WILSONVILLE
OREGON

29799 SW Town Center Loop E, Wilsonville, OR 97070
Phone: 503.682.4960 Fax: 503.682.7025
Web: www.ci.wilsonville.or.us

Planning Division
Development Permit Application

Final action on development application or zone change is required within 120 days in accordance with provisions of ORS 227.175

A pre application conference is normally required prior to submittal of an application. Please visit the City's website for submittal requirements

Pre-Application Meeting Date: 07/28/2021

Incomplete applications will not be scheduled for public hearing until all of the required materials are submitted.

Applicant:

Name: Robert Hausserman
Company: Precision Countertops, Inc
Mailing Address: 26200 SW 95th Ave, Suite 303
City, State, Zip: Wilsonville, Oregon 97070
Phone: 503-680-9301 Fax:
E-mail: robert.h@precisioncountertops.com

Authorized Representative:

Name: Simone M. O'Halloran
Company: MDG Architecture / Interiors
Mailing Address: 4875 SW Griffith Drive, Suite 300
City, State, Zip: Beaverton, Oregon 97005
Phone: 503-244-0552 Fax:
E-mail: simone@mdgpc.com

Property Owner:

Name: Robert Hausserman
Company: Precision Countertops, Inc
Mailing Address: 26200 SW 95th Ave, Suite 303
City, State, Zip: Wilsonville, Oregon 97070
Phone: 503-680-9301 Fax:
E-mail: robert.h@precisioncountertops.com

Property Owner's Signature:

Printed Name: Robert Hausserman Date: 2/3/2023

Applicant's Signature: (if different from Property Owner)

Printed Name: Date:

Site Location and Description:

X

Project Address if Available: 25540 SW Garden Acres Road, Wilsonville, Oregon Suite/Unit

Project Location: 25540 SW Garden Acres Road, Wilsonville, Oregon

Tax Map #(s): 3S102CO Tax Lot #(s): County: □ Washington X Clackamas

Request:

This application is for the site and design review to construct a headquarters and fabrication facility for precision countertops

Project Type: Class I □ Class II □ Class III X

□ Residential □ Commercial X Industrial □ Other:

Application Type(s):

X Annexation	□ Appeal	□ Comp Plan Map Amend	□ Parks Plan Review
□ Final Plat	□ Major Partition	□ Minor Partition	□ Request to Modify Conditions
□ Plan Amendment	□ Planned Development	□ Preliminary Plat	
□ Request for Special Meeting	□ Request for Time Extension	X Signs class 3	X Site Design Review
□ SROZ/SRIR Review	□ Staff Interpretation	X Stage I Master Plan	X Stage II Final Plan
□ Type C Tree Removal Plan	X Tree Permit (B or C)	□ Temporary Use	□ Variance
□ Villebois SAP	□ Villebois PDP	□ Villebois FDP	□ Other (describe)
□ Zone Map Amendment	□ Waiver(s)	□ Conditional Use	

DEVELOPMENT REVIEW APPLICATION [UPDATE]

Stage I Master Plan/Stage II Final Plan
Site Design Review
Class III Sign Plan
Type C Tree Removal and Protection Plan

Prepared for:
Precision Countertops
26200 SW 95th Ave Suite 303
Wilsonville, OR 97070

Prepared by:
MDG Architecture
4875 SW Griffith Drive, Suite 300
Beaverton, Oregon
simone@mdgpc.com

First Forty Feet
412 NW Couch Street, Suite, #405
will@firstfortyfeet.com

ReSubmitted on:
January 3, 2023

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Summary of Proposal

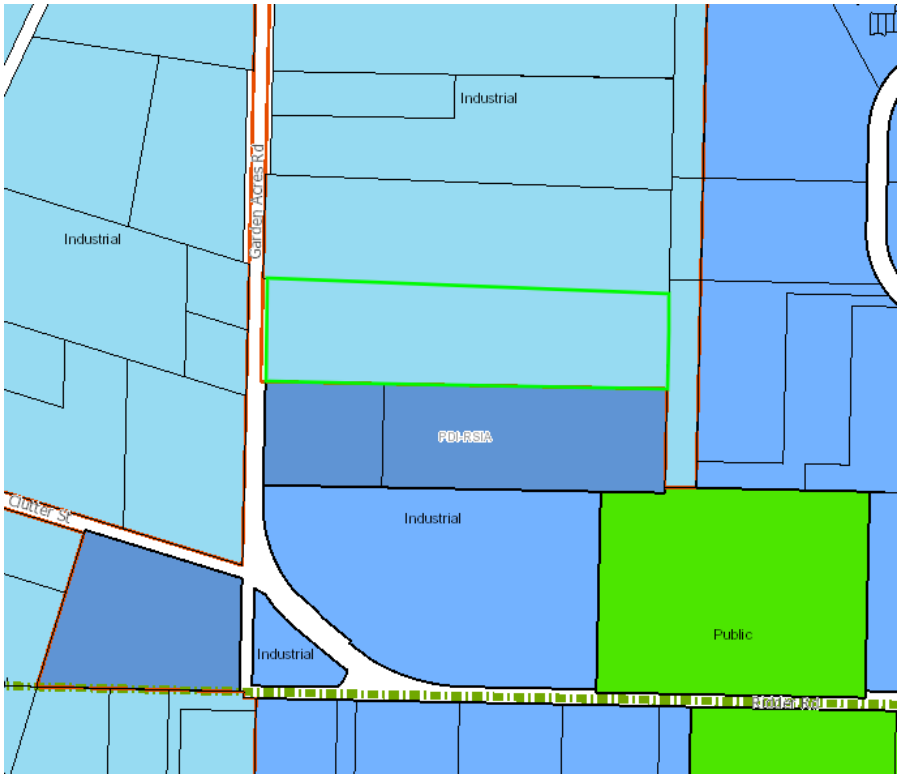
Applicant:	Precision Countertops 26200 SW 95th Ave Suite 303 Wilsonville, OR 97070
Property Owner:	PCT NW Properties OR LLC 26200 SW 95th Avenue, Suite 303 Wilsonville, OR 97070 Contact: Robert Hausserman (503) 680-9301 robert.h@precisioncountertops.com
Site Address:	25540 SW Garden Acres Road
Tax Lot:	3S102C0 00500 A PORTION OF LOT 12, GARDEN ACRES, LOCATED IN THE WEST 1/2 OF THE WEST 1/2, OF SECTION 2, TOWNSHIP 3 SOUTH, RANGE 1 WEST, OF THE WILLAMETTE MERIDIAN, WASHINGTON COUNTY, OREGON
Site Size:	406,233 SF – 9.33 acres
Zoning:	PDI-RSIA **-** Planned Development Industrial – Regionally Significant Industrial Area (Pending current Annexation and Zoning Map Amendment)
Overlay:	Coffee Creek Industrial Design Overlay District

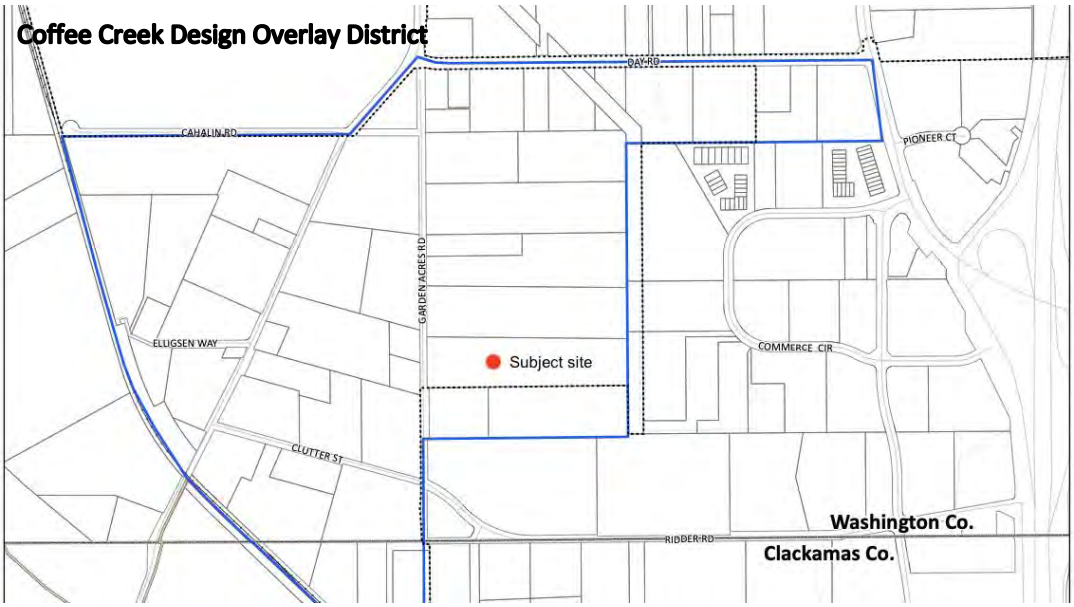
Existing Site Description: The site is relatively flat and open. One existing house and accessory structures on a relatively flat lot

Proposed Development: The proposed project consists of the construction of a headquarters and countertop fabrication facility for Precision Countertops. The proposed building is 65,800 SF, and includes a showroom, office space, storage, and fabrication spaces. The proposed development will occupy approximately 4.73 acres of the overall 9.34 acre site with the eastern portion of the site being left undeveloped at this time with the possibility of future expansion. The facility will primarily warehouse raw materials for custom countertops. The operations will primarily be receiving, unloading, storing, cutting, and delivering kitchen countertops. The showroom will display products and inventory to customers. Fabrication is defined as cutting to fixed specifications and dimensions. Office spaces will be used to conduct business operations and administration.

Key Site Data	
Proposed Building Size	65,800 SF
Site Size	406,233 SF
Proposed Site Development Area	206,217 SF
Site Building Coverage	16.1%
Overall Building Height	36'-2" (measured to top of roof)
Landscaped Area	55,509 SF or 26.9% of proposed site development area (15% minimum)
Proposed Parking	71 stalls (includes 3 ADA Spaces)
Construction Type:	II-B, Occupancy B, F1, and S1

Zoning Map




Coffee Creek Design Overlay District
DAY RD
CAHALIN RD
PIONEER CT
GARDEN ACRES RD
ELLIGSEN WAY
Subject site
COMMERCE CIR
CLUTTER ST
RIDDER RD
Washington Co.
Clackamas Co.

Background Information

The applicant requests approval for a Site Plan Review, Stage I Master Plan and Stage II Final Plan, Site Design Review, Class III Sign Plan and Type C Tree Removal and Protection Plan for the new construction of a new headquarters and countertop fabrication facility for Precision Countertops. **The application will be requesting Waivers.** The driveway width will be the only waiver of the proposed development. Please reference sheet A1.1 for the driveway width. There are two access points from the future Java Road; the first is 24'-0" and is within the allowable drive access width; however, the second driveway access width if 40'0". The increased width is proposed in order the accommodate truck maneuvering and safe access.

The site is located along Garden Acres Road at the planned future intersection with Java Road. It is currently located outside of the Wilsonville City Limits, but inside the City's Urban Growth Boundary. A concurrent Annexation and Zoning Map Amendment application has been submitted and this application is being submitted with the assumption that these applications will be approved.

Existing development on the site consists of a farmhouse (which as since been demolished with approved permitting through the County) and a few agriculture structures with most of the 9.34 acres being undeveloped. The subject site is located within the Coffee Creek Industrial Design Overlay District. The Coffee Creek DOD includes the provision for Java Road, a Supporting Street to be built in conjunction with the planned development. This development proposal includes a dedication of area (public easement) along the northern boundary for construction of the future Java Road alignment as well as half street improvements for Java Road. Because the planned intersection of Garden Acres Road and Java Road will not be fully realized until the parcel north of the subject site is developed, temporary access to the site will be taken from Garden Acres Road and will be closed off once the final intersection is constructed.

Key Issues

Concurrent Annexation and Zoning Map Amendment: The subject site is currently located outside of the Wilsonville City Limits, but inside the City's Urban Growth Boundary. A concurrent Annexation and Zoning Map Amendment application has been submitted and this application is being submitted with the assumption that these applications will be approved.

Transportation/Java Road: Half street improvements for planned Java Road will be constructed as part of this project. Java Road will be an east-west Supporting Street with the centerline being the subject site's northern property line, consistent with the Coffee Creek DOD. It will be constructed and maintained as a private street in a dedicated public access easement. Java Road Cross Sections are illustrated on Exhibit 3, Sheet A1.1 of this submittal package.

Access: A temporary access point from Garden Acres Road will be constructed to provide access to the site until the parcel to the north is developed and the final planned intersection with Java Road can be developed. The proposal will be constructing new on-site stormwater mitigation to address the impacts of this curb cut. Site access is illustrated on the Site Plan, included as Exhibit 3, Sheet A1.0 and A1.1 of this submittal package.

Fire: The proposed development consists of **65,800 GSF** of new construction. The development anticipates a fire flow test to be completed prior to building permitting to determine the baseline for

water flow for firefighting. Access: the site has good circulation with a dedicated and approved fire access drive, paved with asphalt. The proposal has dedicated several access points from the new Java Road. The Fire Service Plan is included as Exhibit 10 and FS1.0 of this submittal package.

Stormwater Management: The stormwater design will be decentralized by providing facilities in several areas on the development, including landscape areas, planters, and swales providing Low Impact Development to the extent practicable. The Stormwater Report is included as Exhibit 5 and sheet C3.1 of this submittal package.

Outdoor Waste Storage: All outdoor recycling and refuse storage containers will be hydrological isolated and screened and covered.

Applicable Code Criteria

Industrial Development Standards and Industrial Zoning	Sections 4.117, 4.135 through 4.135.5: Planned Development Residential (PDI) Zones and Industrial Standards
Planned Development Standards and Regulations for all Planned Development (PD) Zones	Section 4.118: Standards applying to all Planned Development (PD) Zones Section 4.140: Planned Development Regulations
Overlay Zones	Section 4.134: Coffee Creek Industrial Design Overlay District
General Development Regulations and Standards	Section 4.154: On-Site Pedestrian Access and Circulation Section 4.155: Parking, Loading, and Bicycle Parking Section 4.171: Protection of Natural and Other Features Section 4.175: Public Safety and Crime Prevention Section 4.176: Landscaping, Screening, and Buffering Section 4.177: Street Improvement Standards Section 4.179: Mixed Solid Waste and Recycling Sections 4.199 through 4.199.60: Outdoor Lighting Sections 4.300 through 4.320: Underground Utilities:
Site Design Review	Sections 4.400 through 4.450: Site Design Review
Signs	Sections 4.156.01 through 4.156.11: Signs

Tree Removal	Tree Preservation and Protection: Sections 4.600 through 4.640.20

RESPONSE FINDINGS TO CODE CRITERIA

Industrial Development Standards and Industrial Zoning

Section 4.117. Standards Applying To Industrial Developments In Any Zone.

(.01) All industrial developments, uses, or activities are subject to performance standards. If not otherwise specified in the Planning and Development Code, industrial developments, uses, and activities shall be subject to the performance standards specified in Section 4.135 (.05) (PDI Zone).

Response: The proposed development and proposal narrative reflect the performance standards specified in the following Section 4.135.

Section 4.135. PDI- Planned Development Industrial Zone

(.01) Purpose: The purpose of the PDI zone is to provide opportunities for a variety of industrial operations and associated uses.

(.02) The PDI Zone shall be governed by Section 4.140, Planned Development Regulations, and as otherwise set forth in this Code.

(.03) Uses that are typically permitted:

A. Warehouses and other buildings for storage of wholesale goods.

C. Assembly and packing of products for wholesale shipment

I. Corporate headquarters

M. Repair, finishing and testing of product types manufactured or fabricated within the zone.

O. Any use allowed in a PDC Zone, subject to the following limitations:

4. Combined uses under Subsections 4.135(.03)(O.)(1.) and (3.) shall not exceed a total of 5000 square feet of floor area in a single building or 20,000 square feet of combined floor area within a multi-building development.

Response: The primary proposed use is Warehouse. All uses for the proposed development are permitted uses that fall under Sections A, C, I, M, and O. The proposed project will consist of the construction of a new headquarters and countertop fabrication facility for precision countertops. The fabrication will be limited to custom cutting of countertop material. The proposed 65,800 GSF project consists of the sub-uses shown in the table below:

Proposed Sub-Uses		
Use	**Area**	**Percentage**
Fabrication	15,600 SF	23.7%
Warehouse	39,800 SF	60.5%
Retail & Showroom	3,000 SF	3.6%
Office	7,400 SF	11.3%
Total	**65,800 SF**	**100%**

The proposed development will be constructed and will occupy approximately five (4.73)-acres of the overall nine (9.32)-acre site, with the remaining eastern portion of the site being held for future development expansion.

As shown in the table above, the proposed development includes 3,000 of retail and showroom, which is less than the 5,000 SF maximum allowed.

These standards are met.

(.04) *Block and access standards:*
The PDI zone shall be subject to the same block and access standards as the PDC zone, Section 4.131(.02) and (.03).

Response: The proposed development does not include a residential use. As illustrated on the Site Plan (Exhibit 3 Sheet A1.0), the addition of the Java Road Supporting Street ensures adequate block access and connectivity for all modes of transportation, including pedestrian, bike, and motor vehicles by providing a sidewalk, bike facilities and travel lanes. Further, the proposed project provides safe and clear access to and from transit stops via the network of sidewalks.

(.05) *Performance Standards. The following performance standards apply to all industrial properties and sites within the PDI Zone and are intended to minimize the potential adverse impacts of industrial activities on the general public and on other land uses or activities. They are not intended to prevent conflicts between different uses or activities that may occur on the same property.*

A. All uses and operations except storage, off-street parking, loading and unloading shall be confined, contained, and conducted wholly within completely enclosed buildings, unless outdoor activities have been approved as part of Stage II, Site Design or Administrative Review.

Response: All activities related to the proposed development will be contained and conducted wholly within the completely enclosed building; as shown on the Site Plan (Exhibit 3 Sheet A1.0).

B. Vibration: Every use shall be so operated that the ground vibration inherently and recurrently generated from equipment other than vehicles is not perceptible without instruments at any boundary line of the property on which the use is located.

Response: The proposed operations and fabrication will not create ground vibrations perceptible without instruments. The fabrication cutting tools will be installed on raised sleepers and sound dampeners to ensure that there is no vibration or sound of machinery.

C. *Emission of odorous gases or other odorous matter in quantities as detectable at any point on any boundary line of the property on which the use is located shall be prohibited.*

Response: The proposed operations and fabrication will not create odorous gases or odorous matter. The cutting tools use water to assist with cutting and will reduce particles from going airborne.

D. Any open storage shall comply with the provisions of Section 4.176, and this Section.

Response: The proposed development does not contain outdoor storage or open storage. All products and materials will be stored in completely enclosed warehouse and storage areas. This standard does not apply.

E. No building customarily used for night operation, such as a baker or bottling and distribution station, shall have any opening, other than stationary windows or required fire exits, within one hundred (100) feet of any residential district and any space used for loading or unloading commercial vehicles in connection with such an operation shall not be within one hundred (100) feet of any residential district.

Response: Operations will be limited to typical business hours, from 9 am to 4 pm.

F. Heat and Glare:

1. Operations producing heat or glare shall be conducted entirely within an enclosed building.

2. Exterior lighting on private property shall be screened, baffled, or directed away from adjacent residential properties. This is not intended to apply to street lighting.

Response: The proposed building has been designed with exterior materials chosen and incorporated to eliminate heat or glare. Operations are wholly enclosed and will not produce glare or heat impacting neighboring community or other businesses.

G. Dangerous Substances: Any use which involves the presence, storage or handling of any explosive, nuclear waste product, or any other substance in a manner which would cause a health or safety hazard for any adjacent land use or site shall be prohibited.

Response: There will be no use of hazardous material or dangerous substances as described above, on-site.

H. Liquid and Solid Wastes:

1. Any storage of wastes which would attract insects or rodents or otherwise create a health hazard shall be prohibited.

2. Waste products which are stored outside shall be concealed from view from any property line by a sight-obscuring fence or planting as required in Section 4.176.

3. No connection with any public sewer shall be made or maintained in violation of applicable City or State standards.

4. No wastes conveyed shall be allowed to or permitted, caused to enter, or allowed to flow into any public sewer in violation of applicable City or State standards.

5. All drainage permitted to discharge into a street gutter, caused to enter or allowed to flow into any pond, lake, stream, or other natural water course shall be limited to surface waters or waters having similar characteristics as determined by the City, County, and State Department of Environmental Quality.

6. All operations shall be conducted in conformance with the City's standards and ordinances applying to sanitary and storm sewer discharges.

Response: The nature of the proposed fabrication and operations will not attract insects or rodents. All storage will be secured and fully contained in a manner not to attract or aid the propagation of insects and rodents. Waste products resulting from fabrication and operations will be securely contained, reused, or properly disposed. Waste streams will be kept separate from and will not impact the public sewer system or storm sewer system. All operations will conform with City standards and ordinances as applied to sanitary and storm sewer discharges. These standards are met.

I. Noise: Noise generated by the use, with the exception of traffic noises from automobiles, trucks, and trains, shall not violate any applicable standards adopted by the Oregon

Department of Environmental Quality and W.C. 6.204 governing noise control in the same or similar locations.

Response: All proposed uses comply with the OSDEQ standards Chapter 340, Division 35, Noise Control Regulations and City noise ordinance TMC 6-14. This standard is met.

J. Electrical Disturbances. Except for electrical facilities wherein the City is preempted by other governmental entities, electrical disturbances generated by uses within the PDI zone which interfere with the normal operation of equipment or instruments within the PDI Zone are prohibited. Electrical disturbances which routinely cause interference with normal activity in abutting residential use areas are also prohibited.

Response: The proposed development does not use 'out of the ordinary' equipment or instruments that would cause interference or electrical disturbances. This standard is met.

K. Discharge Standards: There shall be no emission of smoke, fallout, fly ash, dust, vapor, gases, or other forms of air pollution that may cause a nuisance or injury to human, plant, or animal life, or to property. Plans of construction and operation shall be subject to the recommendations and regulations of the State Department of Environmental Quality. All measurements of air pollution shall be by the procedures and with equipment approved by the State Department of Environmental Quality or equivalent and acceptable methods of measurement approved by the City. Persons responsible for a suspected source of air pollution upon the request of the City shall provide quantitative and qualitative information regarding the discharge that will adequately and accurately describe operation conditions.

