 10, 2023 CSU-2023-004 – Milwaukie High School Parking Modification

October 24, 2023 No items at this time

Milwaukie Planning Commission Statement

The Planning Commission serves as an advisory body to, and a resource for, the City Council in land use matters. In this capacity, the mission of the Planning Commission is to articulate the Community's values and commitment to socially and environmentally responsible uses of its resources as reflected in the Comprehensive Plan.

1. **PROCEDURAL MATTERS.** If you wish to register to provide spoken comment at this meeting or for background information on agenda items please send an email to planning@milwaukieoregon.gov.
2. **PLANNING COMMISSION and CITY COUNCIL MINUTES.** City Council and Planning Commission minutes can be found on the City website at www.milwaukieoregon.gov/meetings.
3. **FORECAST FOR FUTURE MEETINGS.** These items are tentatively scheduled but may be rescheduled prior to the meeting date. Please contact staff with any questions you may have.
4. **TIME LIMIT POLICY.** The Commission intends to end each meeting by 10:00pm. The Planning Commission will pause discussion of agenda items at 9:45pm to discuss whether to continue an agenda item to a future date or finish the item.

Public Hearing Procedure

Those who wish to testify should attend the Zoom meeting posted on the city website, state their name and city of residence for the record, and remain available until the Chairperson has asked if there are any questions from the Commissioners. Speakers are asked to submit their contact information to staff via email so they may establish standing.

1. **STAFF REPORT.** Each hearing starts with a brief review of the staff report by staff. The report lists the criteria for the land use action being considered, as well as a recommended decision with reasons for that recommendation.
2. **CORRESPONDENCE.** Staff will report any verbal or written correspondence that has been received since the Commission was presented with its meeting packet.
3. **APPLICANT'S PRESENTATION.**
4. **PUBLIC TESTIMONY.** Comments or questions from interested persons and testimony from those in support or opposition of the application.
5. **QUESTIONS FROM COMMISSIONERS.** The commission will have the opportunity to ask for clarification from staff, the applicant, or those who have already testified.
6. **REBUTTAL TESTIMONY FROM APPLICANT.** After all public testimony, the commission will take rebuttal testimony from the applicant.
7. **CLOSING OF PUBLIC HEARING.** The Chairperson will close the public portion of the hearing. The Commission will then enter into deliberation. From this point in the hearing the Commission will not receive any additional testimony from the audience but may ask questions of anyone who has testified.
8. **COMMISSION DISCUSSION AND ACTION.** It is the Commission's intention to make a decision this evening on each issue on the agenda. Planning Commission decisions may be appealed to the City Council. If you wish to appeal a decision, please contact the Planning Department for information on the procedures and fees involved.
9. **MEETING CONTINUANCE.** Prior to the close of the first public hearing, any person may request an opportunity to present additional information at another time. If there is such a request, the Planning Commission will either continue the public hearing to a date certain or leave the record open for at least seven days for additional written evidence, argument, or testimony. The Planning Commission may ask the applicant to consider granting an extension of the 120-day time period for making a decision if a delay in making a decision could impact the ability of the City to take final action on the application, including resolution of all local appeals.

Meeting Accessibility Services and Americans with Disabilities Act (ADA) Notice

The city is committed to providing equal access to public meetings. To request listening and mobility assistance services contact the Office of the City Recorder at least 48 hours before the meeting by email at ocr@milwaukieoregon.gov or phone at 503-786-7502. To request Spanish language translation services email espanol@milwaukieoregon.gov at least 48 hours before the meeting. Staff will do their best to respond in a timely manner and to accommodate requests. Most Council meetings are broadcast live on the city's YouTube channel and Comcast Channel 30 in city limits.

Servicios de Accesibilidad para Reuniones y Aviso de la Ley de Estadounidenses con Discapacidades (ADA)

La ciudad se compromete a proporcionar igualdad de acceso para reuniones públicas. Para solicitar servicios de asistencia auditiva y de movilidad, favor de comunicarse a la Oficina del Registro de la Ciudad con un mínimo de 48 horas antes de la reunión por correo electrónico a ocr@milwaukieoregon.gov o llame al 503-786-7502. Para solicitar servicios de traducción al español, envíe un correo electrónico a espanol@milwaukieoregon.gov al menos 48 horas antes de la reunión. El personal hará todo lo posible para responder de manera oportuna y atender las solicitudes. La mayoría de las reuniones del Consejo de la Ciudad se transmiten en vivo en el canal de YouTube de la ciudad y el Canal 30 de Comcast dentro de los límites de la ciudad.

Milwaukie Planning Commission:

Jacob Sherman, Chair
Joshua Freeman, Vice Chair
Aaron Carpenter
Joseph Edge
Amy Erdt
Lauren Loosveldt
Will Mulhern

Planning Department Staff:

Laura Weigel, Planning Manager
Brett Kelter, Senior Planner
Vera Koliass, Senior Planner
Adam Heroux, Associate Planner
Ryan Dyar, Assistant Planner
Petra Johnson, Administrative Specialist II



CITY OF MILWAUKIE

PLANNING COMMISSION MINUTES

City Hall Council Chambers
10722 SE Main Street
www.milwaukieoregon.gov

July 25, 2023

Present: Jacob Sherman, Chair
Joshua Freeman, Vice Chair
Aaron Carpenter
Joseph Edge
Lauren Loosveldt
Will Mulhern

Staff: Ryan Dyar, Assistant Planner
Justin Gericke, City Attorney
Brett Kelter, Senior Planner
Laura Weigel, Planning Manager

Absent: Amy Erdt

(00:22:13)

1.0 Call to Order — Procedural Matters*

Chair Sherman called the meeting to order at 6:30 p.m., read the conduct of meeting format into the record, and Native Lands Acknowledgment.

Note: *The information presented constitutes summarized minutes only. The meeting video is available by clicking the Video link at <http://www.milwaukieoregon.gov/meetings>.*

(00:23:21)

2.0 Planning Commission Minutes

2.1 June 27, 2023, minutes were approved with a 6-0 vote.

(00:24:07)

3.0 Information Items

Planning Manager, Laura Weigel, introduced **Commissioner Will Mulhern**.

(00:29:00)

4.0 Audience Participation

No information was presented for this portion of the meeting.

(00:29:28)

5.0 Community Involvement Advisory Committee (CIAC)

Weigel gave a second update on planning department staff attending NDA meetings to review and discuss the land use notification training.

(00:30:51)

6.0 Hearing Items

6.1 ZA-2023-005, Design and Landmarks Committee Code Amendments

Senior Planner, Brett Kelter, announced the applicable sections of the Milwaukie Municipal Code (MMC): MMC19.902, MMC19.1008. **Commissioner Mulhern** abstained from participating in the hearing since it was his first meeting. **Weigel** presented the staff report via a power point presentation. Both are included in the meeting packet. It was presented that the DLC code amendments were prompted based on an infrequent need for application review, an improved downtown design review code, the high level of staff involvement with managing the committee, a lack of an immediate long-range project, and a need to focus on other high priority projects coming out of the updated comprehensive plan. The city received a letter from the Milwaukie Historical Society opposing the code amendments, with ten people writing in support of the MHS position. Two other people also provided testimony in opposition. It was noted that staff discussed retiring the DLC with City Council back on June 6, 2023, with staff recommending that Council approve the proposed amendments.

Greg Hemer, Communications Director of the Milwaukie Historical Society, and Milwaukie resident, spoke in opposition of retiring the DLC, citing that it is imperative to keep the landmarks portion of the committee. **Hemer** offered additional ideas on how to retain the DLC.

Chair Sherman closed the public testimony.

Commission Discussion:

The commission discussed the importance of the DLC and the need for further research. **Commissioner Joseph Edge** motioned to recommend that Council deny ZA-2023-005. **Commissioner Aaron Carpenter** seconded the motion. The motion to deny the code amendments was passed with a 4-1 vote (1 abstention).

(01:44:13)

7.0 Work Session Items

7.1 Bicycle Parking Standards

Assistant Planner Ryan Dyar presented the staff report via a power point presentation. Both are included in the meeting packet. **Dyar** updated the commission on the CFEC rulemaking which disrupts the quantity calculations for residential bicycle parking. **Dyar** reviewed the current code and the changes under consideration for residential development. **Chair Sherman** asked a clarifying question regarding minimum parking for visitors. **Dyar** explained that he is not aware of any public facility improvement requirements but would confirm. **Dyar** presented key questions for the commission's consideration regarding bicycle parking and residential development. The commission discussed the key questions with staff. **Dyar** then reviewed the current code and the changes under consideration for commercial development. The commission discussed

additional considerations with staff. **Dyar** explained the short- and long-term bicycle parking quantities for commercial development. **Dyar** presented key questions for the commission's consideration regarding bicycle parking and commercial development. The commission discussed the key questions with staff. **Chair Sherman** ended the work session.

(02:36:48)

8.0 Planning Department/Planning Commission Other Business/Updates

Chair Sherman advertised Porch Fest and the Farmer's Market.

(02:38:30)

9.0 Forecast for Future Meetings

August 8, 2023	Hearing Item(s):	No items at this time.
August 24, 2023	Hearing Item(s):	CSU-2023-002 – Balfour Park CSU-2023-003 – Bowman-Brae Park

Meeting adjourned at approximately 9:00 p.m.

Respectfully submitted,

Petra Johnson, Administrative Specialist II



CITY OF MILWAUKIE

To: Planning Commission
Through: Laura Weigel, Planning Manager
From: Vera Koliass, Senior Planner
Date: September 19, 2023, for September 26, 2023, Public Meeting
Subject: **File:** WG-2023-001; LC-2023-001; DEV-2023-004
Applicant: Mark Madden, WDC Properties
Owner(s): Glee PDX, LLC
Address: 1600 SE Lava Dr
Legal Description (Map & Tax Lot): 11E35AB00502; 00100
NDA: Historic Milwaukie

ACTION REQUESTED

Approve applications WG-2023-001, LC-2023-001, and DEV-2023-004 and adopt the Findings, Conditions of Approval, and Other Requirements found in Attachments 1 – 3. This action would allow for the construction of a 13-unit multi-unit development with parking on the subject property.

BACKGROUND INFORMATION

A. Site and Vicinity

The site located at 1600 SE Lava Dr, is made up of two tax lots, and is approximately 0.44 acres in size. Until this summer, the property contained a vacant single detached home built in 1920 (see Figures 1 and 2).

The surrounding area consists of multi-unit developments (River Royal Terrace Condominiums, Shoreside East Condominiums, and Waverly Greens), single detached homes, and the MODA office building. The site is approximately 440 ft from the Willamette River at the nearest point.

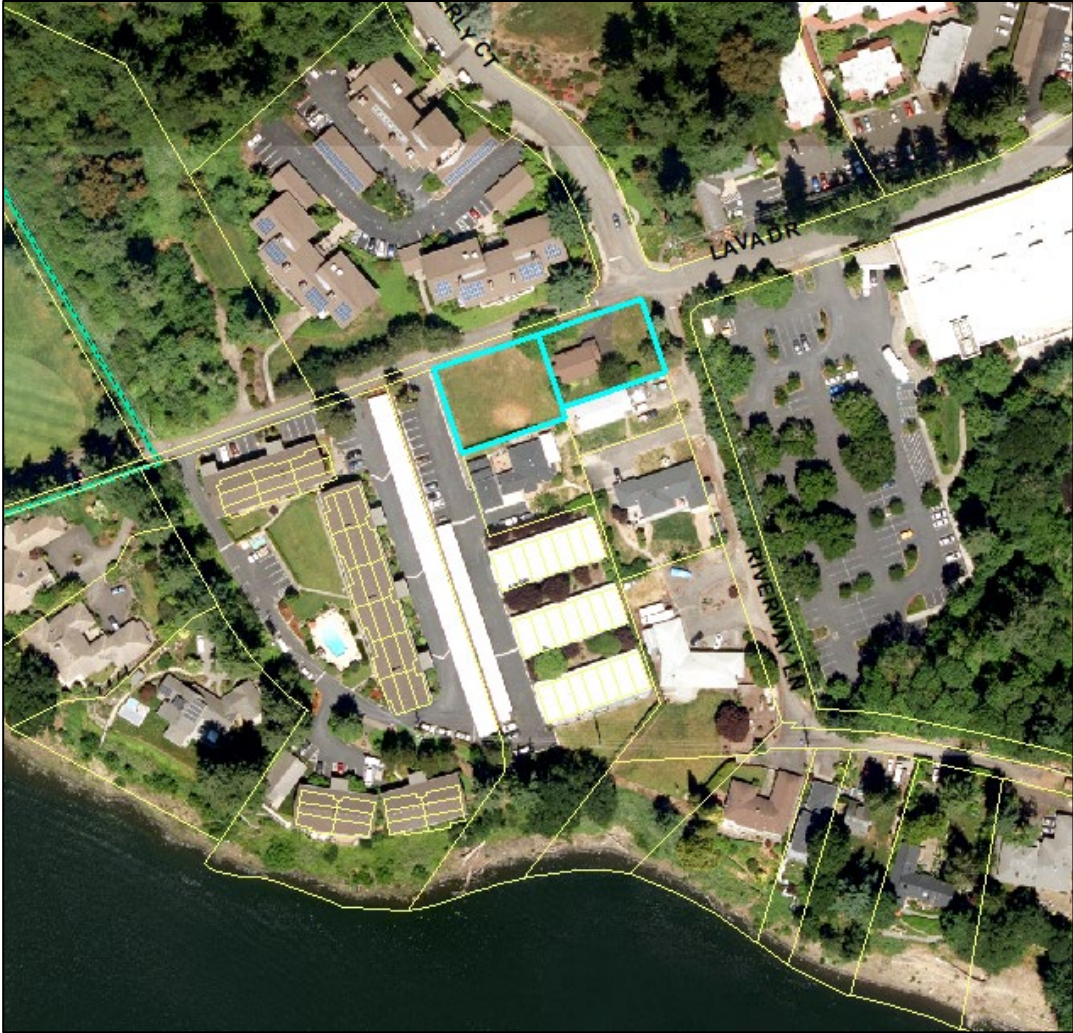


Figure 1. Site area and vicinity



Figure 2. View of site looking south

B. Zoning Designation

The site is in the High Density Residential Zone (R-HD). It is also completely within the Willamette Greenway.



Figure 3. Willamette Greenway

C. Comprehensive Plan Designation

High Density (HD)

D. Land Use History

No previous conditional use review was completed for this property as the former home was built in 1920, prior to the adoption of the City’s Willamette Greenway section of the zoning ordinance. Therefore, the use is considered a “de facto conditional use” and can apply for a major or minor modification per MMC 19.905. The home was issued a demolition permit in May and the final inspection was approved on August 9.

E. Proposal

The applicant’s representative Britany Randall, on behalf of the applicant WDC Properties, Inc, is seeking land use approvals for Conditional Use Approval for development in the Willamette Greenway at 1600 SE Lava Dr. The applicant intends to consolidate the two existing lots and construct a new 13-unit multi-unit development with on-site parking on the property (see Figures 4 and 5).

The project requires approval of the following applications:

1. Willamette Greenway Review (WG-2023-001)
2. Development Review for multi-unit development (DEV-2023-004)
3. Lot Consolidation (LC-2023-001)

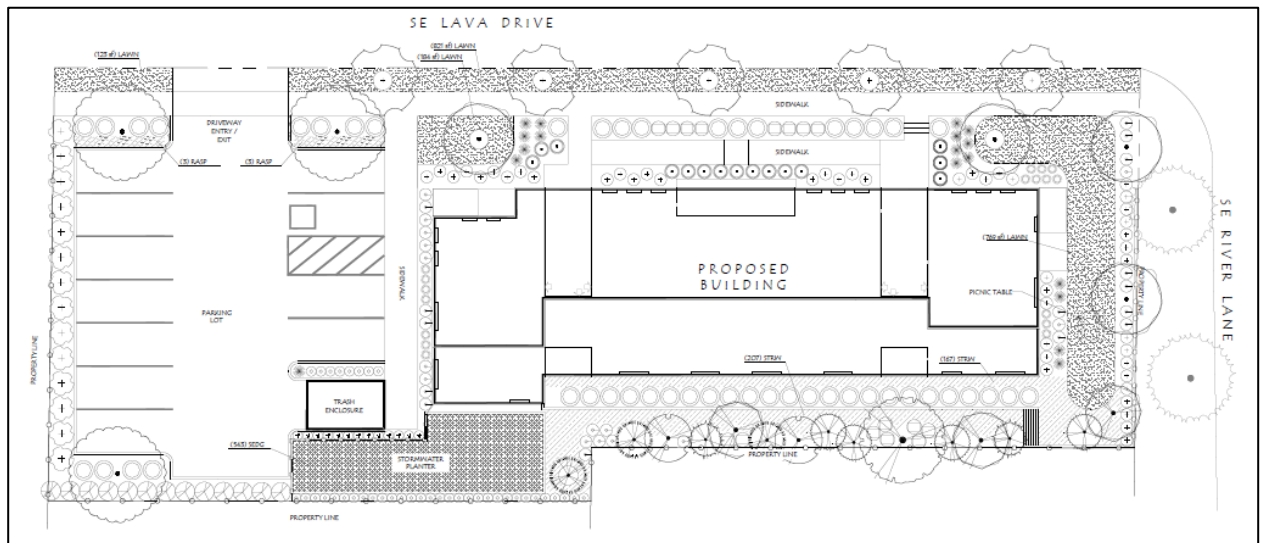


Figure 4. Proposed site plan



Figure 5. Proposed north and east elevations

Key Question

Staff has identified the following question for the Commission’s deliberation. Aspects of the proposal not listed below are addressed in the Findings (see Attachment 1) and generally require less analysis and discretion.

- A. Is the proposed project consistent with the objectives and policies for the Willamette Greenway (i.e. “...to protect, conserve, enhance, and maintain the natural, scenic...and recreational qualities of lands along the Willamette River...”)?**

With respect to the Willamette Greenway, the proposed development is consistent with the nature of existing development on the site and the neighborhood, which has little visibility from the river. The nearest corner of the lot of the proposed development is over 440 ft away from the Willamette River. The proposed development would be adjacent to Lava Dr and across the street height is a multi-story apartment development. The proposed building would be stepped, with a street-facing façade approximately 33 ft high; the facade to the rear of the building, adjacent to a single-story detached dwelling would

be approximately 22 ft high. Views to and from the river will not be affected by the proposed development due to the lack of viewshed existing for any dwellings adjacent to the property. Due to a multi-story multifamily condominium complex west of the site – Shoreside East Condominiums - the single-story residences in the area currently have no viewshed of the river (see Figure 2).



Figure 6. View looking west down Lava Dr

Just north of the site is a multi-unit building, Waverley Greens, that has limited views toward the river, which will not be further affected with the proposed development since the complex is sited at a higher elevation (see Figure 7). The site does not provide public access to the river (see Figure 1).



Figure 7. View from site north to Waverly Greens

The property directly to the east of the site is the MODA office building, which has pre-existing landscaping that limit the view from the building toward the river.

Therefore, the proposed development is consistent with the objectives and policies for the Willamette Greenway as established in both the Milwaukie Comprehensive Plan and Zoning Ordinance, MMC Subsection 19.401.6-see attachment 1, Recommended Findings in Support of Approval.

CONCLUSIONS

A. Staff recommendation to the Planning Commission:

1. Approve the Willamette Greenway conditional use application, development review application, and lot consolidation for the proposed development. This will result in a new multi-unit development within the Willamette Greenway Zone, replacing an existing home.
2. Adopt the attached Findings, Conditions of Approval, and Other Requirements.

CODE AUTHORITY AND DECISION-MAKING PROCESS

The proposal is subject to the following provisions of the Milwaukie Municipal Code (MMC).

- MMC 12: Streets, Sidewalks, and Public Places
- MMC 13: Public Services

- MMC 19.302: High Density Residential Zone (R-HD)
- MMC 19.401: Willamette Greenway
- MMC 19.504: Site Design
- MMC 19.505: Multi-unit Housing
- MMC 19.600: Parking
- MMC 19.700: Public Facility Improvements
- MMC 19.905: Conditional Uses
- MMC 19.1006 Type III Review

This application is subject to Type III review, which requires the Planning Commission to consider whether the applicant has demonstrated compliance with the code sections shown above. In Type III reviews, the Commission assesses the application against review criteria and development standards and evaluates testimony and evidence received at the public meeting.

The Commission has 4 decision-making options as follows:

- A. Approve the application subject to the recommended Findings.
- B. Approve the application with modified Findings and Conditions of Approval. Such modifications need to be read into the record.
- C. Deny the application upon finding that it does not meet approval criteria.
- D. Continue the hearing.

The final decision on these applications, which includes any appeals to the City Council, must be made by December 9, 2023, in accordance with the Oregon Revised Statutes and the Milwaukie Zoning Ordinance. The applicant can waive the time period in which the application must be decided.

COMMENTS

Notice of the proposed changes will be provided prior to the public hearing to the following agencies and persons: City of Milwaukie Engineering, Building, and Public Works Departments, Clackamas Fire District #1, Clackamas County Engineering Review, Metro, Oregon Department of Transportation, Oregon Department of Fish and Wildlife, Oregon Division of State Lands, Oregon Parks and Recreation, North Clackamas School District, and the Historic Milwaukie Neighborhood District Association (NDA). Notice was also sent to all properties within 300 ft of the site.

ATTACHMENTS

Attachments are provided as indicated by the checked boxes. All material is available for viewing upon request.

	Early PC Mailing	PC Packet	Public Copies	Packet
1. Recommended Findings in Support of Approval	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Recommended Conditions of Approval	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Recommended Other Requirements	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Applicant's Narrative and Supporting Documentation received August 11, 2023.				
a. Narrative	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
b. Site Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
c. Plan Set, including architectural plans	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
d. Geotechnical Report	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
e. Preliminary Stormwater Report	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
f. Arborist Report	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5. Comments Received	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Key:

Early PC Mailing = Materials provided to PC at the time of application referral.

PC Packet = Materials provided to PC 7 days prior to the hearing.

Public Copies = paper copies of the packet available for review at City facilities and at the PC meeting.

Packet = packet materials available online at <https://www.milwaukieoregon.gov/planning/planning-commission-90>.

ATTACHMENT 1
Findings in Support of Approval
Primary File #WG-2023-001, Lava Drive Multi-unit Development

Sections of the Milwaukie Municipal Code not addressed in these findings are found to be inapplicable to the decision on this application.

1. The applicant, Britany Randall of BRAND Land Use, representing Mark Madden, WDC Properties (owner), has applied for approval for a 13-unit multi-unit housing development on the site located at 1600 SE Lava Dr. The property is in the High Density Residential Zone (R-HD). The primary land use application file number is WG-2023-001.
2. The applicant seeks approval for the residential building and site improvements, including on-site parking for 11 vehicles, lot consolidation of the two tax lots, and Willamette Greenway Review for the development.
3. The proposal is subject to the following provisions of the Milwaukie Municipal Code (MMC):
 - MMC 12: Streets, Sidewalks, and Public Places
 - MMC 13: Public Services
 - MMC 19.302: High Density Residential Zone (R-HD)
 - MMC 19.401: Willamette Greenway
 - MMC 19.504: Site Design
 - MMC 19.505: Multi-unit Housing
 - MMC 19.600: Parking
 - MMC 19.700: Public Facility Improvements
 - MMC 19.905: Conditional Uses
 - MMC 19.1006 Type III Review
4. The application has been processed and public notice provided in accordance with MMC Section 19.1006 Type III Review. A public hearing was held on September 26, 2023 as required by law.
5. MMC Title 12 Streets, Sidewalks, and Public Places
 - a. MMC Chapter 12.08 – Street & Sidewalk Excavations, Construction, and Repair
 This will apply to all construction that is completed in the right of way including, but not limited to, all public utilities, accessways, and all pedestrian/bicycle facilities including those located within public sidewalk easements. The public improvement process will follow MMC 12.08.020.

A right-of-way permit is required for all frontage improvements, utility connections, accessway construction, sidewalk construction, and intersection realignment work.

As conditioned, this standard is met.

b. MMC Chapter 12.16.040 – Access Requirements and Standards

MMC 12.16.040 establishes standards for access (driveway) requirements.

(1) MMC 12.16.040.A – Access

MMC 12.16.040.A requires that all properties be provided street access with the use of an accessway.

For multi-unit residential properties of 5 or more units, accessways must be at least 100 ft from the nearest intersecting street face of curb. Accessway widths for multi-unit residential properties must be between 20 and 30-ft wide.

The proposed development includes a new 24-ft wide driveway approach over 100 ft from the nearest intersection.

As proposed, this standard is met.

c. MMC Chapter 12.24 – Clear Vision at Intersections

MMC 12.24 establishes standards to maintain clear vision areas at intersections to protect the safety and welfare of the public in their use of city streets.

The proposed driveway approaches must conform to the clear vision requirements.

As conditioned, this standard is met.

6. MMC Title 13 Public Services

a. MMC Chapter 13.32 Fee In Lieu Of Construction

MMC 13.32 allows the applicant to pay a fee rather than construction certain frontage improvements. The fee is calculated at a rate to be deemed proportional to the frontage improvements required.

Frontage improvements on Riverway Lane were deemed not feasible due to the inability to achieve proper design standards and to protect the health of the existing trees in the right-of-way.

The applicant is encouraged to pay FILOC rather than construct frontage improvements on Riverway Lane.

This standard is met.

7. MMC Title 17 Land Division

a. MMC Chapter 17.12 Application Procedure and Approval Criteria

(1) MMC Section 17.12.020 Application Procedure

MMC 17.12.020 requires that property line adjustments and lot consolidations be processed as described in Table 17.12.020. Property line adjustments that are consistent with the Oregon Revised Statutes (ORS) and Title 19 shall be processed through Type I review and any adjustment that modifies a plat

restriction shall be processed through Type II review. Lot consolidations other than replats, involving legal lots created by deed, shall be processed through Type I review.

The Planning Commission finds that the proposed lot consolidation is not a replat and involves legal lots established by deed and that the proposed boundary adjustment does not modify any known plat restriction. Therefore, the proposed lot consolidation and boundary adjustment could be processed with Type I review. As noted in Finding 4, the entire application submittal has been processed concurrently with Type III review.

(2) MMC Section 17.12.030 Approval Criteria for Lot Consolidation, Property Line Adjustment, and Replat

MMC 17.12.030 specifies the approval criteria for lot consolidations and property line adjustments.

(a) MMC Subsection 17.12.030.A.1 requires compliance with Title 17 Land Division Ordinance and Title 19 Zoning Ordinance.

As evidenced by these finding, the proposed lot consolidation meets all applicable standards of Titles 17 and 19.

(b) MMC Subsection 17.12.030.A.2 requires that the proposed change allow for reasonable development of the affected lots and not create the need for a variance of any land division or zoning standard.

The proposed lot consolidation would create a single tax lot for the proposed development. The resultant property is of adequate size for reasonable development without requiring a variance of any land division or zoning standard.

(c) MMC Subsection 17.12.030.A.3 requires that the proposed change not reduce the residential density below the minimum density requirements of the zoning district.

The subject property is not currently developed for residential use. The proposed lot consolidation would create a single vacant lot for the proposed residential development.

The Planning Commission finds that these criteria are met.

The Planning Commission finds that the proposed lot consolidation meets all applicable standards of MMC 17.12.

b. MMC Chapter 17.16 Application Requirements and Approval Criteria

MMC 17.16 establishes the submittal requirements for boundary changes and land division. For property line adjustments and lot consolidations, MMC Section 17.16.040 requires a completed application form, application fee, narrative report addressing approval criteria, scaled plan showing sufficient details of the subject properties, and deeds of the properties involved.

The applicant's submittal materials include the necessary forms and fees, a narrative that addresses all applicable approval criteria, the deed for the subject property, and a site plan that shows the proposed consolidation.

The Planning Commission finds that no additional information is required and that the proposed lot consolidation and boundary adjustment meet all applicable standards of MMC 17.16.

c. MMC Chapter 17.28 Design Standards

MMC 17.28 establishes design standards for land division and easements. In particular, MMC Section 17.28.040 establishes general design standards for lots, including standards for size, shape, compound lot line segments, and frontage.

- (1) MMC 17.28.030.A establishes that easements for sewers, water mains, electric lines, or other public utilities shall be dedicated wherever necessary.

A condition has been established that requires the formalization of a 10-ft wide Public Utility Easement along both frontages.

As conditioned, this standard is met.

- (2) MMC 17.28.040.A requires that the lot size, width, shape, and orientation shall be appropriate for the location and the type of use contemplated. Minimum lot standards shall conform to Title 19.

As a result of the proposed lot consolidation, the resulting property would have adequate size and dimensions for development and uses allowed in the underlying R-HD zone and conform to the standards of Title 19 as described in these findings.

- (3) MMC 17.28.040.B requires that lot shape shall be rectilinear, except where not practicable due to location along a street radius, or existing lot shape. The sidelines of lots, as far as practicable, shall run at right angles to the street upon which the lots face. As far as practicable, the rear lot line shall run parallel to the street.

As proposed, the lot consolidation results in a single rectilinear-shaped property at the corner of Lava Drive and Riverway Lane.

- (4) MMC 17.28.040.C discourages cumulative lateral changes in direction of a side or rear lot line exceeding 10% of the distance between opposing lot corners along a given lot line. Changes in direction shall be measured from a straight line drawn between opposing lot corners.

The proposed lot consolidation would not result in any property lines with lateral changes in direction.

- (5) MMC 17.28.040.D provides that lot shape standards may be adjusted subject to Section 19.911 Variances.

No adjustments to lot shape standards are requested or required.

- (6) MMC 17.28.040.E limits double and reversed frontage lots except where essential to provide separations of residential development from railroads, traffic arteries, or adjacent nonresidential uses, or to overcome specific disadvantages of topography and orientation.

The existing subject property has public street frontage on two sides (Lava Drive and Riverway Lane). The proposed lot consolidation would not change the multiple frontage status.

- (7) MMC 17.28.040.F requires that required frontage be measured along the street upon which the lot takes access.

The newly consolidated vacant lot would continue to have access from Lava Drive where it has more than 220 ft of frontage.

The Planning Commission finds that the proposed lot consolidation complies with all applicable design standards of MMC 17.28.

The Planning Commission finds that the proposed lot consolidation meets all applicable standards of MMC Title 17. As conditioned, this standard is met.

8. MMC 19.302 High Density Residential Zone (R-HD)

- a. As stated in MMC 19.302.1, the high density residential zone is intended to create and maintain higher density residential neighborhoods that blend a range of housing types with a limited mix of neighborhood-scale commercial, office, and institutional uses.

The proposed development is a multi-unit residential building with 13 dwelling units. This is an outright permitted use under MMC 19.302.2.

- b. Table 19.302.4 establishes standards for development in the R-HD zone.

Table 19.302.4 Residential Zone R-HD Development Standards			
Standard	Required	Proposed	Staff Comment
Minimum lot size	7,000 sq ft	17,990 sq ft	Complies with standard.
Building Height	45 ft max.	32.66 ft	Complies with standard.
Setbacks			Complies with standard.
Front yard	20 ft	20'-1"	
Rear yard	15 ft	15 ft	
Street side yard	15 ft	20 ft	
Site yard	5 ft	5 ft	
Maximum lot coverage	50%	28%	Complies with standard.
Minimum site vegetation	15%	30%	Complies with standard.

Vegetation area suitable for outdoor recreation	50% of required vegetation = 1,350 sq ft	1,897 sq ft of lawn, including benches	Complies with standard.
Minimum front yard vegetation	40%	43%	Complies with standard.
Density requirements	Min. 25 units/ac = 10 units Max. 32 units/ac = 13 units	13 units	Complies with standard.

The Planning Commission finds that the applicable development standards are met.

9. MMC 19.400 Overlay Zones and Special Areas

a. MMC 19.401 Willamette Greenway Overlay Zone

MMC 19.401 establishes criteria for reviewing and approving development in the Willamette Greenway.

(1) MMC Subsection 19.401.5 Procedures

MMC 19.401.5 establishes procedures related to proposed uses and activities in the Willamette Greenway zone. Development in the Willamette Greenway zone requires conditional use review, subject to the standards of MMC Section 19.905 and in accordance with the approval criteria established in MMC Subsection 19.401.6.

The construction of a new residential building and site improvements constitutes “development” as defined in MMC Subsection 19.401.4 and is subject to the conditional use review standards of MMC 19.905 and the approval criteria of MMC 19.401.6.

(2) MMC Subsection 19.401.6 Criteria

MMC 19.401.6 establishes the criteria for approving conditional uses in the Willamette Greenway zone.

(a) Whether the land to be developed has been committed to an urban use, as defined under the State Willamette River Greenway Plan

The State Willamette River Greenway Plan defines “lands committed to urban use” in part as “those lands upon which the economic, developmental and locational factors have, when considered together, made the use of the property for other than urban purposes inappropriate.”

An urban use is described in the Willamette River Greenway Plan as a use that is part of the built environment, as opposed to uses along a river that are natural, rural, or agricultural in nature. The project area is zoned R-HD and is part of a larger developed area that includes multi-unit and single detached housing and an office building. The area is committed to urban use.

- (b) Compatibility with the scenic, natural, historic, economic, and recreational character of the river

The development site is more than 400 feet from the riverbank at its closest point. Additionally, carports, mature vegetation, multi-story apartment buildings, single detached dwellings, and accessory structures exist between the development site and the river. The proposed building does not include a peaked roof, emulating a more historic nature. The rear of the proposed building is planned to be terraced and the site is planned to be heavily landscaped further softening the structure of the new building and enhancing the natural environment above and beyond what exists on the site today. This criterion is met.

- (c) Protection of views both toward and away from the river

The subject property is located northeast of the riverbank and more than 400 feet away. Within the immediate area of the development site, large stands of mature evergreen trees line the north side of Lava Drive. Additionally, the natural topography of property north and east of the subject property slopes upward steeply with approximately 25 feet of elevation changes leaving the subject property to sit well below adjacent sites having minimal impacts on views toward the river. Proposed landscaping on site will soften the building, enhancing the natural environment and protect views uphill, away from the river. The scale of the building is such that it will be dwarfed by the existing developments and mature vegetation within the immediate area. The terracing of the building also reduces mass, further protecting views both toward and away from the river. This criterion is met.

- (d) Landscaping, aesthetic enhancement, open space, and vegetation between the activity and the river, to the maximum extent practicable

The subject property is more than 400 feet from the riverbank. A landscape plan providing more landscaping than the MMC requires is included with the submittal materials. The locations of trees and shrubs on site provides buffering and screening from the new development to developments immediately south and east of the site. The off-street parking area is proposed between the building and the river. The enhanced pedestrian connections both internally and along the public right-of-way will enhance the activity between the site and the river as there is no public sidewalk along the street frontage today. This criterion is met.

- (e) Public access to and along the river, to the greatest possible degree, by appropriate legal means

The subject property is more than 400 ft from the river and does not have any direct access. However, the development includes a new public sidewalk along the

site frontage, improving pedestrian access in the neighborhood. This criterion is met.

- (f) Emphasis on water-oriented and recreational uses

The subject property is more than 400 feet from the river. This criterion does not apply.

- (g) Maintain or increase views between the Willamette River and downtown

The subject property is not between downtown and the river. This criterion does not apply.

- (h) Protection of the natural environment according to regulations in Section 19.402

The subject property does not contain any mapped natural resource areas. This criterion does not apply.

- (i) Advice and recommendations of the Design and Landmarks Committee, as appropriate

Per MMC 19.907.8, the proposed development does not require Type III downtown design review and does not trigger review by the Design and Landmarks Committee.

- (j) Conformance to applicable Comprehensive Plan policies

The Willamette Greenway Element in the Milwaukie Comprehensive Plan includes policies related to land use, public access and view protection, and maintenance of private property. These policies include the requirement of a conditional use permit for new development and intensification of existing uses, evaluation of development impacts to visual corridors, and limitations on authorizing the unrestricted public use of private land.

The Natural Hazards Element includes policies that prohibit development in known areas of natural disasters and hazards without appropriate safeguards. The Open Spaces, Scenic Areas, and Natural Resources Element includes policies to conserve open space and protect and enhance natural and scenic resources.

The proposed development is being reviewed through the Willamette Greenway conditional use process as provided in MMC Subsection 19.401.5. The proposed development is for a 13-unit multi-dwelling residential building. The use of the site is consistent with the Housing and Residential Needs Assessment and supports the goals and policies of the city's Comprehensive Plan. The site is more than 400 feet from the top of bank and the compatibility review area of the river is 125 feet inland from the ordinary low water line. The site is designated as appropriate for urban use. The Willamette River Greenway Plan defines urban use as a use part of the built environment rather than uses along a river

which are natural, rural, or agricultural in nature. The subject property falls within the High Density Residential zone. The Milwaukie Municipal Code asserts the purpose of the R-HD zone is to create and maintain higher density residential neighborhoods that blend a range of housing types with a limited mix of neighborhood-scale commercial, office, and institutional uses. The subject property was previously developed with a single detached dwelling. The development directly supports the City of Milwaukie's Comprehensive Plan goals and policies related to housing, specifically livability. The site will be redeveloped with denser housing which is balanced by the enhanced landscape and pedestrian amenities. Pedestrian connections will help to improve the connectivity of the area between the river and development to the east. The site does not currently have public sidewalks. This project will include a new sidewalk along the property's entire frontage of Lava Drive. This criterion is met.

- (k) The request is consistent with applicable plans and programs of the Division of State Lands

The proposed activity is not inconsistent with any known plans or programs of the Department of State Lands (DSL). The proposed project does not involve work below the ordinary high water (OHW) level of the Willamette River or within adjacent wetlands subject to Oregon Department of State Lands (DSL) permitting requirements under the Oregon Removal-Fill Law or state-owned aquatic lands leasing/registration programs.

- (l) A vegetation buffer plan meeting the conditions of Subsections 19.401.8.A through C

The subject property does not contain any mapped natural resource areas and is not adjacent to the river. In accordance with 19.401.8.A, the vegetation buffer is defined as the land area between the river and a location 25 feet upland from the ordinary high water line. The edge of the development site to approximately the top of bank of the river is more than 400-feet. The proposed development will have no impact on the vegetative buffer as defined. This criterion does not apply.

The Planning Commission finds that, as conditioned, the proposed activity meets all relevant approval criteria provided in MMC 19.401.6.

The Planning Commission finds that the proposed activity meets all applicable standards of development activity in the Willamette Greenway zone.

10. MMC Chapter 19.500 Supplementary Development Regulations
a. MMC Subsection 19.505.3 Multi-Unit Housing

MMC 19.505.3 establishes design standards for multi-unit housing, to facilitate the development of attractive housing that encourages multimodal transportation and good site and building design. The requirements of this subsection are intended to achieve the principles of livability, compatibility, safety and functionality, and sustainability. The design elements, established in MMC Subsection 19.505.3.D, are applicable to all new multi-unit housing developments with 3 or more units.

- (1) MMC Subsection 19.505.3.B states that all new multi-unit and congregate housing developments with 3 or more dwelling units on a single lot are subject to the design elements in Table 19.505.3.D.

The proposed development will have 13 dwelling units on a single lot and is considered multi-unit. The proposed development meets the applicability standards of MMC 19.505.3.B.

- (2) MMC Subsection 19.505.3.D contain standards for Multi-unit Design Guidelines.

The proposed multi-unit development is following the Design Guidelines for the Discretionary Process. The application meets the standards of this section as described in Table 19.505.3.D below.

Table 19.505.3.D Design Guidelines—Multi-unit Housing		
Design Element	Guideline	Findings
1. Private Open Space	The development should provide private open space for each dwelling unit, with direct access from the dwelling unit and visually and/or physically separate from common areas. The development may provide common open space in lieu of private open space if the common open space is well designed, adequately sized, and functionally similar to private open space.	<i>The ground floor units are proposed to have access directly to private open space which will be at grade. A portion of the ground floor open space will be a paved patio area, suitable for small outdoor furniture. The ground floor private open space will extend beyond the patios and is defined by the retaining wall along the south side of the building and proposed plantings. The second and third floor units will have access to private balconies. The balconies are screened for privacy by the proposed placement of new trees on site. The applicant is proposing both private and public open spaces on site. This criterion is met.</i>

Table 19.505.3.D Design Guidelines—Multi-unit Housing		
Design Element	Guideline	Findings
2. Public Open Space	The development should provide sufficient open space for the purpose of outdoor recreation, scenic amenity, or shared outdoor space for people to gather.	The site design includes several pockets of outdoor public open space. Along the east side of the building, the applicant proposes to provide a picnic table and lawn area which would be usable for outdoor gathering or a small recreation space. This criterion is met.
3. Pedestrian Circulation	Site design should promote safe, direct, and usable pedestrian facilities and connections throughout the development. Ground-floor units should provide a clear transition from the public realm to the private dwellings.	As designed, a connected system of walkways would provide safe and convenient access through the site. The development includes frontage improvements to Lava Drive including a new public sidewalk along the development site. The new sidewalk will connect to onsite pedestrian paths and help to better connect individuals headed to the river from the east. To provide a clear transition from the public space to the private ground floor dwellings, the building articulates in a manner which creates "private" corridors, defining the entrances to dwelling units. This criterion is met.

<p align="center">Table 19.505.3.D Design Guidelines—Multi-unit Housing</p>		
<p>Design Element</p>	<p>Guideline</p>	<p>Findings</p>
<p>4. Vehicle and Bicycle Parking</p>	<p>Vehicle parking should be integrated into the site in a manner that does not detract from the design of the building, the street frontage, or the site. Bicycle parking should be secure, sheltered, and conveniently located.</p>	<p><i>Vehicle parking is provided on the west side of the site. Providing the parking in this location was intentional as it abuts a vehicle use/parking area for the development abutting to the west which enhances the compatibility of the development with surrounding uses. The proposed parking area has just one driveway for ingress in egress. By providing only one driveway to the street, the impact on the pedestrian spaces is less, reducing the likelihood of conflicts between pedestrians, bicycles, and vehicles. The landscaping is proposed in a manner that will buffer and soften the vehicle parking area, as shown on the landscaping plan. The applicant is proposing to provide private bicycle parking for each dwelling unit within the unit itself. Each unit will be equipped with a wall mounted bicycle rack. The racks being provided in this manner ensure bicycle security and eliminate the requirement of residents leaving their bicycles elsewhere on the premises.</i></p> <p><i>As conditioned, this criterion is met.</i></p>
<p>5. Building Orientation and Entrances</p>	<p>Buildings should be located with the principal façade oriented to the street or a street-facing open space such as a courtyard. Building entrances should be well-defined and protect people from the elements.</p>	<p><i>As shown on the site plan, the building facade is oriented toward Lava Drive and spans approximately two-thirds of the frontage. The pedestrian walkways connect the unit entrances from the building out to the street. The proposal includes a courtyard-like design with the presence of landscaping and a pedestrian network. The building entrances are defined through articulation, materials, landscaping, and pedestrian paths. The entrances are recessed providing shelter from the elements.</i></p> <p><i>This criterion is met.</i></p>

Table 19.505.3.D		
Design Guidelines—Multi-unit Housing		
Design Element	Guideline	Findings
6. Building Façade Design	<p>Changes in wall planes, layering, horizontal & vertical datums, building materials, color, and/or fenestration should be incorporated to create simple and visually interesting buildings</p> <p>Windows and doors should be designed to create depth and shadows and to emphasize wall thickness and give expression to residential buildings.</p> <p>Windows should be used to provide articulation to the façade and visibility into the street.</p> <p>Building facades should be compatible with adjacent building facades.</p> <p>Garage doors shall be integrated into the design of the larger façade in terms of color, scale, materials, and building style.</p>	<p><i>As described by the applicant, the building façade and design took into consideration the historic neighborhood and immediately surrounding resources and developments. The flat roof is complimentary of buildings in the vicinity and aids in retaining the views from the east and north toward the river. The front elevation of the building, facing Lava Drive, is articulated with windows, doors, recessed areas, trim, and change in materials. The combination of these design elements enhances the pedestrian scale of the building. The landscaping plans show plant placement that further accentuates the building and define entrances. The building is terraced along the south side matching the scale of adjacent development and setting the third story further from the single detached dwellings to the south.</i></p> <p><i>This criterion is met.</i></p>
7. Building Materials	<p>Buildings should be constructed with architectural materials that provide a sense of permanence and high quality, incorporating a hierarchy of building materials that are durable.</p> <p>Street-facing facades should consist predominantly of a simple palette of long-lasting materials such as brick, stone, stucco, wood siding, and wood shingles.</p> <p>Split-faced block and gypsum reinforced fiber concrete (for trim elements) should only be used in limited quantities.</p> <p>Fencing should be durable, maintainable, and attractive.</p>	<p><i>The building is proposed to be clad with a combination of contemporary, long-lasting fiber cement panels at the ground level, and horizontal lap wood siding on the upper stories. The larger panels at the ground floor will create a sense of a sturdy, human-scale base, separated from the higher floors with a wide horizontal trim band.</i></p> <p><i>This criterion is met.</i></p>

**Table 19.505.3.D
 Design Guidelines—Multi-unit Housing**

Design Element	Guideline	Findings
<p>8. Landscaping</p>	<p>Landscaping should be used to provide a canopy for open spaces and courtyards, and to buffer the development from adjacent properties. Existing, healthy trees should be preserved whenever possible. Landscape strategies that conserve water should be included. Hardscapes should be shaded where possible, as a means of reducing energy costs (heat island effect) and improving stormwater management.</p>	<p><i>As noted elsewhere in these Findings, approximately 30% of the site is proposed to be landscaped and a preliminary landscaping plan was submitted. Additionally, the applicant has retained an arborist to evaluate the proposed tree canopy which will demonstrate compliance with all requirements. The landscaping plan demonstrates the proposed development is providing more landscape than the MMC requires.</i></p> <p><i>The locations of trees and shrubs on site is very intentional and done in a manner to provide buffering and screening from the new development to developments immediately south and east of the site. The off-street parking area is proposed between the building and the river; however, the development site is more than 400-feet from the riverbank. The enhanced pedestrian connections both internally and along the public right-of-way will enhance the activity between the site and the river as there is no public sidewalk along the street frontage today. Though the three existing trees on site are not proposed for preservation due to on site, frontage, and utility improvements, the applicant is proposing a landscape design with a mix of evergreen and conifer trees. The landscape design provides shade during the summer months and sunlight during winter months to bolster energy conservation. The mature canopy of proposed trees will help improve air quality and reduce the urban heat island effect. The site includes usable recreational space, encouraging residents to utilize the outdoor common spaces.</i></p> <p><i>This criterion is met.</i></p>

Table 19.505.3.D Design Guidelines—Multi-unit Housing		
Design Element	Guideline	Findings
9. Screening	Mechanical equipment, garbage collection areas, and other site equipment and utilities should be screened so they are not visible from the street and public or private open spaces. Screening should be visually compatible with other architectural elements in the development.	<i>The placement of equipment and enclosure areas was considered in relation to the street and public right-of-way. The recycling and trash enclosure area will be screened utilizing materials and colors similar to the building. The landscape proposed will provide additional screening and buffering of vehicle use areas and equipment. This criterion is met.</i>
10. Recycling Areas	Recycling areas should be appropriately sized to accommodate the amount of recyclable materials generated by residents. Areas should be located such that they provide convenient access for residents and for waste/recycling haulers. Recycling areas located outdoors should be appropriately screened or located so they are not prominent features viewed from the street.	<i>The recycling area will be sized appropriately to encourage residents to follow best practices and reduce garbage headed to the landfill. The recycling and trash enclosure area will be screened utilizing materials and colors similar to the building. The landscape proposed will provide additional screening and buffering to the enclosure area. The location of the enclosure is within a relatively close proximity to the dwelling units providing convenient access to residents. A complete pedestrian path will connect from the building to the recycling area which will be free from obstructions and elevated from vehicle use areas. This criterion is met.</i>

<p align="center">Table 19.505.3.D Design Guidelines—Multi-unit Housing</p>		
Design Element	Guideline	Findings
<p>11. Sustainability</p>	<p>Development should optimize energy efficiency by designing for building orientation for passive heat gain, shading, day-lighting, and natural ventilation. Sustainable materials, particularly those with recycled content, should be used whenever possible. Sustainable architectural elements should be incorporated to increase occupant health and maximize a building's positive impact on the environment. When appropriate to the context, buildings should be placed on the site giving consideration to optimum solar orientation. Methods for providing summer shading for south-facing walls, and the implementation of photovoltaic systems on the south-facing area of the roof, are to be considered.</p>	<p><i>As stated in the application narrative, the applicant believes incorporating sustainable design and building practices is crucial for creating resilient communities. Though the three existing trees on site are not proposed for preservation due to on site, frontage, and utility improvements, the applicant is proposing a landscape design with a mix of evergreen and conifer trees. The landscape design provides shade during the summer months and sunlight during winter months to bolster energy conservation. The mature canopy of proposed trees will help improve air quality and reduce the urban heat island effect. The site includes usable recreational space, encouraging residents to utilize the outdoor common spaces. The applicant is committed to utilizing environmentally conscious construction practices focused on minimizing the carbon footprint and waste generation during construction. The recycling area will be sized appropriately to encourage residents to follow best practices and reduce garbage headed to the landfill. The design includes a robust pedestrian network and bicycle parking, encouraging alternate modes of transportation. The building is oriented in a manner that provides a long span facing south allowing for optimal solar placement should solar be utilized in the future on the building.</i></p> <p><i>This criterion is met.</i></p>

Table 19.505.3.D Design Guidelines—Multi-unit Housing		
Design Element	Guideline	Findings
12. Privacy Considerations	Development should consider the privacy of, and sight lines to, adjacent residential properties, and should be oriented and/or screened to maximize the privacy of surrounding residences.	<i>Topography, building orientation, and window placement provide screening to properties adjacent to the north, west, and east of this site. The applicant elected to be more mindful and considerate to existing single detached residential development abutting to the south. To maximize privacy from the development site to the south, the applicant placed windows in a manner which are offset from the windows of the abutting home. Trees have been placed in front of windows providing further screening and the building is terraced in a manner that offsets the third story from the southern property line.</i> This criterion is met.
13. Safety	Development should be designed to maximize visual surveillance, create defensible spaces, and define access to and from the site. Lighting should be provided that is adequate for safety and surveillance, while not imposing lighting impacts to nearby properties. The site should be generally consistent with the principles of Crime Prevention Through Environmental Design (CPTED): <ul style="list-style-type: none"> • Natural Surveillance • Natural Access Control • Territorial Reinforcement 	<i>Site safety and security within the proposed design of the site has been considered. The common open space has been designed to encourage residents to gather, have social interactions, and create a sense of ownership. The common areas will be well maintained. Well maintained and activated spaces promote surveillance and prevent crime. The site will be well lit along pedestrian paths and parking areas enhancing safety of these spaces and discouraging vehicle related crimes. The site will be maintained in good order through regular maintenance preventing the appearance of neglect or disrepair which could attract nefarious activity. Visual surveillance is possible to all common areas from the building on all sides. The implementation of these items enhances site safety and security and the overall quality of living for residents.</i> This criterion is met.

The Planning Commission finds that the discretionary multi-unit design guidelines have been met.

11. MMC Chapter 19.600 Off-Street Parking and Loading

MMC 19.600 regulates off-street parking and loading areas on private property outside the public right-of-way. The purpose of these requirements includes providing adequate space for off-street parking, minimizing parking impacts to adjacent properties, and minimizing environmental impacts of parking areas.

a. MMC Section 19.602 Applicability

MMC 19.602 establishes the applicability of the provisions of MMC 19.600, and MMC Subsection 19.602.3 establishes thresholds for full compliance with the standards of MMC 19.600. Development of a vacant site is required to provide off-street parking and loading areas that conform fully to the requirements of MMC 19.600.

Per Oregon Administrative Rules (OAR) 660-012-0012 and 660-12-0440, which relate to Climate-Friendly and Equitable Communities (CFEC) rulemaking, the City is prohibited from mandating minimum off-street vehicular parking quantity requirements because of the subject property's proximity to a TriMet bus stop. However, all other provisions of MMC 19.600 may still apply.

The applicant is proposing to develop the subject property, which is currently vacant, as a 13-unit multi-unit residential development and a parking area. Although the CFEC-related limitations noted above prevent the implementation of minimum off-street vehicular parking quantity requirements, the Planning Commission finds that the proposal constitutes the development of a vacant site and that compliance with the other applicable sections of MMC 19.600 is required.

The Planning Commission finds that the provisions of MMC 19.600 are applicable to the proposed development.

b. MMC Section 19.605 Vehicle Parking Quantity Requirements

- (1) MMC 19.605 establishes standards to ensure that development provides adequate vehicle parking (off-street) based on estimated parking demand. As per the CFEC-related limitations noted above, the City is prohibited from mandating minimum off-street vehicular parking quantity requirements because of the subject property's proximity to frequent transit provided by TriMet. However, maximum off-street vehicular parking limitations still apply. Additionally, off-street vehicular parking minimums are used to determine the required quantity of off-street bicycle parking per MMC Section 19.609 and for that reason are addressed below.

The proposed multi-unit development includes 13 dwelling units. As per MMC Table 19.605.1, the maximum number of spaces is 2 spaces per unit. As proposed, the development would provide 11 surface parking spaces.

The Planning Commission finds that this standard is met.

- (2) MMC Subsection 19.605.5 establishes standards related to electric vehicle (EV) charging requirements.
 - (a) MMC Subsection 19.605.5.B Multi-Unit and Mixed-Use Residential Parking
For buildings with 5 or more dwelling units where off-street parking spaces are provided, choose one of the following:

1. All (100%) of the parking spaces provided must include electrical conduit adjacent to the spaces that will allow for the installation of at least a Level 2 EV charger; or
2. At least 40% of parking spaces provided must include electrical conduit adjacent to the spaces that will allow for the installation of at least a Level 2 EV charger. At least 10% of parking spaces provided must include an installed Level 2 or Level 3 EV charger. Parking spaces with installed chargers count toward the 40% minimum requirement.

At the time of building permit submittal, the applicant will provide an electrical plan demonstrating compliance with one of the options identified above.

As conditioned, the Planning Commission finds that this standard is met.

c. MMC Section 19.606 Parking Area Design and Landscaping

MMC 19.606 establishes standards for parking area design and landscaping, to ensure that off-street parking areas are safe, environmentally sound, and aesthetically pleasing, and that they have efficient circulation.

(1) MMC Subsection 19.606.1 Parking Space and Aisle Dimension

MMC 19.606.1 establishes dimensional standards for required off-street parking spaces and drive aisles. For 90°-angle spaces, the minimum width is 9 ft and minimum depth is 18 ft, with a 9-ft minimum curb length and 22-ft drive aisles. Parallel spaces require with 22-ft lengths and a width of 8.5 ft.

The applicant has submitted a parking plan that satisfies these dimensional standards.

(2) MMC Subsection 19.606.2 Landscaping

MMC 19.606.2 establishes standards for parking lot landscaping, including for perimeter and interior areas. The purpose of these landscaping standards is to provide buffering between parking areas and adjacent properties, break up large expanses of paved area, help delineate between parking spaces and drive aisles, and provide environmental benefits such as stormwater management, carbon dioxide absorption, and a reduction of the urban heat island effect.

(a) MMC Subsection 19.606.2.C Perimeter Landscaping

In all but the downtown zones, perimeter landscaping areas must be at least 6 ft wide where abutting other properties and at least 8 ft wide where abutting the public right-of-way. At least 1 tree must be planted for every 30 lineal ft of landscaped buffer area, with the remainder of the buffer planted with grass, shrubs, ground cover, mulch, or other landscaped treatment. Parking areas adjacent to residential uses must provide a continuous visual screen from 1 to 4 ft above the ground to adequately screen vehicle lights.

The proposed parking area abuts the parking area for the adjacent development to the west. To provide parking spaces and meet minimum development standards for the proposed building, the applicant proposes a perimeter landscaped area of 5.5 ft rather than the required 6 ft. The perimeter is proposed to be fully landscaped with both shrubs and trees as required. The remaining perimeter areas meet the minimum width of 6 ft.

MMC 19.606.2.C.1 allows the Planning Manager to reduce the required width of a perimeter landscaping area. The Planning Commission finds that it is reasonable to reduce the western perimeter area by six inches. This standard is met.

(b) MMC Subsection 19.606.2.D Interior Landscaping

At least 25 sq ft of interior landscaped area are required for each parking space. Planting areas must be at least 120 sq ft in area, at least 6 ft in width, and dispersed throughout the parking area. For landscape islands, at least 1 tree shall be planted per island, with the remainder of the buffer planted with grass, shrubs, ground cover, mulch, or other landscaped treatment.

The proposed development includes 11 surface parking spaces, for which a minimum of 275 sq ft of interior landscaping is required. As proposed, the site plan provides approximately 314 sq ft of interior landscaping. These areas are the planted areas adjacent to the proposed public sidewalk, surrounding the trash enclosure, and the stormwater planting area.

This standard is met.

(c) MMC Subsection 19.606.2.E Other Parking and Landscaping Provisions

Preservation of existing trees in off-street parking areas is encouraged and may be credited toward the total number of trees required. Parking area landscaping must be installed prior to final inspection, unless a performance bond is posted with the City. Required landscaping areas may serve as stormwater management facilities, and pedestrian walkways are allowed within landscape buffers if the buffer is at least 2 ft wider than required by MMC 19.606.2.C and 19.606.2.D.

The proposed landscaping plan plans submitted include the required shade trees for the parking area.

This standard is met.

As conditioned, the Planning Commission finds that the applicable standards of MMC 19.606.2 are met.

(3) MMC Subsection 19.606.3 Additional Design Standards

MMC 19.606.3 establishes various design standards, including requirements related to paving and striping, wheel stops, pedestrian access, internal circulation, and lighting.

(a) MMC Subsection 19.606.3.A Paving and Striping

Paving and striping are required for all required maneuvering and standing areas, with a durable and dust-free hard surface and striping to delineate spaces and directional markings for driveways and accessways.

The plans submitted indicate that all parking areas will be paved and striped as required.

This standard is met.

(b) MMC Subsection 19.606.3.B Wheel Stops

Parking bumpers or wheel stops are required to prevent vehicles from encroaching onto public rights-of-way, adjacent landscaped areas, or pedestrian walkways. Curbing may substitute for wheel stops if vehicles will not encroach into the minimum required width for landscape or pedestrian areas.

The applicant's narrative indicates that extended curbs will be utilized to protect pedestrian and landscaped areas from vehicle overhang.

This standard is met.

(c) MMC Subsection 19.606.3.C Site Access and Drive Aisles

Accessways to parking areas shall be the minimum number necessary to provide access without inhibiting safe circulation on the street. Drive aisles shall meet the dimensional requirements of MMC 19.606.1, including a 22-ft minimum width for drive aisles serving 90°-angle stalls and a 16-ft minimum width for drive aisles not abutting a parking space. Along collector and arterial streets, no parking space shall be located such that its maneuvering area is in an ingress or egress aisle within 20 ft of the back of the sidewalk. Driveways and on-site circulation shall be designed so that vehicles enter the right-of-way in a forward motion.

The development proposes one point of vehicle access onto the site. This preserves on street parking and reduced the opportunities for vehicular and pedestrian conflicts along the sidewalk, promoting alternate modes of transportation. The proposed driveway location was placed in consideration with the provisions of MMC Subsection 12.16. The drive aisle meets the minimum width standard for two-way traffic through the parking area. In no case will any vehicle be forced to back out into a street. There is enough room behind all parking stalls which would allow vehicles to enter and exit the street in a forward motion.

This standard is met.

(d) MMC Subsection 19.606.3.D Pedestrian Access and Circulation

Pedestrian access shall be provided so that no off-street parking space is farther than 100 ft away, measured along vehicle drive aisles, from a building entrance or a walkway that is continuous, leads to a building entrance, and meets the design standards of MMC Subsection 19.504.9.E.

As proposed, the off-street parking area is relatively small. As demonstrated, there is a wide drive aisle proposed to be double loaded with vehicle parking on each side. In no case will any parking stall exceed the distance requirement to the onsite pedestrian walkways. The walkways are continuous, free of any obstructions, no less than 5 feet in width, and will lead pedestrians to the building entrances, common open spaces, and public sidewalk.

This standard is met.

(e) MMC Subsection 19.606.3.E Internal Circulation

The Planning Director has the authority to review the pedestrian, bicycle, and vehicular circulation of the site and impose conditions to ensure safe and efficient on-site circulation. Such conditions may include, but are not limited to, on-site signage, pavement markings, addition or modification of curbs, and modification of drive aisle dimensions.

The Planning Commission has reviewed the proposed circulation plan and concluded that it provides safe and efficient on-site circulation.

This standard is met.

(f) MMC Subsection 19.606.3.F Lighting

Lighting is required for parking areas with more than 10 spaces and must have a cutoff angle of 90° or greater to ensure that lighting is directed toward the parking surface. Lighting shall not cause a light trespass of more than 0.5 footcandles measured vertically at the boundaries of the site and shall provide a minimum illumination of 0.5 footcandles for pedestrian walkways in off-street parking areas.

The applicant will submit a lighting plan at the time of permit review. A condition requiring a photometric plan showing compliance to be submitted during permit review has been included.

As conditioned, this standard is met.

As conditioned, the Planning Commission finds that the applicable standards of MMC 19.606.3 are met.

As conditioned, the Planning Commission finds that the applicable design and landscaping standards of MMC 19.606 are met.

d. MMC Section 19.608 Loading

MMC 19.608 establishes standards for off-street loading areas and empowers the Planning Director to determine whether loading spaces are required. The purpose of off-street loading areas is to contain loading activity of goods on-site and avoid conflicts with travel in the public right-of-way; provide for safe and efficient traffic circulation on the site; and minimize the impacts of loading areas to surrounding properties. For residential development with fewer than 50 dwelling units on a site that abuts a local street, no loading space is required; otherwise, 1 space is required.

The proposed multi-unit development includes 13 units in 1 building.

The Planning Commission finds that this standard is not applicable and that no loading spaces are required.

e. MMC Section 19.609 Bicycle Parking

MMC 19.609 establishes standards for bicycle parking for new development of various uses. Multi-unit residential development with 4 or more units shall provide 1 space per unit. When at least 10 bicycle spaces are required, a minimum of 50% of the spaces shall be covered and/or enclosed. MMC Subsection 19.609.3.A provides that each bicycle parking space shall have minimum dimensions of 2 ft by 6 ft, with 5-ft-wide aisles for maneuvering. MMC Subsection 19.609.4 requires bike racks to be located within 50 ft of a main building entrance.

The proposed multi-unit development has 13 units, which equals a minimum of 13 bicycle spaces required, all of which must be covered and/or enclosed. The application materials indicate that wall-mounted bicycle racks will be provided within each dwelling unit. The submitted plans do not include details of the bike rack dimensions, so a condition has been established to require more detailed information sufficient to determine that the applicable standards are met.

As conditioned, the Planning Commission finds that this standard is met.

f. MMC Section 19.610 Carpool and Vanpool Parking

MMC 19.610 establishes carpool parking standards for new industrial, institutional, and commercial development. The number of carpool/vanpool parking spaces shall be at least 10% of the minimum amount of required parking spaces. Carpool/vanpool spaces shall be located closer to the main entrances of the building than other employee or student parking, except ADA spaces and shall be clearly designated with signs or pavement markings for use only by carpools/vanpools.

The proposed development is a multi-unit development.

This standard does not apply.

As conditioned, the Planning Commission finds that the proposed development meets all applicable standards of MMC 19.600.

12. MMC Chapter 19.700 Public Facility Improvements

MMC 19.700 is intended to ensure that development, including redevelopment, provides public facilities that are safe, convenient, and adequate in rough proportion to their public facility impacts.

a. MMC Section 19.702 Applicability

MMC 19.702 establishes the applicability of the provisions of MMC 19.700, including new construction.

The applicant proposes to develop a multi-unit residential community on a lot with an existing single-unit residential building. The proposed new construction and intensification of use triggers the requirements of MMC 19.700.

b. MMC Section 19.703 Review Process

MMC 19.703 establishes the review process for development that is subject to MMC 19.700, including requiring a preapplication conference, establishing the type of application required, and providing approval criteria.

The applicant had a preapplication conference with City staff on March 3, 2023, prior to application submittal.

The proposed development does not trigger a Transportation Impact Study or a Transportation Facilities Review.

This condition is met.

c. MMC Section 19.705 Rough Proportionality

MMC 19.705 requires that transportation impacts of the proposed development be mitigated in proportion to its potential impacts.

The City Engineer concluded that the increase in trips caused by this development required the intersection of Riverway Lane, Lava Drive, and Waverly Court to be realigned. This realignment is outlined in finding 12-d.

No further mitigation measures are required beyond the proposed frontage improvements and intersection realignment.

As proposed, this development is consistent with MMC 19.705.

d. MMC Section 19.708 Transportation Facility Requirements

MMC 19.708 establishes the City's requirements and standards for improvements to public streets, including pedestrian, bicycle, and transit facilities.

(1) MMC Subsection 19.708.1 General Street Requirements and Standards

MMC 19.708.1 provides general standards for streets, including for access management, clear vision, street layout and connectivity, and intersection design and spacing.

Streets should generally be aligned to intersect at right angles. The City Engineer determined that the intersection of Riverway Lane, Lava Drive, and Waverly Court required realignment. The stop bar and stop sign for eastbound traffic on Lava Drive shall be relocated to better align with Waverly Ct.

As proposed, the development is consistent with the applicable standards of MMC 19.708.1.

(2) MMC Subsection 19.708.2 Street Design Standards

MMC 19.708.2 provides design standards for streets, including dimensional requirements for the various street elements (e.g., travel lanes, bike lanes, on-street parking, landscape strips, and sidewalks).

A 5-ft wide Right-of-Way dedication and a 5-ft wide sidewalk easement will be required along the entire frontage of Lava Drive.

Frontage improvements along Lava Drive include (but are not limited to): 3-5-ft wide landscape strips, a 5-ft wide sidewalk (within an easement), and new curb and gutter. Street trees are required to be planted at a minimum of every 40 ft.

As noted in finding 6-a, payment of FILOC is recommended for the entire Riverway Lane frontage.

These improvements must be constructed in accordance with the Public Works Standards and the Milwaukie Street Tree List and Planting Guidelines.

As proposed, this standard is met.

(3) MMC Subsection 19.708.3 Sidewalk Requirements and Standards

MMC 19.708.3 provides standards for public sidewalks, including the requirement for compliance with applicable standards of the Americans with Disabilities Act (ADA).

The proposed development includes new sidewalk along the entire Lava Drive frontage.

A condition has been established to require two new ADA ramps at the southwest corner of Lava Drive and Riverway Lane to allow pedestrian access to continue north on Waverly Court and east on Lava Drive. A transition ramp is required at end of sidewalk on Lava Drive to the west.

As conditioned, the development is consistent with all applicable standards of MMC 19.708.3.

As conditioned, the Planning Commission finds that the proposed development meets the applicable public facility improvement standards of MMC 19.700.

13. MMC Section 19.905 Conditional Uses

MMC 19.905 establishes regulations for conditional uses, including standards for establishing uses identified as conditional uses in any overlay zones. As noted in Finding 8-a and as provided in MMC Subsection 19.401.5.A, activities within the Willamette Greenway zone that trigger Willamette Greenway review are subject to the provisions of Section 19.905 as conditional uses.

a. MMC Subsection 19.905.3 Review Process

MMC 19.905.3 establishes the process by which a new conditional use must be reviewed.

As noted in Finding 8-a, the proposed activity is development as defined for the Willamette Greenway zone and so requires review as a conditional use.

MMC 19.905.3.A requires that establishment of a new conditional use be evaluated through the Type III review process per MMC Section 19.1006.

b. MMC Subsection 19.905.4 Approval Criteria

MMC 19.905.4.A establishes the approval criteria for a new conditional use or a major modification to an existing conditional use.

- (1) The characteristics of the lot are suitable for the proposed use considering size, shape, location, topography, existing improvements, and natural features.

The existing property is a vacant residentially-zoned site in the R-HD zone. The site's location and size are suitable to accommodate the development on a multi-unit residential development.

The Planning Commission finds that this standard is met.

- (2) The operating and physical characteristics of the proposed use will be reasonably compatible with, and have minimal impact on, nearby uses.

The proposed improvements are designed to be compatible with existing development in the neighborhood, including a new public sidewalk, a tiered building design, and robust landscaping. The proposed improvements incorporate design elements intended to minimize impacts on adjacent residential development, particularly to the south.

The Planning Commission finds that this standard is met.

- (3) All identified impacts will be mitigated to the extent practicable.

The applicant has proposed a design that minimizes and mitigates impacts. Proposed mitigation measures include: robust landscape planting and strategic placement, opaque screening, usable open space, and frontage improvements offering better pedestrian connections to the river. Additional mitigation measures can be seen thorough the design of the building. The third floor is offset from the second floor along the south side, providing a larger setback buffer to residential uses abutting to

the south. A flat roof is proposed to maintain river views for properties uphill to the north. All identified impacts have been mitigated to the greater extent practicable.

The Planning Commission finds that this standard is met.

- (4) The proposed use will not have unmitigated nuisance impacts, such as from noise, odor, and/or vibrations, greater than usually generated by uses allowed outright at the proposed location.

With the exception of when the site is under construction, the proposed residential development use will not have any nuisance impacts. During construction, best practices will be utilized to minimize impacts to adjacent properties including reasonable working hours and maintaining a tidy construction site. Upon completion of construction and occupancy of the building, there will not be unreasonable nuisances.

The Planning Commission finds that this standard is met.

- (5) The proposed use will comply with all applicable development standards and requirements of the base zone, any overlay zones or special areas, and the standards in Section 19.905.

As demonstrated by these Findings, the proposed project will comply with all applicable requirements of the base R-HD zone and the Willamette Greenway overlay zone.

The Planning Commission finds that this standard is met.

- (6) The proposed use is consistent with applicable Comprehensive Plan policies related to the proposed use.

The proposed development is a multi-unit residential development in the R-HD zone, which is in the High Density land use designation in the Comprehensive Plan. Multi-unit residential development is entirely consistent with this land use designation.

The development site is more than 400 ft from the Willamette River and does not currently provide any significant views or public access to the river. However, the proposed development includes a public sidewalk, which will enhance public access to the river via public right-of-way connections. Views to the river are not impacted, as the proposed building is designed with a flat roof and tiered floors so it will not impede views from neighboring developments.

GOAL 4.6 - PUBLIC ACCESS AND VIEW PROTECTION

Provide, improve, and maintain public access and visual access to the lands and water that make up the Willamette River Greenway.

POLICY 4.6.1 Inventory existing and encourage new public access and views within the greenway and to the Willamette River, through dedications, easements, acquisitions or other means.

POLICY 4.6.2 Undertake efforts to make existing points of public access more accessible and usable through maintenance and signing.

The Planning Commission finds that this standard is met.

- (7) Adequate public transportation facilities and public utilities will be available to serve the proposed use prior to occupancy pursuant to Chapter 19.700.

The project site is not presently served by public transportation on Lava Drive, but robust transit connections are available downtown within a reasonable walking/biking distance. The proposed project site has access to public utilities necessary for the proposed project amenities including water, sewer, and electricity.

The Planning Commission finds that this standard is met.

The Planning Commission finds that the proposed development meets the approval criteria outlined in MMC 19.905.4.A for establishing a conditional use.

- c. MMC Subsection 19.905.5 Conditions of Approval

MMC 19.905.5 establishes the types of conditions that may be imposed on a conditional use to ensure compatibility with nearby uses. Conditions may be related to a number of issues, including access, landscaping, lighting, and preservation of existing trees.

The Planning Commission finds that with conditions, the proposed development adequately mitigates impacts to adjacent uses.

- d. MMC Subsection 19.905.6 Conditional Use Permit

MMC 19.905.6 establishes standards for issuance of a conditional use permit, including upon approval of a major modification of an existing conditional use. The provisions include a requirement to record the conditional use permit with the Clackamas County Recorder's Office and provide a copy to the City prior to commencing operations allowed by the conditional use permit.

As conditioned, the Planning Commission finds that the proposed development is consistent with the relevant standards established in MMC 19.905 for conditional uses.

14. The application was referred to the following departments and agencies on August 16, 2023:

- Milwaukie Building Division
- Milwaukie Engineering Department
- Milwaukie Public Works Department
- Clackamas County Fire District #1
- Historic Milwaukie and Island Station Neighborhood District Association
Chairperson and Land Use Committee
- Oregon Marine Board
- Oregon Department of Fish and Wildlife

- Division of State Lands – Wetlands and Waterways
- Oregon Parks and Recreation Department
- North Clackamas Parks and Recreation District
- Milwaukie Parks and Recreation Board
- ODOT Region 1
- TriMet
- Clackamas County Engineering Review

Notice of the public hearing was mailed to owners and residents of properties within 300 ft of the subject property on September 6, 2023.

ATTACHMENT 2
Recommended Conditions of Approval
Primary File #WG-2023-001; Lava Drive Multi-Unit Development

1. Conditional Use Permit

As per MMC Subsection 19.905.6, the City will issue a conditional use permit upon approval of an application to establish a conditional use (including Willamette Greenway conditional uses). The applicant must record the conditional use permit with the Clackamas County Recorder's Office and provide a copy to the City prior to commencing operations allowed by the conditional use permit.

2. The final permit application and plans for construction improvements to the building must address the following:

- a. Final plans submitted for development permit review must be in substantial conformance with plans approved by this action, which are the plans stamped received by the City on August 11, 2023 except as otherwise modified by these conditions.
- b. Provide a narrative describing all actions taken to comply with these conditions of approval.
- c. Per Finding 10, include electrical plan details that confirm compliance with MMC Subsection 19.605.5 – EV charging requirements.
- d. Provide a narrative describing any changes made after the issuance of this land use decision that are not related to these conditions of approval.
- e. Final plans submitted for construction permit review must include floor plans showing the location of the interior bike racks and construction details to confirm that the racks are sufficient for tenant use.
- f. Final plans submitted for construction permit review must include a photometric plan showing compliance with lighting standards.

3. Prior to issuance of development permits, the following must be resolved:

- a. Prior to commencement of any earth-disturbing activities, the applicant must obtain an erosion control permit from the City.
- b. Prior to commencement of any work in the public right-of-way, the applicant must obtain a Right-of-Way permit from the City.

4. Prior to final occupancy, the following must be resolved, unless otherwise noted:

- a. Installation of parking area landscaping is required before a certificate of occupancy will be issued, unless a performance bond is posted with the City. The landscaping must be installed within 6 months thereafter or else the bond will be foreclosed and plant materials installed by the City.

- b. Verification from a certified arborist that the proposed tree removal, preservation, and new plantings as approved have been completed as required.
 - c. Public Improvements as shown on the plans received by the City on August 11, 2023, except as otherwise modified by these conditions:
 - (1) Two new ADA ramps on the southwest corner of Lava Drive and Riverway Lane. These ramps are to be constructed in accordance with all federal guidelines and the City of Milwaukie Public Works Standards.
 - (2) One transitional ramp at the end of sidewalk on Lava Drive.
 - d. Dedication/Easement Requirements as shown on the plans received by the City on August 11, 2023, except as otherwise modified by these conditions.
 - (1) As noted in finding 7-c-1, a 10-ft wide PUE is required on both frontages.
 - e. As noted in Finding 5-c, driveway approaches must conform to the clear vision requirements noted in MMC 12.24.
 - f. As per Finding 7, record the approved lot consolidation with the Clackamas County Surveyor, and provide a copy of the recorded recording instrument to the City Planning Department.
5. Expiration of Approval
- a. Per MMC Subsection 19.1001.7.E, this land use approval expires unless the applicant has:
 - (1) Obtained and paid for all necessary development permits and started construction within 2 years of land use approval; and
 - (2) Passed final inspection and/or obtained a certificate of occupancy within 4 years of land use approval. Extensions can be granted per MMC Section 19.908.

ATTACHMENT 3
Other Requirements
Primary File # WG-2023-001
1600 SE Lava Drive

The following items are not conditions of approval necessary to meet applicable land use review criteria. They relate to other development standards and permitting requirements contained in the Milwaukie Municipal Code (MMC) and Public Works Standards that are required at various points in the development and permitting process.

1. The level of use approved by this action shall be permitted only after issuance of a certificate of occupancy.
2. Limitations on Development Activity.
Development activity on the site shall be limited to 7:00 a.m. to 10:00 p.m. Monday through Friday and 8:00 a.m. to 5:00 p.m. Saturday and Sunday, as provided in MMC Subsection 8.08.070(I).
3. Landscaping Maintenance.
As provided in MMC Subsection 19.606.2.E.3, required parking area landscaping must be maintained in good and healthy condition.
4. Applicant must submit an access and water supply plan as required by the Clackamas Fire District #1 for full review and approval.
5. Prior to, or concurrent with, building permit submittal, the following must be resolved:
 - a. Submit full-engineered plans for construction of all required public improvements, which must be reviewed and approved by the City of Milwaukie Engineering Department.
 - b. Obtain a right-of-way permit for construction of all required public improvements listed in these recommended conditions of approval.
 - c. Provide the city with an engineering cost estimate for all public improvements.
 - d. At the time of plan submittal, pay a plan review fee of 1.5% of the public improvements estimate.
 - e. Submit a final stormwater management plan to the City of Milwaukie Engineering Department for review and approval.

The plan shall be prepared in accordance with Section 2 - Stormwater Design Standards of the City of Milwaukie Public Works Standards and the City of Portland Stormwater Management Manual. In the event the stormwater management system contains underground injection control devices, submit proof of acceptance of the storm system design from the Department of Environmental Quality.

The stormwater management plan shall demonstrate that the post-development runoff does not exceed pre-development runoff, inclusive of any existing stormwater management facilities serving the development site.

6. Prior to Right-of-Way permit issuance, the following must be resolved:
 - a. A final engineer's cost estimate or final contractor's bid cost for all public improvements must be submitted and approved by Engineering.
 - b. An inspection fee equal to 5.5% of the approved engineer's estimate (less the previous 1.5% paid for plan review) is required.
 - c. Provide a payment and performance bond in the amount of 130 percent of the approved engineer's estimate or contractor's bid cost of the required public improvements.
7. Prior to final inspection and acceptance, the following must be resolved:
 - a. Provide a final approved set of electronic PDF red-lined "As Constructed" drawings to the City of Milwaukie.
 - b. Install all underground utilities, including stubs for utility service, prior to surfacing any streets.
 - c. Clear vision areas shall be maintained at all driveways and accessways and on the corners of all property adjacent to an intersection.
 - d. Provide a 2-year maintenance bond in the amount of 10% of the approved engineer's estimate or contractor's bid cost of the required public improvements.