Response: All proposed uses, and development will comply with the most recent air quality standards adopted by the Oregon Department of Environmental Quality. Plans of construction and operations comply with the recommendations and regulations of the State Department of Environmental Quality. This standard is met.

L. Open burning is prohibited.

Response: No burning will occur on this property. This standard is met.

M. Storage:

1. *Outdoor storage must be maintained in an orderly manner at all times.*
2. *Outdoor storage area shall be gravel surface or better and shall be suitable for the materials being handled and stored. If a gravel surface is not sufficient to meet the performance standards for the use, the area shall be suitably paved.*
3. *Any open storage that would otherwise be visible at the property line shall be concealed from view at the abutting property line by a sight obscuring fence or planting not less than six (6) feet in height.*

Response: The proposed development does not contain outdoor storage or open storage. All products and materials will be stored in a completely enclosed warehouse and storage areas. This standard is met.

N. Landscaping:

1. *Unused property, or property designated for expansion or other future use, shall be landscaped and maintained as approved by the Development Review Board. Landscaping for unused property disturbed during construction shall include such things as plantings of ornamental shrubs, lawns, native plants, and mowed, seeded fieldgrass.*

2. *Contiguous unused areas of undisturbed fieldgrass may be maintained in their existing state. Large stands of invasive weeds such as Himalayan blackberries, English ivy, cherry Laurel, reed canary grass or other identified invasive plants shall be removed and/or mowed at least annually to reduce fire hazard. These unused areas, located within a phased development project or a future expansion cannot be included in the area calculated to meet the landscape requirements for the initial phase(s) of the development.*
3. *Unused property shall not be left with disturbed soils that are subject to siltation and erosion. Any disturbed soil shall be seeded for complete erosion cover germination and shall be subject to applicable erosion control standards.*

Response: As illustrated on the Site Plan (Exhibit 3 Sheet A1.0), and Landscape Plan (Exhibit 3 Sheet L1.0), areas not developed will be landscaped extensively and maintained through the applicant's landscape maintenance program. The areas surrounding the building will be improved and landscaped using a variety of non-invasive plantings, grasses, trees, and lawn. The east side of the property will not be planted as extensively due to the anticipated future development. This standard is met.

(.06) Other Standards:

A. *Minimum Individual Lot Size: No limit save and except as shall be consistent with the other provisions of this Code (e.g., landscaping, parking, etc.).*
B. *Maximum Lot Coverage: No limit save and except as shall be consistent with the other provisions of this Code (e.g., landscaping, parking, etc.).*
C. *Front Yard Setback: Thirty (30) feet. Structures on corner or through lots shall observe the minimum front yard setback on both streets. Setbacks shall also be maintained from the planned rights-of-way shown on any adopted City street plan.*
D. *Rear and Side Yard Setback: Thirty (30) feet. Structures on corner or through lots shall observe the minimum rear and side yard setbacks on both streets. Setbacks shall also be maintained from the planned rights-of-way shown on any adopted City street plan.*
E. *No setback is required when side or rear yards abut on a railroad siding.*
F. *Corner Vision: Corner lots shall have no sight obstruction to exceed the vision clearance standards of Section 4.177.*
H. *Signs: As provided in Sections 4.156.01 through 4.156.11.*

Response: The proposed development is located along Garden Acres Road and at the corner of Garden Acres Road and the future Java Road. The façade of the building, including the main entry and the front yard are located along Garden Acres Road (West elevation). The proposed and minimum required building setbacks are as follows:

Setbacks	Proposed Setback	Minimum Setback
Front Yard	77'-6".	30'
Side Yard (North)	35'-2"	30'
Side Yard (South)	35'-2"	30'
Rear Yard	711'-9"	30'

The proposed project maintains clear vision areas; with the following exemption of street and site trees. Off Street Parking is addressed later in this narrative with responses to Section 4.155.

Planned Development Standards and Regulations for all Planned Development (PD) Zones

Section 4.118. Standards applying to all Planned Development Zones:

(.01) *Height Guidelines: In "S" overlay zones, the solar access provisions of Section 4.137 shall be used to determine maximum building heights. In cases that are subject to review by the Development Review Board, the Board may further regulate heights as follows:*

A. Restrict or regulate the height or building design consistent with adequate provision of fire protection and fire-fighting apparatus height limitations.

B. To provide buffering of low-density developments by requiring the placement of three or more story buildings away from the property lines abutting a low density zone.

C. To regulate building height or design to protect scenic vistas of Mt. Hood or the Willamette River.

Response: As shown on the Elevations (Exhibit 3 Sheet A3.1), the proposed development will be limited to one-story, 36'-2" feet in height. The height of the building was determined by the nature of operations within the building and provisions of fire protection and fire access. The design of the building has considered neighboring developments and their access to daylight, view of landscape and vistas. These standards are met.

(.02) *Underground Utilities shall be governed by Sections 4.300 to 4.320. All utilities above ground shall be located so as to minimize adverse impacts on the site and neighboring properties.*

Response: As shown on the Utility Plan (Exhibit 3 Sheet C3.0-C3.1), all proposed utilities will be located underground in order to limit adverse impacts on the site and neighboring properties.

(.03) *Notwithstanding the provisions of Section 4.140 to the contrary, the Development Review Board, in order to implement the purposes and objectives of Section 4.140, and based on findings of fact supported by the record may:*

A. Waive the following typical development standards:

1. *minimum lot area;*
2. *lot width and frontage;*
3. *height and yard requirements;*
4. *lot coverage;*
5. *lot depth;*
6. *street widths;*
7. *sidewalk requirements;*
8. *height of buildings other than signs;*
9. *parking space configuration and drive aisle design;*
10. *minimum number of parking or loading spaces;*
11. *shade tree islands in parking lots, provided that alternative shading is provided;*
12. *fence height;*
13. *architectural design standards;*
14. *transit facilities; and*
15. *On-site pedestrian access and circulation standards; and*
16. *Solar* access standards, as provided in section 4.137.

B. *The following shall not be waived by the Board, unless there is substantial evidence in the whole record to support a finding that the intent and purpose of the standards will be met in alternative ways:*
   1. *open space requirements in residential areas;*
   2. *minimum density standards of residential zones;*
   3. *minimum* landscape, buffering, and screening standards;

C. *The following shall not be waived by the Board, unless there is substantial evidence in the whole record to support a finding that the intent and purpose of the standards will be met in alternative ways, and the action taken will not violate any applicable federal, state, or regional standards:*
   1. *maximum number of parking spaces;*
   2. *standards for mitigation of trees that are removed;*
   3. *standards for mitigation of wetlands that are filled or damaged; and*
   4. *trails* or pathways shown in the Parks and Recreation Master Plan.

D. *Locate individual building, accessory buildings, off-street parking and loading facilities, open space and landscaping and screening without reference to lot lines; and*

E. *Adopt other requirements or restrictions, inclusive of, but not limited to, the following:*
   1. *Percent coverage of land by buildings and structures in relationship to property boundaries to provide stepped increases in densities away from low-density development.*
   2. *Parking ratios and areas expressed in relation to use of various portions of the property and/or building floor area.*
   3. *The locations, width and improvement of vehicular and pedestrian access to various portions of the property, including portions within abutting street or private drive.*
   4. *Arrangement and spacing of buildings and structures to provide appropriate open spaces around buildings.*
   5. *Location and size of off-street loading areas and docks.*
   6. *Uses of buildings and structures by general classification, and by specific designation when there are unusual requirements for parking, or when the use involves noise, dust, odor, fumes, smoke, vibration, glare or radiation incompatible with present or potential development of surrounding property. Such incompatible uses may be excluded in the amendment approving the zone change or the approval of requested permits.*
   7. *Measures designed to minimize or eliminate noise, dust, odor, fumes, smoke, vibration, glare, or radiation which would have an adverse effect on the present or potential development on surrounding properties.*
   8. *Schedule of time for construction of the proposed buildings and structures and any stage of development thereof to insure consistency with the City's adopted Capital Improvements Plan and other applicable regulations.*
   9. *A waiver of the right of remonstrance by the applicant to the formation of a Local Improvement District (LID) for streets, utilities and/or other public purposes.*
   10. *Modify the proposed development in order to prevent congestion of streets and/or to facilitate transportation.*
   11. *Condition the issuance of an occupancy permit upon the installation of landscaping or upon a reasonable scheduling for completion of the installation of landscaping. In the latter event, a posting of a bond or other security in an amount equal to one hundred ten percent (110%) of the cost of the landscaping and installation may be required.*

12. *A dedication of property for streets, pathways, and bicycle paths in accordance with adopted Facilities Master Plans or such other streets necessary to provide proper development of adjacent properties.*

Response: The applicant understands the abilities and limitations of the DRB to waive and not waive and adopt additional requirements listed in the sections above. The applicant is not requesting modifications from the provisions and objectives set forth in Section 4.140.

(.04) The Planning Director and Development Review Board shall, in making their determination of compliance in attaching conditions, consider the effects of this action on availability and cost. The provisions of this section shall not be used in such a manner that additional conditions, either singularly or cumulatively, have the effect of unnecessarily increasing the cost of development. However, consideration of these factors shall not prevent the Board from imposing conditions of approval necessary to meet the minimum requirements of the Comprehensive Plan and Code.

(.05) The Planning Director, Development Review Board, or on appeal, the City Council, may as a condition of approval for any development for which an application is submitted, require that portions of the tract or tracts under consideration be set aside, improved, conveyed or dedicated for the following uses:

A. Recreational Facilities: The Director, Board, or Council, as the case may be, may require that suitable area for parks or playgrounds be set aside, improved or permanently reserved for the owners, residents, employees or patrons of the development consistent with adopted Park standards and Parks and Recreation Master Plan.

B. Open Space Area: Whenever private and/or common open space area is provided, the City shall require that an association of owners or tenants be established which shall adopt such Articles of Incorporation, By-Laws or other appropriate agreement, and shall adopt and impose such Declaration of Covenants and Restrictions on such open space areas and/or common areas that are acceptable to the Development Review Board. Said association shall be formed and continued for the purpose of maintaining such open space area. Such an association, if required, may undertake other functions. It shall be created in such a manner that owners of property shall automatically be members and shall be subject to assessments levied to maintain said open space area for the purposes intended. The period of existence of such association shall be not less than twenty (20) years and it shall continue thereafter and until a majority vote of the members shall terminate it, and the City Council formally votes to accept such termination.

C. Easements: Easements necessary to the orderly extension of public utilities, and the protection of open space, may be required as a condition of approval. When required, such easements must meet the requirements of the City Attorney prior to recordation.

Response: The applicant understands the abilities and limitations of the Planning Director and DRB to apply conditions of approval for any development for which an application is submitted, requiring that portions of the tract or tracts under consideration be set aside, improved, conveyed or dedicated for the uses listed in the section above.

(.06) Nothing in this Code shall prevent the owner of a site that is less than two (2) acres in size from filing an application to rezone and develop the site as a Planned Development. Smaller properties may or may not be suitable for such development, depending upon their particular sizes, shapes, locations, and the nature of the proposed development, but Planned Developments shall be encouraged at any appropriate location.

(.07) *Density Transfers. In order to protect significant open space or resource areas, the Development Review Board may authorize the transfer of development densities from one portion of a proposed development to another. Such transfers may go to adjoining properties, provided that those properties are considered to be part of the total development under consideration as a unit.*

(.08) *Wetland Mitigation and other mitigation for lost or damaged resources. The Development Review Board may, after considering the testimony of experts in the field, allow for the replacement of resource areas with newly created or enhanced resource areas. The Board may specify the ratio of lost to created and/or enhanced areas after making findings based on information in the record. As much as possible, mitigation areas shall replicate the beneficial values of the lost or damaged resource areas.*

(.09) *Habitat-Friendly Development Practices. To the extent practicable, development and construction activities of any lot shall consider the use of habitat-friendly development practices, which include:*

A. Minimizing grading, removal of native vegetation, disturbance and removal of native soils, and impervious area;

B. Minimizing adverse hydrological impacts on water resources, such as using the practices described in Part (a) of Table NR-2 in Section 4.139.03, unless their use is prohibited by an applicable and required state or federal permit, such as a permit required under the federal Clean Water Act, 33 U.S.C. §§1251 et seq., or the federal Safe Drinking Water Act, 42 U.S.C. §§300f et seq., and including conditions or plans required by such permit;

C. Minimizing impacts on wildlife corridors and fish passage, such as by using the practices described in Part (b) of Table NR-2 in Section 4.139.03; and

D. Using the practices described in Part (c) of Table NR-2 in Section 4.139.03. [Section 4.118(.09) added by Ord. # 674 11/16/09]

Response: In an effort to maintain and create habitat-friendly development, the applicant has elected to leave more than half of the overall 9.32-acre site in a natural grassy state. In addition, the applicant has maintained existing trees where possible and will plant additional trees throughout the site. Finally, the Stormwater Plan (Exhibit 5) details how Low Impact Development methods such as streetscape planters, will be used for Stormwater Management, which will help to create conditions where habitat can thrive. These standards are met.

Section 4.140. Planned Development Regulations.

(.01) *Purpose .*

A. The provisions of Section 4.140 shall be known as the Planned Development Regulations. The purposes of these regulations are to encourage the development of tracts of land sufficiently large to allow for comprehensive master planning, and to provide flexibility in the application of certain regulations in a manner consistent with the intent of the Comprehensive Plan and general provisions of the zoning regulations and to encourage a harmonious variety of uses through mixed use design within specific developments thereby promoting the economy of shared public services and facilities and a variety of complimentary activities consistent with the land use designation on the Comprehensive

Plan and the creation of an attractive, healthful, efficient and stable environment for living, shopping or working.

B. It is the further purpose of the following Section:

1. *To take advantage of advances in technology, architectural design, and functional land use design:*
2. *To recognize the problems of population density, distribution and circulation and to allow a deviation from rigid established patterns of land uses, but controlled by defined policies and objectives detailed in the comprehensive plan;*
3. *To produce a comprehensive development equal to or better than that resulting from traditional lot land use development.*
4. *To permit flexibility of design in the placement and uses of buildings and open spaces, circulation facilities and off-street parking areas, and to more efficiently utilize potentials of sites characterized by special features of geography, topography, size or shape or characterized by problems of flood hazard, severe soil limitations, or other hazards;*
5. *To permit flexibility in the height of buildings while maintaining a ratio of site area to dwelling units that is consistent with the densities established by the Comprehensive Plan and the intent of the Plan to provide open space, outdoor living area and buffering of low-density development.*
6. *To allow development only where necessary and adequate services and facilities are available or provisions have been made to provide these services and facilities.*
7. *To permit mixed uses where it can clearly be demonstrated to be of benefit to the users and can be shown to be consistent with the intent of the Comprehensive Plan.*
8. *To allow flexibility and innovation in adapting to changes in the economic and technological climate.*

Response: As illustrated on the Site Plan, Landscape Plan and Building Elevations (Exhibit 3 Sheets A1.0, L1.0 and A3.1), the proposed development presents an alternative approach to industrial building design, which is consistent with the purposes of this section. The project utilizes an architectural palette of materials that provides a more approachable, enjoyable aesthetic experience than what is typically seen in nearby industrial spaces. The project will incorporate wood accent siding, and accent slats over glazing elements.

The proposed development has been designed in a thoughtful way as an attractive building that represents Precision's high-quality products and mission to create a better world through their work. The site design provides clear circulation, abundant and high-quality open spaces and landscapes, special features such as the entry plaza and transparent showroom, and an architectural massing to provide a sense of place and human scale. The design meets the purpose of the Planned Development Regulations section. These requirements are met.

(.02) Lot Qualification.

A. Planned Development may be established on lots which are suitable for and of a size to be planned and developed in a manner consistent with the purposes and objectives of Section 4.140.

B. Any site designated for development in the Comprehensive Plan may be developed as a Planned Development, provided that it is zoned "PD" or specifically defined as a PD zone by

this code. All sites which are greater than two (2) acres in size, and designated in the Comprehensive Plan for commercial, residential, or industrial use shall be developed as Planned Developments, unless approved for other uses permitted by the Development Code. Smaller sites may also be developed through the City's PD procedures, provided that the location, size, lot configuration, topography, open space and natural vegetation of the site warrant such development.

Response: The size of the proposed site is greater than two acres, as broken down in the table below. Therefore, the project anticipates being a Planned Development.

Proposed Development	Square Feet	Acres
Property	406,233	9.32
Proposed site area	206,217	4.73
Building area	65,800	1.51

(.03) Ownership.

A. The tract or tracts of land included in a proposed Planned Development must be in one (1) ownership or control or the subject of a joint application by the owners of all the property included. The holder of a written option to purchase, with written authorization by the owner to make applications, shall be deemed the owner of such land for the purposes of Section 4.140.

B. Unless otherwise provided as a condition for approval of a Planned Development permit, the permittee may divide and transfer units or parcels of any development. The transferee shall use and maintain each such unit or parcel in strict conformance with the approval permit and development plan.

Response: The proposed development ownership consists of three partners: Marcus Neff, Robert Hausserman and Steve Mast under an Oregon LLC called "PCT NW Properties Oregon LLC." The individuals have closed on the land ownership.

(.04) Professional Design.

A. The applicant for all proposed Planned Developments shall certify that the professional services of the appropriate professionals have been utilized in the planning process for development.

B. Appropriate professionals shall include, but not be limited to the following to provide the elements of the planning process set out in Section 4.139:

1. An architect licensed by the State of Oregon;

2. A landscape architect registered by the State of Oregon;

3. An urban planner holding full membership in the American Institute of Certified Planners, or a professional planner with prior experience representing clients before the Development Review Board, Planning Commission, or City Council; or

4. A registered engineer or a land surveyor licensed by the State of Oregon.

C. One of the professional consultants chosen by the applicant from either 1, 2, or 3, above, shall be designated to be responsible for conferring with the planning staff with respect to the concept and details of the plan.

D. The selection of the professional coordinator of the design team will not limit the owner or the developer in consulting with the planning staff.

Response: The proposed development has been designed by a professional architect licensed by the State of Oregon and landscape architect registered by the State of Oregon. Mildren Design Group will be

designated to confer with city planning staff with respect to concept details of the plan. First Forty Feet LLC will be administering the land-use planning and coordination of land-use approval. These requirements are met.

(.05) *Planned Development Permit Process.*

A. All parcels of land exceeding two (2) acres in size that are to be used for residential, commercial or industrial development, shall, prior to the issuance of any building permit:

1. Be zoned for planned development;

2. Obtain a planned development permit; and

3. Obtain Planning Director, Development Review Board, or, on appeal, City Council approval.

B. Zone change and amendment to the zoning map are governed by the applicable provisions of the Zoning Sections, inclusive of Section 4.197

C. Development Review Board and Planning Director approval is governed by Sections 4.400 to 4.450

D. All planned developments require a planned development permit. The planned development permit review and approval process consists of the following multiple stages, the last two or three of which can be combined at the request of the applicant:

1. Pre-application conference with Planning Department;

2. Preliminary (Stage I) review by the Development Review Board or the Planning Director for properties within the Coffee Creek Industrial Design Overlay District. When a zone change is necessary, application for such change shall be made simultaneously with an application for preliminary approval; and

3. Final (Stage II) review by the Development Review Board or the Planning Director for properties within the Coffee Creek Industrial Design Overlay District.

4. In the case of a zone change and zone boundary amendment, City Council approval is required to authorize a Stage I preliminary plan except for properties within the Coffee Creek Industrial Design Overlay District, which may receive separate zone map amendment approvals.

Response: The proposed development exceeds two acres and is requesting a Planned Development permit with Stage I and II review and approval by the Development Review Board. The site is located in the Coffee Creek Industrial Design Overlay district. A concurrent related zoning map amendment and annexation was submitted in April 2022 to change the site's zoning from Unincorporated Washington County Future Development 20-acre District (FD-20) to City of Wilsonville Zoning Planned Development Industrial-RSIA (PDI-RSIA). The development review request and these narrative responses are being submitted with the assumption that the Zoning map change and annexation have been approved as per what City policy allows. Additionally, a pre-application conference with the Planning Department took place on July 28, 2021. See Pre-Application Conference notes for details (Exhibit 11).

Overlay Zones

Section 4.134 Coffee Creek Industrial Design Overlay District

(.01) *Purpose. The Coffee Creek Industrial Design Overlay District (Coffee Creek DOD) is an overlay district within the Planned Development Industrial - Regionally Significant Industrial Area (RSIA) Zone Section 4.135.5. The purpose of this Coffee Creek DOD is to implement the Coffee Creek Industrial Area Master Plan (2007) by establishing standards for street design and connectivity, site design and circulation, building form, and building architecture and landscape for all development located within the master plan area. These standards are intended to result in:*

A. An industrial district featuring cohesive and high-quality site, landscape, and building design that is well integrate d with adjacent streetscapes and other public spaces.
B. A multi-modal transportation network accommodating pedestrians, bicyclists, transit riders, motorists, and freight in the context of a modern light industrial district.
C. Preservation of trees and natural features.
D. Minimization of adverse impacts to adjacent properties from development that detracts from the character and appearance of the area.
E. Minimization of the off-site visibility of vehicular parking, circulation and loading areas.
F. Creation of a pleasant and functional industrial district for employees and visitors.
G. A predictable and timely process for reviewing light industrial development applications.

Response: The proposed development is located in and conforms to the Coffee Creek Industrial DOD within the Planned Development Industrial-RSIA zone. The following responses describe the intent of the proposed development and how the design addresses Coffee Creek DOD standards for street design, connectivity, site design, circulation, building form, massing, architecture, and landscape architecture.

(.02) *Applicability. The Coffee Creek DOD shall apply to all properties within the Coffee Creek Industrial Area Master Plan as shown in the Regulating Plan (Figure CC-1). The provisions of this section shall apply to:*

A. All new building construction.
B. Any exterior modifications to existing, non-residential buildings, subject to Section 4.134 (.03).
C. All development of site improvements including but not limited to new paved parking lots, outdoor storage, display areas, signs, and landscaping.
D. All building expansions greater than 1,250 square feet.

Response: The proposed project is for new development within the Coffee Creek DOD. Therefore, this section applies.