MILWAUKIE PLANNING
6101 SE Johnson Creek Blvd
Milwaukie OR 97206
503-786-7630
planning@milwaukieoregon.gov

Application for Land Use Action

Primary File #: **WG-2023-001;**
DEV-2023-004; LC-2023-001

Review type*: I II III IV V

CHECK ALL APPLICATION TYPES THAT APPLY:

- | | | |
|---|---|--|
| <input type="checkbox"/> Amendment to Maps and/or
<input type="checkbox"/> Comprehensive Plan Map Amendment
<input type="checkbox"/> Zoning Text Amendment
<input type="checkbox"/> Zoning Map Amendment | <input type="checkbox"/> Land Division:
<input type="checkbox"/> Partition
<input type="checkbox"/> Property Line Adjustment
<input type="checkbox"/> Replat
<input type="checkbox"/> Subdivision | <input type="checkbox"/> Residential Dwelling:
<input type="checkbox"/> Manufactured Dwelling Park
<input type="checkbox"/> Temporary Dwelling Unit |
| <input type="checkbox"/> Code Interpretation
<input type="checkbox"/> Community Service Use
<input checked="" type="checkbox"/> Conditional Use
<input type="checkbox"/> Development Review
<input type="checkbox"/> Director Determination
<input type="checkbox"/> Downtown Design Review
<input type="checkbox"/> Extension to Expiring Approval
<input type="checkbox"/> Historic Resource:
<input type="checkbox"/> Alteration
<input type="checkbox"/> Demolition
<input type="checkbox"/> Status Designation
<input type="checkbox"/> Status Deletion | <input type="checkbox"/> Miscellaneous:
<input type="checkbox"/> Barbed Wire Fencing
<input type="checkbox"/> Mixed Use Overlay Review
<input type="checkbox"/> Modification to Existing Approval
<input type="checkbox"/> Natural Resource Review**
<input type="checkbox"/> Nonconforming Use Alteration
<input type="checkbox"/> Parking:
<input type="checkbox"/> Quantity Determination
<input type="checkbox"/> Quantity Modification
<input type="checkbox"/> Shared Parking
<input type="checkbox"/> Structured Parking
<input type="checkbox"/> Planned Development | <input type="checkbox"/> Transportation Facilities Review**
<input type="checkbox"/> Variance:
<input type="checkbox"/> Use Exception
<input type="checkbox"/> Variance
<input checked="" type="checkbox"/> Willamette Greenway Review
<input checked="" type="checkbox"/> Other: <u>Multi-Unit Design Review and Lot Consolidation</u> |
- Use separate application forms for:**
- Annexation and/or Boundary Change
 - Compensation for Reduction in Property Value (Measure 37)
 - Daily Display Sign
 - Appeal

RESPONSIBLE PARTIES:

APPLICANT (owner or other eligible applicant—see reverse): Mark Maelden

Mailing address: PO Box 96068 Portland State/Zip: OR 97296

Phone(s): _____ Email: _____

Please note: The information submitted in this application may be subject to public records law.

APPLICANT'S REPRESENTATIVE (if different than above): Architect: Studio 3 Architecture Land Use: BRAND Land Use

Mailing address: (BRAND) 12150 Jefferson Highway 99E SE Jefferson State/Zip: OR 97352

Phone(s): (BRAND) 503-680-0949 Email: britany@brandlanduse.com

SITE INFORMATION:

Address: 1600 Lava Dr, Milwukie, OR 97222 Map & Tax Lot(s): 11E35AB00100 and 502

Comprehensive Plan Designation: HDR Zoning: R-2 Size of property: .23 and .20 acres

PROPOSAL (describe briefly):

13-unit multifamily housing development and related site improvements including off street parking, trash enclosure, and landscaping.

SIGNATURE: I attest that I am the property owner or I am eligible to initiate this application per Milwaukie Municipal Code Subsection 19.1001.6.A. If required, I have attached written authorization to submit this application. To the best of my knowledge, the information provided within this application package is complete and accurate.

Submitted by: [Signature] Date: 6-1-23

IMPORTANT INFORMATION ON REVERSE SIDE

*For multiple applications, this is based on the highest required review type. See 19.1001.6.B.1.
** Natural Resource and Transportation Review applications may require a refundable deposit.

WHO IS ELIGIBLE TO SUBMIT A LAND USE APPLICATION (excerpted from MMC Subsection 19.1001.6.A):

Type I, II, III, and IV applications may be initiated by the property owner or contract purchaser of the subject property, any person authorized in writing to represent the property owner or contract purchaser, and any agency that has statutory rights of eminent domain for projects they have the authority to construct.

Type V applications may be initiated by any individual.

PREAPPLICATION CONFERENCE:

A preapplication conference may be required or desirable prior to submitting this application. Please discuss with Planning staff.

DEPOSITS:

Deposits require completion of a Deposit Authorization Form, found at www.milwaukieoregon.gov/building/deposit-authorization-form

REVIEW TYPES:

This application will be processed per the assigned review type, as described in the following sections of the Milwaukie Municipal Code:

- Type I: Section 19.1004
- Type II: Section 19.1005
- Type III: Section 19.1006
- Type IV: Section 19.1007
- Type V: Section 19.1008

THIS SECTION FOR OFFICE USE ONLY:

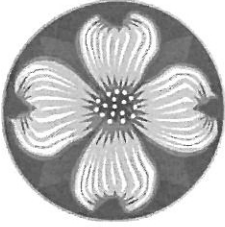
FILE TYPE	FILE NUMBER	AMOUNT (after discount, if any)	PERCENT DISCOUNT	DISCOUNT TYPE	DATE STAMP
Primary file	WG-2023-001	\$ 2,000			
Concurrent application files	DEV-2023-004	\$ 750	25%		
	LC-2023-001	\$ 150	25%		
		\$			
		\$			
Deposit (NR/TFR only)		2,900		<input type="checkbox"/> Deposit Authorization Form received	

TOTAL AMOUNT RECEIVED: \$ _____ RECEIPT #: _____ RCD BY: _____

Associated application file #s (appeals, modifications, previous approvals, etc.):

Neighborhood District Association(s): **Historic Milwaukie**

Notes:



MILWAUKIE PLANNING
 6101 SE Johnson Creek Blvd
 Milwaukie OR 97206
 503-786-7630
 planning@milwaukieoregon.gov

Submittal Requirements

For all Land Use Applications
 (except Annexations and Development Review)

All land use applications must be accompanied by a signed copy of this form (see reverse for signature block) and the information listed below. The information submitted must be sufficiently detailed and specific to the proposal to allow for adequate review. Failure to submit this information may result in the application being deemed incomplete per the Milwaukie Municipal Code (MMC) and Oregon Revised Statutes.

Contact Milwaukie Planning staff at 503-786-7630 or planning@milwaukieoregon.gov for assistance with Milwaukie's land use application requirements.

1. **All required land use application forms and fees**, including any deposits.
Applications without the required application forms and fees will not be accepted.
2. **Proof of ownership or eligibility to initiate application** per MMC Subsection 19.1001.6.A.
Where written authorization is required, applications without written authorization will not be accepted.
3. **Detailed and comprehensive description** of all existing and proposed uses and structures, including a summary of all information contained in any site plans.
Depending upon the development being proposed, the description may need to include both a written and graphic component such as elevation drawings, 3-D models, photo simulations, etc. Where subjective aspects of the height and mass of the proposed development will be evaluated at a public hearing, temporary onsite "story pole" installations, and photographic representations thereof, may be required at the time of application submittal or prior to the public hearing.
4. **Detailed statement** that demonstrates how the proposal meets the following:
 - A. All applicable development standards (listed below):
 1. **Base zone standards** in Chapter 19.300.
 2. **Overlay zone standards** in Chapter 19.400.
 3. **Supplementary development regulations** in Chapter 19.500.
 4. **Off-street parking and loading standards and requirements** in Chapter 19.600.
 5. **Public facility standards and requirements**, including any required street improvements, in Chapter 19.700.
 - B. All applicable application-specific approval criteria (check with staff).
 - C. Compliance with the Tree Code (MMC 16.32): www.milwaukieoregon.gov/trees
These standards can be found in the MMC, here: www.qcode.us/codes/milwaukie/
5. **Site plan(s), preliminary plat, or final plat** as appropriate.
See Site Plan, Preliminary Plat, and Final Plat Requirements for guidance.
6. **Copy of valid preapplication conference report**, when a conference was required.

APPLICATION PREPARATION REQUIREMENTS:

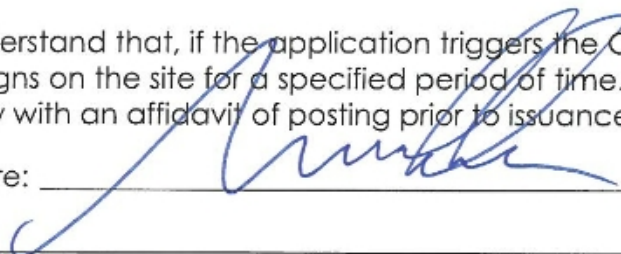
- Electronic copies of all application materials are required at the time of submittal.

ADDITIONAL INFORMATION:

- Neighborhood District Associations (NDAs) and their associated Land Use Committees (LUCs) are important parts of Milwaukie's land use process. The City will provide a review copy of your application to the LUC for the subject property. They may contact you or you may wish to contact them. Applicants are strongly encouraged to present their proposal to all applicable NDAs prior to the submittal of a land use application and, where presented, to submit minutes from all such meetings. NDA information: www.milwaukieoregon.gov/citymanager/what-neighborhood-district-association.
- By submitting the application, the applicant agrees that City of Milwaukie employees, and appointed or elected City Officials, have authority to enter the project site for the purpose of inspecting project site conditions and gathering information related specifically to the project site.

As the authorized applicant I, (print name) Mark Maelden, attest that all required application materials have been submitted in accordance with City of Milwaukie requirements. I understand that any omission of required items or lack of sufficient detail may constitute grounds for a determination that the application is incomplete per MMC Subsection 19.1003.3 and Oregon Revised Statutes 227.178. I understand that review of the application may be delayed if it is deemed incomplete.

Furthermore, I understand that, if the application triggers the City's sign-posting requirements, I will be required to post signs on the site for a specified period of time. I also understand that I will be required to provide the City with an affidavit of posting prior to issuance of any decision on this application.

Applicant Signature: 

Date: 6-1-23

Official Use Only

Date Received (date stamp below):

Received by: _____

Conditional Use Permit, Lot Consolidation, and Site Development Review

Submittal Date: July 2023

Submitted To: City of Milwaukie
Planning Department

Project Location: 1600 SE Lava Drive
Milwaukie, OR

Applicant(s): WDC Properties
Owner

Applicant's Land Use Representative: Britany Randall of BRAND Land Use
Britany@brandlanduse.com



BRAND

FEASIBILITY | PLANNING | LAND USE

BRANDLANDUSE.COM

503.680.0949

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Arial View of Subject Property and Existing Development



Section 1: Property Background and Request

The applicant, and property owner, is presenting the following applications required to permit the proposed 13-unit multifamily development: Willamette Greenway Conditional Use Permit (Type III), Lot Consolidation (Type I), and Multi-Unit Design Review with design guidelines (Type II).

The subject property is located at 1600 SE Lava Drive in Milwaukie, Oregon. The subject site was previously developed with a single-family dwelling, which is planned to be replaced with a 13-unit multifamily development and onsite improvements included within this application submittal. The subject property is comprised of two tax lots approximately .43-acres in size total and falls within the HDR (High Density Residential) base zone and the Willamette Greenway Overlay Zone. This application is intended to be a consolidated review of the included applications. The applicant understands the submittal will be reviewed utilizing Type III procedures because a conditional use permit is required.

Section 2: Existing Conditions

The subject property is comprised of two tax lots approximately .43-acres in size total, is described as Clackamas County Assessor Map and Tax Lot and Parcel Numbers 11E35AB00100 00018439 and 11E35AB00502 00018484, and located at 1600 SE Lava Dr, Milwaukie, OR 97222. A Clackamas County tax map is included within the exhibits of this narrative.

The site is located within corporate city limits of the City of Milwaukie. The Milwaukie Comprehensive Plan map designates the subject property as “High Density”.

The Comprehensive Plan designations of surrounding properties include:

North: Across SE Lava Drive, HD “High Density”

South: HD “High Density”

East: Across SE River Lane (Private), TC “Town Center”

West: HD “High Density”

The subject property is zoned R-HD (High Density Residential) and falls within the Willamette Greenway overlay zone. Surrounding properties are zoned as follows:

North: Across SE Lava Drive, R-HD (High Density Residential), Willamette Greenway overlay

South: R-HD (High Density Residential), Willamette Greenway overlay

East: Across SE River Lane (Private), Commercial GMU

West: R-HD (High Density Residential), Willamette Greenway overlay

Section 3: Applicable Zoning Codes

Title 16 Environment

Chapter 16.28 Erosion Control

16.28.010 General Policy

16.28.020 Erosion Control Permit and Erosion Control Plans – Applicability – Conformance

16.28.030 Contents of Erosion Control Plan and General Requirements

Chapter 16.32 Tree Code

16.32.005 Purpose

16.32.017 Tree Planting on Land Owned or Maintained by the City and Within the Public Right-of-Way

16.32.021 Dead or Diseased Tree Removal on Private Land

16.32.042 Tree Preservation and Planting in Residential Zones

Title 17 Land Division

Chapter 17.12 Application Procedure and Approval Criteria

17.12.010 Purpose

17.12.020 Application Procedure

17.12.030 Approval Criteria for Lot Consolidation, Property Line Adjustment, and Replat

Chapter 17.16 Application Requirements and Procedures

17.16.010 Application Required

17.16.020 Determination of Completeness

17.16.030 Waiver of Submission Requirements

17.16.040 Lot Consolidation and Property Line Adjustment

Chapter 17.28 Design Standards

17.28.030 Easements

Title 19 Zoning

Chapter 19.100 Introductory Provisions

19.103 – Applicability

Chapter 19.200 Definitions and Measurements

19.202 Measurements

19.202.4 Density Calculations

Chapter 19.300 Base Zones

19.302 High Density Residential Zone

19.302.1 Purpose

19.302.2 Allowed Uses in the High-Density Residential Zone

19.302.3 Use Limitations and Restrictions

19.302.4 Development Standards

19.302.5 Additional Development Standards

Chapter 19.400 Overlay Zones and Special Areas

19.401 Willamette Greenway Zone WG

19.401.1 Purpose

19.401.2 Area Defined

19.401.3 Limitations on Use

19.401.4 Definitions

19.401.5 Procedures

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Chapter 19.500 Supplementary Development Regulations

19.504 Site Design Standards

19.504.1 Clear Vision Areas

19.504.2 Maintenance of Minimum Ordinance Requirements

19.504.3 Dual Use of Required Open Space

19.504.4 Distance from Property Line

19.504.6 Minimum Vegetation

19.505 Building Design Standards

19.505.3 Multi-Unit Housing

Chapter 19.600 Off-Street Parking and Loading

19.601 Purpose

19.602 Applicability

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19.602.2 Maintenance Applicability

19.602.3 Applicability for Development and Change in Use Activity

19.602.4 Applicability not Associated With Development or Change in Use

19.602.5 Improvements to Existing Off-Street Parking and Loading Areas

19.603 Review Process and Submittal Requirements

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19.604 General Parking Standards

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19.604.2 Parking Area Location

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19.605 Vehicle Parking Quantity Requirements

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19.606 Parking Area Design and Landscaping

19.606.1 Parking Space and Aisle Dimensions

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19.606.3 Additional Design Standards

19.608 Loading

19.608.2. Number of Loading Spaces

19.609 Bicycle Parking

19.609.1 Applicability

19.609.2 Quantity of Spaces

19.609.3 Space Standards and Racks

19.609.4 Location

19.610 Carpool and Vanpool Parking

19.610.1 Applicability

Chapter 19.700 Public Facility Improvements

19.701 Purpose

19.701.1 For Transportation Facilities

19.701.2 For Public Facilities

19.702 Applicability

19.702.1 General

19.702.4 Exemptions

19.703 Review Process

19.703.1 Preapplication Conference

19.703.2 Application Submittal

19.703.3 Approval Criteria

19.709.2 Public Utility Improvements

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Chapter 19.900 Land Use Applications

19.905 Conditional Uses

19.905.1 Purpose

19.905.2 Applicability

19.905.3 Review Process

19.905.4 Approval Criteria

19.905.5 Conditions of Approval

19.905.6 Conditional Use Permit

19.905.7 Review of Existing Conditional Use Permits

19.905.8 De Facto Conditional Use Status and Loss of Conditional Use Status

19.905.9 Standards Governing Conditional Uses

19.906 Development Review

19.906.1 Purpose

19.906.2 Applicability

19.906.3 Review Process

19.906.4 Approval Criteria

Section 4: Findings Applicable to Title 16 Environment

Chapter 16.28 – Erosion Control

Section 16.28.010 – General Policy

- A. The policies of this chapter shall apply during construction and until permanent measures are in place following construction as described herein, unless otherwise noted.

Applicant's Findings: *The applicant understands the provisions of this section are applicable during the construction phase of this project. At this time, these criteria are not applicable as the project is within the entitlement phase. These criteria will be followed during the construction phase.*

Section 16.28.020 – Erosion Control Permit and Erosion Control Plans – Applicability – Conformance

- A. Definitions.

“Erosion control permit” means the official approval issued by the City that demonstrates compliance with this chapter for activities described in the application form, erosion control plan, and related materials submitted pursuant to this chapter.

“Erosion control plan” means all documents, maps, plans and other information specified in Section 16.28.030 and submitted in association with an application for an erosion control permit.

- B. An erosion control plan that meets the requirements of Section 16.28.030 is required prior to any approval of an erosion control permit.

Applicant's Findings: *The applicant is seeking approval of a conditional use permit to build a 13-unit multiple family development within the Willamette Greenway area. The applicant's submittal includes grading and erosion control plans prepared by a civil engineer. The plans provided meet the requirements of Section 16.28.030. This criterion is met.*

C. An erosion control permit is required as follows:

1. Prior to placement of fill, site clearing, or land disturbances, including but not limited to grubbing, clearing or removal of ground vegetation, grading, excavation, or other activities, any of which results in the disturbance or exposure of soils exceeding 500 square feet.
2. For disturbed areas or exposed soils less than 500 square feet, where the City has determined that site conditions may result in visible and measurable erosion and where the City has provided written notice of the requirement to obtain an erosion control permit to the property owner. Upon notice by the City, all work shall cease pending approval of an erosion control permit and installation of approved erosion control measures.
3. For any lot that includes natural resources regulated by Milwaukie Zoning Ordinance Section 19.402 Natural Resources, an erosion control permit shall be required prior to placement of fill, site clearing, or land disturbances, including but not limited to grubbing, clearing or removal of ground vegetation, grading, excavation, or other activities, any of which has the potential for, or results in visible and measurable erosion, regardless of the area of disturbance.

Applicant's Findings: *At the time of construction, the applicant's construction contractor will engage in activities which trigger the requirement of an erosion control permit. Approval of such permit will be submitted to the City of Milwaukie concurrently with building permit applications in accordance with these provisions. These criteria will be met. As required by this section, no work will commence on site prior to obtaining proper city approvals.*

D. An erosion control permit shall not be issued for activities on lots that include natural resources regulated by Section 19.402, where the site activity has not been authorized, or is not exempt under the provisions of Milwaukie Zoning Ordinance Section 19.402 Natural Resources as determined by the Planning Director. This provision does not apply where the erosion control permit is associated with correction of a violation of the City Code or as necessary for public safety, or the protection of property or water quality.

Applicant's Findings: *The subject site does not contain any natural resources regulated by Section 19.402. This criterion is not applicable.*

E. Timing

Approval of the erosion control permit is required prior to the following, whichever comes first:

1. Issuance of grading permits, building permits, and approval of construction plans for subdivision; or
2. Placement of fill, site clearing, land disturbances, including but not limited to grubbing, clearing or removal of ground vegetation, grading, excavation, or other activities, any of which disturbs or exposes soil.

Applicant's Findings: *The development under review in this application will trigger subsection (2) above. The applicant's engineer will submit for approval the erosion control permit at the time of building permit. However, preliminary grading, drainage, and erosion control plans are provided at this stage for staff's initial review and comments for land use approval. This criterion will be met.*

- F. Erosion control measures set forth in any approved erosion control plan shall be implemented and maintained on the site until the date set forth in the plan, or the amended date as necessary for the establishment of final landscaping. The City may allow for the removal of erosion control measures at an earlier date if erosion control is assured by established landscaping.

Applicant's Findings: *The applicant understands any measures set forth in the approved erosion control plan must be maintained on site until the conclusion of the permit or establishment of landscaping. This criterion will be met.*

[Chapter 16.32 – Tree Code](#)
[Section 16.32.005 – Purpose](#)

The purpose of this chapter is to establish processes and standards that ensure the City maximizes the environmental, economic, health, community, and aesthetic benefits provided by its urban forest. It is the intent of this code to establish, maintain, and increase the quantity and quality of tree cover in residential zones and on land owned or maintained by the City and within rights-of-way, and to ensure our urban forest is healthy, abundant, and climate resilient.

This code is designed to:

1. Foster urban forest growth to achieve 40% canopy coverage by 2040.
2. Maintain trees in a healthy condition through best management practices.
3. Manage the urban forest for a diversity of tree ages and species.
4. Manage street trees appropriately to maximize benefits and minimize hazards and conflicts with infrastructure.
5. Ensure the preservation and planting of tree canopy with development and redevelopment of housing in residential zones.

6. Regulate the removal, replanting, and management of trees prior to and following development and redevelopment in residential zones.
7. Implement applicable urban forest goals, policies, objectives, and action items in the Comprehensive Plan, Climate Action Plan, and Urban Forest Management Plan.

Applicant's Findings: *The applicant understands the purpose of the city's tree code ordinance and has provided responses to all applicable criteria below.*

Section 16.32.017 – Tree Planting on Land Owned or Maintained by the City and Within the Public Right-of-Way

A. Species

Any tree, shrub, or other woody vegetation to be planted on land owned or maintained by the City or within the public right-of-way must be a species listed on the Street Tree List unless otherwise approved by the Urban Forester.

Applicant's Findings: *As indicated on the preliminary landscape plan included with this application submittal, street trees along the property frontage are proposed to the maximum extent feasible. The trees proposed on the plan are from the list of approved species on the Street Tree List. This criterion is met.*

B. Spacing, Size and Placement

The spacing, size, and placement of street trees, shrubs, and other woody vegetation must be in accordance with a permit issued by the City under this section. The City may approve special plantings designed or approved by a landscape architect, or for ecological restoration projects where trees are likely to be planted at a much higher density to mimic natural conditions in forest regeneration and account for expected mortality.

Applicant's Findings: *The applicant has retained a landscape architect to design the landscape to be installed on site and within the public right-of-way. The landscape architect has indicated spacing, size, and placement of the proposed street trees. The preliminary landscape plan is designed utilizing the industry best practices to ensure the installed landscape will thrive. The preliminary landscape plan is included with this application submittal, so the applicant is able to obtain a permit in accordance with this section. This criterion will be met.*

C. Permit

No person may plant a street tree without first obtaining a permit from the City. A permit application must be submitted in writing or electronically on a form provided by the City. This permit is at no cost.

Applicant's Findings: *None of the proposed street trees will be installed prior to obtaining city approval in accordance with this section. This criterion will be met.*

Section 16.32.042 – Tree Preservation and Planting in Residential Zones

A. Applicability

The tree preservation and planting standards in this subsection apply to the following types of development in residential zones:

1. Land divisions.
2. Construction of a new residential dwelling unit that results in an increase of building footprint.
3. Construction of a new residential dwelling unit that does not result in an increase of building footprint. For applications meeting this criteria, only Subsections 16.32.042.F, 16.32.042.H and 16.32.042.J will apply.

Applicant's Findings: *The proposed development triggers the applicability of the tree preservation and planting requirements as the applicant is proposing construction of new residential dwelling units and there are three existing trees on the development site. Tree #1 is 24" DBH and identified as a maple tree. Tree #2 is 9" DBH and identified as a birch tree. Tree #3 is 40" DBH and identified as a cherry tree. Due to their condition and locations relative to the construction improvements required for public frontage and on site, all three existing trees are proposed to be removed. The applicant includes findings for all applicable criteria demonstrating compliance.*

B. Clear and Objective Tree Preservation Standards

Trees are required to be preserved except when their removal is required for construction, demolition, grading, utilities, and other development impacts. Not more than 25% of on-site existing tree canopy may be removed below the overall 40% site canopy coverage standard unless mitigation is provided according to Subsection 16.32.042.D. Tree species on the Oregon Noxious Weed List or Milwaukie Invasive Tree List are not to be included in the total canopy coverage calculations. Public right-of-way is not considered part of the development site for the purposes of these calculations.

Trees listed on the City of Milwaukie Rare or Threatened Tree List must be prioritized for preservation and will incur an additional fee if removed as listed on the Master Fee Schedule. When the trunk of a tree crosses a property line at ground level it is considered an on-site tree for the purposes of these tree preservation standards.

Healthy trees with DBH of 12 inches or greater may receive additional canopy credits for existing tree crown area to be factored into preservation calculations as defined in the Master Fee Schedule.

Applicant's Findings: *As demonstrated on the existing conditions plan/grading plan included with this application submittal, there are three existing trees on the development site. Tree #1 is 24" DBH and identified as a maple tree. Tree #2 is 9" DBH and identified as a birch tree. Tree #3 is 40" DBH and identified as a cherry tree. Due to their condition and locations relative to the construction improvements required for public frontage and on site, all three existing trees are proposed to be removed. The site is planned to be replanted with 28 trees between trees proposed to be street trees and trees on site. None of the trees planned to be removed are listed on the City of Milwaukie Rare or Threatened Tree List. The mitigation the applicant will choose to proceed with is a fee payable to the city's tree fund. With the mitigation proposed, this criterion is met.*

C. Clear and Objective Tree Planting Standards

40% canopy coverage is the standard site canopy coverage for residential developed lots. In addition to the preservation of on-site trees, at least 40% tree canopy is required for a development site from existing trees or new tree plantings unless mitigation is provided according to Subsection 16.32.042.D. Public right-of-way will be considered off-site for the purpose of these planting standard calculations. Tree species on the Oregon Noxious Weed List or Milwaukie Invasive Tree List are not to be included in the total canopy coverage calculations. The following is eligible for credit towards tree canopy requirements when planted or preserved in accordance with City of Milwaukie standards:

1. 75% of the mature crown area of planted on-site trees.
2. 50% of the mature crown area of planted street trees in the public right-of-way directly abutting the development site.
3. 100% of the existing crown area or mature crown area of on-site trees that are preserved, whichever is greater. In cases where a portion of the crown area of on-site trees extends off site, the entire crown area is eligible for credit towards the tree canopy requirements. In cases where a portion of the crown area of off-site trees extends on site, the crown area is not eligible for credit towards the tree canopy requirements. Healthy trees with DBH of 12 inches or greater may receive additional canopy credits for existing or future mature crown area to be factored into preservation calculations as defined in the Master Fee Schedule.
4. 50% of the existing crown area of street trees that are preserved in the public right-of-way directly abutting the development site.

When the trunk of a tree crosses a property line at ground level it is considered an on-site tree except when the trunk crosses a public right-of-way line at ground level, it is considered a street tree for the purposes of these tree planting standards.

Applicant's Findings: *The applicant retained a landscape architect to prepare a tree planting schedule in accordance with the requirements of this section. The preliminary landscape plan with proposed trees, their species, and location, is included within the exhibits of this submittal for review and approval by city staff. These criteria are met.*

D. Mitigation Standards

If the tree preservation and/or tree planting standards are not met, mitigation fees must be provided to the Tree Fund as follows:

1. The fee in lieu of preservation standard in the Master Fee Schedule based on the percentage of removed canopy coverage below the minimum tree canopy preservation standard as defined in Subsection 16.32.042.B.
2. The fee in lieu of planting standard in the Master Fee Schedule based on the square footage of tree crown area that would be required to meet the 40% tree planting standard.

Applicant's Findings: *The applicant will work with an arborist to determine the fee based on the percentage of removed canopy coverage. The information produced by the arborist will be submitted to the city for review and approval. This criterion will be met.*

E. Variance Procedure

Applicant's Findings: *The applicant is choosing to pay the fee in lieu of preservation standard rather than seeking a variance to this standard. The criteria in this section are not applicable.*

F. Tree Protection Standards

Applicant's Findings: *The applicant is proposing to remove the three trees present on the development site due to their condition and location to relative frontage improvements and on site construction activities. The applicant is choosing to pay the fee in lieu of preserving the trees, therefore the provisions regarding tree protection standards are not applicable to this application.*

G. Soil Volume Standards

Trees to be planted must be provided access to at least 1,000 cubic feet of soil volume according to the standards in this subsection to be eligible for tree canopy credit. A soil volume plan by an ISA certified arborist is required that demonstrates 1,000 cubic feet of soil volume is available per tree as determined by the Urban Forester or designee. Soil volume methods and specifications must be consistent with ISA best management practices using either the prescriptive path or performance path soil volume methods. The project arborist must verify with the Urban Forester in writing that the soil volume plan has been successfully implemented prior to tree planting.

1. Prescriptive Path for Soil Volume

- a. If the existing soils at the site and abutting sites are determined by the project arborist or Urban Forester to be adequate to support healthy tree growth to maturity based on factors, including, but not limited to, compaction levels, drainage, fertility, pH, and potential contaminants, the existing soils may be used to meet the soil volume requirements.
- b. The assumed soil depth will be 3 feet unless otherwise determined by the project arborist or Urban Forester.
- c. A soil volume area of at least 333 square feet must be accessible to each tree when the assumed soil volume depth is 3 feet.
- d. The soil volume areas must be continuous and within a 50-foot radius of the tree to be planted. Continuous soil volumes must be at least 3 feet wide for the entire area.
- e. Trees may share the same soil volume area provided that all spacing requirements are met.
- f. Soil volume areas must be protected from construction impacts through any combination of the following methods:
 - (1) Protection fencing:
 - (a) Fencing consisting of a minimum 4-foot high metal chain link or no-climb horse fence, secured with 6-foot metal posts established at the edge of the soil volume area on the development site. Existing secured fencing at least 3.5 feet tall can serve as the required protective fencing.
 - (b) When a soil volume area extends beyond the development site, protection fencing is not required to extend beyond the development site. Existing secured fencing at least 3.5 feet tall can serve as the required protective fencing.
 - (c) Signage designating the protection zone and penalties for violations must be secured in a prominent location on each protection fence.
 - (2) Compaction prevention options for encroachment into soil volume areas:
 - (a) Steel plates placed over the soil volume area.
 - (b) A 12-inch layer of coarse wood chips over geotextile fabric continuously maintained over the soil volume area.
 - (c) A 6-inch layer of crushed gravel over geotextile fabric continuously maintained over the soil volume area.
- g. Soil contaminants are prohibited from the soil volume areas.

2. Performance Path for Soil Volume

- a. If the existing soils at the site and abutting sites are determined by the Urban Forester to be inadequate to support healthy tree growth to maturity based on factors such as compaction levels, drainage, fertility, pH, and potential contamination prior to or resulting from development, a performance path soil volume plan is required.
- b. Soils in areas of construction access that do not receive compaction prevention treatment and soils in areas of grading, paving, and construction are considered inadequate for tree growth unless a performance path soil volume plan is provided.
- c. The performance path soil volume plan is required to demonstrate the methods that will be used to provide at least 1,000 cubic feet of soil volume with the capacity to support healthy growth to maturity per tree to be planted.
- d. The soil volume areas must be continuous and within a 50-foot radius of the tree to be planted. Continuous soil volumes must be at least 3 feet wide for the entire area.
- e. Trees may share the same soil volume area provided that all spacing requirements are met.
- f. The following items may be addressed in performance path soil volume plans but are dependent on specific site conditions and should be submitted by the applicant on a project basis in coordination with other professionals such as civil and geotechnical engineers, landscape architects, and soil scientists as needed:
 - (1) Compaction Reduction
 - (a) tilling,
 - (b) backhoe turning,
 - (c) subsoiling;
 - (2) Soil Amendments
 - (a) organic amendments,
 - (b) mineral amendments,
 - (c) biological amendments,
 - (d) chemical amendments;
 - (3) Topsoil Replacement (when soil contamination or soil removal occurs);
 - (4) Soil Under Pavement
 - (a) structural soil cells,
 - (b) structural tree soils,
 - (c) soil vaults,
 - (d) soils under suspended pavement.

Applicant's Findings: *The soil volume standards will be confirmed cooperatively by the applicant's arborist and landscape architect. The applicant is currently engaging with an arborist and will submit all required information to the city for review and approval. These criteria will be met.*

H. Submittal Requirements

For applications for construction of a new residential dwelling unit that does not result in an expansion of building footprint (Subsection 16.32.042.A.3), applicants must demonstrate compliance with the applicable provisions of Subsection 16.32.042.F by submitting a report including elements outlined in Subsection 16.32.042.H.2. For applications for land subdivision (Subsection 16.32.042.A.1) or construction of a new residential dwelling unit that results in an expansion of the building footprint (Subsection 16.32.042.A.2) an ISA certified arborist that is also tree risk assessment qualified (TRAQ) must demonstrate compliance with the applicable provisions of Subsections 16.32.042.B through 16.32.042.G. Other professionals such as engineers, landscape architects, soil scientists, and surveyors may assist the project arborist as needed in preparing the required information, but the arborist must organize, review, and approve the final product. The minimum submittal requirements include an inventory of existing trees, tree preservation plan, tree canopy plan, and arborist report with the following elements:

1. Tree Inventory Requirements

- a. Survey the locations of all trees at least 6-inch DBH, all trees at least 2-inch DBH that are listed on the Oregon Noxious Weed List or Milwaukie Invasive Tree List, and trees less than 6-inch DBH as specified on the City of Milwaukie Rare or Threatened Tree List. Trees that must be surveyed include those that are on site, within abutting public rights-of-way, and on abutting sites with root protection zones that extend into the site. The locations and information for trees on abutting sites may be estimated.
- b. Number each tree for identification at the site and on the plans.
- c. Identify the common name and scientific name of each tree.
- d. Measure the DBH of each tree in inches according to accepted ISA standards.
- e. Measure the approximate average crown radius of each tree in feet.
- f. Provide the crown area of each tree using the formula: $(\text{crown radius})^2 \times \pi$.
- g. Assess the health condition of each tree using the following categories:
 - (1) Good (no significant health issues)
 - (2) Fair (moderate health issues but likely viable for the foreseeable future)

- (3) Poor (significant health issues and likely in decline)
 - (4) Very poor or dead (in severe decline or dead)
 - h. Identify whether the tree is on the Milwaukie Rare or Threatened Tree List.
 - i. Identify whether the tree is proposed for removal or retained.
 - j. Organize the tree inventory information in a table or other format approved in writing by the Urban Forester.
- 2. Tree Preservation Plan Requirements
 - a. Provide a site plan drawn to scale.
 - b. Include the existing tree locations and corresponding tree numbers from the tree inventory.
 - c. Identify rare or threatened trees as described in the City of Milwaukie Rare or Threatened Tree List.
 - d. Identify the following site disturbances:
 - (1) Demolition
 - (2) Tree removal
 - (3) Staging, storage, and construction access
 - (4) Grading and filling
 - (5) Paving
 - (6) Construction of structures, foundations, and walls
 - (7) Utility construction
 - (8) Trenching and boring
 - (9) Excavation
 - (10) Any other demolition or construction activities that could result in ground disturbances and/or tree damage.
 - e. Locate tree and soil protection fencing to scale.
 - f. Locate soil compaction prevention methods to scale.
 - g. Identify performance path tree protection and soil volume areas.
 - h. Include tree and soil volume protection specifications from the arborist report on the plans including a detail and description of tree and soil volume protection fencing and signage.
 - i. The elements of the tree preservation plan may be included on multiple plan sheets for clarity.
 - j. The final approved set of construction drawings must include the tree preservation plan to ensure contractors, inspectors, and other professionals have access to the information.
- 3. Tree Planting Plan
 - a. Provide a site plan drawn to scale.
 - b. Include the existing trees to be retained and their crown areas to scale.

- c. Include the trees to be planted and their mature crown areas to scale based on the City of Milwaukie Tree Canopy List.
 - d. Identify the soil volume areas for each tree to be planted to scale.
 - e. For performance path soil volume areas, identify the methods and specifications as applicable for:
 - (1) Compaction Reduction;
 - (2) Soil Amendments;
 - (3) Topsoil Replacement; and/or
 - (4) Soil Under Pavement.
 - f. Include a diagram depicting the tree planting that is consistent with ISA best management practices.
 - g. The minimum size of planted trees is 1.5-inch caliper for broadleaf trees and 5-foot tall for conifers unless otherwise approved by the Urban Forester. Nursery stock must be in good health with the size and quality consistent with ISA best management practices and ANSI Z60.1 standards.
 - h. The species selection and spacing of trees to be planted must be such that it provides for the eventual mature size of the trees. Soil type, soil conditions and other site constraints shall be considered when selecting species for planting. Final site plans must be approved by the Urban Forester.
 - i. Root barriers must be installed according to the manufacturer's specifications when a tree is planted within 5 feet of pavement or an underground utility box unless otherwise approved by the Urban Forester.
 - j. Where there are overhead high voltage utility lines, the tree species selected must be of a type that, at full maturity, will not require pruning to avoid interference with the lines.
 - k. The elements of the tree canopy plan may be included on multiple plan sheets for clarity.
 - l. The final approved set of construction drawings must include the tree canopy plan to ensure contractors, inspectors, and other professionals have access to the information.
4. Arborist Report
- a. Provide a written narrative that summarizes the information from the tree inventory, tree preservation plan, and tree canopy plan.
 - b. Provide findings and calculations that demonstrate whether the tree preservation standards in Subsection 16.32.042.B have been met.

- c. Provide findings and calculations that demonstrate whether the tree planting standards in Subsection 16.32.042.C have been met.
- d. If the tree preservation and/or tree planting standards have not been met, provide calculations for the applicable tree mitigation fees as required by Subsection 16.32.042.D.
- e. If the applicant is seeking a variance to the tree preservation and/or tree planting standards in place of providing mitigation fees, provide findings that demonstrate the proposal provides equivalent or greater environmental benefits as preserving or planting the required tree canopy consistent as required by Subsection 16.32.042.E.
- f. Provide findings that demonstrate compliance with the tree protection standards in Subsection 16.32.042.F.
- g. Provide findings that demonstrate compliance with the soil volume standards in Subsection 16.32.042.G.

Applicant's Findings: All items required to be submitted so the review authority is able to make an informed decision will be provided in accordance with this section. This criterion will be met.

I. Non-Development Tree Permit Requirements

1. Applicability

A permit is required prior to the removal of the following trees in residential zones on property that is outside the right-of-way and not owned or maintained by the City:

- a. Trees that are at least 6-inch DBH.
- b. Trees that are less than 6-inch DBH as specified on the City of Milwaukie Rare or Threatened Tree List.
- c. Trees that were planted to meet any requirements in Section 16.32.042.

Permits are not required in residential zones when tree removal is approved with development listed in Subsection 16.32.042.A. Permits are also not required in residential zones for the removal of trees that are grown for commercial agricultural or horticultural purposes including fruit trees, nut trees, or holiday trees.

Applicant's Findings: The applicant is seeking approval to remove three trees on the development site in conjunction with development which is listed in Subsection 16.32.042.A. The tree removal permit criteria are not applicable.

J. Enforcement

1. City Authority

The City has the ultimate authority to:

- a. Interpret the provisions of this section and determine whether code criteria have been met.
- b. Establish conditions of permit and land use approval to ensure this section is properly implemented.
- c. Create rules and procedures as needed to implement this section. Rules and procedures may include, but are not limited to:
 - (1) City of Milwaukie tree lists.
 - (2) Tree protection standards, specifications, and procedures.
 - (3) Tree planting standards, specifications, and procedures.
 - (4) Tree establishment and maintenance standards, specifications, and procedures.
 - (5) Performance bonding, letters of credit, and cash assurances to help ensure proper tree protection, planting, and establishment.
 - (6) Tree protection inspections and oversight.
 - (7) Soil protection inspections and oversight.
 - (8) Performance path tree protection standards and specifications.
 - (9) Performance path soil volume standards and specifications.
 - (10) Fees for permit applications, reviews, mitigation, inspections, and violations.

2. Penalties

The following penalties may apply to violations of the provisions of this section:

- a. A person who removes a tree regulated by this section without first obtaining the necessary permit from the City, removes a tree in violation of an approved permit, or violates a condition of an approved permit must pay a fine in an amount established in the Master Fee Schedule.
- b. Topping, pruning, or otherwise inflicting willful and negligent damage to a tree crown or roots in a manner that is inconsistent with ISA best management practices:
 - (1) Up to the amount established in the Master Fee Schedule or up to the appraised loss in value of the illegally topped or pruned tree as determined by an ISA certified arborist plus the arborist's reasonable appraisal fee.
 - (2) Restoration of the tree crown, trunk, or root system as prescribed by an ISA certified arborist and approved by the Urban Forester.
- c. Tree protection zone violations:
 - (1) Up to the amount established in the Master Fee Schedule.

- (2) Restoration of the tree protection zone as prescribed by an ISA certified arborist and approved by the Urban Forester.
- d. Evidence of Violation
 - (1) If a tree is removed without a type 1 or 2 tree removal permit, a violation will be determined by measuring the stump. A stump that is 8 caliper inches or more in diameter will be considered prima facie evidence of a violation of this chapter.
 - (2) Removal of the stump of a tree removed without a tree removal permit is a violation of this chapter.
 - (3) Proof of violation of this chapter will be deemed prima facie evidence that such violation is that of the owner of the property upon which the violation was committed.

Applicant's Findings: *The applicant understands the city has the authority to enact enforcement in the case of a violation. This submittal is following the approval channels for tree removal and includes mitigation for the requested removal.*

Section 5: Findings Applicable to Title 17 Land Division

Chapter 17.12 – Application Procedure and Approval Criteria

Section 17.12.010 – Purpose

The purpose of this chapter is to specify the process and procedures for lot consolidation, property line adjustment, partition, subdivision, and replat.

Applicant's Findings: *The applicant understands the purpose of this chapter. A lot consolidation is being sought in order to construct a new 13 unit multifamily development. Responses to the applicable criteria are included in this section below.*

Section 17.12.020 – Application Procedure

- A. Applications for land division and property boundary changes shall be processed in accordance with Chapter 19.1000 Type I, Type II, and Type III procedures as indicated in this section.

Applicant's Findings: *The applicant is seeking approval of a lot consolidation for the subject development site. It is understood the application will be processed utilizing the Type I procedures. However, the applications are consolidated, unless processed concurrently, the lot consolidation will be reviewed under Type III procedures.*

- B. Applications for property boundary changes shall be processed in accordance with Table 17.12.020 based on the type of change requested. The Planning Manager may modify the procedures identified in Table 17.12.020 as follows:

1. Type III review may be changed to Type II review, or a Type II review may be changed to a Type I review, upon finding the following:
 - a. The proposal is consistent with applicable standards and criteria;
 - b. The proposal is consistent with the basis and findings of the original approval; and
 - c. The proposal does not increase the number of lots.
2. Type III review may be required in the following situations:
 - a. When the Planning Commission approved the original land use action; and
 - b. The proposed change is inconsistent with the original approval.

Applicant's Findings: *As stated previously, the applicant anticipates this application to be processed utilizing Type III procedures because it is consolidated with the requested Conditional Use Permit application.*

- C. An increase in the number of lots within the original boundaries of a partition plat shall be reviewed as a subdivision when the number of existing lots that are to be modified combined with the number of proposed new lots exceeds 3.

Applicant's Findings: *The applicant is seeking a lot consolidation which will not result in an increased number of lots. Upon recordation of the plat, two tax lots will be platted as one. This criterion is not applicable.*

D. Partitions

1. Applications for preliminary partition plat shall be processed in accordance with Section 19.1005 Type II Review. Should any associated application subject to Type III review be submitted in conjunction with a partition, the partition application shall be processed according to Section 19.1006 Type III Review.
2. Full compliance with all requirements for subdivision may be required if the Planning Commission should determine that the entire parcel being partitioned is in the process of being divided for the purpose of subdivision. This provision applies if the land to be partitioned exceeds 2 acres and within a year is being partitioned into more than 2 parcels, any one of which is less than 1 acre.

Applicant's Findings: *The applicant is not seeking approval of a partition. This section is not applicable.*

E. Subdivisions

Applications for subdivision preliminary plat applications shall be processed in accordance with Section 19.1006 Type III Review, except that subdivision applications that meet the approval criteria for middle housing or expedited land divisions may be processed pursuant to Subsection 17.12.020.G and Subsection 17.12.020.H respectively.

Applicant's Findings: *The applicant is not seeking approval of a subdivision. This section is not applicable.*

F. Final Plats

Applications for final plats of partitions and subdivisions shall be processed in accordance with Section 19.1004 Type I Review.

Applicant's Findings: *The applicant is not seeking approval of a partition or a subdivision. This criterion is not applicable.*

G. Middle Housing Land Divisions

Applicant's Findings: *The applicant is not seeking approval of a middle housing land division. This criterion is not applicable.*

H. Expedited Land Division

Applicant's Findings: *The applicant is not seeking approval of an expedited land division. This criterion is not applicable.*

[Section 17.12.030 – Approval Criteria for Lot Consolidation, Property Line Adjustment, and Replat](#)

A. Approval Criteria

The approval authority may approve, approve with conditions, or deny a lot consolidation, property line adjustment, and/or replat based on the following approval criteria. The applicant for a lot consolidation, property line adjustment, or replat shall demonstrate the following:

1. Compliance with this title and Title 19 of this code.

Applicant's Findings: *In Section 6 of this narrative, the applicant provides responses to applicable criteria within Title 19 of the Milwaukie Municipal Code, demonstrating compliance. This criterion is met.*

2. The boundary change will allow reasonable development of the affected lots and will not create the need for a variance of any land division or zoning standard.

Applicant's Findings: *The subject properties are zoned for high density residential development which is identified in both the city's comprehensive plan and on the zoning map. To reasonably develop the site and provide common and private open space and onsite parking and trash receptacles, the applicant must complete a lot consolidation. The consolidation will result in a property which allows the applicant to develop the site without deviation from the development code. This criterion is met.*

3. Boundary changes shall not reduce residential density below minimum density requirements of the zoning district in which the property is located.

Applicant's Findings: *As demonstrated in the application materials provided, the applicant is seeking to develop the site with 13 multifamily dwelling units. The proposed density is the maximum allowed for the zone relative to the size of the property while balancing landscaping, parking, open space, and right-of-way dedication requirements. The boundary changes will not reduce the residential density below minimum density requirements of the zoning district. This criterion is met.*

Chapter 17.16 – Application Requirements and Procedures

Section 17.16.040 – Lot Consolidation and Property Line Adjustment

The following shall accompany applications for lot consolidation and property line adjustments:

- A. Completed application forms signed by all owners of property included in the proposal;
- B. Application fee as adopted by the City Council;
- C. Narrative report that describes how the proposal meets approval criteria;
- D. Additional information as may be required by the application check list; and
- E. A plan drawn to scale showing the following details:
 1. Scale, north arrow, and date of map;
 2. Tax map and lot number identifying each property involved in the application;
 3. Adjacent rights-of-way, with width shown;
 4. Location, width, and purpose of any recorded easements and/or plat restrictions;
 5. Proposed property lines and dimensions of the affected lots;
 6. The area of each lot;
 7. Location of existing structures to remain and proposed structures, if any, with setbacks shown to all existing and proposed lot lines;
 8. Deeds of the properties involved; and
 9. Application fee as adopted by the City Council.

Applicant's Findings: *This application includes all of the required submittal items included in this section. This criterion is met.*

Chapter 17.28 – Design Standards

Section 17.28.030 – Easements

- A. Utility Lines

Easements for sewers, water mains, electric lines, or other public utilities shall be dedicated wherever necessary. The easements shall be provided in accordance with applicable design standards in the Public Works Standards.

Applicant's Findings: *The redevelopment of the site will include the relocation of utility lines and the requirement for easements. The easements needed will be provided in accordance with the applicable design standards. This criterion will be met.*

B. Watercourses

If a subdivision is traversed by a watercourse such as a drainageway, channel, or stream, there shall be provided a stormwater easement or drainage right-of-way conforming substantially with the lines of the watercourse, and such further width as will be adequate for the purpose of construction and maintenance. Streets, parkways, bicycle ways, or pedestrian ways parallel to major watercourses may be required.

Applicant's Findings: *The application is not for a subdivision nor is the property encumbered by any watercourse. This criterion is not applicable.*

Section 6: Findings Applicable to Title 19 Zoning

Chapter 19.100– Introductory Provisions

Section 19.103 – Applicability

This title applies to all land, uses, and development within the corporate limits of the City of Milwaukie. It does not apply to temporary events as defined and provided for in Chapter 11.04.

Applicant's Findings: *The applicant is presenting an application to redevelop a vacant site into 13 unit multifamily housing site with associated improvements and amenities. The provisions of Title 19 are applicable to this application.*

Chapter 19.200– Definitions and Measurements

Section 19.202 – Measurements

Section 19.202.4 – Density Calculations

Minimum required and maximum allowed dwelling unit density will be calculated as described below, except that residential cluster development on lands containing natural resource areas are subject to the density calculations in Subsection 19.402.14.C. The purpose of these calculations is to ensure that properties develop at densities consistent with the densities in the Comprehensive Plan. The area deductions for minimum required density allow properties to utilize land that can be built upon. The area deductions for maximum allowed density include sensitive lands where development should be avoided.

A. Gross Area

The gross area of a lot is measured in sq ft and is determined by a registered professional land surveyor or with data from the Clackamas County Assessor's Office.

Applicant's Findings: *The applicant had the development site surveyed by a professional land surveyor to determine the gross site area which is 19,114 square feet.*

B. Rounding

The results for minimum required and maximum allowed dwelling unit density are rounded based on a fraction that is truncated to 2 numbers past the decimal point. For example, 3.4289 is truncated to 3.42. Where a minimum density calculation results in a fraction that is 0.50 or above, the fraction is rounded up to the next whole number. Where a minimum density calculation results in a fraction that is less than 0.50, the fraction is rounded down to the preceding whole number. Where a maximum density calculation results in a fraction that is less than 0.75, the fraction is rounded down to the preceding whole number.

Applicant's Findings: *The applicant understands the rounding requirement of this section. In accordance with Table 19.302.4, the HDR zone has a density requirement of 25 units minimum per acre and 32 units maximum per acre. The gross acreage of the development site is .43 acres which equates 10.75 acres minimum, rounded to 11, and 13.76 maximum, rounded to 14.*

C. Discrepancy between Minimum Required and Maximum Allowed Density

If the calculation results are that minimum density is equal to maximum density, then the minimum required density is reduced by one. If the calculation results are that minimum density is larger than maximum density, then the minimum required density is reduced to one less than the maximum. If the calculation results are that the maximum density calculation is equal to zero, then the minimum density is one.

Applicant's Findings: *The density calculation for this site does not result in discrepancies between the minimum and maximum density allowances. This criterion is not applicable.*

D. Minimum Density

1. Deductions to Calculate Net Area

The following areas, measured in sq ft, are subtracted from the gross area to determine the net area. The net area calculation is rounded to the nearest whole number.

- a. Floodways, as determined by Federal Emergency Management Agency flood maps.
- b. Right-of-way dedications for new right-of-way or expansion of existing rights-of-way, as required in Chapter 19.700.
- c. Open space or parkland that will be publicly owned or open space owned in common by owners within the residential development.

Applicant's Findings: In accordance with this section, the .43 gross acres must be reduced by the square footage of the new right-of-way dedication. The right-of-way dedication equals 1,124 square feet and the resulting net acreage of the site is .41, or 17,990 square feet. The updated density allowance based on the net site acreage is 10.25 dwelling units minimum, rounded to 10, and 13.12 dwelling units maximum, rounded to 13. As shown on the site plan and stated throughout the written materials, the applicant is proposing 13 dwelling units which falls within the density allowances for the net site acreage. This criterion is met.

2. Density Calculation

The minimum number of dwelling units required is calculated by dividing the net area by 43,560 sq ft to convert the area to acres, then by multiplying the acreage by the minimum required dwelling unit density in the applicable base zone in Chapter 19.300.

Applicant's Findings: The applicant utilized the method outlined in this section to determine the density calculation for the development site. This criterion is met.

3. Constrained Lands

Regardless of the density calculation described above, any legal lot that meets the standards of Subsection 19.501.1 is allowed at least one dwelling unit.

Applicant's Findings: The applicant understands this provision. The calculations provide the subject site is required to provide a minimum of 10 dwelling units and is limited to a maximum of 13 dwelling units. This criterion is not applicable.

E. Maximum Density

1. Deductions to Calculate Net Area

The following areas, measured in sq ft, are subtracted from the gross area to determine the net area. The net area calculation is rounded to the nearest whole number.

- a. 1% Annual Chance Flood areas (also called the 100-Year Floodplain), as determined by Federal Emergency Management Agency flood maps.
- b. Right-of-way dedications for new right-of-way or expansion of existing rights-of-way, as required in Chapter 19.700.
- c. Open space or parkland that will be publicly-owned or open space owned in common by owners within the residential development.
- d. Naturally occurring slopes in excess of 25%.
- e. Man-made slopes (grades that are the result of human activity rather than natural causes) in excess of 25% with both a horizontal measure

over 40 ft and an elevation change more than 10 ft over that horizontal distance.

Applicant's Findings: *The applicant deducted the right-of-way dedication area from the net area to determine the minimum and maximum density for the site. The other reduction items listed within this section are not applicable to the subject property. As applicable, this criterion is met.*

2. Density Calculation

The maximum number of dwelling units allowed is calculated by dividing the net area by 43,560 sq ft to convert the area to acres, then by multiplying the acreage by the maximum allowed dwelling unit density in the applicable base zone in Chapter 19.300.

Applicant's Findings: *The applicant utilized the method outlined in this section to determine the density calculation for the development site. This criterion is met.*

[Chapter 19.300– Base Zones](#)

[Section 19.302 – High Density Residential Zone](#)

[Section 19.302.1 – Purpose](#)

The high-density residential zone is intended to create and maintain higher density residential neighborhoods that blend a range of housing types with a limited mix of neighborhood-scale commercial, office, and institutional uses.

Applicant's Findings: *The applicant understands the purpose of the high-density residential zone. The project proposed by the applicant is for a multifamily development with 13 dwelling units which aligns with the expressed purpose of the zone.*

[Section 19.302.2 – Allowed Uses in the High-Density Residential Zone](#)

Uses allowed, either allowed by right or conditionally, in the high density residential zone are listed in Table 19.302.2 below. Similar uses not listed in the table may be allowed through a Director's Determination pursuant to Section 19.903. Notes and/or cross references to other applicable code sections are listed in the "Standards/Additional Provisions" column.

See Section 19.201 Definitions for specific descriptions of the uses listed in the table.

Applicant's Findings: *In accordance with Table 19.302.2, multi-unit housing is a permitted use subject to the provisions of subsections 19.505.3, 19.302.5.F, and 19.302.5.H. This narrative provides findings describing how the proposal meets the applicable criteria of the Milwaukie Municipal Code. This criterion is met.*

Section 19.302.4 – Development Standards

In the high density residential zone, the development standards in Table 19.302.4 apply. Notes and/or cross references to other applicable code sections are listed in the “Standards/Additional Provisions” column. Additional standards are provided in Section 19.302.5.

The standards in Subsection 19.302.4 are not applicable to cottage cluster development except where specifically referenced by Subsection 19.505.4.

See Sections 19.201 Definitions and 19.202 Measurements for specific descriptions of standards and measurements listed in the table.

In the high density residential zone the following housing types are permitted on lot sizes as follows:

7,000 sq ft and up: Single Detached Dwelling, Single Detached Dwelling with up to 2 ADUs, Duplex, Triplex, Quadplex, Cottage Cluster, Multi-Unit Housing.

Applicant’s Findings: *As demonstrated by findings included within the density calculation provisions of this section, the development site is 19,114 square feet in size currently and will be 17,990 square feet upon the required dedication of right-of-way. The development site meets the minimum square footage requirements for the proposed multi-dwelling use.*

In accordance with Table 19.302.4(B) Development Standards, the following provisions apply to the proposed development.

Minimum yard requirements for the primary structure:

Front yard – 20 feet. The front yard for the proposed development abuts SE Lava Drive. As demonstrated by the site plan included, the building is proposed to be setback 20’-1”.

Side yard – 5 feet. The MMC section 19.302.5.A states the side yard for development other than a townhouse shall be at least 5 feet within the high density zones. As demonstrated by the site plan included with this application submittal, the development includes a minimum 5-foot landscaped side yard along the westerly, side yard, property line.

Street side yard – 15 feet. The easterly property line is a street side yard; however SE River Lane is private. As shown on the side plan included, the building is proposed to be setback 20-feet on the east side.

Rear yard – 15 feet. The southerly property line is the rear yard for the purposes of this development as SE Lava Drive abuts the property along the northern property line and is the only public access to the site. The building is setback from the rear property line 15 feet.

Building height limitations:

The building height is limited to 45 feet. The code allows for exceptions to building height, but the applicant is not seeking any exception. The proposed building height, as shown on the elevation drawings provided, is approximately 32'-8". The building height is limited when the building is setback at the minimum side yard setback. The westerly side yard setback is required to be a minimum of 5 feet, the development proposes an 80-foot setback. The easterly side yard setback is required to be a minimum of 15 feet, the development proposes a 20-foot setback.

Maximum lot coverage:

Lot coverage is limited to 50 percent of the total lot area. Lot coverage is defined as the amount of area covered by building(s) on a lot expressed as a percentage of the total lot area. Lot coverage includes open structures, such as pole barns; building features such as patio covers, roofed porches, and decks; or similar features with a surface height of more than 18 in above average grade. Lot coverage does not include eaves. Based on this definition, the proposed lot coverage is 5,216 square feet divided by 17,990 square feet for a total proposed lot coverage of 28 percent, which is 22 percent below the maximum allowed.

Minimum vegetation:

The minimum vegetation is 15 percent of the total lot area. Additional provisions are found in 19.504.6 Minimum Vegetation which states no more than 20 percent of the required vegetation area shall be covered in mulch or bark dust. Mulch or bark dust under the canopy of trees or shrubs is excluded from this limit. Plans for development shall include landscaping plans which shall be reviewed for conformance to this standard. A landscape plan detailing vegetation and ground cover is included for review with this application. The site is 17,990 square feet in size, requiring 2,699 square feet of vegetation. As shown on the preliminary landscape plan, the applicant is proposing 5,565 square feet of vegetation equaling 30 percent of the total lot area, exceeding the minimum.

The minimum front yard vegetation is 40 percent of the front yard area. In this case, the front yard area is 4,546 square feet, requiring 1,818 square feet of vegetation. The preliminary landscape plan illustrates 1,995 square feet of vegetation, or 43 percent of the front yard area is proposed to be reserved for vegetation.

At least half of the minimum required vegetation area must be suitable for outdoor recreation by residents, and not have extreme topography or dense vegetation that precludes access. As shown on the site plan and preliminary landscape plans, the development site is not perfectly flat. In order to design an effective onsite stormwater management system, the applicant must utilize retaining walls within the rear setback. However, the applicant has designed the landscape in a manner that encourages residents to utilize the outdoor space. Benches will be incorporated into the landscape and trees are placed in a manner to provide shade in summer

months. The minimum required vegetation area is 2,699 square feet. The provisions of this section require a minimum of 1,350 square feet of vegetation area to be suitable for outdoor recreation by residents. As detailed on the landscape plan provided, 1,897 square feet of lawn is proposed which will be suitable for recreational activities.

Density requirements:

In accordance with Table 19.302.4, the HDR zone has a density requirement of 25 units minimum per acre and 32 units maximum per acre. The gross acreage of the development site is .43 acres which equates 10.75 acres minimum, rounded to 11, and 13.76 maximum, rounded to 14.

The .43 gross acres of the site must be reduced by the square footage of the new right-of-way dedication. The right-of-way dedication equals 1,124 square feet and the resulting net acreage of the site is .41, or 17,990 square feet. The updated density allowance based on the net site acreage is 10.25 dwelling units minimum, rounded to 10, and 13.12 dwelling units maximum, rounded to 13. As shown on the site plan and stated throughout the written materials, the applicant is proposing 13 dwelling units which falls within the density allowances for the net site acreage.

The applicant has demonstrated these criteria are met.

Section 19.302.5 – Additional Development Standards

A. Side Yards

In the high density zones, the required side yard is determined as described below. These measurements apply only to required side yards and do not apply to required street side yards.

1. The side yard for development other than a townhouse shall be at least 5 ft.
2. There is no required side yard for townhouses that share 2 common walls. The required side yard for an exterior townhouse that has only one common wall is zero ft for the common wall and 5 ft for the opposite side yard. An exterior townhouse on a corner lot shall meet the required street side yard setback in Subsection 19.302.4.B.1.b.

Applicant's Findings: As demonstrated by the site plan included with this application submittal, the development includes a minimum 5-foot landscaped side yard along the westerly, side yard, property line. This criterion is met.

B. Lot Coverage

The lot coverage standards in Subsection 19.302.4.B.4 are modified for specific uses and lot sizes as described below. The reductions and increases are additive for lots that are described by one or more of the situations below.

Applicant's Findings: *The applicant is not seeking approval for increased lot coverage. The provisions of this section are not applicable.*

C. Minimum Vegetation

At least half of the minimum required vegetation area must be suitable for outdoor recreation by residents, and not have extreme topography or dense vegetation that precludes access.

Applicant's Findings: *As shown on the site plan and preliminary landscape plans, the development site is not perfectly flat. In order to design an effective onsite stormwater management system, the applicant must utilize retaining walls within the rear setback. However, the applicant has designed the landscape in a manner that encourages residents to utilize the outdoor space. Benches will be incorporated into the landscape and trees are placed in a manner to provide shade in summer months. The minimum required vegetation area is 2,699 square feet. The provisions of this section require a minimum of 1,350 square feet of vegetation area to be suitable for outdoor recreation by residents. As detailed on the landscape plan provided, 1,897 square feet of lawn is proposed which will be suitable for recreational activities. This criterion is met.*

D. Front Yard Minimum Vegetation

At least 40% of the front yard shall be vegetated. The front yard vegetation area required by this subsection counts toward the minimum required vegetation for the lot. A property may provide less than the 40% of the front yard vegetation requirement if it is necessary to provide a turnaround area so that vehicles can enter a collector or arterial street in a forward motion.

Applicant's Findings: *The minimum front yard vegetation is 40 percent of the front yard area. In this case, the front yard area is 4,546 square feet, requiring 1,818 square feet of vegetation. The preliminary landscape plan illustrates 1,995 square feet of vegetation, or 43 percent of the front yard area is proposed to be reserved for vegetation. This criterion is met.*

E. Height Exceptions

An additional 10 ft of building height may be permitted in excess of the required maximum standard. For the additional 10 ft in building height, an additional 10% of site area beyond the minimum is required to be retained in vegetation.

Applicant's Findings: *The applicant is not seeking any exceptions to height limitations. This criterion is not applicable.*

F. Residential Densities

1. The minimum and maximum development densities in Subsection 19.302.4.C.1 are applicable for land divisions, replats that change the number of lots, and any development that would change the number of dwelling units on a lot. Development of a single detached dwelling or accessory dwelling units are exempt from the minimum and maximum density requirements. Middle housing, except for townhouses, is exempt from maximum density requirements.

If a proposal for a replat or land division is not able to meet the minimum density requirement—due to the dimensional requirements for lot width, lot depth, or lot frontage—the minimum density requirement shall instead be equal to the maximum number of lots that can be obtained from the site given its dimensional constraints. The inability of new lot lines to meet required yard dimensions from existing structures shall not be considered as a basis for automatically lowering the minimum density requirement.

Applicant's Findings: *The minimum and maximum densities for multifamily housing are applicable to this project because the development will change the number of dwelling units on the development site. The applicant has demonstrated compliance with the minimum and maximum density allowances of the zone. This criterion is met.*

G. Accessory Structure Standards

Standards specific to accessory structures are contained in Section 19.502.

Applicant's Findings: *19.502.1 General Provisions includes the following requirements for accessory structures. The site includes a trash enclosure, which is an accessory structure meeting the requirements of this section as demonstrated below.*

A. *No accessory structure shall encroach upon or interfere with the use of any adjoining property or public right-of-way, including, but not limited to, streets, alleys, and public and private easements, unless permitted in accordance with Chapter 12.14. The location of the trash enclosure is shown on the site plan. Neither the stationary structure nor the swinging doors will interfere with the use of any adjoining property or public right-of-way.*

B. *Multiple accessory structures are permitted subject to building separation, building coverage, and minimum vegetation requirements of the zoning district in which the lot is located. The site includes just one accessory structure, a trash enclosure. The enclosure was included in the lot coverage calculations provided above.*

C. *An accessory structure shall comply with all of the requirements of the Uniform Building Code. The trash enclosure was designed by a licensed architect with knowledge of the Uniform Building Code. Additional enclosure details will be provided upon building permit submittal.*

D. *Accessory structures excluding fences, flagpoles, pergolas, arbors, or trellises may not be located within the required front yard except as otherwise permitted in this chapter. The trash enclosure location is shown on the site plan included with this application. The site plan demonstrates the trash enclosure is not located within the front yard setback.*

E. *Regardless of the base zone requirements in Chapter 19.300, the required side and rear yards for an accessory structure are reduced to 5 ft, except as described below.*

1. *Accessory structures are subject to the minimum street side yard requirements of the base zones in Chapter 19.300.*

2. *Regulations for overlay zones or special areas in Chapter 19.400 may require an accessory structure to be set back beyond the minimum side or rear yard requirements.*

3. *If the rear or side yard requirement in the base zone in Chapter 19.300 is less than 5 ft, then the yard requirements of the base zone shall apply.*

4. *The rear or side yard requirement for residential accessory structures per Subsection 19.502.2.A or 19.910.1.E.4 may specify a different yard requirement. The trash enclosure location greatly exceeds all required setbacks of the base zone with the exception of the rear yard setback of the base zone which is 15 feet. The trash enclosure is proposed to be setback from the rear property line by 9'-6", exceeding the minimum 5 foot requirement of this section.*

F. *Alteration or modification of nonconforming accessory structures is subject to the provisions of Chapter 19.800 Nonconforming Uses and Development. The site does not include any nonconforming accessory structures. The proposed accessory structure is new construction conforming to all applicable design standards.*

G. *Fences, flagpoles, pergolas, arbors, and trellises are permitted in yards in all residential zones. The applicant understands the accessory structures listed in this section are permitted in yards in all residential zones.*

As demonstrated, the trash enclosure proposed meets the accessory structure requirements.

H. Building Limitations

Multi-unit buildings shall not have an overall horizontal distance exceeding 150 linear ft as measured from end wall to end wall.

Applicant's Findings: *The site plan and elevations provided demonstrate the longest horizontal distance of the proposed multi-unit building is approximately 125'-9". This criterion is met.*

I. Off-Street Parking and Loading

Off-street parking and loading is required as specified in Chapter 19.600.

Applicant's Findings: *The applicant includes responses to all applicable off-street parking and loading criteria within this section of the narrative. As applicable, this criterion is met.*

J. Public Facility Improvements

Transportation requirements and public facility improvements are required as specified in Chapter 19.700.

Applicant's Findings: *The applicant includes responses to all applicable public facility improvement criteria within this section of the narrative. As applicable, this criterion is met.*

K. Additional Standards

Depending upon the type of use and development proposed, the following sections of Chapter 19.500 Supplementary Development Regulations may apply. These sections are referenced for convenience, and do not limit or determine the applicability of other sections within the Milwaukie Municipal Code.

1. Subsection 19.504.4 Buildings on the Same Lot
2. Subsection 19.504.7 Flag Lot and Back Lot Design and Development Standards
3. Subsection 19.504.8 On-Site Walkways and Circulation
4. Subsection 19.504.9 Setbacks Adjacent to Transit
5. Subsection 19.505.1 Single Detached and Middle Housing Residential Development
6. Subsection 19.505.2 Garages and Carports
7. Subsection 19.505.3 Multi-Unit Housing
8. Subsection 19.505.4 Cottage Cluster Housing
9. Subsection 19.505.5 Townhouses
10. Subsection 19.505.8 Building Orientation to Transit
11. Subsection 19.506.4 Manufactured Dwelling Siting and Design Standards, Siting Standards

Applicant's Findings: *Prior to submittal of this application, the applicant's representatives held a pre-application conference with city staff. The notes received included all applicable code provisions. This narrative includes responses to all applicable code sections for the proposed application. This criterion is met.*

Chapter 19.400– Overlay Zones and Special Areas

Section 19.401 – Willamette Greenway Zone WG

Section 19.401.1 – Purpose

The purpose of the Willamette Greenway Zone is to protect, conserve, enhance, and maintain the natural, scenic, historic, economic, and recreational qualities of lands along the Willamette River and major courses flowing into the Willamette River.

Applicant’s Findings: *The applicant understands the purpose of the provisions within the Willamette Greenway Overlay Zone. Findings are provided to all applicable criteria within this section below.*

Section 19.401.2 – Area Defined

The Willamette Greenway Zone is that area within the Willamette Greenway plan boundary identified on the Zoning Map. The WG Zone is in combination with the underlying zone.

Applicant’s Findings: *The subject property is shown to be entirely within the Willamette Greenway plan boundary in accordance with City of Milwaukie zoning map hatching.*

Section 19.401.3 – Limitations on Use

All land use actions and any change or intensification of use, or development permitted in the underlying zone, are conditional uses, subject to the provisions of Section 19.905.

Prohibited uses:

- A. Commercial, industrial and residential structures and residential accessory structures exceeding 35 ft in height west of McLoughlin Blvd;
- B. Residential floating structures;
- C. New private noncommercial boathouses or storage structures, including temporary structures;
- D. New private noncommercial docks exceeding 400 sq ft;
- E. Grading and tree cutting is prohibited in the buffer, except as allowed in Subsections 19.401.8.B.1 through 6.

Applicant’s Findings: *The proposal does not include any prohibited uses as outlined in this section. This criterion is met.*

Section 19.401.5 – Procedures

The following procedures shall govern the application of WG zones:

- A. In the WG Zone, all uses and their accessory uses are permitted subject to the provisions of Section 19.905, except as noted in Subsection 19.401.5.B and Subsection 19.401.5.D.

Applicant's Findings: *The applicant is proposing a multi-dwelling development which is a permitted use, subject to standards within the underlying High-Density Residential zone. Responses to applicable criteria listed in sections 19.905, 19.401.5.B, and 19.401.5.D are included in this narrative. This criterion is met.*

- B. Willamette Greenway review is not required for any of the activities listed below:
1. Changes to the interior of a building or alterations of buildings or accessory structures that do not increase the size or alter the configuration of the building or accessory structure footprint;
 2. Normal maintenance and repair as necessary for an existing development;
 3. Removal of plants listed as nuisance species on the Oregon Noxious Weed List or Milwaukie Invasive Tree List;
 4. Addition or modification of existing utility lines, wires, fixtures, equipment, circuits, appliances, and conductors by public or municipal utilities;
 5. Flood emergency procedures, and maintenance and repair of existing flood control facilities;
 6. Placement of signs, markers, aids, etc., by a public agency to serve the public;
 7. Establishment of residential accessory uses, such as lawns, gardens, and play areas, subject to the vegetation buffer requirements of Subsection 19.401.8;
 8. Ordinary maintenance and repair of existing buildings, structures, parking lots, or other site improvements;
 9. Minor repairs or alterations to existing structures for which no building permit is required;
 10. A change of use of a building or other structure that does not substantially alter or affect the land or water upon which it is situated;
 11. Construction of driveways;
 12. Reasonable emergency procedures as necessary for the safety or protection of property; and
 13. Other activities similar to those listed in "1" through "12" above. Such Director determinations, including a finding of consistency with Goal 15, shall be made in accordance with Section 19.903.

Applicant's Findings: *The applicant is seeking to develop a new multifamily housing site on the subject property. None of the exempted activities listed in this section are applicable to this proposal.*

- C. The Oregon Department of Parks and Recreation shall be notified of a hearing on a conditional use in the WG Zone. The notice shall be sent via "certified mail, return receipt requested."

Applicant's Findings: *The applicant understands the noticing requirement for the Oregon Department of Parks and Recreation.*

- D. A greenway conditional use is required for all intensification or change of use, or alteration of the vegetation buffer area, or development, as defined in this section. Landscaping, construction of driveways, modifications of existing structures, or the construction or placement of such subsidiary structures or facilities as are usual and necessary to the use and enjoyment of existing improvements shall not be considered a change in use or intensification. Approval shall be granted only if the criteria in Subsection 19.401.6 are met.

Applicant's Findings: *The applicant understands their proposed development triggers a greenway conditional use permit under the definition of development.*

- E. Submittal Requirements

A vegetation/buffer plan must be submitted for each application for a greenway conditional use permit. A buffer plan is required only if the proposed development impacts the vegetation buffer defined in Subsection 19.401.8.

Applicant's Findings: *In accordance with 19.401.8.A, the vegetation buffer is defined as the land area between the river and a location 25 ft upland from the ordinary high water line. The edge of the development site to approximately the top of bank of the river is more than 400-feet. The proposed development will have no impact on the vegetation buffer as defined. This criterion is not applicable.*

- F. Written notice, including a copy of the application, will be sent upon receipt to the Oregon Parks and Recreation Department by certified mail—return receipt requested. The Oregon Division of State Lands, Oregon Department of Fish and Wildlife, and State Marine Board shall also be notified of each application.

Applicant's Findings: *The applicant understands the noticing requirement for the Oregon Department of Parks and Recreation the Oregon Division of State Lands, Oregon Department of Fish and Wildlife, and State Marine Board.*

- G. Written notice shall be provided to the Oregon Division of State Lands after the land use action is final for activities affecting wetlands or submerged or submersible lands within the Willamette River greenway. The notice shall include local government conditions of approval.

Applicant's Findings: *The applicant understands once action is final, notice shall be provided to Oregon DSL.*

Section 19.401.6 – Criteria

The following shall be taken into account in the consideration of a conditional use:

- A. Whether the land to be developed has been committed to an urban use, as defined under the State Willamette River Greenway Plan;

Applicant’s Findings: *The Willamette River Greenway Plan defines urban use as a use part of the built environment rather than uses along a river which are natural, rural, or agricultural in nature. The subject property falls within the High-Density Residential zone. The Milwaukie Municipal Code asserts the purpose of the HDR zone is to create and maintain higher density residential neighborhoods that blend a range of housing types with a limited mix of neighborhood-scale commercial, office, and institutional uses. As described previously in this narrative, the subject property was previously developed with a single family dwelling. For these reasons, it is appropriate to assert the development site is committed to urban development. This criterion is met.*

- B. Compatibility with the scenic, natural, historic, economic, and recreational character of the river;

Applicant’s Findings: *The development site under review is more than 400 feet from the riverbank, at its closest point. Additionally, carports, mature vegetation, multistory apartment buildings, single family dwellings, and accessory structures exist between the development site and the river. The proposed building does not include a peaked roof, emulating a more historic nature. The rear of the proposed building is planned to be terraced and the site is planned to be heavily and thoughtfully landscaped further softening the structure of the new building and enhancing the natural environment above and beyond what exists on the site today. This criterion is met.*

- C. Protection of views both toward and away from the river;

Applicant’s Findings: *The subject site is located northeast of the riverbank. Within the immediate area of the development site, large stands of mature evergreen trees line the north side of SE Lava Drive. Additionally, the natural topography of property north and east of the subject property slopes upward steeply with approximately 25 feet of elevation changes leaving the applicants property to sit well below adjacent sites having minimal impacts on views toward the river. Proposed landscaping on site will soften the building, enhancing the natural environment and protect views uphill, away from the river. The scale of the building is such that it will be dwarfed by the existing developments and mature vegetation within the immediate area. The terracing of the building also reduces mass, further protecting views both toward and away from the river. This criterion is met.*

- D. Landscaping, aesthetic enhancement, open space, and vegetation between the activity and the river, to the maximum extent practicable;

Applicant's Findings: *The applicant was faced with balancing developments and site uses immediately adjacent to the property and the provisions of this section. A landscape plan providing more landscape than the MMC requires is included with the applicants submittal materials. The locations of trees and shrubs on site is very intentional and done in a manner to provide buffering and screening from the new development to developments immediately south and east of the site. The off-street parking area is proposed between the building and the river; however, the development site is more than 400-feet from the riverbank. The enhanced pedestrian connections both internally and along the public right-of-way will enhance the activity between the site and the river as there is no public sidewalk along the street frontage today. This criterion is met.*

- E. Public access to and along the river, to the greatest possible degree, by appropriate legal means;

Applicant's Findings: *The applicant's site is more than 400 feet from the river and does not have direct access. However, the applicant is providing a public sidewalk along the property frontage which will enhance the pedestrian route from the east to the river. This criterion is met.*

- F. Emphasis on water-oriented and recreational uses;

Applicant's Findings: *This criterion is not applicable as the development site is more than 400 feet from the river and does not have direct access.*

- G. Maintain or increase views between the Willamette River and downtown;

Applicant's Findings: *The subject property does not fall within the line of sight from downtown Milwaukie and the Willamette River. Additionally, the proposed building will not exceed the heights of surrounding mature evergreen vegetation and existing development in the area. This criterion is met.*

- H. Protection of the natural environment according to regulations in Section 19.402;

Applicant's Findings: *The development site exists outside of the mapped natural resource areas adjacent to the river. In accordance with 19.401.8.A, the vegetation buffer is defined as the land area between the river and a location 25 feet upland from the ordinary high water line. The edge of the development site to approximately the top of bank of the river is more than 400-feet. The proposed development will have no impact on the vegetation buffer as defined. This criterion is not applicable.*

- I. Advice and recommendations of the Design and Landmark Committee, as appropriate;

Applicant's Findings: Pursuant to Milwaukie's Municipal Code Section 19.907.8, the proposed development does not trigger a Type III downtown design review and review by the Design and Landmarks Committee is not required. This criterion is not applicable.

J. Conformance to applicable Comprehensive Plan policies;

Applicant's Findings: The proposed development is for a multi-dwelling housing project with 13-dwelling units. The use of the site is consistent with the Housing and Residential Needs Assessment and supports the goals and policies of the city's Comprehensive Plan. The site is more than 400 feet from the top of bank, the compatibility review area of the river is 125 feet inland from the ordinary low water line. The site is designated as appropriate for urban use. The Willamette River Greenway Plan defines urban use as a use part of the built environment rather than uses along a river which are natural, rural, or agricultural in nature. The subject property falls within the High-Density Residential zone. The Milwaukie Municipal Code asserts the purpose of the HDR zone is to create and maintain higher density residential neighborhoods that blend a range of housing types with a limited mix of neighborhood-scale commercial, office, and institutional uses. As described previously in this narrative, the subject property was previously developed with a single family dwelling. The development directly supports the City of Milwaukie's Comprehensive Plan goals and policies related to housing, specifically livability. The site will be redeveloped with denser housing which is balanced by the enhanced landscape and pedestrian amenities. Pedestrian connections will help to improve the connectivity of the area between the river and development to the east. The site does not currently have public sidewalks. This project will include a new sidewalk along the entire properties frontage of SE Lava Drive. This criterion is met.

K. The request is consistent with applicable plans and programs of the Division of State Lands;

Applicant's Findings: The proposed development does not impact any natural resource and the site is more than 400 feet from the Willamette River. Therefore, this request is not inconsistent with applicable plans or programs of DSL. This criterion is met.

L. A vegetation buffer plan meeting the conditions of Subsections 19.401.8.A through C.

Applicant's Findings: The development site exists outside of the mapped natural resource areas adjacent to the river. In accordance with 19.401.8.A, the vegetation buffer is defined as the land area between the river and a location 25 feet upland from the ordinary high water line. The edge of the development site to approximately the top of bank of the river is more than 400-feet. The proposed development will have no impact on the vegetation buffer as defined. This criterion is not applicable.