(.03) *Exceptions. This section does not apply to the following:*

A. Maintenance of the exterior of an existing industrial/employment structure, such as painting to the approved color palette, reroofing, or residing with the same or similar materials.
B. Interior remodeling.
C. Maintenance of existing dwellings and accessory buildings.
D. *Maintenance of agricultural buildings*.

(.04) *<u>Uses that Are Typically Permitted</u>. The uses permitted shall be governed by Section 4.135.5 (.03).*

Response: The proposed project consists of new construction of a headquarters for Precision Countertops, a countertop fabrication facility. As described under the response to Section 4.135.5 earlier in this narrative, the area of the proposed building is 65,800 SF consisting of warehouse space, retail and showroom, office space, storage, and fabrication, which are all permitted uses. This requirement is met.

(.05) *<u>Prohibited Uses</u>. The uses prohibited shall be governed by Section 4.135.5 (.04).*

(.06) *<u>Overview of Coffee Creek DOD Standards</u>.*

A. Section 4.134 (.09) Regulating Plan. The Regulating Plan organizes all existing and future streets, drives, and shared-use paths within the Coffee Creek Industrial Area into a hierarchy of Addressing Streets, Supporting Streets and Through Connections.

Response: The proposed development incorporates the planned Java Road alignment, categorized as a Supporting Street in Figure CC-1 of the Regulating Plan. Java Road will connect east-west through the site along the northern boundary, meeting the design specifications of a Supporting Street. Half street improvements will be constructed as part of this project (See Exhibit 3 Sheets A1.0-A1.1).

Figure CC-1 - Regulating Plan

B. *Section 4.134 (.10) Connectivity Standards.*

1. *New Supporting Streets and Through Connections are required within the Coffee Creek DOD to meet Connectivity Requirements as shown on Figure CC-4.*

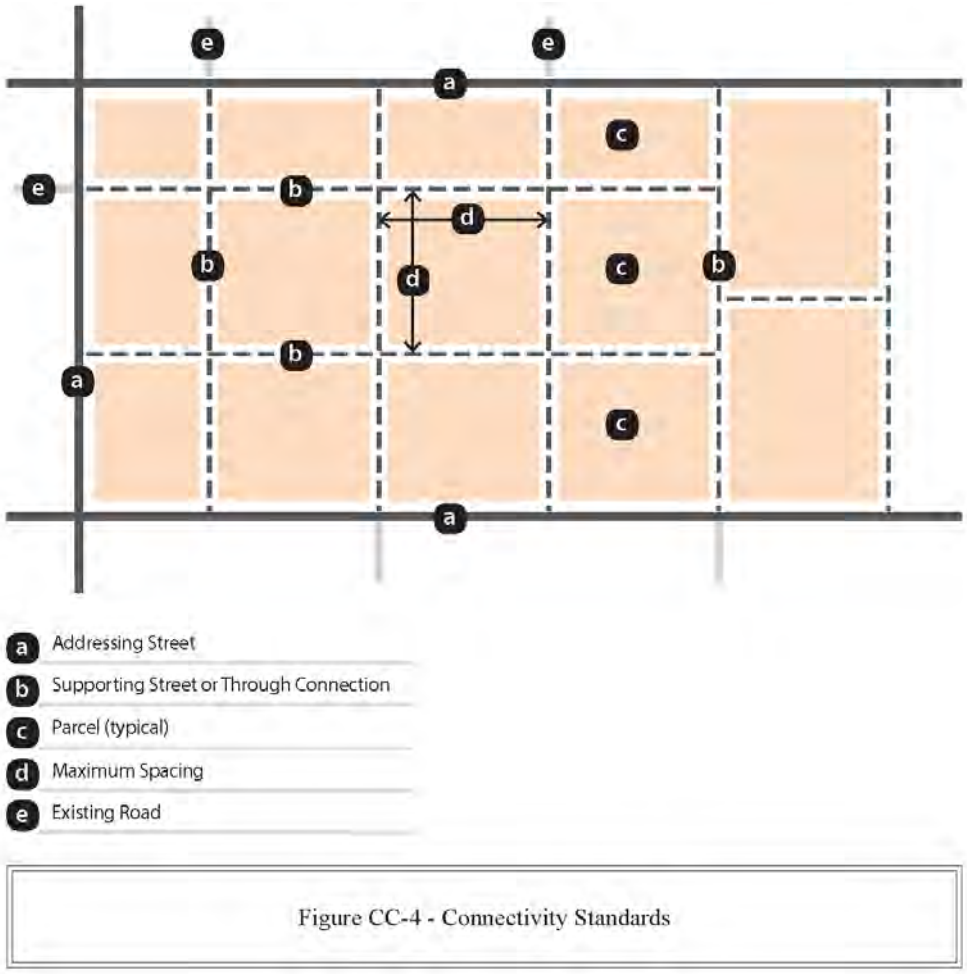


Figure CC-4 - Connectivity Standards

Response: As shown on the Site Plan (Exhibit 3 Sheet A1.10), the proposed project conforms to the connectivity standards outlined in the Coffee Creek DOD, specifically 'Addressing Streets' (Garden Acres Road) and 'Supporting Streets' (Java Road), with the building façade and entry along the Garden Acres Road frontage and ensuring adequate parcel and street spacing consistent with Figure CC-4. This standard is met.

C. *Section 4.134 (.11) Development Standards Table.*

1. *The Development Standards Table provides an overview of all applicable development standards. The development standards for any given parcel are determined by the existing or future street or shared-use path type on which the parcel fronts, as detailed in Table CC-1.*

2. *Areas bounded by new Supporting Streets and Through Connections are designated as Parcels and are required to comply with Development Standards governing site design, building orientation and frontage. The development standards for site design, building*

façade and landscape design are intended to work in tandem with the street types to create a cohesive and unified public realm.

3. *Adjustments to Development Standards may be granted by the Planning Director for quantifiable provisions, as noted in Tables CC-1 though CC-4, if the Planning Director finds that the adjusted Development Standard will perform as well as the Development Standard.*

Response: The proposed development conforms with the objectives and details in Table CC-1. As shown on the Site Plan (Exhibit 3 Sheet A1.10), it will incorporate the required 'Addressing Street' on which the parcel and building fronts and 'Supporting Street' (Java Road) on which the parcel fronts. The development complies with Development Standards governing site design, building façade, and landscape design, working in tandem with the street type. The aim is to enhance the existing Garden Acres Road streetscape and create an active, interesting and safe new streetscape along Java Road, the 'Supporting Street'. No adjustments are needed. These standards are met.

D. Coffee Creek DOD Pattern Book. The Coffee Creek DOD Pattern Book provides supplemental design guidelines, which are intended to allow more flexibility in design than the Development Standards while satisfying the purpose of the Coffee Creek DOD.

(.07) Review Process. Development applications shall follow the application review process described in:

A. Section 4.197 Zone Changes and Amendments.
B. Section 4.198 Comprehensive Plan Changes.
C. Section 4.700 Annexation and Urban Growth Boundary Amendments
D. Section 4.140 Planned Development Regulations.

(.08) Waivers. The Development Review Board may waive standards as listed in Section 4.134 (.11), consistent with the provisions of Section 4.118 (.03).

A. The following standards shall not be waived, unless there is substantial evidence in the whole record to support a finding that the intent and purpose of the standards will be met in alternative ways:

1. *Required minimum building height as provided in Section 4.134 (.11) Table CC-4;*
2. *Parking location and design along addressing streets in Section 4.134 (.11) Table CC-3; and*
3. *Parcel pedestrian access as listed in Section 4.134 (.11) Table CC-3.*

Response: The proposed development will request one waiver for the proposed site development. The team requests a 40ft wide access drive to accommodate truck operations for turning requirements, movement, circulation, safety considerations.

B. In addition to meeting the purposes and objectives of Section 4.140, any waivers granted in the Coffee Creek DOD must be found to be consistent with the intent of the Coffee Creek DOD Pattern Book.

Response: The proposed development will request one waiver for the proposed site development. The team requests a 40ft wide access drive to accommodate truck operations for turning requirements, movement, circulation, safety considerations.

(.09) Coffee Creek DOD Regulating Plan, Figure CC-1.

A. Components of the Regulating Plan Map

1. Addressing Streets. Existing and planned streets within the Regulating Plan Area are called Addressing Streets and include Cahalin Road, Day Road, Clutter Street, Grahams Ferry Road, Garden Acres Road, and "Future" Street.

2. Overlay District. Land area identified within the Coffee Creek DOD on Figure CC-1 is subject to additional Connectivity Standards as detailed in Figure CC-4 and Table CC-1.

Response: (1) As shown on the Site Plan (Exhibit 3 Sheet A1.1), the proposed development is located at the intersection of existing Garden Acres Road, an 'Addressing Street' and future Java Road, a 'Supporting Street' according to Figure CC-1.

(2) The proposed development will address all connectivity standards as detailed in Figure CC-4 and Table CC-1, ensuring that Java Road intersects with Garden Acres Road.

(.10) Coffee Creek Connectivity Standards

A. Street Types, Figure CC-1. Within the land area bounded by Addressing Streets, connectivity shall be provided through new streets or private drives and shared use paths. The location, alignment, and cross-section of required streets or private drives and shared-use paths is flexible, as long as they comply with spacing and minimum cross section standards. New connections may be one of the following types:

1. Supporting Streets. Supporting Streets are new public streets or public easements. They shall meet the development standards set out in Figure CC-2.

a. A Required Supporting Street is one that intersects with an Addressing Street as shown on Figure CC-1. The exact location and design of these connections will be determined at the time of development review.

b. Planned Intersections are locations where Existing and Planned Addressing Streets intersect with required Supporting Streets, and Planned Pathways, as generally shown in Figure CC-1.

2. Through Connections. Through Connections are new public streets or public easements with multi-use paths, or streets or public easements that combine characteristics of streets and multi-use paths. They shall meet the Development Standards set out in Figure CC-3.

Response: The main façade frontage of the proposed development is along Garden Acres Road, an existing 'Addressing Street' and is located at its intersection with future Java Rd, a required 'Supporting Street.' The intersection of existing Garden Acres Road and future Java Road is a Planned Intersection as per Figure CC-1, which will be finalized when the parcel to the north is developed. The temporary access from Garden Acres Road will be closed at that time.

As shown on Exhibit 3 SheetsA1.0 and A1.1, Java Road will feature a network of bike, pedestrian, and motor vehicle connectivity, including half street improvements of 12' travel lane width, 8' parallel parking lane, 6' pedestrian sidewalk and 6' planting strip. This cross-section design is consistent with Figure CC-2, Supporting Streets Standards. The connectivity plan has been satisfied.

B. Planned Pathways are multi-use paths or pedestrian connections that are planned in the Transportation Systems Plan to occur in the location generally shown in Figure CC-1. A Planned Pathway may be employed to meet required connectivity, if it complies with Through Connection Standards for Connection Spacing and Connection Type, see Figure CC-6.

Response: Java Road will be constructed as a Required Supporting Street, therefore a Planned Pathway is not required as part of this project. This requirement does not apply.

C. Maximum Connection Spacing.

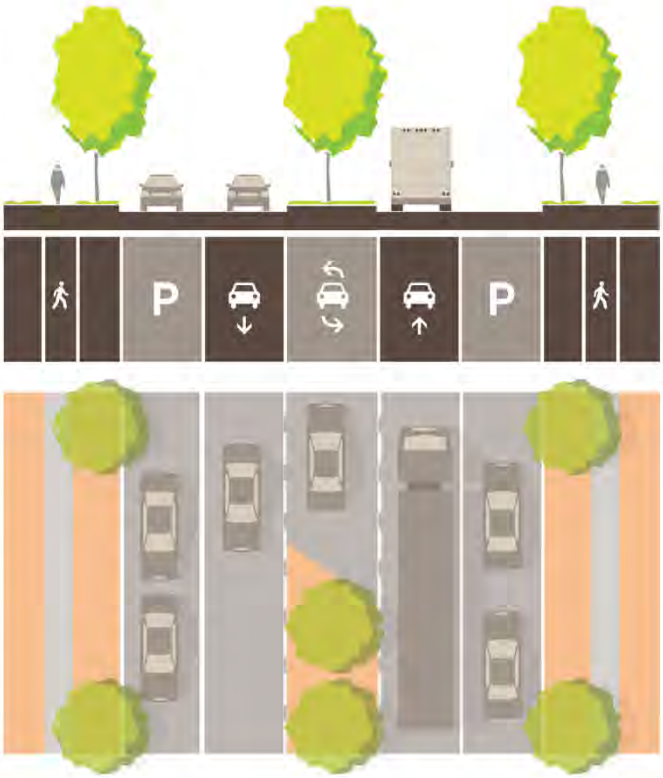
1. *Addressing Streets. When intersecting with an Addressing Street, new Supporting Streets and Through Connections shall meet maximum spacing standards as set out in Table CC-1.*
2. *Internal Supporting Streets and Through Connections. See Figure CC-4 and Table CC-1.*

Response: As shown on the Site Plan (Exhibit 3 Sheet A1.1), the proposed development is consistent with the maximum connection spacing requirements for Addressing Streets, which, according to Table CC-1 is 600 ft. from centerline to centerline. The location of Java Road and its spacing has been determined by the Coffee Creek Regulating Plan. This standard has been met.

D. Required Connectivity Master Plan. Connectivity Master Plans are required for all development within the Coffee Creek DOD. Development proposals shall show conceptually how the Connectivity Requirements will be met. In addition, the Connectivity Master Plan should generally indicate how parking, driveways, walkways, waysides, etc., will relate or connect to adjacent parcels.

Response: The elements of the Required Connectivity Master Plan are illustrated on the Site Plan (Exhibit 3 Sheet A1.0), which conceptually shows how the connectivity requirements in this section will be met. It also shows how parking, driveways, walkways, and waysides will relate to or connect to adjacent parcels.

Specifications for Supporting Streets	
Type	Multimodal Connection*
Aesthetic Character / Identity	Minor Addressing Street
Role in Network	Bike, Pedestrian and Local Vehicular Connectivity
Design Speed	under 20 mph
Right-of-Way / Easement	Varies
Curb-to-Curb Width	24-54 feet
Travel Lanes (number)	2
Travel Lane Width	10-12 feet
Center Turn Lane Width	14 feet, max. (optional)
Parking Lane Width	8 feet (optional)
Bike Facilities	Shared Street
Sidewalk Width	6 feet (minimum)
Planting Strip Width	6 feet (minimum)
Planted Median Width	14 (minimum, optional)



*The Regulating Plan (Figure CC-1) illustrates the general location of planned multimodal connections. These are labeled as *Required Supporting Streets*. Within 300 feet of an Addressing Street, the exact location and design of these connections will be determined at the time of development review.

Figure CC-2 - Supporting Streets Standards

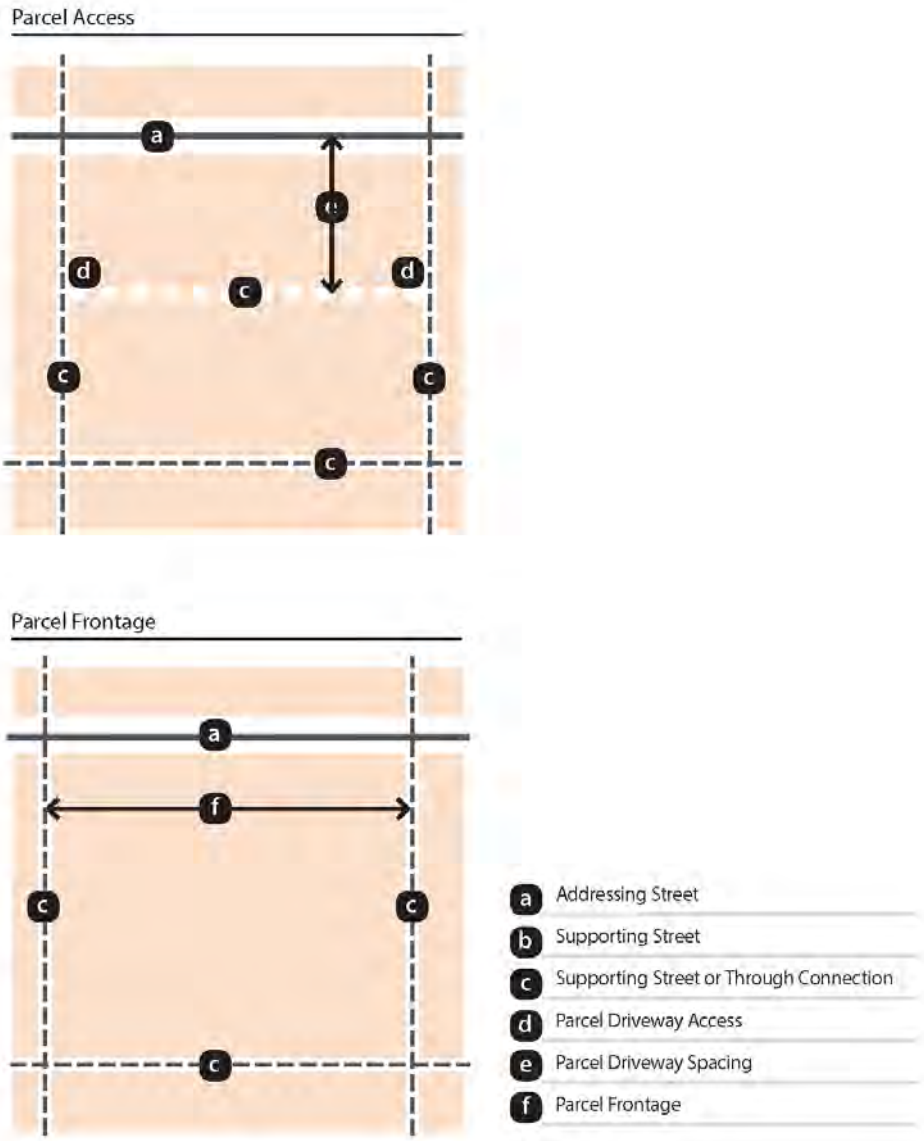


Figure CC-6 - Site Design - Parcel Access

(.11) Development Standards Table. Areas bounded by Addressing Streets, Supporting Streets and Through Connections shall be designated as a Parcel and subject to the Development Standards in Tables CC-1 through CC-4.

Response: The project is bounded by an 'Addressing Street' (Garden Acres Road) and a 'Supporting Street' (Java Road). Therefore, the standards in Tables CC-1 through CC-4 apply.

Table CC-1: Street Design and Connectivity			
	Addressing Streets	**Supporting Streets**	**Through Connections**
General	Development Standards within this table are not adjustable.		
Connection Spacing	Not applicable, Addressing Streets exist or are planned	600 feet, maximum, centerline to centerline. Supporting Streets and Through Connections shall intersect with Garden Acres Road as shown on Figure CC-1, Regulating Plan; or if the Addressing Street is Day Road, no less than 1,000 feet apart, centerline to centerline.	
Connection Type	Addressing Streets are Day Road, Grahams Ferry Road, Cahalin Road, Garden Acres Road, Clutter Street, and "Future" Street.	Supporting Streets are those meeting Specifications, Figure CC-2. A Required Supporting Street is one that intersects with an Addressing Street. The exact location and design of these connections will be determined at the time of development review.	Through Connections are those meeting Specifications, Figure CC- 3. Through Connections may be multimodal or used exclusively for bicycle and pedestrian access.
Connection Hierarchy and Primary Frontage	If one of the streets or connections bounding a parcel is an Addressing Street, the Addressing Street shall be the Primary Frontage. If none of the bounding streets or connections is an Addressing Street, a Supporting Street shall be the Primary Frontage. See Figure CC-5.		

Response: The proposed development includes a Required Supporting Street (Java Road) and is located along the frontage of an Addressing Street (Garden Acres Road). The project will include half street improvements for Java Road designed to the specifications of a Supporting Street in Figure CC-2,

within the regulating plan area. Details of the half street improvements are illustrated on Exhibit 3 Sheet A1.1.

Connection Spacing: As shown on the Site Plan (Exhibit 3 Sheet A1.0), connection spacing for Java Road (a Required Supporting Street) will not exceed the maximum distance of 600' from centerline to centerline. Java Road intersects with Garden Acres Road, defined as an Addressing Street, consistent with Figure CC-1, Regulating Plan. Connection spacing does not apply to Garden Acres Road.

Connection Type: The proposed development is located at the intersection of Garden Acres Road (an Addressing Street) and Java Road, a Supporting Street. Therefore, Java Road is also a Required Supporting Street.

Connection Hierarchy and Primary Frontage: The proposal intends to address all connectivity standards as detailed in Figure CC-4 and Table CC-1, ensuring that Java Road intersects with Garden Acres Road. Garden Acres Road will be the primary frontage. The building main entry and showroom have been designed to address the 'Addressing Street' and establish a clear front door to the development.

Table CC-3: Site Design

	Addressing Streets	Supporting Streets	Through Connections
1. Parcel Access			
General	Unless noted otherwise below, the following provisions apply: • Section 4.177 (.02) for street design; • Section 4.177 (.03) to (.10) for sidewalks, bike facilities, pathways, transit improvements, access drives & intersection spacing. The following Development Standards are adjustable: • Parcel Driveway Spacing: 20% • Parcel Driveway Width: 10%		
Parcel Driveway Access	Not applicable	Limited by connection spacing standards Parcel Driveway Access may be employed to meet required connectivity, if it complies with Supporting Street Standards for Connection Spacing and Connection Type, see Figure CC-6. Subject to approval by City Engineer	Limited by connection standards for motorized vehicle access. Parcel Driveway Access may be employed to meet required connectivity, if it complies with Through Connection Standards for Connection Spacing and Connection Type, see Figure CC-6. Subject to approval by City Engineer
Parcel Driveway Spacing	Not applicable	150 feet, minimum See Figure CC-6	150 feet, minimum See Figure CC-6
Parcel Driveway Width	Not applicable	24 feet, maximum or complies with Supporting Street Standards	24 feet, maximum or complies with Through Connection Standards

Response:

(1) Parcel Access

Parcel Driveway Access: Proposed parcel driveway access is provided on both the Addressing Street and Supporting Street, as shown on the Site Plan (Exhibit 3 Sheet A1.0). When the intersection of Java Road and Garden Acres Road is developed in the future, parcel access will be limited to Java Road.

Parcel Driveway Spacing: The two proposed access points from the Supporting Street (Java Road) meet the minimum driveway spacing standard of 150.'

Parcel Driveway Width: The single access point from Garden Acres Road has a driveway width of 30'. Two access points are placed off the east/west running Supporting Street (Java Road) with a driveway width of 30' each. The driveway width is considered temporary until the full road can be completed. Upon completion of Java Road, the driveways will meet the 24' driveway width standard.

Table CC-3: Site Design			
	Addressing Streets	**Supporting Streets**	**Through Connections**
2. Parcel Pedestrian Access			
General	Unless noted otherwise below, the following provisions apply: • Section 4.154 (.01) for separated & direct pedestrian connections between parking, entrances, street right-of-way & open space • Section 4.167 (.01) for points of access		
Parcel Pedestrian Access Spacing	No restriction		
Parcel Pedestrian Access Width	8 feet wide minimum		
Parcel Pedestrian Access to Transit	Provide separated & direct pedestrian connections between transit stops and parking, entrances, street right-of-way & open space.		
3. Parcel Frontage			
Parcel Frontage, Defined	Parcel Frontage shall be defined by the linear distance between centerlines of the perpendicular Supporting Streets and Through-Parcel Connections. Where Parcel Frontage occurs on a curved segment of a street, Parcel Frontage shall be defined as the linear dimension of the Chord.		
Primary Frontage, Defined	The Primary Frontage is the Parcel Frontage on an Addressing Street. If the parcel is not bounded by Addressing Streets, it is the Parcel Frontage on a Supporting Street. See Figure CC-5.		
Parcel Frontage Occupied by a Building	A minimum of 100 feet of the Primary Frontage shall be occupied by a building. The maximum Primary Frontage occupied by a building shall be limited only by required side yard setbacks.	No minimum	
4. Parking Location and Design			
General	Unless noted otherwise below, the following provisions apply: • Section 4.155 (03) Minimum and Maximum Off-Street Parking Requirements • Section 4.155 (04) Bicycle Parking • Section 4.155 (06) Carpool and Vanpool Parking Requirements • Section 4.176 for Parking Perimeter Screening and Landscaping - permits the parking landscaping and screening standards as multiple options The following Development Standards are adjustable: • Parking Location and Extent: up to 20 spaces permitted on an Addressing Street		

Response:

(2) Parcel Pedestrian Access

Parcel Pedestrian Access Width: Pedestrian access points to the parcel are illustrated on the Site Plan, Exhibit 3 Sheet A1.0. The proposed development includes pedestrian access points from Garden Acres Road and Java Road. The pedestrian access from the Addressing Street, Garden Acres Road is an 6' wide pedestrian connection that leads directly to the building's main entrance. The pedestrian access from

the Supporting Street, Java Road, connects the 6' wide Java Road sidewalk with an 6' pedestrian connection leading to the building's main entrance.

Parcel Pedestrian Access to Transit: While no direct pedestrian connections between transit stops occur within the subject site, the applicant has provided direct pedestrian connections from the proposed building to Garden Acres Road, the Addressing Street, which is connected to transit. This standard is met.

(3) Parcel Frontage

Primary Frontage Defined: The parcel is bounded by a Garden Acres Road, an Addressing Street. Therefore, it is the Primary Frontage.

Parcel Frontage Occupied by a Building: As shown on the Site Plan (Exhibit 3 Sheet A1.0), at least 100' of the Primary Frontage is occupied by the building design.

Table CC-3: Site Design			
	Addressing Streets	**Supporting Streets**	**Through Connections**
Parking Location and Extent	Limited to one double-loaded bay of parking, 16 spaces, maximum, designated for short-term (1 hour or less), visitor, and disabled parking only between right-of-way of Addressing Street and building.	Parking is permitted between right-of-way of Supporting Street and building.	Parking is permitted between right-of-way of Through Connection and building.
Parking Setback	20 feet minimum from the right-of-way of an Addressing Street.	15 feet minimum from the right-of-way of a Supporting Street.	10 feet minimum from the right-of-way of a Through Connection.
Parking Lot Sidewalks	Where off-street parking areas are designed for motor vehicles to overhang beyond curbs, sidewalks adjacent to the curbs shall be increased to a minimum of seven (7) feet in depth.	Where off-street parking areas are designed for motor vehicles to overhang beyond curbs, planted areas adjacent to the curbs shall be increased to a minimum of nine (9) feet in depth.	
Parking Perimeter Screening and Landscaping	Screen parking area from view from Addressing Streets and Supporting Streets by means of one or more of the following: a. General Landscape Standard, Section 4.176 (.02) C. b. Low Berm Standard, Section 4.176 (.02) E., except within 50 feet of a perpendicular Supporting Street or Through Connection as measured from the centerline.		Screen parking area from view from Through Connections by means of a. Low Screen Landscape Standard, Section 4.176 (.02) D., or b. High Screen Landscaping Standard, Section 4.176 (.02) F., or c. High Wall Standard, Section 4.176 (.02) G., or d. Partially Sight-obscuring Fence Standard, Section 4.176 (.02) I.
Off-Street Loading Berth	One loading berth is permitted on the front façade of a building facing an Addressing Street. The maximum dimensions for a loading are 16 feet wide and 18 feet tall. A clear space 35 feet, minimum is required in front of the loading berth.	No limitation. Shall meet minimum standards in Section 4.155 (.05).	

Table CC-3: Site Design			
	Addressing Streets	**Supporting Streets**	**Through Connections**
	The floor level of the loading berth shall match the main floor level of the primary building. No elevated loading docks or recessed truck wells are permitted. Access to a Loading Berth facing an Addressing Street may cross over, but shall not interrupt or alter, a required pedestrian path or sidewalk. All transitions necessary to accommodate changes in grade between access aisles and the loading berth shall be integrated into adjacent site or landscape areas. Architectural design of a loading berth on an Addressing Street shall be visually integrated with the scale, materials, colors, and other design elements of the building.		
Carpool and Vanpool Parking	No limitation		
5. Grading and Retaining Walls			
General	The following Development Standards are adjustable: • Retaining Wall Design: 20%		
Maximum height	Where site topography requires adjustments to natural grades, landscape retaining walls shall be 48 inches tall maximum. Where the grade differential is greater than 30 inches, retaining walls may be stepped.		
Required Materials	Materials for retaining walls shall be unpainted cast-in-place, exposed-aggregate, or board-formed concrete; brick masonry; stone masonry; or industrial-grade, weathering steel plate.		
Retaining Wall Design	Retaining walls longer than 50 linear feet shall introduce a 5-foot, minimum horizontal offset to reduce their apparent mass.		

(4) Parking Location and Design

The General Requirements for Parking Locations and Design provisions are addressed under General Development Regulations and Standards of this narrative.

Parking Location and Extent: Proposed parking for this project will be located at the northwest corner of the site between the proposed building and Garden Acres Road (an Addressing Street) as well as Java Road, a Supporting Street. This parking area contains 15 spaces, and is limited to **short term, visitor,**

and ADA accessible parking. An additional parking area containing 56 parking spaces are located at the east end of the site. The standard is met. See Exhibit 3 Sheet A1.0 (Site Plan).

Parking Setback: The standard for parking lot setbacks is 20' minimum from the ROW of an Addressing Street. As shown on the Site Plan (Exhibit 3 Sheet A1.0), the parking area with 15 spaces in the northwest corner of the site meets this standard. The standard for parking lot setbacks is 15' minimum from the ROW of a Supporting Street. The Site Plan also shows that the main parking area adjacent to Java Road, east of the building with 56 spaces, meets this standard. These standards are met.

Parking Lot Sidewalks: As shown on the Landscape Plan (Exhibit 3 Sheet L1.0), the planted areas along Java Road between the off-street parking and public streets are sized to allow for the overhang of motor vehicles. The development does not have parking areas along Garden Acres Road. This standard is met.

Parking Perimeter Screening and Landscaping: As shown on Exhibit 3 Sheets L1.0-L1.1, the landscape plan provides landscape screening of the north/northeast parking area from view from Java Road using low and high screen landscape elements, including low shrubs and high street trees.

Off-Street Loading Berth: The building square footage is 65,800 GSF thus requires (2) two loading berths. Three off-street loading berths are provided, and they are located behind the building and are not visible from Garden Acres Road. Therefore, there is no limitation on the location or size or the loading berths except that they need to meet meet the general code requirements for loading in Section 4.155 on page 55 of this narrative.

(5) Grading and Retaining Walls

The site is fairly flat and will not require retaining walls or significant grading. See Grading Plan for more details (Exhibit 3 Sheet C2.1). These standards do not apply.

Table CC-3: Site Design			
	Addressing Streets	**Supporting Streets**	**Through Connections**
6. Planting			
General	Unless noted otherwise below, the following provisions apply: • Section 4.176 Landscaping and Screening Standards		
Landscaping Standards Permitted	General Landscape Standard, Section 4.176 (.02) C. Low Berm Standard, Section 4.176 (.02) E., except within 50 feet of a perpendicular Supporting Street or Through Connection as measured from the centerline	General Landscape Standard, Section 4.176 (.02) C. Low Screen Landscape Standard, Section 4.176 (.02) D. Screen loading areas with High Screen Landscaping Standard, Section 4.176 (.02) F., and High Wall Standard, Section 4.176 (.02) G.	
7. Location and Screening of Utilities and Services			
General	Unless noted otherwise below, the following provisions apply: • Sections 4.179 and 4.430. Mixed Solid Waste and Recyclables Storage in New Multi-Unit Residential and Non-Residential Buildings		
Location and Visibility	Site and building service, equipment, and outdoor storage of garbage, recycling, or landscape maintenance tools and equipment is not permitted	Site and building service, utility equipment, and outdoor storage of garbage, recycling, or landscape maintenance tools and equipment is not permitted within the setback	No limitation
Required Screening	Not permitted	High Screen Landscaping Standard, Section 4.176 (.02) F. and/ or High Wall Standard, Section 4.176 (.02) G.	

(6) Planting

General: The General Requirements for Planting provisions are addressed under General Development Regulations and Standards: Landscaping, Screening, and Buffering: Section 4.176 of this narrative.

Landscape Standards Permitted: As shown on the Landscape Plan (Exhibit 3 Sheet L1.0), a mix of General Landscape and Low Screen type landscaping will be utilized consistent with the standards of Table CC-3. Loading berths will be screened with High Screen type landscaping, or, where located indoors, High Wall. These standards have been met.

(7) Location and Screening of Utilities and Services

General: The General Requirements for Utility and Services provisions are addressed under General Development Regulations and Standards of this narrative (see page 79).

Location and Visibility: As shown on the Site Plan (Exhibit 3 Sheet A1.0), the site and building service, utility equipment, and outdoor storage of recycling, garbage or landscape maintenance tools will not be located in the required setback areas. This standard has been met.

Required Screening: As shown on the Landscape Plan (Exhibit 3 Sheet L1.0), all site and building services, utility equipment, and outdoor storage of recycling, garbage or landscape maintenance tools will be screened to the High Screen Landscape standard. This standard has been met.

Table CC-4: Building Design			
	Addressing Streets	**Supporting Streets**	**Through Connections**
1. Building Orientation			
Front Façade	Buildings shall have one designated front façade and two designated side façades. If one of the streets or connections bounding a parcel is an Addressing Street, the front façade of the building shall face the Addressing Street. If two of the streets or connections bounding a parcel are Addressing Streets, the front façade of the building may face either Addressing Street, except when one of the Addressing Streets is Day Road. In that case, the front façade must face Day Road. If none of the bounding streets or connections is an Addressing Street, the front façade of the building shall face a Supporting Street. See Figure CC-5.		
Length of Front Façade	A minimum of 100 feet of the Primary Frontage shall be occupied by a building. The maximum Primary Frontage occupied by a building shall be limited only by required side yard setbacks.		
Articulation of Front Façade	Applies to a Front Façade longer than 175 feet that has more than 5,250 square feet of street-facing façade area: At least 10% of the street-facing façade of a building facing an Addressing Street must be divided into façade planes that are offset by at least 2 feet from the rest of the façade. Façade area used to meet this standard may be recessed behind, or project out from, the primary façade plane.		
2. Primary Building Entrance			
General	The following Development Standards are adjustable: • Required Canopy: 10% • Transparency: 20%		
Accessible Entrance	The Primary Building Entrance shall be visible from, and accessible to, an Addressing Street (or a Supporting Street if there is no Addressing Street frontage). A continuous pedestrian pathway shall connect from the sidewalk of an Addressing Street to the Primary Building Entrance with a safe, direct and convenient path of travel that is free from hazards and provides a reasonably smooth and consistent surface consistent with the requirements of Americans with Disabilities Act (ADA). The Primary Building Entrance shall be 15 feet wide, minimum and 15 feet tall, minimum.		
Location	150 feet, maximum from right-of-way of an Addressing Street, see Figure CC-7.	150 feet, maximum from right-of-way of a Supporting Street, if there is no Addressing Street Frontage, see Figure CC-7.	
Visibility	Direct line of sight from an Addressing Street to the Primary Building Entrance.		
Accessibility	Safe, direct, and convenient path from adjacent public sidewalk.		

Response to Table CC-4:

(1) Building Orientation

Front Façade: As shown on the Elevations (Exhibit 3 Sheet A3.1), the building design has one designated front façade oriented to Garden Acres Road, showcasing a 3,000 SF interior showroom. The

entry element has been designed to a welcoming pedestrian scale incorporating warm natural materials scaled for the pedestrian. This standard is met.

Length of Front Façade: The length of the primary building entry façade is 170' and meeting the minimum required front façade length of 100'. See Exhibit 3 Sheet A1.0 (Site Plan). This design standard has been met.

Articulation of Front Façade: The proposed building is 170' long and doesn't meet the 175' length that triggers this requirement. See Exhibit 3 Sheet A3.1 (Building Elevations). This design standard does not apply.

(2) Primary Building Entrance

General: The design of the entry includes a covered entry canopy with 80% of the main entrance being transparent, and 20% of the overall façade being transparent, with views into the showroom. No adjustments to these design standards are being requested.

Accessible Entrance: The primary entry to the proposed building is visible from, and accessible to, Green Acres Road. As shown on Exhibit 3 Sheet A1.0, the site design proposes a continuous pedestrian pathway from the sidewalk of Green Acres Road to the Primary Building Entrance, providing a pathway that is safe, direct, and convenient, free from hazards and made from a smooth, ADA accessible surface. The primary building entrance is 24'-4" wide and 16' tall (see Exhibit 3 Sheet A3.1 – Building Elevations).

Location: The building entry is located approximately 78' from the right-of-way of Garden Acres Road, meeting the 150' maximum distance allowed (see Exhibit 3 Sheet A1.0 – Site Plan).

Visibility: The building entry is in direct view and line of sight from Garden Acres Road (see Exhibit 3 Sheet A1.0 – Site Plan).

Accessibility: The proposed building main entrance is accessible through a safe, direct, and convenient path from the adjacent public sidewalk along Garden Acres Road and from the future Java Road (a Supporting Street), as shown on Exhibit 3 Sheet A1.0 – Site Plan.

Required Canopy: The building's primary building entrance is protected with a canopy of 16' vertical height and 8' depth for all-weather protection. The protection zone of the canopy is 24'4' wide.

Transparency: The building's primary entrance will include transparency and glass covering 80% (256 SF of the 320 4,908 SF main entrance). In addition, the building frontage includes transparency and glass covering 20% (985 SF of the 4,908 SF building wall at the Addressing Street), which exceeds the 20% minimum required standard. This design standard has been met. See Exhibit 3 Sheet A3.2 for Glazing Calculations.

Lighting: As illustrated on the Lighting Plan (Exhibit 3 Sheets 1 of 2 and 2 of 2), the interior and exterior of the primary building entrance will be illuminated with a variety of lighting types to provide visual connection between the entry plaza and the public sidewalk and the entry lobby. The lighting design includes bollard lighting, pathway lighting, and wall mounted lighting. The lighting design will promote nighttime safety, security, enjoyment, and commerce while minimizing glare, light islands, and spotlighting. The plan will also preserve dark night sky to protect natural environments and habitat. These design standards have been met.

Table CC-4: Building Design			
	Addressing Streets	**Supporting Streets**	**Through Connections**
Required Canopy	Protect the Primary Building Entrance with a canopy with a minimum vertical clearance of 15 feet and an all-weather protection zone that is 8 feet deep, minimum and 15 feet wide, minimum.		
Transparency	Walls and doors of the Primary Building Entrance shall be a minimum of 65% transparent.		
Lighting	The interior and exterior of the Primary Building Entrance shall be illuminated to extend the visual connection between the sidewalk and the building interior from day to night. Pathway lighting connecting the Primary Building Entrance to the adjacent sidewalk on an Addressing Street shall be scaled to the needs of the pedestrian. Comply with Outdoor Lighting, Section 4.199		
3. Overall Building Massing			
General	The following Development Standards are adjustable: • Required Minimum Height: 10% • Ground Floor Height: 10% • Base, Body, and Top Dimensions: 10% • Base Design: 10% • Top Design: 10%		
Front Setback	30 feet, minimum, except as provided below	30 feet maximum	30 feet maximum
Allowance of Primary Building Entrance	Where the Primary Building Entrance is located on an Addressing Street it may extend into the required front yard setback by 15 feet maximum provided that: a. It has a two-story massing with a minimum height of 24 feet; b. The Parcel Frontage on the Addressing Street is limited to 100 feet; c. The building extension is 65% transparent, minimum; d. The entrance is protected with a weather-protecting canopy with a minimum vertical clearance of 15 feet; and e. The standards for site design and accessibility are met.	Not applicable	Not applicable

(3) Overall Building Massing

General: The proposed building design is within 10% of the Development Standard provisions noted in Table CC-4.

Front Setback: The front setback of the building is located along Garden Acres Road is 77'-6", meeting the 30' minimum required setback standard for Addressing Streets. See Exhibit 3 Sheet A1.0 – Site Plan. This design standard is met.

Allowance of Primary Building Entrance: These standards do not apply.

Table CC-4: Building Design			
	Addressing Streets	**Supporting Streets**	**Through Connections**
Required Minimum Height	30 feet minimum.		
Ground Floor Height	The Ground Floor height shall measure 15 feet, minimum from finished floor to finished ceiling (or 17.5 feet from finished floor to any exposed structural member).		
Base, Body, and Top Dimensions	Buildings elevations shall be composed of a clearly demarcated base, body and top. a. For Buildings 30 feet in height (unless lower by adjustment): i. The base shall be 30 inches, minimum. ii. The body shall be equal to or greater than 75% of the overall height of the building. iii. The top of the building shall be 18 inches, minimum. b. For Buildings between 30 feet and 5 stories in height: i. The base shall be 30 inches, minimum; 2 stories, maximum. ii. The body shall be equal to or greater than 75% of the overall height of the building. iii. The top of the building shall be 18 inches, minimum. c. For Buildings greater than 6 stories in height: i. The base shall be 1 story, minimum, 3 stories, maximum. ii. The body shall be equal to or greater than 75% of the overall height of the building. iii. The top of the building shall be 18 inches, minimum.		
Base Design	The design of the building Base shall: a. Use a material with a distinctive appearance, easily distinguished from the building Body expressed by a change in material, a change in texture, a change in color or finish; b. Create a change in surface position where the Base projects beyond the Body of the building by 1 -1/2 inches, minimum; and/ or c. Low Berm Landscape Standard, Section 4.176 (.02) E.		
Top Design	Building Tops define the skyline. The design of the Building Top shall: a. Use a material with a distinctive appearance, easily distinguished from the building Body expressed by a change in material, a change in texture, a change in color or finish; and/ or b. Create a change in surface position where the Top projects beyond, or recesses behind, the Body of the building by 1 -1/2 inches, minimum.		
Required Screening of Roof-mounted Equipment	Screen roof-mounted equipment with architectural enclosures using the materials and design of the building Body and/ or the building Top. No roof-mounted equipment shall be visible from an Addressing Street or Supporting Street.		

Required Minimum Height: The building design roofscape presents various heights but all structures are at greater than 30'. The dimension of the tallest building will be 36'-2". See Exhibit 3 Sheets A3.1 and A3.2 – Elevations. This design standard has been met.

Ground Floor Height: The proposed building will meet the 15' minimum requirement for finished floor to finished ceiling height. See Exhibit 3 Sheet A4.1 – Building Sections.

Base, Body, and Top Dimensions: As illustrated on the Building Elevations (Exhibit 3 Sheets A3.1 and A3.2) and Exhibit 3 Sheet G0.4 Material/Color Board, the building design is composed of a clearly demarcated base, body, and top. The design includes a band of Granitestone Quartz base material that is 30 inches, while the body material (insulated metal panel with a tight wave texture) is 76.2% (or 22'-10") of the overall height of the building, the façade of which is 30'. The project includes an accent panel on the showroom structure. These design standards have been met.

Base Design: As illustrated on the Building Elevations (Exhibit 3 Sheet A1.0), the design of the building's base contrasts with the body of the building's material and presents a distinguished transition. The material changes from granite texture to horizontal metal profile and color provides a break in scale and more pedestrian-friendly experience. The base material projects beyond the body at least 1-1/2". The design also provides low berm landscaping and groundcover along the base of the building. See Exhibit 3 Sheet L1.0 (Landscape Plan). This design standard has been met.

Top Design: As illustrated on the Building Elevations (Exhibit 3 Sheet A3.1), the building top defines the skyline in the area. The building roofscape provides a variety of scales and heights to break down the massing of the operations. The main structure includes a change in materials define it from the building body. The change in surface position and recesses behind is in-line with the intent of the code. This design standard has been met.

Required Screening of Roof-mounted equipment: As illustrated on the Building Elevations (Exhibit 3 Sheet A3.1), the building design incorporates a series of pitched roof assemblies; thus the roof-mounted equipment is wholly within the structure of the building and not visible from the adjacent streets. This standard has been met.

(.12) Waysides.