Chapter 19.500– Supplementary Development Regulations

Section 19.504 – Site Design Standards

Section 19.504.1 – Clear Vision Areas

A clear vision area shall be maintained on the corners of all property at the intersection of 2 streets or a street and a railroad according to the provisions of the clear vision ordinance in Chapter 12.24.

Applicant’s Findings: *One driveway is proposed for both ingress and egress for the development site. The vision clearance requirement for the driveways serving this development are as follows: ten-foot legs along the driveway and 50-foot legs along the intersecting street or alley. The applicant understands these vision clearance triangles must be kept free of any obstruction exceeding 3 feet above curb level. This has been carefully considered when taking into account planting materials within these areas. This criterion is met.*

Section 19.504.2 – Maintenance of Minimum Ordinance Requirements

No lot area, yard, other open space, or off-street parking or loading area shall be reduced by conveyance or otherwise below the minimum requirements of this title, except by dedication or conveyance for a public use.

Applicant’s Findings: *The applicant understands they must maintain the development lot, yards, open space areas, and off-street parking in accordance with the applicable ordinances, unless the areas are conveyed or dedicated for a public use. This criterion will be met.*

Section 19.504.3 – Dual Use of Required Open Space

No lot area, yard, or other open space or off-street parking or loading area which is required by this title for one use shall be used to meet the required lot area, yard, or other open space or off-street parking area for another use, except as provided in Subsection 19.605.4.

Applicant’s Findings: *The applicant understands the areas reserved on this development site cannot serve as a required yard, open space, or off-street parking area for another use. This criterion will be met.*

Section 19.504.6 – Minimum Vegetation

No more than 20% of the required vegetation area shall be covered in mulch or bark dust. Mulch or bark dust under the canopy of trees or shrubs is excluded from this limit. Plans for development shall include landscaping plans which shall be reviewed for conformance to this standard.

Applicant's Findings: *The applicant has provided a preliminary landscape plan prepared by a landscape architect which demonstrates that not more than 20 percent of the required vegetation areas will be covered with mulch or bark dust. This criterion is met.*

Section 19.504.8 – On-Site Walkways and Circulation

A. Requirement

All development subject to Chapter 19.700 (excluding single detached and multi-unit residential development) shall provide a system of walkways that encourages safe and convenient pedestrian movement within and through the development site.

Redevelopment projects that involve remodeling or changes in use must be brought closer into conformance with this requirement to the greatest extent practicable. On-site walkways shall link the site with the public street sidewalk system, where sidewalks exist, or to the edge of the paved public street, where sidewalks do not exist. Walkways are required between parts of a site where the public is invited to walk. Walkways are not required between buildings or portions of a site that are not intended or likely to be used by pedestrians, such as truck loading docks and warehouses.

Applicant's Findings: *The proposed development is for a multi-unit residential development. In accordance with this section, the development is exempt from these provisions.*

Section 19.505 – Building Design Standards

Section 19.505.3 – Multi-Unit Housing

A. Purpose

The purpose of these design standards is to facilitate the development of attractive multi-unit housing that encourages multimodal transportation. They encourage good site and building design, which contributes to livability, safety, and sustainability; helps create a stronger community; and fosters a quality environment for residents and neighbors.

The guidelines and standards are intended to achieve the following principles that the City encourages for multi-unit development:

1. Livability

Development should contribute to a livable neighborhood by incorporating visually pleasing design, minimizing the impact of vehicles, emphasizing pedestrian and bicycle connections, and providing public and private open spaces for outdoor use.

Applicant's Findings: *As demonstrated by the site plan and elevations included with this application submittal, livability was at the forefront during the development of the proposed site design. Considering the proximity of the development site to the river, the applicant opted for a flat roof. This further preserves the view from buildings uphill from the site to the north and east and provides more of a pedestrian scale to the building. Off-street parking is proposed to be concentrated on the west side of the site, requiring just one driveway to cross the pedestrian and bicycle routes, minimizing opportunities for conflicts. Landscaping has been placed in such a way which further buffers and softens the parking area. Once the tree canopy matures, the area will be nicely shaded, reducing summer heat which can be enhanced by pavement. On the far east side of the site, the applicant is proposing public open space enhanced with landscaping and a picnic table. The placement of the common open space was intentional to increase the privacy of the ground floor units private open spaces. The onsite pedestrian network is robust, especially for the size of the site. Additionally, the applicant will make frontage improvements to SE Lava Drive including a new public sidewalk along the development site. The new sidewalk will connect to onsite pedestrian paths and help to better connect individuals headed to the river from the east. This criterion is met.*

2. Compatibility

Development should have a scale that is appropriate for the surrounding neighborhood and maintains the overall residential character of Milwaukie.

Applicant's Findings: *The site abuts SE Lava Drive to the north, SE River Drive (private) to the east, a parking lot drive aisle for River Royal Terrace to the west, and two single family dwellings to the south. The building is proposed to be three stories in height; however, the building is terraced along the south side to increase the compatibility with existing developments. As demonstrated on the development plans, the third story is setback from the south property line 25-feet at its closest point. Windows have been placed in a manner as to not line up directly with windows of existing structures. Screening and landscaping is enhanced along the south side further providing mitigation. The development is within the historic neighborhood of Milwaukie. The proposed building, with its distinct flat roof, resembles the character of some of the historic buildings in the area. The scale and articulation of the building further maintain the residential character and compatibility. This criterion is met.*

3. Safety and Functionality

Development should be safe and functional, by providing visibility into and within a multi-unit development and by creating a circulation system that prioritizes bicycle and pedestrian safety.

Applicant's Findings: *The off-street parking is proposed to be concentrated on the west side of the site, requiring just one driveway to cross the pedestrian and bicycle routes, minimizing*

opportunities for conflicts. Landscaping has been placed in such a way which further buffers and softens the parking area. Window placement allows for visual surveillance of the site and adjacent streets. Site lighting will be provided in a manner which illuminates pedestrian walkways, without casting glare or shining onto abutting rights-of-way or private property. Furthermore, the site design and proposed landscaping complies with the vision clearance standards of the MMC. This criterion is met.

4. Sustainability

Development should incorporate sustainable design and building practices, such as energy conservation, preservation of trees and open space, quality building materials, and alternative transportation modes.

Applicant's Findings: *The applicant believes incorporating sustainable design and building practices is crucial for creating resilient communities. Though the three existing trees on site are not proposed for preservation due to on site, frontage, and utility improvements, the applicant is proposing a landscape design with a mix of evergreen and conifer trees. The landscape design provides shade during the summer months and sunlight during winter months to bolster energy conservation. The mature canopy of proposed trees will help improve air quality and reduce the urban heat island effect. The site includes usable recreational space, encouraging residents to utilize the outdoor common spaces. The applicant is committed to utilizing environmentally conscious construction practices focused on minimizing the carbon footprint and waste generation during construction. The recycling area will be sized appropriately to encourage residents to follow best practices and reduce garbage headed to the landfill. The design includes a robust pedestrian network and bicycle parking, encouraging alternate modes of transportation. By incorporating these sustainable design and building practices into this site, the proposal meets this criterion.*

B. Applicability

The design elements in Table 19.505.3.D in this subsection apply, as described below, to all multi-unit developments and residential care facilities with 3 or more dwelling units on a single lot. Cottage cluster housing and rowhouses on their own lots are subject to separate standards and are therefore exempt from Subsection 19.505.3.

1. All new multi-unit or residential care facilities are subject to the design elements in this subsection.
2. The following design elements are applicable for work that would construct a new building or increase the floor area on the site by more than 1,000 sq ft. Elements that are applicable only to additions do not apply to the site's existing development.
 - a. Subsection 19.505.3.D.1 Private Open Space, for the entire site.

- b. Subsection 19.505.3.D.2 Public Open Space, for the entire site.
 - c. Subsection 19.505.3.D.5 Building Orientation and Entrances, only for additions or new buildings.
 - d. Subsection 19.505.3.D.6 Building Façade Design, only for additions or new buildings.
 - e. Subsection 19.505.3.D.7 Building Materials, only for additions or new buildings.
 - f. Subsection 19.505.3.D.8 Landscaping, for the entire site.
 - g. Subsection 19.505.3.D.9 Screening, only for additions or new buildings.
 - h. Subsection 19.505.3.D.11 Sustainability, only for new buildings.
 - i. Subsection 19.505.3.D.12 Privacy Considerations, only for additions or new buildings.
 - j. Subsection 19.505.3.D.13 Safety, only for additions or new buildings.
3. Table 19.505.3.D.7 Building Materials is applicable for work that would replace more than 50% of the façade materials on a building within a 12-month period. The element applies only to the building on which the new façade materials are installed.
 4. Any activity not described in Subsections 19.505.3.D.2.a through 19.505.3.D.2.c is exempt from the design elements in this subsection.

Applicant's Findings: *As described in this section, the applicant's 13-unit multi-dwelling proposal triggers the applicability of this section. Responses to all criteria are provided.*

C. Review Process

Two possible review processes are available for review of multi-unit or residential care facilities: objective and discretionary. An applicant may choose which process to use. The objective process uses clear objective standards that do not require the use of discretionary decision-making. The discretionary process uses design guidelines that are more discretionary in nature and are intended to provide the applicant with more design flexibility. Regardless of the review process, the applicant must demonstrate how the applicable standards or guidelines are being met.

Applicant's Findings: *The applicant is requesting to process their proposal utilizing the discretionary process. Below, the applicant has described how the development meets the design guidelines.*

D. Design Guidelines and Standards

Applicable guidelines and standards for multi-unit and residential care facilities are located in Table 19.505.3.D. These standards should not be interpreted as requiring a specific architectural style.

Applicant's Findings: *The applicant has chosen to process their application utilizing the discretionary process with design guidelines. The proposal meets each one of the design elements under the design guidelines as described below.*

1. Private Open Space

The development should provide private open space for each dwelling unit. Private open space should have direct access from the dwelling unit and should be visually and/or physically separate from common areas.

The development may provide common open space in lieu of private opens space if the common open space is well designed, adequately sized, and functionally similar to private open space.

Applicant's Findings: *The ground floor units are proposed to have access directly to private open space which will be at grade. A portion of the ground floor open space will be a paved patio area, suitable for small outdoor furniture. The ground floor private open space will extend beyond the patios and is defined by the retaining wall along the south side of the building and proposed plantings. The second and third floor units will have access to private balconies. The balconies are screened for privacy by the proposed placement of new trees on site. The applicant is proposing both private and public open spaces on site. This criterion is met.*

2. Public Open Space

The development should provide sufficient open space for the purpose of outdoor recreation, scenic amenity, or shared outdoor space for people to gather.

Applicant's Findings: *The site design includes several pockets of outdoor public open space. Along the east side of the building, the applicant proposes to provide a picnic table and lawn area which would be usable for outdoor gathering or a small recreation space. This criterion is met.*

3. Pedestrian Circulation

Site design should promote safe, direct, and usable pedestrian facilities and connections throughout the development. Ground-floor units should provide a clear transition from the public realm to the private dwellings.

Applicant's Findings: *The onsite pedestrian network is robust, especially for the size of the site. Additionally, the applicant will make frontage improvements to SE Lava Drive including a new public sidewalk along the development site. The new sidewalk will connect to onsite pedestrian paths and help to better connect individuals headed to the river from the east. To provide a clear transition from the public space to the private ground floor dwellings, the building articulates in a manner which creates "private" corridors, defining the entrances to dwelling units. This criterion is met.*

4. Vehicle and Bicycle Parking

Vehicle parking should be integrated into the site in a manner that does not detract from the design of the building, the street frontage, or the site. Bicycle parking should be secure, sheltered, and conveniently located.

Applicant's Findings: *Vehicle parking is provided on the west side of the site. Providing the parking in this location was intentional as it abuts a vehicle use/parking area for the development abutting to the west which enhances the compatibility. The proposed parking area has just one driveway for ingress in egress. By providing only one driveway to the street, the impact on the pedestrian spaces are less, reducing the likelihood of conflicts between pedestrians, bicycles, and vehicles. The landscaping is proposed in a manner that will buffer and soften the vehicle parking area, as shown on the preliminary plan. The applicant is proposing to provide private bicycle parking for each dwelling unit within the unit itself. Each unit will be equipped with a wall mounted bicycle rack. The racks being provided in this manner ensure bicycle security and eliminate the requirement of residents leaving their bicycles elsewhere on the premises. This criterion is met.*

5. Building Orientation & Entrances

Buildings should be located with the principal façade oriented to the street or a street-facing open space such as a courtyard. Building entrances should be well-defined and protect people from the elements.

Applicant's Findings: *As shown on the site plan, the building face is oriented toward SE Lava Drive and spans approximately two-thirds of the frontage. The pedestrian walkways connect the unit entrances from the building out to the street. The design includes a courtyard feel with the presence of landscape and a robust pedestrian network. The building entrances are defined through articulation, materials, landscaping, and pedestrian paths. The entrances are recessed providing shelter protecting people from the elements. This criterion is met.*

6. Building Façade Design

Changes in wall planes, layering, horizontal datums, vertical datums, building materials, color, and/or fenestration shall be incorporated to create simple and visually interesting buildings.

Windows and doors should be designed to create depth and shadows and to emphasize wall thickness and give expression to residential buildings.

Windows should be used to provide articulation to the façade and visibility into the street.

Building façades shall be compatible with adjacent building façades.

Garage doors shall be integrated into the design of the larger façade in terms of color, scale, materials, and building style.

Applicant's Findings: *The building façade and design took into consideration the historic neighborhood and immediately surrounding resources and developments. As discussed previously, the flat roof is complimentary of historic buildings in the vicinity and aids in retaining the views from the east and north toward the river. The front elevation of the building, facing SE Lava Drive, is articulated with windows, doors, recessed areas, trim, and change in materials. The combination of these design elements enhance the pedestrian scale of the building. The landscape architect proposes to place plants in a manner which further accentuate the building and define entrances. The building is terraced along the south side matching the scale of adjacent developments and setting the third story further from the single family dwellings to the south. This criterion is met.*

7. Building Materials

Buildings should be constructed with architectural materials that provide a sense of permanence and high quality.

Street-facing façades shall consist predominantly of a simple palette of long-lasting materials such as brick, stone, stucco, wood siding, and wood shingles.

A hierarchy of building materials shall be incorporated. The materials shall be durable and reflect a sense of permanence and quality of development.

Split-faced block and gypsum reinforced fiber concrete (for trim elements) shall only be used in limited quantities.

Fencing shall be durable, maintainable, and attractive.

Applicant's Findings: *The building will be clad with a combination of contemporary, long-lasting fiber cement panels at the ground level, and horizontal lap wood siding above. The larger panels at the ground floor will create a sense of a sturdy, human-scale base, separated from the higher floors with a wide horizontal trim band. This criterion is met.*

8. Landscaping

Landscaping of multi-unit developments should be used to provide a canopy for open spaces and courtyards, and to buffer the development from adjacent properties. Existing, healthy trees should be preserved whenever possible. Landscape strategies that conserve water shall be included. Hardscapes shall be shaded where possible, as a means of reducing energy costs (heat island effect) and improving stormwater management.

Applicant's Findings: *The applicant has provided a tentative landscape plan. Additionally, the applicant has retained an arborist to evaluate the proposed tree canopy which will demonstrate compliance with all requirements. The landscape plan demonstrates the proposed development is providing more landscape than the MMC requires is included with the applicants submittal*

materials. The locations of trees and shrubs on site is very intentional and done in a manner to provide buffering and screening from the new development to developments immediately south and east of the site. The off-street parking area is proposed between the building and the river; however, the development site is more than 400-feet from the riverbank. The enhanced pedestrian connections both internally and along the public right-of-way will enhance the activity between the site and the river as there is no public sidewalk along the street frontage today. Though the three existing trees on site are not proposed for preservation due to on site, frontage, and utility improvements, the applicant is proposing a landscape design with a mix of evergreen and conifer trees. The landscape design provides shade during the summer months and sunlight during winter months to bolster energy conservation. The mature canopy of proposed trees will help improve air quality and reduce the urban heat island effect. The site includes usable recreational space, encouraging residents to utilize the outdoor common spaces. This criterion is met.

9. Screening

Mechanical equipment, garbage collection areas, and other site equipment and utilities should be screened so they are not visible from the street and public or private open spaces. Screening should be visually compatible with other architectural elements in the development.

Applicant's Findings: The applicant believes screening mechanical equipment, garbage collection areas, and other site equipment and utilities is an important consideration for maintaining the aesthetic appeal of a development and ensuring they are not visible from the street or public and private open spaces. To ensure this standard is met, the placement of equipment and enclosure areas were carefully considered in relation to the street and public right-of-way. The recycling and trash enclosure area will be screened utilizing materials and colors similar to the building. The landscape proposed will provide additional screening and buffering of vehicle use areas and equipment. This criterion is met.

10. Recycling Areas

Recycling areas should be appropriately sized to accommodate the amount of recyclable materials generated by residents. Areas should be located such that they provide convenient access for residents and for waste and recycling haulers. Recycling areas located outdoors should be appropriately screened or located so that they are not prominent features viewed from the street.

Applicant's Findings: The recycling area will be sized appropriately to encourage residents to follow best practices and reduce garbage headed to the landfill. The recycling and trash enclosure area will be screened utilizing materials and colors similar to the building. The landscape proposed will provide additional screening and buffering to the enclosure area. The location of the enclosure is within a relatively close proximity to the dwelling units providing

convenient access to residents. A complete pedestrian path will connect from the building to the recycling area which will be free from obstructions and elevated from vehicle use areas. This criterion is met.

11. Sustainability

Multi-unit development should optimize energy efficiency by designing for building orientation for passive heat gain, shading, day-lighting, and natural ventilation. Sustainable materials, particularly those with recycled content, should be used whenever possible. Sustainable architectural elements shall be incorporated to increase occupant health and maximize a building's positive impact on the environment.

When appropriate to the context, buildings should be placed on the site giving consideration to optimum solar orientation. Methods for providing summer shading for south-facing walls, and the implementation of photovoltaic systems on the south-facing area of the roof, are to be considered.

Applicant's Findings: *The applicant believes incorporating sustainable design and building practices is crucial for creating resilient communities. Though the three existing trees on site are not proposed for preservation due to on site, frontage, and utility improvements, the applicant is proposing a landscape design with a mix of evergreen and conifer trees. The landscape design provides shade during the summer months and sunlight during winter months to bolster energy conservation. The mature canopy of proposed trees will help improve air quality and reduce the urban heat island effect. The site includes usable recreational space, encouraging residents to utilize the outdoor common spaces. The applicant is committed to utilizing environmentally conscious construction practices focused on minimizing the carbon footprint and waste generation during construction. The recycling area will be sized appropriately to encourage residents to follow best practices and reduce garbage headed to the landfill. The design includes a robust pedestrian network and bicycle parking, encouraging alternate modes of transportation. The building is oriented in a manner that provides a long spanse facing south allowing for optimal solar placement should solar be utilized in the future on the building. This criterion is met.*

12. Privacy Considerations

Multi-unit development should consider the privacy of, and sight lines to, adjacent residential properties, and be oriented and/or screened to maximize the privacy of surrounding residences.

Applicant's Findings: *Topography, building orientation, and window placement provide screening to properties adjacent to the north, west, and east of this site. The applicant had to be more mindful and considerate to existing development abutting to the south. To maximize privacy from the development site to the south, the applicant placed windows in a manner which are offset from the windows of the abutting home. Trees have been placed in front of*

windows providing further screening and the building is terraced in a manner that offsets the third story from the southern property line. All of these considerations in the design meet this criterion.

13. Safety

Multi-unit development should be designed to maximize visual surveillance, create defensible spaces, and define access to and from the site. Lighting should be provided that is adequate for safety and surveillance, while not imposing lighting impacts to nearby properties. The site should be generally consistent with the principles of Crime Prevention Through Environmental Design:

- *Natural Surveillance: Areas where people and their activities can be readily observed.*
- *Natural Access Control: Guide how people come to and from a space through careful placement of entrances, landscaping, fences, and lighting.*
- *Territorial Reinforcement: Increased definition of space improves proprietary concern and reinforces social control.*

Applicant's Findings: *The applicant has considered site safety and security within the proposed design of the site. The common open space has been designed to encourage residents to gather, have social interactions, and create a sense of ownership. The common areas will be well maintained. Well maintained and activated spaces promote surveillance and prevent crime. The site will be well lit along pedestrian paths and parking areas enhancing safety of these spaces and discouraging vehicle related crimes. The site will be maintained in good order through regular maintenance preventing the appearance of neglect or disrepair which could attract nefarious activity. Visual surveillance is possible to all common areas from the building on all sides. The implementation of these items enhance site safety and security and the overall quality of living for residents. This criterion is met.*

Chapter 19.600 – Off-Street Parking and Loading

Section 19.601 – Purpose

Chapter 19.600 regulates off-street parking and loading areas on private property outside the public right-of-way. The purpose of Chapter 19.600 is to: provide adequate, but not excessive, space for off-street parking; support efficient streets; avoid unnecessary conflicts between vehicles, bicycles, and pedestrians; encourage bicycling, transit, and carpooling; minimize parking impacts to adjacent properties; improve the appearance of parking areas; and minimize environmental impacts of parking areas.

Regulations governing the provision of on-street parking within the right-of-way are contained in Chapter 19.700. The management of on-street parking is governed by Chapter 10.20. Chapter 19.600 does not enforce compliance with the Americans with Disabilities Act (ADA). ADA compliance on private property is reviewed and enforced by the Building Official.

Section 19.602 – Applicability

Section 19.602.1 – General Applicability

The regulations of Chapter 19.600 apply to all off-street parking areas and off-street loading areas, whether required by the City as part of development or a change in use, per Subsection 19.602.3, or voluntarily installed for the convenience of users, per Subsection 19.602.4. Activity that is not described by Subsections 19.602.3 or 4 is exempt from compliance with the provisions of Chapter 19.600. Changes to nonconforming off-street parking and loading are addressed through Chapter 19.600 and not through the provisions of Chapter 19.800.

Section 19.602.3 – Applicability for Development and Change in Use Activity

The provisions of Chapter 19.600 apply to development and changes of use as described in Subsection 19.602.3.

- A. Development of a vacant site shall have off-street parking and off-street loading areas that conform to the requirements of Chapter 19.600. Development of a site that results in an increase of 100% or more of the existing floor area and/or structure footprint on a site shall also conform to the requirements of Chapter 19.600. The floor area and/or footprint of structures demolished prior to development or redevelopment on the site shall not be considered when calculating the increase in floor area and/or structural footprints.

Applicant's Findings: *The applicant is proposing to redevelop the development site with a multi-unit building and associated on site improvements. The improvements proposed include an off-street parking area. The applicant has demonstrated in the findings below that the proposal conforms to all applicable criteria.*

- B. Existing off-street parking and loading areas shall be brought closer into conformance with the standards of Chapter 19.600, per Subsection 19.602.5, when the following types of development or change in use occur:
 1. Development that results in an increase of less than 100% of the existing floor area and/or structure footprint.
 2. Changes of use, as defined in Section 19.201.

Applicant's Findings: *The development site does not include any existing parking areas. The proposed parking area meets the current development standards outlined in this section. This criterion is not applicable.*

Section 19.603 – Review Process and Submittal Requirements

Section 19.603.1 – Review Process

The Planning Director shall apply the provisions of Chapter 19.600 in reviewing all land use and development permit applications, except when an application is subject to a quasi-judicial land use review or appeal, in which case the body reviewing the application or appeal has the authority to implement and interpret the provisions of Chapter 19.600.

Applicant's Findings: *The applicant understands the proposal will be reviewed by the Milwaukee Planning Commission as it is a consolidated application with a quasi-judicial land use review.*

Section 19.603.2 – Submittal Requirements

Except for single-family dwellings, a development or change in use subject to Chapter 19.600 as per Section 19.602 shall submit a parking plan, drawn to scale. The parking plan shall show that all applicable standards are met, and shall include, but not be limited to, the items listed below, unless waived by the Planning Director.

- A. Delineation of individual spaces and wheel stops.
- B. Drive aisles necessary to serve spaces.
- C. Accessways, including driveways and driveway approaches, to streets, alleys, and properties to be served.
- D. Pedestrian pathways and circulation.
- E. Bicycle parking areas and rack specifications.
- F. Fencing.
- G. Abutting land uses.
- H. Grading, drainage, surfacing, and subgrading details.
- I. Location and design of lighting fixtures and levels of illumination.
- J. Delineation of existing and proposed structures.
- K. Parking and loading area signage.
- L. Landscaping, including the following information.
 - 1. The location and area of existing and proposed trees, vegetation, and plant materials, including details about the number, size, and species of such items.
 - 2. Notation of the trees, plants, and vegetation to be removed, and protection measures for existing trees and plants to be preserved.

Applicant's Findings: *The application plans provided includes all of the required items listed in this section. This criterion is met.*

Section 19.604 – General Parking Standards

Section 19.604.1 – Parking Provided with Development Activity

All required off-street parking areas shall be provided at the time the structure is built; at the time a structure or site is enlarged; or when there is change in use or an increase in density or intensity. All required off-street parking areas shall be provided in conformance with the standards of Chapter 19.600 prior to issuance of a certificate of occupancy, or final development permit approval, or as otherwise specified in any applicable land use decision.

Applicant's Findings: *The applicant is proposing to provide off-street parking and construct it in the manner shown on the plans provided. The applicant will develop the off-street parking area at the same time as they develop the proposed multi-dwelling building. The parking has been proposed in accordance with the provisions of this section and other applicable development codes, including landscaping requirements. Compliance with the provisions demonstrated within this narrative and on the plans provided. This criterion is met.*

Section 19.604.2 – Parking Area Location

Accessory parking shall be located in one or more of the following areas:

- A. On the same site as the primary use for which the parking is accessory.
- B. On a site owned by the same entity as the site containing the primary use that meets the standards of Subsection 19.605.4.B.2. Accessory parking that is located in this manner shall not be considered a parking facility for purposes of the base zones in Chapter 19.300.
- C. Where parking is approved in conformance with Subsection 19.605.2.
- D. Where shared parking is approved in conformance with Subsection 19.605.4.

Applicant's Findings: *The applicant is applying for a lot consolidation with the development proposal. Upon approval of the lot consolidation, the development site will entirely contain the newly proposed multi-dwelling building and the associated off-street parking area. The applicant is meeting the location standards through method A listed above. This criterion is met.*

Section 19.604.3 – Use of Parking Areas

All required off-street parking areas shall continually be available for the parking of operable vehicles of intended users of the site. Required parking shall not be rented, leased, sold, or otherwise used for parking that is unrelated to the primary or accessory use of the site, except where a shared parking agreement per Subsection 19.605.4 has been recorded. Subsection 19.604.3 does not prohibit charging fees for parking when the parking serves the primary or accessory uses on site.

Applicant's Findings: *The applicant understands the off-street parking area must remain available to tenants on site. The parking stalls will not be rented, leased, sold, or otherwise used in a manner which would be inconsistent with this ordinance. The applicant does not intend for the parking to be shared through a shared parking agreement. This criterion will be met.*

Section 19.604.4 – Storage Prohibited

No required off-street parking area shall be used for storage of equipment or materials, except as specifically authorized by Subsection 19.607.2 Commercial Vehicle, Pleasure Craft, and Recreational Vehicle Parking.

Applicant's Findings: *The off-street parking area will not be utilized for storage. This criterion will be met.*

Section 19.605 – Vehicle Parking Quantity Requirements

Section 19.605.1 – Minimum and Maximum Requirements

- A. Development shall provide at least the minimum and not more than the maximum number of parking spaces as listed in Table 19.605.1. Modifications to the standards in Table 19.605.1 may be made as per Section 19.605. Where multiple ratios are listed, the Planning Director shall determine which ratio to apply to the proposed development or use.

Applicant's Findings: *In accordance with the minimum and maximum parking requirements and allowances listed in Table 19.605.1, multi-unit dwellings must provide a minimum of 1 space per dwelling unit but shall not exceed more than 2 spaces per dwelling unit. The applicant's proposal includes 13 dwelling units. As shown on the site plan provided, there are 11 parking stalls within the parking lot, and enough space along the frontage for 2 additional parking spaces.*

- B. When a specific use has not been proposed or identified at the time of permit review, the Planning Director may elect to assign a use category from Table 19.605.1 to determine the minimum required and maximum allowed parking. Future tenants or property owners are responsible for compliance with Chapter 19.600 per the applicability provisions of Section 19.602.

Applicant's Findings: *The specific use is called multi-dwelling and is identified in Table 19.605. This criterion is not applicable.*

- C. If a proposed use is not listed in Table 19.605.1, the Planning Director has the discretion to apply the quantity requirements of a similar use listed in the table upon finding that the listed use and unlisted use have similar parking demands. If a similar use is not listed, the quantity requirements will be determined per Subsection 19.605.2.

Applicant's Findings: *The specific use is called multi-dwelling and is identified in Table 19.605. This criterion is not applicable.*

- D. Where the calculation of minimum parking spaces does not result in a whole number, the result shall be rounded down to the next whole number. Where the calculation of maximum parking spaces does not result in a whole number, the result shall be rounded to the nearest whole number.

Applicant's Findings: *The applicant understands the provisions for calculating parking when a fraction of a number is the result. This criterion is met.*

- E. Parking spaces for disabled persons, and other improvements related to parking, loading, and maneuvering for disabled persons, shall conform to the Americans with Disabilities Act and shall be subject to review and approval by the Building Official. Spaces reserved for disabled persons are included in the minimum required and maximum allowed number of off-street parking spaces.

Applicant's Findings: *The site includes a van ADA parking space which is in compliance with ADA requirements. The site plan demonstrates compliance and is submitted with this application for review and approval by the building official. This criterion is met.*

Section 19.605.5 – Electric Vehicle (EV) Charging Requirements

Required EV charging spaces. All uses that are commercial, industrial, multi-unit with 5 or more units, or mixed-use with 5 or more units must include sufficient space for electrical service capacity to support at least a Level 2 EV charger at required EV charging spaces as outlined below. For terms not defined elsewhere in Title 19, see applicable sections of the state building code and/or OAR 918-460-0200.

A. Commercial and Industrial Parking

For commercial and industrial uses that provide off-street parking, choose one of the following:

1. At least 50% of the total number of parking spaces provided must include electrical conduit adjacent to the spaces that will allow for the installation of at least a Level 2 EV charger; or
2. At least 20% of the total number of parking spaces provided must include electrical conduit adjacent to the spaces that will allow for the installation of at least a Level 2 EV charger. At least 5% of parking spaces provided must include an installed Level 2 or Level 3 EV charger. Parking spaces with installed chargers count toward the 20% minimum requirement.

Applicant's Findings: *This application does not include commercial or industrial use parking areas. These criteria are not applicable.*

B. Multi-Unit and Mixed-Use Residential Parking

For buildings with 5 or more dwelling units where off-street parking spaces are provided, choose one of the following:

1. All (100%) of the parking spaces provided must include electrical conduit adjacent to the spaces that will allow for the installation of at least a Level 2 EV charger; or
2. At least 40% of parking spaces provided must include electrical conduit adjacent to the spaces that will allow for the installation of at least a Level 2 EV charger. At least 10% of parking spaces provided must include an installed Level 2 or Level 3 EV charger. Parking spaces with installed chargers count toward the 40% minimum requirement.

Applicant's Findings: *At the time of building permit submittal, the applicant will provide an electrical plan demonstrating compliance with one of the options identified above. This criterion will be met.*

Section 19.606 – Parking Area Design and Landscaping

Section 19.606.1 – Parking Space and Aisle Dimensions

- A. The dimensions for required off-street parking spaces and abutting drive aisles, where required, shall be no less than in Table 19.606.1. The minimum dimensions listed in Table 19.606.1 are illustrated in Figure 19.606.1.

Applicant's Findings: *Table 19.606.1, provides the dimensions for the 90 degree parking spaces proposed for the development. As demonstrated on the site plan, each space will be 9 feet wide, and 19 feet deep. This criterion is met.*

- B. The dimension of vehicle parking spaces provided for disabled persons shall be according to federal and State requirements.

Applicant's Findings: *As demonstrated on the site plan, the ADA parking stall and the loading area are provided in accordance with applicable federal and state requirements. This criterion is met.*

- C. Parking spaces shall be provided with adequate aisles or turnaround areas so that all vehicles may enter the street in a forward manner.

Applicant's Findings: *The combination of aisle width and small turnaround area allows vehicles enough maneuvering ability to be oriented forward when entering the street. This criterion is met.*

- D. Drive aisles shall be required in parking areas greater than 5 spaces. Drive aisles shall meet the minimum width standards of Subsection 19.606.1. Where a drive aisle or portion thereof does not abut a parking space(s), the minimum allowed width for a one-way drive aisle shall be 8 ft and the minimum allowed width for a two-way drive aisle shall be 16 ft.

Applicant's Findings: *To ensure vehicles parked within the parking lot have enough room for maneuvering, a 24-foot drive aisle will be included. This criterion is met.*

Section 19.606.2 – Landscaping

A. Purpose

The purpose of the off-street parking lot landscaping standards is to provide vertical and horizontal buffering between parking areas and adjacent properties, break up large expanses of paved area, help delineate parking spaces and drive aisles, and provide environmental benefits such as stormwater management, carbon dioxide absorption, and a reduction of the urban heat island effect.

Applicant's Findings: *The applicant understands the purpose for requiring landscaping in conjunction with off-street parking. As described below and shown on the landscape plan included with this submittal, the applicable criteria are met.*

B. General Provisions

1. Parking area landscaping shall be required for the surface parking areas of all uses, except for middle housing and single detached dwellings. Landscaping shall be based on the standards in Subsections 19.606.2.C-E.
2. Landscaped areas required by Subsection 19.606.2 shall count toward the minimum amount of landscaped area required in other portions of Title 19.
3. Parking areas with 10 or fewer spaces in the Downtown Mixed Use Zone are exempt from the requirements of Subsection 19.606.2.
4. Required trees shall be species that, within 10 years of planting, will provide a minimum of 20-ft diameter shade canopy. Compliance with this standard is based on the expected growth of the selected trees.
5. Implementation of this section is in addition to, and must be coordinated with, Chapter 16.32 Tree Code.

Applicant's Findings: *The applicant understands the general provisions of this section and demonstrates compliance below.*

C. Perimeter Landscaping

The perimeter landscaping of parking areas shall meet the following standards which are illustrated in Figure 19.606.2.C.

1. Dimensions

The minimum width of perimeter landscape areas are shown in Table 19.606.2.C.1. Where a curb provides the border for a perimeter landscape area, the dimension shall be measured from the inside of the curb(s). The Planning Director may reduce the required minimum width of a perimeter landscaping area where existing development or site constraints make it infeasible to provide drive aisles, parking spaces, and the perimeter landscaping buffer width listed in Table 19.606.2.C.1.

Applicant's Findings: *The applicant is proposing landscape strips in the largest amounts feasible for the constraints on the development site. Along the west side of the parking area, a 5 and a half foot landscape strip is proposed. The prescriptive requirement for this landscape strip is 6-feet. However, given that this portion of the site is abutting the parking area of the adjacent property, the applicant is proposing a 5 and a half foot planter strip with screening. The reduced landscape strip helps to provide a larger contiguous open space area on the east side of the site. Along the south side of the parking area, the applicant is proposing a 9 and a half foot setback to the vehicle parking space. The landscape strip is proposed to be reduced to 4-feet 7-inches at the drive aisle for easier maneuverability of vehicles, ensuring they are able to exit the site forward facing. Along the northerly property line, abutting the right-of-way, for SE Lava Drive, the applicant is proposing a 6-foot 7-inch landscape planter and an onsite 5-foot sidewalk with an easement for public access. In total, the parking area is setback from the public right-of-way 11-feet 7-inches. The landscaping and screening abutting the parking area meets the intent of the code.*

2. Planting Requirements

Landscaping requirements for perimeter buffer areas shall include one tree planted per 30 lineal ft of landscaped buffer area. Where the calculation of the number of trees does not result in a whole number, the result shall be rounded up to the next whole number. Trees shall be planted at evenly spaced intervals along the perimeter buffer to the greatest extent practicable. The remainder of the buffer area shall be grass, ground cover, mulch, shrubs, trees, or other landscape treatment other than concrete and pavement.

Applicant's Findings: *The applicant hired a professional landscape architect to design the planting and landscape plans for this site. The planting plan takes into consideration both the requirements of the development code and sustainability of the plant materials. Along the*

perimeter buffer, two trees are proposed along with fencing and shrubbery. Should the review authority request or require additional trees along the westerly property line, the applicant can revise the proposed landscape plan. This criterion will be met.

3. Additional Planting Requirements Adjacent to Residential Uses

In addition to the planting requirements of Subsection 19.606.2.D.2, all parking areas adjacent to a residential use shall have a continuous visual screen in the landscape perimeter area that abuts the residential use. The area of required screening is illustrated in Figure 19.606.2.C.3. The screen must be opaque throughout the year from 1 to 4 ft above ground to adequately screen vehicle lights. These standards must be met at the time of planting. Examples of acceptable visual screens are a fence or wall, an earth berm with plantings, and other plantings of trees and shrubs.

Applicant's Findings: *The perimeter of the site is proposed to be screened with shrubbery and a sight obscuring fence to ensure impacts to abutting residential uses is minimized to the greatest extent possible. This criterion is met.*

D. Interior Landscaping

The interior landscaping of parking areas shall meet the following standards which are illustrated in Figure 19.606.2.D.

1. General Requirements

Interior landscaping of parking areas shall be provided for sites where there are more than 10 parking spaces on the entire site. Landscaping that is contiguous to a perimeter landscaping area and exceeds the minimum width required by Subsection 19.606.2.C.1 will be counted as interior landscaping if it meets all other requirements of Subsection 19.606.2.D.

Applicant's Findings: *The applicant understands the interior landscape requirements are applicable to the proposed development as 11 off-street parking stalls are proposed.*

2. Required Amount of Interior Landscaped Area

At least 25 sq ft of interior landscaped area must be provided for each parking space. Planting areas must be at least 120 sq ft in area and dispersed throughout the parking area.

Applicant's Findings: *In accordance with this section, the development requires 275 square feet of interior landscaping. Utilizing the calculation methods outlined in subsection 1 above, the proposal includes approximately 314 square feet of interior landscaping dispersed throughout the development site. This criterion is met.*

3. Location and Dimensions of Interior Landscaped Areas

- a. Interior landscaped area shall be either a divider median between opposing rows of parking, or a landscape island in the middle or at the end of a parking row.
- b. Interior landscaped areas must be a minimum of 6 ft in width. Where a curb provides the border for an interior landscape area, the dimension shall be measured from the inside of the curb(s).

Applicant's Findings: *The interior landscape areas are located at the ends of the parking area and surrounding the trash enclosure. The minimum dimensional standard of 6-feet in width isn't met for the calculated portion of the interior landscape but the landscape buffers are a minimum of 6-feet in width. This criterion is met.*

4. Planting Requirements for Interior Landscaped Areas

- a. For divider medians, at least 1 shade or canopy tree must be planted for every 40 linear ft. Where the calculation of the number of trees does not result in a whole number, the result shall be rounded up to the next whole number. Trees shall be planted at evenly spaced intervals to the greatest extent practicable.
- b. For landscape islands, at least 1 tree shall be planted per island. If 2 interior islands are located contiguously, they may be combined and counted as 2 islands with 2 trees planted.
- c. The remainder of any divider median or landscape island shall be grass, ground cover, mulch, shrubs, trees, or other landscape treatment other than concrete and pavement.

Applicant's Findings: *As demonstrated by the landscape plan provided, the proposal includes shade trees in all four corners of the parking area which will shade the pavement at maturity and offer buffering to adjacent areas. This criterion is met.*

Section 19.606.3 – Additional Design Standards

A. Paving and Striping

Paving and striping are required for all required maneuvering and standing areas. Off-street parking areas shall have a durable and dust-free hard surface, shall be maintained for all-weather use, and shall be striped to show delineation of parking spaces and directional markings for driveways and accessways. Permeable paving surfaces may be used to reduce surface water runoff and protect water quality.

Applicant's Findings: *The parking area includes 11 parking stalls which are proposed to be standard size meeting the dimensional requirements of 19-feet in depth and 9-feet in width. All stalls meet the dimensions for 90-degree parking angle standards. In no case will any vehicle be*

forced to back out into a street. There is enough room behind all parking stalls which would allow vehicles to enter and exit the street in a forward motion. The proposed off-street parking and vehicle use areas are proposed to be paved with a hard surface material meeting the Public Works Design Standards. Details regarding the construction will be provided at the time of building permit for the director's review and approval. The off-street parking and vehicle use areas are designed, graded, and drained according to the Public Works Design Standards, or to the approval of the director. Additional details regarding the construction will be provided at the time of building permit for the director's review and approval. This criterion is met.

B. Wheel Stops

Parking bumpers or wheel stops, of a minimum 4-in height, shall be provided at parking spaces to prevent vehicles from encroaching on the street right-of-way, adjacent landscaped areas, or pedestrian walkways. Curbing may substitute for wheel stops if vehicles will not encroach into the minimum required width for landscape or pedestrian areas.

Applicant's Findings: *Extended curbs are utilized to protect pedestrian and landscaped areas from vehicle overhang. This criterion is met.*

C. Site Access and Drive Aisles

1. Accessways to parking areas shall be the minimum number necessary to provide access while not inhibiting the safe circulation and carrying capacity of the street. Driveway approaches shall comply with the access spacing standards of Chapter 12.16.
2. Drive aisles shall meet the dimensional requirements in Subsection 19.606.1.
3. Parking drive aisles shall align with the approved driveway access and shall not be wider than the approved driveway access within 10 ft of the right-of-way boundary.
4. Along collector and arterial streets, no parking space shall be located such that its maneuvering area is in an ingress or egress aisle within 20 ft of the back of the sidewalk, or from the right-of-way boundary where no sidewalk exists.
5. Driveways and on-site circulation shall be designed so that vehicles enter the right-of-way in a forward motion.

Applicant's Findings: *The development proposes one point of vehicle access onto the site. This preserves on street parking and reduced the opportunities for vehicular and pedestrian conflicts along the sidewalk, promoting alternate modes of transportation. The proposed driveway location was placed in consideration with the provisions of section 12.16. The drive aisle meets the minimum width standard for two-way traffic through the parking area. In no case will any vehicle be forced to back out into a street. There is enough room behind all parking stalls which*

would allow vehicles to enter and exit the street in a forward motion. All applicable provisions within this section are met by the proposal.

D. Pedestrian Access and Circulation

Subsection 19.504.9 establishes standards that are applicable to an entire property for on-site walkways and circulation. The purpose of Subsection 19.606.3.D is to provide safe and convenient pedestrian access routes specifically through off-street parking areas. Walkways required by Subsection 19.606.3.D are considered part of the on-site walkway and circulation system required by Subsection 19.504.9.

1. Pedestrian access shall be provided for off-street parking areas so that no parking space is further than 100 ft away, measured along vehicle drive aisles, from a building entrance, or a walkway that meets the standards of Subsection 19.606.3.D.2.
2. Walkways through off-street parking areas must be continuous, must lead to a building entrance, and meet the design standards of Subsection 19.504.9.E.

Applicant's Findings: *The proposed off-street parking area is relatively small. As demonstrated, there is a wide drive aisle proposed to be double loaded with vehicle parking on each side. In no case will any parking stall exceed the distance requirement to the onsite pedestrian walkways. The walkways are continuous, free of any obstructions, no less than 5-feet in width, and will lead pedestrians to the building entrances, common open spaces, and public sidewalk. This criterion is met.*

E. Internal Circulation

1. General Circulation

The Planning Director has the authority to review the pedestrian, bicycle, and vehicular circulation of the site and impose conditions to ensure safe and efficient on-site circulation. Such conditions may include, but are not limited to, on-site signage, pavement markings, addition or modification of curbs, and modifying drive aisle dimensions.

2. Connections to Adjacent Parking Areas

Where feasible, parking areas shall be designed to connect with parking areas on adjacent sites to eliminate the use of the street for cross movements.

3. Drive-Through Uses and Queuing Areas

The following standards apply to uses with drive-through services and uses such as gas stations and quick vehicle service facilities where vehicles queue rather

than park on the site. The Planning Director has the authority to determine when the standards apply to a proposed use.

- a. The drive-up/drive-through facility shall be along a building face that is oriented to an alley, driveway, or interior parking area, and shall not be on a building face oriented toward a street.
- b. None of the drive-up, drive-in, or drive-through facilities (e.g., driveway queuing areas, windows, teller machines, service windows, kiosks, drop-boxes, or similar facilities) are located within 20 ft of the right-of-way.
- c. Queuing areas shall be designed so that vehicles do not obstruct a driveway, fire access lane, walkway, or public right-of-way. Applicants may be required to submit additional information regarding the expected frequency and length of queues for a proposed use.

Applicant's Findings: *The applicant understands the review authority may impose additional conditions of approval to ensure the intent of this standard is met by the development. It would not be practical for this site to connect the vehicle use area with the vehicle parking area of the adjacent property due to layout and topography. This site does not include commercial uses with a drive-up window. As applicable, these criteria are met.*

F. Lighting

Lighting is required for parking areas with more than 10 spaces. The Planning Director may require lighting for parking areas of less than 10 spaces if the parking area would not be safe due to the lack of lighting. Lighting shall be designed to enhance safe access for vehicles and pedestrians on the site, and shall meet the following standards:

1. Lighting luminaires shall have a cutoff angle of 90 degrees or greater to ensure that lighting is directed toward the parking surface.
2. Parking area lighting shall not cause a light trespass of more than 0.5 footcandles measured vertically at the boundaries of the site.
3. Pedestrian walkways and bicycle parking areas in off-street parking areas shall have a minimum illumination level of 0.5 footcandles, measured horizontally at the ground level.
4. Where practicable, lights shall be placed so they do not shine directly into any WQR and/or HCA location. The type, size, and intensity of lighting shall be selected so that impacts to habitat functions are minimized.

Applicant's Findings: *The applicant understands the off-street parking area must be lit in accordance with the provisions of this code. At the time of building permit approval, the applicant will provide a detailed lighting plan demonstrating compliance with this section. This criterion will be met.*

Section 19.608 – Loading

Section 19.606.2 – Number of Loading Spaces

The Planning Director shall determine whether to require off-street loading for commercial, industrial, public, and semipublic uses. The ratios listed below should be the minimum required unless the Planning Director finds that a different number of loading spaces are needed upon reviewing the loading needs of a proposed use.

A. Residential Buildings

Buildings where all of the floor area is in residential use should meet the following standards:

1. Fewer than 50 dwelling units on a site that abuts a local street: no loading spaces required.
2. All other buildings: 1 loading space.

B. Nonresidential and Mixed-Use Buildings

Buildings where any floor area is in nonresidential uses should meet the following standards:

1. Less than 20,000 sq ft of total floor area: no loading spaces required.
2. 20,000 to 50,000 sq ft of total floor area: 1 loading space.
3. More than 50,000 sq ft of total floor area: 2 loading spaces.

Applicant's Findings: *In accordance with this section, because the development includes less than 50 dwelling units and abuts a local street, no off-street loading is required. This section is not applicable to the proposal.*

Section 19.609 – Bicycle Parking

Section 19.609.1 – Applicability

Bicycle parking shall be provided for all new commercial, industrial, community service use, middle housing, and multi-unit residential development. Temporary and seasonal uses (e.g., fireworks and Christmas tree stands) and storage units are exempt from Section 19.609. Bicycle parking shall be provided in the Downtown Mixed Use Zone and at transit centers.

Applicant's Findings: *The applicant is proposing a new multi-unit development which triggers the applicability of bicycle parking standards.*

Section 19.609.2 – Quantity of Spaces

- A. The quantity of required bicycle parking spaces shall be as described in this subsection. In no case shall less than 2 spaces be provided.

1. Unless otherwise specified, the number of bicycle parking spaces shall be at least 10% of the minimum required vehicle parking for the use.
2. The number of bicycle parking spaces at transit centers shall be provided at the ratio of at least 1 space per 100 daily boardings.
3. Multi-unit residential and middle housing development with 4 or more units must provide one space per unit. Parking for cottage cluster developments is specified in Table 19.505.4.C.1.

Applicant's Findings: *In accordance with the requirements of this section, one bicycle parking space is required for each dwelling unit. The proposal includes 13 units, and 13 bicycle parking spaces are required. The applicant is providing personal, wall mounted bicycle racks for one bicycle within each dwelling unit. This criterion is met.*

- B. Covered or enclosed bicycle parking. A minimum of 50% of the bicycle spaces shall be covered and/or enclosed (in lockers or a secure room) in any of the following situations:
 1. When 10% or more of vehicle parking is covered.
 2. If more than 10 bicycle parking spaces are required.
 3. Multifamily residential development with 4 or more units.

Applicant's Findings: *The proposal provides 100 percent enclosed bicycle parking as the wall mounted racks will be placed within the dwelling units. This criterion is met.*

Section 19.609.3 – Space Standards and Racks

- A. The dimension of each bicycle parking space shall be a minimum of 2 x 6 ft. A 5-ft-wide access aisle must be provided. If spaces are covered, 7 ft of overhead clearance must be provided. Bicycle racks must be securely anchored and designed to allow the frame and 1 wheel to be locked to a rack using a high security, U-shaped, shackle lock.
- B. Lighting shall conform to the standards of Subsection 19.606.3.F.

Applicant's Findings: *At the time of building permit submittal, the applicant will provide an architectural detail demonstrating the wall-mounted bicycle rack that will be provided within each dwelling unit. The racks will hold one bicycle securely to the wall. Because the racks will be secure within each dwelling unit, locks will not be necessary. As applicable, this criterion will be met.*

Section 19.609.4 – Location

- A. Bicycle parking facilities shall meet the following requirements:
 1. Located within 50 ft of the main building entrance.
 2. Closer to the entrance than the nearest non-ADA designated vehicle parking space.
 3. Designed to provide direct access to a public right-of-way.

4. Dispersed for multiple entrances.
5. In a location that is visible to building occupants or from the main parking lot.
6. Designed not to impede pedestrians along sidewalks or public rights-of-way.
7. Separated from vehicle parking areas by curbing or other similar physical barriers.

Applicant's Findings: For additional security reasons, the applicant is proposing to provide wall mounted bicycle racks within each dwelling unit. These racks allow residents to secure their bicycles within their homes reducing the likelihood of theft or damage.

- B. The public right-of-way may be utilized for bicycle parking when parking cannot be reasonably accommodated on the site and the location is convenient to the building's front entrance. The bicycle parking area in the right-of-way must leave a clear, unobstructed width of sidewalk that meets the Engineering Department's Public Works Standards for sidewalk passage. See Figure 19.609 for illustration of space and locational standards. A right-of-way permit is required.

Applicant's Findings: The applicant is proposing all on-site bicycle parking. This criterion is not applicable.

Section 19.610 – Carpool and Vanpool Parking

Section 19.610.1 – Applicability

New industrial, institutional, and commercial development with 20 or more required parking spaces shall provide carpool/vanpool parking.

Applicant's Findings: In accordance with this section, the applicant is not required to designate any carpool and vanpool parking as the proposal does not include industrial, institutional, or commercial uses. This section is not applicable.

Chapter 19.700 – Public Facility Improvements

Section 19.701 – Purpose

The purpose of Chapter 19.700 is to ensure that development, including redevelopment, provides public facilities that are safe, convenient, and adequate in rough proportion to their public facility impacts. The purposes of this chapter include the following:

Section 19.701.1 – For Transportation Facilities

- A. Provide standards and procedures to implement provisions of the State Transportation Planning Rule (OAR 660, Division 12) and local, regional, and state transportation system plans.
- B. Protect the functional classification, capacity, and level of service of transportation facilities.

- C. Ensure that transportation facility improvements are provided in rough proportion to development impacts.
- D. Provide an equitable and consistent method of requiring transportation facility improvements.
- E. Ensure that transportation facility improvements accommodate multiple modes of travel, including pedestrian, bicycle, transit, and auto.

Applicant's Findings: *Prior to submitting this application for review and approval, the applicant's representatives met with city staff to determine the applicability of requirements. City staff indicated a dedication along the frontage of SE Lava Drive at a width of 5-feet would be required. The public sidewalk would remain on the applicants property with an easement dedicated for public access along the new frontage. The applicant has retained a professional engineer to ensure the proposal meets the public facility requirements of the city.*

Section 19.701.2 – For Public Facilities

- A. Ensure that public facility improvements are safe, convenient, and adequate.
- B. Ensure that public facility improvements are designed and constructed to City standards in a timely manner.
- C. Ensure that the expenditure of public monies for public facility improvements is minimized when improvements are needed for private development.
- D. Ensure that public facility improvements meet the City of Milwaukie Comprehensive Plan goals and policies.

Applicant's Findings: *The applicant's engineer has designed the proposed improvements to be consistent with the applicable Public Works and other city requirements ensuring improvements are safe, convenient, adequate, and proportional to the proposal. This criterion will be met by the proposal.*

Section 19.702 – Applicability

Section 19.702.1 – General

Chapter 19.700 applies to the following types of development in all zones:

- A. Partitions.
- B. Subdivisions.
- C. Replats.
- D. New construction.
- E. Modification or expansion of an existing structure or a change or intensification in use that results in any one of the following. See Subsections 19.702.2-3 for specific applicability provisions for single detached residential development and development in downtown zones.

1. A new dwelling unit.
2. Any increase in gross floor area.
3. Any projected increase in vehicle trips, as determined by the City Engineer.

Applicant's Findings: *The applicant understands their new multi-dwelling development is considered new construction and triggers the applicability of this section.*

Section 19.703 – Review Process

Section 19.703.1 – Preapplication Conference

For all proposed development that requires a land use application and is subject to Chapter 19.700 per Section 19.702, the applicant shall schedule a preapplication conference with the City prior to submittal of the land use application. The Engineering Director may waive this requirement for proposals that are not complex.

Applicant's Findings: *On March 3, 2023, the applicant's representatives attended a pre-application conference regarding this project. This criterion has been satisfied. The pre-application conference notes are included with the exhibits.*

Section 19.703.2 – Application Submittal

For all proposed development that is subject to Chapter 19.700 per Section 19.702, one of the following types of applications is required.

A. Development Permit Application

If the proposed development does not require a land use application, compliance with Chapter 19.700 will be reviewed as part of the development permit application submittal.

Applicant's Findings: *A land use application is required for this development. This criterion is not applicable.*

B. Transportation Facilities Review (TFR) Land Use Application

If the proposed development triggers a transportation impact study (TIS) per Section 19.704, a TFR land use application shall be required. Compliance with Chapter 19.700 will be reviewed as part of the TFR application submittal and will be subject to a Type II review process as set forth in Section 19.1005. The TFR application shall be consolidated with, and processed concurrently with, any other required land use applications.

If the proposed development does not trigger a TIS per Section 19.704, but does require the submittal of other land use applications, compliance with Chapter 19.700 will be reviewed during the review of the other land use applications.

Applicant's Findings: *In accordance with Section 19.704, a TFR letter is not required for this application. This was confirmed by city staff in the pre-application notes included with this submittal.*

Section 19.709 – Public Utility Requirements

Section 19.709.1 – Review Process

The Engineering Director shall review all proposed development subject to Chapter 19.700 per Section 19.702 in order to: (1) evaluate the adequacy of existing public utilities to serve the proposed development, and (2) determine whether new public utilities or an expansion of existing public utilities is warranted to ensure compliance with the City's public utility requirements and standards.

A. Permit Review

The Engineering Director shall make every effort to review all development permit applications for compliance with the City's public utility requirements and standards within 10 working days of application submittal. Upon completion of this review, the Engineering Director shall either approve the application, request additional information, or impose conditions on the application to ensure compliance with this chapter.

B. Review Standards

Review standards for public utilities shall be those standards currently in effect, or as modified, and identified in such public documents as Milwaukee's Comprehensive Plan, Wastewater Master Plan, Water Master Plan, Stormwater Master Plan, Transportation System Plan, and Public Works Standards.

Applicant's Findings: *The applicant understands the public utility permit review process. The applicant's civil engineer will prepare the required materials for submittal and review by the approval authority in compliance with the applicable provisions of this section.*

Section 19.709.2 – Public Utility Improvements

Public utility improvements shall be required for proposed development that would have a detrimental effect on existing public utilities, cause capacity problems for existing public utilities, or fail to meet standards in the Public Works Standards. Development shall be required to complete or otherwise provide for the completion of the required improvements.

- A. The Engineering Director shall determine which, if any, utility improvements are required. The Engineering Director's determination requiring utility improvements shall be based upon an analysis that shows the proposed development will result in one or more of the following situations:

1. Exceeds the design capacity of the utility.
2. Exceeds Public Works Standards or other generally accepted standards.
3. Creates a potential safety hazard.
4. Creates an ongoing maintenance problem.

Applicant's Findings: *The applicant understands the engineering director will ensure none of the above situations will be a result of the proposal. The applicant's civil engineer has proposed a design in compliance with city requirements to mitigate any issues or negative impacts on existing city infrastructure.*

- B. The Engineering Director may approve one of the following to ensure completion of required utility improvements.
1. Formation of a reimbursement district in accordance with Chapter 13.30 for off-site public facility improvements fronting other properties.
 2. Formation of a local improvement district in accordance with Chapter 3.08 for off-site public facility improvements fronting other properties.

Applicant's Findings: *It is not anticipated a reimbursement district or local improvement district will be required with this application due to the scale of the proposal. This criterion is not applicable.*

Section 19.709.3 – Design Standards

Public utility improvements shall be designed and improved in accordance with the requirements of this chapter, the Public Works Standards, and improvement standards and specifications identified by the City during the development review process. The applicant shall provide engineered utility plans to the Engineering Director for review and approval prior to construction to demonstrate compliance with all City standards and requirements.

Applicant's Findings: *The preliminary civil plans included with this application submittal demonstrate compliance with all city standards and requirements in accordance with this section. This criterion is met.*

Chapter 19.900 – Land Use Applications

Section 19.905 – Conditional Uses

Section 19.905.1 – Purpose

The purpose of the conditional use regulations is to evaluate the establishment of certain uses that may be appropriately located in some zoning districts, but only if appropriate for the specific site on which they are proposed.

Conditional uses are not allowed outright. Although they may provide needed services or functions in the community, they are subject to conditional use review because they may

adversely change the character of an area or adversely impact the environment, public facilities, or adjacent properties. The conditional use review process allows for the establishment of conditional uses when they have minimal impacts or when identified impacts can be mitigated through conditions of approval. The review process also allows for denial when concerns cannot be resolved or impacts cannot be mitigated.

Approval of a conditional use shall not constitute a zone change and shall be granted only for the specific use requested. Approval is subject to such modifications, conditions, and restrictions as may be deemed appropriate by the review authority.

Applicant's Findings: *The applicant understands the purpose of the conditional use permit process, including what it requires, what it allows, and what it doesn't. The application meets the applicable criteria as proposed and that is demonstrated below.*

Section 19.905.2 – Applicability

- A. This section applies to the establishment of a use identified as a conditional use in the base zone in Chapter 19.300 and any overlay zones or special areas in Chapter 19.400 that are applicable to the property on which the use is proposed.
- B. This section applies to the major or minor modification of existing conditional uses.
- C. This section does not apply to modification of uses that received conditional use approval at one time but are currently allowed outright by the property's base zone and any overlay zones or special areas.

Applicant's Findings: *The applicant is proposing to develop a property within the Willamette Greenway overlay zone, triggering the applicability of the conditional use permit.*

Section 19.905.3 – Review Process

- A. Establishment of a new conditional use, or major modification of an existing conditional use, shall be evaluated through a Type III review per Section 19.1006.
- B. Minor modification of an existing conditional use shall be evaluated through a Type I review per Section 19.1004.

Applicant's Findings: *This application is for the establishment of a new conditional use permit. The applicant understands this application will be processed using Type III review procedures.*

Section 19.905.4 – Approval Criteria

- A. Establishment of a new conditional use, or major modification of an existing conditional use, shall be approved if the following criteria are met:
 - 1. The characteristics of the lot are suitable for the proposed use considering size, shape, location, topography, existing improvements, and natural features.

Applicant's Findings: *The application has demonstrated the site is suitable for a multi-unit development. Though the shape and size of the site poses some development constraints, the applicant has proposed creative solutions resulting in a project which is consistent with the purpose of the development code. This criterion is met.*

2. The operating and physical characteristics of the proposed use will be reasonably compatible with, and have minimal impact on, nearby uses.

Applicant's Findings: *The proposed use of the site is residential, as are the uses adjacent. It would be unreasonable to claim the proposed development of the site would not have any impact on surrounding uses. However, the applicant has demonstrated mitigation to these impacts to the greatest extent practicable. Some of the mitigation measures being offered are robust landscape planting and strategic placement, opaque screening, usable open space, and frontage improvements offering better pedestrian connections to the river. This criterion is met by the proposal.*

3. All identified impacts will be mitigated to the extent practicable.

Applicant's Findings: *The applicant has carefully and thoughtfully designed the site to minimize and mitigate impacts. Some of the mitigation measures being offered are robust landscape planting and strategic placement, opaque screening, usable open space, and frontage improvements offering better pedestrian connections to the river. Additional mitigation measures can be seen thorough the design of the building. The third floor is offset from the second floor along the south side, providing a larger setback buffer to residential uses abutting to the south. A flat roof is proposed to maintain river views for properties uphill to the east. All identified impacts have been mitigated to the greater extent practicable. This criterion is met.*

4. The proposed use will not have unmitigated nuisance impacts, such as from noise, odor, and/or vibrations, greater than usually generated by uses allowed outright at the proposed location.

Applicant's Findings: *With the exception of when the site is under construction, the use will not have nuisance impacts. During construction, best practices will be utilized to minimize impacts to adjacent properties including reasonable working hours and maintaining a tidy construction site. Upon completion of construction and occupancy of the building, there will not be unreasonable nuisances. This criterion is met.*

5. The proposed use will comply with all applicable development standards and requirements of the base zone, any overlay zones or special areas, and the standards in Section 19.905.

Applicant's Findings: *The applicant has included responses to all applicable provisions within the code demonstrating compliance. This criterion is met.*

6. The proposed use is consistent with applicable Comprehensive Plan policies related to the proposed use.

Applicant's Findings: *The Comprehensive Plan policies applicable to the proposed use are related to the Willamette Greenway. The applicant demonstrated compliance with the applicable provisions. This criterion is met.*

7. Adequate public transportation facilities and public utilities will be available to serve the proposed use prior to occupancy pursuant to Chapter 19.700.

Applicant's Findings: *The applicant demonstrates compliance with Chapter 19.700 demonstrating adequate public transportation facilities and public utilities are available to serve the proposed use. Improvements to both transportation facilities (frontage on SE Lava Drive) and utilities are proposed in conjunction with the proposed development to ensure infrastructure is adequate. This criterion is met.*

Section 19.906 – Development Review

Section 19.906.1 – Purpose

The purpose of this section is to ensure compliance with the standards and provisions of the City's land use regulations through an efficient review process that effectively coordinates the City's land use and development permit review functions. Development review is intended to encourage quality development that is compatible with its surroundings and reflects the goals and policies of the Milwaukie Comprehensive Plan.

Applicant's Findings: *The applicant understands the development review process is the mechanism utilized by the review authority to ensure all applicable criteria and policies are met by the proposed development.*

Section 19.906.2 – Applicability

A. Type I Review

The following development proposals must submit a development review application and are subject to the requirements of this section, unless explicitly stated otherwise in an applicable land use approval, waived by the Planning Manager at the time of development permit submittal, allowed by right, or exempted per Subsection 19.906.2.C.

1. New development and expansions or modifications of existing development that require review against standards and criteria that are either clear and objective, or that require the application of limited professional judgment.
2. A change in primary use.

3. Parking lot expansions or modifications that change the number of parking spaces by 5 spaces or more.

Applicant's Findings: *The applicant is seeking a Type II Review. These criteria are not applicable.*

B. Type II Review

The following development proposals must submit a development review application and are subject to the requirements of this section. Type II development review does not apply to development proposals in the downtown zones as these zones have a separate design review process.

1. New development, or expansions or modifications to existing development, for which the applicant elects, where a choice is available, to have the proposal reviewed against discretionary criteria or standards.
2. New construction of over 1,000 sq ft, either: 1) in the Manufacturing Zone within 120 ft of areas zoned for residential uses, or 2) within any part of the Business Industrial Zone, or 3) within any part of the North Milwaukie Innovation Area.
3. New development or expansions, or modifications to existing development, where the Planning Director determines that the scale of development and/or the level of discretion required to evaluate applicable standards and criteria is not appropriate for a Type I development review.

Applicant's Findings: *The Type II Review is applicable because the applicant designed the multi-dwelling building and site based on design guidelines, rather than design standards.*

C. Exemptions

The following development proposals are not required to submit a development review application and are exempt from the requirements of this section. Proposals that are exempt from this section must still comply with all applicable development and design standards. For proposals that require a development permit, compliance with standards will be reviewed during the permit review process.

1. New or expanded single detached dwelling or middle housing detached or attached residential dwellings.
2. Residential accessory uses and structures including accessory dwelling units.
3. Interior modifications to existing buildings that do not involve a change of primary use.
4. Construction of public facilities in the public right-of-way.
5. Temporary events as allowed in Chapter 11.04.

Applicant's Findings: *None of these exemptions are applicable to the proposed development.*

Section 19.906.4 – Approval Criteria

The criteria in this subsection are the approval criteria for Type I and Type II development review applications. The criteria are based on a review of development standards throughout Title 19 Zoning. Not all of the standards within the chapters listed below are applicable to a proposal, and the City will identify the applicable standards through the development review process. Though the criteria are the same for Type I and Type II development review, the standards evaluated in a Type I review will be clear and objective or require limited professional judgment, while the Type II review will involve discretionary standards and/or criteria.

An application for Type I or Type II development review shall be approved when all of the following criteria have been met:

- A. The proposal complies with all applicable base zone standards in Chapter 19.300.
- B. The proposal complies with all applicable overlay zone and special area standards in Chapter 19.400.
- C. The proposal complies with all applicable supplementary development regulations in Chapter 19.500.
- D. The proposal complies with all applicable off-street parking and loading standards and requirements in Chapter 19.600.
- E. The proposal complies with all applicable public facility standards and requirements, including any required street improvements, in Chapter 19.700.
- F. The proposal complies with all applicable conditions of any land use approvals for the proposal issued prior to or concurrent with the development review application.

Applicant's Findings: *The applicant has included responses to all applicable provisions within the code demonstrating compliance. This criterion is met.*

Section 7: Conclusion

Based on the facts and findings presented by the applicant within this detailed written narrative, the applicant believes they have satisfied the burden of proof and demonstrated how the proposed multi-dwelling development not only satisfies the applicable criteria but would also be a benefit to the community by providing a needed housing type in the City of Milwaukie.

Section 8: Exhibits

Exhibit A – Clackamas County Tax Map

1 1E 35AB

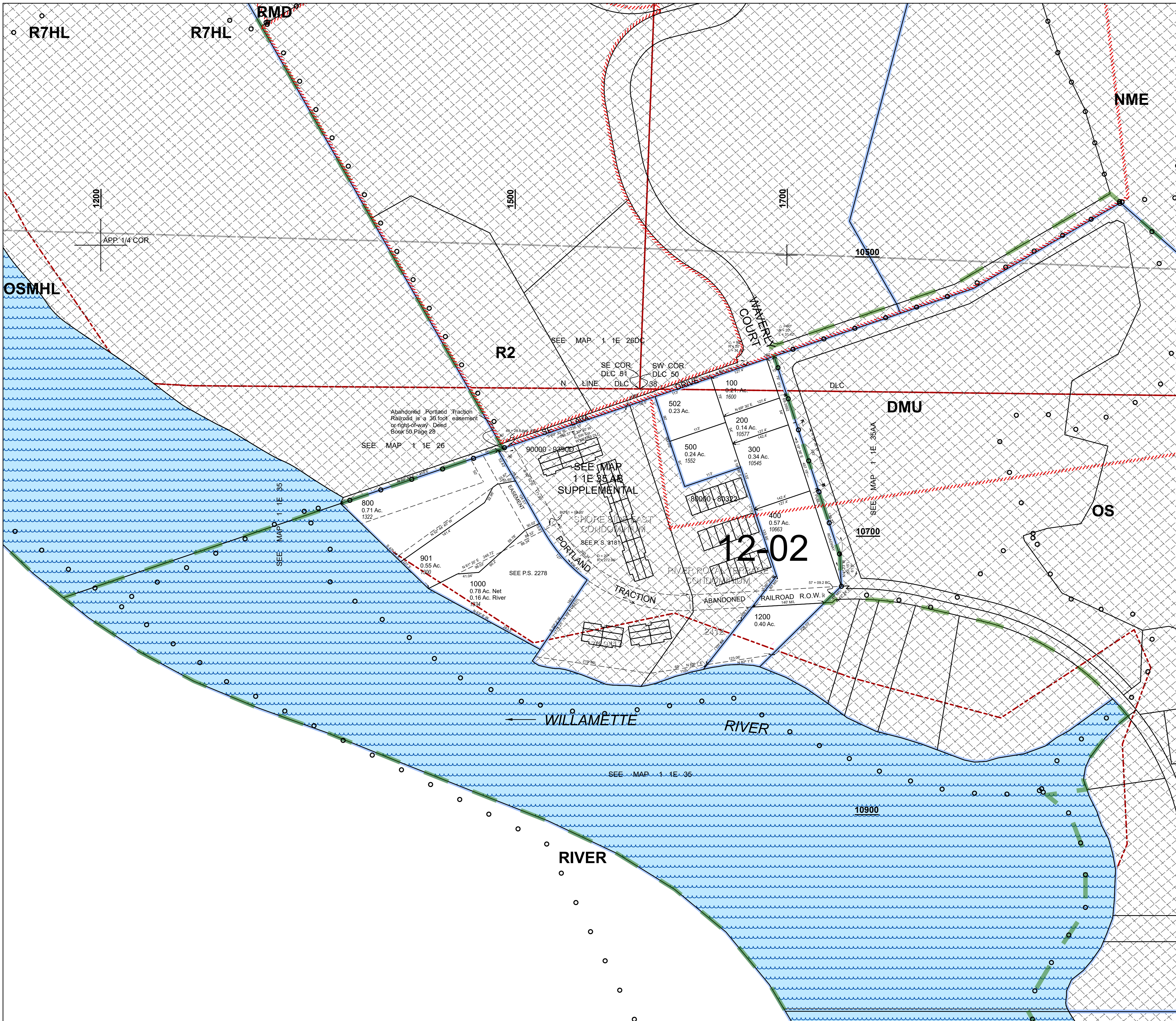
N.W.1/4 N.E.1/4 SEC. 35 T.01 S. R.01 E. W.M.
CLACKAMAS COUNTY

1" = 100'

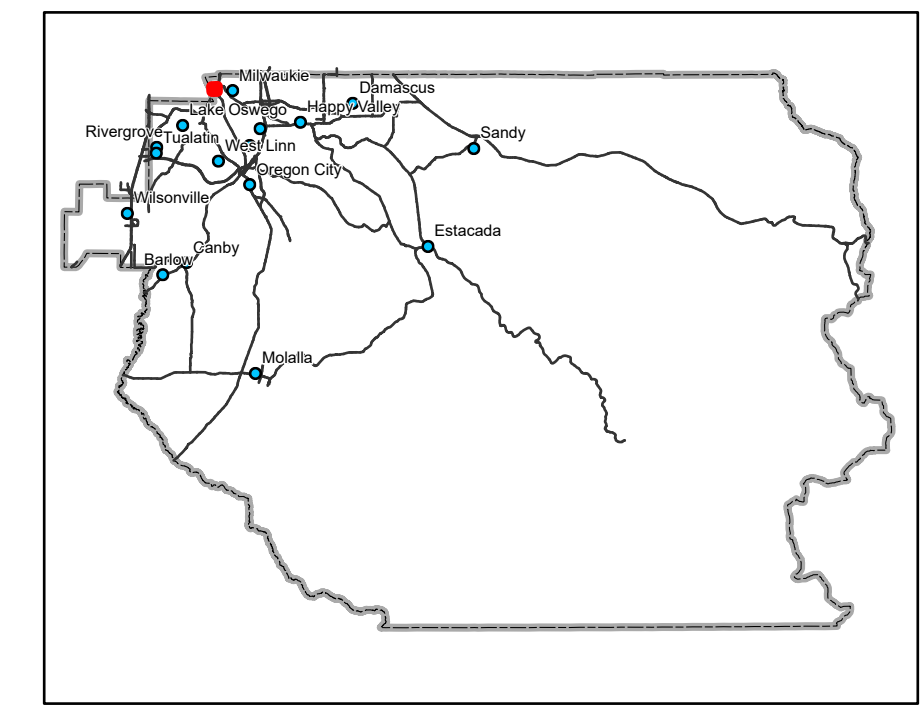
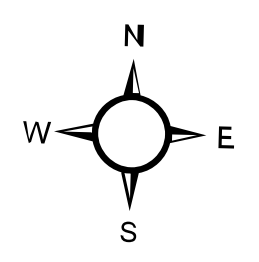
D.L.C.
LOT WHITCOMB NO. 38
WM. MEEK NO. 50

Cancelled

- 600
- 1100
- 700
- 900
- 501



- Parcel Boundary
- Private Road ROW
- Historical Boundary
- Railroad Centerline
- Tax Code Lines
- Map Index
- Water Lines
- Land Use Zoning
- Plats
- Water
- Corner
- Section Corner
- 1/16th Line
- Govt Lot Line
- DLC Line
- Meander Line
- PLSS Section Line
- Historic Corridor 40'
- Historic Corridor 20'



THIS MAP IS FOR ASSESSMENT PURPOSES ONLY

1 1E 35AB

Print Date: 9/27/2022

Exhibit B – Neighborhood Association Contact

BRAND

Neighborhood Association Contact

1600 SE Lava Drive Milwaukie, OR

Contact with the neighborhood association is not required for the application types being sought.

Exhibit C – Deed

Clackamas County Parcel Information



Parcel Information

Parcel #: **00018484**
 Tax Lot: **11E35AB00502**
 Site Address:
 Milwaukie OR 97222
 Owner: Glee Pdx LLC
 Owner2:
 Owner Address: PO Box 96068
 Portland OR 97296
 Twn/Range/Section: 01S / 01E / 35 / NE
 Parcel Size: 0.23 Acres (10,019 SqFt)
 Plat/Subdivision:
 Lot: 0502
 Block:
 Map Page/Grid: 656-H2
 Census Tract/Block: 020800 / 1035
 Waterfront:
 Building Use:

Tax Information

Levy Code Area: 012-002
 Levy Rate: 21.4442
 Tax Year: 2022
 Annual Tax: \$1,292.06
 Exempt Description:

Legal

Section 35 Township 1S Range 1E Quarter AB TAX LOT 00502|Y|184,366

Assessment Information

Market Value Land:	\$216,480.00
Market Value Impr:	\$0.00
Market Value Total:	\$216,480.00
Assessed Value:	\$60,252.00

Land

Cnty Land Use: 100 - Residential land, vacant
 Zoning: Milwaukie-R-HD - High Density Residential District
 Watershed: Columbia Slough-Willamette River
 Primary School: MILWAUKIE ELEMENTARY SCHOOL
 High School: MILWAUKIE HIGH SCHOOL

Land Use Std: RSFR - Single Family Residence
 Neighborhood: Historic Milwaukie
 School District: 12 - North Clackamas
 Middle School: ROWE MIDDLE SCHOOL

Improvement

Year Built:	Stories:	Fin. SqFt:
Bedrooms:	Bathrooms:	Garage:
Exterior Wall Type:	Basement Fin. SqFt:	Fireplace:
Heat:	Roof Type-Cover:	

Transfer Information

Rec. Date: 10/17/2022	Sale Price: \$525,000.00	Doc Num: 2022-055187	Doc Type: Deed
Owner: Glee Pdx LLC		Grantor: HOFFMAN PAULA	
Orig. Loan Amt:		Title Co: TICOR TITLE	
Finance Type:	Loan Type:	Lender:	

Sentry Dynamics, Inc. and its customers make no representations, warranties or conditions, express or implied, as to the accuracy or completeness of information contained in this report.

RECORDING REQUESTED BY:



111 SW Columbia St., Ste 1000
Portland, OR 97201

Clackamas County Official Records	2022-055187
Sherry Hall, County Clerk	10/17/2022 10:57:02 AM
D-D Cnt=1 Stn=75 BRAD	
\$30.00 \$16.00 \$10.00 \$62.00	\$118.00

GRANTOR'S NAME:
Paula Hoffman, Brianna Duncan and Lance Duncan

GRANTEE'S NAME:
Glee PDX LLC, an Oregon limited liability company

AFTER RECORDING RETURN TO:
Order No.: 36262204809-AS
Glee PDX LLC, an Oregon limited liability company
PO Box 96068
Portland, OR 97296

SEND TAX STATEMENTS TO:
Glee PDX LLC, an Oregon limited liability company
PO Box 96068
Portland, OR 97296

APN: 00018439
00018484
Map: 11E35AB00100
11E35AB00502
1600 SE Lava Drive, Milwaukie, OR 97222

SPACE ABOVE THIS LINE FOR RECORDER'S USE

STATUTORY WARRANTY DEED

Paula Hoffman and Brianna Duncan and Lance Duncan, Grantor, conveys and warrants to Glee PDX LLC, an Oregon limited liability company, Grantee, the following described real property, free and clear of encumbrances except as specifically set forth below, situated in the County of Clackamas, State of Oregon:

SEE EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF

THE TRUE AND ACTUAL CONSIDERATION FOR THIS CONVEYANCE IS FIVE HUNDRED TWENTY FIVE THOUSAND AND NO/100 DOLLARS (**\$525,000.00**). (See ORS 93.030).

Subject to:

SEE EXHIBIT "B" ATTACHED HERETO AND MADE A PART HEREOF

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010.

Recorded by TICOR TITLE 30262204809

IN WITNESS WHEREOF, the undersigned have executed this document on the date(s) set forth below.

Dated: 10/14/22

Paula Hoffman
Paula Hoffman

State of OREGON
County of Washington

This instrument was acknowledged before me on 10/14/22 by Paula Hoffman.

Allison Mae Swallow
Notary Public - State of Oregon

My Commission Expires: 2/20/23



IN WITNESS WHEREOF, the undersigned have executed this document on the date(s) set forth below.

Dated: 10/14/2022

Lance Duncan
Lance Duncan

State of OREGON
County of Multnomah

This instrument was acknowledged before me on 10/14/22 by Lance Duncan.

Allison Mae Swallow
Notary Public - State of Oregon

My Commission Expires: 2/20/23



IN WITNESS WHEREOF, the undersigned have executed this document on the date(s) set forth below.

Dated: 10/14/2022
Brianna Duncan
Brianna Duncan

State of OREGON
County of Multnomah

This instrument was acknowledged before me on 10/14/22 by Brianna Duncan.