A. Purpose. This section consists of standards and regulations for use throughout the Coffee Creek Design Overlay District. The regulations address materials, placement, layout, installation, and maintenance of Industrial Waysides. The City recognizes the need to:

1. *Provide multiple, distributed destinations for passive and active recreation for the public and employees along a network of streets and trails;*
2. *Be convenient, usable and accessible. Industrial Waysides should be physically and visually accessible from the adjacent Addressing Street, Supporting Street or Through Connection;*
3. *Connect Industrial Waysides to transit;*
4. *Be inviting. Inviting open spaces feature designs that encourage users to explore the Industrial Wayside and design elements that support a sense of the human scale. These elements include landscaping, benches and other seating areas, and pedestrian-scaled lighting.*
5. *Provide access. Provide access to the employees and the public between the hours of 6:00am and 8:00pm;*
6. *Be safe. Safe open spaces incorporate principles of natural surveillance, lighting, and prominent entrances;*
7. *Provide facilities appropriate for the scale of the proposed development; and*
8. *Be easy to maintain. Industrial Waysides should be constructed of commercial grade materials that will endure and are readily maintainable.*

Response: The proposed project has provided design strategies and elements to address the intent of the Coffee Creek Design Overlay District. See the Site Plan for proposed Wayside location (Exhibit 3 Sheet A1.0).

B. Applicability. All projects in the Coffee Creek Master Plan Area shall provide waysides according to the standards in Table CC-5.

Response: This section applies to the proposed development. See Responses to Table CC-5 for specific information.

C. General. The following development standards apply to all Waysides:

1. *Required Wayside Area is exclusive of required landscape screening.*
2. *Required Minimum Dimension of 20 feet (either width or depth).*

Response: As shown on the Site Plan (Exhibit 3 Sheet A1.0), the proposed wayside measures 20' x 30' for a total of 600 SF, and is located in the northwest corner of the site. This measurement is exclusive of any landscape screening. These standards are met.

D. Criteria. Waysides shall meet the following criteria:

1. *Perimeter Landscaping. In addition to the minimum size and dimensions, landscape three sides of the Industrial Wayside to a depth of 20 feet, minimum according to Section 4.176 (.02). Permitted screening includes: Section 4.176 (.02) D. Low Screen Landscaping Standard; Section 4.176 (.02) E. Low Berm Standard; or Section 4.176 (.02) F. High Screen Landscaping Standard. Perimeter landscaping shall not obscure visual access to the Industrial Wayside. Unscreened surface parking lots, chain link fencing, or service yards are prohibited adjacent to Industrial Waysides.*

Response: As shown on the Site Plan (Exhibit 3 Sheet A1.0), the proposed development includes perimeter landscaping along at least three sides of the proposed wayside to a depth greater than 20'. The proposed wayside is located adjacent to the pedestrian connection with easy access to Garden Acres Road. The parking area located to the north will be screened to the 'high screen' standard so as to buffer the wayside from that use.

2. *Visibility. Industrial Waysides shall be visible from and accessible to Addressing Streets.*

Response: The proposed development is adjacent to an Addressing Street (Garden Acres Road). The proposed Wayside elements will be visible from the Addressing Street as shown on the Site Plan (Exhibit 3 Sheet A1.0). This design standard has been met.

3. *Accessible Pathway. A paved walking surface, width: 5 feet, minimum, meeting ADA standards is required to connect Industrial Wayside with Addressing Street.*

Response: As shown on the Site Plan (Exhibit 3 Sheet A1.0), the proposed development provides clear and safe walking surfaces meeting ADA requirements connecting the building to the Addressing Street. This design standard has been met.

4. *Accessible Surface. Industrial Waysides shall have an accessible surface, 100 square feet, minimum; dimensions 10 feet, minimum meeting ADA standards.*

Response: The proposed Wayside includes an ADA accessible surface, meeting the minimum required area of 100 SF and minimum depth of 10'. The Wayside measures 20' x 30' with a total accessible surface of 600 SF. See Exhibit 3 Sheet A1.0 (Site Plan). This standard has been met.

5. *Required Amenities.*

   a) *Seating. Outdoor seating shall be provided. Publicly accessible plazas, courtyards, and pocket parks shall include at least one linear foot of seating per each 40 square feet of plaza, courtyard or pocket park space on site. Outdoor seating shall be in the form of:*
      1) *Free standing outdoor benches consistent with the standards; or*
      2) *Seating incorporated into low walls, berms, or raised planters.*
   b) *Landscaping. The landscaping must be planted and maintained according to Section 4.176 (.02) C.*
   c) *Lighting.*
   d) *Recycling/ Waste Receptacle. Locate waste and recycling stations nearest to the accessible path and away from stormwater facilities.*

Response: The proposed development includes a Wayside that will include outdoor seating, lighting, landscaping and a recycling/waste receptable. The Wayside provides 24 linear feet of seating in the form of freestanding outdoor benches. See Exhibit 3 Sheets L1.0, A1.0 and A1.1 for details. These design standards have been met.

6. *Installation and Maintenance. Industrial Waysides shall be programmed, planned, constructed, and maintained at the expense of the applicant. The landscaping must be planted and maintained according to Section 4.176 (.07). Recycling, waste receptacles, and pet waste stations shall be serviced at an acceptable professional interval to prevent being over filled or creating unsanitary or visually messy appearances.*

Response: The applicant understands that the industrial Wayside will be installed and maintained at the expense of the property owner. The grounds will be placed under a maintenance and repair schedule in order to keep the property tidy and free from waste, and unsanitary conditions in accordance with Section 4.176 (.07). This design standard has been met.

7. *Solar Access. Exposure to sunlight. Southern exposure is encouraged. Design facilities to permit direct sunlight to enter the Industrial Wayside and strike the required accessible surface between the hours of 10:00am and 2:00pm local time.*

Response: Solar Access and south sun is limited due to the requirements of the Supporting Street provisions. The proposed Wayside will receive sunlight from 1p-5p. This design standard has been met.

8. *Lighting. Lighting for Industrial Waysides is required to permit reasonable use, utility, security, and nighttime safety. Lighting installed in Industrial Waysides shall conform to the requirements of Section 4.199. All outside lighting shall be so arranged and shielded so as not to shine into adjacent areas and to prevent any undue glare or reflection and any nuisance, inconvenience, and hazardous interference of any kind on adjoining streets or property.*

Response: As shown on the Lighting Plan (Exhibit 3), the proposed Wayside provides appropriate lighting that conforms with the requirements of Section 4.199 and will be arranged so as not to shine into adjacent areas and prevent undue nuisance to adjoining streets or properties. This design standard has been met.

E. *Optional Amenities include the following:*

1. *Picnic tables and benches. Locate picnic tables and benches on the Accessible Surface;*
2. *Arbors or trellises;*
3. *Drinking Fountains. Locate drinking fountains and benches on the Accessible Surface;*
4. *Sculpture and other works of art;*

5. *Bicycle repair stations;*
6. *Exercise stations; or*
7. *Pet waste stations. Locate pet waste stations nearest to the accessible path and away from stormwater facilities.*

Response: The proposed Wayside provides optional site amenities, including outdoor benches and a steel trellis.

Table CC-5: Waysides			
Parcel Area	***Required Wayside Area***	***# of Waysides***	***Enhanced Transit Plaza***
Greater than 8.0 acres, less than or equal to 13.0 acres	*600 square feet, minimum*	*One*	*Not permitted*

Response: The proposed development is greater than 8.0 acres, less than or equal to 13.0 acres, thus requiring one Wayside Area measuring at least 600 SF. As shown on the Site Plan (Exhibit 3 Sheet A1.0), the proposed development includes a Wayside in the northwest portion of the site in a pleasant location adjacent to the stormwater planters and close to the Supporting Street, future Java Road, measuring < 600 SF. The site also includes a network of accessible surfaces and inviting open space features that encourage users to explore the Industrial Wayside. This design standard has been met.

(.13) Signs.

A. Applicability. PDI Zone requirements of Section 4.156.01 through 4.156.11 apply to the Coffee Creek DOD with the following modifications and adjustments.

B. General.

1. *Site Frontage as described in Section 4.156.08 is the Primary Frontage.*
2. *Monument-style signs are required. Pole-style freestanding signs are not permitted.*
3. *Maximum area for signs on buildings is based on linear length (in feet) of the façade adjacent to the Primary Frontage.*
4. *Directional and Wayfinding Signs shall be placed at the intersection of Supporting Streets and Through Connections.*

Response: The building's wall mounted signage will be located on the building entry volume attached to the solid panel which is most visible from Garden Acres Road. The application includes a sign plan and cut sheets of the proposed sign design, including design, material, color, and methods of illumination of building sign. See refer to sheet A3.3 for the building signage detail and section through the signage. The building signage will be 170 linear feet and 36 square feet in area. Please refer to sheet A3.2 for sign location on the building. Please refer to sheet G2.0 for a perspective image of the building sign installation.

General Development Regulations and Standards

Section 4.154. On-site Pedestrian Access and Circulation.

(.01) *<u>On-site Pedestrian Access and Circulation</u>*

A. The purpose of this section is to implement the pedestrian access and connectivity policies of the Transportation System Plan. It is intended to provide for safe, reasonably direct, and convenient pedestrian access and circulation.

B. Standards. Development shall conform to all of the following standards:

1. Continuous Pathway System. A pedestrian pathway system shall extend throughout the development site and connect to adjacent sidewalks, and to all future phases of the development, as applicable.

Response: As illustrated on the Site Plan (Exhibit 3 Sheet A1.0) the proposed development provides a clear and continuous pathway system throughout the site, connecting the perimeter pathway from the building to adjacent sidewalks and parking areas. The pathways are at least 5' wide and has been designed to provide for accessibility meeting ADA standards. This standard is met.

2. Safe, Direct, and Convenient. Pathways within developments shall provide safe, reasonably direct, and convenient connections between primary building entrances and all adjacent parking areas, recreational areas/playgrounds, and public rights-of-way and crosswalks based on all of the following criteria:

a. Pedestrian pathways are designed primarily for pedestrian safety and convenience, meaning they are free from hazards and provide a reasonably smooth and consistent surface.
b. The pathway is reasonably direct. A pathway is reasonably direct when it follows a route between destinations that does not involve a significant amount of unnecessary out-of-direction travel.
c. The pathway connects to all primary building entrances and is consistent with the Americans with Disabilities Act (ADA) requirements.
d. All parking lots larger than three acres in size shall provide an internal bicycle and pedestrian pathway pursuant to Section 4.155(.03)(B.)(3.)(d.).

Response: As illustrated on the Site Plan (Exhibit 3 Sheet A1.0) the proposed site design provides safe, direct, and convenient pathways linking the building's main entrance on the west façade with the public rights-of-way to the west along Garden Acres Road, and to the Java Road sidewalks connecting to the parking areas at the eastern end of the site. These pathways provide reasonably direct connections and do not require any unnecessary out of direction travel. They are free from pedestrian hazards and are smooth surface concrete. All parking areas are less than 3 acres. These standards are met.

3. Vehicle/Pathway Separation. Except as required for crosswalks, per subsection 4, below, where a pathway abuts a driveway or street it shall be vertically or horizontally separated from the vehicular lane. For example, a pathway may be vertically raised six inches above the abutting travel lane, or horizontally separated by a row of bollards.

Response: As shown on the Site Plan (Exhibit 3 Sheet A1.0) all pedestrian pathways have been designed with vertical separation of at least six inches from vehicular lanes. This standard is met.

4. *Crosswalks. Where a pathway crosses a parking area or driveway, it shall be clearly marked with contrasting paint or paving materials (e.g., pavers, light-color concrete inlay between asphalt, or similar contrast).*

Response: The site design includes several locations where pedestrians cross vehicular circulation. These crosswalks will be clearly marked with contrasting paint and street markings. These markings are illustrated on the Site Plan (Exhibit 3 Sheet A1.0). This standard is met.

5. *Pathway Width and Surface. Primary pathways shall be constructed of concrete, asphalt, brick/masonry pavers, or other durable surface, and not less than five (5) feet wide. Secondary pathways and pedestrian trails may have an alternative surface except as otherwise required by the ADA.*

Response: As shown on the Site Plan (Exhibit 3 Sheet A1.0), all primary on-site pedestrian pathways will be constructed of concrete and will measure at least 5' wide consistent with the requirements of the Coffee Creek DOD. All pathways connecting the main entrance to the public right-of-way along Garden Acres Road will measure 6'-0" wide. This standard is met.

6. *All pathways shall be clearly marked with appropriate standard signs.*

Response: All primary pathways will be clearly marked with standard wayfinding signs. This standard is met.

Section 4.155. General Regulations - Parking, Loading and Bicycle Parking.

(.01) Purpose:

A. The design of parking areas is intended to enhance the use of the parking area as it relates to the site development as a whole, while providing efficient parking, vehicle circulation and attractive, safe pedestrian access.

B. As much as possible, site design of impervious surface parking and loading areas shall address the environmental impacts of air and water pollution, as well as climate change from heat islands.

C. The view from the public right of way and adjoining properties is critical to meet the aesthetic concerns of the community and to ensure that private property rights are met. Where developments are located in key locations such as near or adjacent to the I-5 interchanges, or involve large expanses of asphalt, they deserve community concern and attention.

(.02) General Provisions:

A. The provision and maintenance of off-street parking spaces is a continuing obligation of the property owner. The standards set forth herein shall be considered by the Development Review Board as minimum criteria.

1. The Board shall have the authority to grant variances or planned development waivers to these standards in keeping with the purposes and objectives set forth in the Comprehensive Plan and this Code.

2. *Waivers to the parking, loading, or bicycle parking standards shall only be issued upon a findings that the resulting development will have no significant adverse impact on the surrounding neighborhood, and the community, and that the development considered as a whole meets the purposes of this section.*

B. *No area shall be considered a parking space unless it can be shown that the area is accessible and usable for that purpose, and has maneuvering area for the vehicles, as determined by the Planning Director.*

C. *In cases of enlargement of a building or a change of use from that existing on the effective date of this Code, the number of parking spaces required shall be based on the additional floor area of the enlarged or additional building, or changed use, as set forth in this Section. Current development standards, including parking area landscaping and screening, shall apply only to the additional approved parking area.*

D. *In the event several uses occupy a single structure or parcel of land, the total requirement for off-street parking shall be the sum of the requirements of the several uses computed separately, except as modified by subsection "E," below. Within the TC Zone, the cumulative number of parking spaces required by this subsection may be reduced by 25 percent.*

E. *Owners of two (2) or more uses, structures, or parcels of land may utilize jointly the same parking area when the peak hours of operation do not overlap, provided satisfactory legal evidence is presented in the form of deeds, leases, or contracts securing full and permanent access to such parking areas for all the parties jointly using them.*

F. *Off-street parking spaces existing prior to the effective date of this Code may be included in the amount necessary to meet the requirements in case of subsequent enlargement of the building or use to which such spaces are necessary.*

G. *Off-Site Parking. Except for single-family dwellings, the vehicle parking spaces required by this Chapter may be located on another parcel of land, provided the parcel is within 500 feet of the use it serves and the DRB has approved the off-site parking through the Land Use Review. The distance from the parking area to the use shall be measured from the nearest parking space to the main building entrance, following a sidewalk or other pedestrian route. Within the TC Zone there is no maximum distance to an off-site location provided the off-site parking is located within the TC Zone. The right to use the off-site parking must be evidenced in the form of recorded deeds, easements, leases, or contracts securing full and permanent access to such parking areas for all the parties jointly using them. Within the TC zone, there is no maximum distance to an off-site location provided the off-site parking is located within the TC Zone.*

H. *The conducting of any business activity shall not be permitted on the required parking spaces, unless a temporary use permit is approved pursuant to Section 4.163.*

I. *Where the boundary of a parking lot adjoins or is within a residential district, such parking lot shall be screened by a sight-obscuring fence or planting. The screening shall be continuous along that boundary and shall be at least six (6) feet in height.*

J. *Parking spaces along the boundaries of a parking lot shall be provided with a sturdy bumper guard or curb at least six (6) inches high and located far enough within the boundary to prevent any portion of a car within the lot from extending over the property line or interfering with required screening or sidewalks.*

K. *All areas used for parking and maneuvering of cars shall be surfaced with asphalt, concrete, or other surface, such as pervious materials (i. e. pavers, concrete, asphalt) that is found by the City's authorized representative to be suitable for the purpose. In all cases,*

suitable drainage, meeting standards set by the City's authorized representative; shall be provided

L. Artificial lighting which may be provided shall be so limited or deflected as not to shine into adjoining structures or into the eyes of passers-by.

M. Off-street parking requirements for types of uses and structures not specifically listed in this Code shall be determined by the Development Review Board if an application is pending before the Board. Otherwise, the requirements shall be specified by the Planning Director, based upon consideration of comparable uses.

N. Up to forty percent (40%) of the off-street spaces may be compact car spaces as identified in Section 4.001 - "Definitions," and shall be appropriately identified.

O. Where off-street parking areas are designed for motor vehicles to overhang beyond curbs, planting areas adjacent to said curbs shall be increased to a minimum of seven (7) feet in depth. This standard shall apply to a double row of parking, the net effect of which shall be to create a planted area that is a minimum of seven (7) feet in depth.

P. Parklets are permitted within the TC Zone on up to two parking spaces per block and shall be placed in front of the business. Placement of parklet requires a temporary right-of-way use permit and approval by the City Engineer. [Added by Ord. 835, 6/5/19]

(.03) Minimum and Maximum Off-Street Parking Requirements:

A. Parking and loading or delivery areas shall be designed with access and maneuvering area adequate to serve the functional needs of the site and shall:

1. Separate loading and delivery areas and circulation from customer and/or employee parking and pedestrian areas. Circulation patterns shall be clearly marked.

2. To the greatest extent possible, separate vehicle and pedestrian traffic.

Response: As shown on the Site Plan (Exhibit 3 Sheet A1.0), all parking, loading and delivery areas have been designed to ensure access, adequate turning and maneuvering to serve the proposed operations. The site design separates loading and delivery operations from visitor and employee parking in that the visitor parking is near the entry plaza west of the building. Additional parking areas are located at the eastern end of the site and are well connected to the main entrance via two direct pedestrian pathways, resulting in a site where vehicle movement and pedestrian movement is kept separated to the extent possible. These standards are met.

B. Parking and loading or delivery areas shall be landscaped to minimize the visual dominance of the parking or loading area, as follows:

1. Landscaping of at least ten percent (10%) of the parking area, designed to be screened from view from the public right-of-way and adjacent properties. This landscaping shall be considered to be part of the fifteen percent (15%) total landscaping required in Section 4.176.03 for the site development.

Response: In an effort to minimize the visual dominance of parking and loading areas, the proposed development includes parking lot landscaping. The required landscape area of 10% of the parking areas will be designed to be screened from view from the public right-of-way is as follows:

Parking Area	Square Feet	Parking Lot Landscape Area
West (Front)	5,936	26.4% (1,569 SF)
East (Rear)	16,197	18.8% (3054 SF)

In addition, the site design provides a row of street trees along Java Road as a strategy to minimize the visual dominance of the northeast parking area. This standard is met.

2. *Landscape tree planting areas shall be a minimum of eight (8) feet in width and length and spaced every eight (8) parking spaces or an equivalent aggregated amount.*
    a. *Trees shall be planted in a ratio of one (1) tree per eight (8) parking spaces or fraction thereof, except in parking areas of more than two hundred (200) spaces where a ratio of one (1) tree per six (six) spaces shall be applied as noted in subsection (.03)(B.)(3.). A landscape design that includes trees planted in areas based on an aggregated number of parking spaces must provide all area calculations.*
    b. *Except for trees planted for screening, all deciduous interior parking lot trees must be suitably sized, located, and maintained to provide a branching minimum of seven (7) feet clearance at maturity.*

Response: As shown on the Site and Landscape Plans (Exhibit 3 Sheets A1.0 and L1.0), landscaped tree planting areas at least 8'-0" x 8'-0" have been placed between every 8 parking spaces. At least one tree for each eight parking spaces will be planted.

West Parking Lot: 15 parking spaces/1 tree per 8 spaces = minimum of 2 trees

East Parking Lot: 56 parking spaces/1 tree per 8 spaces = minimum of 7 trees

All deciduous interior parking lot trees will be suitably sized, located, and maintained to provide a branching minimum of seven (7) feet clearance at maturity. These standards are met.

3. *Due to their large amount of impervious surface, new development with parking areas of more than two hundred (200) spaces that are located in any zone, and that may be viewed from the public right of way, shall be landscaped to the following additional standards:*

Response: The project includes 71 proposed surface parking spaces. This section does not apply.

C. *Off Street Parking shall be designed for safe and convenient access that meets ADA and ODOT standards. All parking areas which contain ten (10) or more parking spaces, shall for every fifty (50) standard spaces., provide one ADA-accessible parking space that is constructed to building code standards.*

Response: The proposed development includes a total of 71 parking spaces, requiring two ADA-accessible parking spaces constructed to building code standards. Four ADA-accessible spaces have been provided, located in the West parking area, closest to the main entrance plaza to maximize accessibility. See the Site Plan for more details (Exhibit 3 Sheet A1.0). This standard is met.

D. *Where possible, parking areas shall be designed to connect with parking areas on adjacent sites so as to eliminate the necessity for any mode of travel of utilizing the public street for multiple accesses or cross movements. In addition, on-site parking shall be designed for efficient on-site circulation and parking.*

Response: All parking areas have been designed for efficient circulation and located based on operations of the building, solar access design, and provisions under the Coffee Creek DOD. There are

no parking areas on nearby adjacent sites. See the Site Plan for more details (Exhibit 3 Sheet A1.0). This standard is met.

E. In all multi-family dwelling developments, there shall be sufficient areas established to provide for parking and storage of motorcycles, mopeds and bicycles. Such areas shall be clearly defined and reserved for the exclusive use of these vehicles.

F. On-street parking spaces, directly adjoining the frontage of and on the same side of the street as the subject property, may be counted towards meeting the minimum off-street parking standards.

Response: While the future Java Road will include on-street parking spaces, the proposed development meets the minimum number of required parking spaces with off-street parking and does not need to utilize on-street parking.

G. Table 5 shall be used to determine the minimum and maximum parking standards for various land uses. The minimum number of required parking spaces shown on Tables 5 shall be determined by rounding to the nearest whole parking space. For example, a use containing 500 square feet, in an area where the standard is one space for each 400 square feet of floor area, is required to provide one off-street parking space. If the same use contained more than 600 square feet, a second parking space would be required. Structured parking and on-street parking are exempted from the parking maximums in Table 5.