Allison Mae Swallow
Notary Public - State of Oregon

My Commission Expires: 2/20/23



EXHIBIT 'A'
Legal

Parcel I:

Part of the William Meek and the Lot Whitcomb Donation Land Claims in Township 1 South Range 1 East of the Willamette Meridian., more particularly described as follows:

BEGINNING at the Southwest corner of the William Meek Donation Land Claim and running; thence South 30° 40' West, 37.70 feet to an iron Pipe set on the South Boundary of a 15 foot Roadway and at the Northeast corner of a Tract of land conveyed to Lottle Chase Smith in Book 120, Page 430, Deed Records; thence North 69° 30' East along the Northerly Boundary of that Tract described in Deed recorded in Clackamas County Deed Book 330, Page 218, 163.50 feet to the most Northerly corner of that Tract conveyed to Celeste Barberis and Lena Barberis, husband and wife, by Deed recorded in Clackamas County Deed Book 487, Page 463, said corner being on the Southerly Boundary of a 15 foot roadway and the true point of beginning of the Tract to be described; from said true point of beginning, running; thence South 19° 36' East along the Easterly Boundary of the aforementioned Barberis Tract, 79 feet to a point; thence North 69° 30' East, 127.4 feet to a point in the Westerly Boundary of that Tract conveyed to Pendleton Woolen Mills by Deed recorded in Clackamas County Deed Book 592, Page 251, and re-recorded in Clackamas County Deed Book 593, Page 81; thence North 19° 36' West along the Westerly Boundary of said Pendleton Woolen Mills Tract, 79 feet to the Northerly Boundary of the aforementioned Tract described in Deed recorded in Clackamas County Deed Book 330, Page 218; thence South 69° 30' West along said Northerly Boundary 127.4 feet to the true point of beginning.

EXCEPTING THEREFROM the Easterly 15 feet thereof described in Dedication Deed for roadway recorded February 29, 1968 as Recorders Fee No. 68-3692, Clackamas County Records.

Parcel II:

A part of the Lot Whitcomb Donation Land Claim and the William Meek Donation Land Claim, in Section 35, Township 1 South, Range 1 East of the Willamette Meridian., described as follows:

BEGINNING at the Northeast corner of that Tract of land Deeded to Celeste Barberis, et ux, recorded October 20, 1954, in Book 487, Page 463, Deed Records; thence South 69° 30' West, 113 feet to a point; thence South 19° 44' East, 90 feet to a point; thence North 69° 30' East parallel with the North Line of said Barberis Tract a distance of 113 feet, more or less, to a point on the Northeasterly line of the said Barberis Tract; thence North 19° 44' West, 90 feet, more or less, to the point of beginning.

EXHIBIT "B"
Exceptions

Subject to:

Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to:	Portland Gas and Coke Company, a corporation
Purpose:	Right of way for gas line and appurtenances
Recording Date:	May 3, 1915
Recording No.:	Book 139, Page 381
Affects:	Exact location not disclosed

Clackamas County Parcel Information



Parcel Information

Parcel #: **00018439**
 Tax Lot: **11E35AB00100**
 Site Address: 1600 SE Lava Dr
 Milwaukie OR 97222 - 3402
 Owner: Glee Pdx LLC
 Owner2:
 Owner Address: PO Box 96068
 Portland OR 97296
 Twn/Range/Section: 01S / 01E / 35 / NE
 Parcel Size: 0.21 Acres (9,148 SqFt)
 Plat/Subdivision:
 Lot: 0100
 Block:
 Map Page/Grid: 656-H2
 Census Tract/Block: 020800 / 1035
 Waterfront:
 Building Use: RS0 - Single Family



Assessment Information

Market Value Land: \$240,197.00
 Market Value Impr: \$147,700.00
 Market Value Total: \$387,897.00
 Assessed Value: \$135,467.00

Tax Information

Levy Code Area: 012-002
 Levy Rate: 21.4442
 Tax Year: 2022
 Annual Tax: \$2,904.98
 Exempt Description:

Legal

Section 35 Township 1S Range 1E Quarter AB TAX LOT
 00100|Y|184,366

Land

Cnty Land Use: 101 - Residential land improved
 Zoning: Milwaukie-R-HD - High Density Residential
 District
 Watershed: Johnson Creek-Willamette River
 Primary School: MILWAUKIE ELEMENTARY SCHOOL
 High School: MILWAUKIE HIGH SCHOOL

Land Use Std: RSFR - Single Family Residence
 Neighborhood: Historic Milwaukie
 School District: 12 - North Clackamas
 Middle School: ROWE MIDDLE SCHOOL

Improvement

Year Built: 1920	Stories: 1	Fin. SqFt: 1,446
Bedrooms: 2	Bathrooms: 1	Garage:
Exterior Wall Type: Log	Basement Fin. SqFt:	Fireplace:
Heat: Furnace	Roof Type-Cover: Composition	

Transfer Information

Rec. Date: 10/17/2022

Sale Price: \$525,000.00

Doc Num: 2022-055187

Doc Type: Deed

Owner: Glee Pdx LLC

Grantor: HOFFMAN PAULA

Orig. Loan Amt:

Title Co: TICOR TITLE

Finance Type:

Loan Type:

Lender:

Sentry Dynamics, Inc. and its customers make no representations, warranties or conditions, express or implied, as to the accuracy or completeness of information contained in this report.

RECORDING REQUESTED BY:



111 SW Columbia St., Ste 1000
Portland, OR 97201

Clackamas County Official Records Sherry Hall, County Clerk	2022-055187 10/17/2022 10:57:02 AM
D-D \$30.00 \$16.00 \$10.00 \$62.00	Cnt=1 Stn=75 BRAD \$118.00

GRANTOR'S NAME:
Paula Hoffman, Brianna Duncan and Lance Duncan

GRANTEE'S NAME:
Glee PDX LLC, an Oregon limited liability company

AFTER RECORDING RETURN TO:
Order No.: 36262204809-AS
Glee PDX LLC, an Oregon limited liability company
PO Box 96068
Portland, OR 97296

SEND TAX STATEMENTS TO:
Glee PDX LLC, an Oregon limited liability company
PO Box 96068
Portland, OR 97296

APN: 00018439
00018484
Map: 11E35AB00100
11E35AB00502
1600 SE Lava Drive, Milwaukie, OR 97222

SPACE ABOVE THIS LINE FOR RECORDER'S USE

STATUTORY WARRANTY DEED

Paula Hoffman and Brianna Duncan and Lance Duncan, Grantor, conveys and warrants to Glee PDX LLC, an Oregon limited liability company, Grantee, the following described real property, free and clear of encumbrances except as specifically set forth below, situated in the County of Clackamas, State of Oregon:

SEE EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF

THE TRUE AND ACTUAL CONSIDERATION FOR THIS CONVEYANCE IS FIVE HUNDRED TWENTY FIVE THOUSAND AND NO/100 DOLLARS (\$525,000.00). (See ORS 93.030).

Subject to:

SEE EXHIBIT "B" ATTACHED HERETO AND MADE A PART HEREOF

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010.

Recorded by TICOR TITLE 30262204809

IN WITNESS WHEREOF, the undersigned have executed this document on the date(s) set forth below.

Dated: 10/14/22

Paula Hoffman
Paula Hoffman

State of OREGON
County of Washington

This instrument was acknowledged before me on 10/14/22 by Paula Hoffman.

Allison Mae Swallow
Notary Public - State of Oregon

My Commission Expires: 2/20/23



IN WITNESS WHEREOF, the undersigned have executed this document on the date(s) set forth below.

Dated: 10/14/2022

Lance Duncan
Lance Duncan

State of OREGON
County of Multnomah

This instrument was acknowledged before me on 10/14/22 by Lance Duncan.

Allison Mae Swallow
Notary Public - State of Oregon

My Commission Expires: 2/20/23



IN WITNESS WHEREOF, the undersigned have executed this document on the date(s) set forth below.

Dated: 10/14/2022
Brianna Duncan
Brianna Duncan

State of OREGON
County of Multnomah

This instrument was acknowledged before me on 10/14/22 by Brianna Duncan.

Allison Mae Swallow
Notary Public - State of Oregon

My Commission Expires: 2/20/23



EXHIBIT 'A'
Legal

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Subject to:

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Granted to:	Portland Gas and Coke Company, a corporation
Purpose:	Right of way for gas line and appurtenances
Recording Date:	May 3, 1915
Recording No.:	Book 139, Page 381
Affects:	Exact location not disclosed

Exhibit D – Articles of Organization



Corporation Division
www.filinginoregon.com

E-FILED
Aug 15, 2022

OREGON SECRETARY OF STATE

REGISTRY NUMBER

124370396

REGISTRATION DATE

08/23/2016

BUSINESS NAME

GLEE PDX LLC

BUSINESS

REAL ESTATE HOLDING

MAILING ADDRESS

1211 SW FIFTH AVE STE 1900
PORTLAND OR 97204 USA

TYPE

DOMESTIC LIMITED LIABILITY COMPANY

PRIMARY PLACE OF BUSINESS

2234 NW 24TH AVE
PORTLAND OR 97210 USA

JURISDICTION

OREGON

REGISTERED AGENT

74556284 - SW&W REGISTERED AGENTS, INC.

1211 SW FIFTH AVE STE 1900
PORTLAND OR 97204 USA

If the Registered Agent has changed, the new agent has consented to the appointment.

MANAGER

THE MARK R MADDEN REVOCABLE LIVING TRUST DATED 10/29/02

MARK R MADDEN TRUSTEE
PO BOX 96068
PORTLAND OR 97296 USA



Corporation Division
www.filinginoregon.com

OREGON SECRETARY OF STATE

I declare, under penalty of perjury, that this document does not fraudulently conceal, fraudulently obscure, fraudulently alter or otherwise misrepresent the identity of the person or any officers, managers, members or agents of the limited liability company on behalf of which the person signs. This filing has been examined by me and is, to the best of my knowledge and belief, true, correct, and complete. Making false statements in this document is against the law and may be penalized by fines, imprisonment, or both.

By typing my name in the electronic signature field, I am agreeing to conduct business electronically with the State of Oregon. I understand that transactions and/or signatures in records may not be denied legal effect solely because they are conducted, executed, or prepared in electronic form and that if a law requires a record or signature to be in writing, an electronic record or signature satisfies that requirement.

ELECTRONIC SIGNATURE

NAME

CINDEE L. GANNON

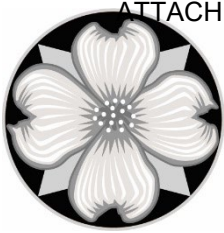
TITLE

AUTHORIZED AGENT

DATE

08-15-2022

Exhibit N – Pre-Application Conference Notes



CITY OF MILWAUKIE
6101 SE Johnson Creek Blvd
Milwaukie OR 97206
503.786.7600
planning@milwaukieoregon.gov
building@milwaukieoregon.gov
engineering@milwaukieoregon.gov

Preapplication Conference Report

Project ID: 23-002PA

This report is provided as a follow-up to the meeting that was held on 3/3/2023 at 10:00 AM

The Milwaukie Municipal Code is available here: www.qcode.us/codes/milwaukie/

APPLICANT AND PROJECT INFORMATION

Applicant:	Frank Stock	Applicant Role: Property Owner/Developer
Applicant Address:	WDC Properties, PO Box 96068, Portland, OR 97296	
Company:	WDC Properties	
Project Name:	11-lot townhouse development; multi-unit development	
Project Address:	1600 SE Lava Dr.	Zone: HDR
Project Description:	Subdivide existing 2 lots into 11 townhouse lots with one townhouse on each lot; OR a 14-unit multi-unit development	
Current Use:	Vacant	
Applicants Present:	Gene Bolante (Studio 3 Architecture); Britany Randall (Brand Land Use)	
Staff Present:	Vera Kalias (Senior Planner); Jennifer Backhaus (Engineering Tech III); Jennifer Garbely (Assistant City Engineer); Eanna Zaya (Engineering Tech I); Courtney Wilson (Urban Forester); Shawn Olson (Clackamas Fire Marshall)	

PLANNING COMMENTS

Zoning Compliance (MMC Title 19)

<input checked="" type="checkbox"/>	Use Standards (e.g., residential, commercial, accessory)	The property is zoned High Density Residential (HDR), which allows a variety of residential housing types, including single-unit detached dwellings, multi-unit development, duplexes, triplexes, quadplexes, townhouses, and cottage cluster development.
<input checked="" type="checkbox"/>	Dimensional Standards	Dimensional standards for the HDR zone are provided in Milwaukie Municipal Code (MMC) Section 19.302 (specifically in MMC Subsection 19.302.4). Townhouse lots have a lot size range of 1,500 sq ft – 2,999 sq ft. Multi-unit development requires a minimum lot size of 5,000 sq ft. The following minimum setbacks apply to each townhouse lot (and to the overall site as well): Front yard: 20 ft Side yard: 5 ft Rear yard: 15 ft

		<p>Street side yard: 15 ft</p> <p>Maximum lot coverage is 50% and minimum vegetation is 15%.</p> <p>Maximum building height in the HDR is 45 ft and that there is a side yard height plane standard to regulate bulk at the side property line (25 ft/45 degrees).</p>
<p>Land Use Review Process</p>		
<p><input checked="" type="checkbox"/></p>	<p>Applications Needed, Fees, and Review Type</p>	<p>The proposal is for an 11-lot subdivision for townhouses. NOTE: applicant subsequently requested information on a 14-unit multi-unit apartment development as well.</p> <p><u>Townhouse development</u></p> <ul style="list-style-type: none"> • Subdivision (Type III review) = \$4,400 plus \$100 per lot over four lots • Willamette Greenway (Type III review) = \$2,000 • Variance to driveway spacing if needed (Type III) = \$2,000 • Final Plat (Type I review) = \$200 (processed after the preliminary plat approval) <p><u>Multi-unit development</u></p> <ul style="list-style-type: none"> • Willamette Greenway (Type III review) = \$2,000 • Variance if needed (Type III) = \$2,000 • Lot Consolidation (Type I review) = \$200 • Multi-unit design review (Type I or Type II): \$200 or \$1,000 <p>For multiple applications processed concurrently, there is a 25% discount offered for each application fee after paying full price for the most expensive application.</p> <p>NOTE:</p> <ul style="list-style-type: none"> • The applicant could choose to not subdivide the site and keep the two existing parcels as is. Each of those lots could have a quadplex, which could then be divided in a later application as a middle housing land division (Type II review). Each lot would still be considered a quadplex with 4 tax lots. <p>Please note that the city does not approve final plats until all public improvements have been designed, constructed, bonded, and inspected.</p>
<p><input checked="" type="checkbox"/></p>	<p>Application Process</p>	<p>The applicant must submit a complete electronic copy of all application materials for the City's initial review. A determination of the application's completeness will be issued within 30 days. If the application is deemed incomplete, City staff will provide a list of items to be addressed upon resubmittal.</p> <p>Where multiple applications with different review types are processed concurrently, the overall package will be processed according to the highest review type.</p> <p>With Type III review, a public hearing with the Planning Commission will be scheduled once the application is deemed complete. At present, meetings are being conducted in a hybrid format, with the option of participating in person at City Hall or online via Zoom.</p> <p>Public notice of the hearing will be sent to property owners and current residents within 300 ft of the subject property no later than 20 days prior to the hearing date. At least 14 days before the hearing, a sign giving notice of the application must be posted on the subject property, to remain until the decision is issued. Staff will coordinate with the applicant to provide the necessary sign(s).</p> <p>Staff will prepare a report with analysis of the proposal and a recommendation that will be made available one week before the hearing. Both staff and the applicant will have the opportunity to make presentations at the hearing, followed by public testimony and then deliberation by the Commission for a decision.</p> <p>With Type III review, issuance of a decision starts a 15-day appeal period for the applicant and any party who establishes standing. If no appeal is received within the 15-day window, the decision becomes final. Any appeal of a Type III decision would be heard by the City Council for the final local decision.</p>

		<p>Development permits submitted during the appeal period may be reviewed but are not typically approved until the appeal period has ended.</p> <p>NOTE: Please refer to the Engineering Department notes regarding any required transportation impact review and analysis.</p>
Overlay Zones (MMC 19.400)		
<input checked="" type="checkbox"/>	Willamette Greenway	<p>The entire site falls within the Willamette Greenway overlay.</p> <p>Land use actions and development within the Willamette Greenway overlay zone are conditional uses and so are subject to the provisions of MMC 19.905. Note that a conditional use permit will be provided upon approval and must be recorded with Clackamas County.</p> <p>In addition to the approval criteria for conditional uses that must be addressed (MMC 19.905.4.A), the Willamette Greenway criteria established in MMC 19.401.6 must also be addressed.</p> <p>There are no specific lighting requirements in the WG overlay.</p>
<input type="checkbox"/>	Natural Resources	
<input type="checkbox"/>	Historic Preservation	
<input type="checkbox"/>	Flex Space Overlay	
Site Improvements/Site Context		
<input checked="" type="checkbox"/>	Landscaping Requirements	<p>In the HDR zone, the minimum vegetation requirement is 15%, which would apply to each townhouse lot.</p> <p>If the applicant elects to move forward with a multi-unit development, then the landscaping requirements are found in the multi-unit design standards/guidelines established in MMC Subsection 19.505.3.</p> <p>With the multi-unit option, the standards include the following: one tree planted or preserved for every 2,000 sq ft of site area; trees planted to provide canopy coverage (within five years) of at least one-third of any common open space.</p> <p>Alternately, the applicant could choose to address the multi-unit guideline for landscaping, which includes landscaping to provide a canopy for open spaces and courtyards and a buffer from adjacent properties; water-conservation strategies for landscaping; and shading of hardscapes.</p>
<input checked="" type="checkbox"/>	Onsite Pedestrian/Bike Improvements (MMC 19.505.4)	<p>MMC Subsection 19.504.9 establishes standards for on-site pedestrian walkways, but they would only apply directly to this project if the applicant elects not to address the standards/guidelines provided in MMC Subsection 19.505.3 for multi-unit projects. MMC 19.504.9 requires walkways to link the site with the public sidewalk system as well as between parts of a site where the public is invited to walk. Walkways must be constructed with a hard surface material, permeable for stormwater, no less than 5 ft in width, and lighted to a minimum average of 0.5 footcandles.</p> <p>MMC Section 19.609 establishes general standards for bicycle parking. For multi-unit development, a minimum of 1 space per unit is required, and a minimum of 50% of the spaces must be covered and/or enclosed (in lockers or a secure room). Bike parking spaces must be at least 2 ft wide and 6 ft deep, with a 5-ft-wide access aisle, with 7 ft of overhead clearance for covered spaces. Bike racks must be securely anchored and designed to allow the frame and one wheel to be locked to the rack with a U-shaped shackle lock.</p> <p>If the applicant opts to address the multi-unit standards of MMC 19.505.3, note that those standards for pedestrian circulation are essentially the same as those established in MMC 19.504.9. For bicycle parking, there are specific standards for the required covered parking, including that the entrance to the parking area be secured and accessible for residents</p>

		only, have minimum stall dimensions of 2.5 ft by 6.5 ft, illuminated at least to a 1.0-footcandle level, and located 30 ft or less from the main entrance to the dwelling structure. If the applicant chooses to address the multi-unit design guidelines, the pedestrian circulation should provide safe, direct, and usable pedestrian facilities and connections throughout the development. The bicycle parking should be secure, sheltered, and conveniently located.
<input type="checkbox"/>	Connectivity to surrounding properties	
<input type="checkbox"/>	Flag Lot Design Standards (MMC 19.504.7)	
<input checked="" type="checkbox"/>	Building Design Standards (MMC 19.505)	<p>MMC 19.505.1 includes specific minimum building design standards for middle housing and MMC 19.505.5 includes specific design standards for townhouses, including transition area and driveway access/parking.</p> <p>Review of compliance with design standards for the townhomes will occur during permit review. Design standards apply to street-facing facades within 50 ft of a front or street side lot line or that face a common green or courtyard.</p> <p>The townhouse design standards worksheet, which is required to be submitted with the building permit applications, can be found here: https://www.milwaukieoregon.gov/sites/default/files/fileattachments/planning/page/123753/design_standards_form_townhouses_revised_feb2023.pdf.</p> <p>If the applicant elects to consolidate the lots and construct multi-unit housing, then the multi-unit design standards and development review process would apply (MMC 19.505.3): https://library.gcode.us/lib/milwaukie_or/pub/municipal_code/item/title_19-chapter_19_500-19_505. MMC 19.505.3 includes information about the design standards and review process for multi-unit developments. This is done via a land use review process: Type I for multi-unit design standards process or Type II for multi-unit design guidelines. Building elevations and a narrative showing how the proposed design meets the required standards or guidelines are required.</p>
<input type="checkbox"/>	Downtown Design Standards (MMC 19.508)	
Parking Standards (MMC 19.600)		
<input checked="" type="checkbox"/>	Off-Street Parking Requirements (MMC 19.600)	<p>As of Jan. 1, 2023, the city can no longer require minimum parking for this site. MMC Table 19.605.1 establishes maximum parking quantity requirements.</p> <p>If new off-street parking is provided, it must meet MMC 19.600 regulations, including the provision of electric vehicle charging (MMC 19.605.5) and parking area design and landscaping (MC 19.606).</p> <p>MMC 19.609 requires that bicycle parking be provided for all middle housing developments – in no case can there be fewer than 2 bicycle parking spaces per lot.</p> <p>Bicycle parking for multi-unit developments was referenced above.</p>
<input checked="" type="checkbox"/>	Multi-Family/Commercial Parking Requirements	See above.
Approval Criteria (MMC 19.900)		
<input type="checkbox"/>	Community Service Use (CSU) (MMC 19.904)	

<input checked="" type="checkbox"/>	Conditional Use (MMC 19.905)	Willamette Greenway review is a conditional use subject to the approval criteria in MMC 19.905.4: https://library.gcode.us/lib/milwaukie_or/pub/municipal_code/item/title_19-chapter_19_900-19_905 .
<input type="checkbox"/>	Development Review (MMC 19.906)	
<input checked="" type="checkbox"/>	Variance (MMC 19.911)	<p>It is possible that the applicant will require a variance to the MMC 12.16 driveway spacing standards.</p> <p>MMC Subsection 19.911.4.B establishes the approval criteria for Type III variances, which is the type of variance that would be needed if the applicant opts to adjust some of the standards noted above in this report. (Type II variances are limited to very specific numerical adjustments for a short list of particular standards.) There are two sets of criteria, one for general discretionary relief and one for economic hardship.</p> <p>The discretionary relief track is the more commonly chosen one, as it is usually difficult to show that unusual site characteristics preclude any reasonable economic use of the property. The discretionary relief criteria include the requirement to provide an alternatives analysis of, at a minimum, the impacts and benefits of the proposed variance as compared to the baseline code requirements. In addition, the applicant must show that the proposed variance is reasonable and appropriate and that it meets at least one of three sub-criteria (avoid or minimize impacts to surrounding properties, have desirable public benefits, or respond to the existing built or natural environment in a creative or sensitive manner). Finally, the applicant must show that impacts from the proposed variance will be mitigated to the extent practicable.</p> <p>Up to three distinct variance requests may be included in a single variance application (a fourth would require a separate variance application), but the applicant must address the approval criteria for each individual variance separately.</p>
Land Division (MMC Title 17)		
<input checked="" type="checkbox"/>	Design Standards	<p>MMC Section 17.28.040 establishes general standards for lot design, including a requirement for rectilinear lots (as practicable) and limits on compound lot line segments. As per MMC 17.28.040.C, cumulative lateral changes in direction of a side or rear property line that exceed 10% of the distance between opposing lot corners along that line require a variance.</p> <p>NOTE: Other than townhouses, which are, by definition, on their own lots, once/if middle housing is developed (or approved for development) on any lots, the lots can be divided to place each middle housing unit on its own lot. These divisions do not require that each new middle housing lot comply with the same development and design standards as the "parent" lot, but the resulting lots cannot be further divided. The middle housing land division process is an expedited one and is handled with Type II review; the final decision (including an appeal, if necessary) must be issued within 63 days of the application being deemed complete.</p>
<input checked="" type="checkbox"/>	Preliminary Plat Requirements	<p><u>Multi-unit development</u></p> <p>Lot consolidation (MMC 17.12.030): https://library.gcode.us/lib/milwaukie_or/pub/municipal_code/item/title_17-chapter_17_12-17_12_030</p> <p><u>Townhouse development – subdivision</u></p> <p>MMC Section 17.16.060 provides application requirements and procedures for preliminary plats, including a reference to the City's preliminary plat checklist. The checklist outlines the specific pieces of information that must be shown on the plat, based on the provisions for preliminary plat established in MMC Chapter 17.20.</p>

		<p>MMC Section 17.12.040 establishes approval criteria for preliminary plats. The application must include a narrative description demonstrating that the proposal meets all applicable code requirements and design standards, and it must meet the following criteria:</p> <p>(1) the proposed plat complies with Title 19 and other applicable regulations and standards;</p> <p>(2) the proposed land division allows for reasonable development and does not create the need for a variance;</p> <p>(3) the proposed subdivision plat name is not duplicative and satisfies all applicable standards of ORS 92.090(1); and</p> <p>(4) the streets and roads are laid out so as to conform to the plats of subdivisions already approved for adjoining property as to width, general direction, and in all other respects unless the City determines it is in the public interest to modify the street pattern.</p> <p>NOTE: MMC 17.20.030.C requires that a vicinity map be provided showing all existing subdivisions, streets, and unsubdivided land between the proposed subdivision and the nearest existing arterial or collector streets, and showing how proposed streets may be extended to connect with existing streets. At a minimum, the vicinity map shall depict future street connections for land within 400 feet of the subject property. The proposed subdivision may not preclude future connections and land division of surrounding properties.</p> <p>MMC 17.20 Preliminary Plat: http://www.qcode.us/codes/milwaukie/view.php?topic=17-17_20&showAll=1&frames=off</p> <p>Preliminary plat checklist: https://www.milwaukieoregon.gov/sites/default/files/fileattachments/planning/page/38211/preliminaryplatchecklist.pdf</p> <p>MMC 17.12.040 Approval criteria for preliminary plat: http://www.qcode.us/codes/milwaukie/view.php?topic=17-17_12-17_12_040&frames=off</p>
<p><input checked="" type="checkbox"/></p>	<p>Final Plat Requirements (See also Engineering Section of this Report)</p>	<p>Final plat not required for lot consolidation.</p> <p>MMC Section 17.16.070 provides application requirements and procedures for final plats, with a reference to the City's final plat checklist. The checklist outlines the specific pieces of information that must be shown on the plat, based on the provisions for final plat established in MMC Chapter 17.24.</p> <p>MMC Section 17.12.050 establishes the following approval criteria for final plats:</p> <p>(1) Compliance with the preliminary plat approved by the approval authority, with all conditions of approval satisfied.</p> <p>(2) The preliminary plat approval has not lapsed.</p> <p>(3) The streets and roads for public use are dedicated without reservation or restriction other than revisionary rights upon vacation of any such street or road and easements for public utilities.</p> <p>(4) The plat contains a donation to the public of all common improvements, including streets, roads, parks, sewage disposal, and water supply systems.</p> <p>(5) All common improvements required as conditions of approval have been described and referenced on the plat, and where appropriate, instruments to be recorded have been submitted.</p> <p>(6) The plat complies with the Zoning Ordinance and other applicable ordinances and regulations.</p> <p>(7) Submission of signed deeds when access control strips are shown on the plat.</p> <p>(8) The plat contains an affidavit by the land surveyor who surveyed that the land represented on the plat was correctly surveyed and marked with proper monuments as provided by ORS Chapter 92.060. The plat must indicate the initial point of the survey and</p>

		<p>give the dimensions and kind of such monument and its reference to some corner established by the U.S. Survey or giving two or more objects for identifying its location.</p> <p>Note that construction of all required public improvements must be completed, inspected, and accepted by the City prior to the City's sign-off on the final plat, unless an arrangement for bonding or other interim measure is made and agreed upon by the City.</p> <p>MMC 17.24 Final Plat: http://www.qcode.us/codes/milwaukie/view.php?topic=17-17_24&frames=off</p> <p>Final plat checklist: https://www.milwaukieoregon.gov/sites/default/files/fileattachments/planning/page/38211/finalplatchecklist.pdf</p> <p>MMC 17.12.050 Approval criteria for final plat: http://www.qcode.us/codes/milwaukie/view.php?topic=17-17_12-17_12_050&frames=off</p>
Sign Code Compliance (MMC Title 14)		
<input checked="" type="checkbox"/>	Sign Requirements	Although no signage has been proposed at this point, note that MMC Section 14.16.020 provides the standards and limitations for signage proposed in the high density residential zone.
Noise (MMC Title 16)		
<input type="checkbox"/>	Noise Mitigation (MMC 16.24)	
Neighborhood District Associations		
<input checked="" type="checkbox"/>	Historic Milwaukie	<p>Any City-recognized neighborhood district association whose boundaries include the subject property or are within 300 ft of the subject property will receive a referral and the opportunity to provide comment on the application.</p> <p>Applicants are encouraged to meet with the NDA prior to application submittal: https://www.milwaukieoregon.gov/citymanager/historic-milwaukie-nda.</p>
	Choose an item.	
	Choose an item.	
Other Permits/Registration		
<input type="checkbox"/>	Business Registration	
<input type="checkbox"/>	Home Occupation Compliance (MMC 19.507)	
Additional Planning Notes		
ENGINEERING & PUBLIC WORKS COMMENTS		
Public Facility Improvements (MMC 19.700)		
<input checked="" type="checkbox"/>	Applicability (MMC 19.702)	MMC 19.702 establishes the applicability of MMC 19.700, including to partitions, subdivisions, replats, new construction, and modification and/or expansion of an existing structure or a change or intensification in use that results in a new dwelling unit, any new increase in gross floor area, and/or in any projected increase in vehicle trips.

		The proposed development is to subdivide the existing property into 11 new lots, or to create multi-unit housing that would result in 14 new units. In both cases, MMC 19.700 applies.
<input type="checkbox"/>	Transportation Facilities Review (MMC 19.703)	A Transportation Facilities Review (TFR) Land Use Application is not required.
<input type="checkbox"/>	Transportation Impact Study (MMC 19.704)	A Transportation Impact Study (TIS) is not required.
<input type="checkbox"/>	Agency Notification (MMC 19.707)	No public agency notifications are required.
<input checked="" type="checkbox"/>	Transportation Requirements (MMC 19.708)	<p>Access Management: All development subject to MMC 19.700 shall comply with access management standards contained in MMC 12.16.</p> <p>Clear Vision: All developments subject to MMC 19.700 shall comply with clear vision standards contained in MMC 12.24.</p> <p>The intersection at Riverway Lane, Lava Drive, and Waverly Court shall be realigned such that the stop bar and stop sign for eastbound traffic on Lava Drive shall be relocated to better align with Waverly Ct.</p> <p>A 5-ft wide Right-of-Way dedication and 5-ft wide sidewalk easement will be required on Lava Drive.</p> <p>Street improvement design is subject to plan review and approval. Improvements for the right-of-way along Lava Drive will include (but are not limited to): 3-5-ft wide landscape strips, 5-ft wide setback sidewalk (in an easement) and new curb and gutter. Street trees are required to be planted at a minimum of every 40 feet in accordance with the Public Works Standards and the Milwaukie Street Tree List and Planting Guidelines.</p> <p>A Fee In Lieu of Construction (FILOC) will be required for the Riverway Ln frontage. The rate of this fee is \$89/LF.</p> <p>The applicant must provide engineered plans for review and approval prior to permit issuance and construction. A Right-of-Way permit is required to construct all new right-of-way improvements, accessways, and utility connections.</p>
<input checked="" type="checkbox"/>	Utility Requirements (MMC 19.709)	<p>A 10-ft public utility easement (PUE) will be required along the Lava Drive frontage of each lot.</p> <p>For each new lot created, individual utility connections are required. If the Multi-Unit housing option is constructed, a single water and sewer connection is acceptable.</p> <p>The applicant must provide engineered plans for review and approval prior to permit issuance and construction. A Right-of-Way Permit is required to construct these improvements.</p>
Flood Hazard Area (MMC 18)		
<input type="checkbox"/>	Development Permit (MMC 18.16.030)	The subject property is not in a flood hazard zone.
<input type="checkbox"/>	General Standards (MMC 18.04.150)	
<input type="checkbox"/>	Compensatory Storage (MMC 18.20.020)	
<input type="checkbox"/>	Floodways (MMC 18.20.010.B)	

Environmental Protection (MMC 16)	
<input type="checkbox"/>	Weak Foundation Soils (MMC 16.16)
<input checked="" type="checkbox"/>	<p>Erosion Control (MMC 16.28)</p> <p>Erosion control and prevention is required as outlined in MMC16.28</p> <p>Projects that disturb more than 500 square feet within the City of Milwaukie limits require an Erosion Control Permit from the City's Building Department. Even projects that are less than 500 square feet may require a permit based on site conditions and proximity to natural resources such as wetlands and waterways. The applicant must submit an erosion control plan for their project that accurately depicts how sediment will be controlled during the duration of the project.</p> <p>Please review the City's Erosion Control Permit Program Handout for city processes, requirements, and example erosion control plans. The applicant is encouraged to use the City's adopted Erosion Prevention and Sediment Control Planning & Design Manual (2020) for assistance in designing an erosion control plan.</p> <p>Development sites between 1 acre and 5 acres should apply for a 1200-CN permit as outlined on https://www.milwaukieoregon.gov/publicworks/1200cn. Applicants will use the DEQ 1200-C permit application but submit it to the city for review and approval through the Milwaukie Erosion and Sediment Control Program. A 1200-C permit can be found on the DEQ website at https://www.oregon.gov/deq/wq/wqpermits/Pages/Stormwater-Construction.aspx. Applicants do not need to submit a permit to DEQ if under 5 acres in site size.</p> <p>For more information, please visit https://www.milwaukieoregon.gov/publicworks/erosion-prevention-and-control or contact erosioncontrol@milwaukieoregon.gov.</p>
<input checked="" type="checkbox"/>	<p>Tree Code (MMC 16.32)</p> <p>All public trees over 2" in diameter at breast height (DBH) are regulated by the public tree code. Public trees are to be protected through development and included on the inventory and protection plan required by the private development tree code (MMC 16.32.042). Public tree removals require an approved permit for removal, which includes a notice period lasting 14 days but can extend to 28 days if public comment is received.</p> <p>Public trees require a permit for planting (free) – visit milwaukieoregon.gov/trees to learn more.</p> <p>Frontage improvements include tree replanting requirements in the ROW following the public works standards. Public trees may count for partial credit in the development tree code as described in MMC 16.32.042.</p> <p>The tax lot included in the development site will be subject to the development tree code (MMC 16.32.042 A-H). If dividing the existing lot, the development tree code and the included standards apply to each tax lot independently. If the applicant consolidates tax lots, the final consolidated tax lot would be subject to the development tree code.</p> <p>The development tree code requires for this development compliance and/or mitigation associated with the following standards:</p> <ul style="list-style-type: none"> - Preservation standard - Planting Standard - Protection Standard - Soil volume standard. <p>For more information on these standards, view the documents attached at the bottom of the residential development tree permits webpage here. Mitigation fees are outlined in the Master Fee Schedule. The applicant may seek a variance for one or more of these standards through a Type III variance process (MMC 16.32.042.E)</p> <p>Bonds are required for tree protection and post development warranties as outlined in the Master Fee Schedule.</p> <p>Submittal requirements are outlined in MMC 16.32.042.H. An ISA Certified Arborist is required to submit the final documents to the city as defined in MMC 16.32.042. Additional</p>

		<p>supportive documentation, including canopy lists and tree protection and planting guidance are available at www.milwaukieoregon.gov/trees.</p> <p>The development tree code application is due at time of building permit application unless a variance is being requested through the land use application process. Building permits will not be approved without completion and approval of the development tree code application.</p> <p>For more information, please contact urbanforest@milwaukieoregon.gov or call 503-786-7655.</p>
Public Services (MMC 13)		
<input checked="" type="checkbox"/>	Water System (MMC 13.04)	<p>For the 11-lot townhouse option, all newly created lots will require new water connections. For the single lot 14-unit multi-unit housing option, a single water connection and meter is acceptable. An existing 10-in water main in Lava Drive is available.</p> <p>New water meters must be provided for each new lot. Connection to City utilities is subject to plan and application review. Applications for city utility billing connections shall be made on approved forms: https://www.milwaukieoregon.gov/building/water-connection-application</p> <p>A system development charge and a water service connection fee must be paid prior to any increase in service size or new connection to city water.</p>
<input checked="" type="checkbox"/>	Sewer System (MMC 13.12)	<p>For the 11-lot townhouse option, all newly created lots will require new sewer connections. For the single lot 14-unit multi-unit housing option, a single appropriately sized sewer connection is acceptable. An existing 8-in concrete pipe in Lava Drive is available.</p> <p>Connection to City utilities is subject to plan and application review.</p> <p>A system development charge must be paid prior to new connections or impacts due to intensification of use to city sanitary sewer.</p>
<input checked="" type="checkbox"/>	Stormwater Management (MMC 13.14)	<p>Stormwater mitigation must meet the city's NPDES permit through design of facilities according to the 2016 City of Portland Stormwater Management Manual.</p> <p>All new impervious surface area more than 500 square feet is required to be treated on site. Stormwater facilities are subject to plan review.</p> <p>A system development charge must be paid prior to building permit issuance.</p>
<input checked="" type="checkbox"/>	System Development Charge (MMC 13.28.040)	<p>All new development or intensification of use shall be subject to system development charges.</p> <p>Latest charges are determined by the Master Fee Schedule available here: https://www.milwaukieoregon.gov/finance/fees-charges</p> <p>An SDC estimate for both options has been provided as part of this report.</p>
<input checked="" type="checkbox"/>	Fee in Lieu of Construction (MMC 13.32)	<p>A Fee in Lieu of Construction will be required for the frontage along Riverway Lane. This fee is calculated at \$89/LF.</p>
Public Places (MMC 12)		
<input checked="" type="checkbox"/>	Right of Way Permit (MMC 12.08.020)	<p>A Right-of-Way Permit will be required for all frontage improvements, utility work within the right-of-way, and accessway construction.</p> <p>For the 11-lot townhouse option, Individual right-of-way permits will be required to construct any driveway approaches and utility connections for the newly created lots.</p>
<input checked="" type="checkbox"/>	Access Requirements (MMC 12.16.040)	<p>Per MMC 12.16.040, private property must be provided street access via accessways (driveways). These driveways must be constructed under a right-of-way permit in accordance with the current Milwaukie Public Works Standards and are subject to plan review. For residential uses of four or fewer units accessing local or neighborhood streets (as</p>

		found in the 11-lot townhouse option), the accessways must be at least 45 feet from the nearest intersecting street face of curb. For multi-unit residential properties of 5 or more units, accessways must be at least 100 feet from the nearest intersecting street face of curb. This measurement is taken from the face of curb on Waverly Ct. As currently designed, the 11-lot townhouse option does not meet this standard, and a variance or re-design would be required. As currently designed, the 14-unit multi-unit residential option meets this standard with the single driveway on the west edge of the property.
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<input checked="" type="checkbox"/>	Clear Vision (MMC 12.24)	A clear vision area shall be maintained at all driveways and accessways.
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Additional Engineering & Public Works Notes

SDC estimates have been provided for both options. See estimates for assumptions. Actual SDC costs are dependent on final plan review.

BUILDING COMMENTS

All drawings must be submitted electronically through www.buildingpermits.oregon.gov

New buildings or remodels shall meet all the provisions of the current applicable Oregon Building Codes. All State adopted building codes can be found online at: <https://www.oregon.gov/bcd/codes-stand/Pages/adopted-codes.aspx>.

All building permit applications are electronic and can be applied for online with a valid CCB license number or engineer/architect license at www.buildingpermits.oregon.gov . Each permit type and sub-permit type are separate permits and are subject to the same time review times and will need to be applied for individually. Plans need to be uploaded to their specific permits in PDF format as a total plan set (not individual pages) if size allows.

Note: Plumbing and electrical plan reviews (when required) are done off site and are subject to that jurisdiction's timelines. The City does not have any control over those timelines, so please plan accordingly.

Site utilities require a separate plumbing permit and will require plumbing plan review. **NOTE:** The grading plan submitted to the Engineering Department does not cover this review.

If you have any building related questions, please email us at building@milwaukieoregon.gov.

If you are building the middle housing building, the building must meet the Oregon Structural Specialty Code (OSSC) and fire sprinklers will be required. Multiple structural permits may be required depending on construction.

If you are building the townhomes on individual lots, the buildings must meet the Oregon Residential Specialty Code (ORSC). Each unit will require their own permits.

OTHER FEES

<input checked="" type="checkbox"/>	Construction Excise Tax Affordable Housing CET – Applies to any project with a construction value of over 100,000.	Calculation: Valuation *.12% (.12)
<input checked="" type="checkbox"/>	Metro Excise Tax Metro – Applies to any project with a construction value of over \$100,000.	Calculation: Valuation *.12% (.0012)

<input checked="" type="checkbox"/>	School Excise Tax School CET – Applies to any new square footage.	Calculation: Commercial = \$0.69 a square foot, Residential = \$1.39 a square foot (not including garages)
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FIRE DISTRICT COMMENTS

For a type V-B, 14,100 sq.ft. building the minimum fire flow will be 1,500 GPM with fire sprinklers. Fire sprinklers allow for a reduction in fire flow. When the applicant has the nearest fire hydrant tested, this is the mark they need to meet.

Please also see the attached memorandum for fire district comments.

COORDINATION WITH OTHER AGENCIES

Applicant must communicate directly with outside agencies. These may include the following:

- Metro
- Trimet
- North Clackamas School District
- North Clackamas Parks and Recreation District (NCPRD)
- Oregon Parks and Recreation
- ODOT/ODOT Rail
- Department of State Lands
- Oregon Marine Board
- Oregon Department of Fish and Wildlife (ODOT)
- State Historic Preservation Office
- Clackamas County Transportation and Development

MISCELLANEOUS

State or County Approvals Needed

<input type="checkbox"/>	Boiler Approval (State)	
<input type="checkbox"/>	Elevator Approval (State)	
<input type="checkbox"/>	Health Department Approval (County)	

Arts Tax

<input type="checkbox"/>	Neighborhood Office Permit	
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Other Right-of-Way Permits

<input type="checkbox"/>	Major:	
<input type="checkbox"/>	Minor:	
<input type="checkbox"/>	Painted Intersection Program Permits:	
<input type="checkbox"/>	artMOB Application	
<input type="checkbox"/>	Traffic Control Plan (Engineering)	

<input type="checkbox"/>	Parklet:	
	<input type="checkbox"/> Parklet Application/ Planning Approval	
	<input type="checkbox"/> Engineering Approval	
	<input type="checkbox"/> Building Approval	
<input type="checkbox"/>	Sidewalk Café:	
<input type="checkbox"/>	Tree Removal Permit:	

Infrastructure/Utilities

- Applicant must communicate directly with utility providers. These may include the following:**
- PGE
 - NW Natural
 - Clackamas River Water (CRW)
 - Telecomm (Comcast, Century Link)
 - Water Environmental Services (WES)
 - Garbage Collection (Waste Management, Hoodview Disposal and Recycling)

Economic Development/Incentives

<input type="checkbox"/>	Enterprise Zone:	
<input type="checkbox"/>	Vertical Housing Tax Credit:	
<input type="checkbox"/>	New Market Tax Credits:	
<input type="checkbox"/>	Housing Resources:	

PLEASE SEE NOTE AND CONTACT INFORMATION ON THE FOLLOWING PAGE

This is only preliminary preapplication conference information based on the applicant's proposal, and does not cover all possible development scenarios. Other requirements may be added after an applicant submits land use applications or building permits. City policies and code requirements are subject to change. If a note in this report contradicts the Milwaukie Municipal Code, the MMC supersedes the note. If you have any questions, please contact the City staff that attended the conference (listed on Page 1). Contact numbers for these staff are City staff listed at the end of the report.

Sincerely,

City of Milwaukie Development Review Team

BUILDING DEPARTMENT

Patrick McLeod	Building Official	503-786-7611
Harmony Drake	Permit Technician	503-786-7623
Stephanie Marcinkiewicz	Inspector/Plans Examiner	503-786-7636

ENGINEERING DEPARTMENT

Steve Adams	City Engineer	503-786-7605
Jennifer Backhaus	Engineering Technician III	503-786-7608

PLANNING DEPARTMENT

Laura Weigel	Planning Manager	503-786-7654
Vera Kolias	Senior Planner	503-786-7653
Brett Kolver	Senior Planner	503-786-7657
Adam Heroux	Associate Planner	503-786-7658
Ryan Dyar	Assistant Planner	503-786-7661

COMMUNITY DEVELOPMENT DEPARTMENT

Joseph Briglio	Community Development Director	503-786-7616
Mandy Byrd	Development Programs Manager	503-786-7692
(vacant)	Housing & Econ. Dev. Prog. Mgr.	503-786-7627
Emilie Bushlen	Administrative Specialist II	503-786-7600
(vacant)	Administrative Specialist II	503-786-7600

SUSTAINABILTY DEPARTMENT

Natalie Rogers	Climate & Natural Resources Mgr.	503-786-7668
Courtney Wilson	Urban Forester	503-786-7655
Galen Hoshovsky	Environmental Services Coordinator	503-786-7660

CLACKAMAS FIRE DISTRICT

Shawn Olson	Lieutenant Deputy Fire Marshal	shawn.olson@ClackamasFire.com
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Clackamas Fire District #1



Pre-Application Comments:

To: Vera Koliass, Senior Planner, City of Milwaukie
From: Shawn Olson, Fire Marshal, Clackamas Fire District #1
Date: 3-9-2023
Re: 23-002PA Townhomes, 1600 SE Lava Rd.

This review is based upon the current version of the Oregon Fire Code (OFC), as adopted by the Oregon State Fire Marshal's Office. The scope of review is typically limited to fire apparatus access and water supply, although the applicant must comply with all applicable OFC requirements. When buildings are completely protected with an approved automatic fire sprinkler system, the requirements for fire apparatus access and water supply may be modified as approved by the fire code official. The following items should be addressed by the applicant:

- 1) A Fire Access and Water Supply plan for subdivisions and commercial buildings over 1000 square feet in size or when required by Clackamas Fire District #1. The plan shall show fire apparatus access, fire lanes, fire hydrants, fire lines, available fire flow, FDC location (if applicable), building square footage, type of construction, and shall provide fire flow tests per NFPA 291 or hydraulic model when applicable and shall be no older than 12 months. Work to be completed by experienced and responsible persons and coordinated with the local water authority. Submit PDF directly to the Clackamas Fire District website at clackamasfire.com once complete. Call with any questions regarding design requirements and submittal process. 503-742-2663.
- 2) Provide address numbering that is clearly visible from the street.
- 3) Access streets between 26 feet and less than 32 feet in width must have parking restricted to one side of the street. Access streets less than 26 feet in width must have parking restricted on both sides of the street. No parking restrictions for access roads 32 feet wide or more.
- 4) All new buildings shall have a firefighting water supply that meets the fire flow requirements of the Fire Code Appendix B.
- 5) A third-party agency will need to conduct a fire flow test on existing fire hydrants. Provide a copy of the test report when you submit the fire access and water supply plan.

- 6) Maximum spacing between hydrants on street frontage shall not exceed 500 feet. Additional private on-site fire hydrants may be required for larger buildings. Fire sprinklers may reduce the water supply requirements.
- 7) Prior to the start of combustible construction required fire hydrants shall be operational and accessible.
- 8) The applicant must obtain a stamp of approval from Clackamas Fire District #1 that demonstrates fire apparatus access and water supply requirements will be satisfied.
 - a. When ready, submit all fire apparatus access and water supply plans to:
[Fire Apparatus Access/Water Supply Plan Submittal](#)
- 9) Please see our design guide at:
<https://clackamasfire.com/fire-prevention/new-construction-resources/>

If you have questions please contact Clackamas Fire District @503-742-2663 or email at shawn.olson@clackamasfire.com



Permit Record: 23-002PA - 14 Multi-Unit Option SDCs

Street Address: 1600 Lava Drive

Prepared By: JMB

Date: 3/23/2023

SDC	Reimbursement	Improvement	Administration	Total
Parks	\$ 46,527.00	\$ -	\$ -	\$ 46,527.00
Transportation	\$ 946.94	\$ 18,846.62	\$ -	\$ 19,793.56
Storm Drainage	\$ -	\$ 2,743.02	\$ -	\$ 2,743.02
Water	\$ 36,085.00	\$ 29,954.00	\$ 5,054.00	\$ 71,093.00
Sewer	\$ 7,999.20	\$ 1,179.20	\$ -	\$ 9,178.40
Water Meter Set Fee	\$ 6,100.00	\$ -	\$ -	\$ 6,100.00
Review Fee	\$ -	\$ -	\$ 165.00	\$ 165.00
Wastewater Treatment	\$ 87,720.00	\$ -	\$ -	\$ 87,720.00
			Total	\$ 243,319.98

Fees subject to change until final plans and permit issuance

Assumptions: 14 units (500 - 800 sf), single 1.5" water meter, 9,850 sf new impervious surface.



Permit Record: 23-002PA - 11 Townhouse OpticSDCs

Street Address: 1600 Lava Drive

Prepared By: JMB

Date: 3/23/2023

SDC	Reimbursement	Improvement	Administration	Total
Parks	\$ 35,703.00	\$ -	\$ -	\$ 35,703.00
Transportation	\$ 694.95	\$ 13,831.35	\$ -	\$ 14,526.30
Storm Drainage	\$ -	\$ 3,338.16	\$ -	\$ 3,338.16
Water	\$ 11,150.00	\$ 9,260.00	\$ 1,560.00	\$ 21,970.00
Sewer	\$ 8,908.20	\$ 1,313.20	\$ -	\$ 10,221.40
Water Meter Set Fee	\$ 2,500.00	\$ -	\$ -	\$ 2,500.00
Review Fee	\$ -	\$ -	\$ 165.00	\$ 165.00
Wastewater Treatment	\$ 67,080.00	\$ -	\$ -	\$ 67,080.00
			Total	\$ 155,503.86

Fees subject to change until final plans and permit issuance

Assumptions: 11,400 sf of new impervious area, new 3/4" meters for each unit (10 new).

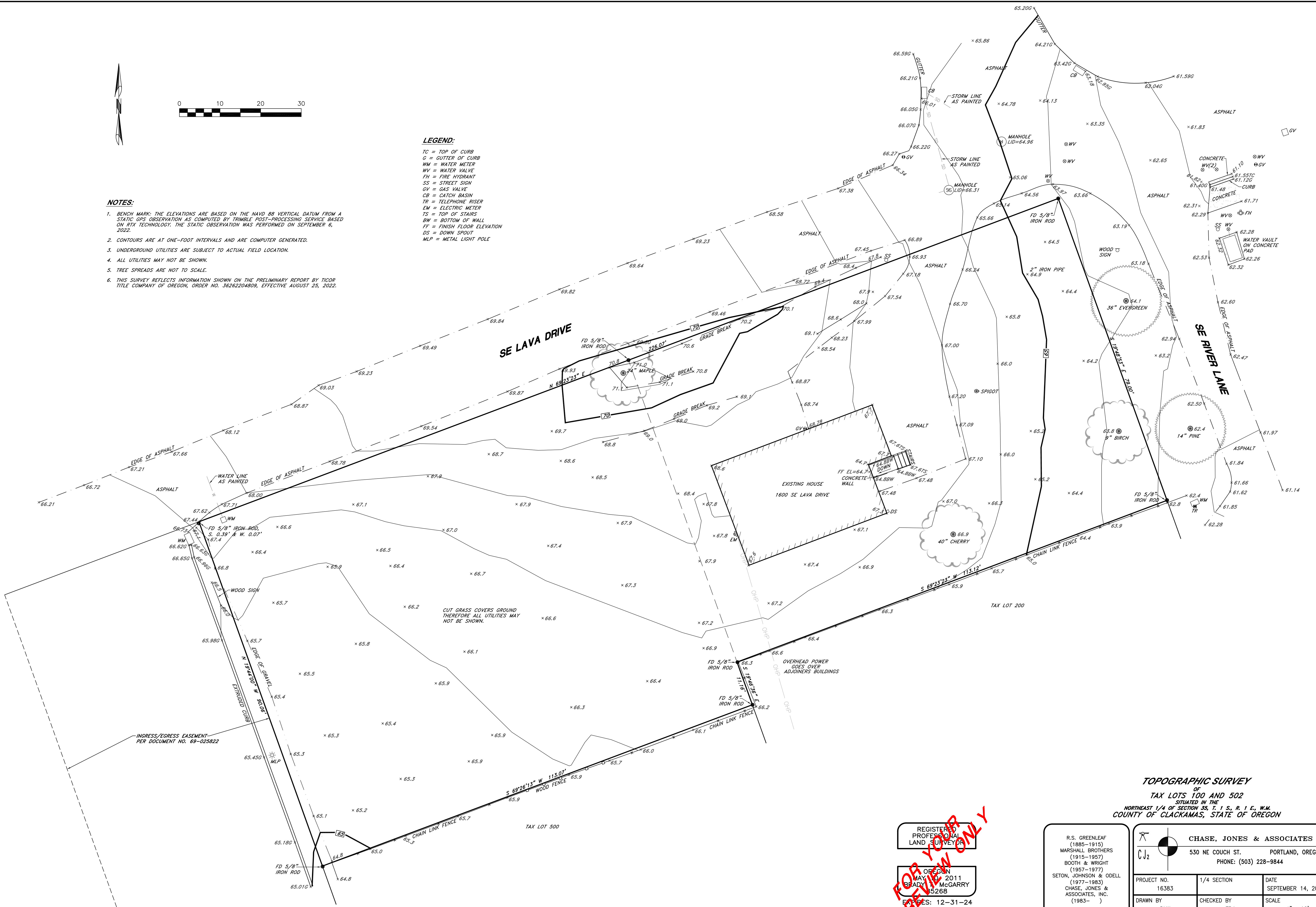


LEGEND:

- TC = TOP OF CURB
- G = GUTTER OF CURB
- WM = WATER METER
- WV = WATER VALVE
- FH = FIRE HYDRANT
- SS = STREET SIGN
- GV = GAS VALVE
- CB = CATCH BASIN
- TR = TELEPHONE RISER
- EM = ELECTRIC METER
- TS = TOP OF STAIRS
- BW = BOTTOM OF WALL
- FF = FINISH FLOOR ELEVATION
- DS = DOWN SPOUT
- MLP = METAL LIGHT POLE

NOTES:

1. BENCH MARK: THE ELEVATIONS ARE BASED ON THE NAVD 88 VERTICAL DATUM FROM A STATIC GPS OBSERVATION AS COMPUTED BY TRIMBLE POST-PROCESSING SERVICE BASED ON RTX TECHNOLOGY. THE STATIC OBSERVATION WAS PERFORMED ON SEPTEMBER 6, 2022.
2. CONTOURS ARE AT ONE-FOOT INTERVALS AND ARE COMPUTER GENERATED.
3. UNDERGROUND UTILITIES ARE SUBJECT TO ACTUAL FIELD LOCATION.
4. ALL UTILITIES MAY NOT BE SHOWN.
5. TREE SPREADS ARE NOT TO SCALE.
6. THIS SURVEY REFLECTS INFORMATION SHOWN ON THE PRELIMINARY REPORT BY TICOR TITLE COMPANY OF OREGON, ORDER NO. 36262204809, EFFECTIVE AUGUST 25, 2022.



TOPOGRAPHIC SURVEY

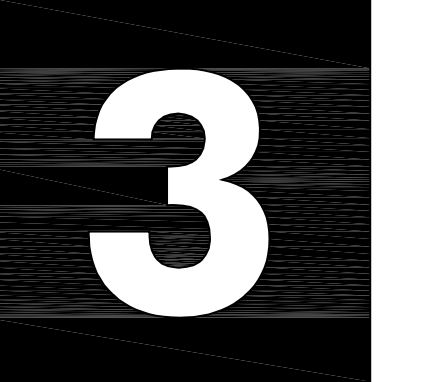
OF
TAX LOTS 100 AND 502
SITUATED IN THE
NORTHEAST 1/4 OF SECTION 35, T. 1 S., R. 1 E., W.M.
COUNTY OF CLACKAMAS, STATE OF OREGON

REGISTERED
PROFESSIONAL
LAND SURVEYOR
OF OREGON
MAY 11, 2011
BRADY MCGARRY
#5268
EXPIRES: 12-31-24

R.S. GREENLEAF
(1885-1915)
MARSHALL BROTHERS
(1915-1957)
BOOTH & WRIGHT
(1957-1977)
SETON, JOHNSON & ODELL
(1977-1983)
CHASE, JONES &
ASSOCIATES, INC.
(1983-)

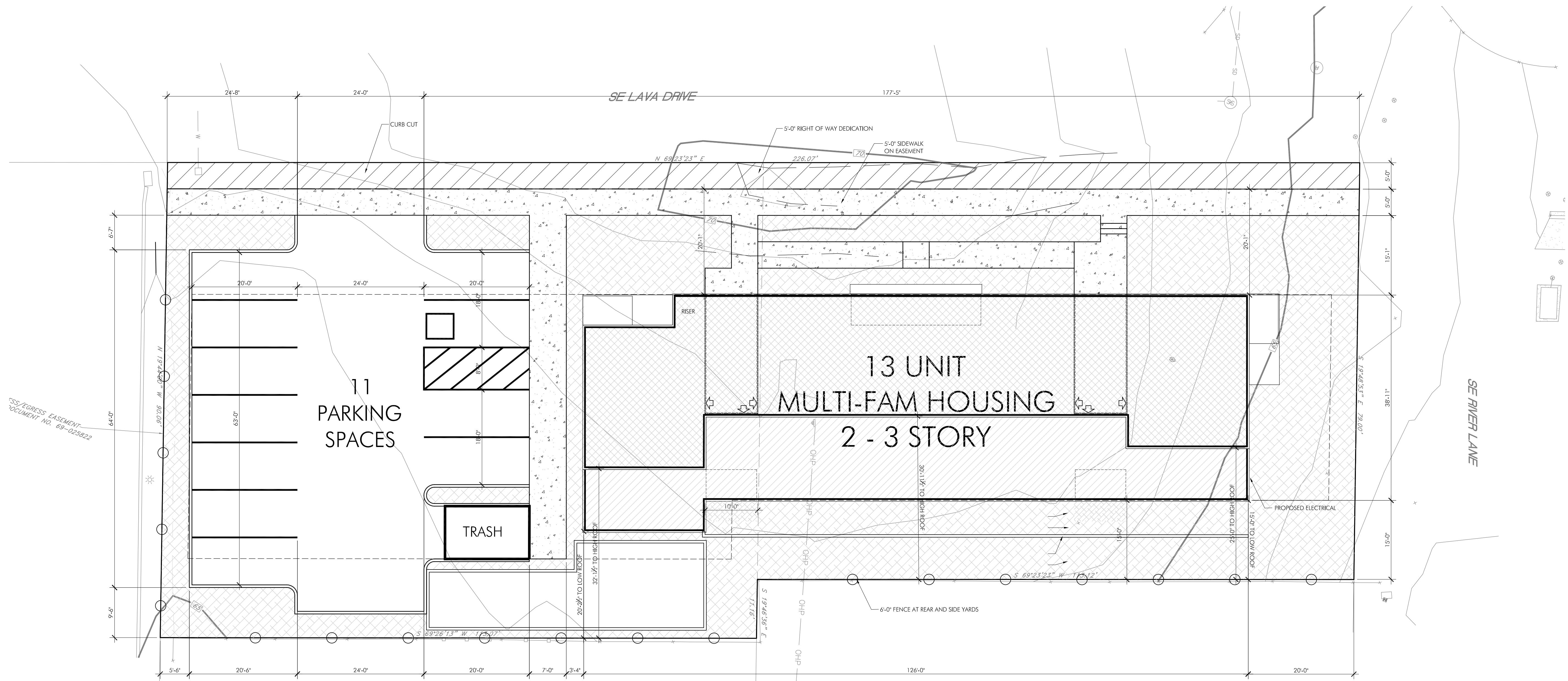
CHASE, JONES & ASSOCIATES INC.			
530 NE COUCH ST.		PORTLAND, OREGON 97232	
PHONE: (503) 228-9844			
PROJECT NO. 16383	1/4 SECTION	DATE SEPTEMBER 14, 2022	SHEET 1
DRAWN BY DLW	CHECKED BY EDJ	SCALE 1" = 10'	OF 1

Exhibit F – Site Plan



IN THE EVENT CONFLICTS ARE DISCOVERED
BETWEEN THE ORIGINAL SIGNED AND SEALED
DOCUMENTS PREPARED BY THE ARCHITECTS
AND/OR THEIR CONSULTANTS, AND ANY COPY OF
THE DOCUMENTS TRANSMITTED BY MAIL, FAX,
ELECTRONICALLY OR OTHERWISE, THE ORIGINAL
SIGNED AND SEALED DOCUMENTS SHALL GOVERN.

PROJECT # 2022-175
DATE: 2 JUNE 2023
REVISIONS



NEW APARTMENT BUILDING
LAVA DRIVE APARTMENTS
1600 SE LAVA DRIVE
MILWAUKIE, OREGON 97206

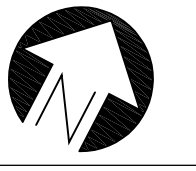
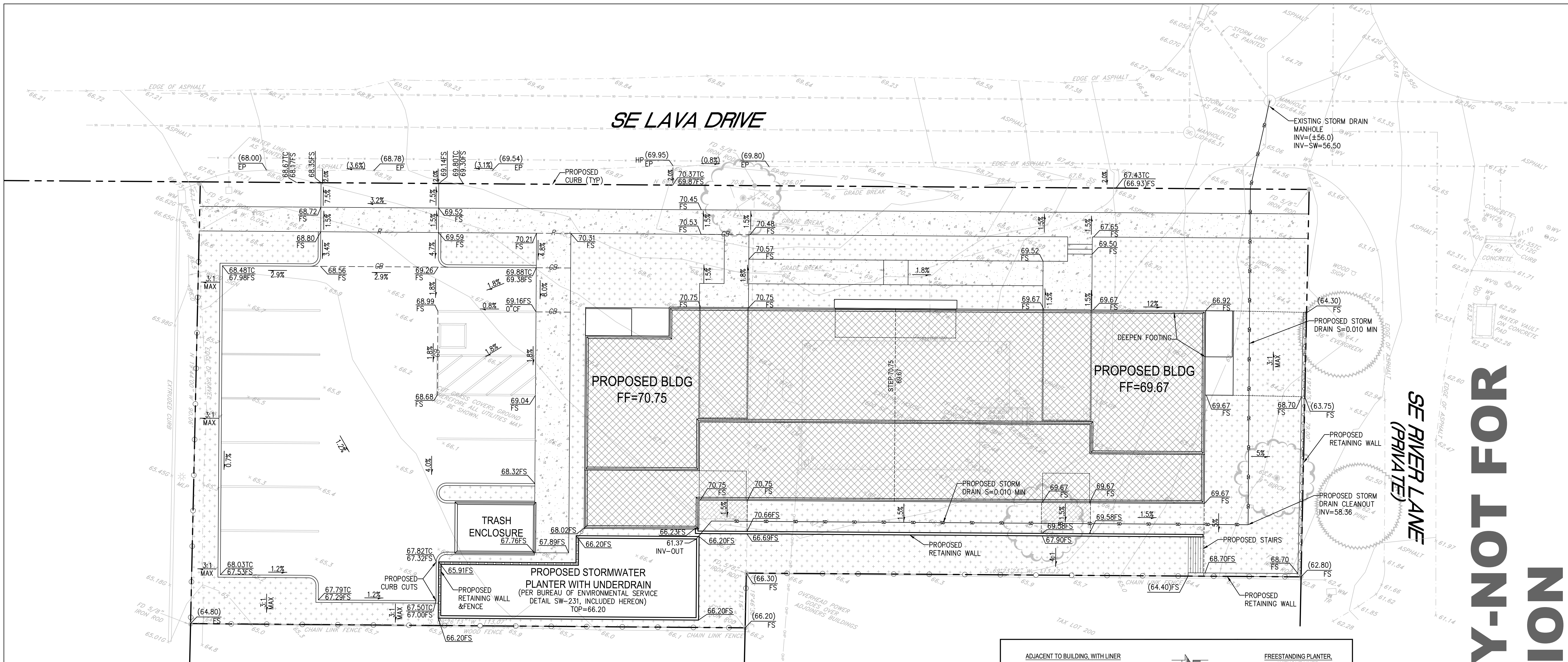


Exhibit G – Preliminary Grading Plan



7 OAKS
ENGINEERING

345 WESTFIELD ST. #107
SILVER CREEK, OR. 97381
ADMIN@7OAKSENGINEERING.COM

STAMP:
REGISTERED PROFESSIONAL ENGINEER
M.A. OREGON
12.2020
STEVEN JOHNSON

NO	DATE	ISSUE DESCRIPTION

NO CHANGES, MODIFICATIONS OR REPRODUCTIONS TO BE MADE TO THESE DRAWINGS WITHOUT WRITTEN AUTHORIZATION FROM THE DESIGN ENGINEER.
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CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO PROCEEDING WITH CONSTRUCTION AND NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES OR CONFLICTS.

DC BY: DRAWN BY:

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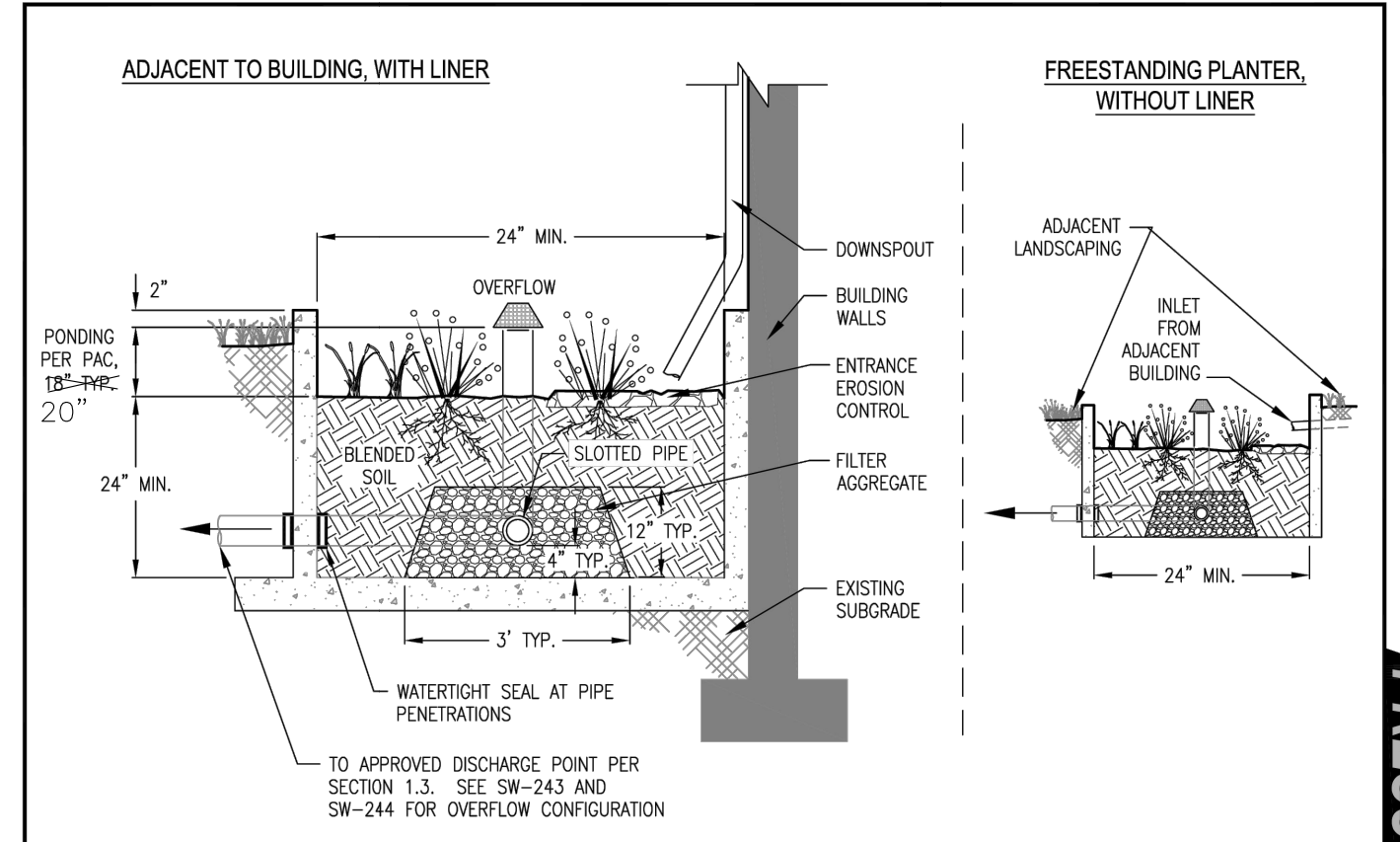
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Dig Safely.
Call the Oregon One-Call Center
DIAL 811 or 1-800-332-2344

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- Detail intended as an example. Detail must match PAC assumptions and/or design report.
- Setbacks: No setback is required for lined planters. For infiltration planters the setbacks are 5' from property lines except next to right-of-way, and 10' from building foundations. The planter wall height must be less than 30" above finished grade if within 5' of property line.
- Planter Structure: A single pour, monolithic concrete shell without cold joints is required unless otherwise approved.
- Waterproofing: No additional waterproofing is needed if the structure is a single pour, monolithic concrete shell.
- Blended Soil: Use BES standard soil blend for stormwater facilities (SWM Section 6.3) unless otherwise approved. Install minimum of 2" of blended soil.
- Underdrain System: Sizing is per the PAC. The underdrain must be 4" slotted schedule 40 PVC well casing pipe manufactured with .050" slots, 6 slots per row. Embed the underdrain in 2" No.10 washed angular aggregate. See SW-243 for longitudinal section and SW-244 for office examples. Conform with Oregon Plumbing Specialty Code (OPSC) requirements. Alternative configurations and materials such as cellular storage systems, drainage mats, and non-standard aggregates may be used under the Performance Approach, with BES approval.
- Overflow: Overflow elevation must allow for 2" of freeboard, minimum. Protect from debris and sediment with strainer or grate.
- Vegetation: Refer to plant list in SWM Section 3.5. Minimum container size is 1 gal. Number of plantings per 100sf of facility area: 80 herbaceous plants OR 72 herbaceous plants and 4 small shrubs.
- Entrance Erosion Control: Install river rock, flagstone, or similar to dissipate the energy of incoming water at entrances and ends of downspout extensions.
- Check Dams: Spacing per the PAC. Check dam length must equal the full width of the planter.
- Inspections: Call BOS NR Inspection Line, (503) 823-7000, request 487. 3 inspections required.

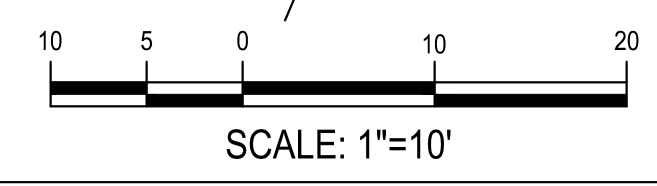
CONSTRUCTION REQUIREMENTS
Do not allow temporary storage of construction waste or materials in the facilities. Do not allow entry of runoff or sediment during construction.

STORMWATER MANAGEMENT TYPICAL DETAILS FOR PRIVATE PROPERTY
PLANTER WITH UNDERDRAIN SW-231
Bureau of Environmental Services

PRELIMINARY-NOT FOR CONSTRUCTION

SE RIVER LANE (PRIVATE)

PRESUMPTIVE AND PERFORMANCE DESIGN APPROACH



PROJECT NAME:
LAVA DRIVE APARTMENTS

PROJECT ADDRESS:
1600 SE LAVA DRIVE

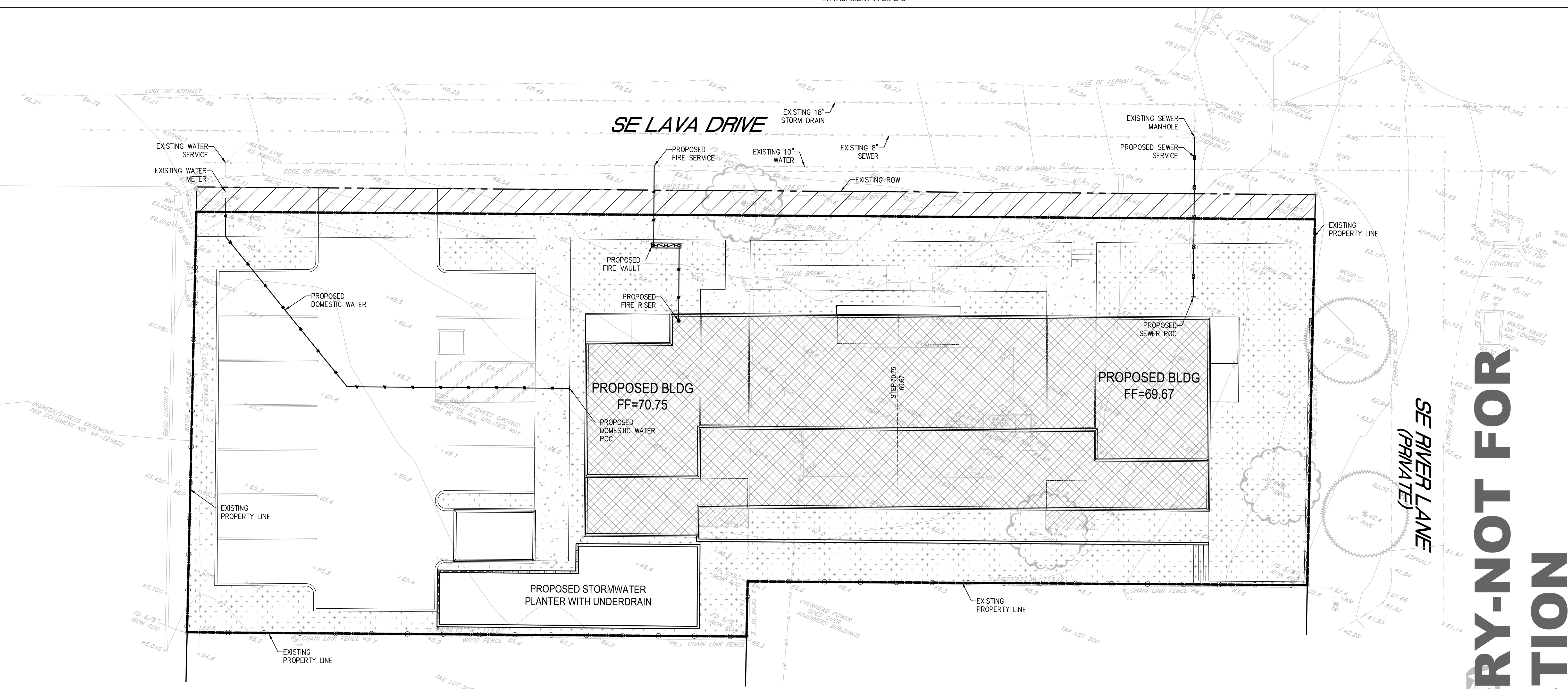
MILWAUKIE, OR 97206

SHEET TITLE:
PRELIMINARY GRADING PLAN

DATE:
06/09/2023

SHEET NUMBER:
C2

Exhibit H – Preliminary Wet Utility Plan



PRELIMINARY-NOT FOR CONSTRUCTION

7 OAKS ENGINEERING

345 WESTFIELD ST. #107
 SILVER CREEK, OR. 97381
 ADMIN@7OAKSENGINEERING.COM

STAMP:

NO	DATE	ISSUE DESCRIPTION

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PROJECT NAME:
LAVA DRIVE APARTMENTS

PROJECT ADDRESS:
1600 SE LAVA DRIVE

MILWAUKIE, OR 97206

SHEET TITLE:
PRELIMINARY WET UTILITY PLAN

DATE:
06/09/2023

SHEET NUMBER:
C3

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POTENTIAL UNDERGROUND FACILITY OWNERS

Dig Safely.

Call the Oregon One-Call Center
 DIAL 811 or 1-800-332-2344

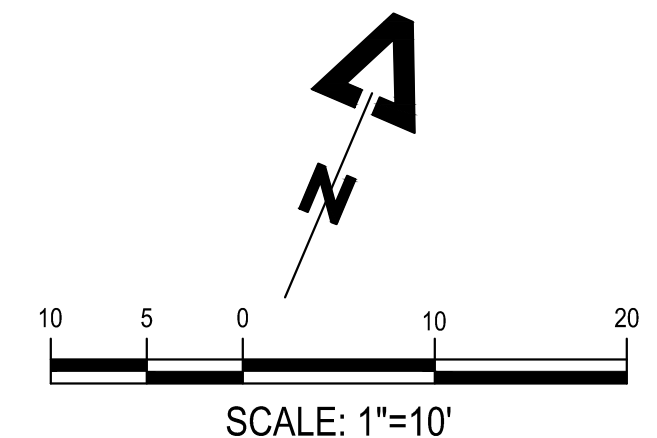


Exhibit I – Preliminary Landscape Plan

Preliminary Plant Schedule

TREES	QTY	BOTANICAL / COMMON NAME	SIZE
	3	Calocedrus decurrens / Incense Cedar	8-10" Ht. Min., B&B
	4	Cercis canadensis / Eastern Redbud	2" Cal., B&B
	4	Chamaecyparis nootkatensis 'Glauca Pendula' / Blue Weeping Nootka Cypress	8-10" Ht. Min., B&B
	1	Cornus nuttallii x florida 'Eddie's White Wonder' / Eddie's White Wonder Dogwood	2" Cal., B&B
	5	Fagus sylvatica 'Dawyck Purple' / Dawyck Purple European Beech	2" Cal., B&B
	4	Nyssa sylvatica 'Wildfire' / Black Gum	2" Cal., B&B
	5	Parrotia persica 'Vanessa' / Vanessa Persian Parrotia	2" Cal., B&B
	2	Picea glauca 'Pendula' / Weeping White Spruce	8-10" Ht. Min., B&B
	3	Quercus robur 'Fastigiata' / Skyrocket English Oak	2" Cal., B&B

GROUND COVERS	QTY	BOTANICAL / COMMON NAME	SIZE	SPACING
	374 (808 sf)	Fragaria chiloensis / Beach Strawberry	4" Pot	18" o.c.
	6 (86 sf)	Rubus pentalobus 'Emerald Carpet' / Emerald Carpet Creeping Raspberry	1 Gal.	48" o.c.
	1,897 sf	Pro Time 501 Water Smarter Fescue or Equal	Seed at rate of 7-10 lbs per 1,000 sf	

SHRUBS	QTY	BOTANICAL / COMMON NAME	SIZE
	57	Abelia x grandiflora 'Kaleidoscope' / Kaleidoscope Glossy Abelia	2 Gal.
	39	Euonymus japonicus 'Green Spire' / Green Spire Japanese Euonymus	1 Gal.
	3	Ilex crenata 'Sky Pencil' / Sky Pencil Japanese Holly	24"-30" Ht.
	16	Ilex crenata 'Soft Touch' / Soft Touch Japanese Holly	2 Gal.
	37	Nandina domestica 'Atropurpurea Nana' / Dwarf Nandina	1 Gal.
	14	Osmanthus heterophyllus 'Goshiki' / Goshiki Holly Olive	5 Gal.
	48	Rhaphiolepis indica 'Ballerina' / Ballerina Indian Hawthorn	2 Gal.
	31	Rhaphiolepis umbellata 'Snow White' / Yedda Hawthorn	3 Gal.
	18	Sarcococca confusa / Fragrant Sarcococca	1 Gal.

GRASSES/PERENNIALS	QTY	BOTANICAL / COMMON NAME	SIZE
	17	Calamagrostis x acutiflora 'Karl Foerster' / Feather Reed Grass	1 Gal.
	15	Liriope muscari 'Big Blue' / Big Blue Lilyturf	1 Gal.
	27	Pennisetum alopecuroides 'Hameln' / Hameln Fountain Grass	1 Gal.

Stormwater Plant Schedule

GROUND COVERS	QTY	BOTANICAL / COMMON NAME	SIZE	SPACING
	181	Carex densa / Dense Sedge	1 Gal.	9" o.c., Plant randomly for full coverage
	181	Juncus tenuis / Slender Rush		
	181	Scirpus microcarpus / Small Fruited Bulrush		

General Notes:

- PLANS ARE PRELIMINARY, NOT FOR CONSTRUCTION OR BIDDING.
- SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN.
- SEE CIVIL DRAWINGS FOR GRADING AND UTILITIES.
- STREET TREES SELECTED FROM MILWAUKIE APPROVED STREET TREE LIST.
- SITE TO BE IRRIGATED BY AN AUTOMATIC UNDERGROUND IRRIGATION SYSTEM.
- PRELIMINARY PLANT SCHEDULE SEE THIS SHEET.

Legend:

- EXISTING TREES TO REMAIN
- PICNIC TABLE

Site Information

TOTAL SITE SQUARE FOOTAGE: 17,984 SF
 MINIMUM LANDSCAPE REQUIRED: 15%
 PROPOSED LANDSCAPE SF: 5,565 SF

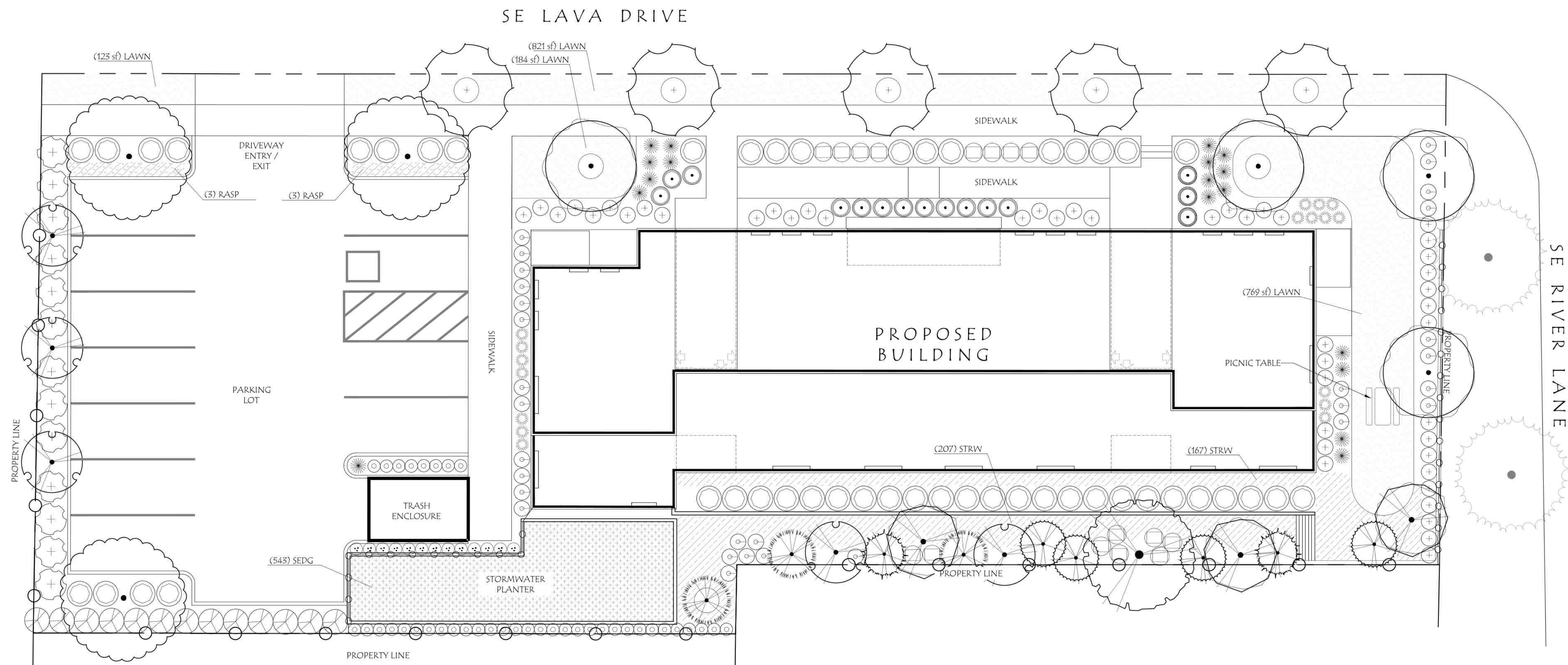
1 TREE PER 2,000 SF OF SITE AREA
 17,984 SF = 9 TREES
 TREES TO PROVIDE AT LEAST 1/3 CANOPY COVERAGE OF COMMON OPEN SPACE WITHIN 5 YEARS

STREET TREES ALONG LAVA: 40' O.C.
 NO MORE THAN 20% LANDSCAPE TO BE OPEN BARK MULCH.

Stormwater Planter with Underdrain Planting Requirements

FACILITY NUMBER	FACILITY SF	ZONE A SF	HERBACEOUS
1	679 SF	679 SF	543

Requirements per 100 SF
 80 Herbaceous -OR-
 72 Herbaceous and 4 Small Shrubs
 24" Min. Depth BES Standard Blended Soil Mix



Laurus Designs, LLC



1012 Pine Street
 Silverton, Oregon
 503.784.6494

Lava Drive Apartments

SE Lava Drive
 Milwaukie, Oregon



PRELIMINARY PLANTING PLAN



SCALE: 1"=10'-0"
 0' 5' 10' 20'
 SCALE

July 27th, 2023

REVISIONS

#	DATE	NOTES	INITIALS

L1.1

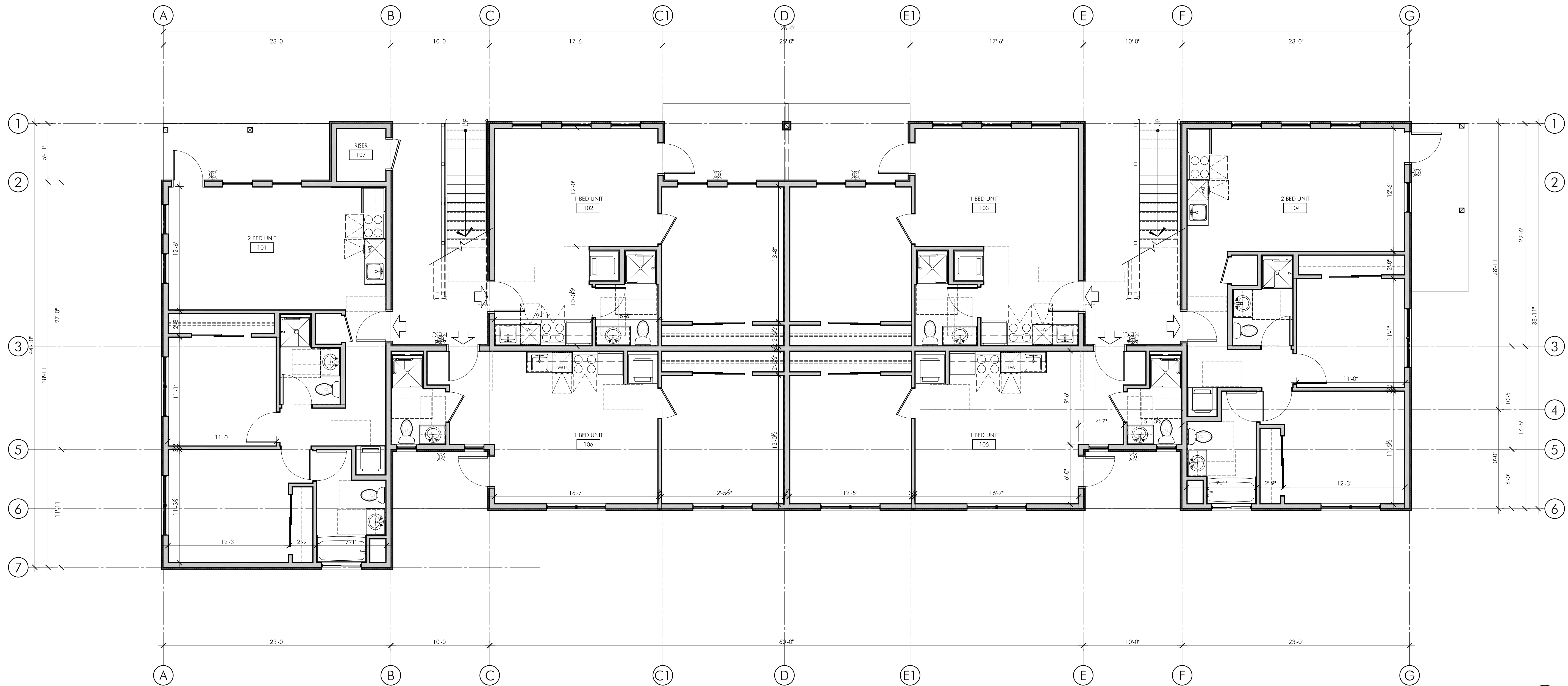
SHEET 1 OF 1

PROJECT #: 1543R

Exhibit J – Architectural Plans

IN THE EVENT CONFLICTS ARE DISCOVERED BETWEEN THE ORIGINAL SIGNED AND SEALED DOCUMENTS PREPARED BY THE ARCHITECTS AND/OR THEIR CONSULTANTS, AND ANY COPY OF THE DOCUMENTS TRANSMITTED BY MAIL, FAX, ELECTRONICALLY OR OTHERWISE, THE ORIGINAL SIGNED AND SEALED DOCUMENTS SHALL GOVERN.

PROJECT # 2022-175
DATE: 10 MAY 2023
REVISIONS



1 LEVEL 01: FLOOR PLAN

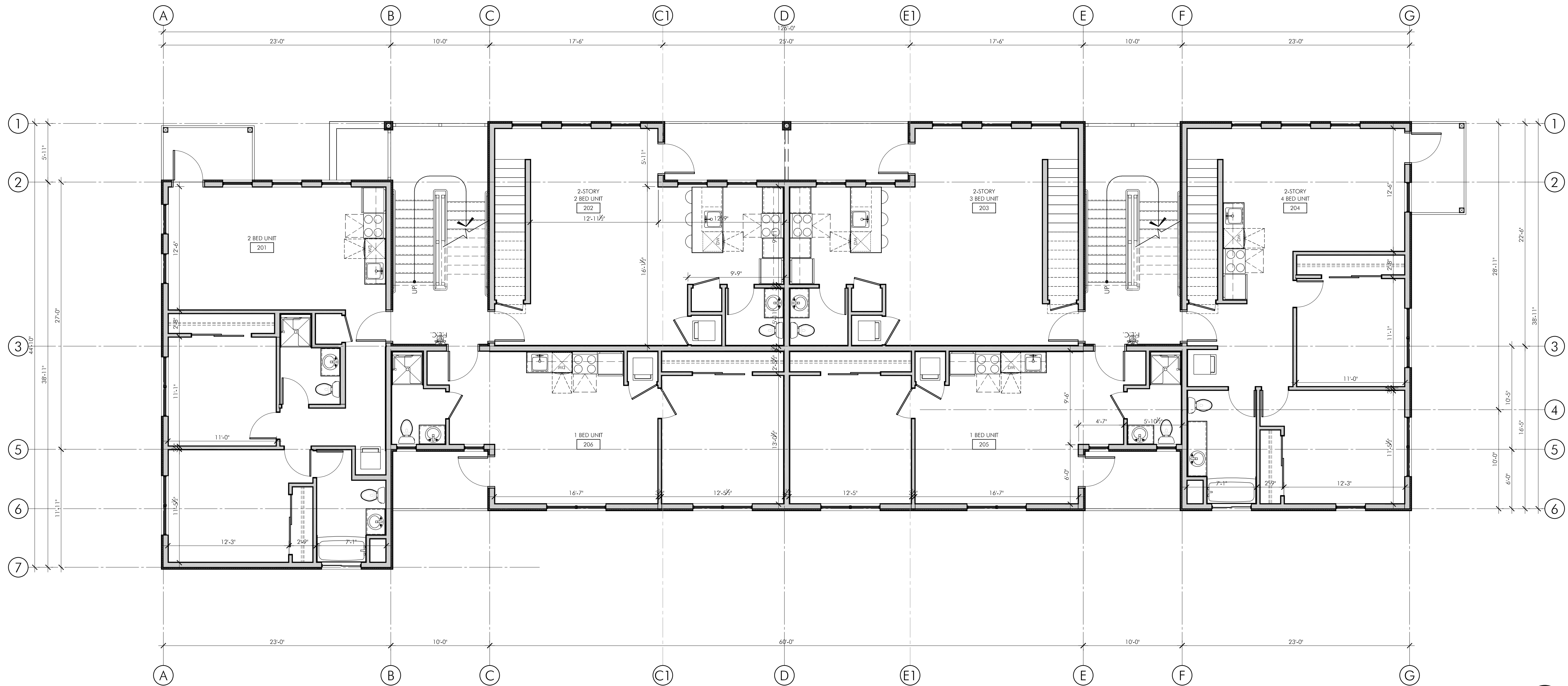
0' 2' 4' 6' 8' 10' 16' 3/16" = 1'-0"



NEW APARTMENT BUILDING
LAVA DRIVE APARTMENTS
1600 SE LAVAN DRIVE
MILWAUKIE, OREGON 97206

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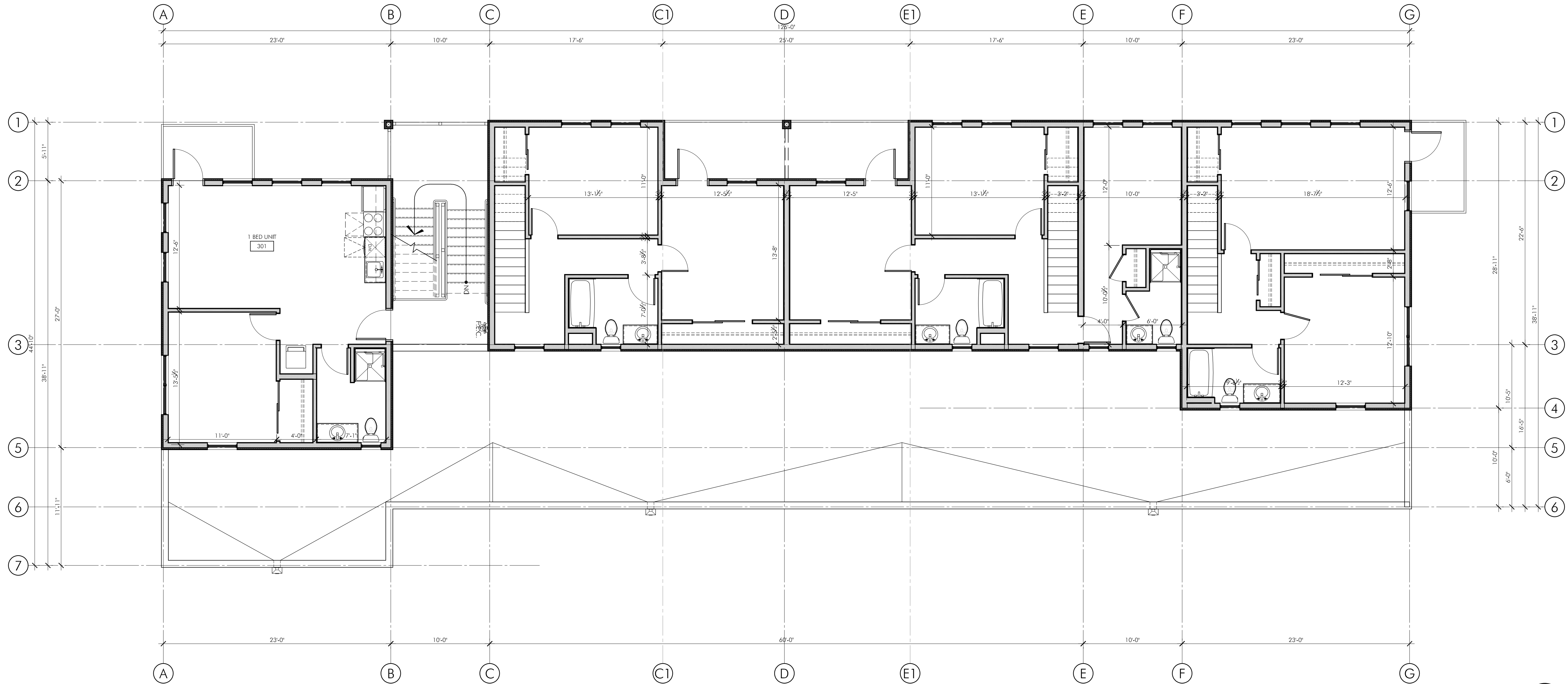
1 LEVEL 02: FLOOR PLAN
0' 2' 4' 6' 8' 10' 16' 3/16" = 1'-0"



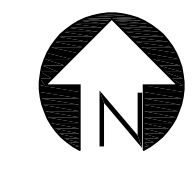
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DATE: 10 MAY 2023
REVISIONS



1 LEVEL 03: FLOOR PLAN
0' 2' 4' 6' 8' 10' 16' 3/16" = 1'-0"



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PROJECT # 2022-175
 DATE: 2 JUNE 2023
 REVISIONS



1 NORTH ELEVATION
 0' 2' 4' 6' 8' 10' 16' 3/16" = 1'-0"



2 EAST ELEVATION
 0' 2' 4' 6' 8' 10' 16' 3/16" = 1'-0"

NEW APARTMENT BUILDING
LAVA DRIVE APARTMENTS
 1600 SE LAVAN DRIVE
 MILWAUKIE, OREGON 97206



1 SOUTH ELEVATION
0' 2' 4' 6' 8' 10' 16' 3/16" = 1'-0"



2 WEST ELEVATION
0' 2' 4' 6' 8' 10' 16' 3/16" = 1'-0"

NEW APARTMENT BUILDING
LAVA DRIVE APARTMENTS
1600 SE LAVAN DRIVE
MILWAUKIE, OREGON 97206

Exhibit K – Preliminary Stormwater Report

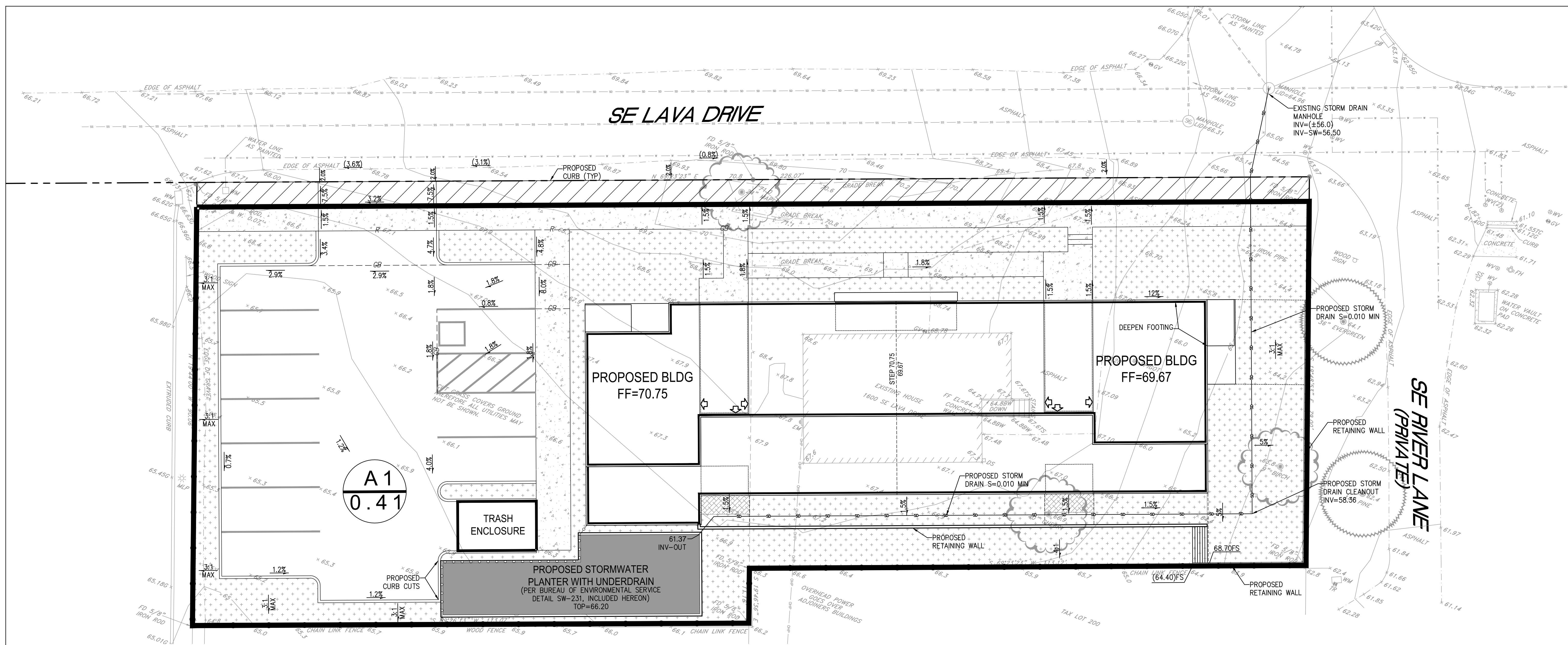


APPENDIX C – PLANS

OREGON OFFICE
345 WESTFIELD ST. #107
SILVERTON, OR. 97381
503.308.8554

HELLO@7OAKSENGINEERING.COM

CALIFORNIA OFFICE
12337 SEAL BEACH BLVD. #1028
SEAL BEACH, CA. 90740
562.537.6038



LEGEND:

- PERVIOUS/LANDSCAPE AREA
- STORMWATER PLANTER
- HYDROLOGY SUBAREA BOUNDARY LINE
- SUB-AREA LABEL

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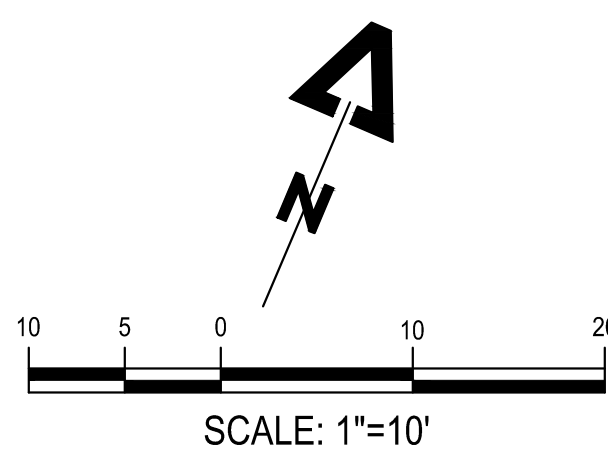
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POST DEVELOPMENT INPUT PARAMETERS						
AREA	TOTAL AREA (SF)/(AC.)	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	IMPERVIOUS PERCENTAGE (%)	CN (POST)	SOIL TYPE
A	17,987/0.41	11,431	6,556	63.5%	91(WEIGHTED)	C

TOTAL SITE-RESULTS			
AREA	PRE-DEVELOPMENT (CFS)	POST-DEVELOPMENT INFILTRATION DISCARDED RATE (CFS)	VOLUME STORED IN BASIN
WQV		0.04 CFS @ 12.65 HRS	705
2-YR	0.08	0.05 CFS @ 13.15 HRS	1,279
5-YR	0.11	0.05 CFS @ 13.5 HRS	1,689
10-YR	0.12	0.06 CFS @ 13.7 HRS	2,124



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PROJECT NAME:
LAVA DRIVE APARTMENTS
 PROJECT ADDRESS:
1600 SE LAVA DRIVE
MILWAUKIE, OR 97206

SHEET TITLE:
POST-DEVELOPMENT HYDROLOGY PLAN

DATE:
 05/31/2023

SHEET NUMBER:

PRELIMINARY ENGINEERING PLANS FOR: LAVA DRIVE APARTMENTS

AT 1600 SE LAVA DRIVE
MILWAUKIE, OREGON 97206

PROJECT DIRECTORY:

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MILWAUKIE, OR 97222
503.786.7525

STORM DRAIN:

CITY OF MILWAUKIE
10722 SE MAIN STREET
MILWAUKIE, OR 97222
503.786.7525

SEWER:

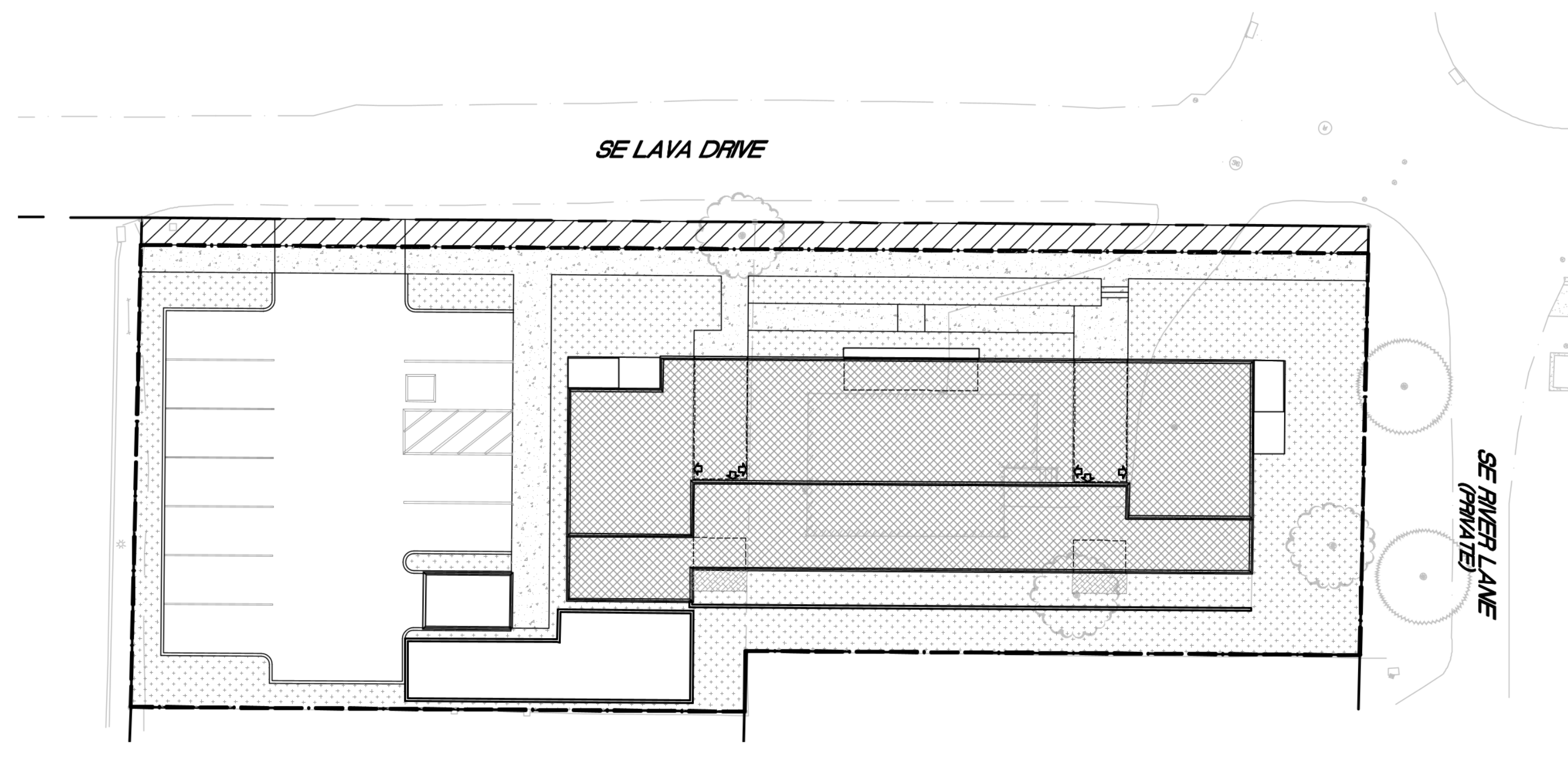
CITY OF MILWAUKIE
10722 SE MAIN STREET
MILWAUKIE, OR 97222
503.786.7525

NATURAL GAS:

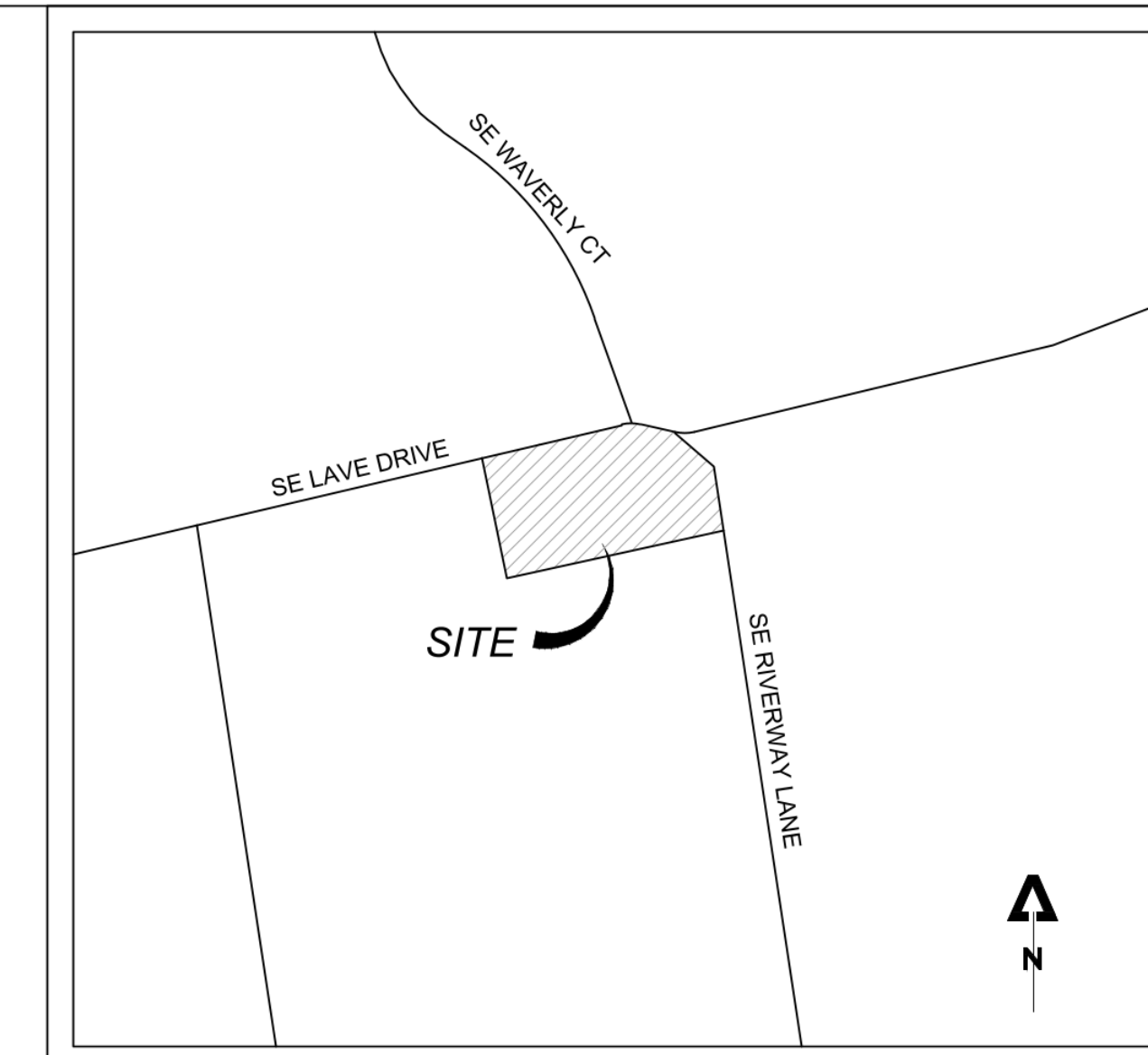
NORTHWEST NATURAL GAS COMPANY
220 NW 2ND AVE.
PORTLAND, OR.
800.422.4012

ELECTRIC:

PORTLAND GENERAL ELECTRIC
121 SW SALMON STREET
PORTLAND, OR. 97204
800.542.8818



INDEX MAP
SCALE: 1" = 20'



VICINITY MAP

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GC BY: DRAWN BY:

SHEET INDEX:

- 1 - TITLE SHEET
- 2 - PRELIMINARY GRADING PLAN
- 3 - PRELIMINARY WET UTILITY PLAN

ABBREVIATIONS:

PL	PROPERTY LINE	TYP.	TYPICAL
FF	FINISHED FLOOR	MIN.	MINIMUM
TC	TOP OF CURB	SS	SANITARY SEWER
FS	FINISHED SURFACE	SD	STORM DRAIN
FL	FLOW LINE	CF	CURB FACE
FG	FINISHED GRADE	WM	WATER METER
GB	GRADE BREAK	FDC	FIRE DEPARTMENT CONNECTION
CL	CENTERLINE	APN	ACCESSOR'S PARCEL MAP
R	RIDGE LINE	SQ.FT	SQUARE FEET
R/W	RIGHT OF WAY	INV.	INVERT
WV	WATER VALVE	BF	BACKFLOW
PR.	PROPOSED	CFS	CUBIC FEET PER SECOND
NAP	NOT A PART	SCH.	SCHEDULE
FT	FEET	PVC	POLYVINYL CHLORIDE
EV	ELECTRIC VEHICLE	SDR	SPECIAL DRAWING RIGHT
CAV	CLEAN AIR VEHICLE	PSI	POUNDS PER SQUARE INCH
STD.	STANDARD	NFPA	NATIONAL FIRE PREVENTION ASSOCIATION
AC.	ACRES	CB	CATCH BASIN
CUP	CONDITIONAL USE PERMIT	D	DIAMETER
EX.	EXISTING	VCP	VITRIFIED CLAY PIPE

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PROJECT SURVEY:

THIS SURVEY IS BASED UPON FIELD WORK COMPLETED BY SEPTEMBER 14, 2022.

BENCHMARK: THE ELEVATIONS ARE BASED ON THE NAVD 88 VERTICAL DATUM FROM A STATIC GPS OBSERVATION AS COMPUTED BY TRIMBLE POST-PROCESSING SERVICE BASED ON RTX TECHNOLOGY. THE STATIC OBSERVATION WAS PERFORMED ON SEPTEMBER 6, 2022.

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SHEET TITLE:

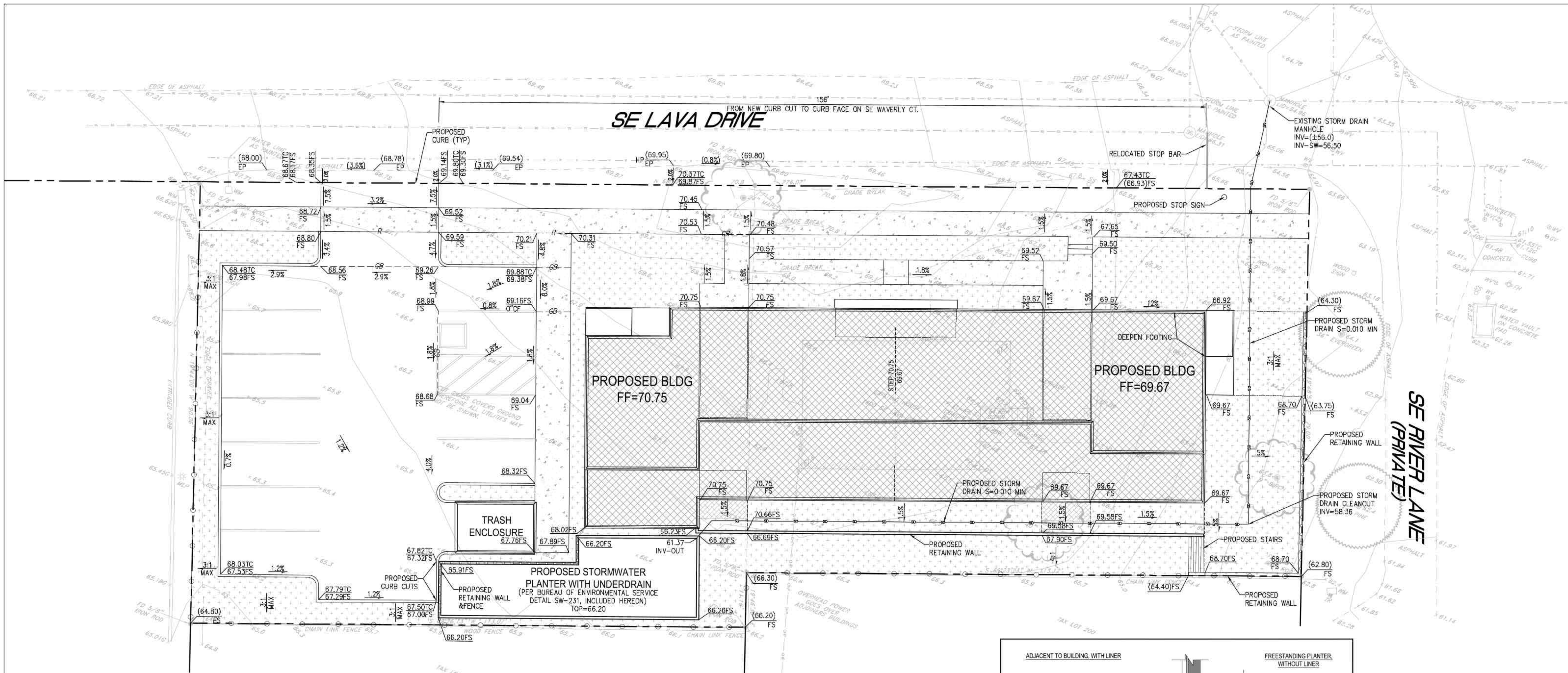
TITLE SHEET

DATE: 07/27/2023

SHEET NUMBER: **C1**

FEMA:

PROJECT IS LOCATED WITHIN FEMA FLOOD ZONE 'X'
PER MAP 41005C0009D, EFFECTIVE 06/17/2008



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SILVERTON, OR. 97381
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STAMP:

REGISTERED PROFESSIONAL ENGINEER
96126PE
OREGON
STEVEN JOHNSON

NO	DATE	ISSUE DESCRIPTION

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DC #1: DRAW #1:

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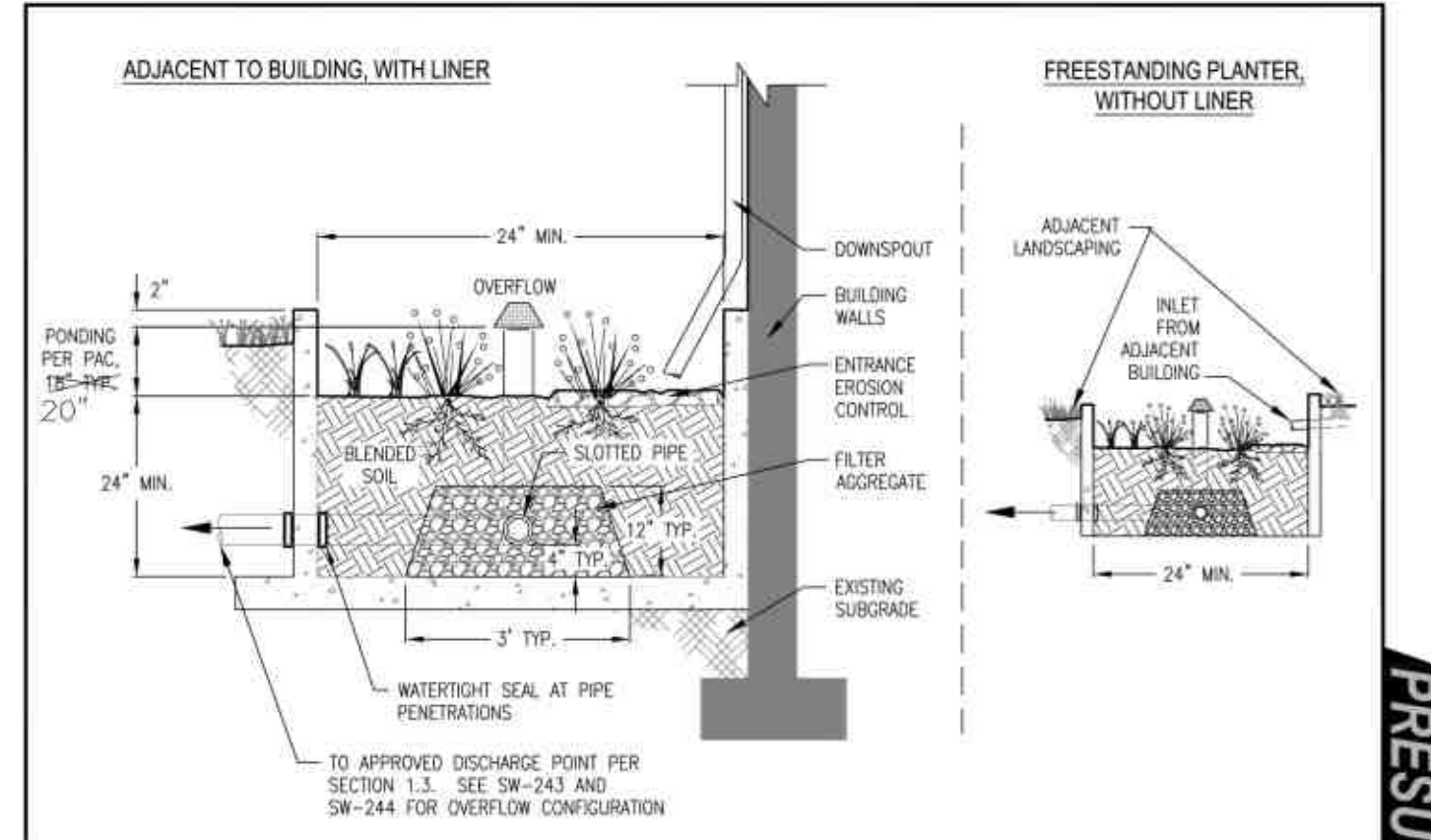
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- Detail intended as an example. Detail must match PAC assumptions and/or design report.
- Setbacks: No setback is required for lined planters. For infiltration planters the setbacks are 5' from property lines except need to right-of-way, and 17' from building foundations. The planter wall height must be less than 30" above finished grade if within 5' of property line.
- Planter Structure: A single pour, monolithic concrete shell without cold joints is required unless otherwise approved.
- Waterproofing: No additional waterproofing is needed if the structure is a single pour, monolithic concrete shell.
- Blended Soil: Use BES standard soil blend for stormwater facilities (SWM Section 6.3) unless otherwise approved. Install minimum of 24" of blended soil.
- Underdrain System: Sizing is per the PAC. The underdrain must be 4" slotted schedule 40 PVC well casing pipe manufactured with .025" slots, 6 slots per row. Embed the underdrain in 2" No.10 washed angular aggregate. See SW-243 for longitudinal section and SW-244 for office examples. Conform with Oregon Plumbing Specialty Code (OPSC) requirements. Alternative configurations and materials such as cellular storage systems, drainage mats, and non-standard aggregates may be used under the Performance Approach, with BES approval.
- Overflow: Overflow elevation must allow for 2" of freeboard, minimum. Protect from debris and sediment with strainer or grate.
- Vegetation: Refer to plant list in SWM Section 3.5. Minimum container size is 1 gal. Number of plantings per 100sf of facility area: 80 herbaceous plants OR 72 herbaceous plants and 4 small shrubs.
- Entrance Erosion Control: Install river rock, flagstone, or similar to dissipate the energy of incoming water at entrances and ends of downspout extensions.
- Check Dams: Spacing per the PAC. Check dam length must equal the full width of the planter.
- Inspections: Call BOS NR Inspection Line, (503) 823-7000, request 487. 3 inspections required.

CONSTRUCTION REQUIREMENTS

Do not allow temporary storage of construction waste or materials in the facilities. Do not allow entry of runoff or sediment during construction.

STORMWATER MANAGEMENT TYPICAL DETAILS FOR PRIVATE PROPERTY

PLANTER WITH UNDERDRAIN SW-231

Bureau of Environmental Services

PRELIMINARY AND PERFORMANCE DESIGN APPROACH

DATE: 07/27/2023

SHEET NUMBER: C2

SCALE: 1"=10'

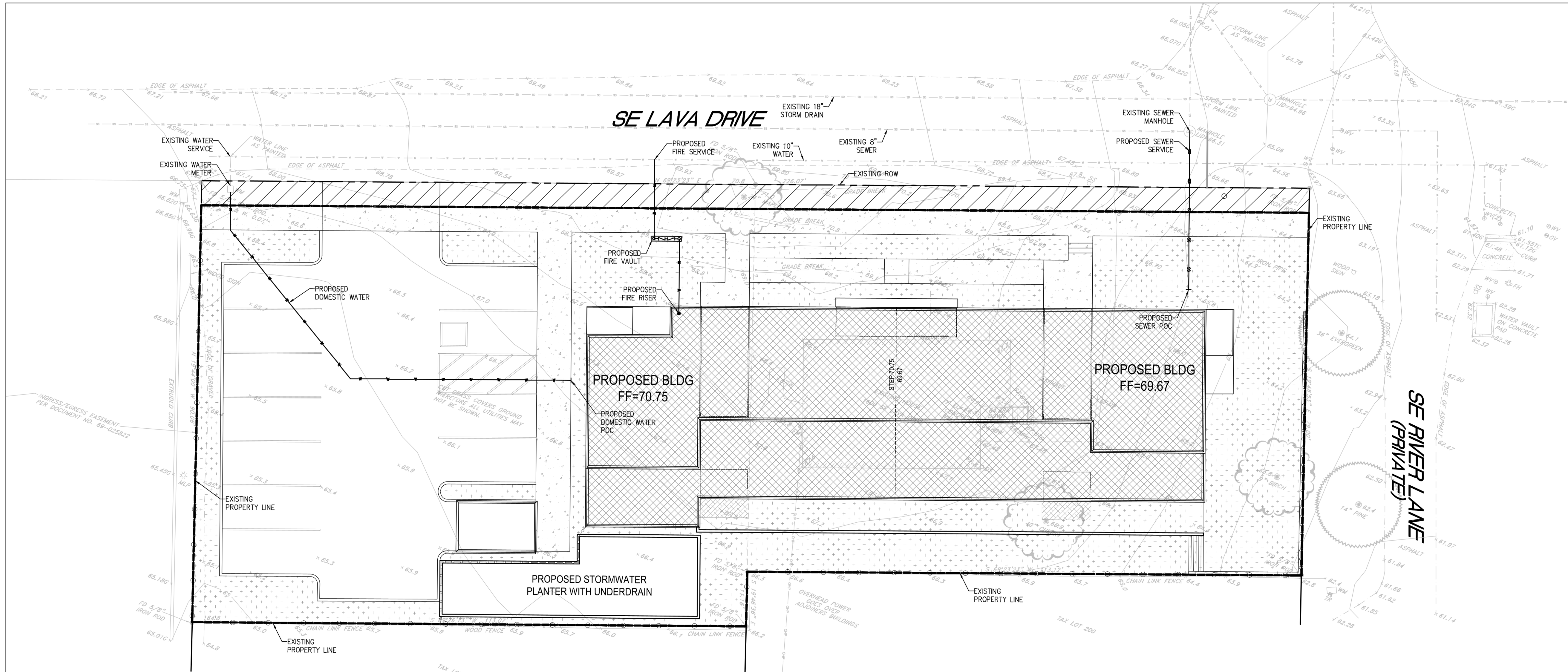
PROJECT NAME:
LAVA DRIVE APARTMENTS

PROJECT ADDRESS:
1600 SE LAVA DRIVE

MILWAUKIE, OR 97206

SHEET TITLE:
PRELIMINARY GRADING PLAN

SHEET NUMBER:
C2



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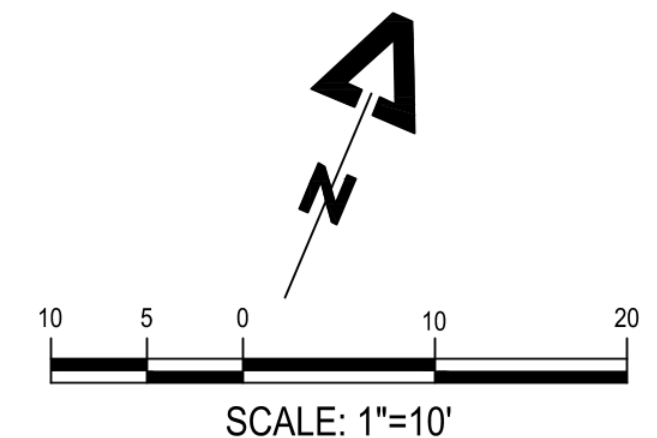
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PROJECT NAME:
LAVA DRIVE APARTMENTS
PROJECT ADDRESS:
1600 SE LAVA DRIVE
MILWAUKIE, OR 97206

SHEET TITLE:
PRELIMINARY WET UTILITY PLAN

DATE:
07/27/2023
SHEET NUMBER:
C3



APPENDIX D – GEOTECHNICAL REPORT

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HELLO@7OAKSENGINEERING.COM

CALIFORNIA OFFICE
12337 SEAL BEACH BLVD. #1028
SEAL BEACH, CA. 90740
562.537.6038



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Geotechnical Engineering Report

Project Information: Lava Drive Apartments
GeoPacific Project № 23-6332
May 30, 2023

Site Location: 1600 SE Lava Drive
Clackamas County Taxlot: 11E35AB 100 &
502
Milwaukie, OR 97206

Client: WDC Properties
2330 NW 31st Avenue
Portland, OR 97210
Email: fstock@wdcproperties.com

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Geotechnical Engineering Report
Project № 23-6332, Lava Drive Apartments, Milwaukie, Oregon

1.0 PROJECT INFORMATION

This report presents the results of a geotechnical engineering study conducted by GeoPacific Engineering, Inc. (GeoPacific) for the above-referenced project. The purpose of our investigation was to evaluate subsurface conditions at the site and to provide geotechnical recommendations for site development. This geotechnical study was performed in accordance with GeoPacific contract dated , dated May 24, 2023, and your subsequent authorization of our proposal and *General Conditions for Geotechnical Services*.

2.0 SITE AND PROJECT DESCRIPTION

The site is located to the south of SE Lava Drive west of the intersection with SE Riverway Lane in the City of Milwaukie, Oregon. The eastern portion of the property is currently occupied by a single-family residence and associated driveway. The western portion of the site is currently undeveloped. The site is gently sloping down to the east with site elevations ranging from 62 to 67. Vegetation onsite consists of short grasses, shrubs, and medium-sized trees. The site is bordered by single-family residences to the south and west, by SE Lava Drive to the north, and by SE Riverway Lane to the east.

It is our understanding that a to 3-story apartment building will be constructed in the eastern portion of the site. Associated parking areas, driveways, and underground utilities are also planned. It is anticipated that the structures will be founded on conventional shallow foundations. A grading plan has not yet been provided for our review. However, we anticipate that cuts and fills will be on the order of 4 feet or less.

3.0 REGIONAL GEOLOGIC SETTING

Regionally, the subject site lies within the Willamette Valley/Puget Sound lowland, a broad structural depression situated between the Coast Range on the west and the Cascade Range on the east. A series of discontinuous faults subdivide the Willamette Valley into a mosaic of fault-bounded, structural blocks (Yeats et al., 1996). Uplifted structural blocks form bedrock highlands, while down-warped structural blocks form sedimentary basins.

The subject site is underlain by the Quaternary age (last 1.6 million years) Catastrophic Flood Deposits associated with repeated glacial outburst flooding of the Willamette Valley (Madin, 1990). The last of these outburst floods occurred about 10,000 years ago. These deposits typically consist of sand to coarse gravel and cobbles. Regional studies indicate that the thickness of the Catastrophic Flood Deposits in the vicinity of the subject site is approximately 60 feet (Madin, 1990).

Regional geologic mapping indicates the Catastrophic Flood Deposits are underlain by Eocene age (34 to 55 million years ago) Basalt of Waverly Heights (Beeson et al., 1989 and Madin, 1990). Basalt of Waverly Heights are a dense, vesicular, and finely crystalline rock with secondary mineralization. Interflow zones are well developed, vesicular, and commonly include sedimentary deposits. The Basalt of Waverly Heights can be distinguished from the Columbia River Basalt

Geotechnical Engineering Report
Project № 23-6332, Lava Drive Apartments, Milwaukie, Oregon

Group by its darker color, secondary mineralization within vesicles, and mineralogical composition. The top of the Waverly Heights Basalt typically includes a highly weathered rock/residual soil layer up to 30 feet thick which is generally thin or absent in areas of erosional scour that occurred during catastrophic flooding events (Beeson et al., 1989).

4.0 REGIONAL SEISMIC SETTING

At least three major fault zones capable of generating damaging earthquakes are thought to exist in the vicinity of the subject site. These include the Portland Hills Fault Zone, the Grant Butte and Damascus-Trickle Creek Fault Zone, and the Cascadia Subduction Zone.

4.1 Portland Hills Fault Zone

The Portland Hills Fault Zone is a series of NW-trending faults that include the central Portland Hills Fault, the western Oatfield Fault, and the eastern East Bank Fault. These faults occur in a northwest-trending zone that varies in width between 3.5 and 5.0 miles. The combined three faults vertically displace the Columbia River Basalt by 1,130 feet and appear to control thickness changes in late Pleistocene (approx. 780,000 years) sediment (Madin, 1990). The Portland Hills Fault occurs along the Willamette River at the base of the Portland Hills and is approximately 0.8 miles northeast of the site. The East Bank Fault is oriented roughly parallel to the Portland Hills Fault, on the east bank of the Willamette River, and is located approximately 4.8 miles north of the site. The Oatfield Fault occurs along the western side of the Portland Hills and is approximately 1.3 miles southwest of the site. The Oatfield Fault is considered to be potentially seismogenic (Wong, et al., 2000). Madin and Mabey (1996) indicate the Portland Hills Fault Zone has experienced Late Quaternary (last 780,000 years) fault movement; however, movement has not been detected in the last 20,000 years. The accuracy of the fault mapping is stated to be within 500 meters (Wong, et al., 2000). No historical seismicity is correlated with the mapped portion of the Portland Hills Fault Zone, but in 1991 a M3.5 earthquake occurred on a NW-trending shear plane located 1.3 miles east of the fault (Yelin, 1992). Although there is no definitive evidence of recent activity, the Portland Hills Fault Zone is assumed to be potentially active (Geomatrix Consultants, 1995).

4.2 Grant Butte and Damascus-Trickle Creek Fault Zone

The Grant Butte fault zone was mapped along the north side of Mt. Scott and Powell Butte by Madin (1990). The fault is approximately 8.6 miles northeast of the subject site and extends eastward to Grant Butte on the basis of mapping by CH2M Hill and others (1991) and informally named the Grant Butte fault (Cornforth and Geomatrix, 1992). The Damascus-Trickle Creek fault zone displaces Pliocene and possibly Pleistocene sediments in the vicinity of Boring, Oregon (Madin, 1992; Lite, 1992). Relatively short faults define a 17-km-long fault zone that is apparently linked to the Grant Butte fault on the basis of stratigraphic relationships showing middle and late Pleistocene activity. Geomatrix (1995) assigns a probability of 0.5 for activity on structures within these fault zones.

Geotechnical Engineering Report
Project № 23-6332, Lava Drive Apartments, Milwaukie, Oregon

4.3 Cascadia Subduction Zone

The Cascadia Subduction Zone is a 680-mile-long zone of active tectonic convergence where oceanic crust of the Juan de Fuca Plate is subducting beneath the North American continent at a rate of 4 cm per year (Goldfinger et al., 1996). A growing body of geologic evidence suggests that prehistoric subduction zone earthquakes have occurred (Atwater, 1992; Carver, 1992; Peterson et al., 1993; Geomatrix Consultants, 1995). This evidence includes: (1) buried tidal marshes recording episodic, sudden subsidence along the coast of northern California, Oregon, and Washington, (2) burial of subsided tidal marshes by tsunami wave deposits, (3) paleoliquefaction features, and (4) geodetic uplift patterns on the Oregon coast. Radiocarbon dates on buried tidal marshes indicate a recurrence interval for major subduction zone earthquakes of 250 to 650 years with the last event occurring 300 years ago (Atwater, 1992; Carver, 1992; Peterson et al., 1993; Geomatrix Consultants, 1995). The inferred seismogenic portion of the plate interface lies approximately along the Oregon Coast at depths of between 20 and 40 kilometers below the surface.

5.0 FIELD EXPLORATION AND SUBSURFACE CONDITIONS

Our subsurface explorations for this report were conducted on May 24, 2023. A total of two exploratory test pits (TP-1 and TP-2) were excavated at the site using a backhoe to maximum depths of 7.25 feet below existing ground surface (bgs). Explorations were conducted under the full-time observation of a GeoPacific engineer. During the explorations, pertinent information including soil sample depths, stratigraphy, soil engineering characteristics, and groundwater occurrence was recorded. Soils were classified in accordance with the Unified Soil Classification System (USCS). At the completion of each test, the test pits were loosely backfilled with onsite soils.

It should be noted that exploration locations were located in the field by pacing or taping distances from apparent property corners and other site features shown on the plans provided. As such, the locations of the explorations should be considered approximate. Summary exploration logs are attached. The stratigraphic contacts shown on the individual test pit logs represent the approximate boundaries between soil types. The actual transitions may be more gradual. The soil and groundwater conditions depicted are only for the specific dates and locations reported, and therefore, are not necessarily representative of other locations and times. Soil and groundwater conditions encountered in the explorations are summarized in the following Soils Descriptions section.

5.1 Soil Descriptions

Topsoil: At the ground surface in all test pit locations, we observed organic SILT (ML-OL) which was brown and contained fine roots. This topsoil layer generally extended to depths of approximately 6 inches bgs. Topsoil depths are likely to increase where trees are present.

Catastrophic Flood Deposits: Underlying topsoil in all test pit locations, we encountered Catastrophic Flood Deposit soils. The upper portion of these soils typically consisted of native SILT

Geotechnical Engineering Report
Project № 23-6332, Lava Drive Apartments, Milwaukie, Oregon

(ML) that was stiff and brown. In test pit TP-1, at a depth of approximately 6 feet bgs, the SILT (ML) graded to Silty COBBLES (GM) which were grayish brown and medium dense. Catastrophic Flood Deposits extended beyond the 7-foot maximum depth of exploration in test pit TP-1 and to a depth of approximately 7 feet bgs in test pit TP-2.

Basalt of Waverly Heights: Underlying the Catastrophic Flood Deposits in test pit TP-2, we encountered medium hard BASALT belonging to the Basalt of Waverly Heights formation. The BASALT extended beyond the 7.25-foot maximum depth of exploration in test pit TP-2.

5.2 Shrink-Swell Potential

Low-plasticity fine-grained soils and course-grained soils were encountered within the upper 7.25 feet of the test pit explorations conducted at the site. Based upon our observations and our local experience with the soil layers in the vicinity of the subject site, the shrink-swell potential of the soil types is considered to be low. Special design measures are not considered necessary to minimize the risk of uncontrolled damage to foundations as a result of potential soil expansion at this site.

5.3 Groundwater and Soil Moisture

On May 24, 2023, observed soil moisture conditions were generally moist. We did not encounter groundwater seepage within our explorations. According to a groundwater map of the Portland area, groundwater is expected within the site vicinity at a depth of approximately 20 feet bgs (Snyder 2008). It is anticipated that groundwater conditions will vary depending on the season, local subsurface conditions, changes in site utilization, and other factors. Perched groundwater may be encountered in localized areas. Seeps and springs may exist in areas not explored and may become evident during site grading.

5.1 Infiltration Testing

We performed soil infiltration testing within test pit TP-1 using the open-hole falling-head method. The approximate location of TP-1 is indicated on Figures 2 and 3. The test location was pre saturated prior to testing. During testing, we measured the water level to the nearest 0.01 foot (1/8 inch) from a fixed point and the change in water level was recorded at regular intervals until three successive measurements showing a consistent infiltration rate were achieved. The measured rates for these tests reflect vertical flow pathways. At a depth of approximately 6 feet bgs in test pit TP-1, the soils exhibited an infiltration rate of 2 inches per hour. Infiltration rates have been reported without applying a factor of safety. A factor of safety of 4 should be used in design.0.5

6.0 CONCLUSIONS AND RECOMMENDATIONS

Our site investigation indicates that the proposed development appears to be geotechnically feasible, provided that the recommendations of this report are incorporated into the design and construction phases of the project. The main geotechnical concern associated with the proposed site development is the presence of low-permeability soils in the near-surface soil profile. The following report sections provide recommendations for site development and construction in accordance with the current applicable codes and local standards of practice.

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6.1 Site Preparation

Areas of proposed construction and areas to receive fill should be cleared of any organic and inorganic debris, disturbed soil, and loose stockpiled soils. Inorganic debris and organic materials from clearing should be removed from the site. Organic-rich soils and root zones should then be stripped from construction areas of the site or where engineered fill is to be placed. The average depth of stripping of existing organic topsoil is estimated to be approximately 6 inches at the site but may be deeper in the vicinity of trees and bushes.

The final depth of soil removal should be determined by the geotechnical engineer or designated representative during site inspection while stripping/excavation is being performed. Stripped topsoil should be removed from areas proposed for placement of engineered fill and structures. Any remaining topsoil should be stockpiled only in designated areas and stripping operations should be observed and documented by the geotechnical engineer or his representative.

In areas of roadways, structures, or where engineered fill material is proposed, undocumented fills and any subsurface structures (dry wells, basements, driveway and landscaping fill, old utility lines, septic leach fields, etc.) should be completely removed and the excavations backfilled with engineered fill.

Site earthwork may be impacted by wet weather conditions. Stabilization of subgrade soils may require aeration and re-compaction. If subgrade soils are found to be difficult to stabilize, over-excavation, placement of granular soils, or cement treatment of subgrade soils may be feasible options. GeoPacific should be onsite to observe preparation of subgrade soil conditions prior to placement of engineered fill.

6.2 Engineered Fill

All grading for the proposed construction should be performed as engineered grading in accordance with the applicable building code at the time of construction with the exceptions and additions noted herein. Site grading should be conducted in accordance with the requirements outlined in the 2021 International Building Code (IBC), and 2022 Oregon Structural Specialty Code (OSSC), Chapter 18 and Appendix J. Areas proposed for fill placement should be prepared as described in the section of this report titled *Site Preparation*. Site preparation, soil stripping, and grading activities should be observed and documented by a geotechnical engineer or his representative. Proper test frequency and earthwork documentation usually requires daily observation and testing during stripping, rough grading, and placement of engineered fill.

Onsite soils appear to be suitable for use as engineered fill. Soils containing greater than 5 percent organic content should not be used as structural fill. Imported fill material must be approved by the geotechnical engineer prior to being imported to the site. Oversize material greater than 6 inches in size should not be used within 3 feet of foundation footings, and material greater than 12 inches in diameter should not be used in engineered fill.

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Engineered fill should be compacted in horizontal lifts not exceeding 12 inches using standard compaction equipment. We recommend that engineered fill be compacted to at least 95 percent of the maximum dry density determined by ASTM D698 (Standard Proctor) or equivalent. Soils should be moisture conditioned to within two percent of optimum moisture. Field density testing should conform to ASTM D2922 and D3017, or D1556. All engineered fill should be observed and tested by the project geotechnical engineer or his representative. Typically, one density test is performed for at least every 2 vertical feet of fill placed or every 500 yd³, whichever requires more testing. Because testing is performed on an on-call basis, we recommend that the earthwork contractor be held contractually responsible for test scheduling and frequency.

Site earthwork may be impacted by soil moisture and wet weather conditions. Earthwork in wet weather would likely require extensive use of additional crushed aggregate, cement or lime treatment, or other special measures, at considerable additional cost compared to earthwork performed under dry-weather conditions.

6.3 Excavating Conditions and Utility Trench Backfill

We anticipate that onsite soils to a depth of approximately 7 feet can generally be excavated using conventional heavy equipment. Below 7 feet bgs in test pit TP-2, we encountered medium-hard basaltic bedrock, which may present difficulties if excavations are planned below 7 feet bgs. Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the contractor. Actual slope inclinations at the time of construction should be determined based on safety requirements and actual soil and groundwater conditions. All temporary cuts in excess of 4 feet in height should be sloped in accordance with U.S. Occupational Safety and Health Administration (OSHA) regulations (29 CFR Part 1926) or be shored. The existing native silt soils in our explorations classify as Type B Soil and temporary excavation side slope inclinations as steep as 1H:1V may be assumed for planning purposes. These cut slope inclinations are applicable to excavations above the water table only.

Shallow, perched groundwater may be encountered at the site and should be anticipated in excavations and utility trenches. Vibrations created by traffic and construction equipment may cause some caving and raveling of excavation walls. In such an event, lateral support for the excavation walls should be provided by the contractor to prevent loss of ground support and possible distress to existing or previously constructed structural improvements.

Underground utility pipes should be installed in accordance with the procedures specified in ASTM D2321 and applicable city and county standards. We recommend that structural trench backfill be compacted to at least 95 percent of the maximum dry density obtained by the Standard Proctor (ASTM D698, AASHTO T-99) or equivalent. Initial backfill lift thicknesses for a ¾"-0 crushed aggregate base may need to be as great as 4 feet to reduce the risk of flattening underlying flexible pipe. Subsequent lift thickness should not exceed 1 foot. If imported granular fill material is used, then the lifts for large vibrating plate-compaction equipment (e.g. hoe compactor attachments) may be up to 2 feet, provided that proper compaction is being achieved and each lift is tested. Use of large vibrating compaction equipment should be carefully monitored near existing structures and improvements due to the potential for vibration-induced damage.

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Adequate density testing should be performed during construction to verify that the recommended relative compaction is achieved. Typically, at least one density test is taken for every 4 vertical feet of backfill on each 100-lineal-foot section of trench.

6.4 Erosion Control Considerations

During our field exploration program, we did not observe soil and topographic conditions which are considered highly susceptible to erosion. In our opinion, the primary concern regarding erosion potential will occur during construction in areas that have been stripped of vegetation. Erosion at the site during construction can be minimized by implementing the project erosion control plan, which should include judicious use of straw wattles, fiber rolls, and silt fences. If used, these erosion control devices should remain in place throughout site preparation and construction.

Erosion and sedimentation of exposed soils can also be minimized by quickly re-vegetating exposed areas of soil, and by staging construction such that large areas of the project site are not denuded and exposed at the same time. Areas of exposed soil requiring immediate and/or temporary protection against exposure should be covered with either mulch or erosion control netting/blankets. Areas of exposed soil requiring permanent stabilization should be seeded with an approved grass seed mixture, or hydroseeded with an approved seed-mulch-fertilizer mixture.

6.5 Wet Weather Earthwork

Soils underlying the site are likely to be moisture sensitive and will be difficult to handle or traverse with construction equipment during periods of wet weather. Earthwork is typically most economical when performed under dry weather conditions. Earthwork performed during the wet-weather season will require expensive measures such as cement treatment or imported granular material to compact areas where fill may be proposed to the recommended engineering specifications. If earthwork is to be performed or fill is to be placed in wet weather or under wet conditions when soil moisture content is difficult to control, the following recommendations should be incorporated into the contract specifications.

- Earthwork should be performed in small areas to minimize exposure to wet weather. Excavation or the removal of unsuitable soils should be followed promptly by the placement and compaction of clean engineered fill. The size and type of construction equipment used may have to be limited to prevent soil disturbance. Under some circumstances, it may be necessary to excavate soils with a backhoe to minimize subgrade disturbance caused by equipment traffic;
- The ground surface within the construction area should be graded to promote run-off of surface water and to prevent the ponding of water;
- Material used as engineered fill should consist of clean, granular soil containing less than 5 percent passing the No. 200 sieve. The fines should be non-plastic. Alternatively, cement treatment of on-site soils may be performed to facilitate wet weather placement;
- The ground surface within the construction area should be sealed by a smooth drum vibratory roller, or equivalent, and under no circumstances should be left uncompacted and

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exposed to moisture. Soils which become too wet for compaction should be removed and replaced with clean granular materials;

- Excavation and placement of fill should be observed by the geotechnical engineer to verify that all unsuitable materials are removed and suitable compaction and site drainage is achieved; and
- Geotextile silt fences, straw wattles, and fiber rolls should be strategically located to control erosion.

If cement or lime treatment is used to facilitate wet weather construction, GeoPacific should be contacted to provide additional recommendations and field monitoring.

6.6 Spread Foundations

We anticipate that the homes will be one to two stories tall, constructed with typical spread foundations and wood framing. We assume that the maximum structural loading on column footings and continuous strip footings will be on the order of 10 to 35 kips, and 2 to 4 kips respectively. We anticipate maximum cuts and fills will be on the order of 4 feet or less.

The proposed structures may be supported on shallow foundations bearing on native soils and/or engineered fill, appropriately designed and constructed as recommended in this report. Foundation design, construction, and setback requirements should conform to the applicable building code at the time of construction. For maximization of bearing strength and protection against frost heave, spread footings should be embedded at a minimum depth of 12 inches below exterior grade. If soft soil conditions are encountered at footing subgrade elevation, they should be removed and replaced with compacted crushed aggregate.

The anticipated allowable soil bearing pressure is 2,500 lbs/ft² for footings bearing on competent, native soil and/or engineered fill. The recommended maximum allowable bearing pressure may be increased by 1/3 for short-term transient conditions such as wind and seismic loading. The coefficient of friction between on-site soil and poured-in-place concrete may be taken as 0.42, which includes no factor of safety. The maximum anticipated total and differential footing movements (generally from soil expansion and/or settlement) are 1 inch and ¾ inch over a span of 20 feet, respectively. We anticipate that the majority of the estimated settlement will occur during construction, as loads are applied. Excavations near structural footings should not extend within a 1H:1V plane projected downward from the bottom edge of footings.

Footing excavations should penetrate through topsoil and any undocumented fill to competent subgrade that is suitable for bearing support. All footing excavations should be trimmed neat, and all loose or softened soil should be removed from the excavation bottom prior to placing reinforcing steel bars. Due to the moisture sensitivity of on-site native soils, foundations constructed during the wet weather season may require over-excavation of footings and backfill with compacted, crushed aggregate.

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6.7 Concrete Slabs-on-Grade

Preparation of areas beneath concrete slab-on-grade floors should be performed as described in the *Site Preparation* and *Spread Foundations* sections of this report. Care should be taken during excavation for foundations and floor slabs, to avoid disturbing subgrade soils. If subgrade soils have been adversely impacted by wet weather or otherwise disturbed, the surficial soils should be scarified to a minimum depth of 8 inches, moisture conditioned to within about 3 percent of optimum moisture content and compacted to engineered fill specifications. Alternatively, disturbed soils may be removed and the removal zone backfilled with additional crushed rock.

For evaluation of the concrete slab-on-grade floors using the beam on elastic foundation method, a modulus of subgrade reaction of 150 kcf (87 pci) should be assumed for the stiff, fine-grained soils anticipated to be present at foundation subgrade elevation following adequate site preparation as described above. This value assumes the concrete slab system is designed and constructed as recommended herein, with a minimum thickness of 8 inches of 3/4"-0 crushed aggregate beneath the slab. The total thickness of crushed aggregate will be dependent on the subgrade conditions at the time of construction and should be verified visually by proof-rolling. Under-slab aggregate should be compacted to at least 95 percent of its maximum dry density as determined by ASTM D698 (Standard Proctor) or equivalent.

In areas where moisture will be detrimental to floor coverings or equipment inside the proposed structure, appropriate vapor barrier and damp-proofing measures should be implemented. Appropriate design professionals should be consulted regarding vapor barrier and damp proofing systems, ventilation, building material selection and mold prevention issues, which are outside GeoPacific's area of expertise.

6.8 Footing and Roof Drains

Construction should include typical measures for controlling subsurface water beneath the structures, including positive crawlspace drainage to an adequate low-point drain exiting the foundation, visqueen covering the exposed ground in the crawlspace, and crawlspace ventilation (foundation vents). The client should be informed and educated that some slow flowing water in the crawlspaces is considered normal and not necessarily detrimental to the structures given these other design elements incorporated into construction. Appropriate design professionals should be consulted regarding crawlspace ventilation, building material selection and mold prevention issues, which are outside GeoPacific's area of expertise.

Down spouts and roof drains should collect roof water in a system separate from the footing drains to reduce the potential for clogging. Roof drain water should be directed to an appropriate discharge point and storm system well away from structural foundations. Grades should be sloped downward and away from buildings to reduce the potential for ponded water near structures.

Perimeter footing drains should consist of 3 or 4-inch diameter, perforated plastic pipe embedded in a minimum of 1 ft³ per lineal foot of clean, free-draining drain rock. The drain-pipe and surrounding drain rock should be wrapped in non-woven geotextile (Mirafi 140N, or approved

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equivalent) to minimize the potential for clogging and/or ground loss due to piping. A minimum 0.5 percent fall should be maintained throughout the drain and non-perforated pipe outlet. Figure 4 presents a typical perimeter footing drain detail. In our opinion, footing drains may outlet at the curb, or on the back sides of lots where sufficient fall is not available to allow drainage to meet the street.

6.9 Permanent Below-Grade Walls

Lateral earth pressures against below-grade retaining walls will depend upon the inclination of any adjacent slopes, type of backfill, degree of wall restraint, method of backfill placement, degree of backfill compaction, drainage provisions, and magnitude and location of any adjacent surcharge loads. At-rest soil pressure is exerted on a retaining wall when it is restrained against rotation. In contrast, active soil pressure will be exerted on a wall if its top is allowed to rotate or yield a distance of roughly 0.001 times its height or greater.

If the subject retaining walls will be free to rotate at the top, they should be designed for an active earth pressure equivalent to that generated by a fluid weighing 35 pcf for level backfill against the wall. For restrained wall, an at-rest equivalent fluid pressure of 52 pcf should be used in design, again assuming level backfill against the wall. These values assume that the recommended drainage provisions are incorporated, and hydrostatic pressures are not allowed to develop against the wall.

During a seismic event, lateral earth pressures acting on below-grade structural walls will increase by an incremental amount that corresponds to the earthquake loading. Based on the Mononobe-Okabe equation and peak horizontal accelerations appropriate for the site location, seismic loading should be modeled using the active or at-rest earth pressures recommended above, plus an incremental rectangular-shaped seismic load of magnitude $6.5H$, where H is the total height of the wall.

We assume relatively level ground surface below the base of the walls. As such, we recommend a passive earth pressure of 320 pcf for use in design, assuming wall footings are cast against competent native soils or engineered fill. If the ground surface slopes down and away from the base of any of the walls, a lower passive earth pressure should be used and GeoPacific should be contacted for additional recommendations.

A coefficient of friction of 0.42 may be assumed along the interface between the base of the wall footing and subgrade soils. The recommended coefficient of friction and passive earth pressure values do not include a safety factor, and an appropriate safety factor should be included in design. The upper 12 inches of soil should be neglected in passive pressure computations unless it is protected by pavement or slabs on grade.

The above recommendations for lateral earth pressures assume that the backfill behind the subsurface walls will consist of properly compacted structural fill, and no adjacent surcharge loading. If the walls will be subjected to the influence of surcharge loading within a horizontal distance equal to or less than the height of the wall, the walls should be designed for the additional

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horizontal pressure. For uniform surcharge pressures, a uniformly distributed lateral pressure of 0.3 times the surcharge pressure should be added. Traffic surcharges may be estimated using an additional vertical load of 250 psf (2 feet of additional fill), in accordance with local practice.

The recommended equivalent fluid densities assume a free-draining condition behind the walls so that hydrostatic pressures do not build-up. This can be accomplished by placing a 12 to 18-inch wide zone of sand and gravel containing less than 5 percent passing the No. 200 sieve against the walls. A 3-inch minimum diameter perforated, plastic drain-pipe should be installed at the base of the walls and connected to a suitable discharge point to remove water in this zone of sand and gravel. The drain-pipe should be wrapped in filter fabric (Mirafi 140N or other as approved by the geotechnical engineer) to minimize clogging.

Wall drains are recommended to prevent detrimental effects of surface water runoff on foundations – not to dewater groundwater. Drains should not be expected to eliminate all potential sources of water entering a basement or beneath a slab-on-grade. An adequate grade to a low point outlet drain in the crawlspace is required by code. Underslab drains are sometimes added beneath the slab when placed over soils of low permeability and shallow, perched groundwater.

Water collected from the wall drains should be directed into the local storm drain system or other suitable outlet. A minimum 0.5 percent fall should be maintained throughout the drain and non-perforated pipe outlet. Down spouts and roof drains should not be connected to the wall drains in order to reduce the potential for clogging. The drains should include clean-outs to allow periodic maintenance and inspection. Grades around the proposed structure should be sloped such that surface water drains away from the building.

GeoPacific should be contacted during construction to verify subgrade strength in wall keyway excavations, to verify that backslope soils are in accordance with our assumptions, and to take density tests on the wall backfill materials.

Structures should be located a horizontal distance of at least $1.5H$ away from the back of the retaining wall, where H is the total height of the wall. GeoPacific should be contacted for additional foundation recommendations where structures are located closer than $1.5H$ to the top of any wall.

6.10 Stormwater Management

We understand that plans for project development may include stormwater management facilities, and that it may be desired to incorporate subsurface disposal of stormwater. The native SILT with Sand (ML) and Silty COBBLES (GM) observed in the upper 7 feet of native soils within our explorations exhibited an infiltration rate of approximately 2 inches per hour.

Stormwater management systems should be constructed as specified by the designer and/or in accordance with the applicable stormwater design codes. The infiltration rates presented in this report do not incorporate a factor of safety. Stormwater exceeding soil infiltration and/or soil storage capacities will need to be directed to a suitable surface discharge location, away from structures. If a pervious pavement section is utilized onsite, a drainage pipe connected to a

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suitable outlet such as a stormwater facility or city stormwater system may be necessary to meet rainfall demands.

Infiltration test methods and procedures attempt to simulate the as-built conditions of the planned disposal system. However, due to natural variations in soil properties, actual infiltration rates may vary from the measured and/or recommended design rates. All systems should be constructed such that potential overflow is discharged in a controlled manner away from structures, and all systems should include an adequate factor of safety. Infiltration rates presented in this report should not be applied to inappropriate or complex hydrological models such as a closed basin without extensive further studies. Evaluating environmental implications of stormwater disposal at this site are beyond the scope of this study.

7.0 SEISMIC DESIGN

The Oregon Department of Geology and Mineral Industries (DOGAMI), Oregon HazVu: 2022 Statewide GeoHazards Viewer indicates that the site is in an area where *very strong* ground shaking is anticipated during an earthquake. Structures should be designed to resist earthquake loading in accordance with the methodology described in the 2021 International Building Code (IBC) with applicable Oregon Structural Specialty Code (OSSC) revisions (current 2022). We recommend Site Class C be used for design as defined in ASCE 7-16, Chapter 20, and Table 20.3-1.