Response: The proposed development is considered an Industrial/Manufacturing use made up of various components with required parking as follows:

Proposed Parking Spaces			
Use	Area	Requirement (per 1,000 sf)	Required Parking
Fabrication	15,600 sf	1.6 spaces	24.96
Warehouse	39,800 sf	0.3	11.94
Retail	3,000 sf	1.67	5.01
Office	7,400 sf	2.7	19.98
Total Required			61.89 spaces
Total Provided			71 spaces

As illustrated in the table above, the proposed development will provide 71 parking spaces. This standard is met.

TABLE 5: PARKING STANDARDS

USE	PARKING MINIMUMS	PARKING MAXIMUMS	BICYCLE MINIMUMS
Fast food (with drive-thru) Other		14.9 per 1000 sq. ft.	
8. Mortuaries	1 space/4 seats, or 8ft. of bench length in chapels	No Limit	Min. of 2
f. Industrial			
1. Manufacturing establishment	1.6 per 1000 sq. ft.	No Limit	1 per 10,000 sq. ft. Min. of 6
2. Storage warehouse, wholesale establishment, rail or trucking freight terminal	.3 per 1000 sq. ft.	.5 per 1000 sq. ft.	1 per 20,000 sq. ft. Min. of 2
g. Park & Ride or Transit Parking	As needed	No Limit	10 per acre, with 50% in lockable enclosures

H. Electrical Vehicle Charging Stations:

1. *Parking spaces designed to accommodate and provide one or more electric vehicle charging stations on site may be counted towards meeting the minimum off-street parking standards.*
2. *Modification of existing parking spaces to accommodate electric vehicle charging stations on site is allowed outright.*

Response: The proposed development will not include electrical vehicle parking. These standards do not apply.

I. Motorcycle parking:

1. *Motorcycle parking may substitute for up to 5 spaces or 5 percent of required automobile parking, whichever is less. For every 4 motorcycle parking spaces provided, the automobile parking requirement is reduced by one space.*
2. *Each motorcycle space must be at least 4 feet wide and 8 feet deep. Existing parking may be converted to take advantage of this provision.*

Response: The proposed development will not include motorcycle parking. These standards do not apply.

(.04) Bicycle Parking:

A. Required Bicycle Parking - General Provisions.
1. *The required minimum number of bicycle parking spaces for each use category is shown in Table 5, Parking Standards.*
2. *Bicycle parking spaces are not required for accessory buildings. If a primary use is listed in Table 5, bicycle parking is not required for the accessory use.*
3. *When there are two or more primary uses on a site, the required bicycle parking for the site is the sum of the required bicycle parking for the individual primary uses.*
4. *Bicycle parking space requirements may be waived by the Development Review Board per Section 4.118(.03)(A.)(9.) and (10.).*

B. Standards for Required Bicycle Parking
1. *Each space must be at least 2 feet by 6 feet in area and be accessible without moving another bicycle.*
2. *An aisle at least 5 feet wide shall be maintained behind all required bicycle parking to allow room for bicycle maneuvering. Where the bicycle parking is adjacent to a sidewalk, the maneuvering area may extend into the right-of-way.*
3. *When bicycle parking is provided in racks, there must be enough space between the rack and any obstructions to use the space properly.*
4. *Bicycle lockers or racks, when provided, shall be securely anchored.*
5. *Bicycle parking shall be located within 30 feet of the main entrance to the building or inside a building, in a location that is easily accessible for bicycles. For multi-tenant developments, with multiple business entrances, bicycle parking may be distributed on-site among more than one main entrance.*
6. *With Planning Director approval, on street vehicle parking can also be used for bicycle parking.*

Response: The following bicycle parking has been proposed for this project based on the primary uses of Manufacturing and Warehouse.

Proposed Bicycle Parking			
Use	Area	Requirement (per 10,000 sf)	Required Parking
Fabrication	15,600 sf	1/10,000 SF	1.56
Warehouse	39,800 sf	1/20,000 (min of 2)	1.99
Total Required			3.55 spaces
Total Provided			6 spaces

As shown on the Site Plan (Exhibit 3 Sheet A1.0), the proposed development will include 6 short-term bicycle parking spaces located outside within 30' of the entry.

C. Long-term Bicycle Parking

1. Long-term bicycle parking provides employees, students, residents, commuters, and others who generally stay at a site for several hours a weather-protected place to park bicycles.

2. For a proposed multi-family residential, retail, office, or institutional development, or for a park and ride or transit center, where six (6) or more bicycle parking spaces are required pursuant to Table 5, 50% of the bicycle parking shall be developed as long-term, secure spaces. Required long-term bicycle parking shall meet the following standards:

a. All required spaces shall meet the standards in subsection (B.) above, and must be covered in one of the following ways: inside buildings, under roof overhangs or permanent awnings, in bicycle lockers, or within or under other structures.

b. All spaces must be located in areas that are secure or monitored (e.g., visible to employees, monitored by security guards, or in public view).

c. Spaces are not subject to the locational criterion of (B.)(5.).

Response: The proposed development will include 6 secure long-term bicycle parking spaces located inside the facility. This standard has been met.

(.05) Minimum Off-Street Loading Requirements:

A. Every building that is erected or structurally altered to increase the floor area, and which will require the receipt or distribution of materials or merchandise by truck or similar vehicle, shall provide off-street loading berths on the basis of minimum requirements as follows:

1. Commercial, industrial, and public utility uses which have a gross floor area of 5,000 square feet or more, shall provide truck loading or unloading berths in accordance with the following tables:

Square feet of Floor Area	*Number of Berths Required*
Less than 5,000	*0*
5,000 - 30,000	*1*
30,000 - 100,000	*2*
100,000 and over	*3*

Response: The proposed development is 65,800 GSF, thus requires two (2) loading and unloading berths. The development proposes 3 truck loading and unloading berths as shown on the Site Plan (Exhibit 3 Sheet A1.0).

2. *Restaurants, office buildings, hotels, motels, hospitals and institutions, schools and colleges, public buildings, recreation or entertainment facilities, and any similar use which has a gross floor area of 30,000 square feet or more, shall provide off-street truck loading or unloading berths in accordance with the following table:*

Square feet of Floor Area	*Number of Berths Required*
Less than 30,000	*0*
30,000 - 100,000	*1*
100,000 and over	*2*

3. *A loading berth shall contain space twelve (12) feet wide, thirty-five (35) feet long, and have a height clearance of fourteen (14) feet. Where the vehicles generally used for loading and unloading exceed these dimensions, the required length of these berths shall be increased to accommodate the larger vehicles.*
4. *If loading space has been provided in connection with an existing use or is added to an existing use, the loading space shall not be eliminated if elimination would result in less space than is required to adequately handle the needs of the particular use.*
5. *Off-street parking areas used to fulfill the requirements of this Ordinance shall not be used for loading and unloading operations except during periods of the day when not required to meet parking needs.*

Response: Two loading berths are required that meet the standard of 12'x35'x14'. As shown on the Site Plan (Exhibit X), the development contains three loading and unloading areas measured as follows:

Proposed Loading Berths		
Loading area	Size (Length, width, height)	Meets Standards
2	16x40x16'	Yes
3	12x53x14'	Yes
1	9x40x10'	No

Two loading berths are required and two meet the dimensional requirements. This standard is met. Designated off-street parking areas will not be used for loading.

(.06) <u>Carpool and Vanpool Parking Requirements</u>:

A. Carpool and vanpool parking spaces shall be identified for the following uses:
   1. New commercial and industrial developments with seventy-five (75) or more parking spaces,
   2. New institutional or public assembly uses, and
   3. Transit park-and-ride facilities with fifty (50) or more parking spaces.

B. Of the total spaces available for employee, student, and commuter parking, at least five percent, but not fewer than two, shall be designated for exclusive carpool and vanpool parking.

C. Carpool and vanpool parking spaces shall be located closer to the main employee, student or commuter entrance than all other parking spaces with the exception of ADA parking spaces.

D. Required carpool/vanpool spaces shall be clearly marked "Reserved - Carpool/Vanpool Only."

Response: The development is not a new industrial use with 75 or more parking spaces, Therefore, carpool/vanpool spaces are not required. This standard is met.

(.07) Parking Area Redevelopment. The number of parking spaces may be reduced by up to 10% of the minimum required parking spaces for that use when a portion of the existing parking area is modified to accommodate or provide transit-related amenities such as transit stops, pull-outs, shelters, and park and ride stations.

Section 4.171. General Regulations - Protection of Natural Features and Other Resources.

(.01) Purpose. It is the purpose of this Section to prescribe standards and procedures for the use and development of land to assure the protection of valued natural features and cultural resources. The requirements of this Section are intended to be used in conjunction with those of the Comprehensive Plan and other zoning standards. It is further the purpose of this Section:

A. To protect the natural environmental and scenic features of the City of Wilsonville.

B. To encourage site planning and development practices which protect and enhance natural features such as riparian corridors, streams, wetlands, swales, ridges, rock outcroppings, views, large trees and wooded areas.

C. To provide ample open space and to create a constructed environment capable and harmonious with the natural environment.

(.02) General Terrain Preparation:

A. All developments shall be planned, designed, constructed and maintained with maximum regard to natural terrain features and topography, especially hillside areas, floodplains, and other significant landforms.

Response: While the site is relatively flat, the proposed Grading Plan (Exhibit 3 Sheets C2-C2.1), illustrates that this project has thoughtfully considered the topography and natural terrain of the site. This requirement is met.

B. All grading, filling and excavating done in connection with any development shall be in accordance with the Uniform Building Code

Response: As shown on the Grading Plan (Exhibit 3 Sheets C2-C2.1), all grading, filling and excavating done in connection with this development shall be in accordance with the UBC. This requirement is met.

C. In addition to any permits required under the Uniform Building Code, all developments shall be planned, designed, constructed and maintained so as to:

l. Limit the extent of disturbance of soils and site by grading, excavation and other land alterations.

2. Avoid substantial probabilities of: (l) accelerated erosion; (2) pollution, contamination, or siltation of lakes, rivers, streams and wetlands; (3) damage to vegetation; (4) injury to wildlife and fish habitats.

3. Minimize the removal of trees and other native vegetation that stabilize hillsides, retain moisture, reduce erosion, siltation and nutrient runoff, and preserve the natural scenic character.

(.03) *Hillsides: All developments proposed on slopes greater than 25% shall be limited to the extent that:*

A. An engineering geologic study approved by the City, establishes that the site is stable for the proposed development, and any conditions and recommendations based on the study are incorporated into the plans and construction of the development. The study shall include items specified under subsection 4.171(.07)(A.)(2.)(a-j):

B. Slope stabilization and re-vegetation plans shall be included as part of the applicant's landscape plans.

C. Buildings shall be clustered to reduce alteration of terrain and provide for preservation of natural features.

D. Creation of building sites through mass pad grading and successive padding or terracing of building sites shall be avoided where feasible.

E. Roads shall be of minimum width, with grades consistent with the City's Public Works Standards.

F. Maintenance, including re-vegetation, of all grading areas is the responsibility of the developer, and shall occur through October 1 of the second growing season following receipt of Certificates of Occupancy unless a longer period is approved by the Development Review Board.

G. The applicant shall obtain an erosion and sediment control permit from the City's Building and Environmental Services Division's.

Response: The land area within the proposed development does not slope greater than 25%. The above standards do not apply.

(.04) *Trees and Wooded Areas.*

A. All developments shall be planned, designed, constructed and maintained so that:

l. Existing vegetation is not disturbed, injured, or removed prior to site development and prior to an approved plan for circulation, parking and structure location.

2. Existing wooded areas, significant clumps/groves of trees and vegetation, and all trees with a diameter at breast height of six inches or greater shall be incorporated into the development plan and protected wherever feasible.

3. Existing trees are preserved within any right-of-way when such trees are suitably located, healthy, and when approved grading allows.

Response: While there are no wooded areas on the subject site, proposed construction activities will impact existing trees. As illustrated on the Tree Maintenance and Protection Plan (Exhibits 7 and 8), there are 21 trees on the site. Of these, eight would be retained and 13 would be removed in order to provide the streetscape and site design desired by the Coffee Creek DOD. The disturbance of existing trees and wooded areas has been avoided as much as possible. These requirements are met.

B. Trees and woodland areas to be retained shall be protected during site preparation and construction according to City Public Works design specifications, by:

l. Avoiding disturbance of the roots by grading and/or compacting activity.

2. Providing for drainage and water and air filtration to the roots of trees which will be covered with impermeable surfaces.

3. Requiring, if necessary, the advisory expertise of a registered arborist/horticulturist both during and after site preparation.

4. *Requiring, if necessary, a special maintenance, management program to insure survival of specific woodland areas of specimen trees or individual heritage status trees.*

Response: Proposed construction activities will impact existing trees. Trees to be retained will be protected according to the City Public Works design specifications, as outlined in the requirements above. These requirements are met.

(.05) *High Voltage Powerline Easements and Rights of Way and Petroleum Pipeline Easements:*

A. *Due to the restrictions placed on these lands, no residential structures shall be allowed within high voltage powerline easements and rights of way and petroleum pipeline easements, and any development, particularly residential, adjacent to high voltage powerline easements and rights of way and petroleum pipeline easements shall be carefully reviewed.*

B. *Any proposed non-residential development within high voltage powerline easements and rights of way and petroleum pipeline easements shall be coordinated with and approved by the Bonneville Power Administration, Portland General Electric Company or other appropriate utility, depending on the easement or right of way ownership.*

Response: As shown on the Utility Plan (Exhibit 3 Sheet C3-C3.1), the proposed development is not within high-voltage powerline easements or petroleum pipeline easements. The requirements above do not apply to this project.

(.06) *Hazards to Safety: Purpose:*

A. *To protect lives and property from natural or human-induced geologic or hydrologic hazards and disasters.*

B. *To protect lives and property from damage due to soil hazards.*

C. *To protect lives and property from forest and brush fires.*

D. *To avoid financial loss resulting from development in hazard areas.*

(.07) *Standards for Earth Movement Hazard Areas:*

A. *No development or grading shall be allowed in areas of land movement, slump or earth flow, and mud or debris flow, except under one of the following conditions:*

1. *Stabilization of the identified hazardous condition based on established and proven engineering techniques which ensure protection of public and private property. Appropriate conditions of approval may be attached by the City.*
2. *An engineering geologic study approved by the City establishing that the site is stable for the proposed use and development. The study shall include the following:*

a. *Index map.*

b. *Project description, to include: location; topography, drainage, vegetation; discussion of previous work; and discussion of field exploration methods.*

c. *Site geology, to include: site geologic map; description of bedrock and superficial materials including artificial fill; location of any faults, folds, etc.; and structural data including bedding, jointing, and shear zones.*

d. *Discussion and analysis of any slope stability problems.*

e. Discussion of any off-site geologic conditions that may pose a potential hazard to the site or that may be affected by on-site development.

f. Suitability of site for proposed development from geologic standpoint.

g. Specific recommendations for cut slope stability, seepage and drainage control, or other design criteria to mitigate geologic hazards.

h. Supportive data, to include: cross sections showing subsurface structure; graphic logs of subsurface explorations; results of laboratory tests; and references.

i. Signature and certification number of engineering geologist registered in the State of Oregon.

j. Additional information or analyses as necessary to evaluate the site.

B. Vegetative cover shall be maintained or established for stability and erosion control purposes.

C. Diversion of storm water into these areas shall be prohibited.

D. The principal source of information for determining earth movement hazards is the State Department of Geology and Mineral Industries (DOGAMI) Bulletin 99 and any subsequent bulletins and accompanying maps. Approved site specific engineering geologic studies shall be used to identify the extent and severity of the hazardous conditions on the site, and to update the earth movement hazards database.

Response: According to site analysis and geotechnical analysis (Exhibit 6), the subject site is not an area of land movement, slump or earth flow, and mud or debris flow. Therefore, this section does not apply.

(.08) Standards for Soil Hazard Areas:

A. Appropriate siting and design safeguards shall insure structural stability and proper drainage of foundation and crawl space areas for development on land with any of the following soil conditions: wet or high water table; high shrink-swell capability; compressible or organic; and shallow depth-to-bedrock.

B. The principal source of information for determining soil hazards is the State DOGAMI Bulletin 99 and any subsequent bulletins and accompanying maps. Approved site-specific soil studies shall be used to identify the extent and severity of the hazardous conditions on the site, and to update the soil hazards database accordingly.

Response: Site analysis and geotechnical analysis (Exhibit 6)show no soil hazards and shows evidence of proper structural stability and opportunities for proper drainage. These standards are met.

(.09) Historic Protection: Purpose:

A. To preserve structures, sites, objects, and areas within the City of Wilsonville having historic, cultural, or archaeological significance.

B. Standards:

1. All developments shall be planned, designed, constructed, and maintained to assure protection of any designated historic or cultural resource on or near the site. Restrictions on development may include:

a. Clustering of buildings and incorporation of historic and/or cultural resources into site design in a manner compatible with the character of such resource.

b. Limitations on site preparation and grading to avoid disturbance of areas within any historic or archaeological sites, monuments or objects of antiquity.

c. Provision of adequate setbacks and buffers between the proposed development and the designated resources.

2. *The city may attach additional conditions with respect to the following design factors in protecting the unique character of historic/cultural resources:*
    a. *Architectural compatibility;*
    b. *Proposed intensity of development;*
    c. *Relationship to designated open space;*
    d. *Vehicular and pedestrian access; and*
    e. Proposed building or structural mass in relation to the designated resource.

C. *Review Process:*

1. *The Development Review Board shall be the review body for:*
    a. *All development which proposes to alter a designated historic, or cultural resource or resource site; and*
    b. *All development which proposes to use property adjacent to a designated cultural resource; and*
    c. *All applications requesting designation of a cultural or historic resource*
2. *The application shall include the following:*
    a. *A complete list of exterior materials, including color of these materials.*
    b. *Drawings:*
        i. *Side elevation for each side of any affected structure.*
        ii. *Drawings shall show dimensions or be to scale.*
        iii. *Photographs may be used as a substitute for small projects.*
    c. *Plot plans shall be submitted for new structures, fences, additions exceeding fifty (50) square feet, or any building relocation.*
3. *Any improvement proposed for property adjacent to a designated, cultural or historic resource site, shall be subject to the following provisions:*
    a. *All uses and structures which are incompatible with the character of the cultural or historic resource are prohibited. The criteria used to determine incompatibility shall include the following:*
        i. *The intensity and type of use when compared with the historic use patterns of the areas.*
        ii. *The orientation, setback, alignment, spacing and placement of buildings.*
        iii. *The scale, proportions, roof forms, and various architectural features of building design.*
    b. *Setbacks may be required which are over and above those required in the base zone in order to protect the resource. Setbacks should be appropriate to the scale and function of the resource, but allow reasonable use of the adjacent property.*
    c. *An appropriate buffer or screen may be required between the new or converting use on the adjacent property and the resource.*
4. *Nothing in this chapter shall be construed to prevent the ordinary maintenance or repair of any exterior architectural feature in or on any property covered by this chapter that does not involve a change in design, material or external reconstruction thereof, nor does this Code prevent the construction, reconstruction, alteration, restoration, demolition or removal of any such feature when the Building Official certifies to the Development Review Board that such action is required for the public safety due to an*

unsafe or dangerous condition which cannot be rectified through the use of acceptable building practices.

5. *The owner, occupant or other person in actual charge of a cultural resource, or an improvement, building or structure in an historic district shall keep in good repair all of the exterior portions of such improvement, building or structure, all of the interior portions thereof when subject to control as specified in the designating ordinance or permit, and all interior portions thereof whose maintenance is necessary to prevent deterioration and decay or any exterior architectural feature.*

Response: The site does not contain historic, cultural, or archaeological significance. Therefore, the standards of this section do not apply.

Section 4.175. Public Safety and Crime Prevention.

(.01) All developments shall be designed to deter crime and insure public safety.

(.02) Addressing and directional signing shall be designed to assure identification of all buildings and structures by emergency response personnel, as well as the general public.

(.03) Areas vulnerable to crime shall be designed to allow surveillance. Parking and loading areas shall be designed for access by police in the course of routine patrol duties.

(.04) Exterior lighting shall be designed and oriented to discourage crime.

Response: The proposed development aims to deter crime and mischievous activity through site lighting, providing clear visibility opportunities, design with 'eyes on the street' surveillance approach, identifiable wayfinding for visitors, employees, and emergency response. A Lighting Plan has been included (see Exhibit 3 Sheet 1 of 2 and 2 of 2).

Section 4.176. Landscaping, Screening, and Buffering.

Note: the reader is encouraged to see Section 4.179, applying to screening and buffering of storage areas for solidwaste and recyclables.

(.01) Purpose. This Section consists of landscaping and screening standards and regulations for use throughout the City. The regulations address materials, placement, layout, and timing of installation. The City recognizes the ecological and economic value of landscaping and requires the use of landscaping and other screening or buffering to:

A. Promote the re-establishment of vegetation for aesthetic, health, erosion control, flood control and wildlife habitat reasons;

B. Restore native plant communities and conserve irrigation water through establishment, or re-establishment, of native, drought-tolerant plants;

C. Mitigate for loss of native vegetation;

D. Establish and enhance a pleasant visual character which recognizes aesthetics and safety issues;

E. Promote compatibility between land uses by reducing the visual, noise, and lighting impacts of specific development on users of the site and abutting sites or uses;

F. *Unify development and enhance and define public and private spaces;*

G. *Promote the retention and use of existing topsoil and vegetation. Amended soils benefit stormwater retention and promote infiltration;*

H. *Aid in energy conservation by providing shade from the sun and shelter from the wind; and*

I. *Screen from public view the storage of materials that would otherwise be considered unsightly.*

J. *Support crime prevention, create proper sight distance clearance, and establish other safety factors by effective landscaping and screening.*

K. *Provide landscaping materials that minimize the need for excessive use of fertilizers, herbicides and pesticides, irrigation, pruning, and mowing to conserve and protect natural resources, wildlife habitats, and watersheds.*

Response: As shown on the Landscape Plan (Exhibit 3 Sheet L1.0-L1.1), the proposed development meets the purpose of this section, by promoting the growth of vegetation, plant communities, enhancement of visual character, unify development, and create a safe, comfortable experience throughout the development.

(.02) Landscaping and Screening Standards.