Design values determined for the site using the ATC Hazards by Location 2022 Seismic Design Maps Summary Report are summarized in Table 1 and are based upon SPT blow counts from boring log data and soil conditions observed during field explorations.

Table 1: Recommended Earthquake Ground Motion Parameters (ASCE-7-16)

Parameter	Value
Location (Lat, Long), degrees	45.446, -122.646
Probabilistic Ground Motion Values, 2% Probability of Exceedance in 50 yrs	
Peak Ground Acceleration PGA_M	0.479 g
Short Period, S_s	0.886 g
1.0 Sec Period, S_1	0.392 g
Soil Factors for Site Class C:	
F_a	1.200
F_v	1.500
$SD_s = 2/3 \times F_a \times S_s$	0.709 g
$SD_1 = 2/3 \times F_v \times S_1$	0.392 g
Seismic Design Category	D

7.1 Soil Liquefaction

The Oregon Department of Geology and Mineral Industries (DOGAMI), Oregon HazVu: 2022 Statewide GeoHazards Viewer indicates that the site is not mapped as having risk of soil liquefaction during an earthquake. Soil liquefaction is a phenomenon wherein saturated soil deposits temporarily lose strength and behave as a liquid in response to ground shaking caused by

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strong earthquakes. Soil liquefaction is generally limited to loose sands and granular soils located below the water table, and fine-grained soils with a plasticity index less than 15.

Static groundwater was not encountered in our explorations, excavated to depths of up to 7.25 feet. Static groundwater is expected to be present at approximately 20 feet bgs in the vicinity of the site. Based on the mapped depth to groundwater, it is our opinion that the risk of damage to the proposed structures due to soil liquefaction is very low and that no special measures are needed to address the effects of liquefaction for the proposed development.

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8.0 UNCERTAINTIES AND LIMITATIONS

We have prepared this report for the owner and their consultants for use in design of this project only. This report should be provided in its entirety to prospective contractors for bidding and estimating purposes; however, the conclusions and interpretations presented in this report should not be construed as a warranty of the subsurface conditions. Experience has shown that soil and groundwater conditions can vary significantly over small distances. Inconsistent conditions can occur between explorations that may not be detected by a geotechnical study. If, during future site operations, subsurface conditions are encountered which vary appreciably from those described herein, GeoPacific should be notified for review of the recommendations of this report, and revision of such if necessary.

Sufficient geotechnical monitoring, testing and consultation should be provided during construction to confirm that the conditions encountered are consistent with those indicated by explorations. The checklist attached to this report outlines recommended geotechnical observations and testing for the project. Recommendations for design changes will be provided should conditions revealed during construction differ from those anticipated, and to verify that the geotechnical aspects of construction comply with the contract plans and specifications.

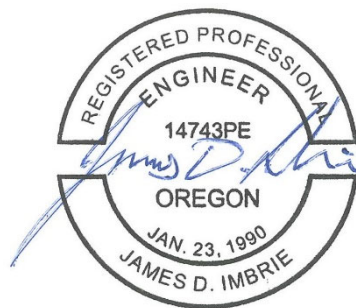
Within the limitations of scope, schedule and budget, GeoPacific attempted to execute these services in accordance with generally accepted professional principles and practices in the fields of geotechnical engineering and engineering geology at the time the report was prepared. No warranty, expressed or implied, is made. The scope of our work did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous or toxic substances in the soil, surface water, or groundwater at this site.

We appreciate this opportunity to be of service.

Sincerely,

GEO PACIFIC ENGINEERING, INC.

Alexandria B. Campbell, E.I.
Engineering Staff



EXPIRES: 06/30/20²⁵

James D. Imbrie, G.E.
Principal Engineer

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CHECKLIST OF RECOMMENDED GEOTECHNICAL TESTING AND OBSERVATION

Item No.	Procedure	Timing	By Whom	Done
1	Preconstruction meeting	Prior to beginning site work	Contractor, Developer, Civil and Geotechnical Engineer	
2	Fill removal from site or sorting and stockpiling	Prior to mass stripping	Technician/ Geotechnical Engineer	
3	Stripping, aeration, and root-picking operations	During stripping	Technician	
4	Compaction testing of engineered fill	During filling, tested every 2 vertical feet minimum	Technician	
5	Foundation Subgrade Compaction	During foundation preparation, prior to placement of forms	Technician/ Geotechnical Engineer	
6	Compaction testing of trench backfill	During backfilling, tested every 2 to 4 vertical feet for every 200 linear feet	Technician	
7	Street subgrade inspection	Prior to placing base course	Technician	
8	Base course compaction	Prior to paving, tested every 100 - 200 linear feet	Technician	
9	Base course proof roll	Prior to paving	Technician	
10	Asphalt Compaction	During paving, tested every 100 linear feet	Technician	
11	Final Geotechnical Engineer's Report	Completion of project	Geotechnical Engineer	



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FIGURES

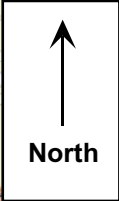


14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

SITE VICINITY MAP



Approximate
Location of Site



Base map obtained from Oregon HazVu street map
Date: 05/30/23
Drawn by: ABC

0 600
Approximate Scale: 1" = 600'

Project: Lava Drive Apartments
Milwaukie, Oregon

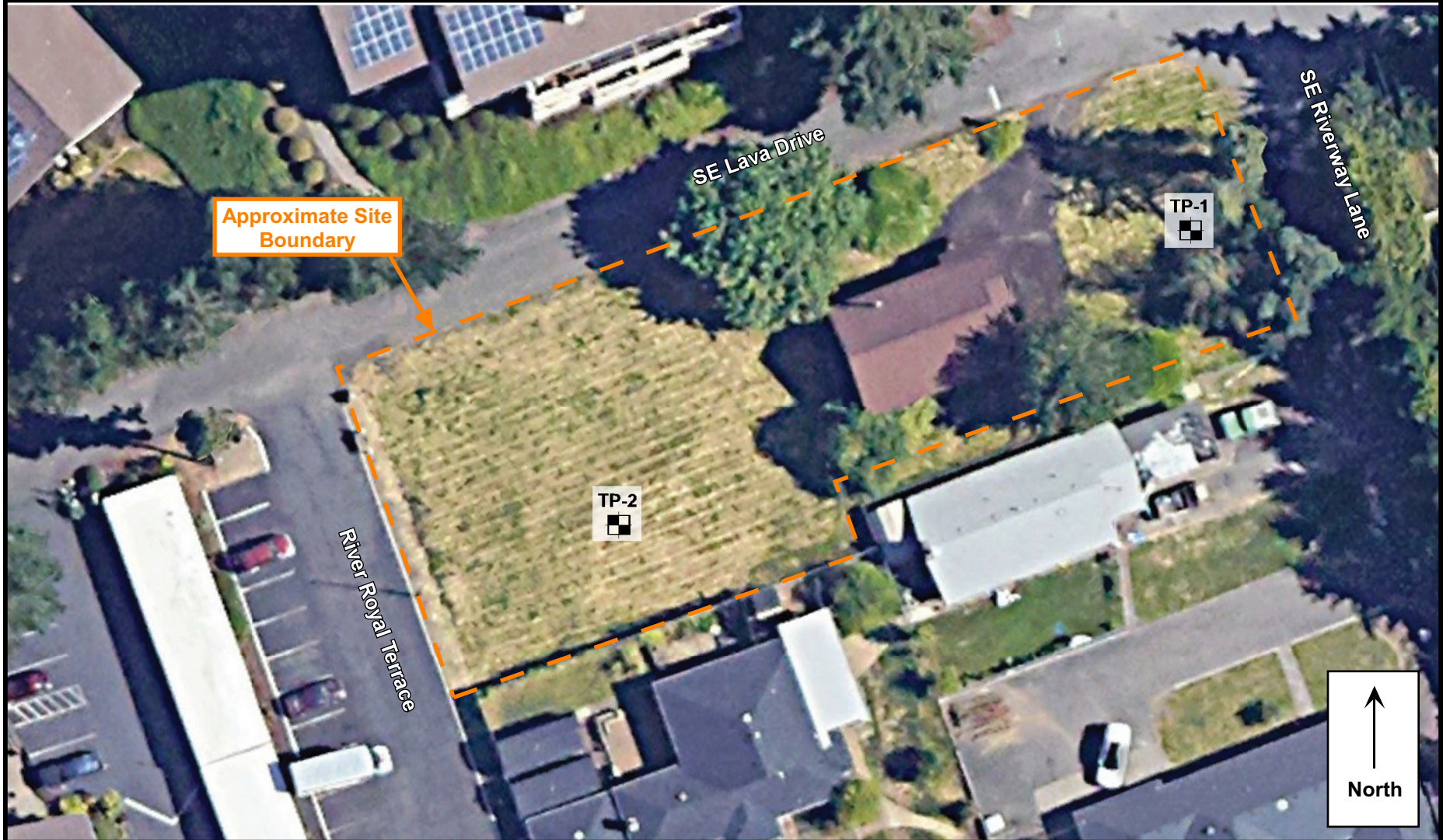
Project No. 23-6332

FIGURE 1



14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

SITE AERIAL AND EXPLORATION LOCATIONS



Legend: TP-1
 Test Pit Designation and Approximate Location

0 40'
APPROXIMATE SCALE 1"=40'

Date: 05/30/23
Drawn by: ABC

Project: Lava Drive Apartments
Milwaukie, Oregon

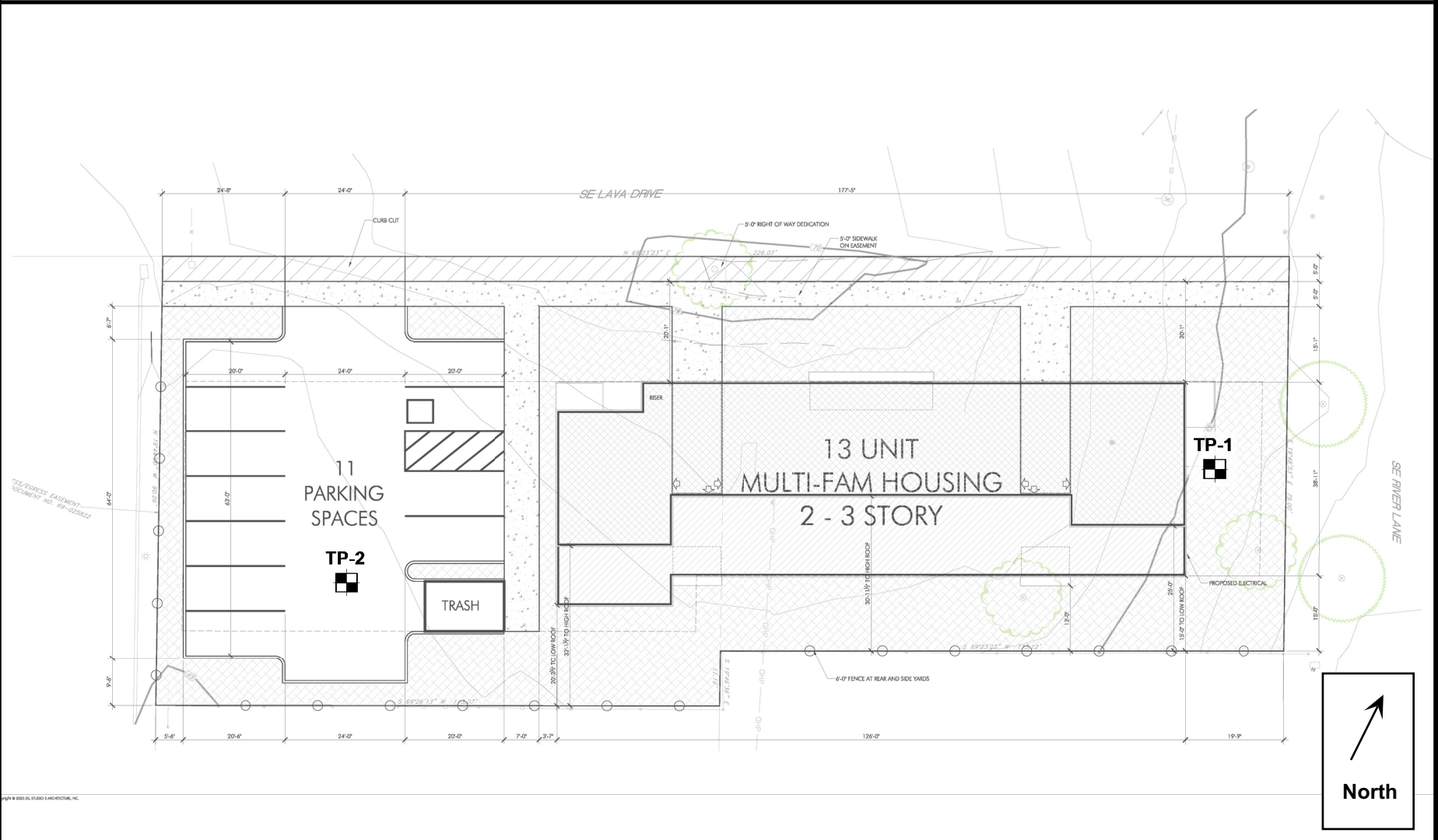
Project No. 23-6332

FIGURE 2



14835 SW 72nd Avenue
 Portland, Oregon 97224
 Tel: (503) 598-8445 Fax: (503) 941-9281

SITE PLAN AND EXPLORATION LOCATIONS



Legend: **TP-1**
 Test Pit Designation and Approximate Location

0 30'
 APPROXIMATE SCALE 1"=30'

Date: 05/30/23
 Drawn by: ABC

Project: Lava Drive Apartments
 Milwaukie, Oregon

Project No. 23-6332

FIGURE 3



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EXPLORATION LOGS



14835 SW 72nd Avenue
 Portland, Oregon 97224
 Tel: (503) 598-8445 Fax: (503) 941-9281

TEST PIT LOG

Project: Lava Drive Apartments
 1600 SE Lava Drive
 Milwaukie, Oregon

Project No. 23-6332

Test Pit No. **TP-1**

Depth (ft)	Pocket Penetrometer (tons/ft ²)	Torvane Shear (tons/ft ²)	Sample Type	% Passing No. 200 Sieve	Moisture Content (%)	Water Bearing Zone	Material Description
1							6" Organic SILT (OL-ML), brown, moist, fine roots throughout (Topsoil)
2							SILT (ML), brown, stiff, moist (Catastrophic Flood Deposits)
3							
4							
5							
6							Infiltration test conducted at 6 feet bgs. Infiltration rate observed as 2.0 in/hr
7							Silty COBBLES (GM), grayish brown, medium dense, moist (Catastrophic Flood Deposits)
8							Test pit terminated at 7 feet bgs. No groundwater seepage observed
9							
10							
11							
12							
13							
14							
15							
16							
17							

LEGEND



100 to 1,000 g
Bag Sample



5 Gal. Bucket
Bucket Sample



Shelby Tube Sample



Seepage



Water Bearing Zone



Water Level at Abandonment

Date Excavated: 05/24/2023
 Logged By: ABC
 Surface Elevation: 183 Feet



14835 SW 72nd Avenue
 Portland, Oregon 97224
 Tel: (503) 598-8445 Fax: (503) 941-9281

TEST PIT LOG







Project: Lava Drive Apartments
 1600 SE Lava Drive
 Milwaukie, Oregon

Project No. 23-6332

Test Pit No. TP-2

Depth (ft)	Pocket Penetrometer (tons/ft ²)	Torvane Shear (tons/ft ²)	Sample Type	% Passing No. 200 Sieve	Moisture Content (%)	Water Bearing Zone	Material Description
1							6" Organic SILT (OL-ML), brown, moist, fine roots throughout (Topsoil) ----- SILT (ML), brown, stiff, moist (Catastrophic Flood Deposits)
2							
3							
4							
5							
6							
7							----- BASALT, gray, medium hard (R3), moist (Basalt of Waverly Heights Formation)
8							Test pit terminated at 7.25 feet bgs. No groundwater seepage observed
9							
10							
11							
12							
13							
14							
15							
16							
17							

LEGEND

 Bag Sample	 Bucket Sample	 Shelby Tube Sample	 Seepage	 Water Bearing Zone	 Water Level at Abandonment
--	---	--	---	--	---

Date Excavated: 05/24/2023
 Logged By: ABC
 Surface Elevation: 183 Feet



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SITE RESEARCH

⚠ This is a beta release of the new ATC Hazards by Location website. Please [contact us](#) with feedback.

ℹ The ATC Hazards by Location website will not be updated to support ASCE 7-22. [Find out why.](#)

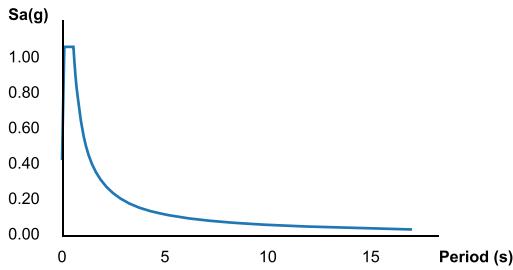
ATC Hazards by Location

Search Information

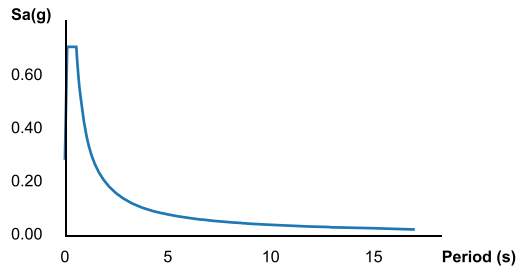
Address: 1600 SE Lava Dr, Milwaukie, OR 97222, USA
Coordinates: 45.4463562, -122.6464097
Elevation: 68 ft
Timestamp: 2023-05-30T17:26:20.288Z
Hazard Type: Seismic
Reference Document: NEHRP-2015
Risk Category: II
Site Class: C



MCE_R Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S _S	0.886	MCE _R ground motion (period=0.2s)
S ₁	0.392	MCE _R ground motion (period=1.0s)
S _{MS}	1.064	Site-modified spectral acceleration value
S _{M1}	0.588	Site-modified spectral acceleration value
S _{DS}	0.709	Numeric seismic design value at 0.2s SA
S _{D1}	0.392	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	D	Seismic design category
F _a	1.2	Site amplification factor at 0.2s
F _v	1.5	Site amplification factor at 1.0s
CR _S	0.89	Coefficient of risk (0.2s)
CR ₁	0.871	Coefficient of risk (1.0s)
PGA	0.399	MCE _G peak ground acceleration
F _{PGA}	1.2	Site amplification factor at PGA
PGA _M	0.479	Site modified peak ground acceleration
T _L	16	Long-period transition period (s)
SsRT	0.886	Probabilistic risk-targeted ground motion (0.2s)
SsUH	0.997	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.5	Factored deterministic acceleration value (0.2s)
S1RT	0.392	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.451	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)

ATTACHMENT #4 Ex. D

S1D	0.6	Factored deterministic acceleration value (1.0s)
PGAd	0.5	Factored deterministic acceleration value (PGA)

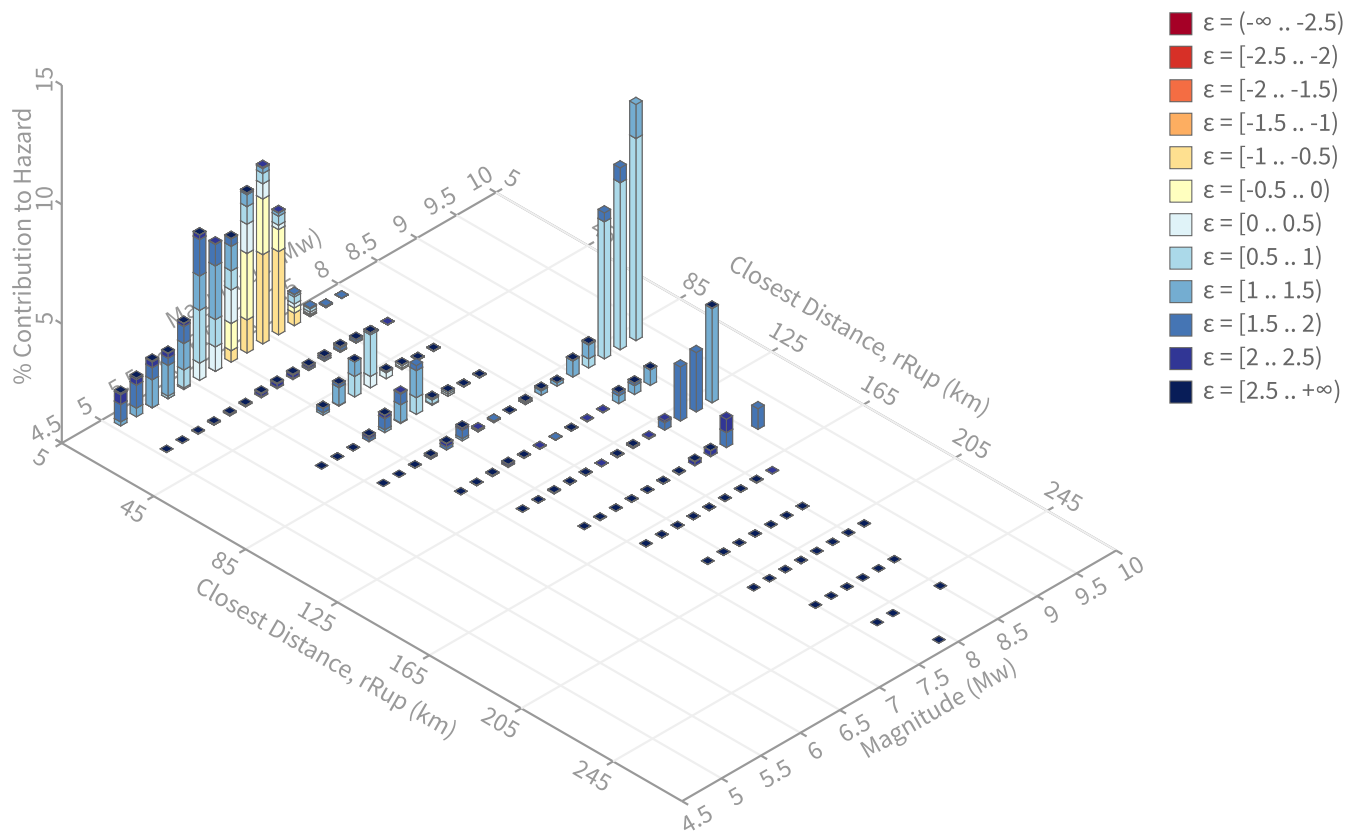
The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Please note that the ATC Hazards by Location website will not be updated to support ASCE 7-22. [Find out why.](#)

Disclaimer

Hazard loads are provided by the U.S. Geological Survey [Seismic Design Web Services](#).

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Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr⁻¹
PGA ground motion: 0.42099019 g

Recovered targets

Return period: 2534.2251 yrs
Exceedance rate: 0.00039459794 yr⁻¹

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.39 %

Mean (over all sources)

m: 7.5
r: 50.37 km
ε₀: 0.87 σ

Mode (largest m-r bin)

m: 9.34
r: 82.27 km
ε₀: 0.72 σ
Contribution: 9.89 %

Mode (largest m-r-ε₀ bin)

m: 9.34
r: 82.27 km
ε₀: 0.62 σ
Contribution: 8.47 %

Discretization

r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Epsilon keys

ε₀: [-∞ .. -2.5)
ε₁: [-2.5 .. -2.0)
ε₂: [-2.0 .. -1.5)
ε₃: [-1.5 .. -1.0)
ε₄: [-1.0 .. -0.5)
ε₅: [-0.5 .. 0.0)
ε₆: [0.0 .. 0.5)
ε₇: [0.5 .. 1.0)
ε₈: [1.0 .. 1.5)
ε₉: [1.5 .. 2.0)
ε₁₀: [2.0 .. 2.5)
ε₁₁: [2.5 .. +∞]

Deaggregation Contributors

Source Set	Source	Type	r	m	ϵ_0	lon	lat	az	%
sub0_ch_bot.in		Interface							23.20
	Cascadia Megathrust - whole CSZ Characteristic		82.27	9.11	0.84	123.599°W	45.501°N	275.05	23.20
Geologic Model Partial Rupture		Fault							9.83
	Portland Hills		2.87	6.75	-0.27	122.620°W	45.436°N	120.49	9.75
sub0_ch_mid.in		Interface							8.44
	Cascadia Megathrust - whole CSZ Characteristic		132.27	8.93	1.59	124.330°W	45.489°N	272.68	8.44
coastalOR_deep.in		Slab							7.53
Geologic Model Small Mag		Fault							6.92
	Grant Butte 50		8.64	6.19	1.41	122.544°W	45.476°N	67.48	2.99
	Bolton		5.05	6.16	0.59	122.663°W	45.402°N	194.86	1.80
	Grant Butte 65		8.64	6.19	1.41	122.544°W	45.476°N	67.48	1.00
Geologic Model Full Rupture		Fault							5.18
	Portland Hills		1.22	7.00	-0.58	122.620°W	45.436°N	120.49	5.11
WUSmap_2014_fixSm.ch.in (opt)		Grid							3.99
	PointSourceFinite: -122.646, 45.505		7.88	5.90	0.97	122.646°W	45.505°N	0.00	1.82
noPuget_2014_fixSm.ch.in (opt)		Grid							3.99
	PointSourceFinite: -122.646, 45.505		7.88	5.90	0.97	122.646°W	45.505°N	0.00	1.82
WUSmap_2014_fixSm.gr.in (opt)		Grid							3.67
	PointSourceFinite: -122.646, 45.505		8.00	5.84	1.02	122.646°W	45.505°N	0.00	1.71
noPuget_2014_fixSm.gr.in (opt)		Grid							3.67
	PointSourceFinite: -122.646, 45.505		8.00	5.84	1.02	122.646°W	45.505°N	0.00	1.71
coastalOR_deep.in		Slab							1.86
Zeng Model Partial Rupture		Fault							1.81
	Portland Hills		2.87	6.75	-0.27	122.620°W	45.436°N	120.49	1.79
sub0_ch_top.in		Interface							1.76
	Cascadia Megathrust - whole CSZ Characteristic		149.29	8.84	1.87	124.549°W	45.485°N	272.32	1.76
Zeng Model Small Mag		Fault							1.26
WUSmap_2014_fixSm_M8.in (opt)		Grid							1.22
noPuget_2014_fixSm_M8.in (opt)		Grid							1.22
sub2_ch_bot.in		Interface							1.15
	Cascadia Megathrust - Goldfinger Case C Characteristic		100.78	8.74	1.31	123.702°W	45.000°N	239.40	1.15

ATTACHMENT #4 Ex. D

Source Set ↪ Source	Type	r	m	ϵ_0	lon	lat	az	%
sub1_ch_bot.in	Interface							1.01
Cascadia Megathrust - Goldfinger Case B Characteristic		81.63	8.86	0.97	123.599°W	45.501°N	275.05	1.01

Exhibit L – Geotechnical Report



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Geotechnical Engineering Report

Project Information: Lava Drive Apartments
GeoPacific Project № 23-6332
May 30, 2023

Site Location: 1600 SE Lava Drive
Clackamas County Taxlot: 11E35AB 100 &
502
Milwaukie, OR 97206

Client: WDC Properties
2330 NW 31st Avenue
Portland, OR 97210
Email: fstock@wdcproperties.com

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- 2 Site Aerial and Exploration Locations
- 3 Site Plan and Exploration Locations

Geotechnical Engineering Report
Project № 23-6332, Lava Drive Apartments, Milwaukie, Oregon

1.0 PROJECT INFORMATION

This report presents the results of a geotechnical engineering study conducted by GeoPacific Engineering, Inc. (GeoPacific) for the above-referenced project. The purpose of our investigation was to evaluate subsurface conditions at the site and to provide geotechnical recommendations for site development. This geotechnical study was performed in accordance with GeoPacific contract dated , dated May 24, 2023, and your subsequent authorization of our proposal and *General Conditions for Geotechnical Services*.

2.0 SITE AND PROJECT DESCRIPTION

The site is located to the south of SE Lava Drive west of the intersection with SE Riverway Lane in the City of Milwaukie, Oregon. The eastern portion of the property is currently occupied by a single-family residence and associated driveway. The western portion of the site is currently undeveloped. The site is gently sloping down to the east with site elevations ranging from 62 to 67. Vegetation onsite consists of short grasses, shrubs, and medium-sized trees. The site is bordered by single-family residences to the south and west, by SE Lava Drive to the north, and by SE Riverway Lane to the east.

It is our understanding that a to 3-story apartment building will be constructed in the eastern portion of the site. Associated parking areas, driveways, and underground utilities are also planned. It is anticipated that the structures will be founded on conventional shallow foundations. A grading plan has not yet been provided for our review. However, we anticipate that cuts and fills will be on the order of 4 feet or less.

3.0 REGIONAL GEOLOGIC SETTING

Regionally, the subject site lies within the Willamette Valley/Puget Sound lowland, a broad structural depression situated between the Coast Range on the west and the Cascade Range on the east. A series of discontinuous faults subdivide the Willamette Valley into a mosaic of fault-bounded, structural blocks (Yeats et al., 1996). Uplifted structural blocks form bedrock highlands, while down-warped structural blocks form sedimentary basins.

The subject site is underlain by the Quaternary age (last 1.6 million years) Catastrophic Flood Deposits associated with repeated glacial outburst flooding of the Willamette Valley (Madin, 1990). The last of these outburst floods occurred about 10,000 years ago. These deposits typically consist of sand to coarse gravel and cobbles. Regional studies indicate that the thickness of the Catastrophic Flood Deposits in the vicinity of the subject site is approximately 60 feet (Madin, 1990).

Regional geologic mapping indicates the Catastrophic Flood Deposits are underlain by Eocene age (34 to 55 million years ago) Basalt of Waverly Heights (Beeson et al., 1989 and Madin, 1990). Basalt of Waverly Heights are a dense, vesicular, and finely crystalline rock with secondary mineralization. Interflow zones are well developed, vesicular, and commonly include sedimentary deposits. The Basalt of Waverly Heights can be distinguished from the Columbia River Basalt

**Geotechnical Engineering Report
Project № 23-6332, Lava Drive Apartments, Milwaukie, Oregon**

Group by its darker color, secondary mineralization within vesicles, and mineralogical composition. The top of the Waverly Heights Basalt typically includes a highly weathered rock/residual soil layer up to 30 feet thick which is generally thin or absent in areas of erosional scour that occurred during catastrophic flooding events (Beeson et al., 1989).

4.0 REGIONAL SEISMIC SETTING

At least three major fault zones capable of generating damaging earthquakes are thought to exist in the vicinity of the subject site. These include the Portland Hills Fault Zone, the Grant Butte and Damascus-Trickle Creek Fault Zone, and the Cascadia Subduction Zone.

4.1 Portland Hills Fault Zone

The Portland Hills Fault Zone is a series of NW-trending faults that include the central Portland Hills Fault, the western Oatfield Fault, and the eastern East Bank Fault. These faults occur in a northwest-trending zone that varies in width between 3.5 and 5.0 miles. The combined three faults vertically displace the Columbia River Basalt by 1,130 feet and appear to control thickness changes in late Pleistocene (approx. 780,000 years) sediment (Madin, 1990). The Portland Hills Fault occurs along the Willamette River at the base of the Portland Hills and is approximately 0.8 miles northeast of the site. The East Bank Fault is oriented roughly parallel to the Portland Hills Fault, on the east bank of the Willamette River, and is located approximately 4.8 miles north of the site. The Oatfield Fault occurs along the western side of the Portland Hills and is approximately 1.3 miles southwest of the site. The Oatfield Fault is considered to be potentially seismogenic (Wong, et al., 2000). Madin and Mabey (1996) indicate the Portland Hills Fault Zone has experienced Late Quaternary (last 780,000 years) fault movement; however, movement has not been detected in the last 20,000 years. The accuracy of the fault mapping is stated to be within 500 meters (Wong, et al., 2000). No historical seismicity is correlated with the mapped portion of the Portland Hills Fault Zone, but in 1991 a M3.5 earthquake occurred on a NW-trending shear plane located 1.3 miles east of the fault (Yelin, 1992). Although there is no definitive evidence of recent activity, the Portland Hills Fault Zone is assumed to be potentially active (Geomatrix Consultants, 1995).

4.2 Grant Butte and Damascus-Trickle Creek Fault Zone

The Grant Butte fault zone was mapped along the north side of Mt. Scott and Powell Butte by Madin (1990). The fault is approximately 8.6 miles northeast of the subject site and extends eastward to Grant Butte on the basis of mapping by CH2M Hill and others (1991) and informally named the Grant Butte fault (Cornforth and Geomatrix, 1992). The Damascus-Trickle Creek fault zone displaces Pliocene and possibly Pleistocene sediments in the vicinity of Boring, Oregon (Madin, 1992; Lite, 1992). Relatively short faults define a 17-km-long fault zone that is apparently linked to the Grant Butte fault on the basis of stratigraphic relationships showing middle and late Pleistocene activity. Geomatrix (1995) assigns a probability of 0.5 for activity on structures within these fault zones.

Geotechnical Engineering Report
Project № 23-6332, Lava Drive Apartments, Milwaukie, Oregon

4.3 Cascadia Subduction Zone

The Cascadia Subduction Zone is a 680-mile-long zone of active tectonic convergence where oceanic crust of the Juan de Fuca Plate is subducting beneath the North American continent at a rate of 4 cm per year (Goldfinger et al., 1996). A growing body of geologic evidence suggests that prehistoric subduction zone earthquakes have occurred (Atwater, 1992; Carver, 1992; Peterson et al., 1993; Geomatrix Consultants, 1995). This evidence includes: (1) buried tidal marshes recording episodic, sudden subsidence along the coast of northern California, Oregon, and Washington, (2) burial of subsided tidal marshes by tsunami wave deposits, (3) paleoliquefaction features, and (4) geodetic uplift patterns on the Oregon coast. Radiocarbon dates on buried tidal marshes indicate a recurrence interval for major subduction zone earthquakes of 250 to 650 years with the last event occurring 300 years ago (Atwater, 1992; Carver, 1992; Peterson et al., 1993; Geomatrix Consultants, 1995). The inferred seismogenic portion of the plate interface lies approximately along the Oregon Coast at depths of between 20 and 40 kilometers below the surface.

5.0 FIELD EXPLORATION AND SUBSURFACE CONDITIONS

Our subsurface explorations for this report were conducted on May 24, 2023. A total of two exploratory test pits (TP-1 and TP-2) were excavated at the site using a backhoe to maximum depths of 7.25 feet below existing ground surface (bgs). Explorations were conducted under the full-time observation of a GeoPacific engineer. During the explorations, pertinent information including soil sample depths, stratigraphy, soil engineering characteristics, and groundwater occurrence was recorded. Soils were classified in accordance with the Unified Soil Classification System (USCS). At the completion of each test, the test pits were loosely backfilled with onsite soils.

It should be noted that exploration locations were located in the field by pacing or taping distances from apparent property corners and other site features shown on the plans provided. As such, the locations of the explorations should be considered approximate. Summary exploration logs are attached. The stratigraphic contacts shown on the individual test pit logs represent the approximate boundaries between soil types. The actual transitions may be more gradual. The soil and groundwater conditions depicted are only for the specific dates and locations reported, and therefore, are not necessarily representative of other locations and times. Soil and groundwater conditions encountered in the explorations are summarized in the following Soils Descriptions section.

5.1 Soil Descriptions

Topsoil: At the ground surface in all test pit locations, we observed organic SILT (ML-OL) which was brown and contained fine roots. This topsoil layer generally extended to depths of approximately 6 inches bgs. Topsoil depths are likely to increase where trees are present.

Catastrophic Flood Deposits: Underlying topsoil in all test pit locations, we encountered Catastrophic Flood Deposit soils. The upper portion of these soils typically consisted of native SILT

Geotechnical Engineering Report
Project № 23-6332, Lava Drive Apartments, Milwaukie, Oregon

(ML) that was stiff and brown. In test pit TP-1, at a depth of approximately 6 feet bgs, the SILT (ML) graded to Silty COBBLES (GM) which were grayish brown and medium dense. Catastrophic Flood Deposits extended beyond the 7-foot maximum depth of exploration in test pit TP-1 and to a depth of approximately 7 feet bgs in test pit TP-2.

Basalt of Waverly Heights: Underlying the Catastrophic Flood Deposits in test pit TP-2, we encountered medium hard BASALT belonging to the Basalt of Waverly Heights formation. The BASALT extended beyond the 7.25-foot maximum depth of exploration in test pit TP-2.

5.2 Shrink-Swell Potential

Low-plasticity fine-grained soils and course-grained soils were encountered within the upper 7.25 feet of the test pit explorations conducted at the site. Based upon our observations and our local experience with the soil layers in the vicinity of the subject site, the shrink-swell potential of the soil types is considered to be low. Special design measures are not considered necessary to minimize the risk of uncontrolled damage to foundations as a result of potential soil expansion at this site.

5.3 Groundwater and Soil Moisture

On May 24, 2023, observed soil moisture conditions were generally moist. We did not encounter groundwater seepage within our explorations. According to a groundwater map of the Portland area, groundwater is expected within the site vicinity at a depth of approximately 20 feet bgs (Snyder 2008). It is anticipated that groundwater conditions will vary depending on the season, local subsurface conditions, changes in site utilization, and other factors. Perched groundwater may be encountered in localized areas. Seeps and springs may exist in areas not explored and may become evident during site grading.

5.1 Infiltration Testing

We performed soil infiltration testing within test pit TP-1 using the open-hole falling-head method. The approximate location of TP-1 is indicated on Figures 2 and 3. The test location was pre saturated prior to testing. During testing, we measured the water level to the nearest 0.01 foot (1/8 inch) from a fixed point and the change in water level was recorded at regular intervals until three successive measurements showing a consistent infiltration rate were achieved. The measured rates for these tests reflect vertical flow pathways. At a depth of approximately 6 feet bgs in test pit TP-1, the soils exhibited an infiltration rate of 2 inches per hour. Infiltration rates have been reported without applying a factor of safety. A factor of safety of 4 should be used in design.0.5

6.0 CONCLUSIONS AND RECOMMENDATIONS

Our site investigation indicates that the proposed development appears to be geotechnically feasible, provided that the recommendations of this report are incorporated into the design and construction phases of the project. The main geotechnical concern associated with the proposed site development is the presence of low-permeability soils in the near-surface soil profile. The following report sections provide recommendations for site development and construction in accordance with the current applicable codes and local standards of practice.

Geotechnical Engineering Report
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6.1 Site Preparation

Areas of proposed construction and areas to receive fill should be cleared of any organic and inorganic debris, disturbed soil, and loose stockpiled soils. Inorganic debris and organic materials from clearing should be removed from the site. Organic-rich soils and root zones should then be stripped from construction areas of the site or where engineered fill is to be placed. The average depth of stripping of existing organic topsoil is estimated to be approximately 6 inches at the site but may be deeper in the vicinity of trees and bushes.

The final depth of soil removal should be determined by the geotechnical engineer or designated representative during site inspection while stripping/excavation is being performed. Stripped topsoil should be removed from areas proposed for placement of engineered fill and structures. Any remaining topsoil should be stockpiled only in designated areas and stripping operations should be observed and documented by the geotechnical engineer or his representative.

In areas of roadways, structures, or where engineered fill material is proposed, undocumented fills and any subsurface structures (dry wells, basements, driveway and landscaping fill, old utility lines, septic leach fields, etc.) should be completely removed and the excavations backfilled with engineered fill.

Site earthwork may be impacted by wet weather conditions. Stabilization of subgrade soils may require aeration and re-compaction. If subgrade soils are found to be difficult to stabilize, over-excavation, placement of granular soils, or cement treatment of subgrade soils may be feasible options. GeoPacific should be onsite to observe preparation of subgrade soil conditions prior to placement of engineered fill.

6.2 Engineered Fill

All grading for the proposed construction should be performed as engineered grading in accordance with the applicable building code at the time of construction with the exceptions and additions noted herein. Site grading should be conducted in accordance with the requirements outlined in the 2021 International Building Code (IBC), and 2022 Oregon Structural Specialty Code (OSSC), Chapter 18 and Appendix J. Areas proposed for fill placement should be prepared as described in the section of this report titled *Site Preparation*. Site preparation, soil stripping, and grading activities should be observed and documented by a geotechnical engineer or his representative. Proper test frequency and earthwork documentation usually requires daily observation and testing during stripping, rough grading, and placement of engineered fill.

Onsite soils appear to be suitable for use as engineered fill. Soils containing greater than 5 percent organic content should not be used as structural fill. Imported fill material must be approved by the geotechnical engineer prior to being imported to the site. Oversize material greater than 6 inches in size should not be used within 3 feet of foundation footings, and material greater than 12 inches in diameter should not be used in engineered fill.

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Engineered fill should be compacted in horizontal lifts not exceeding 12 inches using standard compaction equipment. We recommend that engineered fill be compacted to at least 95 percent of the maximum dry density determined by ASTM D698 (Standard Proctor) or equivalent. Soils should be moisture conditioned to within two percent of optimum moisture. Field density testing should conform to ASTM D2922 and D3017, or D1556. All engineered fill should be observed and tested by the project geotechnical engineer or his representative. Typically, one density test is performed for at least every 2 vertical feet of fill placed or every 500 yd³, whichever requires more testing. Because testing is performed on an on-call basis, we recommend that the earthwork contractor be held contractually responsible for test scheduling and frequency.

Site earthwork may be impacted by soil moisture and wet weather conditions. Earthwork in wet weather would likely require extensive use of additional crushed aggregate, cement or lime treatment, or other special measures, at considerable additional cost compared to earthwork performed under dry-weather conditions.

6.3 Excavating Conditions and Utility Trench Backfill

We anticipate that onsite soils to a depth of approximately 7 feet can generally be excavated using conventional heavy equipment. Below 7 feet bgs in test pit TP-2, we encountered medium-hard basaltic bedrock, which may present difficulties if excavations are planned below 7 feet bgs. Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the contractor. Actual slope inclinations at the time of construction should be determined based on safety requirements and actual soil and groundwater conditions. All temporary cuts in excess of 4 feet in height should be sloped in accordance with U.S. Occupational Safety and Health Administration (OSHA) regulations (29 CFR Part 1926) or be shored. The existing native silt soils in our explorations classify as Type B Soil and temporary excavation side slope inclinations as steep as 1H:1V may be assumed for planning purposes. These cut slope inclinations are applicable to excavations above the water table only.

Shallow, perched groundwater may be encountered at the site and should be anticipated in excavations and utility trenches. Vibrations created by traffic and construction equipment may cause some caving and raveling of excavation walls. In such an event, lateral support for the excavation walls should be provided by the contractor to prevent loss of ground support and possible distress to existing or previously constructed structural improvements.

Underground utility pipes should be installed in accordance with the procedures specified in ASTM D2321 and applicable city and county standards. We recommend that structural trench backfill be compacted to at least 95 percent of the maximum dry density obtained by the Standard Proctor (ASTM D698, AASHTO T-99) or equivalent. Initial backfill lift thicknesses for a ¾"-0 crushed aggregate base may need to be as great as 4 feet to reduce the risk of flattening underlying flexible pipe. Subsequent lift thickness should not exceed 1 foot. If imported granular fill material is used, then the lifts for large vibrating plate-compaction equipment (e.g. hoe compactor attachments) may be up to 2 feet, provided that proper compaction is being achieved and each lift is tested. Use of large vibrating compaction equipment should be carefully monitored near existing structures and improvements due to the potential for vibration-induced damage.

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Adequate density testing should be performed during construction to verify that the recommended relative compaction is achieved. Typically, at least one density test is taken for every 4 vertical feet of backfill on each 100-lineal-foot section of trench.

6.4 Erosion Control Considerations

During our field exploration program, we did not observe soil and topographic conditions which are considered highly susceptible to erosion. In our opinion, the primary concern regarding erosion potential will occur during construction in areas that have been stripped of vegetation. Erosion at the site during construction can be minimized by implementing the project erosion control plan, which should include judicious use of straw wattles, fiber rolls, and silt fences. If used, these erosion control devices should remain in place throughout site preparation and construction.

Erosion and sedimentation of exposed soils can also be minimized by quickly re-vegetating exposed areas of soil, and by staging construction such that large areas of the project site are not denuded and exposed at the same time. Areas of exposed soil requiring immediate and/or temporary protection against exposure should be covered with either mulch or erosion control netting/blankets. Areas of exposed soil requiring permanent stabilization should be seeded with an approved grass seed mixture, or hydroseeded with an approved seed-mulch-fertilizer mixture.

6.5 Wet Weather Earthwork

Soils underlying the site are likely to be moisture sensitive and will be difficult to handle or traverse with construction equipment during periods of wet weather. Earthwork is typically most economical when performed under dry weather conditions. Earthwork performed during the wet-weather season will require expensive measures such as cement treatment or imported granular material to compact areas where fill may be proposed to the recommended engineering specifications. If earthwork is to be performed or fill is to be placed in wet weather or under wet conditions when soil moisture content is difficult to control, the following recommendations should be incorporated into the contract specifications.

- Earthwork should be performed in small areas to minimize exposure to wet weather. Excavation or the removal of unsuitable soils should be followed promptly by the placement and compaction of clean engineered fill. The size and type of construction equipment used may have to be limited to prevent soil disturbance. Under some circumstances, it may be necessary to excavate soils with a backhoe to minimize subgrade disturbance caused by equipment traffic;
- The ground surface within the construction area should be graded to promote run-off of surface water and to prevent the ponding of water;
- Material used as engineered fill should consist of clean, granular soil containing less than 5 percent passing the No. 200 sieve. The fines should be non-plastic. Alternatively, cement treatment of on-site soils may be performed to facilitate wet weather placement;
- The ground surface within the construction area should be sealed by a smooth drum vibratory roller, or equivalent, and under no circumstances should be left uncompacted and

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exposed to moisture. Soils which become too wet for compaction should be removed and replaced with clean granular materials;

- Excavation and placement of fill should be observed by the geotechnical engineer to verify that all unsuitable materials are removed and suitable compaction and site drainage is achieved; and
- Geotextile silt fences, straw wattles, and fiber rolls should be strategically located to control erosion.

If cement or lime treatment is used to facilitate wet weather construction, GeoPacific should be contacted to provide additional recommendations and field monitoring.

6.6 Spread Foundations

We anticipate that the homes will be one to two stories tall, constructed with typical spread foundations and wood framing. We assume that the maximum structural loading on column footings and continuous strip footings will be on the order of 10 to 35 kips, and 2 to 4 kips respectively. We anticipate maximum cuts and fills will be on the order of 4 feet or less.

The proposed structures may be supported on shallow foundations bearing on native soils and/or engineered fill, appropriately designed and constructed as recommended in this report. Foundation design, construction, and setback requirements should conform to the applicable building code at the time of construction. For maximization of bearing strength and protection against frost heave, spread footings should be embedded at a minimum depth of 12 inches below exterior grade. If soft soil conditions are encountered at footing subgrade elevation, they should be removed and replaced with compacted crushed aggregate.

The anticipated allowable soil bearing pressure is 2,500 lbs/ft² for footings bearing on competent, native soil and/or engineered fill. The recommended maximum allowable bearing pressure may be increased by 1/3 for short-term transient conditions such as wind and seismic loading. The coefficient of friction between on-site soil and poured-in-place concrete may be taken as 0.42, which includes no factor of safety. The maximum anticipated total and differential footing movements (generally from soil expansion and/or settlement) are 1 inch and ¾ inch over a span of 20 feet, respectively. We anticipate that the majority of the estimated settlement will occur during construction, as loads are applied. Excavations near structural footings should not extend within a 1H:1V plane projected downward from the bottom edge of footings.

Footing excavations should penetrate through topsoil and any undocumented fill to competent subgrade that is suitable for bearing support. All footing excavations should be trimmed neat, and all loose or softened soil should be removed from the excavation bottom prior to placing reinforcing steel bars. Due to the moisture sensitivity of on-site native soils, foundations constructed during the wet weather season may require over-excavation of footings and backfill with compacted, crushed aggregate.

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6.7 Concrete Slabs-on-Grade

Preparation of areas beneath concrete slab-on-grade floors should be performed as described in the *Site Preparation* and *Spread Foundations* sections of this report. Care should be taken during excavation for foundations and floor slabs, to avoid disturbing subgrade soils. If subgrade soils have been adversely impacted by wet weather or otherwise disturbed, the surficial soils should be scarified to a minimum depth of 8 inches, moisture conditioned to within about 3 percent of optimum moisture content and compacted to engineered fill specifications. Alternatively, disturbed soils may be removed and the removal zone backfilled with additional crushed rock.

For evaluation of the concrete slab-on-grade floors using the beam on elastic foundation method, a modulus of subgrade reaction of 150 kcf (87 pci) should be assumed for the stiff, fine-grained soils anticipated to be present at foundation subgrade elevation following adequate site preparation as described above. This value assumes the concrete slab system is designed and constructed as recommended herein, with a minimum thickness of 8 inches of 3/4"-0 crushed aggregate beneath the slab. The total thickness of crushed aggregate will be dependent on the subgrade conditions at the time of construction and should be verified visually by proof-rolling. Under-slab aggregate should be compacted to at least 95 percent of its maximum dry density as determined by ASTM D698 (Standard Proctor) or equivalent.

In areas where moisture will be detrimental to floor coverings or equipment inside the proposed structure, appropriate vapor barrier and damp-proofing measures should be implemented. Appropriate design professionals should be consulted regarding vapor barrier and damp proofing systems, ventilation, building material selection and mold prevention issues, which are outside GeoPacific's area of expertise.

6.8 Footing and Roof Drains

Construction should include typical measures for controlling subsurface water beneath the structures, including positive crawlspace drainage to an adequate low-point drain exiting the foundation, visqueen covering the exposed ground in the crawlspace, and crawlspace ventilation (foundation vents). The client should be informed and educated that some slow flowing water in the crawlspaces is considered normal and not necessarily detrimental to the structures given these other design elements incorporated into construction. Appropriate design professionals should be consulted regarding crawlspace ventilation, building material selection and mold prevention issues, which are outside GeoPacific's area of expertise.

Down spouts and roof drains should collect roof water in a system separate from the footing drains to reduce the potential for clogging. Roof drain water should be directed to an appropriate discharge point and storm system well away from structural foundations. Grades should be sloped downward and away from buildings to reduce the potential for ponded water near structures.

Perimeter footing drains should consist of 3 or 4-inch diameter, perforated plastic pipe embedded in a minimum of 1 ft³ per lineal foot of clean, free-draining drain rock. The drain-pipe and surrounding drain rock should be wrapped in non-woven geotextile (Mirafi 140N, or approved

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equivalent) to minimize the potential for clogging and/or ground loss due to piping. A minimum 0.5 percent fall should be maintained throughout the drain and non-perforated pipe outlet. Figure 4 presents a typical perimeter footing drain detail. In our opinion, footing drains may outlet at the curb, or on the back sides of lots where sufficient fall is not available to allow drainage to meet the street.

6.9 Permanent Below-Grade Walls

Lateral earth pressures against below-grade retaining walls will depend upon the inclination of any adjacent slopes, type of backfill, degree of wall restraint, method of backfill placement, degree of backfill compaction, drainage provisions, and magnitude and location of any adjacent surcharge loads. At-rest soil pressure is exerted on a retaining wall when it is restrained against rotation. In contrast, active soil pressure will be exerted on a wall if its top is allowed to rotate or yield a distance of roughly 0.001 times its height or greater.

If the subject retaining walls will be free to rotate at the top, they should be designed for an active earth pressure equivalent to that generated by a fluid weighing 35 pcf for level backfill against the wall. For restrained wall, an at-rest equivalent fluid pressure of 52 pcf should be used in design, again assuming level backfill against the wall. These values assume that the recommended drainage provisions are incorporated, and hydrostatic pressures are not allowed to develop against the wall.

During a seismic event, lateral earth pressures acting on below-grade structural walls will increase by an incremental amount that corresponds to the earthquake loading. Based on the Mononobe-Okabe equation and peak horizontal accelerations appropriate for the site location, seismic loading should be modeled using the active or at-rest earth pressures recommended above, plus an incremental rectangular-shaped seismic load of magnitude $6.5H$, where H is the total height of the wall.

We assume relatively level ground surface below the base of the walls. As such, we recommend a passive earth pressure of 320 pcf for use in design, assuming wall footings are cast against competent native soils or engineered fill. If the ground surface slopes down and away from the base of any of the walls, a lower passive earth pressure should be used and GeoPacific should be contacted for additional recommendations.

A coefficient of friction of 0.42 may be assumed along the interface between the base of the wall footing and subgrade soils. The recommended coefficient of friction and passive earth pressure values do not include a safety factor, and an appropriate safety factor should be included in design. The upper 12 inches of soil should be neglected in passive pressure computations unless it is protected by pavement or slabs on grade.

The above recommendations for lateral earth pressures assume that the backfill behind the subsurface walls will consist of properly compacted structural fill, and no adjacent surcharge loading. If the walls will be subjected to the influence of surcharge loading within a horizontal distance equal to or less than the height of the wall, the walls should be designed for the additional

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horizontal pressure. For uniform surcharge pressures, a uniformly distributed lateral pressure of 0.3 times the surcharge pressure should be added. Traffic surcharges may be estimated using an additional vertical load of 250 psf (2 feet of additional fill), in accordance with local practice.

The recommended equivalent fluid densities assume a free-draining condition behind the walls so that hydrostatic pressures do not build-up. This can be accomplished by placing a 12 to 18-inch wide zone of sand and gravel containing less than 5 percent passing the No. 200 sieve against the walls. A 3-inch minimum diameter perforated, plastic drain-pipe should be installed at the base of the walls and connected to a suitable discharge point to remove water in this zone of sand and gravel. The drain-pipe should be wrapped in filter fabric (Mirafi 140N or other as approved by the geotechnical engineer) to minimize clogging.

Wall drains are recommended to prevent detrimental effects of surface water runoff on foundations – not to dewater groundwater. Drains should not be expected to eliminate all potential sources of water entering a basement or beneath a slab-on-grade. An adequate grade to a low point outlet drain in the crawlspace is required by code. Underslab drains are sometimes added beneath the slab when placed over soils of low permeability and shallow, perched groundwater.

Water collected from the wall drains should be directed into the local storm drain system or other suitable outlet. A minimum 0.5 percent fall should be maintained throughout the drain and non-perforated pipe outlet. Down spouts and roof drains should not be connected to the wall drains in order to reduce the potential for clogging. The drains should include clean-outs to allow periodic maintenance and inspection. Grades around the proposed structure should be sloped such that surface water drains away from the building.

GeoPacific should be contacted during construction to verify subgrade strength in wall keyway excavations, to verify that backslope soils are in accordance with our assumptions, and to take density tests on the wall backfill materials.

Structures should be located a horizontal distance of at least $1.5H$ away from the back of the retaining wall, where H is the total height of the wall. GeoPacific should be contacted for additional foundation recommendations where structures are located closer than $1.5H$ to the top of any wall.

6.10 Stormwater Management

We understand that plans for project development may include stormwater management facilities, and that it may be desired to incorporate subsurface disposal of stormwater. The native SILT with Sand (ML) and Silty COBBLES (GM) observed in the upper 7 feet of native soils within our explorations exhibited an infiltration rate of approximately 2 inches per hour.

Stormwater management systems should be constructed as specified by the designer and/or in accordance with the applicable stormwater design codes. The infiltration rates presented in this report do not incorporate a factor of safety. Stormwater exceeding soil infiltration and/or soil storage capacities will need to be directed to a suitable surface discharge location, away from structures. If a pervious pavement section is utilized onsite, a drainage pipe connected to a

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suitable outlet such as a stormwater facility or city stormwater system may be necessary to meet rainfall demands.

Infiltration test methods and procedures attempt to simulate the as-built conditions of the planned disposal system. However, due to natural variations in soil properties, actual infiltration rates may vary from the measured and/or recommended design rates. All systems should be constructed such that potential overflow is discharged in a controlled manner away from structures, and all systems should include an adequate factor of safety. Infiltration rates presented in this report should not be applied to inappropriate or complex hydrological models such as a closed basin without extensive further studies. Evaluating environmental implications of stormwater disposal at this site are beyond the scope of this study.

7.0 SEISMIC DESIGN

The Oregon Department of Geology and Mineral Industries (DOGAMI), Oregon HazVu: 2022 Statewide GeoHazards Viewer indicates that the site is in an area where *very strong* ground shaking is anticipated during an earthquake. Structures should be designed to resist earthquake loading in accordance with the methodology described in the 2021 International Building Code (IBC) with applicable Oregon Structural Specialty Code (OSSC) revisions (current 2022). We recommend Site Class C be used for design as defined in ASCE 7-16, Chapter 20, and Table 20.3-1.

Design values determined for the site using the ATC Hazards by Location 2022 Seismic Design Maps Summary Report are summarized in Table 1 and are based upon SPT blow counts from boring log data and soil conditions observed during field explorations.

Table 1: Recommended Earthquake Ground Motion Parameters (ASCE-7-16)

Parameter	Value
Location (Lat, Long), degrees	45.446, -122.646
Probabilistic Ground Motion Values, 2% Probability of Exceedance in 50 yrs	
Peak Ground Acceleration PGA_M	0.479 g
Short Period, S_s	0.886 g
1.0 Sec Period, S_1	0.392 g
Soil Factors for Site Class C:	
F_a	1.200
F_v	1.500
$SD_s = 2/3 \times F_a \times S_s$	0.709 g
$SD_1 = 2/3 \times F_v \times S_1$	0.392 g
Seismic Design Category	D

7.1 Soil Liquefaction

The Oregon Department of Geology and Mineral Industries (DOGAMI), Oregon HazVu: 2022 Statewide GeoHazards Viewer indicates that the site is not mapped as having risk of soil liquefaction during an earthquake. Soil liquefaction is a phenomenon wherein saturated soil deposits temporarily lose strength and behave as a liquid in response to ground shaking caused by

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strong earthquakes. Soil liquefaction is generally limited to loose sands and granular soils located below the water table, and fine-grained soils with a plasticity index less than 15.

Static groundwater was not encountered in our explorations, excavated to depths of up to 7.25 feet. Static groundwater is expected to be present at approximately 20 feet bgs in the vicinity of the site. Based on the mapped depth to groundwater, it is our opinion that the risk of damage to the proposed structures due to soil liquefaction is very low and that no special measures are needed to address the effects of liquefaction for the proposed development.

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8.0 UNCERTAINTIES AND LIMITATIONS

We have prepared this report for the owner and their consultants for use in design of this project only. This report should be provided in its entirety to prospective contractors for bidding and estimating purposes; however, the conclusions and interpretations presented in this report should not be construed as a warranty of the subsurface conditions. Experience has shown that soil and groundwater conditions can vary significantly over small distances. Inconsistent conditions can occur between explorations that may not be detected by a geotechnical study. If, during future site operations, subsurface conditions are encountered which vary appreciably from those described herein, GeoPacific should be notified for review of the recommendations of this report, and revision of such if necessary.

Sufficient geotechnical monitoring, testing and consultation should be provided during construction to confirm that the conditions encountered are consistent with those indicated by explorations. The checklist attached to this report outlines recommended geotechnical observations and testing for the project. Recommendations for design changes will be provided should conditions revealed during construction differ from those anticipated, and to verify that the geotechnical aspects of construction comply with the contract plans and specifications.

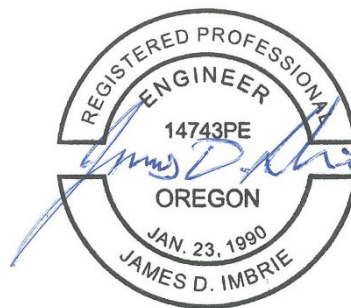
Within the limitations of scope, schedule and budget, GeoPacific attempted to execute these services in accordance with generally accepted professional principles and practices in the fields of geotechnical engineering and engineering geology at the time the report was prepared. No warranty, expressed or implied, is made. The scope of our work did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous or toxic substances in the soil, surface water, or groundwater at this site.

We appreciate this opportunity to be of service.

Sincerely,

GEOPACIFIC ENGINEERING, INC.

Alexandria B. Campbell, E.I.
Engineering Staff



EXPIRES: 06/30/20²⁵

James D. Imbrie, G.E.
Principal Engineer



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CHECKLIST OF RECOMMENDED GEOTECHNICAL TESTING AND OBSERVATION

Item No.	Procedure	Timing	By Whom	Done
1	Preconstruction meeting	Prior to beginning site work	Contractor, Developer, Civil and Geotechnical Engineer	
2	Fill removal from site or sorting and stockpiling	Prior to mass stripping	Technician/ Geotechnical Engineer	
3	Stripping, aeration, and root-picking operations	During stripping	Technician	
4	Compaction testing of engineered fill	During filling, tested every 2 vertical feet minimum	Technician	
5	Foundation Subgrade Compaction	During foundation preparation, prior to placement of forms	Technician/ Geotechnical Engineer	
6	Compaction testing of trench backfill	During backfilling, tested every 2 to 4 vertical feet for every 200 linear feet	Technician	
7	Street subgrade inspection	Prior to placing base course	Technician	
8	Base course compaction	Prior to paving, tested every 100 - 200 linear feet	Technician	
9	Base course proof roll	Prior to paving	Technician	
10	Asphalt Compaction	During paving, tested every 100 linear feet	Technician	
11	Final Geotechnical Engineer's Report	Completion of project	Geotechnical Engineer	



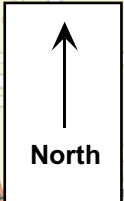
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FIGURES

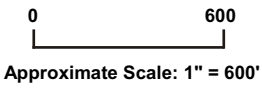


14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

SITE VICINITY MAP



Base map obtained from Oregon HazVu street map
Date: 05/30/23
Drawn by: ABC



Project: Lava Drive Apartments
Milwaukie, Oregon

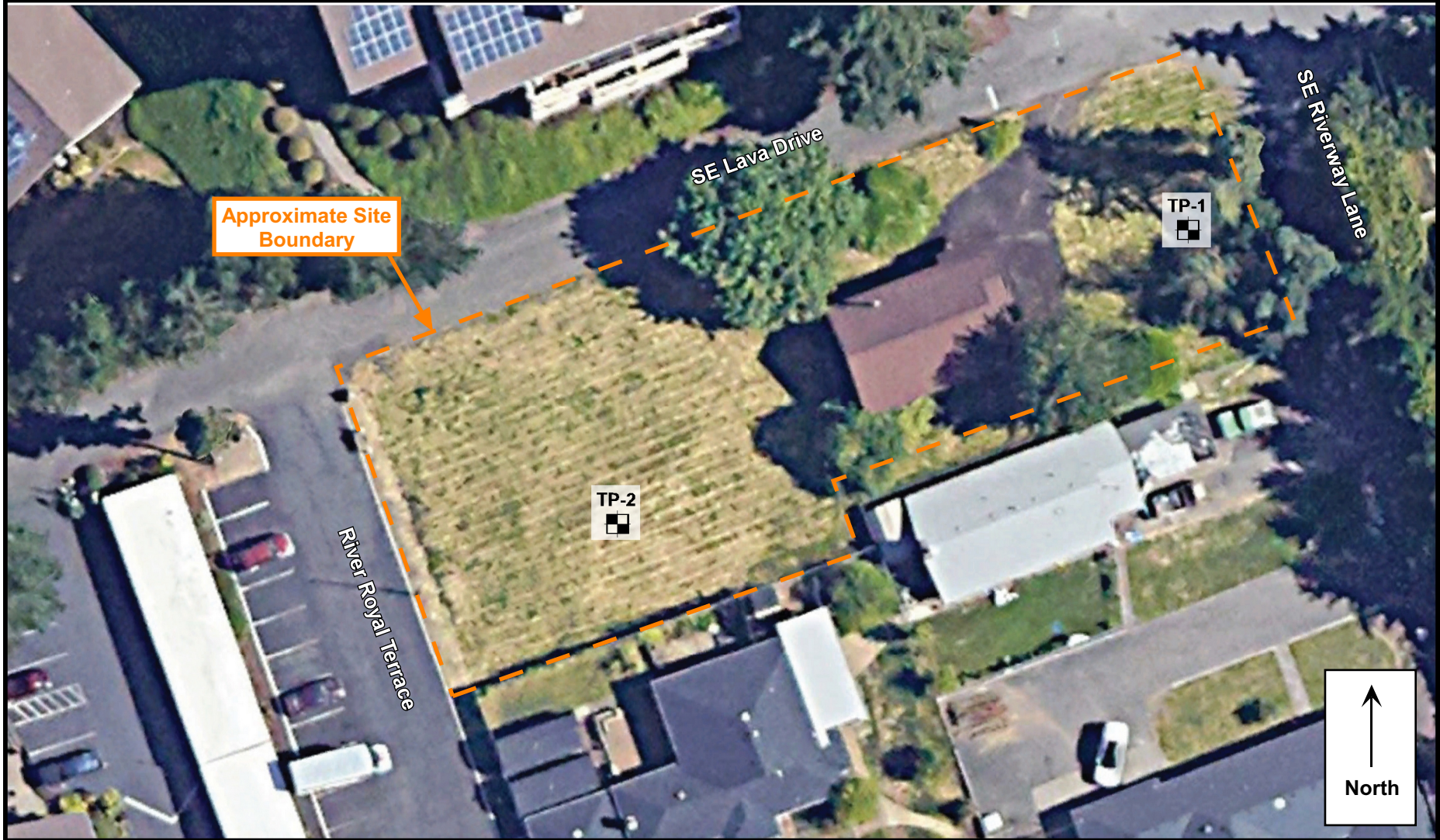
Project No. 23-6332

FIGURE 1



14835 SW 72nd Avenue
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SITE AERIAL AND EXPLORATION LOCATIONS



Legend: TP-1
 Test Pit Designation and Approximate Location

0 40'
APPROXIMATE SCALE 1"=40'

Date: 05/30/23
Drawn by: ABC

Project: Lava Drive Apartments
Milwaukie, Oregon

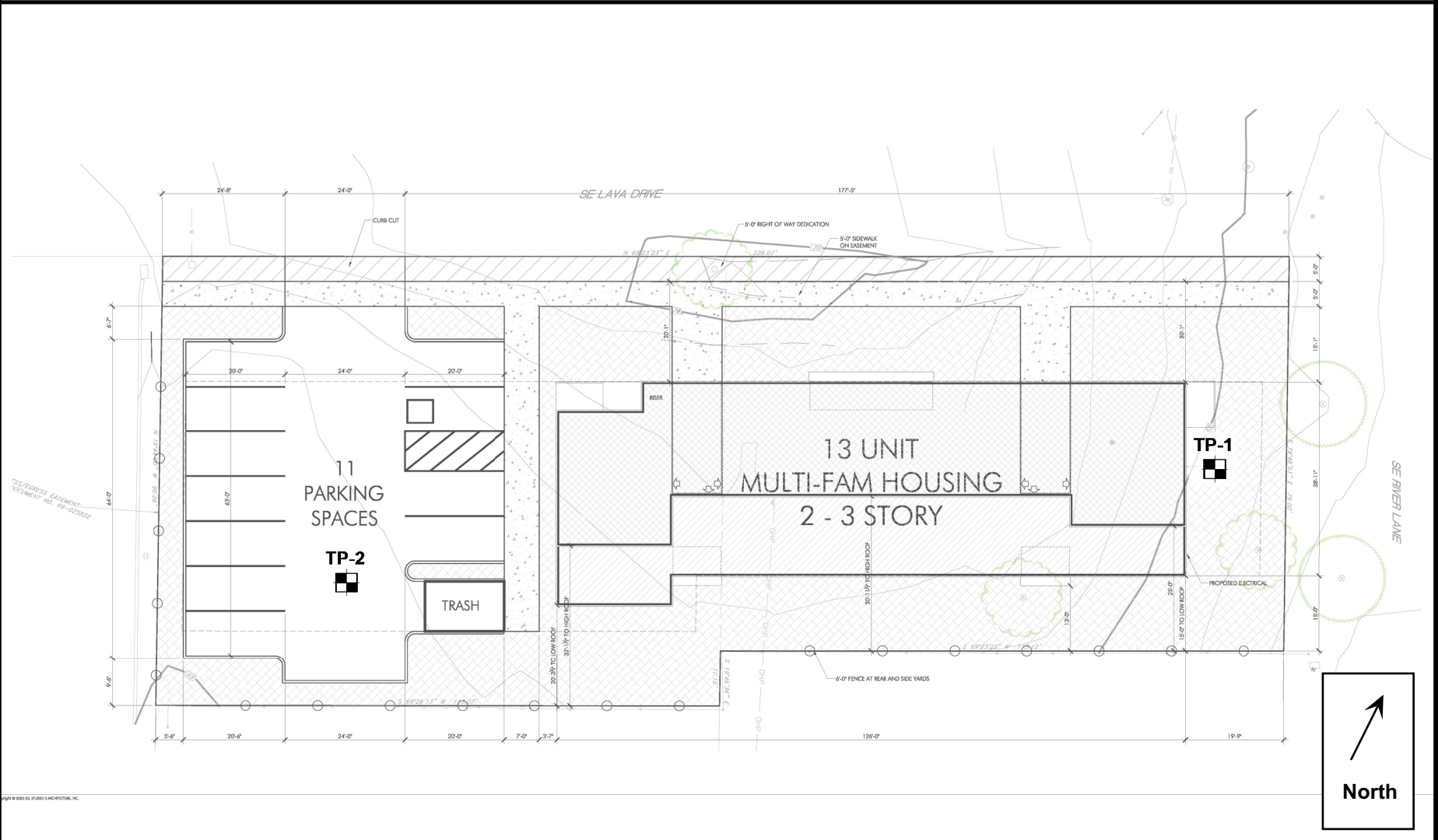
Project No. 23-6332

FIGURE 2



14835 SW 72nd Avenue
 Portland, Oregon 97224
 Tel: (503) 598-8445 Fax: (503) 941-9281

SITE PLAN AND EXPLORATION LOCATIONS



Legend: **TP-1**
 Test Pit Designation and Approximate Location

0 30'
 APPROXIMATE SCALE 1"=30'

Date: 05/30/23
 Drawn by: ABC

Project: Lava Drive Apartments
 Milwaukie, Oregon

Project No. 23-6332

FIGURE 3



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EXPLORATION LOGS



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 Tel: (503) 598-8445 Fax: (503) 941-9281

TEST PIT LOG

Project: Lava Drive Apartments
 1600 SE Lava Drive
 Milwaukie, Oregon

Project No. 23-6332

Test Pit No. **TP-1**

Depth (ft)	Pocket Penetrometer (tons/ft ²)	Torvane Shear (tons/ft ²)	Sample Type	% Passing No. 200 Sieve	Moisture Content (%)	Water Bearing Zone	Material Description
1							6" Organic SILT (OL-ML), brown, moist, fine roots throughout (Topsoil)
2							SILT (ML), brown, stiff, moist (Catastrophic Flood Deposits)
3							
4							
5							
6							Infiltration test conducted at 6 feet bgs. Infiltration rate observed as 2.0 in/hr
7							Silty COBBLES (GM), grayish brown, medium dense, moist (Catastrophic Flood Deposits)
8							Test pit terminated at 7 feet bgs. No groundwater seepage observed
9							
10							
11							
12							
13							
14							
15							
16							
17							

LEGEND



100 to 1,000 g
Bag Sample



5 Gal. Bucket
Bucket Sample



Shelby Tube Sample



Seepage



Water Bearing Zone



Water Level at Abandonment

Date Excavated: 05/24/2023
 Logged By: ABC
 Surface Elevation: 183 Feet



14835 SW 72nd Avenue
 Portland, Oregon 97224
 Tel: (503) 598-8445 Fax: (503) 941-9281

TEST PIT LOG







Project: Lava Drive Apartments
 1600 SE Lava Drive
 Milwaukie, Oregon

Project No. 23-6332

Test Pit No. TP-2

Depth (ft)	Pocket Penetrometer (tons/ft ²)	Torvane Shear (tons/ft ²)	Sample Type	% Passing No. 200 Sieve	Moisture Content (%)	Water Bearing Zone	Material Description
1							6" Organic SILT (OL-ML), brown, moist, fine roots throughout (Topsoil) ----- SILT (ML), brown, stiff, moist (Catastrophic Flood Deposits)
2							
3							
4							
5							
6							
7							----- BASALT, gray, medium hard (R3), moist (Basalt of Waverly Heights Formation)
8							Test pit terminated at 7.25 feet bgs. No groundwater seepage observed
9							
10							
11							
12							
13							
14							
15							
16							
17							

LEGEND

 Bag Sample	 Bucket Sample	 Shelby Tube Sample	 Seepage	 Water Bearing Zone	 Water Level at Abandonment
---	--	---	--	---	--

Date Excavated: 05/24/2023
 Logged By: ABC
 Surface Elevation: 183 Feet



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SITE RESEARCH

⚠ This is a beta release of the new ATC Hazards by Location website. Please [contact us](#) with feedback.

ℹ The ATC Hazards by Location website will not be updated to support ASCE 7-22. [Find out why.](#)

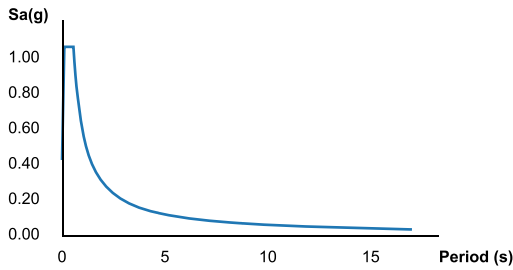
ATC Hazards by Location

Search Information

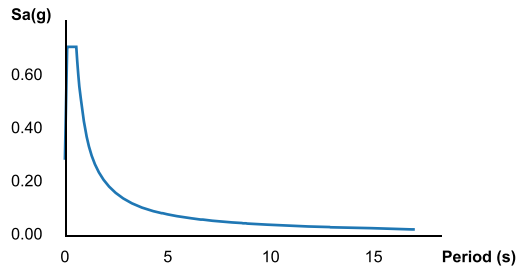
Address: 1600 SE Lava Dr, Milwaukie, OR 97222, USA
Coordinates: 45.4463562, -122.6464097
Elevation: 68 ft
Timestamp: 2023-05-30T17:26:20.288Z
Hazard Type: Seismic
Reference Document: NEHRP-2015
Risk Category: II
Site Class: C



MCE_R Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S _S	0.886	MCE _R ground motion (period=0.2s)
S ₁	0.392	MCE _R ground motion (period=1.0s)
S _{MS}	1.064	Site-modified spectral acceleration value
S _{M1}	0.588	Site-modified spectral acceleration value
S _{DS}	0.709	Numeric seismic design value at 0.2s SA
S _{D1}	0.392	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	D	Seismic design category
F _a	1.2	Site amplification factor at 0.2s
F _v	1.5	Site amplification factor at 1.0s
CR _S	0.89	Coefficient of risk (0.2s)
CR ₁	0.871	Coefficient of risk (1.0s)
PGA	0.399	MCE _G peak ground acceleration
F _{PGA}	1.2	Site amplification factor at PGA
PGA _M	0.479	Site modified peak ground acceleration
T _L	16	Long-period transition period (s)
SsRT	0.886	Probabilistic risk-targeted ground motion (0.2s)
SsUH	0.997	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.5	Factored deterministic acceleration value (0.2s)
S1RT	0.392	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.451	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)

ATTACHMENT #4 Ex. D

S1D	0.6	Factored deterministic acceleration value (1.0s)
PGAd	0.5	Factored deterministic acceleration value (PGA)

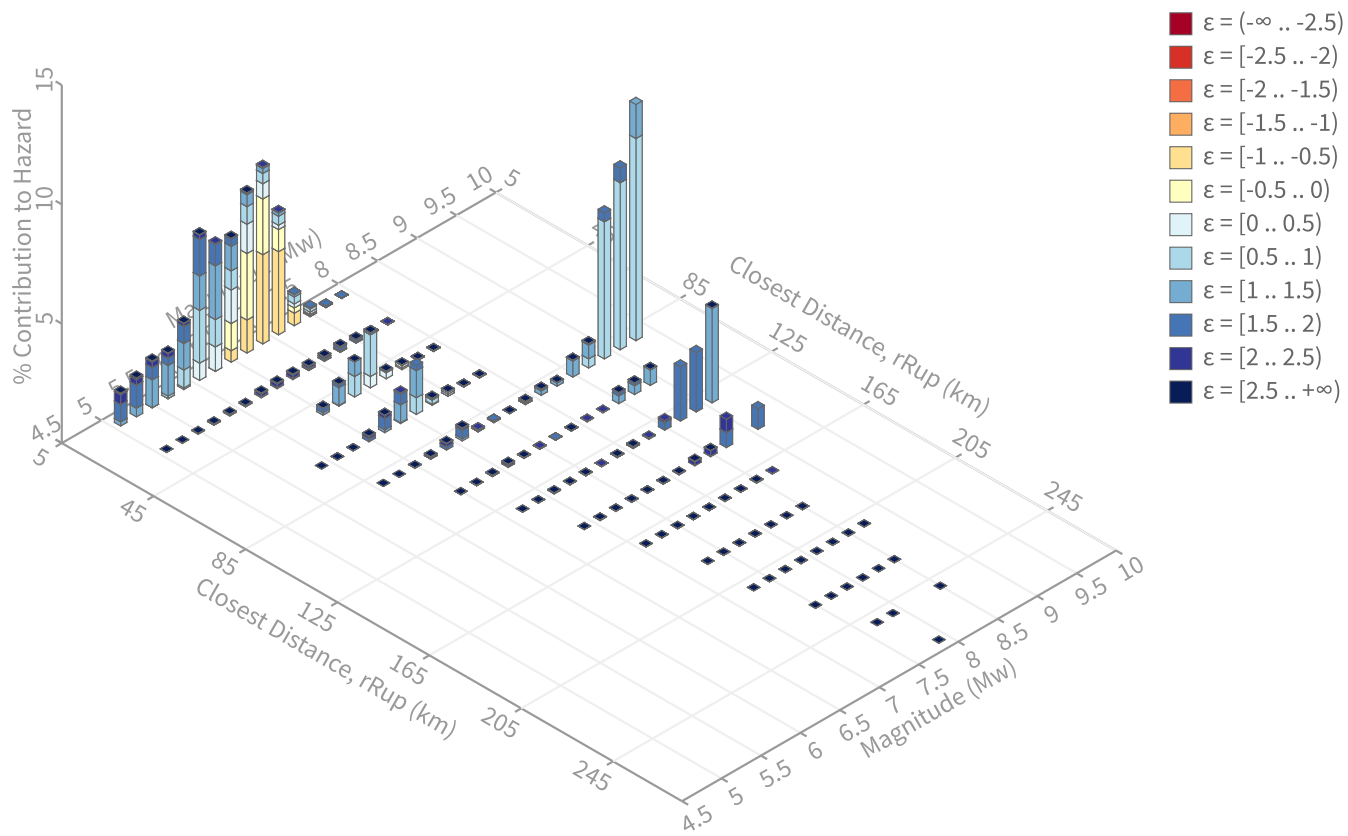
The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Please note that the ATC Hazards by Location website will not be updated to support ASCE 7-22. [Find out why.](#)

Disclaimer

Hazard loads are provided by the U.S. Geological Survey [Seismic Design Web Services](#).