A. *Subsections "C" through "I," below, state the different landscaping and screening standards to be applied throughout the City. The locations where the landscaping and screening are required and the depth of the landscaping and screening is stated in various places in the Code.*

B. *All landscaping and screening required by this Code must comply with all of the provisions of this Section, unless specifically waived or granted a Variance as otherwise provided in the Code. The landscaping standards are minimum requirements; higher standards can be substituted as long as fence and vegetation height limitations are met. Where the standards set a minimum based on square footage or linear footage, they shall be interpreted as applying to each complete or partial increment of area or length (e.g., a landscaped area of between 800 and 1600 square feet shall have two trees if the standard calls for one tree per 800 square feet.*

C. *General Landscaping Standard.*

1. *Intent. The General Landscaping Standard is a landscape treatment for areas that are generally open. It is intended to be applied in situations where distance is used as the principal means of separating uses or developments and landscaping is required to enhance the intervening space. Landscaping may include a mixture of ground cover, evergreen and deciduous shrubs, and coniferous and deciduous trees.*

2. *Required materials. Shrubs and trees, other than street trees, may be grouped. Ground cover plants must fully cover the remainder of the landscaped area (see Figure 21: General Landscaping). The General Landscaping Standard has two different requirements for trees and shrubs:*

a. *Where the landscaped area is less than 30 feet deep, one tree is required for every 30 linear feet.*

b. *Where the landscaped area is 30 feet deep or greater, one tree is required for every 800 square feet and two high shrubs or three low shrubs are required for every 400 square feet.*

Response: The development plan proposes landscape treatment to enhance open spaces on the site. As shown on Exhibit 3 Sheet L1.0-L1.1, the Landscape Plan intent is to provide a row or cluster of street trees around the perimeter of the building. The plan shows at least one or more tree for every 800 SF and a mix of high and low shrubs for every 400 SF throughout the site plan. Ground cover plants will fully cover the remainder of the landscaped area not featuring trees and shrubs. This standard is met.

D. Low Screen Landscaping Standard.

1. *Intent. The Low Screen Landscaping Standard is a landscape treatment that uses a combination of distance and low screening to separate uses or developments. It is intended to be applied in situations where low screening is adequate to soften the impact of one use or development on another, or where visibility between areas is more important than a total visual screen. The Low Screen Landscaping Standard is usually applied along street lot lines or in the area separating parking lots from street rights-of-way.*
2. *Required materials. The Low Screen Landscaping Standard requires sufficient low shrubs to form a continuous screen three (3) feet high and 95% opaque, year-round. In addition, one tree is required for every 30 linear feet of landscaped area, or as otherwise required to provide a tree canopy over the landscaped area. Ground cover plants must fully cover the remainder of the landscaped area. A three (3) foot high masonry wall or a berm may be substituted for the shrubs, but the trees and ground cover plants are still required. When applied along street lot lines, the screen or wall is to be placed along the interior side of the landscaped area. (See Figure 22: Low Screen Landscaping).*

Response: As shown on the Landscape Plan (Exhibit 3 Sheet L1.0-L1.1), the proposed development incorporates landscaping meeting the 'low screen' standard along street lot lines for Garden Acres Road and Java Road, to soften the impact of the development upon entry and from neighboring developments. In addition, low screen is implemented between each of the two parking areas and Java Road. The landscape plan also uses low shrubs to help screen portion of the building operations.

E. Low Berm Landscaping Standard.

1. *Intent. The Low Berm Standard is intended to be applied in situations where moderate screening to reduce both visual and noise impacts is needed to abutting uses or developments from one-another, and where it is desirable and practical to provide separation by both distance and sight-obscuring materials. This screening is most important where either, or both, of the abutting uses or developments can be expected to be particularly sensitive to noise or visual impacts.*
2. *Required materials. The Low Berm Standard requires a berm at least two feet six inches (2' 6") high along the interior side of the landscaped area (see Figure 23: Low Berm Landscaping). If the berm is less than three (3) feet high, low shrubs meeting the Low Screen Landscaping Standard, above, are to be planted along the top of the berm, assuring that the screen is at least three (3) feet in height. In addition, one tree is required for every 30 linear feet of berm, or as otherwise required to provide a tree canopy over the landscaped area. Ground cover plants must fully cover the remainder of the landscaped area.*

Response: As shown on the Landscape Plan (Exhibit 3 Sheet L1.0-L1.1), the proposed development does not incorporate Low Berm type landscaping, because it is not necessary to reduce visual and noise impacts to abutting uses or developments. This standard does not apply.

F. *High Screen Landscaping Standard.*

1. *Intent. The High Screen Landscaping Standard is a landscape treatment that relies primarily on screening to separate uses or developments. It is intended to be applied in situations where visual separation is required.*

2. *Required materials. The High Screen Landscaping Standard requires sufficient high shrubs to form a continuous screen at least six (6) feet high and 95% opaque, year-round. In addition, one tree is required for every 30 linear feet of landscaped area, or as otherwise required to provide a tree canopy over the landscaped area. Ground cover plants must fully cover the remainder of the landscaped area. A six (6) foot high masonry wall or a berm may be substituted for the shrubs, but the trees and ground cover plants are still required. When applied along street lot lines, the screen or wall is to be placed along the interior side of the landscaped area. (See Figure 24: High Screen Landscaping).*

Response: As shown on the Landscape Plan (Exhibit 3 Sheets L1.0-L1.1), the proposed development does not incorporate High Screen landscaping, because visual separation is not required between uses and developments. This is accomplished through distance and the other landscaping provided that meets the standards of this code. This standard does not apply.

G. *High Wall Standard.*

1. *Intent. The High Wall Standard is intended to be applied in situations where extensive screening to reduce both visual and noise impacts is needed to protect abutting uses or developments from one-another. This screening is most important where either, or both, of the abutting uses or developments can be expected to be particularly sensitive to noise or visual impacts, or where there is little space for physical separation.*

2. *Required materials. The High Wall Standard requires a masonry wall at least six (6) feet high along the interior side of the landscaped area (see Figure 25: High Wall Landscaping). In addition, one tree is required for every 30 linear feet of wall, or as otherwise required to provide a tree canopy over the landscaped area. Ground cover plants must fully cover the remainder of the landscaped area.*

Response: As shown on the Landscape Plan (Exhibit 3 Sheets L1.0-L1.1), High Wall type landscaping is not required, because no abutting uses exist that need extensive screening to reduce both visual and noise impacts. All future uses are either separated from the subject site by a street or by a great deal of distance. This standard does not apply.

H. *High Berm Standard.*

1. *Intent. The High Berm Standard is intended to be applied in situations where extensive screening to reduce both visual and noise impacts is needed to protect abutting uses or developments from one-another, and where it is desirable and practical to provide separation by both distance and sight- obscuring materials. This screening is most important where either, or both, of the abutting uses or developments can be expected to be particularly sensitive to noise or visual impacts.*

2. *Required materials. The High Berm Standard requires a berm at least four (4) feet high along the interior side of the landscaped area (see Figure 26: High Berm*

Landscaping). If the berm is less than six (6) feet high, low shrubs meeting the Low Screen Landscaping Standard, above, are to be planted along the top of the berm, assuring that the screen is at least six (6) feet in height In addition, one tree is required for every 30 linear feet of berm, or as otherwise required to provide a tree canopy over the landscaped area. Ground cover plants must fully cover the remainder of the landscaped area.

Response: As shown on the Landscape Plan (Exhibit 3 Sheet L1.0-L1.1), High Wall type landscaping is not required, because no abutting uses exist that need extensive screening to reduce both visual and noise impacts. All future uses are either separated from the subject site by a street or by a great deal of distance. This standard does not apply.

I. Partially Sight-Obscuring Fence Standard.

1. *Intent. The Partially Sight-Obscuring Fence Standard is intended to provide a tall, but not totally blocked, visual separation. The standard is applied where a low level of screening is adequate to soften the impact of one use or development on another, and where some visibility between abutting areas is preferred over a total visual screen. It can be applied in conjunction with landscape plantings or applied in areas where landscape plantings are not necessary and where nonresidential uses are involved.*

2. *Required materials. Partially Sight-Obscuring Fence Standard are to be at least six (6) feet high and at least 50% sight-obscuring. Fences may be made of wood (other than plywood or particle-board), metal, bricks, masonry or other permanent materials*

Response: Partially sight-obscuring fences are not proposed to be used for screening as part of this project. A partially sight-obscuring fence will be located at the operations access point along Java Road to secure the back of the building and loading areas. This standard does not apply.

J. Fully Sight-Obscuring Fence Standard.

1. *Intent. The Fully Sight-Obscuring Fence Standard is intended to provide a totally blocked visual separation. The standard is applied where full visual screening is needed to reduce the impact of one use or development on another. It can be applied in conjunction with landscape plantings or applied in areas where landscape plantings are not necessary.*

2. *Required materials. Fully sight-obscuring fences are to be at least six (6) feet high and 100% sight-obscuring. Fences may be made of wood (other than plywood or particle-board), metal, bricks, masonry or other permanent materials (see Figure 28: Totally Sight-Obscuring Fence).*

Response: Fully Sight-Obscuring Fences are not proposed as part of this project. This standard does not apply.

(.03) Landscape Area. Not less than fifteen percent (15%) of the total lot area, shall be landscaped with vegetative plant materials. The ten percent (10%) parking area landscaping required by section 4.155.03(B)(1) is included in the fifteen percent (15%) total lot landscaping requirement. Landscaping shall be located in at least three separate and distinct areas of the lot, one of which must be in the contiguous frontage area. Planting areas shall be encouraged adjacent to structures. Landscaping shall be used to define, soften or screen the appearance of buildings and off-street parking areas. Materials to be installed shall achieve a balance between various plant forms, textures, and heights. The installation of native plant materials shall be used whenever practicable. (For recommendations refer to the Native Plant List maintained by the City of Wilsonville).

Response: The proposed development will include landscaped area that measures at least 15% of the total lot area. Fifteen percent of the total subject site development area is 206,217 SF x 0.15 = 60,935 SF. As shown on the Landscape Plan, 55,509 SF or 26.9% of the subject site development area is landscaped with vegetative plant materials. This standard is met.

(.04) Buffering and Screening. Additional to the standards of this subsection, the requirements of the Section 4.137.5 (Screening and Buffering Overlay Zone) shall also be applied, where applicable.

A. All intensive or higher density developments shall be screened and buffered from less intense or lower density developments.

B. Activity areas on commercial and industrial sites shall be buffered and screened from adjacent residential areas. Multi-family developments shall be screened and buffered from single-family areas.

C. All exterior, roof and ground mounted, mechanical and utility equipment shall be screened from ground level off-site view from adjacent streets or properties.

D. All outdoor storage areas shall be screened from public view, unless visible storage has been approved for the site by the Development Review Board or Planning Director acting on a development permit.

E. In all cases other than for industrial uses in industrial zones, landscaping shall be designed to screen loading areas and docks, and truck parking.

F. In any zone any fence over six (6) feet high measured from soil surface at the outside of fenceline shall require Development Review Board approval.

Response: As illustrated on the Landscape Plan, the proposed development will employ landscaping to buffer and screen the industrial use from the less intense uses surrounding it, such as the undeveloped site to the south. There are no residential uses adjacent to the site that need to be screened. Any exterior mechanical equipment will be screened from view from the street and neighboring properties. See Exhibit 3 Sheets L1.0-L1.1 (Landscape Plan). The standards above are met.

Section 4.177. Street Improvement Standards.

This section contains the City's requirements and standards for pedestrian, bicycle, and transit facility improvements to public streets, or within public easements. The purpose of this section is to ensure that

development, including redevelopment, provides transportation facilities that are safe, convenient, and adequate in rough proportion to their impacts.

(.01) Development and related public facility improvements shall comply with the standards in this section, the Wilsonville Public Works Standards, and the Transportation System Plan, in rough proportion to the potential impacts of the development. Such improvements shall be constructed at the time of development or as provided by Section 4.140, except as modified or waived by the City Engineer for reasons of safety or traffic operations.

(.02) Street Design Standards.

A. All street improvements and intersections shall provide for the continuation of streets through specific developments to adjoining properties or subdivisions.

1. Development shall be required to provide existing or future connections to adjacent sites through the use of access easements where applicable. Such easements shall be required in addition to required public street dedications as required in Section 4.236(.04).

Response: Due to recent improvements to Garden Acres Road, no additional improvements are expected to be required along that street, which is classified in the Coffee Creek DOD as an Addressing Street.

As shown on the Site Plan (Exhibit 3 Sheets A1.0-A1.1), a new temporary access point will be constructed from Garden Acres Road until the parcel to the north is developed and the intersection at Garden Acres Road and Java Road is finalized. At that time, the temporary access point will be closed. Additional access points are proposed to the site from Java Road (a Supporting Street).

The new Supporting Street (Java Road) will be a private road, located in a public access easement and will run east-west along the northern property line of the site, creating the planned connection as shown in the Coffee Creek DOD. Half street improvements of Java Road will be constructed as part of the proposed project, with the second half to be built by others when the parcel to north is developed. The northern property line of the subject site will be the centerline of Java Road.

These requirements have been met.

B. The City Engineer shall make the final determination regarding right-of-way and street element widths using the ranges provided in Chapter 3 of the Transportation System Plan and the additional street design standards in the Public Works Standards.

Response: The applicant understands that the City Engineer shall make the final determination regarding right-of-way and street element widths using the TSP and Public Works Standards.

C. Rights-of-way.

1. Prior to issuance of a Certificate of Occupancy Building permits or as a part of the recordation of a final plat, the City shall require dedication of rights-of-way in accordance with the Transportation System Plan. All dedications shall be recorded with the County Assessor's Office.

2. The City shall also require a waiver of remonstrance against formation of a local improvement district, and all non-remonstrances shall be recorded in the County Recorder's Office as well as the City's Lien Docket, prior to issuance of a Certificate of Occupancy Building Permit or as a part of the recordation of a final plat.

3. *In order to allow for potential future widening, a special setback requirement shall be maintained adjacent to all arterial streets. The minimum setback shall be 55 feet from the centerline or 25 feet from the right-of-way designated on the Master Plan, whichever is greater.*

D. *Dead-end Streets. New dead-end streets or cul-de-sacs shall not exceed 200 feet in length, unless the adjoining land contains barriers such as existing buildings, railroads or freeways, or environmental constraints such as steep slopes, or major streams or rivers, that prevent future street extension and connection. A central landscaped island with rainwater management and infiltration are encouraged in cul-de-sac design. No more than 25 dwelling units shall take access to a new dead-end or cul-de-sac street unless it is determined that the traffic impacts on adjacent streets will not exceed those from a development of 25 or fewer units. All other dimensional standards of dead-end streets shall be governed by the Public Works Standards. Notification that the street is planned for future extension shall be posted on the dead-end street.*

Response: As shown on the Coffee Creek DOD Regulating Plan (Figure CC-1), Java Road runs east-west between Garden Acres Road and another planned Supporting Street to the east of the subject site. That planned Supporting Street is not yet built. Until the time that it is built and the complete connection can be made, Java Road will be a dead-end street. The standard is met because the adjoining land contains barriers such as environmental constraints that preclude the through connection at this time.

E. *Corner or clear vision area.*

1. *A clear vision area which meets the Public Works Standards shall be maintained on each corner of property at the intersection of any two streets, a street and a railroad or a street and a driveway. However, the following items shall be exempt from meeting this requirement:*
   a. *Light and utility poles with a diameter less than 12 inches.*
   b. *Trees less than 6" d.b.h., approved as a part of the Stage II Site Design, or administrative review.*
   c. *Except as allowed by b., above, an existing tree, trimmed to the trunk, 10 feet above the curb.*
   d. *Official warning or street sign.*
   e. *Natural contours where the natural elevations are such that there can be no cross-visibility at the intersection and necessary excavation would result in an unreasonable hardship on the property owner or deteriorate the quality of the site*.

Response: As illustrated on the Site Plan (Exhibit 3 Sheet A1.0), corner and clear vision areas have been maintained on each corner of the property at Garden Acres Road and the future Java Road. The development provides clear vision distances upon approach of intersection and upon entry to the site. These standards are met.

F. *Vertical clearance - a minimum clearance of 12 feet above the pavement surface shall be maintained over all streets and access drives.*

Response: The project will not impact vertical clearances. This standard is met.

G. *Interim improvement standard. It is anticipated that all existing streets, except those in new subdivisions, will require complete reconstruction to support urban level traffic volumes. However, in most cases, existing and short-term projected traffic volumes do not warrant*

improvements to full Master Plan standards. Therefore, unless otherwise specified by the Development Review Board, the following interim standards shall apply.

1. *Arterials - 24 foot paved, with standard sub-base. Asphalt overlays are generally considered unacceptable, but may be considered as an interim improvement based on the recommendations of the City Engineer, regarding adequate structural quality to support an overlay.*
2. *Half-streets are generally considered unacceptable. However, where the Development Review Board finds it essential to allow for reasonable development, a half-street may be approved. Whenever a half-street improvement is approved, it shall conform to the requirements in the Public Works Standards:*
3. *When considered appropriate in conjunction with other anticipated or scheduled street improvements, the City Engineer may approve street improvements with a single asphalt lift. However, adequate provision must be made for interim storm drainage, pavement transitions at seams and the scheduling of the second lift through the Capital Improvements Plan.*

Response: As directed by the City Engineer (see Preapplication Conference notes) and as illustrated on the Site Plan (Exhibit 3 Sheet A1.0), half street improvements of Java Road, a Supporting Street, are proposed to be constructed as part of this project, with the second half to be built by others when the parcel to north is developed. The half street design and construction will conform with the Supporting Street section and Public Works Standards. The half street improvements will be located in a public access easement with the centerline being the northern property line of the subject site. These standards are met.

(.03) *Sidewalks. Sidewalks shall be provided on the public street frontage of all development. Sidewalks shall generally be constructed within the dedicated public right-of-way, but may be located outside of the right-of-way within a public easement with the approval of the City Engineer.*

A. *Sidewalk widths shall include a minimum through zone of at least five feet. The through zone may be reduced pursuant to variance procedures in Section 4.196, a waiver pursuant to Section 4.118, or by authority of the City Engineer for reasons of traffic operations, efficiency, or safety.*

B. *Within a Planned Development, the Development Review Board may approve a sidewalk on only one side. If the sidewalk is permitted on just one side of the street, the owners will be required to sign an agreement to an assessment in the future to construct the other sidewalk if the City Council decides it is necessary.*

Response: Due to recent improvements to Garden Acres Road, sidewalks do not need to be built along that frontage. The proposed development will build sidewalks along Java Road as part of the half street improvements. All sidewalks will be at least 5'-0" wide and will also include accessible routes to building entrances, parking spaces, and adjacent public rights-of-way. See the Site Plan for details (Exhibit 3 Sheet A1.0).

(.04) *Bicycle Facilities. Bicycle facilities shall be provided to implement the Transportation System Plan, and may include on-street and off-street bike lanes, shared lanes, bike boulevards, and cycle tracks. The design of on-street bicycle facilities will vary according to the functional classification and the average daily traffic of the facility.*

Response: The proposed development will include 6 short-term bicycle parking spaces located outside within 30' of the entry as shown on the Site Plan (Exhibit 3 Sheet A1.0).

(.05) *Multiuse Pathways. Pathways may be in addition to, or in lieu of, a public street. Paths that are in addition to a public street shall generally run parallel to that street, and shall be designed in accordance with the Public Works Standards or as specified by the City Engineer. Paths that are in lieu of a public street shall be considered in areas only where no other public street connection options are feasible, and are subject to the following standards.*

A. Paths shall be located to provide a reasonably direct connection between likely pedestrian and bicyclist destinations. Additional standards relating to entry points, maximum length, visibility, and path lighting are provided in the Public Works Standards.

B. To ensure ongoing access to and maintenance of pedestrian/bicycle paths, the City Engineer will require dedication of the path to the public and acceptance of the path by the City as public right-of-way; or creation of a public access easement over the path.

Response: As shown on the Site Plan (Exhibit 3 Sheet A1.0), the development provides pathways around the majority of the building with direct access and connections between entrances, access doors, outdoor areas, and destinations. Multiuse paths in the right of way are not proposed as part of this project. Half street improvements of Java Road will include bicycle and pedestrian facilities and will be located in a public access easement. These standards are met.

(.06) *Transit Improvements*

Development on sites that are adjacent to or incorporate major transit streets shall provide improvements as described in this section to any bus stop located along the site's frontage, unless waived by the City Engineer for reasons of safety or traffic operations. Transit facilities include bus stops, shelters, and related facilities. Required transit facility improvements may include the dedication of land or the provision of a public easement.

A. Development shall at a minimum provide:

1. Reasonably direct pedestrian connections, as defined by Section 4.154, between building entrances and the transit facility and between buildings on the site and streets adjoining transit stops.

2. Improvements at major transit stops. Improvements may include intersection or mid-block traffic management improvements to allow for pedestrian crossings at major transit stops.

B. Developments generating an average of 49 or more pm peak hour trips shall provide bus stop improvements per the Public Works Standards. Required improvements may include provision of benches, shelters, pedestrian lighting; or provision of an easement or dedication of land for transit facilities.

C. In addition to the requirements of 4.177(.06)(A.)(2.), development generating more than 199 pm peak hour trips on major transit streets shall provide a bus pullout, curb extension, and intersection or mid-block traffic management improvements to allow for pedestrian crossings at major transit stops.

D. In addition to the requirement s of 4.177(.06)(A.) and (B.), development generating more than 500 pm peak-hour trips on major transit streets shall provide on-site circulation to accommodate transit service.

Response: The proposed development is not located on or adjacent to a major transit street. Therefore, the standards of this section do not apply.

(.07) *Residential Private Access Drives. Residential Private Access Drives shall meet the following standards:*

Response: The proposed development does not include Residential Access Drives. Therefore the standards of this section do not apply.

(.08). *Access Drive and Driveway Approach Development Standards.*

A. An access drive to any proposed development shall be designed to provide a clear travel lane free from any obstructions.

B. Access drive travel lanes shall be constructed with a hard surface capable of carrying a 23-ton load.

C. Where emergency vehicle access is required, approaches and driveways shall be designed and constructed to accommodate emergency vehicle apparatus and shall conform to applicable fire protection requirements. The City may restrict parking, require signage, or require other public safety improvements pursuant to the recommendations of an emergency service provider.

D. Secondary or emergency access lanes may be improved to a minimum 12 feet with an all-weather surface as approved by the Fire District. All fire lanes shall be dedicated easements.