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Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr⁻¹
PGA ground motion: 0.42099019 g

Recovered targets

Return period: 2534.2251 yrs
Exceedance rate: 0.00039459794 yr⁻¹

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.39 %

Mean (over all sources)

m: 7.5
r: 50.37 km
ε₀: 0.87 σ

Mode (largest m-r bin)

m: 9.34
r: 82.27 km
ε₀: 0.72 σ
Contribution: 9.89 %

Mode (largest m-r-ε₀ bin)

m: 9.34
r: 82.27 km
ε₀: 0.62 σ
Contribution: 8.47 %

Discretization

r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Epsilon keys

ε₀: [-∞ .. -2.5)
ε₁: [-2.5 .. -2.0)
ε₂: [-2.0 .. -1.5)
ε₃: [-1.5 .. -1.0)
ε₄: [-1.0 .. -0.5)
ε₅: [-0.5 .. 0.0)
ε₆: [0.0 .. 0.5)
ε₇: [0.5 .. 1.0)
ε₈: [1.0 .. 1.5)
ε₉: [1.5 .. 2.0)
ε₁₀: [2.0 .. 2.5)
ε₁₁: [2.5 .. +∞]

Deaggregation Contributors

Source Set	Source	Type	r	m	ϵ_0	lon	lat	az	%
sub0_ch_bot.in		Interface							23.20
	Cascadia Megathrust - whole CSZ Characteristic		82.27	9.11	0.84	123.599°W	45.501°N	275.05	23.20
Geologic Model Partial Rupture		Fault							9.83
	Portland Hills		2.87	6.75	-0.27	122.620°W	45.436°N	120.49	9.75
sub0_ch_mid.in		Interface							8.44
	Cascadia Megathrust - whole CSZ Characteristic		132.27	8.93	1.59	124.330°W	45.489°N	272.68	8.44
coastalOR_deep.in		Slab							7.53
Geologic Model Small Mag		Fault							6.92
	Grant Butte 50		8.64	6.19	1.41	122.544°W	45.476°N	67.48	2.99
	Bolton		5.05	6.16	0.59	122.663°W	45.402°N	194.86	1.80
	Grant Butte 65		8.64	6.19	1.41	122.544°W	45.476°N	67.48	1.00
Geologic Model Full Rupture		Fault							5.18
	Portland Hills		1.22	7.00	-0.58	122.620°W	45.436°N	120.49	5.11
WUSmap_2014_fixSm.ch.in (opt)		Grid							3.99
	PointSourceFinite: -122.646, 45.505		7.88	5.90	0.97	122.646°W	45.505°N	0.00	1.82
noPuget_2014_fixSm.ch.in (opt)		Grid							3.99
	PointSourceFinite: -122.646, 45.505		7.88	5.90	0.97	122.646°W	45.505°N	0.00	1.82
WUSmap_2014_fixSm.gr.in (opt)		Grid							3.67
	PointSourceFinite: -122.646, 45.505		8.00	5.84	1.02	122.646°W	45.505°N	0.00	1.71
noPuget_2014_fixSm.gr.in (opt)		Grid							3.67
	PointSourceFinite: -122.646, 45.505		8.00	5.84	1.02	122.646°W	45.505°N	0.00	1.71
coastalOR_deep.in		Slab							1.86
Zeng Model Partial Rupture		Fault							1.81
	Portland Hills		2.87	6.75	-0.27	122.620°W	45.436°N	120.49	1.79
sub0_ch_top.in		Interface							1.76
	Cascadia Megathrust - whole CSZ Characteristic		149.29	8.84	1.87	124.549°W	45.485°N	272.32	1.76
Zeng Model Small Mag		Fault							1.26
WUSmap_2014_fixSm_M8.in (opt)		Grid							1.22
noPuget_2014_fixSm_M8.in (opt)		Grid							1.22
sub2_ch_bot.in		Interface							1.15
	Cascadia Megathrust - Goldfinger Case C Characteristic		100.78	8.74	1.31	123.702°W	45.000°N	239.40	1.15

ATTACHMENT #4 Ex. D

Source Set ↪ Source	Type	r	m	ϵ_0	lon	lat	az	%
sub1_ch_bot.in	Interface							1.01
Cascadia Megathrust - Goldfinger Case B Characteristic		81.63	8.86	0.97	123.599°W	45.501°N	275.05	1.01

PRELIMINARY STORMWATER MANAGEMENT REPORT

FOR

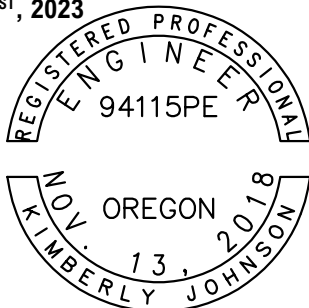
THE PROPOSED 13-UNIT APARTMENT COMPLEX

at

1600 SE LAVA DRIVE

MILWAUKIE, OR.

JUNE 1ST, 2023



PREPARED BY:

7 OAKS ENGINEERING, INC.

Kimberly Johnson, P.E.

345 Westfield St. #107

Silverton, Or. 97381

503.308.8554

kim@7oaksengineering.com

PRELIMINARY-NOT FOR CONSTRUCTION



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APPENDIX C - PLANS	
APPENDIX D - GEOTECHNICAL REPORT	

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I. PURPOSE OF REPORT

This report describes the proposed improvements compliance with the City of Milwaukie stormwater design standards, which defers to the City of Portland 2020 Stormwater Management Manual and the 2020 City of Portland/Bureau of Environmental Services Sewer and Drainage Facilities Design Manual.

II. PROJECT DESCRIPTION

This site is located at the southwest corner of SE Lava Drive and SE River Lane. The property is bordered by SE Lava Drive to the north, SE River Lane to the east, and private property to the west and south.

A. EXISTING CONDITION

The existing site is currently a single-family residential home with an asphalt drive. The remaining of the existing site is undeveloped and covered with grass. The existing site has a ridge midway at the north property line, with one-half of the property sheet flowing to the southwest corner of the property and one-half of the property sheet flowing to the southeast corner of the property. There are currently no stormwater management facilities located onsite. There is approximately 6% fall across the site.

No run-on is anticipated.

The existing site is not located within a FEMA floodway, and is located within Zone X per FEMA Map No. 41005C0009D, effective on 06/17/2008..

The Geotechnical Report from GeoPacific dated May 30th, 2023, Project No. 23-6332, utilized the open-hole falling-head method. The test was performed at 6 feet and exhibited an infiltration rate of 2 in/hr. Infiltration rates have been reported without applying a factor of safety. A factor of safety of 4 should be used in design for a resulting infiltration rate of 0.5 in/hr.

Full infiltration is considered not feasible base on factored rate.

B. PROPOSED CONDITION

The proposed development includes a 13-unit multi-story apartment complex, a parking lot, walkways and proposed landscape. Additionally, SE Lava Drive will be improved with curb, gutter and sidewalk.

The project site is located less than ¼ mile away from the Willamette River and is ultimately tributary to the river.



As such, we are required to comply with the flow control requirements set forth by the City of Portland 2020 Stormwater Management. A proposed planter with underdrain has been designed to collect the site runoff and mitigate the required flow. A low-flow pipe will be installed at the bottom of the planter that connects to the existing storm drain main in SE Lava Drive. Additionally, the beehive overflow will connect to the existing storm drain main in SE Lava Drive

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III. METHODOLOGY

The City of Portland's 2020 Stormwater Management Manual requires stormwater to be selected based on a hierarchy system;

LEVEL 1: Full onsite infiltration, Level 1, is required to the maximum extent practicable for sites with design infiltration rates of 2 in/hr or more, unless site constraints prevent infiltration or the site qualifies for the ecoroof exception. Fully infiltrate the 10-year design storm.

LEVEL 2: Offsite discharge to the separated stormwater system.

Pollution Reduction required:

- Achieve 70% TSS removal from the runoff resulting from 90% of the average annual rainfall.
- In watershed with a TMDL or on DEQ's 303(d) list of impaired waters, use a pollution reduction facility that will reduce pollutants of concern.

Flow Control Required:

- For discharge to surface water bodies directly or indirectly (such as via a piped system), limit post-development peak runoff rates to pre-development rates for the one-half the 2-year event and for the 5-, 10-, and 25-year events.
- **For discharge to storm-only systems that drain to large water bodies including the Willamette, Columbia Slough and Columbia River when there is a system need, limit the post-development peak runoff rates to pre-development rates for the 2-, 5-, and 10-year event.**

LEVEL 3: Offsite discharge to the combined sewer system; flow control required.

The project will utilize Level 2, Offsite Discharge to the Separated Stormwater System. And due to the projects close proximity to the Willamette River, the project will only need to limit the 2-, 5-, and 10- year event. The Geotechnical Engineer tested the infiltration rates onsite and found them to be 2in/hr, not including a factor of safety, therefore this site will not allow for full onsite infiltration. The performance approach method was used to size the proposed stormwater facilities.



Flow Control Requirements:

Table 2-13. Flow Control Requirements¹

Storm Recurrence Interval (years)	24-hr Rainfall Depth (inches)	Requirements by the Receiving System		
		Drainageway or Stream	Columbia Slough, Willamette River, or Columbia River ²	Combined Sewer Pipe
2	2.4	Limit 1/2 the 2-year post-development peak flow to 1/2 the 2-year pre-development peak flow	Do not exceed pre-development peak flows	N/A
5	2.9	Do not exceed pre-development peak flows	Do not exceed pre-development peak flows	N/A
10	3.4	Do not exceed pre-development peak flows	Do not exceed pre-development peak flows	N/A
25	3.8	Do not exceed pre-development peak flows ³	N/A	Limit the 25-year post-development peak flow to the 10-year pre-development peak flow

- 1 Facilities with catchment areas too small to meet these requirements within the design parameters must instead be sized to filter the post-development runoff from the 25-year design storm without overflow.
- 2 Projects may be exempt from flow control requirements if they discharge stormwater runoff to one of these waterbodies and the storm sewer system has available capacity.
- 3 This does not apply to vegetated surface facilities in the right-of-way with a ponding depth up to 9 inches.

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Method: Performance Approach

Requirements: Infiltrate 10-Year Storm. 30 Hour Drawdown
 Computer Program: HydroCAD 10.20-2f
 Method: SBUH
 Storm Event: NRCS 24-Hour Type 1A Hyetograph
 Soil Group: C
 Rainfall Depths:

Table A-9. 24-Hour Rainfall Depths at Portland Airport

Recurrence Interval (years)	24-Hour Rainfall Depth (inches)
2	2.4
5	2.9
10	3.4
25	3.8
100	4.7

Table 2-12. Water Quality Storm^{1,2}

Stormwater Facility Sizing Basis	Site's Time of Concentration (min)	Water Quality Storm	
		Rainfall Intensity (in/hr)	24-hr Storm Depth (in)
Combination Rate-Volume-Based Facilities and Volume-Based Facilities	N/A	N/A	1.61
Rate-Based Facilities	5	0.19	N/A
	10	0.16	
	20	0.13	

1 Stormwater facilities designed under the Performance Approach may be sized using continuous simulation in lieu of a design storm. If sizing using continuous simulation, a minimum of 20 years of Portland rainfall data must be used to demonstrate that the stormwater runoff generated from 90% of the average annual rainfall will be treated from the site's impervious area.

2 Facilities designed under the Performance Approach may be combination rate-volume-based, volume-based, or rate-based facilities. Facilities designed under the Presumptive Approach are combination rate-volume-based facilities.



Curve Numbers:

Table A-8. Curve Numbers

Development Status	Area Description		Curve Number
Pre-development	Soil Group	A	65
		B	72
		C	79
		D	81
		Unidentified	81
Post-development	Impervious area		98
	Ecoroof		61

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HydroCAD Results:

PRE DEVELOPMENT INPUT PARAMETERS									
AREA	TOTAL AREA (SF)/(AC.)	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	IMPERVIOUS PERCENTAGE (%)	CN (PRE)	SOIL TYPE	LENGTH	SLOPE	CALC.TC
EX	17,987/0.41	2,362	15,625	13%	79	C	115	6.1%	8.1

POST DEVELOPMENT INPUT PARAMETERS									
AREA	TOTAL AREA (SF)/(AC.)	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	IMPERVIOUS PERCENTAGE (%)	CN (POST)	SOIL TYPE	LENGTH	SLOPE	CALC.TC
A	17,987/0.41	11,431	6,556	63.5%	91(WEIGHTED)	C	-	-	5

TOTAL SITE-RESULTS			
AREA	PRE-DEVELOPMENT (CFS)	POST-DEVELOPMENT INFILTRATION DISCARDED RATE (CFS)	VOLUME STORED IN BASIN
WQV		0.04 CFS @ 12.65 HRS	705
2-YR	0.08	0.05 CFS @ 13.15 HRS	1,279
5-YR	0.11	0.05 CFS @ 13.5 HRS	1,689
10-YR	0.12	0.06 CFS @ 13.7 HRS	2,124

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IV. SUMMARY

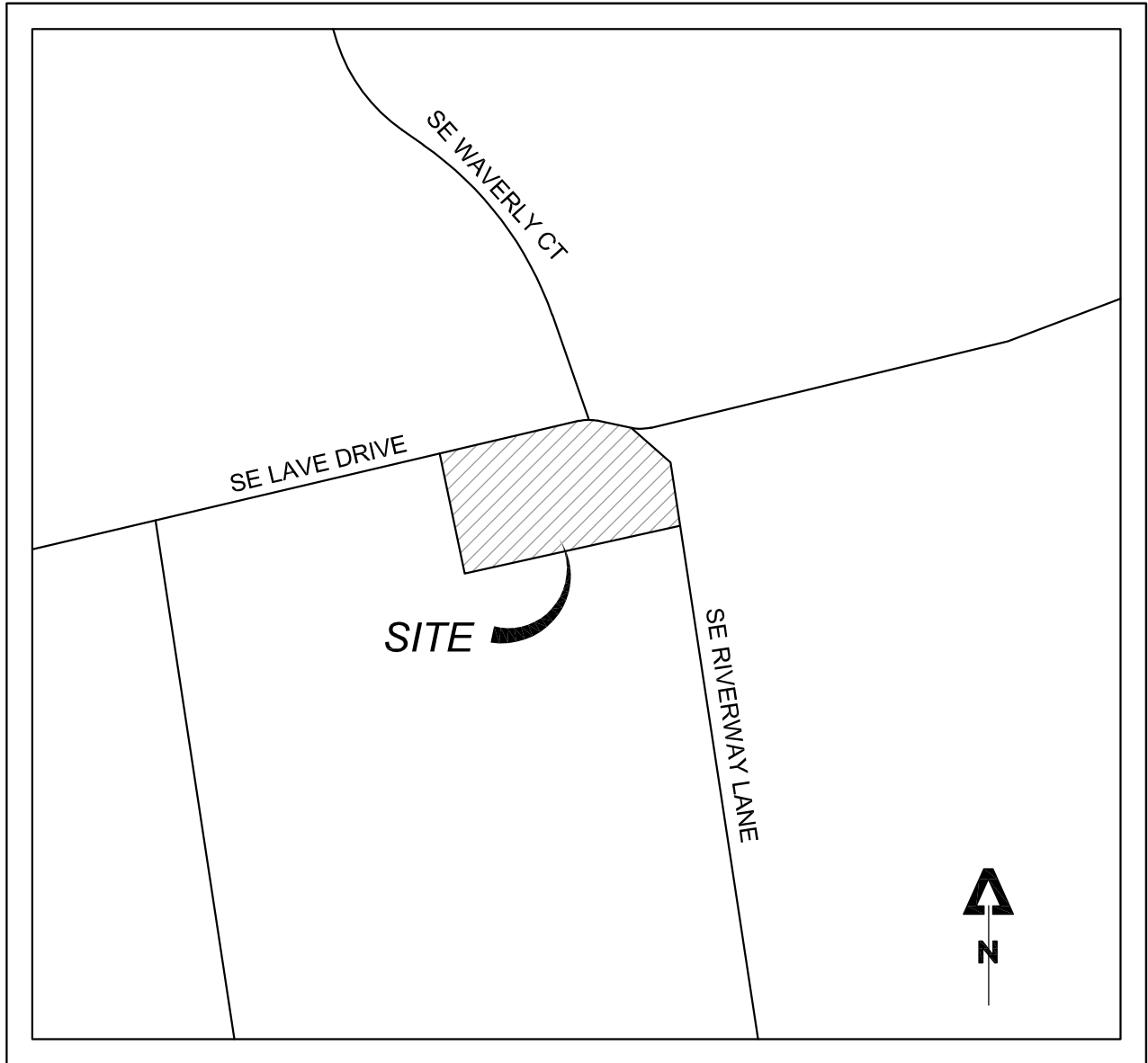
In conclusion, the proposed development will not increase the post-development flow rate from the pre-development flow rate for the 2-year, 5-year, and 10-year storm event, via implementation of a basin with underdrains. The proposed development preliminarily complies with the City of Milwaukie which defers to the City of Portland Stormwater and Hydrology standards.

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APPENDIX A – MAPS



VICINITY MAP

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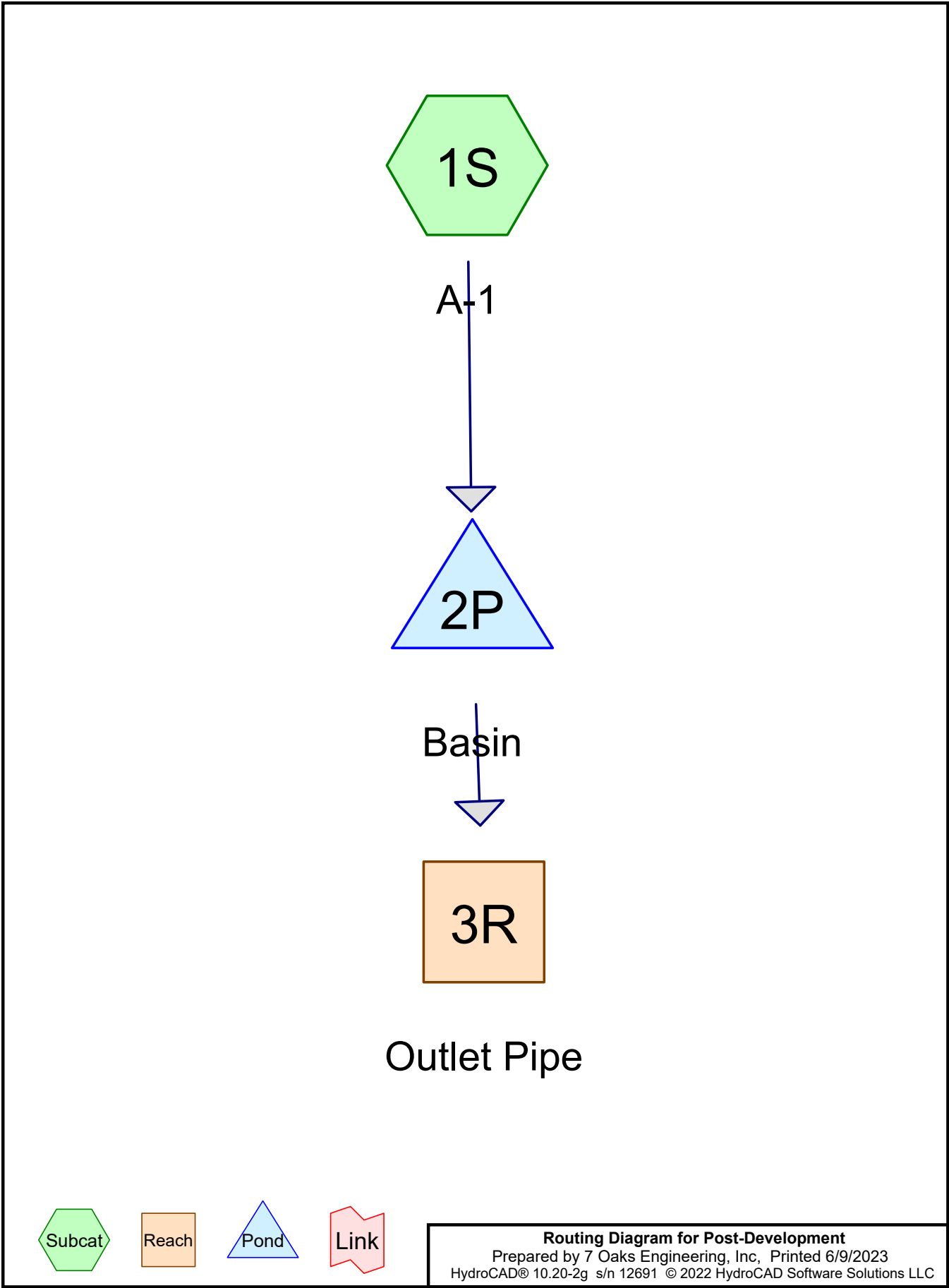


APPENDIX B – CALCULATIONS

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Post-Development

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Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-YR	Type II 24-hr		Default	24.00	1	2.40	2
2	5-YR	Type II 24-hr		Default	24.00	1	2.90	2
3	10-YR	Type II 24-hr		Default	24.00	1	3.40	2
4	WQV	Type II 24-hr		Default	24.00	1	1.61	2

Post-Development

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.262	98	(1S)
0.151	79	50-75% Grass cover, Fair, HSG C (1S)
0.413	91	TOTAL AREA

Post-Development

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Page 4

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.151	HSG C	1S
0.000	HSG D	
0.262	Other	1S
0.413		TOTAL AREA

Post-Development

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Page 5

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.262	0.262		1S
0.000	0.000	0.151	0.000	0.000	0.151	50-75% Grass cover, Fair	1S
0.000	0.000	0.151	0.000	0.262	0.413	TOTAL AREA	

Post-Development

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	3R	0.00	-2.03	203.0	0.0100	0.012	0.0	6.0	0.0

Post-Development*Type II 24-hr 2-YR Rainfall=2.40"*

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Time span=1.00-36.00 hrs, dt=0.05 hrs, 701 points
 Runoff by SBUH method, Split Pervious/Imperv.
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: A-1

Runoff Area=17,987 sf 63.55% Impervious Runoff Depth=1.66"
 Tc=5.0 min CN=79/98 Runoff=0.94 cfs 0.057 af

Reach 3R: Outlet Pipe

Avg. Flow Depth=0.10' Max Vel=1.87 fps Inflow=0.05 cfs 0.057 af
 6.0" Round Pipe n=0.012 L=203.0' S=0.0100 '/' Capacity=0.61 cfs Outflow=0.05 cfs 0.057 af

Pond 2P: Basin

Peak Elev=3.70' Storage=1,279 cf Inflow=0.94 cfs 0.057 af
 Discarded=0.00 cfs 0.000 af Primary=0.05 cfs 0.057 af Outflow=0.05 cfs 0.057 af

Total Runoff Area = 0.413 ac Runoff Volume = 0.057 af Average Runoff Depth = 1.66"
36.45% Pervious = 0.151 ac 63.55% Impervious = 0.262 ac

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Type II 24-hr 2-YR Rainfall=2.40"

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Summary for Subcatchment 1S: A-1

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.94 cfs @ 11.96 hrs, Volume= 0.057 af, Depth= 1.66"
Routed to Pond 2P : Basin

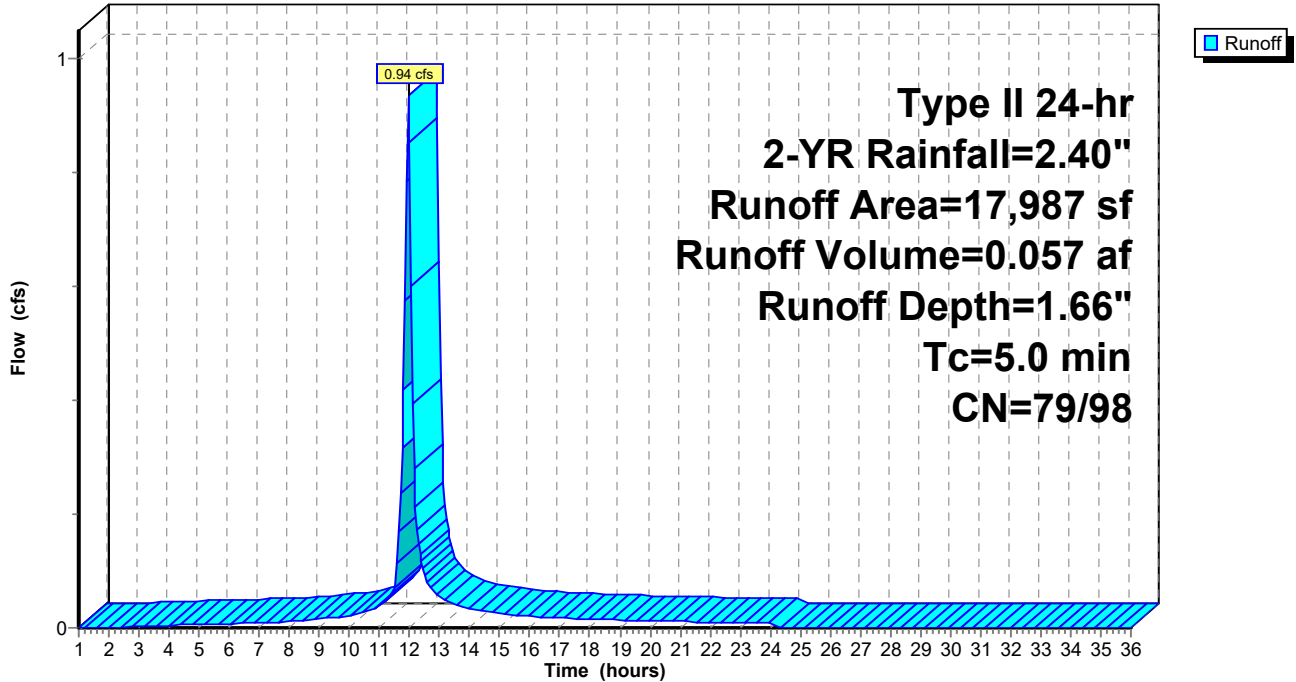
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 1.00-36.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=2.40"

	Area (sf)	CN	Description
*	11,431	98	
	6,556	79	50-75% Grass cover, Fair, HSG C
	17,987	91	Weighted Average
	6,556	79	36.45% Pervious Area
	11,431	98	63.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S: A-1

Hydrograph



Post-Development*Type II 24-hr 2-YR Rainfall=2.40"*

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Summary for Reach 3R: Outlet Pipe

[52] Hint: Inlet/Outlet conditions not evaluated

[65] Warning: Inlet elevation not specified

[79] Warning: Submerged Pond 2P Primary device # 2 by 0.10'

Inflow Area = 0.413 ac, 63.55% Impervious, Inflow Depth > 1.66" for 2-YR event
 Inflow = 0.05 cfs @ 13.15 hrs, Volume= 0.057 af
 Outflow = 0.05 cfs @ 13.20 hrs, Volume= 0.057 af, Atten= 0%, Lag= 3.2 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-36.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.87 fps, Min. Travel Time= 1.8 min

Avg. Velocity = 1.22 fps, Avg. Travel Time= 2.8 min

Peak Storage= 5 cf @ 13.17 hrs

Average Depth at Peak Storage= 0.10' , Surface Width= 0.40'

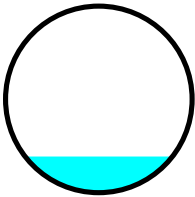
Bank-Full Depth= 0.50' Flow Area= 0.2 sf, Capacity= 0.61 cfs

6.0" Round Pipe

n= 0.012

Length= 203.0' Slope= 0.0100 '/'

Inlet Invert= 0.00', Outlet Invert= -2.03'



Post-Development

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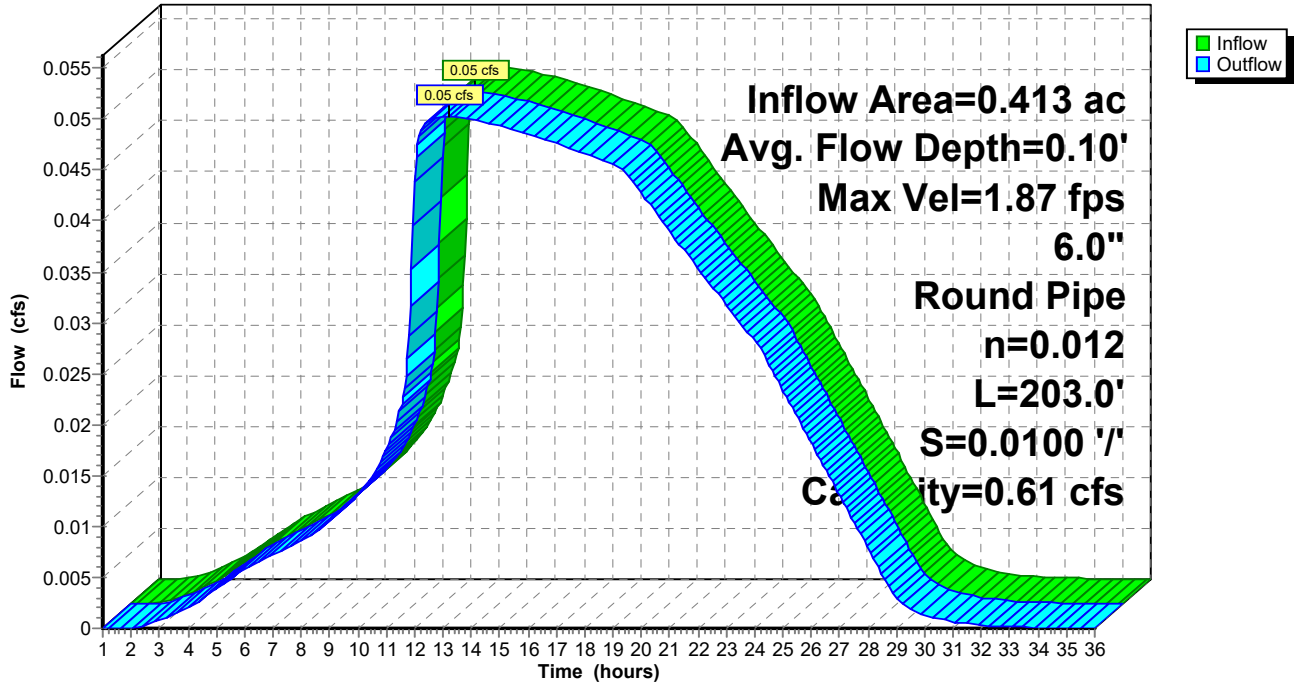
Type II 24-hr 2-YR Rainfall=2.40"

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Reach 3R: Outlet Pipe

Hydrograph



Post-Development

Type II 24-hr 2-YR Rainfall=2.40"

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Summary for Pond 2P: Basin

Inflow Area = 0.413 ac, 63.55% Impervious, Inflow Depth = 1.66" for 2-YR event
 Inflow = 0.94 cfs @ 11.96 hrs, Volume= 0.057 af
 Outflow = 0.05 cfs @ 13.15 hrs, Volume= 0.057 af, Atten= 95%, Lag= 71.3 min
 Discarded = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af
 Primary = 0.05 cfs @ 13.15 hrs, Volume= 0.057 af
 Routed to Reach 3R : Outlet Pipe

Routing by Stor-Ind method, Time Span= 1.00-36.00 hrs, dt= 0.05 hrs
 Peak Elev= 3.70' @ 13.15 hrs Surf.Area= 800 sf Storage= 1,279 cf

Plug-Flow detention time= 270.0 min calculated for 0.057 af (100% of inflow)
 Center-of-Mass det. time= 269.9 min (1,046.9 - 777.0)

Volume	Invert	Avail.Storage	Storage Description			
#1	0.00'	2,184 cf	Custom Stage Data (Irregular) Listed below			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
0.00	800	140.0	0.0	0	0	800
1.00	800	140.0	30.0	240	240	940
3.00	800	140.0	30.0	480	720	1,220
4.67	800	140.0	100.0	1,336	2,056	1,454
4.83	800	140.0	100.0	128	2,184	1,476

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	1.000 in/hr Exfiltration over Wetted area below -5.00' Conductivity to Groundwater Elevation = -10.00'
#2	Primary	0.00'	1.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	4.83'	18.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 1.00 hrs HW=0.00' (Free Discharge)
 ↑1=Exfiltration (Controls 0.00 cfs)

Primary OutFlow Max=0.05 cfs @ 13.15 hrs HW=3.70' (Free Discharge)
 ↑2=Orifice/Grate (Orifice Controls 0.05 cfs @ 9.21 fps)
 ↑3=Orifice/Grate (Controls 0.00 cfs)

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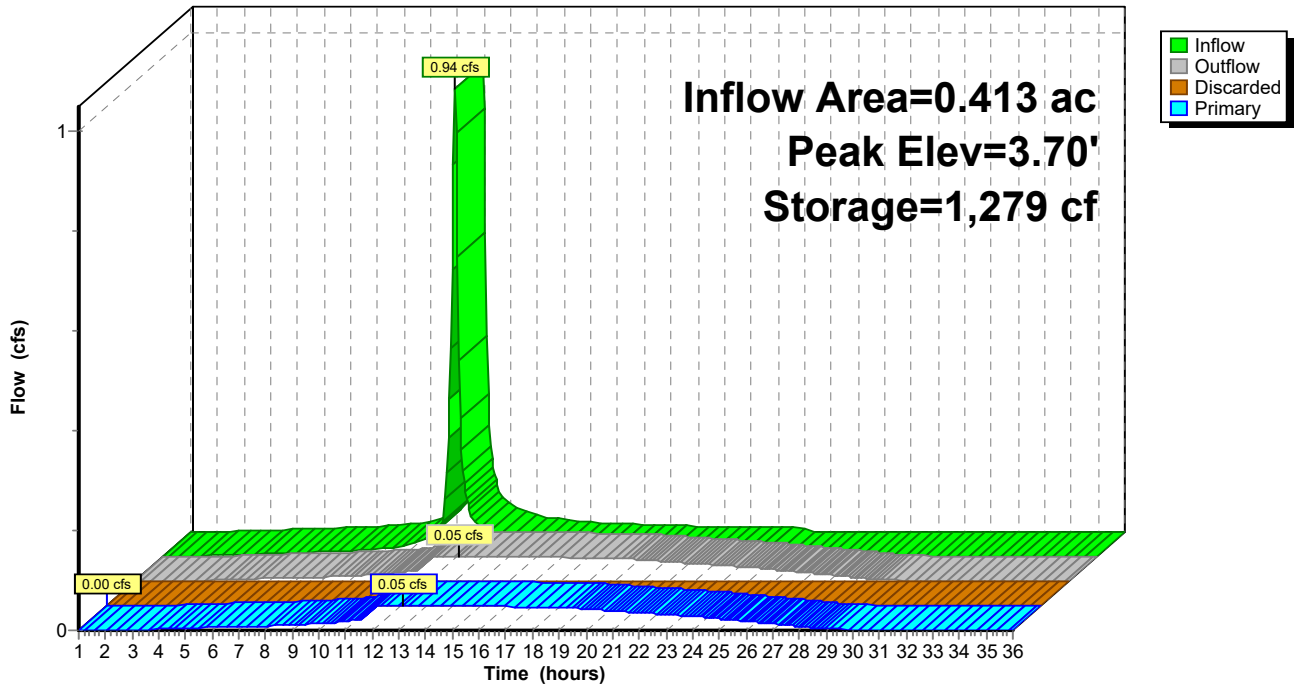
Type II 24-hr 2-YR Rainfall=2.40"

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Pond 2P: Basin

Hydrograph



Post-Development*Type II 24-hr 5-YR Rainfall=2.90"*

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Time span=1.00-36.00 hrs, dt=0.05 hrs, 701 points
 Runoff by SBUH method, Split Pervious/Imperv.
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: A-1

Runoff Area=17,987 sf 63.55% Impervious Runoff Depth=2.10"
 Tc=5.0 min CN=79/98 Runoff=1.18 cfs 0.072 af

Reach 3R: Outlet Pipe

Avg. Flow Depth=0.10' Max Vel=1.91 fps Inflow=0.05 cfs 0.072 af
 6.0" Round Pipe n=0.012 L=203.0' S=0.0100 '/' Capacity=0.61 cfs Outflow=0.05 cfs 0.072 af

Pond 2P: Basin

Peak Elev=4.21' Storage=1,689 cf Inflow=1.18 cfs 0.072 af
 Discarded=0.00 cfs 0.000 af Primary=0.05 cfs 0.072 af Outflow=0.05 cfs 0.072 af

Total Runoff Area = 0.413 ac Runoff Volume = 0.072 af Average Runoff Depth = 2.10"
36.45% Pervious = 0.151 ac 63.55% Impervious = 0.262 ac

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Type II 24-hr 5-YR Rainfall=2.90"

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Summary for Subcatchment 1S: A-1

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.18 cfs @ 11.96 hrs, Volume= 0.072 af, Depth= 2.10"
 Routed to Pond 2P : Basin

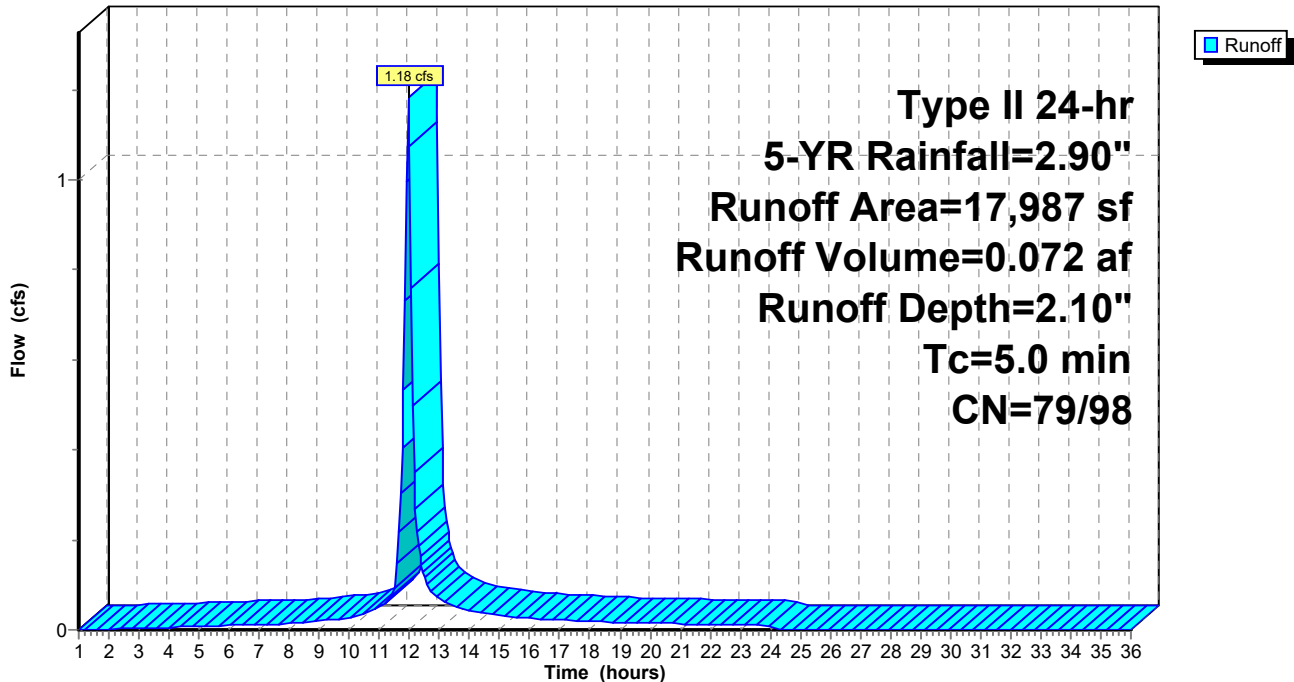
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 1.00-36.00 hrs, dt= 0.05 hrs
 Type II 24-hr 5-YR Rainfall=2.90"

	Area (sf)	CN	Description
*	11,431	98	
	6,556	79	50-75% Grass cover, Fair, HSG C
	17,987	91	Weighted Average
	6,556	79	36.45% Pervious Area
	11,431	98	63.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S: A-1

Hydrograph



Post-Development*Type II 24-hr 5-YR Rainfall=2.90"*

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Summary for Reach 3R: Outlet Pipe

[52] Hint: Inlet/Outlet conditions not evaluated

[65] Warning: Inlet elevation not specified

[79] Warning: Submerged Pond 2P Primary device # 2 by 0.10'

Inflow Area = 0.413 ac, 63.55% Impervious, Inflow Depth > 2.10" for 5-YR event
 Inflow = 0.05 cfs @ 13.45 hrs, Volume= 0.072 af
 Outflow = 0.05 cfs @ 13.50 hrs, Volume= 0.072 af, Atten= 0%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-36.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.91 fps, Min. Travel Time= 1.8 min

Avg. Velocity = 1.35 fps, Avg. Travel Time= 2.5 min

Peak Storage= 6 cf @ 13.47 hrs

Average Depth at Peak Storage= 0.10' , Surface Width= 0.40'

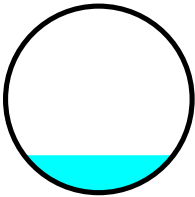
Bank-Full Depth= 0.50' Flow Area= 0.2 sf, Capacity= 0.61 cfs

6.0" Round Pipe

n= 0.012

Length= 203.0' Slope= 0.0100 '/'

Inlet Invert= 0.00', Outlet Invert= -2.03'



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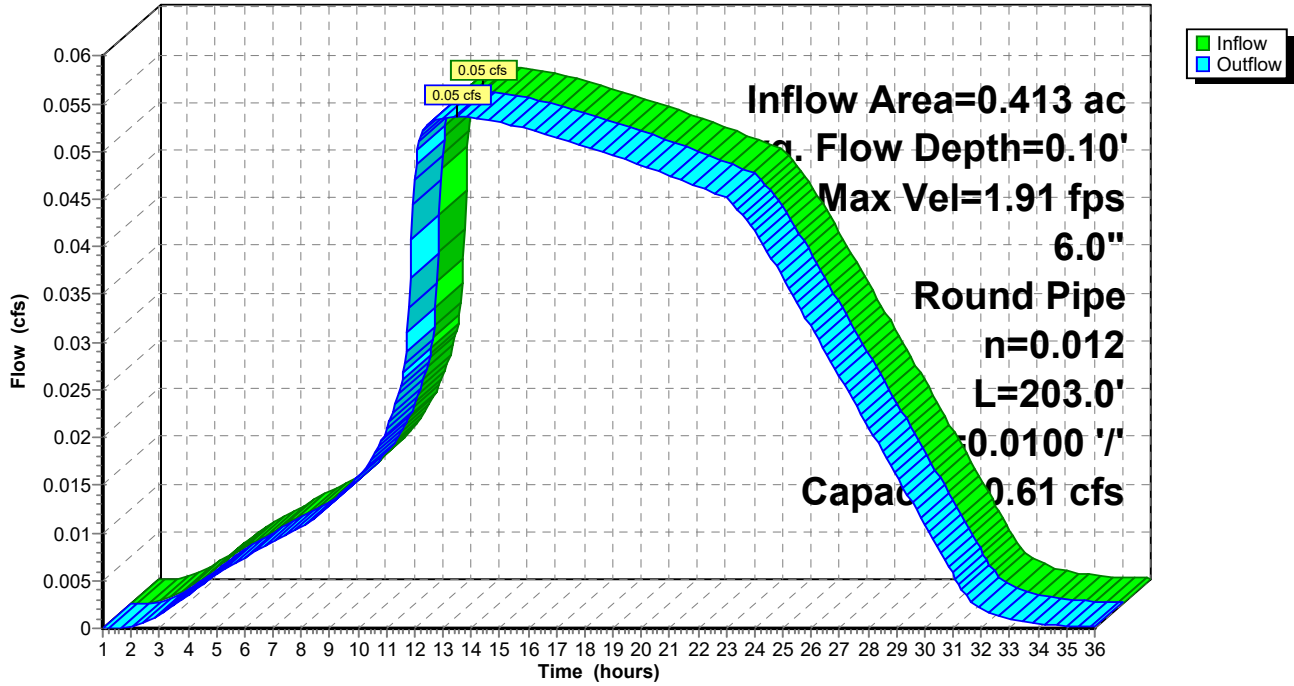
Type II 24-hr 5-YR Rainfall=2.90"

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Reach 3R: Outlet Pipe

Hydrograph



Post-Development

Type II 24-hr 5-YR Rainfall=2.90"

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Summary for Pond 2P: Basin

Inflow Area = 0.413 ac, 63.55% Impervious, Inflow Depth = 2.10" for 5-YR event
 Inflow = 1.18 cfs @ 11.96 hrs, Volume= 0.072 af
 Outflow = 0.05 cfs @ 13.45 hrs, Volume= 0.072 af, Atten= 95%, Lag= 89.7 min
 Discarded = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af
 Primary = 0.05 cfs @ 13.45 hrs, Volume= 0.072 af
 Routed to Reach 3R : Outlet Pipe

Routing by Stor-Ind method, Time Span= 1.00-36.00 hrs, dt= 0.05 hrs
 Peak Elev= 4.21' @ 13.45 hrs Surf.Area= 800 sf Storage= 1,689 cf

Plug-Flow detention time= 333.8 min calculated for 0.072 af (100% of inflow)
 Center-of-Mass det. time= 334.0 min (1,107.7 - 773.7)

Volume	Invert	Avail.Storage	Storage Description			
#1	0.00'	2,184 cf	Custom Stage Data (Irregular) Listed below			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
0.00	800	140.0	0.0	0	0	800
1.00	800	140.0	30.0	240	240	940
3.00	800	140.0	30.0	480	720	1,220
4.67	800	140.0	100.0	1,336	2,056	1,454
4.83	800	140.0	100.0	128	2,184	1,476

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	1.000 in/hr Exfiltration over Wetted area below -5.00' Conductivity to Groundwater Elevation = -10.00'
#2	Primary	0.00'	1.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	4.83'	18.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 1.00 hrs HW=0.00' (Free Discharge)
 ↑1=Exfiltration (Controls 0.00 cfs)

Primary OutFlow Max=0.05 cfs @ 13.45 hrs HW=4.21' (Free Discharge)
 ↑2=Orifice/Grate (Orifice Controls 0.05 cfs @ 9.83 fps)
 ↑3=Orifice/Grate (Controls 0.00 cfs)

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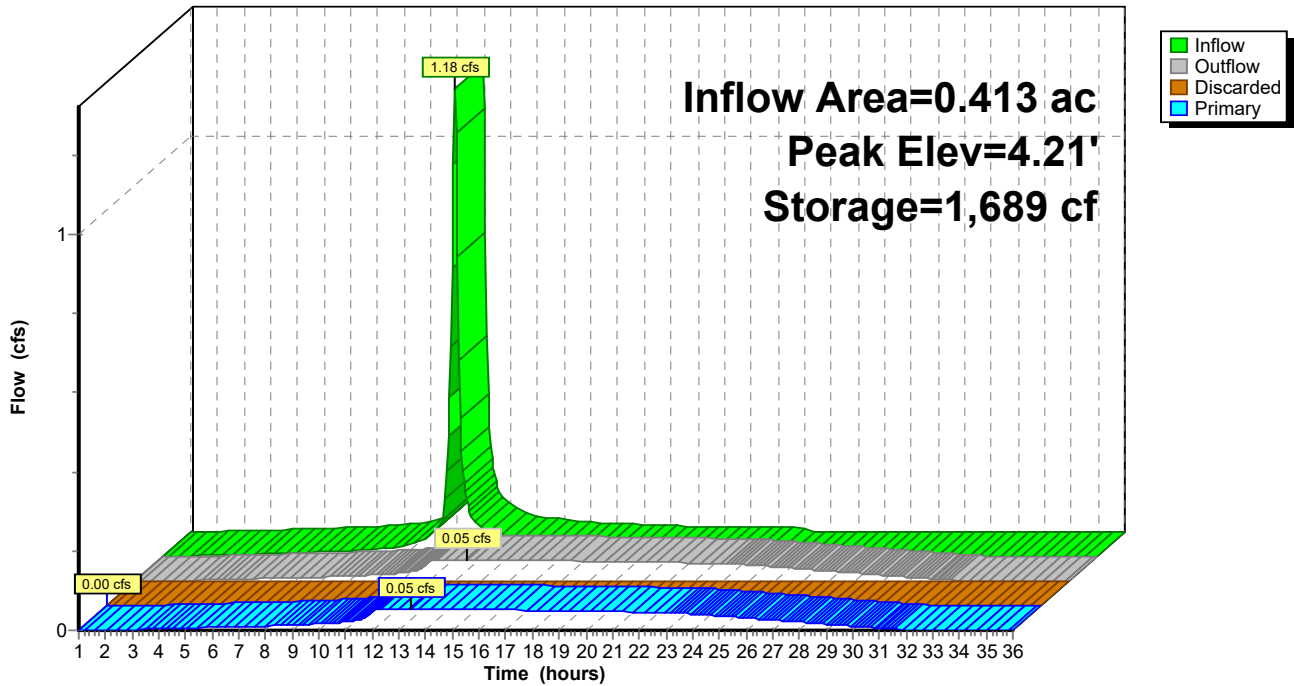
Type II 24-hr 5-YR Rainfall=2.90"

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Pond 2P: Basin

Hydrograph



Post-Development*Type II 24-hr 10-YR Rainfall=3.40"*

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Time span=1.00-36.00 hrs, dt=0.05 hrs, 701 points
 Runoff by SBUH method, Split Pervious/Imperv.
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: A-1

Runoff Area=17,987 sf 63.55% Impervious Runoff Depth=2.56"
 Tc=5.0 min CN=79/98 Runoff=1.44 cfs 0.088 af

Reach 3R: Outlet Pipe

Avg. Flow Depth=0.10' Max Vel=1.94 fps Inflow=0.06 cfs 0.088 af
 6.0" Round Pipe n=0.012 L=203.0' S=0.0100 '/' Capacity=0.61 cfs Outflow=0.06 cfs 0.088 af

Pond 2P: Basin

Peak Elev=4.75' Storage=2,124 cf Inflow=1.44 cfs 0.088 af
 Discarded=0.00 cfs 0.000 af Primary=0.06 cfs 0.088 af Outflow=0.06 cfs 0.088 af

Total Runoff Area = 0.413 ac Runoff Volume = 0.088 af Average Runoff Depth = 2.56"
36.45% Pervious = 0.151 ac 63.55% Impervious = 0.262 ac

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Type II 24-hr 10-YR Rainfall=3.40"

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Summary for Subcatchment 1S: A-1

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.44 cfs @ 11.96 hrs, Volume= 0.088 af, Depth= 2.56"
 Routed to Pond 2P : Basin

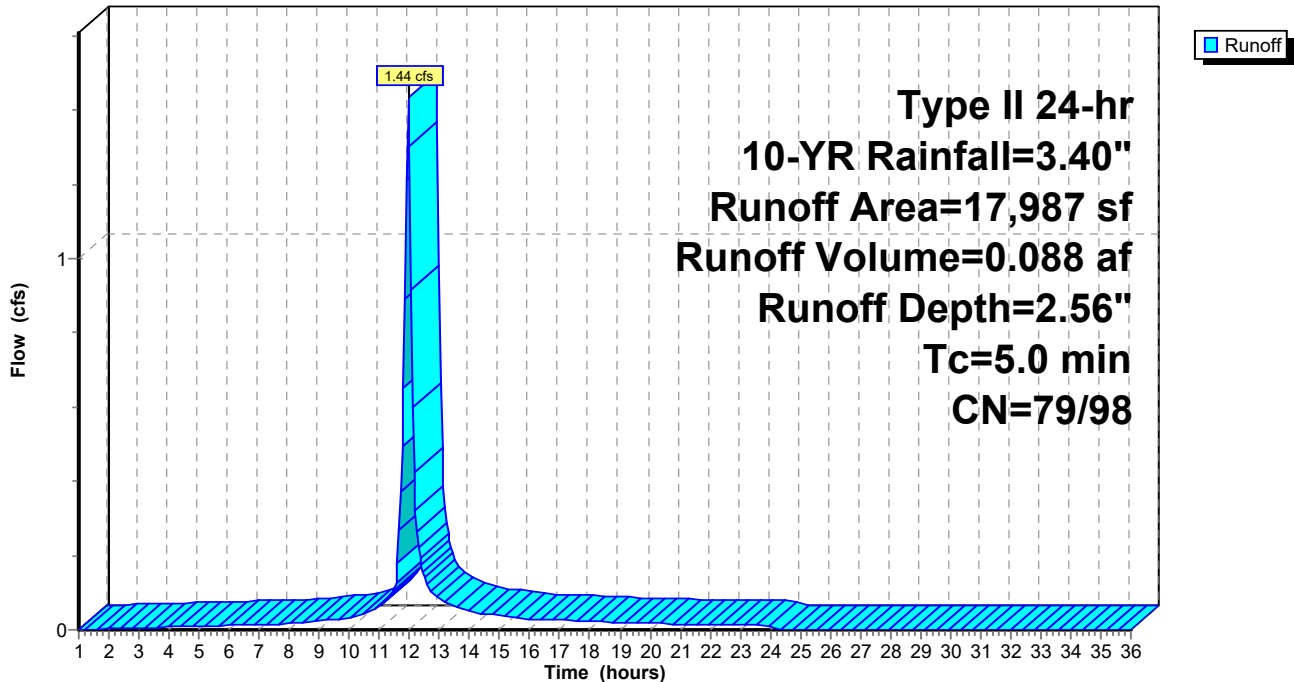
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 1.00-36.00 hrs, dt= 0.05 hrs
 Type II 24-hr 10-YR Rainfall=3.40"

	Area (sf)	CN	Description
*	11,431	98	
	6,556	79	50-75% Grass cover, Fair, HSG C
	17,987	91	Weighted Average
	6,556	79	36.45% Pervious Area
	11,431	98	63.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S: A-1

Hydrograph



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Type II 24-hr 10-YR Rainfall=3.40"

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Summary for Reach 3R: Outlet Pipe

[52] Hint: Inlet/Outlet conditions not evaluated

[65] Warning: Inlet elevation not specified

[79] Warning: Submerged Pond 2P Primary device # 2 by 0.10'

Inflow Area = 0.413 ac, 63.55% Impervious, Inflow Depth > 2.55" for 10-YR event
 Inflow = 0.06 cfs @ 13.69 hrs, Volume= 0.088 af
 Outflow = 0.06 cfs @ 13.74 hrs, Volume= 0.088 af, Atten= 0%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-36.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.94 fps, Min. Travel Time= 1.7 min

Avg. Velocity = 1.49 fps, Avg. Travel Time= 2.3 min

Peak Storage= 6 cf @ 13.72 hrs

Average Depth at Peak Storage= 0.10' , Surface Width= 0.41'

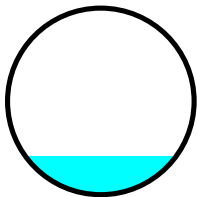
Bank-Full Depth= 0.50' Flow Area= 0.2 sf, Capacity= 0.61 cfs

6.0" Round Pipe

n= 0.012

Length= 203.0' Slope= 0.0100 '/'

Inlet Invert= 0.00', Outlet Invert= -2.03'



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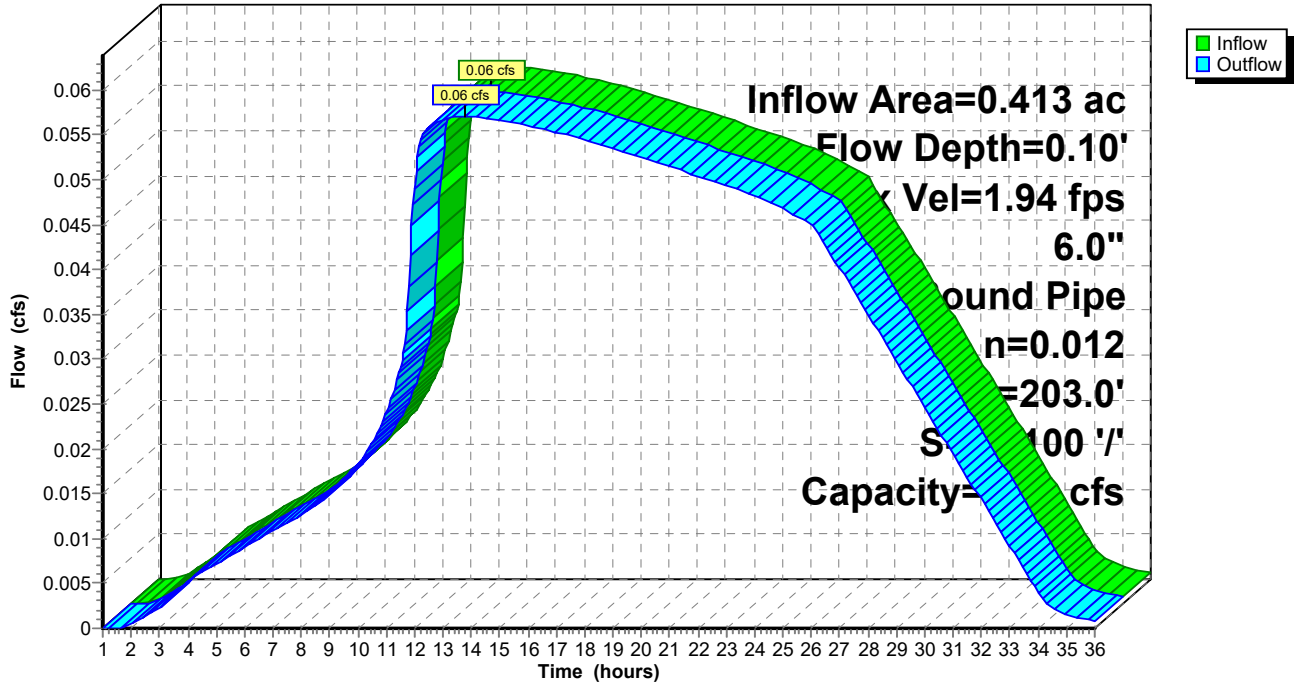
Type II 24-hr 10-YR Rainfall=3.40"

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Reach 3R: Outlet Pipe

Hydrograph



Post-Development

Type II 24-hr 10-YR Rainfall=3.40"

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Summary for Pond 2P: Basin

Inflow Area = 0.413 ac, 63.55% Impervious, Inflow Depth = 2.56" for 10-YR event
 Inflow = 1.44 cfs @ 11.96 hrs, Volume= 0.088 af
 Outflow = 0.06 cfs @ 13.69 hrs, Volume= 0.088 af, Atten= 96%, Lag= 104.3 min
 Discarded = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af
 Primary = 0.06 cfs @ 13.69 hrs, Volume= 0.088 af
 Routed to Reach 3R : Outlet Pipe

Routing by Stor-Ind method, Time Span= 1.00-36.00 hrs, dt= 0.05 hrs
 Peak Elev= 4.75' @ 13.69 hrs Surf.Area= 800 sf Storage= 2,124 cf

Plug-Flow detention time= 397.6 min calculated for 0.088 af (100% of inflow)
 Center-of-Mass det. time= 397.1 min (1,168.0 - 770.9)

Volume	Invert	Avail.Storage	Storage Description			
#1	0.00'	2,184 cf	Custom Stage Data (Irregular) Listed below			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
0.00	800	140.0	0.0	0	0	800
1.00	800	140.0	30.0	240	240	940
3.00	800	140.0	30.0	480	720	1,220
4.67	800	140.0	100.0	1,336	2,056	1,454
4.83	800	140.0	100.0	128	2,184	1,476

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	1.000 in/hr Exfiltration over Wetted area below -5.00' Conductivity to Groundwater Elevation = -10.00'
#2	Primary	0.00'	1.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	4.83'	18.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 1.00 hrs HW=0.00' (Free Discharge)
 ↑1=Exfiltration (Controls 0.00 cfs)

Primary OutFlow Max=0.06 cfs @ 13.69 hrs HW=4.75' (Free Discharge)
 ↑2=Orifice/Grate (Orifice Controls 0.06 cfs @ 10.45 fps)
 ↑3=Orifice/Grate (Controls 0.00 cfs)

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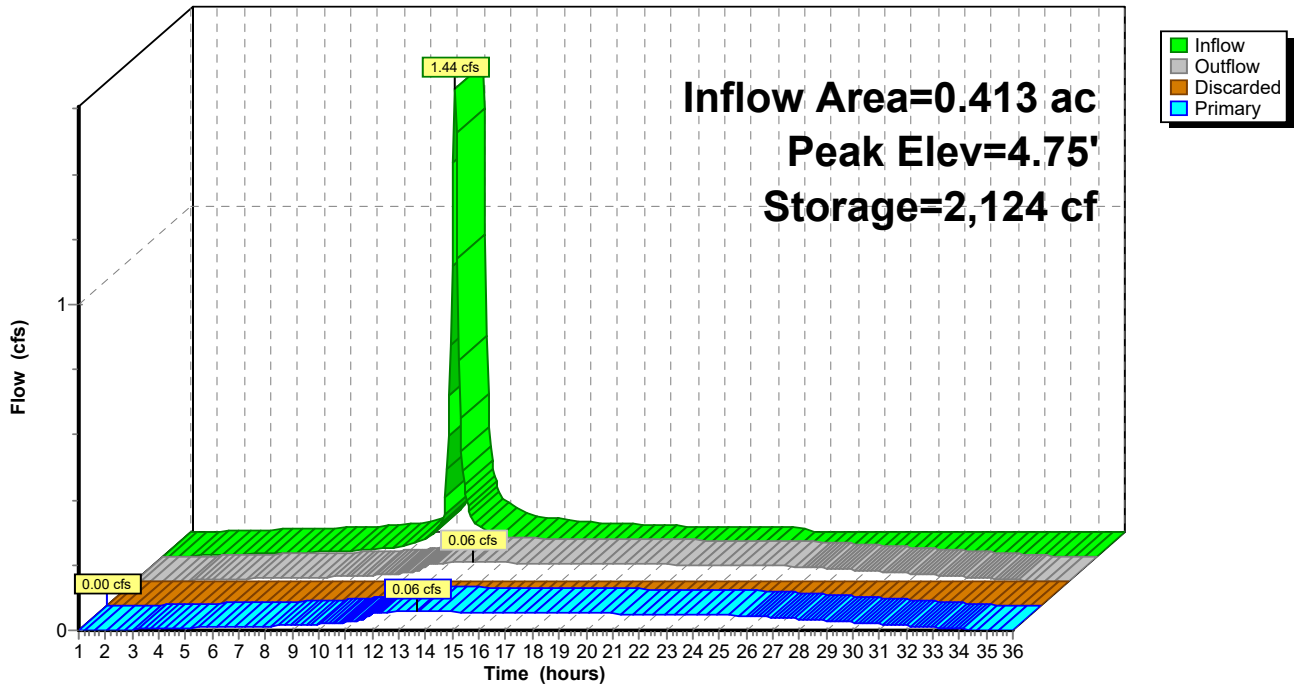
Type II 24-hr 10-YR Rainfall=3.40"

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Pond 2P: Basin

Hydrograph



Post-Development*Type II 24-hr WQV Rainfall=1.61"*

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Time span=1.00-36.00 hrs, dt=0.05 hrs, 701 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: A-1

Runoff Area=17,987 sf 63.55% Impervious Runoff Depth=1.00"

Tc=5.0 min CN=79/98 Runoff=0.56 cfs 0.034 af

Reach 3R: Outlet Pipe

Avg. Flow Depth=0.09' Max Vel=1.81 fps Inflow=0.04 cfs 0.034 af

6.0" Round Pipe n=0.012 L=203.0' S=0.0100 '/' Capacity=0.61 cfs Outflow=0.04 cfs 0.034 af

Pond 2P: Basin

Peak Elev=2.94' Storage=705 cf Inflow=0.56 cfs 0.034 af

Discarded=0.00 cfs 0.000 af Primary=0.04 cfs 0.034 af Outflow=0.04 cfs 0.034 af

Total Runoff Area = 0.413 ac Runoff Volume = 0.034 af Average Runoff Depth = 1.00"**36.45% Pervious = 0.151 ac 63.55% Impervious = 0.262 ac**

Post-Development

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Type II 24-hr WQV Rainfall=1.61"

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Summary for Subcatchment 1S: A-1

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.56 cfs @ 11.96 hrs, Volume= 0.034 af, Depth= 1.00"
 Routed to Pond 2P : Basin

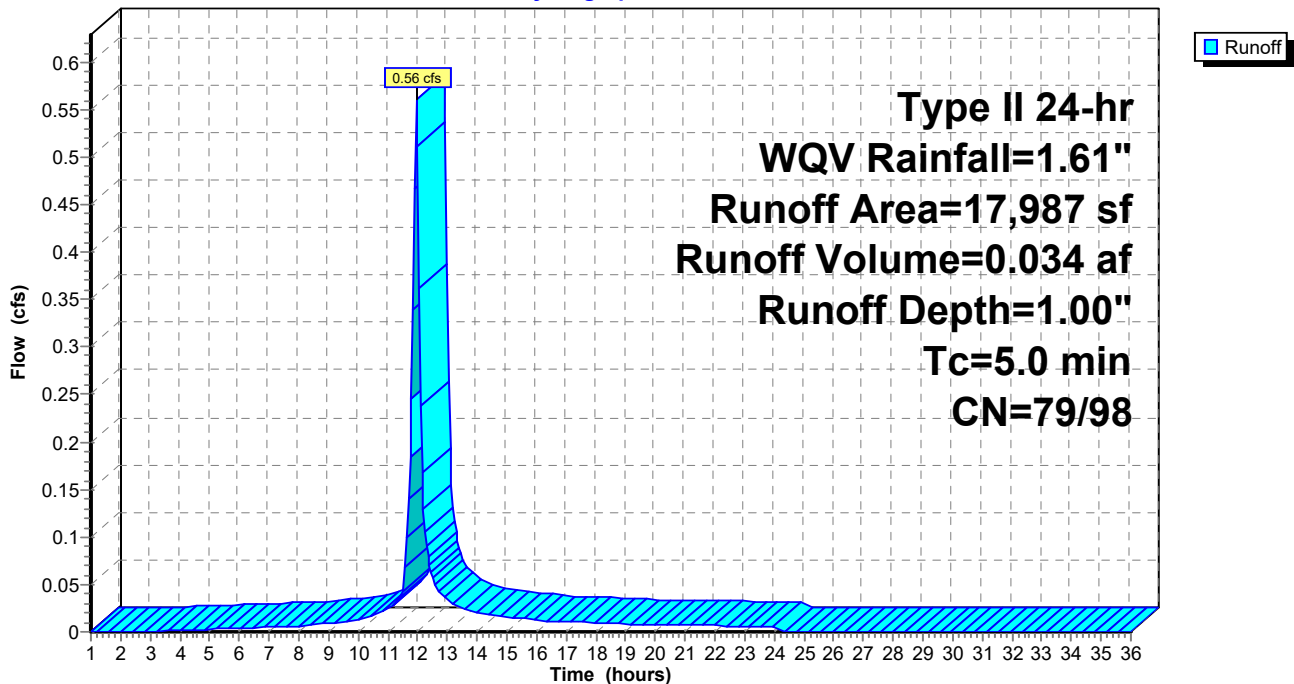
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 1.00-36.00 hrs, dt= 0.05 hrs
 Type II 24-hr WQV Rainfall=1.61"

	Area (sf)	CN	Description
*	11,431	98	
	6,556	79	50-75% Grass cover, Fair, HSG C
	17,987	91	Weighted Average
	6,556	79	36.45% Pervious Area
	11,431	98	63.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S: A-1

Hydrograph



Post-Development

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Type II 24-hr WQV Rainfall=1.61"

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Summary for Reach 3R: Outlet Pipe

[52] Hint: Inlet/Outlet conditions not evaluated

[65] Warning: Inlet elevation not specified

[79] Warning: Submerged Pond 2P Primary device # 2 by 0.09'

Inflow Area = 0.413 ac, 63.55% Impervious, Inflow Depth = 1.00" for WQV event
 Inflow = 0.04 cfs @ 12.65 hrs, Volume= 0.034 af
 Outflow = 0.04 cfs @ 12.71 hrs, Volume= 0.034 af, Atten= 0%, Lag= 3.4 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-36.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.81 fps, Min. Travel Time= 1.9 min

Avg. Velocity = 1.07 fps, Avg. Travel Time= 3.2 min

Peak Storage= 5 cf @ 12.67 hrs

Average Depth at Peak Storage= 0.09' , Surface Width= 0.39'

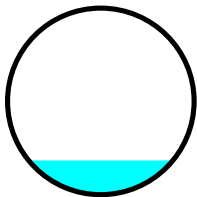
Bank-Full Depth= 0.50' Flow Area= 0.2 sf, Capacity= 0.61 cfs

6.0" Round Pipe

n= 0.012

Length= 203.0' Slope= 0.0100 '/'

Inlet Invert= 0.00', Outlet Invert= -2.03'



Post-Development

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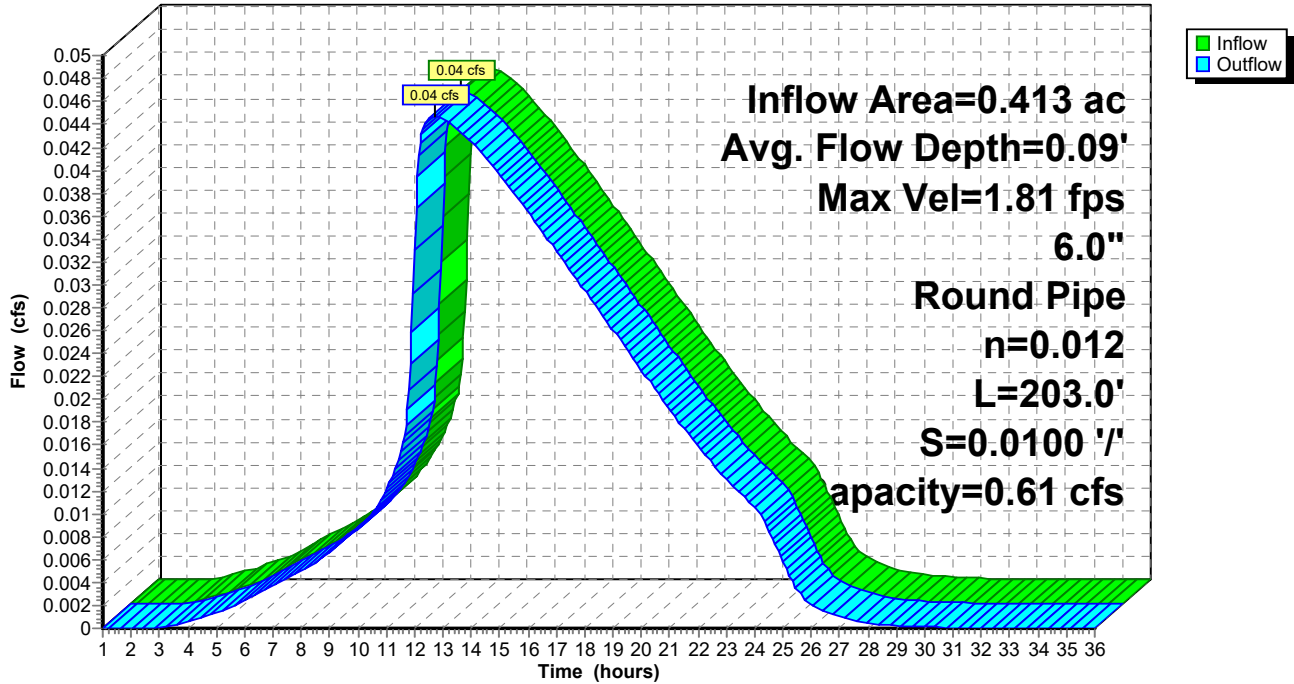
Type II 24-hr WQV Rainfall=1.61"

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Reach 3R: Outlet Pipe

Hydrograph



Post-Development

Type II 24-hr WQV Rainfall=1.61"

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Summary for Pond 2P: Basin

Inflow Area = 0.413 ac, 63.55% Impervious, Inflow Depth = 1.00" for WQV event
 Inflow = 0.56 cfs @ 11.96 hrs, Volume= 0.034 af
 Outflow = 0.04 cfs @ 12.65 hrs, Volume= 0.034 af, Atten= 92%, Lag= 41.5 min
 Discarded = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af
 Primary = 0.04 cfs @ 12.65 hrs, Volume= 0.034 af
 Routed to Reach 3R : Outlet Pipe

Routing by Stor-Ind method, Time Span= 1.00-36.00 hrs, dt= 0.05 hrs
 Peak Elev= 2.94' @ 12.65 hrs Surf.Area= 800 sf Storage= 705 cf

Plug-Flow detention time= 179.5 min calculated for 0.034 af (100% of inflow)
 Center-of-Mass det. time= 179.7 min (964.2 - 784.5)

Volume	Invert	Avail.Storage	Storage Description			
#1	0.00'	2,184 cf	Custom Stage Data (Irregular) Listed below			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
0.00	800	140.0	0.0	0	0	800
1.00	800	140.0	30.0	240	240	940
3.00	800	140.0	30.0	480	720	1,220
4.67	800	140.0	100.0	1,336	2,056	1,454
4.83	800	140.0	100.0	128	2,184	1,476

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	1.000 in/hr Exfiltration over Wetted area below -5.00' Conductivity to Groundwater Elevation = -10.00'
#2	Primary	0.00'	1.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	4.83'	18.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 1.00 hrs HW=0.00' (Free Discharge)
 ↑**1=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.04 cfs @ 12.65 hrs HW=2.94' (Free Discharge)
 ↑**2=Orifice/Grate** (Orifice Controls 0.04 cfs @ 8.19 fps)
 ↓**3=Orifice/Grate** (Controls 0.00 cfs)

Post-Development

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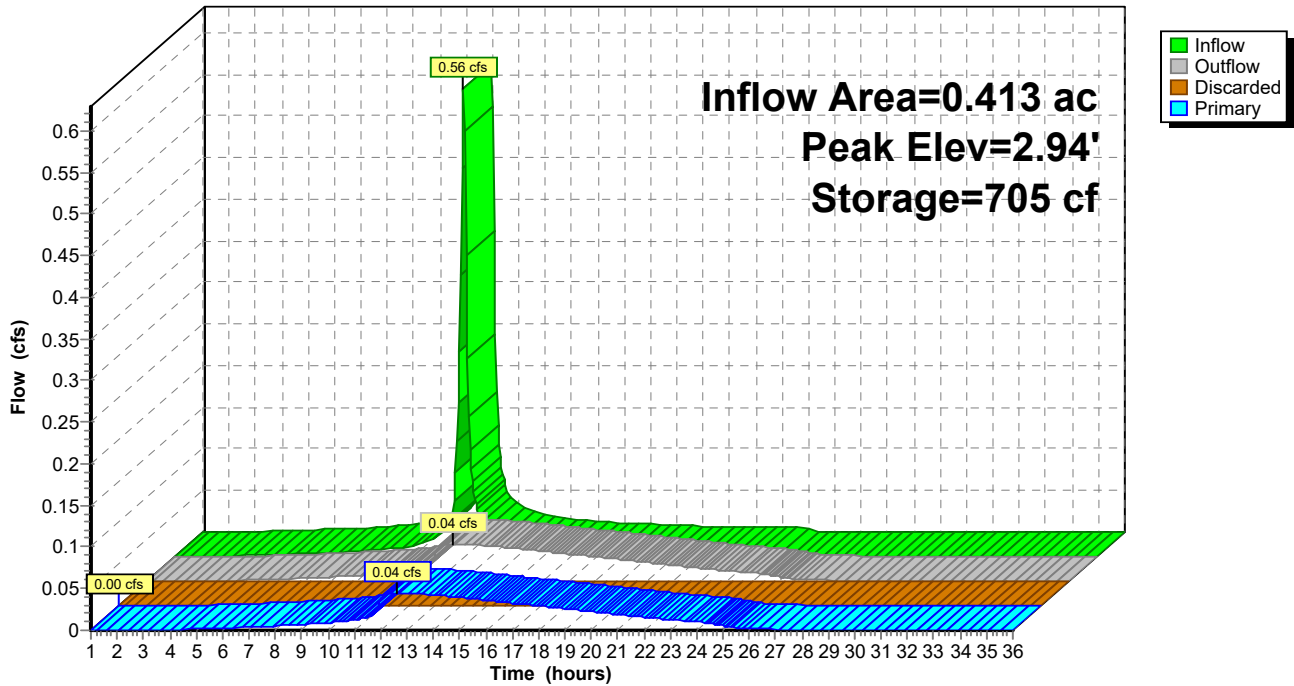
Type II 24-hr WQV Rainfall=1.61"

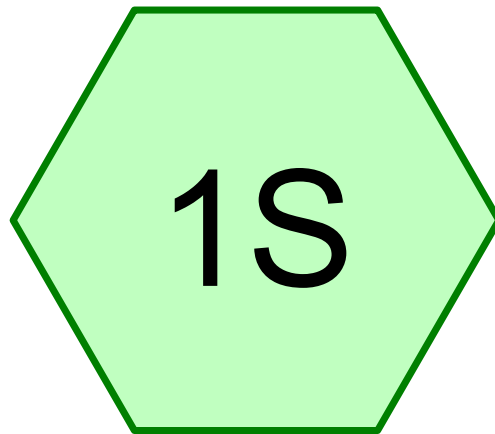
Printed 6/9/2023

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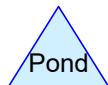
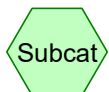
Pond 2P: Basin

Hydrograph





EX



Routing Diagram for Pre-Development
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Pre-Development

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-YR	Type IA 24-hr		Default	24.00	1	2.40	2
2	5-YR	Type IA 24-hr		Default	24.00	1	2.90	2
3	10-YR	Type IA 24-hr		Default	24.00	1	3.40	2

Pre-Development

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.359	79	(1S)
0.054	98	(1S)
0.413	81	TOTAL AREA

Pre-Development

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.413	Other	1S
0.413		TOTAL AREA

Pre-Development

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.413	0.413		1S
0.000	0.000	0.000	0.000	0.413	0.413	TOTAL AREA	

Pre-Development*Type IA 24-hr 2-YR Rainfall=2.40"*

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Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: EX

Runoff Area=17,987 sf 13.13% Impervious Runoff Depth>0.93"

Flow Length=115' Slope=0.0610 '/' Tc=8.1 min CN=79/98 Runoff=0.08 cfs 0.032 af

Total Runoff Area = 0.413 ac Runoff Volume = 0.032 af Average Runoff Depth = 0.93"**86.87% Pervious = 0.359 ac 13.13% Impervious = 0.054 ac**

Pre-Development

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Type IA 24-hr 2-YR Rainfall=2.40"

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Summary for Subcatchment 1S: EX

Runoff = 0.08 cfs @ 8.00 hrs, Volume= 0.032 af, Depth> 0.93"

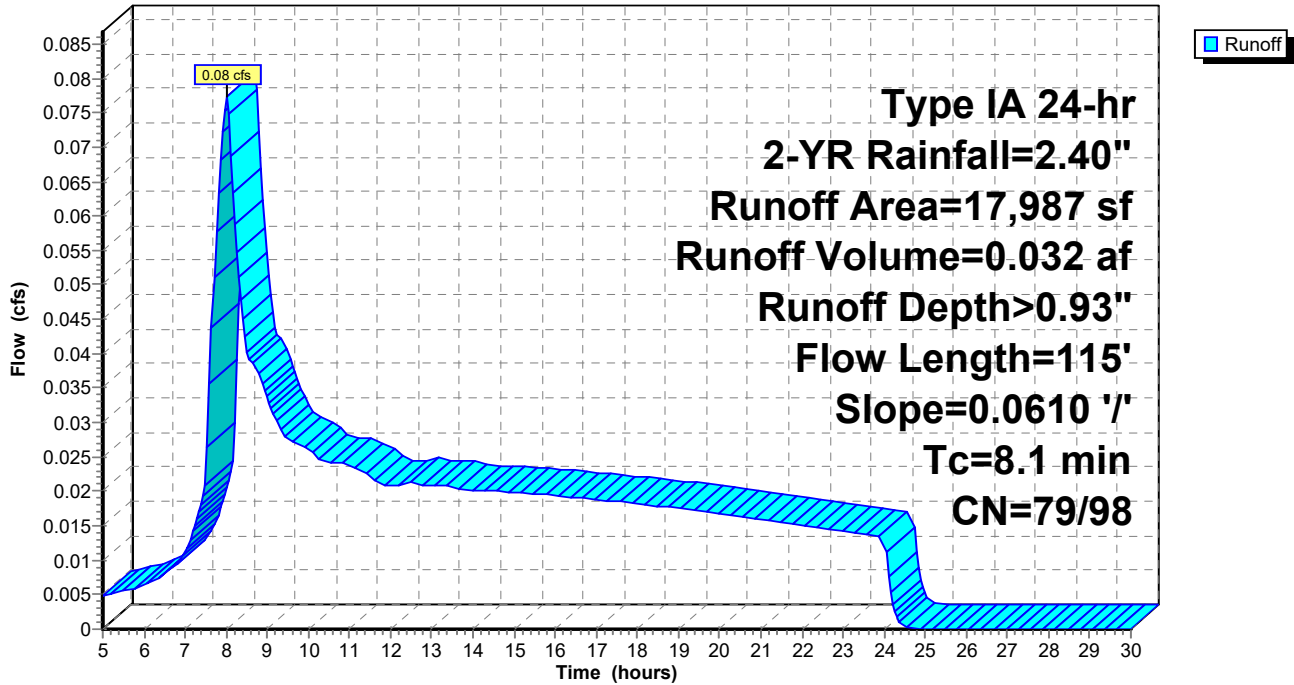
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2-YR Rainfall=2.40"

	Area (sf)	CN	Description
*	15,625	79	
*	2,362	98	
	17,987	81	Weighted Average
	15,625	79	86.87% Pervious Area
	2,362	98	13.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	115	0.0610	0.24		Sheet Flow, Grass: Short n= 0.150 P2= 2.40"

Subcatchment 1S: EX

Hydrograph



Pre-Development

Type IA 24-hr 5-YR Rainfall=2.90"

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Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: EX

Runoff Area=17,987 sf 13.13% Impervious Runoff Depth>1.29"

Flow Length=115' Slope=0.0610 '/' Tc=8.1 min CN=79/98 Runoff=0.11 cfs 0.044 af

Total Runoff Area = 0.413 ac Runoff Volume = 0.044 af Average Runoff Depth = 1.29"
86.87% Pervious = 0.359 ac 13.13% Impervious = 0.054 ac

Pre-Development

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Type IA 24-hr 5-YR Rainfall=2.90"

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Summary for Subcatchment 1S: EX

Runoff = 0.11 cfs @ 7.99 hrs, Volume= 0.044 af, Depth> 1.29"

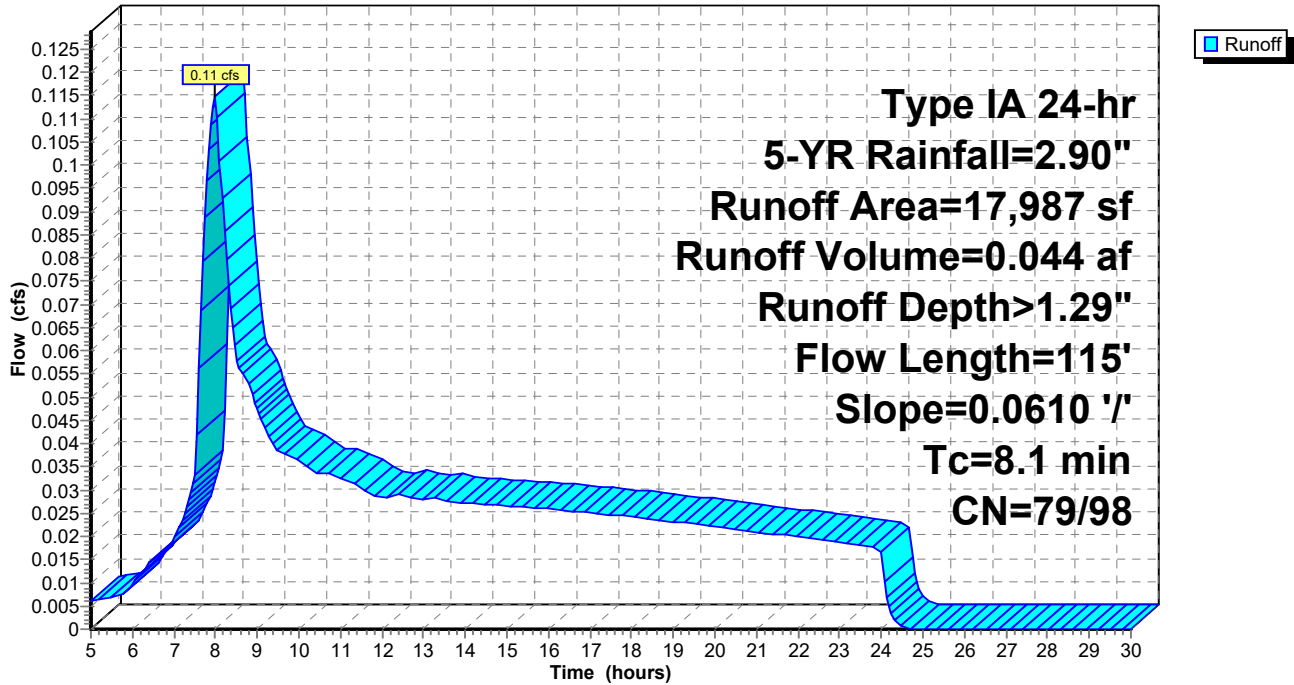
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5-YR Rainfall=2.90"

	Area (sf)	CN	Description
*	15,625	79	
*	2,362	98	
	17,987	81	Weighted Average
	15,625	79	86.87% Pervious Area
	2,362	98	13.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	115	0.0610	0.24		Sheet Flow, Grass: Short n= 0.150 P2= 2.40"

Subcatchment 1S: EX

Hydrograph



Pre-Development

Type IA 24-hr 10-YR Rainfall=3.40"

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Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: EX

Runoff Area=17,987 sf 13.13% Impervious Runoff Depth>1.67"

Flow Length=115' Slope=0.0610 '/' Tc=8.1 min CN=79/98 Runoff=0.16 cfs 0.057 af

Total Runoff Area = 0.413 ac Runoff Volume = 0.057 af Average Runoff Depth = 1.67"
86.87% Pervious = 0.359 ac 13.13% Impervious = 0.054 ac

Pre-Development

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Type IA 24-hr 10-YR Rainfall=3.40"

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Summary for Subcatchment 1S: EX

Runoff = 0.16 cfs @ 7.99 hrs, Volume= 0.057 af, Depth> 1.67"

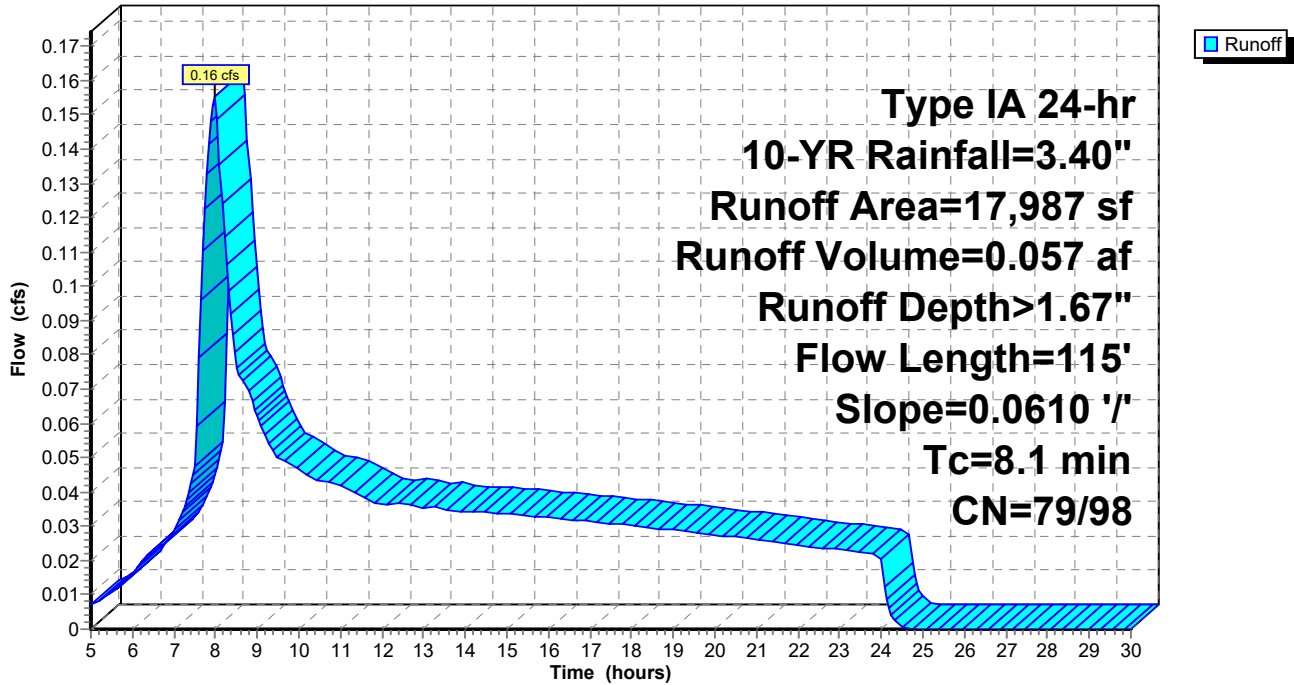
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-YR Rainfall=3.40"

	Area (sf)	CN	Description
*	15,625	79	
*	2,362	98	
	17,987	81	Weighted Average
	15,625	79	86.87% Pervious Area
	2,362	98	13.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	115	0.0610	0.24		Sheet Flow, Grass: Short n= 0.150 P2= 2.40"

Subcatchment 1S: EX

Hydrograph



PAC Report

Project Details

Project Name LAVA	Permit No	Created 5/29/2023 9:10:53 PM
Project Address 1600 SE LAVA DRIVE	Designer	Last Modified 6/9/2023 11:14:27 PM
	Company	Report Generated 6/9/2023 4:39:27 PM

Project Summary

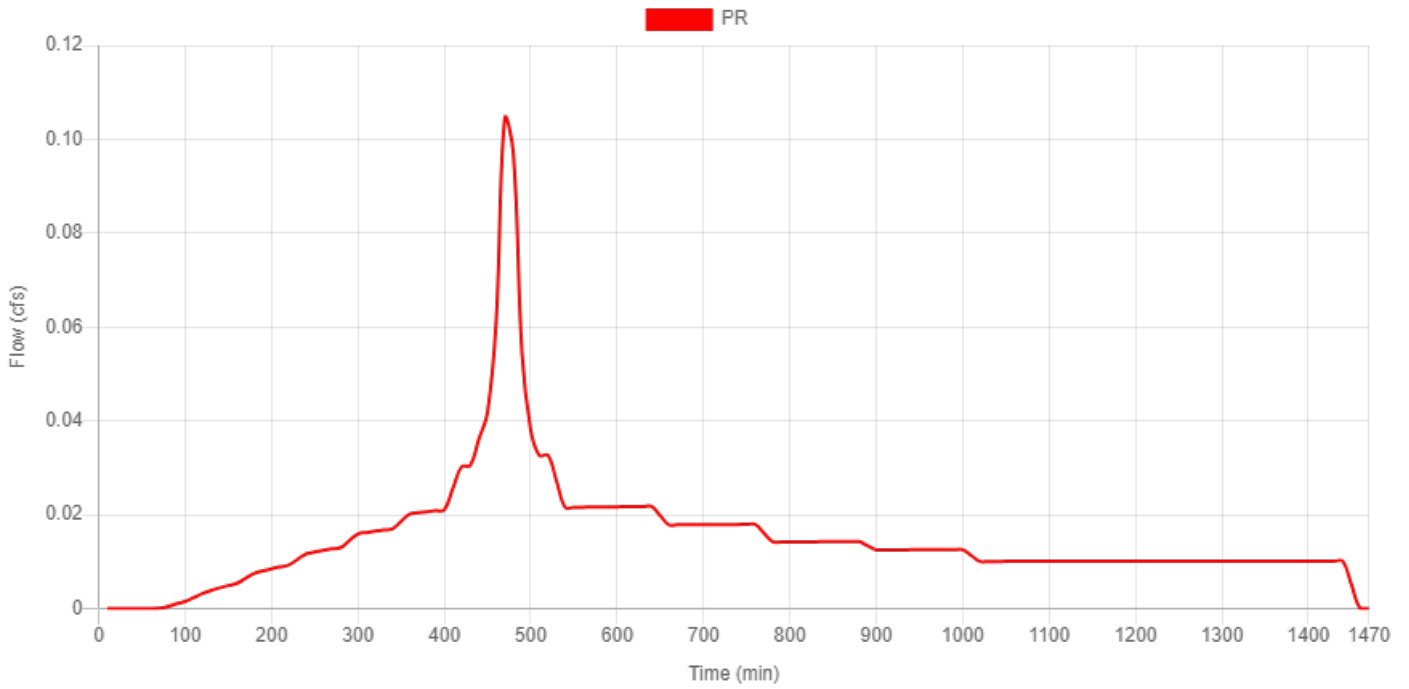
Catchment Name	Imper-vious Area (sq ft)	Native Soil Design Infiltration Rate (in/hr)	Level	Category	Config	Facility Area (excl. free board) (sq ft)	Facility Sizing Ratio (%)	PR Results	Infiltration Results	Flow Control Results
A	11431	1	2A	FlatPlanter	C	679.00	5.94	Pass	NA	NA

A

<p>Site Soils & Infiltration Testing</p>	<p>Infiltration Testing Procedure OpenPit</p> <p>Tested Native Soil Infiltration Rate 2.00 in/hr</p>
<p>Correction Factor</p>	<p>CF test 2</p>
<p>Design Infiltration Rates</p>	<p>Native Soil 1 in/hr</p> <p>Imported Blended Soil 6 in/hr</p>
<p>Catchment Information</p>	<p>Hierarchy Level 2A</p> <p>Hierarchy Description Offsite flow to the Willamette River, Columbia River, or Columbia Slough, or discharge to a storm-only pipe system or the Multnomah County Drainage District System (with capacity) that directly discharges to one of the three waterways named above.</p> <p>Pollution Reduction Requirement Filter the post-development stormwater runoff from the water quality storm event through the blended soil.</p> <p>Infiltration Requirement N/A</p> <p>Flow Control Requirement N/A</p> <p>Impervious Area 11431 sq ft 0.262 acre</p> <p>Pre-Development Time of Concentration (T_{C pre}) 5 min</p> <p>Post-Development Time of Concentration (T_{C post}) 5 min</p> <p>Pre-Development Curve Number (CN_{pre}) 79</p> <p>Post-Development Curve Number (CN_{post}) 98</p>

SBUH Results

Post-Development Runoff



	Pre - Development Rate and Volume		Post - Development Rate and Volume	
	Peak Rate (cfs)	Total Volume (cf)	Peak Rate (cfs)	Total Volume (cf)
PR	0.0087	296.5	0.1044	1322.7

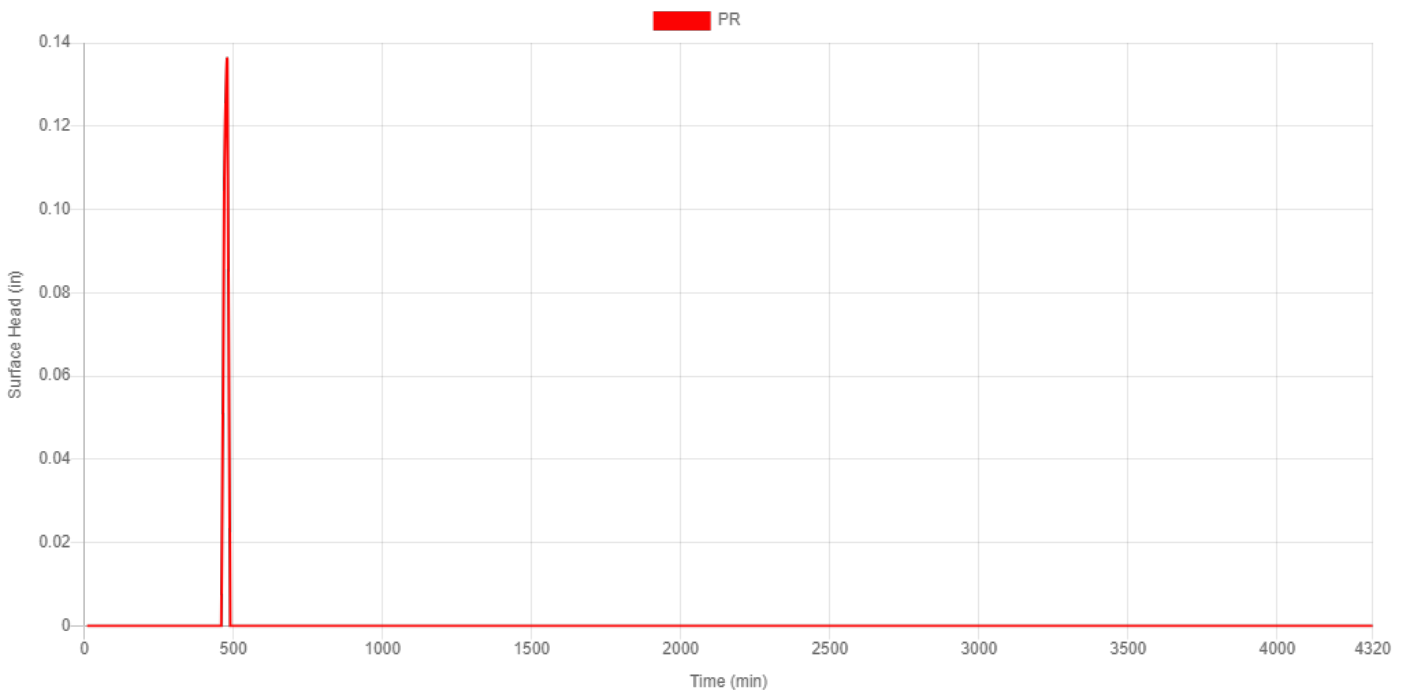
	Overflow		Underdrain Outflow		Infiltration	
	Peak Rate (cfs)	Total Volume (cf)	Peak Rate (cfs)	Total Volume (cf)	Peak Rate (cfs)	Total Volume (cf)
PR	0	0	0.039	387.1	0.016	935.7

Flat Planter

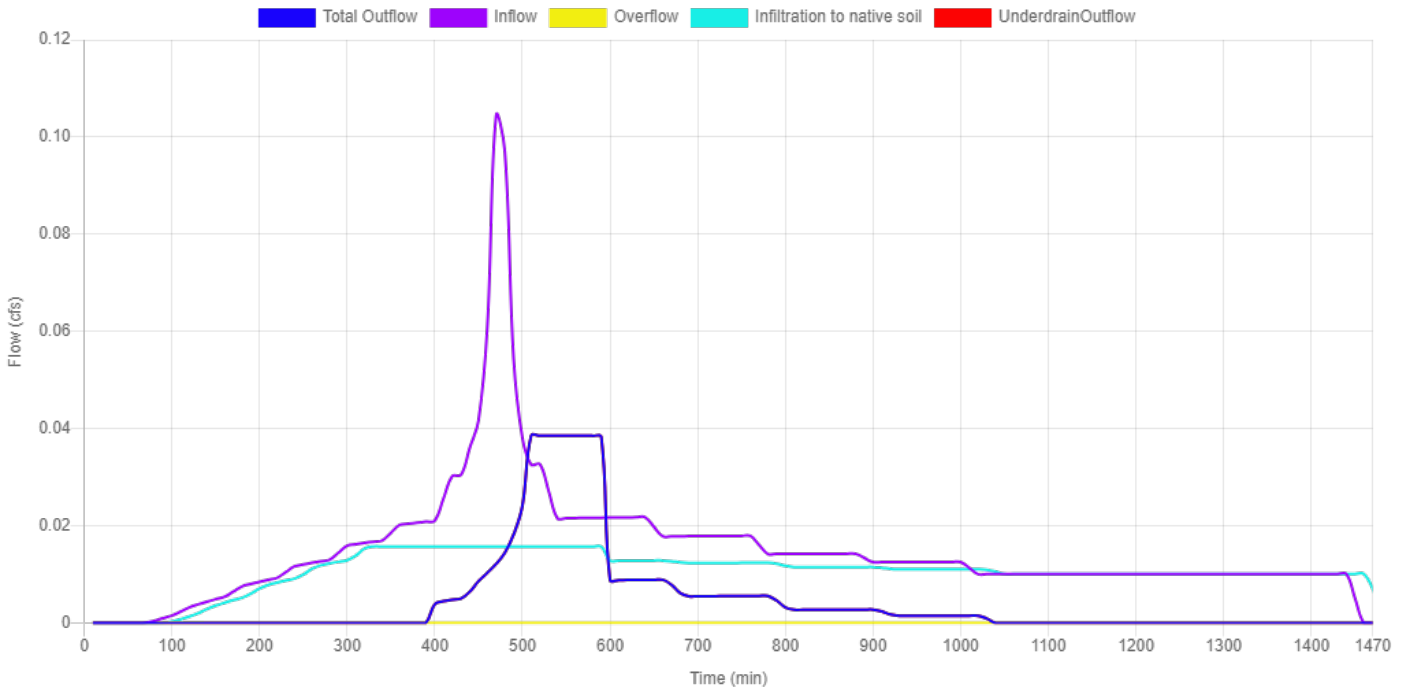
Site Soils & Infiltration Testing	<p>Category Flat Planter</p> <p>Shape Null</p> <p>Location Parcel</p> <p>Configuration C: Infiltration with RS & UnderDrain[Ud]</p> <p>Above Grade Storage Data</p> <p>Bottom Area 679 sq ft</p> <p>Bottom Width 10 ft</p> <p>Overflow Height 20.0 in</p> <p>Total Depth of Blended Soil plus Rock 36 in</p> <p>Surface Storage Capacity at Overflow 1131.67 cu ft</p> <p>Design Infiltration Rate to Soil Underlying the Facility 0.016 cfs</p> <p>Design Infiltration Rate for Imported Blended Soil in the Facility 0.094 cfs</p> <p>Below Grade Storage Data</p> <p>Catchment is too small for flow control? No</p> <p>Rock Area 50.92 sq ft</p> <p>Rock Width 3.00 ft</p> <p>Rock Storage Depth 12.0 in</p> <p>Rock Porosity 0.3</p> <p>Underdrain Height</p>
--	---

	<p>1.0 in</p> <p>Percent of Facility Base that Allows Infiltration</p> <p>100 %</p> <p>Orifice (Y/N)?</p> <p>Yes</p> <p>Orifice Diameter</p> <p>1.000 in</p>
Facility Facts	<p>Total Facility Area (excluding freeboard)</p> <p>679.00 sq ft</p> <p>Sizing Ratio</p> <p>5.94 %</p>
Pollution Reduction Results	<p>Pollution Reduction Score</p> <p>Pass</p> <p>Overflow Volume</p> <p>0.00 cf</p> <p>Surface Capacity Used</p> <p>0.68 %</p>

Surface Head



Water Quality



Water Quality

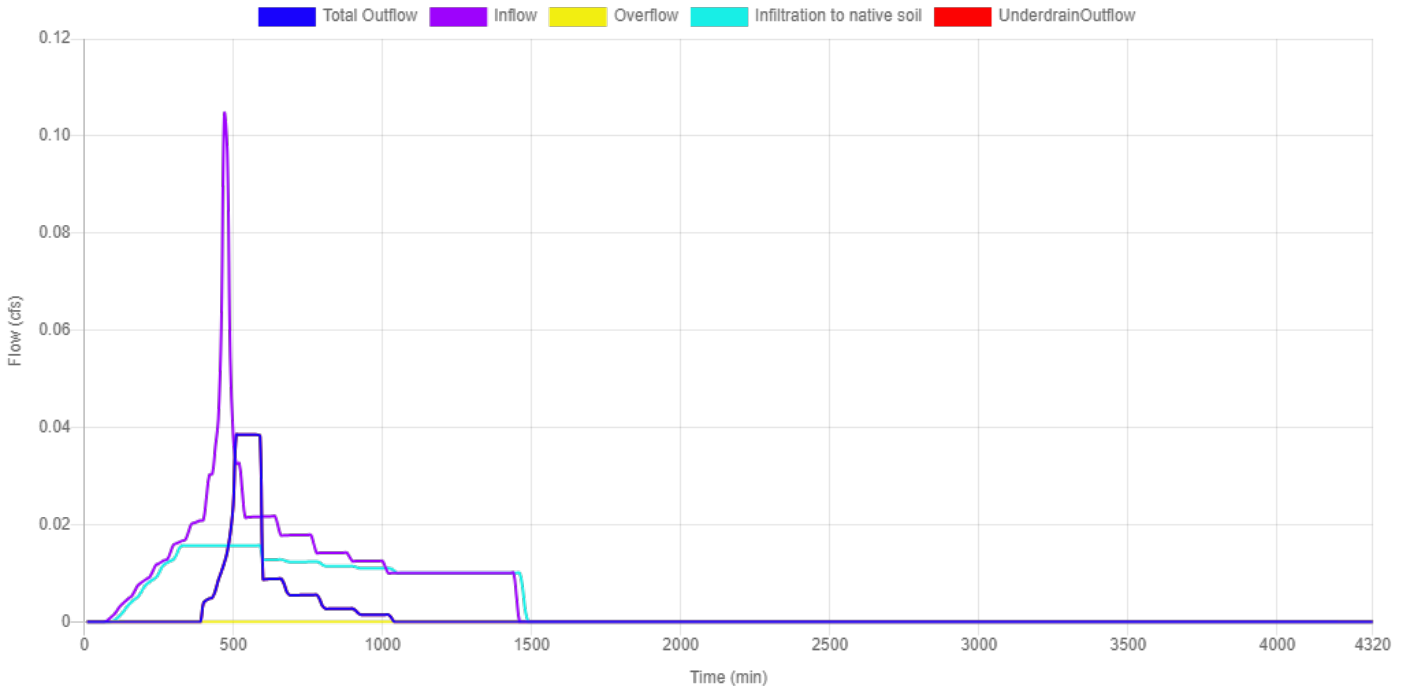


Exhibit M – Arborist Report



Todd Prager & Associates_{LLC}

MEMORANDUM

DATE: July 5, 2023

TO: Gene Bolante (Studio 3 Architecture)

FROM: Christine Johnson, ISA Certified Arborist® PN-8730A

RE: Tree Protection Plan for Proposed Lava Drive Apartments Development
1600 SE Lava Drive, Milwaukie, OR 97206

Summary

A 13-unit multi-family apartment complex is proposed at 1600 SE Lava Drive in Milwaukie, Oregon. Existing trees include three onsite trees and two trees in the abutting right-of-way. The three onsite trees are proposed for removal. This report discusses how the proposed development meets the four standards: preservation, planting, protection, and soil volume. Tree protection fencing is recommended to preserve two right-of-way trees abutting the development site. Twenty-six (26) trees will be planted to meet tree canopy coverage requirements.

Background

The property is zoned high density residential (R-HD). The site area is 17,984 square feet. There are no rare, threatened, or notable trees on the property.

Assignment

The assignment asked of our firm was:

1. Make one site visit to inventory existing onsite, right-of-way, and offsite trees.
2. Prepare a tree plan to meet City of Milwaukie tree code Chapter 16.32.042, Tree Preservation and Planting in Residential Zones.

Tree Inventory

I visited the site on June 23, 2023. Five (5) trees were inventoried (Attachment 1). The following information was collected for each tree: tree number, common name, scientific name, trunk diameter (DBH), canopy radius, canopy area, health condition, structural condition, whether the tree is on the Milwaukie Rare or Threatened Tree List, whether the tree is on the Oregon Noxious Weed List or Milwaukie Invasive Tree List, location (onsite, right-of-way, or offsite), pertinent comments, and treatment (remove or retain).

The tree numbers listed in Attachment 1 correspond to tree numbers on the site plans in Attachments 3 and 4. Trees in the abutting right-of-way are tagged with aluminum tags. Accessible onsite trees were tagged.

Tree Preservation Standards (16.32.042.B)

At least 30 percent site canopy coverage or all existing site canopy coverage when the site has less than 30 percent existing coverage, must be retained unless mitigation is provided. Table 1 is a summary of the mitigation requirements for preservation.

Table 1 Summary of mitigation requirements for preservation.

Onsite canopy after proposed removals	Mitigation fee:	Mitigation fee: Qualified Affordable Housing
<30% - 22.5%	\$4000.00	\$2000.00
<22.5% - 15%	\$4000.00	\$2000.00
<15% - 7.5%	\$4000.00	\$2000.00
<7.5% - 0%	\$4000.00	\$2000.00

There are three existing onsite trees, trees 1, 4 and 5. These trees provide a total of 2,076 square feet or 11.5 percent¹ site canopy coverage. All three trees are proposed for removal to facilitate development.

Table 2 is a summary of the tree preservation standards and applicable mitigation requirements.

Table 2 Tree preservation and mitigation requirements for this project.

Site Area	40% Site Area	Existing Canopy	Retained Canopy	Mitigation Fee
17,984 ft ²	7,194 ft ²	2,076 ft ² (11.5%)	0 ft ² (0%)	\$4,000.00

Tree Planting Standards (16.32.042.C)

To achieve 40 percent canopy coverage 7,194 square feet of tree canopy is needed (Table 2).

A variety of trees selected from the City of Milwaukie’s Tree Crown Area Reference List are proposed; there are also four cultivars not on the City’s list proposed (Attachment 2). The minimum size of planted trees is 1.5-inch caliper for broadleaf trees. The proposed species and quantities are listed in Attachment 2 and the planting plan is provided in Attachment 5. Trees included in the canopy coverage calculation have access to more than 1,000 cubic feet of soil. Root barriers that extend a minimum of 18 inches deep are proposed near sidewalks and curbs (Attachment 5).

Mitigation Standards (16.32.042.D)

Preservation standard

The existing trees provide a small percentage of site canopy coverage and are proposed for removal. Two existing trees abutting right-of-way provide 423 square feet of canopy coverage and will be preserved. Thus, a tree preservation mitigation fee of \$4,000 is required as summarized in Table 2 above, and planting is required to meet site canopy coverage requirements.

¹The crown areas of trees 1, 4 and 5 is 2,076; 2,076 ÷ 17,984 = 11.5 %.

Planting standard

The tree canopy needed to reach 40 percent coverage is 7,194 square feet. Twenty-one (21) proposed private trees and five (5) proposed street trees combined with two (2) existing right-of-way trees will provide a total of 7,372 square feet of canopy coverage (Attachment 2). Please note that adjustments to the tree planting plan may need to be made if planned trees are unavailable. Equivalent trees listed on the City of Milwaukie Tree Crown Area Reference List will be selected if selected trees and shrubs are unavailable.

Tree Protection Standards (16.32.042.F)

A typical minimum tree protection zone allows encroachments no closer than a radius from a tree of .5 feet per inch of DBH if no more than 25 percent of the root protection zone area (estimated at one foot radius per inch of DBH) is impacted. Figure 1 illustrates this concept.

The proximity of development to tree 2 requires a performance path for tree protection so that there may be sufficient room to construct the apartment building and amend soil disturbed by construction. Tree protection fencing is to be set at the property line as shown on Attachment 4. Tree protection fencing is set 7 feet west of tree 2.

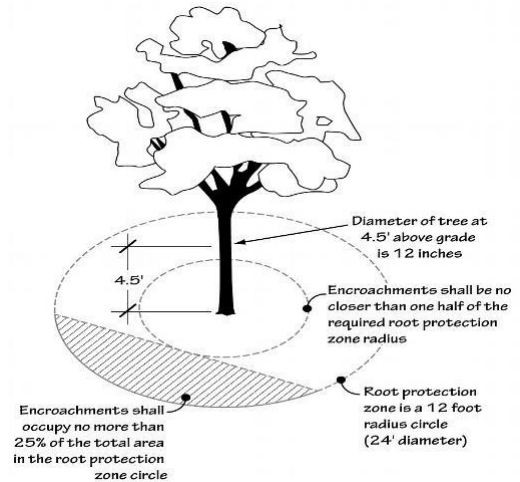


Figure 1: Typical minimum protection zone

The following performance path tree protection measures are recommended to retain the two abutting trees:

- 1. Tree protection fencing – Approximately 170 linear feet:**
 - a. *Height:* Provide a minimum 4-foot-high metal fence.
 - b. *Posts & Spacing:* Place 6-foot-high metal stakes no more than 10-feet apart.
 - c. *Existing Grade:* Install fencing flush with the initial undisturbed grade of the protection zone.
 - d. *Locations:* Install fencing as shown in Attachment 4.
 - e. *Staking:* Stake the footers into the ground so the fence cannot be easily moved.
- 2. Tree protection signage:**
 - a. Weatherproof tree protection signage shall be placed on tree protection fencing.
 - b. Signage should be placed at intervals of every fence panel/section.
 - c. See Attachment 7 for an example tree protection sign.
- 3. Tree protection fencing maintenance and removal:**
 - a. *Maintenance:* Maintain protection fencing in good effective condition at the approved and inspected location. Fencing that is damaged during site work shall be repaired and placed in the approved location prior to resuming work in the area. Failure to maintain tree protection fencing in the approved locations may result in a code violation.
 - b. *Removal:* Fencing must remain in place for the duration of the project until the final inspection.

4. **Erosion control:** Straw wattles should be used as erosion control on the east perimeter where tree protection fencing exists. Do not trench or use sediment fencing where soil and root protection is proposed.
5. **Report sharing:** Share this report in its entirety with the project team and construction staff.
6. **Additional tree protection recommendations:** Additional tree protection recommendations that generally apply to construction projects are provided in Attachment 8.

Soil Volume Standards (16.32.042.G)

A performance path approach for soil volume is proposed (Attachment 5). Soil on the site is classified as 71B – Quatama loam (Attachment 6). This is a moderately well-draining loam soil suitable for planting. That said, the site is being modified to a 13-unit apartment complex and requires onsite stormwater management. It is impractical to protect the majority of the existing soil during construction due to the close proximity of proposed buildings and site improvements.

The following soil management practices are recommended to meet the required 1,000 cubic feet of soil volume with the capacity to support healthy growth to maturity per tree to be planted:

1. **Soil testing and soil amendments.** After grading is completed, the compacted soil shall be tilled and amended with either an amended soil blend or compost to a depth of at least 24-inches deep. A soil test is recommended to determine the best soil treatment.

Submittal Requirements (16.32.042.H)

Requirements outlined in Subsection 16.32.042.H.4 are discussed below.

- a. ***Provide a written narrative that summarizes the information from the tree inventory, tree preservation plan, and tree canopy plan.***

This report shall serve as the written narrative report that summarizes the information from the tree inventory (Attachment 1), tree preservation plan (Attachment 3), and tree planting plan (Attachment 5). Therefore, this requirement is met.

- b. ***Provide findings and calculations that demonstrate whether the tree preservation standards in Subsection 16.32.042.B have been met.***

No onsite trees will be preserved. The existing tree canopy will be reduced from 11.5 to 0 percent. Therefore, a tree preservation mitigation fee of \$4,000.00 is required.

- c. ***Provide findings and calculations that demonstrate whether the tree planting standards in Subsection 16.32.042.C have been met.***

Tree planting standards have been met through tree planting. Twenty-one (21) private trees and five (5) street trees are proposed for planting (Attachment 5). Calculations are provided in Attachment 2. Therefore, this requirement is met.

- d. ***If the tree preservation and/or tree planting standards have not been met, provide calculations for the applicable tree mitigation fees as required by Subsection 16.32.042.D.***

The tree preservation plan and tree planting plan standards have been met through a combination of tree preservation mitigation fees and tree planting. The preservation

standard will be met through payment of applicable fees of \$4,000 and 26 trees will be planted to meet the tree planting standard.

- e. If the applicant is seeking a variance to the tree preservation and/or tree planting standards in place of providing mitigation fees, provide findings that demonstrate the proposal provides equivalent or greater environmental benefits as preserving or planting the required tree canopy consistent as required by Subsection 16.32.042.E.***

The applicant is not seeking a variance to the tree preservation and/or tree planting standards. Therefore, this standard is not applicable.

- f. Provide findings that demonstrate compliance with the tree protection standards in Subsection 16.32.042.F.***

The recommended tree protection measures are in compliance with tree protection standards as described in the above paragraphs, in Attachment 4, and in Attachment 8. Therefore, this standard has been met.

- g. Provide findings that demonstrate compliance with the soil volume standards in Subsection 16.32.042.G.***

At least 1,000 cubic feet of soil volume is provided for every plant that is being applied toward meeting the City's canopy coverage requirement. The planting plan shows the areas of the site where soil will be undisturbed behind tree protection fencing and areas where soil will be amended for proposed plantings (Attachment 5). Therefore, this standard has been met.

Conclusion

The proposed 13-unit apartment complex at 1600 SE Lava Drive can meet the requirements set forth in the City of Milwaukie's Tree Code Chapter 16.32.042. Two existing trees in the abutting right-of-way will be retained and protected. Twenty-one (21) private trees and five (5) street trees will be planted to meet part of the 40 percent tree canopy coverage requirement. Fees of \$4,000.00 will be paid to the Tree Fund to meet mitigation standards for tree preservation.

Please let me know if you have any questions about the information or recommendations made in this report.

Sincerely,



Christine Johnson
ISA Certified Arborist®, PN-8730A
ISA Qualified Tree Risk Assessor
Member, American Society of Consulting Arborists
christine@toddprager.com | 971.978.9381

Enclosures: Attachment 1 – Tree Inventory
Attachment 2 – Tree Canopy Coverage Calculations
Attachment 3 – Existing Conditions Plan
Attachment 4 – Tree Preservation Plan
Attachment 5 – Tree Planting Plan and Soil Plan
Attachment 6 – Soil Map
Attachment 7 – Tree Protection Signage
Attachment 8 – Tree Protection Recommendations
Attachment 9 – Assumptions and Limiting Conditions



Todd Prager & Associates
LLC

Attachment 1 - Tree Inventory

Lava Drive Apartments
June 23, 2023

Tree No.	Common Name	Scientific Name	DBH ¹ (in)	Single DBH ² (in)	C-Rad ³ (ft)	Crown Area ⁴ (ft ²)	Condition ⁵	Structure ⁵	Rare or Threatened ⁶	Noxious or Invasive ⁷	Location ⁸	Comments	Treatment (remove or retain)
1	bigleaf maple	<i>Acer macrophyllum</i>	16,13,11,9,9	28	20	1256	good	fair	no	no	onsite	DBH estimated, history of topping, splits into codominant leaders at 2' and 4'	remove
2	blue spruce	<i>Picea pungens</i>	32	32	10	314	poor	fair	no	no	ROW	DBH adjusted for heavy ivy load, codominant leaders in upper crown	retain
3	Scotch pine	<i>Pinus sylvestris</i>	18	18	13	531	good	fair	no	no	ROW	DBH measured at 3.5', codominant leaders	retain
4	weeping white birch	<i>Betula pendula</i>	9	9	6	113	poor	poor	no	no	onsite	asymmetrical crown, 60% live foliage, dying from the top down	remove
5	flowering cherry	<i>Prunus serrulata</i>	36	36	15	707	good	fair	no	no	onsite	DBH estimated, heavy ivy load on trunk and lower crown	remove

¹DBH is the trunk diameter in inches measured per International Society of Arboriculture (ISA) standards.

²Single DBH is the trunk diameter of a multi-stem tree converted to a single number according to the following formula: square root of the sum of the squared diameter of each trunk at 4½ feet above mean ground level.

³C-Rad is the approximate crown radius in feet.

⁴Crown area is calculated in feet using the formula (crown radius)² x π.

⁵Condition and Structure ratings range from dead, very poor, poor, fair, to good.

⁶Rare, threatened or notable are trees on the City of Milwaukie Rare or Threatened Tree List.

⁷Noxious or Invasive are trees on the Oregon Noxious Weed List or Milwaukie Invasive Tree List. These trees are not included in total canopy coverage calculations. Species include: English hawthorn (*Crataegus monogyna*), Tree-of-heaven (*Ailanthus altissima*)

⁸Location is either onsite, right-of-way, or offsite. Offsite trees have root systems that extend onto the property.



Attachment 2 - Tree Canopy Coverage Calculations

Common Name	Scientific Name	Tree type	Height (ft)	Width (ft)	Mature crown area ¹ (s.f.)	75% Crown Area Development Code Standard ²	Existing Crown Area ³ (s.f.)	50 % Crown Area Development Code Standard ⁴	Number of Trees	Contribution to 40 %
incense cedar	<i>Calocedrus decurrens</i>	private	90	15	177	133	n/a	n/a	3	398
Eastern redbud	<i>Cercis canadensis</i>	private	25	30	707	530	n/a	n/a	4	2121
Eddie's white wonder dogwood	<i>Cornus nuttallii</i> × <i>florida</i>	private	25	20	314	236	n/a	n/a	1	236
Skyrocket® english oak	<i>Quercus robur</i> 'Fastigata'	private	45	15	177	133	n/a	n/a	3	398
Blue weeping Nootka Cypress ⁵	<i>Chamaecyparis nootkatensis</i> 'Glauca Pendula'	private	35	12	113	85	n/a	n/a	4	339
Dawyck purple European beech ⁶	<i>Fagus sylvatica</i> 'Dawyck Purple'	private	75	35	962	721	n/a	n/a	2	1442
Black gum ⁷	<i>Nyssa sylvatica</i> 'Wildfire'	private	50	30	707	530	n/a	n/a	2	1060
weeping white spruce ⁸	<i>Picea glauca</i> 'Pendula'	private	70	12	113	85	n/a	n/a	2	170
Vanessa Persian parrotia ⁹	<i>Parrotia persica</i> 'Vanessa'	ROW	30	20	314	n/a	n/a	157.0	5	785
									Proposed Canopy	6949
(tree 2) blue spruce	<i>Picea pungens</i>	ROW	n/a	n/a	n/a	n/a	314	157	n/a	157
(tree 3) Scotch pine	<i>Pinus sylvestris</i>	ROW	n/a	n/a	n/a	n/a	531	266	n/a	266
									Existing Canopy	423
									Total site square footage (s.f.)	17,984
									40% Canopy Coverage Requirement (s.f.)	7,194
									Proposed Canopy Coverage (s.f.)	6,949
									Existing Canopy Coverage (s.f.)	423
									Total Canopy Coverage (s.f.)	7,372

¹ Mature Crown Area is the existing crown area x the existing canopy multiplier.

² 75% Crown Area Development Code Standard is calculated by taking the mature crown area and multiplying it by 75%.

³ Existing canopy multiplier is a percentage defined by the Master Fee Schedule.

⁴ 50% Crown Area Development Code Standard is calculated by taking the mature crown area and multiplying it by 50%.

⁵ Canopy spread data source for Blue weeping Nootka cypress: SelectTree. UFEI. "Callitropsis nootkatensis 'Pendula' Tree Record." 1995-2023. Cal Poly State University, San Luis Obispo. Accessed on Jul 3, 2023.

< <https://selecttree.calpoly.edu/tree-detail/332> >

⁶ Canopy spread data source for Dawyck purple European beech: SelectTree. UFEI. "Fagus sylvatica 'Dawyck' Tree Record." 1995-2023. Cal Poly State University, San Luis Obispo. Accessed on Jul 3, 2023.

< <https://selecttree.calpoly.edu/tree-detail/593> >

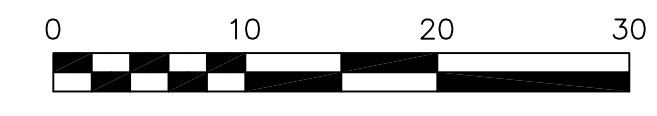
⁷ Canopy spread data source for Wildfire black gum: Monrovia. "Wildfire Tupelo." Accessed on Jul 3, 2023. < <https://www.monrovia.com/wildfire-tupelo.html> >

⁸ Canopy spread data source for weeping white spruce: SelectTree. UFEI. "Picea glauca 'Pendula' Tree Record." 1995-2023. Cal Poly State University, San Luis Obispo. Accessed on Jul 3, 2023.

< <https://selecttree.calpoly.edu/tree-detail/1882> >

⁹ Canopy spread data source Vanessa Persian parrotia: Great Plant Picks. "Parrotia persica 'Vanessa.' 2020. Elisabeth C. Miller Botanical Garden, Seattle, WA. Accessed on Jul 3, 2023.

< <https://www.greatplantpicks.org/plantlists/view/1089> >

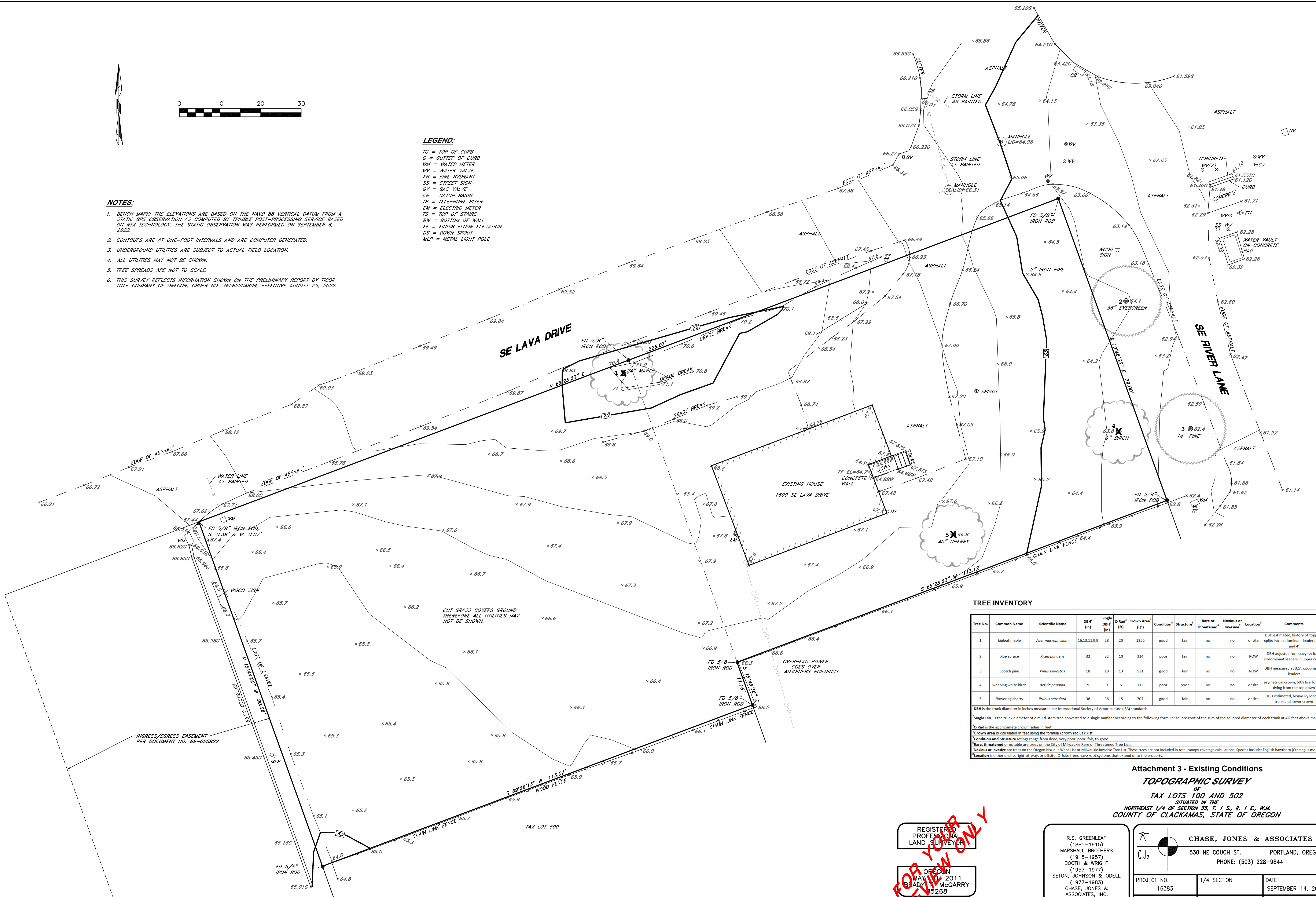


NOTES:

- BENCH MARK: THE ELEVATIONS ARE BASED ON THE NAVD 88 VERTICAL DATUM FROM A STATIC GPS OBSERVATION AS COMPUTED BY TRIMBLE POST-PROCESSING SERVICE BASED ON RTX TECHNOLOGY. THE STATIC OBSERVATION WAS PERFORMED ON SEPTEMBER 6, 2022.
- CONTOURS ARE AT ONE-FOOT INTERVALS AND ARE COMPUTER GENERATED.
- UNDERGROUND UTILITIES ARE SUBJECT TO ACTUAL FIELD LOCATION.
- ALL UTILITIES MAY NOT BE SHOWN.
- TREE SPREADS ARE NOT TO SCALE.
- THIS SURVEY REFLECTS INFORMATION SHOWN ON THE PRELIMINARY REPORT BY TICOR TITLE COMPANY OF OREGON, ORDER NO. 36262204809, EFFECTIVE AUGUST 25, 2022.

LEGEND:

- TC = TOP OF CURB
- G = GUTTER OF CURB
- WM = WATER METER
- WV = WATER VALVE
- FH = FIRE HYDRANT
- SS = STREET SIGN
- GV = GAS VALVE
- CB = CATCH BASIN
- TR = TELEPHONE RISER
- EM = ELECTRIC METER
- TS = TOP OF STAIRS
- BW = BOTTOM OF WALL
- FF = FINISH FLOOR ELEVATION
- DS = DOWN SPOUT
- MLP = METAL LIGHT POLE



TREE INVENTORY

Tree No.	Common Name	Scientific Name	DBH ¹ (in)	Single DBH ¹ (ft)	C-Rad ² (ft)	Crown Area ³ (ft ²)	Condition ⁴	Structure ⁵	Rare or Threatened ⁶	Noxious or Invasive ⁷	Location ⁸	Comments	Treatment (remove or retain)	
1	bigleaf maple	Acer macrophyllum	16.13	1.35	28	20	1256	good	fair	no	no	onsite	DBH estimated, history of topping, splits into codominant leaders at 2' and 4'	remove
2	blue spruce	Picea pungens	32	2.67	10	314	poor	fair	no	no	ROW	DBH adjusted for heavy ivy load, codominant leaders in upper crown	retain	
3	Scotch pine	Pinus sylvestris	18	1.5	13	531	good	fair	no	no	ROW	DBH measured at 3.5', codominant leaders	retain	
4	weeping white birch	Betula pendula	9	0.75	6	113	poor	poor	no	no	onsite	asymmetrical crown, 60% live foliage, dying from the top down	remove	
5	flowering cherry	Prunus serrulata	36	3.0	15	707	good	fair	no	no	onsite	DBH estimated, heavy ivy load on trunk and lower crown	remove	

¹DBH is the trunk diameter in inches measured per International Society of Arboriculture (ISA) standards.
²Single DBH is the trunk diameter of a multi-stem tree converted to a single number according to the following formula: square root of the sum of the squared diameter of each trunk at 4 1/2 feet above mean ground level.
³C-Rad is the approximate crown radius in feet.
⁴Crown area is calculated in feet using the formula (crown radius) x π.
⁵Condition and Structure ratings range from dead, very poor, poor, fair, to good.
⁶Rare, threatened or notable are trees on the City of Milwaukie Rare or Threatened Tree List.
⁷Noxious or Invasive are trees on the Oregon Noxious Weed List or Milwaukie Invasive Tree List. These trees are not included in total canopy coverage calculations. Species include: English hawthorn (Crataegus monogyna), Tree-of-Heaven (Ailanthus altissima), and Norway spruce (Picea abies).
⁸Location is either onsite, right-of-way, or offsite. Offsite trees have root systems that extend onto the property.

**Attachment 3 - Existing Conditions
TOPOGRAPHIC SURVEY
OF
TAX LOTS 100 AND 502
SITUATED IN THE
NORTHEAST 1/4 OF SECTION 35, T. 1 S., R. 1 E., W.M.
COUNTY OF CLACKAMAS, STATE OF OREGON**

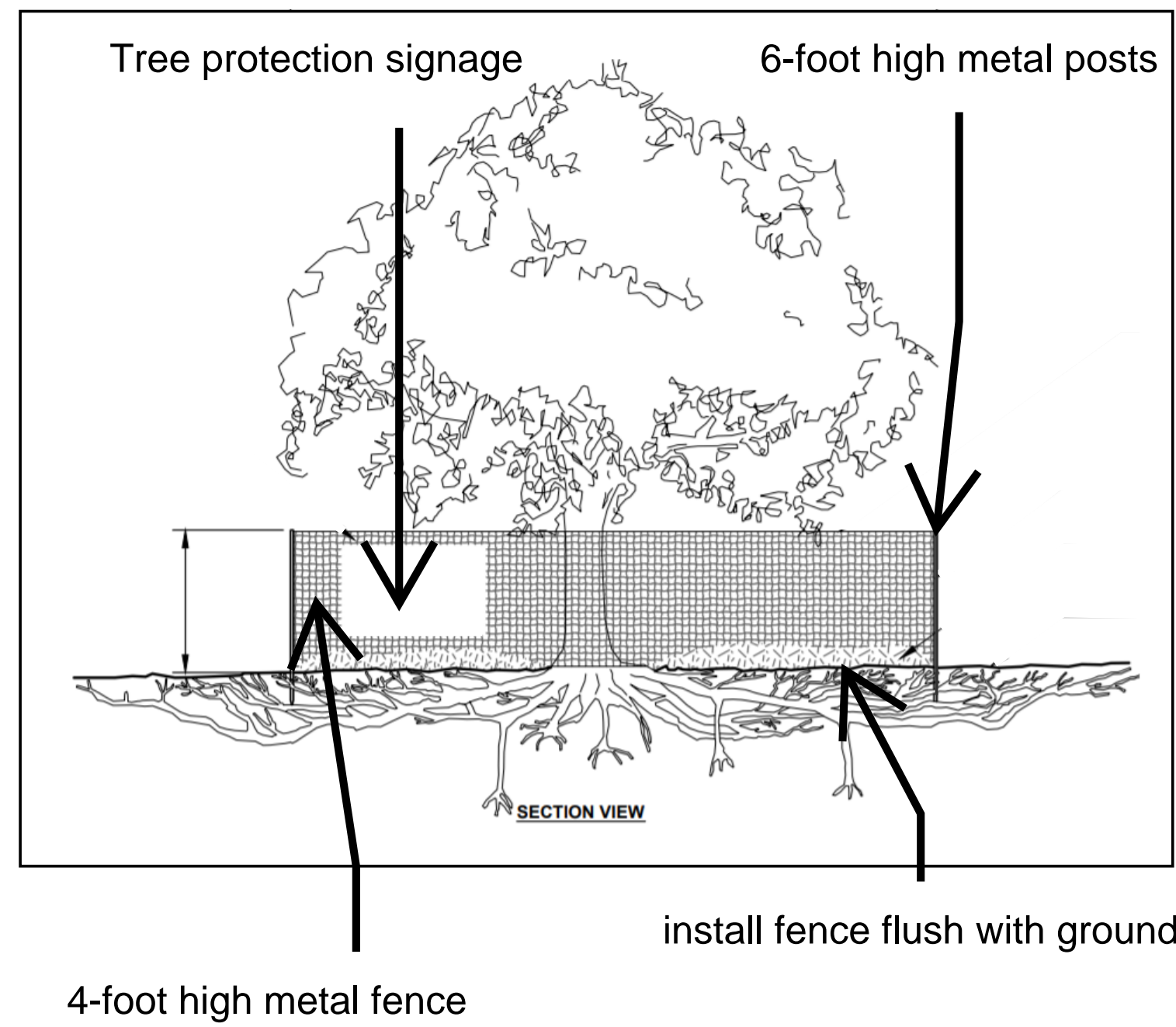
REGISTERED PROFESSIONAL LAND SURVEYOR
 OREGON
 MAY 11, 2011
 BRADY MCGARRY
 5268
 EXPIRES: 12-31-24

R.S. GREENLEAF
 (1885-1915)
 MARSHALL BROTHERS
 (1915-1957)
 BOOTH & WRIGHT
 (1957-1977)
 SETON, JOHNSON & ODELL
 (1977-1983)
 CHASE, JONES & ASSOCIATES, INC.
 (1983-)

CHASE, JONES & ASSOCIATES INC.
 530 NE COUCH ST. PORTLAND, OREGON 97232
 PHONE: (503) 228-9844

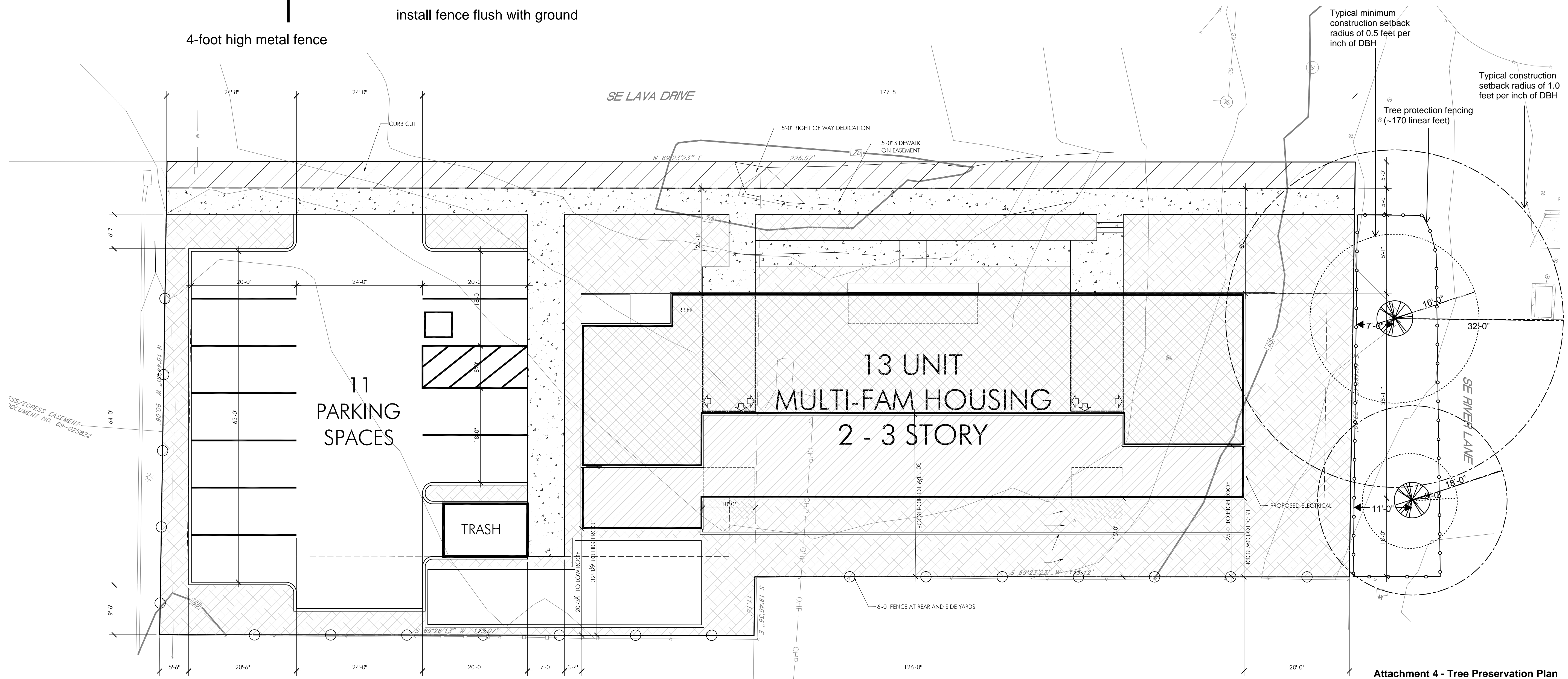
PROJECT NO. 16383	1/4 SECTION	DATE SEPTEMBER 14, 2022	SHEET 1
DRAWN BY DLW	CHECKED BY EDJ	SCALE 1" = 10'	OF 1

TREE PROTECTION FENCING DETAIL



SITE DISTURBANCE NOTES

- (1) Demolition - There were no existing structures at the time of the site visit. Therefore, no demolition is occurring near protected trees.
- (2) Tree removal - Three onsite trees are proposed for removal: 1, 4, and 5 (Attachment 1).
- (3) Staging, storage, and construction access - All construction access will be from SE Lava Drive. Materials are to be staged and stored outside of tree protection fencing and root protection areas.
- (4) Grading and filling - No grading or filling is to occur in the tree protection or root protection areas.
- (5) Paving - No paving is proposed near protected trees.
- (6) Construction of structures, foundations, and walls - All proposed structures are show on this site plan.
- (7) Utility construction - No utilities are proposed near protected trees.
- (8) Trenching and boring - No trenching or boring is proposed near protected trees.
- (9) Excavation - No project arborist oversight is required for this project.
- (10) There are no additional ground disturbing activities that would impact protected trees.



275 COURT ST. NE
 SALEM, OR 97301
 503.390.6500
 www.studio3architecture.com

IN THE EVENT CONFLICTS ARE DISCOVERED BETWEEN THE ORIGINAL SIGNED AND SEALED DOCUMENTS PREPARED BY THE ARCHITECTS AND/OR THEIR CONSULTANTS, AND ANY COPY OF THE DOCUMENTS TRANSMITTED BY MAIL, FAX, ELECTRONICALLY OR OTHERWISE, THE ORIGINAL SIGNED AND SEALED DOCUMENTS SHALL GOVERN.

PROJECT # 2022-175
 DATE: 2 JUNE 2023
 REVISIONS

NEW APARTMENT BUILDING
LAVA DRIVE APARTMENTS
 1600 SE LAVA DRIVE
 MILWAUKIE, OREGON 97206

Attachment 4 - Tree Preservation Plan

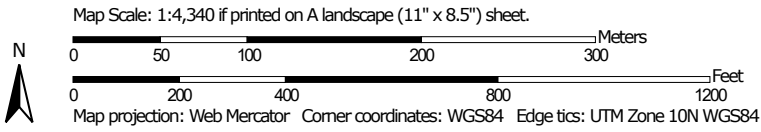


ATTACHMENT #4 Ex F Attachment 6 - Soil Map

Soil Map—Clackamas County Area, Oregon, and Multnomah County Area, Oregon
(Soil Map 1600 SE Lava Drive, Milwaukie, OR 97222)




Soil Map may not be valid at this scale.




Soil Map—Clackamas County Area, Oregon, and Multnomah County Area, Oregon
(Soil Map 1600 SE Lava Drive, Milwaukie, OR 97222)


MAP LEGEND


Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

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: Clackamas County Area, Oregon
Survey Area Data: Version 19, Sep 14, 2022

Soil Survey Area: Multnomah County Area, Oregon
Survey Area Data: Version 21, Sep 14, 2022

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 13, 2019—Jul 25, 2019

Soil Map—Clackamas County Area, Oregon, and Multnomah County Area, Oregon
(Soil Map 1600 SE Lava Drive, Milwaukie, OR 97222)

MAP LEGEND

MAP INFORMATION

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
71B	Quatama loam, 3 to 8 percent slopes	22.2	28.1%
82	Urban land	24.1	30.4%
93E	Xerochrepts-Rock outcrop complex, moderately steep	19.4	24.5%
W	Water	12.2	15.4%
Subtotals for Soil Survey Area		77.9	98.4%
Totals for Area of Interest		79.2	100.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
W	Water	1.3	1.6%
Subtotals for Soil Survey Area		1.3	1.6%
Totals for Area of Interest		79.2	100.0%

Attachment 7 - Tree Protection Signage

STOP!
DO NOT MOVE THIS FENCE.

TREE PROTECTION ZONE

Inside the fencing is a tree protection zone, not to be disturbed unless prior approval has been obtained per the approved tree protection plan. Penalties will apply for violations (City of Milwaukie tree code Chapter 16.32.042, Tree Preservation and Planting in Residential Zones).

For questions regarding tree protection please call the project arborist:
Todd Prager & Associates, LLC
todd@toddprager.com
971.295.4835

Attachment 8 – Tree Protection Recommendations

The following recommendations will help to ensure that the trees to be retained are adequately protected:

Before Construction Begins

1. **Notify all contractors of the tree protection procedures.** For successful tree protection on a construction site, all contractors must know and understand the goals of tree protection.
 - a. Hold a tree protection meeting with all contractors to explain goals of tree protection.
 - b. Have all contractors sign memoranda of understanding regarding the goals of tree protection. The memoranda should include a penalty for violating the tree protection plan. The penalty should equal the appraised value of the tree(s) within the violated tree protection zone per the current Trunk Formula Method as outlined in the current edition of the *Guide for Plant Appraisal* plus any resulting fines by government agencies.
 - c. The penalty should be paid to the owner of the property.
2. **Fencing.**
 - a. Establish fencing around each tree or group of trees to be retained.
 - b. The fencing should be put in place before the ground is cleared to protect the trees and the soil around the trees from disturbance.
 - c. Fencing should be established by the project arborist based on the needs of the trees to be protected and to facilitate construction.
 - d. Fencing should consist of 4-foot-high metal fencing secured to the ground with 6-foot-tall posts to prevent it from being moved by contractors, sagging or falling down.
 - e. Fencing should remain in the position that is established by the project arborist and not be moved without approval from the project arborist until final project approval.
3. **Signage.**
 - a. All tree protection fencing should be provided signage so that all contractors understand the purpose of the fencing.
 - b. Signage should be placed on every fence panel.
 - c. Signage should be weathered and secured to fencing.
 - d. Signage has been included in Attachment 7.

During Construction

1. Protection Guidelines Within the Tree Protection Zones.

- a. No traffic should be allowed within the tree protection zones. This includes but is not limited to vehicle, heavy equipment, or even repeated foot traffic.
 - b. No storage of materials including but not limiting to soil, construction material, or waste from the site should be permitted within the tree protection zones. Waste includes but is not limited to concrete wash out, gasoline, diesel, paint, cleaner, thinners, etc.
 - c. Construction trailers should not to be parked/placed within the tree protection zones.
 - d. No vehicles should be allowed to park within the tree protection zones.
 - e. No activity should be allowed that will cause soil compaction within the tree protection zones.
2. The trees should be protected from any cutting, skinning or breaking of branches, trunks, or woody roots.
 3. The project arborist should be notified prior to the cutting of woody roots from trees that are to be retained to evaluate and oversee the proper cutting of roots with sharp cutting tools. Cut roots should be immediately covered with soil or mulch to prevent them from drying out.
 4. No grade changes should be allowed within the tree protection zones.
 5. Trees that have woody roots cut should be provided supplemental water during the summer months.
 6. Any necessary passage of utilities through the tree protection zones should be by means of tunneling under woody roots by hand digging or boring with oversight by the project arborist.
 7. Any deviation from the recommendations in this section should receive prior approval from the project arborist.

After Construction

1. **Carefully landscape the areas within the tree protection zones.** Do not allow trenching for irrigation or other utilities within the tree protection zones.
2. **Carefully plant new plants within the tree protection zones.** Avoid cutting the woody roots of trees that are retained.
3. **Irrigation.** Do not install permanent irrigation within the tree protection zones unless it is drip irrigation to support a specific planting, or the irrigation is approved by the project arborist.
4. **Drainage.** Provide adequate drainage within the tree protection zones and do not alter soil hydrology significantly from existing conditions for the trees to be retained.
5. **Inspect landscape for pests and disease.** Provide for the ongoing inspection and treatment of insect and disease populations that can damage the retained trees and plants.
6. **Fertilization.** The retained trees may need to be fertilized if recommended by the project arborist.
7. Any deviation from the recommendations in this section should receive prior approval from the project arborist.

Attachment 9 – Assumptions and Limiting Conditions

1. Any legal description provided to the consultant is assumed to be correct. The site plans and construction information provided by Studio 3 Architecture, Brand land Use, and their consultants was the basis of the information provided in this report.
2. It is assumed that this property is not in violation of any codes, statutes, ordinances, or other governmental regulations.
3. The consultant is not responsible for information gathered from others involved in various activities pertaining to this project. Care has been taken to obtain information from reliable sources.
4. Loss or alteration of any part of this delivered report invalidates the entire report.
5. Drawings and information contained in this report may not be to scale and are intended to be used as display points of reference only.
6. The consultant's role is only to make recommendations. Inaction on the part of those receiving the report is not the responsibility of the consultant.
7. The purpose of this report is to:
 - a. Make one site visit to inventory existing onsite, right-of-way, and offsite trees.
 - b. Prepare a tree plan to meet City of Milwaukie tree code Chapter 16.32.042, Tree Preservation and Planting in Residential Zones.

From: [Maria Nash](#)
To: [Vera Kolia](#)
Cc: [Skip](#); [Jill Briney](#); [Cheryl Naumoff](#); shoreside.east.treasurer@gmail.com; shoreside.east.secretary@gmail.com; [Shoreside East Chair](#)
Subject: 1600 SE Lava Drive Development; File WG-2023-001
Date: Saturday, September 16, 2023 11:30:26 AM

This Message originated outside your organization.

Hi Vera,

Following are some comments, questions and concerns from myself and other owners at Shoreside East Condos (1400 SE Lava Drive, 97222) regarding the planned development at 1600 SE Lava Drive.

- I like the idea of having just one outlet to the road vs many driveways that was formerly proposed for the townhouses.
- The letter we got in the mail says the plan is for a 13 unit building with parking for only 11 vehicles. Where will the other vehicles park – if all 13 residents have cars, if they have guests or if more than one person lives in a unit? There is a “no parking zone” on Lava street adjacent to Moda which would put them on the street in front of River Royal and Shoreside East. This section of Lava is not wide enough for that.
- My primary concern is increasing use on Lava Drive given the current condition and width of the roadway. This part of Lava Drive starting at Waverly Drive is more like a driveway than a city street.
 - What is the city envisioning for the street in the future? For instance, what happens when the greenspace across from Shoreside East Building A is proposed for development, as planned by Waverley Apartments in the future?
- It's sad to lose the big maple tree, but the tree planting plan looks good and varied.
- Will the units be rentals or condos?
- Looking at the living spaces this company has developed around Portland, it looks like we can assume a pleasing design.
- How will the proposed sidewalk for this development blend with the remainder of the road to Waverley? I don't see how there is room for a sidewalk west of 1600.

Thank you for the opportunity to air questions and concerns.

Best,

Maria

Shirley (Maria) Nash
1400 SE Lava Dr #2 (condo home owner)
Milwaukie, OR 97222
Historic Milwaukie Neighborhood

From: [Mike Briney](#)
To: britany@brandlanduse.com; [Vera Koliias](#)
Subject: Re: Correction for Riverway Lane designation WG-2023-001
Date: Monday, September 18, 2023 6:36:29 PM
Attachments: [We sent you safe versions of your files.msg](#)
[03_1s1e35ab.pdf](#)

Mimecast Attachment Protection has deemed this file to be safe, but always exercise caution when opening files.

This Message originated outside your organization.

See attachment

On Mon, Sep 18, 2023, 6:30 PM Mike Briney <brineymj@gmail.com> wrote:

I would like to see a correction to the plans in front of Milwaukie City Planing. For project file number WG-2023-001 several of the drawings show Riverway Lane as a private drive. I've attached the Clackamas County tax plat map 1S1E35AB. This plat map clearly shows Riverway Lane is Public Roadway. Since Riverway Lane is a public roadway, I would like to see street improvements included in the project adjacent to the newly developed lot. Street improvements might include on street parking that will be an asset to this project since there are fewer parking places than units.

Mike Briney

1 1E 35AB

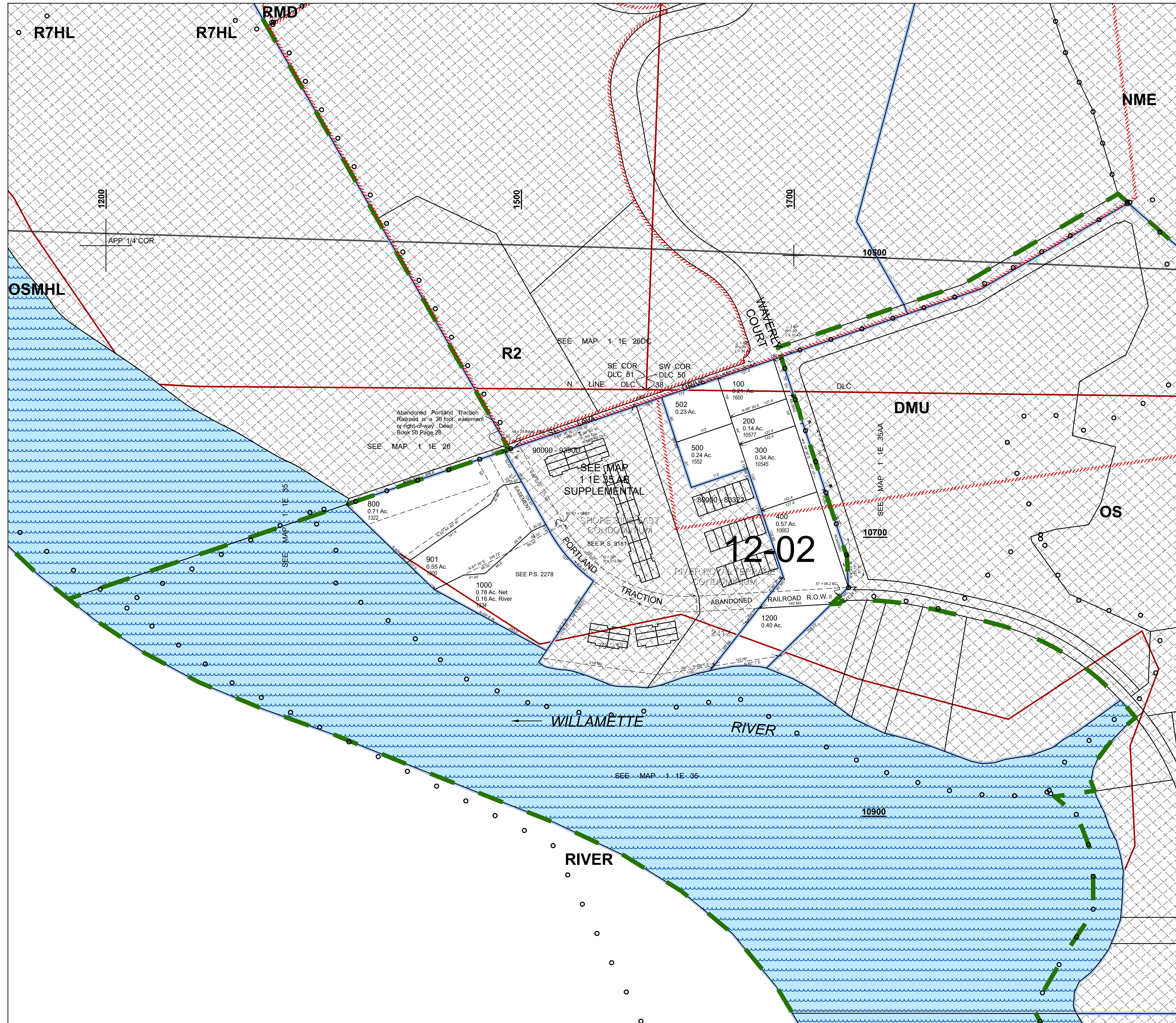
N.W.1/4 N.E.1/4 SEC. 35 T.01 S. R.01 E. W.M.
CLACKAMAS COUNTY

1" = 100'

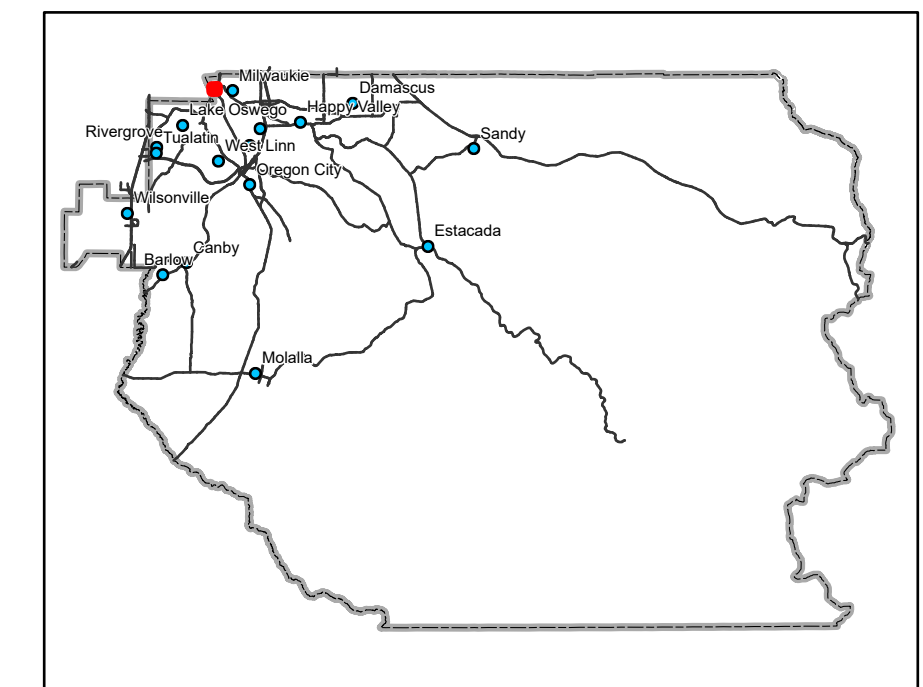
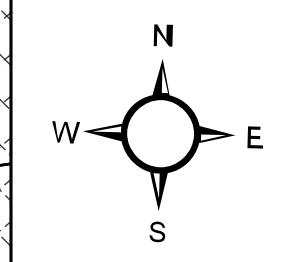
D.L.C.
LOT WHITCOMB NO. 38
WM. MEEK NO. 50

Cancelled

- 600
- 1100
- 700
- 900
- 501



- Parcel Boundary
- - - Private Road ROW
- - - Historical Boundary
- - - Railroad Centerline
- Tax Code Lines
- Map Index
- Water Lines
- Land Use Zoning
- Plats
- Water
- Corner
- Section Corner
- 1/16th Line
- Govt Lot Line
- - - DLC Line
- - - Meander Line
- - - PLSS Section Line
- Historic Corridor 40'
- Historic Corridor 20'



THIS MAP IS FOR ASSESSMENT PURPOSES ONLY

1 1E 35AB

Print Date: 9/27/2022