E. Minimum access requirements shall be adjusted commensurate with the intended function of the site based on vehicle types and traffic generation.

F. The number of approaches on higher classification streets (e.g., collector and arterial streets) shall be minimized; where practicable, access shall be taken first from a lower classification street.

G. The City may limit the number or location of connections to a street, or impose access restrictions where the roadway authority requires mitigation to alleviate safety or traffic operations concerns.

H. The City may require a driveway to extend to one or more edges of a parcel and be designed to allow for future extension and inter-parcel circulation as adjacent properties develop. The City may also require the owner(s) of the subject site to record an access easement for future joint use of the approach and driveway as the adjacent property(ies) develop(s).

I. Driveways shall accommodate all projected vehicular traffic on-site without vehicles stacking or backing up onto a street.

J. Driveways shall be designed so that vehicle areas, including but not limited to drive-up and drive-through facilities and vehicle storage and service areas, do not obstruct any public right-of-way.

K. Approaches and driveways shall not be wider than necessary to safely accommodate projected peak hour trips and turning movements, and shall be designed to minimize crossing distances for pedestrians.

L. As it deems necessary for pedestrian safety, the City, in consultation with the roadway authority, may require traffic-calming features, such as speed tables, textured driveway surfaces, curb extensions, signage or traffic control devices, or other features, be installed on or in the vicinity of a site.

M. Approaches and driveways shall be located and designed to allow for safe maneuvering in and around loading areas, while avoiding conflicts with pedestrians, parking, landscaping, and buildings.

N. Where a proposed driveway crosses a culvert or drainage ditch, the City may require the developer to install a culvert extending under and beyond the edges of the driveway on both sides of it, pursuant applicable Public Works standards.

O. Except as otherwise required by the applicable roadway authority or waived by the City Engineer, temporary driveways providing access to a construction site or staging area shall be paved or graveled to prevent tracking of mud onto adjacent paved streets.

P. Unless constrained by topography, natural resources, rail lines, freeways, existing or planned or approved development, or easements or covenants, driveways proposed as part of a residential or mixed-use development shall meet local street spacing standards and shall be constructed to align with existing or planned streets, if the driveway.

1. Intersects with a public street that is controlled, or is to be controlled in the planning period, by a traffic signal;

2. Intersects with an existing or planned arterial or collector street; or

3. Would be an extension of an existing or planned local street, or of another major driveway.

Response: The proposed Site Plan (Exhibit 3 A1.0) shows all access drives and driveways proposed on site. The project's temporary access point from Garden Acres Road has been designed to provide a clear travel lane free from any obstructions. All access drives and roadways have been constructed with a roadway asphalt capable of carrying a 23-ton load or more.

The Fire Service Plan (Exhibit 10) illustrates that proposed emergency vehicle access and approaches and driveways have been designed and constructed to accommodate emergency vehicle apparatus and conforms to applicable fire protection requirements. Secondary or emergency access lanes are greater than 12 feet all-weather asphalt surface.

Java Road will extend more than halfway into the parcel during Phase 1 and extend to the edge of the property parcel during Phase 2.

Approaches and driveways have been located and designed to allow for safe maneuvering in and around loading areas while avoiding conflicts with pedestrians, parking, landscaping, and buildings. Pedestrians are prohibited from entering the south/southeast portion of the facility to ensure safety.

These standards have been met.

(.09) Minimum street intersection spacing standards.

A. New streets shall intersect at existing street intersections so that centerlines are not offset. Where existing streets adjacent to a proposed development do not align properly, conditions shall be imposed on the development to provide for proper alignment.

B. Minimum intersection spacing standards are provided in Transportation System Plan Table 3-2.

Response: As shown on the Site Plan (Exhibit 3 Sheet A1.0), the development provides street intersection spacing and alignment per the Coffee Creek DOD Connectivity Plan. These standards have been met.

(.10) Exceptions and Adjustments. The City may approve adjustments to the spacing standards of subsections (.08) and (.09) above through a Class II process, or as a waiver per Section 4.118(.03)(A.), where an existing connection to a City street does not meet the standards of the roadway authority, the proposed development moves in the direction of code compliance, and mitigation measures alleviate all traffic operations and safety concerns. Mitigation measures may include consolidated access (removal of one access), joint use driveways (more than one property uses same access), directional limitations (e.g., one-way), turning restrictions (e.g., right in/out only), or other mitigation.

Response: The applicant is not requesting exceptions or adjustments to the spacing standards of this subsection. This section does not apply.

Section 4.179. Mixed Solid Waste and Recyclables Storage in New Multi-Unit Residential and Non-Residential Buildings.

(.01) All site plans for multi-unit residential and non-residential buildings submitted to the Wilsonville Development Review Board for approval shall include adequate storage space for mixed solid waste and source separated recyclables.

(.02) The floor area of an interior or exterior storage area shall be excluded from the calculation of building floor area for purposes of determining minimum storage requirements.

(.03) The storage area requirement shall be based on the predominant use(s) of the building. If a building has more than one of the uses listed herein and that use occupies 20 percent or less of the floor area of the building, the floor area occupied by that use shall be counted toward the floor area of the predominant use(s). If a building has more than one of the uses listed herein and that use occupies more than 20 percent of the floor area of the building, then the storage area requirement for the whole building shall be the sum of the requirement for the area of each use.

(.04) Storage areas for multiple uses on a single site may be combined and shared.

(.05) The specific requirements are based on an assumed storage height of four feet for solid waste/recyclables. Vertical storage higher than four feet but no higher than seven feet may be used to accommodate the same volume of storage in a reduced floor space. Where vertical or stacked storage is proposed, the site plan shall include drawings to illustrate the layout of the storage area and dimensions for the containers.

(.06) The specific requirements for storage area are as follows:

A. Multi-unit residential buildings containing five-ten units shall provide a minimum storage area of 50 square feet. Buildings containing more than ten residential units shall provide an additional five square feet per unit for each unit above ten.

B. Non-residential buildings shall provide a minimum storage area of ten square feet, plus:

1. Office: Four square feet per 1,000 square feet gross floor area (GFA);

2. Retail: Ten square feet per 1,000 square feet GFA;

3. Wholesale / Warehouse / Manufacturing: Six square feet per 1,000 square feet GFA; and

4. Other: Four square feet per 1,000 square feet GFA.

Response: The proposed development has 65,800 GFA, of which Warehouse/Manufacturing is the primary use. Other uses include Office and Retail, but they do not make up 20% of the overall GFA. Therefore, the project requires at least 395 SF of solid waste/recyclables storage area (65,800/1000 x 6 SF =394.8 SF). The proposed storage as shown on the Site Plan (Exhibit 3 Sheet A1.0-A1.1) meets the required the amount required by this section. All solid waste and refuse and recycling will be contained within a covered area located on the east side of the building. These standards are met.

(.07) The applicant shall work with the City's franchised garbage hauler to ensure that site plans provide adequate access for the hauler's equipment and that storage area is adequate for the anticipated volumes, level of service and any other special circumstances which may result in the storage area exceeding its capacity. The hauler shall notify the City by letter of their review of site plans and make recommendations for changes in those plans pursuant to the other provisions of this section.

(.08) Existing multi-unit residential and non-residential developments wishing to retrofit their structures to include storage areas for mixed solid waste and recycling may have their site plans reviewed and approved through the Class I Administrative Review process, according to the provisions of Section 4.035. Site plans for retrofitting existing developments must conform to all requirements of this Section, "Mixed Solid Waste and Recyclables Storage In New Multi-Unit Residential and Non-Residential Buildings," and 4.430, "Location, Design and Access Standards for Mixed Solid Waste and Recycling Areas," of the Wilsonville City Code

Response: The applicant will work with the City's franchised garbage hauler to ensure that site plans provide adequate access for the hauler's equipment and that storage area is adequate for the anticipate volumes, LOS and any other special circumstances. See Exhibit 9 for a Service Provider Letter from the waste removal company.

Section 4.199. Outdoor Lighting

Section 4.199.10. Outdoor Lighting in General

(.01) Purpose: The purpose of this Code is to provide regulations for outdoor lighting that will:

A. Permit reasonable uses of outdoor lighting for nighttime safety, utility, security, productivity, enjoyment and commerce.

B. Conserve energy and resources to the greatest extent possible.

C. Minimize glare, particularly in and around public rights-of-way; and reduce visual discomfort and improve visual acuity over large areas by avoiding "light islands" and "spotlighting" that result in reduced visual perception in areas adjacent to either the source of the glare or the area illuminated by the glare.

D. Minimize light trespass, so that each owner of property does not cause unreasonable light spillover to other property.

E. Curtail the degradation of the nighttime environment and the night sky.

F. Preserve the dark night sky for astronomy and enjoyment.

G. Protect the natural environment, including wildlife, from the damaging effects of night lighting from human sources.

(.02) Purpose Statement as Guidelines: Declaration of purpose statements are guidelines and not approval criteria in the application of WC Section 4.199.

Section 4.199.20. Applicability.

(.01) This Ordinance is applicable to:

A. *Installation of new exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas.*

B. *Major additions or modifications (as defined in this Section) to existing exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas.*

(.02) Exemption. The following luminaires and lighting systems are EXEMPT from these requirements:

Section 4.199.30. Lighting Overlay Zones.

(.01) The designated Lighting Zone as indicated on the Lighting Overlay Zone Map for a commercial, industrial, multi-family or public facility parcel or project shall determine the limitations for lighting systems and fixtures as specified in this Ordinance.

A. *Property may contain more than one lighting zone depending on site conditions and natural resource characteristics.*

(.02) The Lighting Zones shall be:

B. *LZ 2. Low-density suburban neighborhoods and suburban commercial districts, industrial parks and districts. This zone is intended to be the default condition for the majority of the City.*

Response: According to the Lighting Overlay Zone Map, the subject site is located in LZ2.

(.03) Modification of Lighting Zones.

Response: The applicant is not seeking to modify lighting zones. This section does not apply.

Section 4.199.40. - Lighting Systems Standards for Approval.

(.01) Non-Residential Uses and Common Residential Areas.

A. *All outdoor lighting shall comply with either the Prescriptive Option or the Performance Option below.*

B. *Prescriptive Option. If the lighting is to comply with this Prescriptive Option, the installed lighting shall meet all of the following requirements according to the designated Lighting Zone.*

1. *The maximum luminaire lamp wattage and shielding shall comply with Table 7.*
2. *Except for those exemptions listed in Section 4.199.20(.02), the exterior lighting for the site shall comply with the Oregon Energy Efficiency Specialty Code, Exterior Lighting.*
3. *The maximum pole or mounting height shall be consistent with Table 8.*
4. *Each luminaire shall be set back from all property lines at least three times the mounting height of the luminaire:*
    a. *Exception 1: If the subject property abuts a property with the same base and lighting zone, no setback from the common lot lines is required.*
    b. *Exception 2: If the subject property abuts a property which is zoned (base and lighting) other than the subject parcel, the luminaire shall be setback three times*

the mounting height of the luminaire, measured from the abutting parcel's setback line. (Any variance or waiver to the abutting property's setback shall not be considered in the distance calculation).

c. *Exception 3: If the luminaire is used for the purpose of street, parking lot or public utility easement illumination and is located less than three mounting heights from the property line, the luminaire shall include a house side shield to protect adjoining property.*

d. *Exception 4: If the subject property includes an exterior column, wall or abutment within 25 feet of the property line, a luminaire partly shielded or better and not exceeding 60 lamp watts may be mounted onto the exterior column, wall or abutment or under or within an overhang or canopy attached thereto.*

e. *Exception 5: Lighting adjacent to SROZ areas shall be set back three times the mounting height of the luminaire, or shall employ a house side shield to protect the natural resource area.*

C. *Performance Option. If the lighting is to comply with the Performance Option, the proposed lighting design shall be submitted by the applicant for approval by the City meeting all of the following:*

1. *The weighted average percentage of direct uplight lumens shall be less than the allowed amount per Table 9*

2. *The maximum light level at any property line shall be less than the values in Table 9, as evidenced by a complete photometric analysis including horizontal illuminance of the site and vertical illuminance on the plane facing the site up to the mounting height of the luminaire mounted highest above grade. The Building Official or designee may accept a photometric test report, demonstration or sample, or other satisfactory confirmation that the luminaire meets the shielding requirements of Table 7. Luminaires shall not be mounted so as to permit aiming or use in any way other than the manner maintaining the shielding classification required herein:*

a. *Exception 1. If the property line abuts a public right-of-way, including a sidewalk or street, the analysis may be performed across the street at the adjacent property line to the right-of-way.*

b. *Exception 2. If, in the opinion of the Building Official or designee, compliance is impractical due to unique site circumstances such as lot size or shape, topography, or size or shape of building, which are circumstances not typical of the general conditions of the surrounding area. The Building Official may impose conditions of approval to avoid light trespass to the maximum extent possible and minimize any additional*

negative impacts resulting to abutting and adjacent parcels, as well as public rights-of-way, based on best lighting practices and available lighting technology.

3. The maximum pole or mounting height shall comply with Table 8.

D. Curfew. All prescriptive or performance based exterior lighting systems shall be controlled by automatic device(s) or system(s) that:

1. Initiate operation at dusk and either extinguish lighting one hour after close or at the curfew times according to Table 10; or

2. Reduce lighting intensity one hour after close or at the curfew time to not more than 50 percent of the requirements set forth in the Oregon Energy Efficiency Specialty Code unless waived by the DRB due to special circumstances; and

3. Extinguish or reduce lighting consistent with 1. and 2. above on Holidays.

The following are exceptions to curfew:

a. Exception 1: Building Code required lighting.

b. Exception 2: Lighting for pedestrian ramps, steps and stairs.

c. Exception 3: Businesses that operate continuously or periodically after curfew.

Response: A Lighting Plan meeting the standards of this section is included as part of Exhibit 3, Sheet 1 of 2 and 2 of 2. The Lighting Plan shows the type, location and levels of proposed lighting. The proposed development will comply with the curfew requirements to either Initiate operation at dusk and either extinguish lighting one hour after close or at the curfew times according to Table 10; or to reduce lighting intensity one hour after close or at the curfew time not more than 50% of the requirements set forth in the OEESC unless waived by the DRB Due to special circumstances and to extinguish lighting consistent with 1. And 2. Above on Holidays. These standards have been met.

(.02) Special Permit for Specific Lighting Fixtures and Systems and When Exceeding Lighting Requirements.

A. This section is intended to apply to situations where more than normal foot candles are required due to a unique circumstance or use or where it is absolutely essential to perform the proposed activities after dark. All special permits shall be reviewed by the DRB.

B. Upon issuance of a special permit by the Development Review Board (DRB), lighting systems not complying with the technical requirements of this Ordinance may be installed, maintained, and replaced for lighting that exceeds the maximums permitted by this Ordinance. This section is intended to be applied to uses such as sports lighting systems including but not limited to, sport fields and stadiums, such as baseball and football field lighting, tennis court lighting, swimming pool area lighting and prisons; other very intense lighting defined as having a light source exceeding 200,000 lumens or an intensity in any direction of more than 2,000,000 candelas; building façade lighting of portions of buildings over two stories high; and public monuments.

C. To obtain such a permit, applicants shall demonstrate that the proposed lighting installation:

1. Is within Lighting Zone 3 or above.

2. Has been designed to minimize obtrusive light and artificial sky glow, supported by a signed statement from a registered civil or electrical engineer describing the mitigation

measures. Such statement shall be accompanied by calculations indicating the light trespass levels (horizontal and vertical at ground level) at the property line.

3. *Will not create excessive glare, sky glow, or light trespass beyond that which can be reasonably expected by application of best lighting practices, and available technology.*
4. *Provides appropriate lighting curfew hours based on the use and the surrounding areas.*

D. *The DRB may impose conditions of approval to mitigate any negative impacts resulting to the abutting parcel, based on best lighting practices and available lighting technology.*

E. *The City may charge a review fee and may, at the Building Official's option, employ the services of a qualified professional civil or electrical engineer to review such submittals and the cost thereof shall be an additional fee charged to the applicant.*

Response: The Lighting Plan (Exhibit 3 Sheets 1 of 2 and 2 of 2) for the proposed development intends to meet the standards of this section and does not anticipate a special permit for specific fixtures or systems or exceed lighting requirements. These standards do not apply.

Section 4.199.50. - Submittal Requirements.

(.01) Applicants shall submit the following information as part of DRB review or administrative review of new commercial, industrial, multi-family or public facility projects:

A. *A statement regarding which of the lighting methods will be utilized, prescriptive or performance, and a map depicting the lighting zone(s) for the property.*

B. *A site lighting plan that clearly indicates intended lighting by type and location. For adjustable luminaires, the aiming angles or coordinates shall be shown.*

C. *For each luminaire type, drawings, cut sheets or other documents containing specifications for the intended lighting including but not limited to, luminaire description, mounting, mounting height, lamp type and manufacturer, lamp watts, ballast, optical system/distribution, and accessories such as shields.*

D. *Calculations demonstrating compliance with Oregon Energy Efficiency Specialty Code, Exterior Lighting, as modified by Section 4.199.40(.01)(B.)(2.)*

E. *Lighting plans shall be coordinated with landscaping plans so that pole lights and trees are not placed in conflict with one another. The location of lights shall be shown on the landscape plan. Generally, pole lights should not be placed within one pole length of landscape and parking lot trees.*

F. *Applicants shall identify the hours of lighting curfew.*

(.02) In addition to the above submittal requirements, Applicants using the Prescriptive Method shall submit the following information as part of the permit set plan review:

A. *A site lighting plan (items 1.A—F, above) which indicates for each luminaire the three mounting height line to demonstrate compliance with the setback requirements. For*

luminaires mounted within three mounting heights of the property line the compliance exception or special shielding requirements shall be clearly indicated.

(.03) In addition to the above submittal requirements, Applicants using the Performance Method shall submit the following information as part of the permit set plan review:

A. Site plan showing horizontal isocandle lines, or the output of a point-by-point computer calculation of the horizontal illumination of the site, showing property lines and light levels immediately off of the subject property.

B. For each side of the property, the output of a point-by-point vertical footcandle calculation showing illumination in the vertical plane at the property line from grade to at least ten feet higher than the height of the tallest pole.

C. Lighting plans shall be prepared by a qualified licensed engineer.

(.04) In addition to the above applicable submittal requirements, Applicants for Special Permits shall submit the following to the DRB for review:

A. Tabulation of International Engineering Society of North America (IESNA) lighting recommendations for each task including area illuminated, recommended illumination level, actual maintained illumination level, and luminaires used specifically to achieve the indicated criteria.

B. Lighting plans shall be prepared by a qualified licensed engineer.

(.05) For all calculations, the following light loss factors shall be used unless an alternative is specifically approved by the City:

Response: The applicant has included a Lighting Plan (Exhibit 3 Sheets 1 of 2 and 2 of 2) as part of the submittal package which meets the requirements of this section. These standards have been met.

Underground Utilities

Section 4.300. General.

(.01) The City Council deems it reasonable and necessary in order to accomplish the orderly and desirable development of land within the corporate limits of the City, to require the underground installation of utilities in all new developments.

(.02) After the effective date of this Code, the approval of any development of land within the City will be upon the express condition that all new utility lines, including but not limited to those required for power, communication, street lighting, gas, cable television services and related facilities, shall be placed underground.

(.03) The construction of underground utilities shall be subject to the City's Public Works Standards and shall meet applicable requirements for erosion control and other environmental protection.

Response: As shown on the Utility Plan (Exhibit 3 Sheet C3.1), the proposed development will place new utility lines underground including but not limited to those required for power, communication, street lighting, gas, cable television services and related facilities, constructed per the City's Public Works standards. These standards are met.

Section 4.320. Requirements.

(.01) The developer or subdivider shall be responsible for and make all necessary arrangements with the serving utility to provide the underground services (including cost of rearranging any existing overhead facilities). All such underground facilities as described shall be constructed in compliance with the rules and regulations of the Public Utility Commission of the State of Oregon relating to the installation and safety of underground lines, plant, system, equipment and apparatus.

(.02) The location of the buried facilities shall conform to standards supplied to the subdivider by the City. The City also reserves the right to approve location of all surface-mounted transformers.

(.03) Interior easements (back lot lines) will only be used for storm or sanitary sewers, and front easements will be used for other utilities unless different locations are approved by the City Engineer. Easements satisfactory to the serving utilities shall be provided by the developer and shall be set forth on the plat.

Response: The applicant's development team will make all necessary arrangements to coordinate site utilities and infrastructure systems. All such facilities will be constructed in compliance with the rules and regulations of the Public Utility Commission of the State of Oregon relating to the installation and safety of underground lines, plant, system, equipment and apparatus. The applicant understands that the city reserves the right to approve the location of surface mounted transformers and interior easements will only be used for storm or sanitary sewers and front easements will be used for other utilities (unless approved by the City Engineer). Easements will be provided by the developer. These requirements are met.

Site Design Review (Detailed Review of Architecture, Landscaping, Signs and other Design Elements)

Section 4.400. Purpose.

(.01) Excessive uniformity, inappropriateness or poor design of the exterior appearance of structures and signs and the lack of proper attention to site development and landscaping in the business, commercial, industrial and certain residential areas of the City hinders the harmonious development of the City, impairs the desirability of residence, investment or occupation in the City, limits the opportunity to attain the optimum use in value and improvements, adversely affects the stability and value of property, produces degeneration of property in such areas and with attendant deterioration of conditions affecting the peace, health and welfare, and destroys a proper relationship between the taxable value of property and the cost of municipal services therefor.

(.02) The City Council declares that the purposes and objectives of site development requirements and the site design review procedure are to:

A. Assure that Site Development Plans are designed in a manner that insures proper functioning of the site and maintains a high quality visual environment.

B. Encourage originality, flexibility and innovation in site planning and development, including the architecture, landscaping and graphic design of said development;

C. Discourage monotonous, drab, unsightly, dreary and inharmonious developments;

D. Conserve the City's natural beauty and visual character and charm by assuring that structures, signs and other improvements are properly related to their sites, and to surrounding sites and structures, with due regard to the aesthetic qualities of the natural terrain and landscaping, and that proper attention is given to exterior appearances of structures, signs and other improvements;

E. Protect and enhance the City's appeal and thus support and stimulate business and industry and promote the desirability of investment and occupancy in business, commercial and industrial purposes;

F. Stabilize and improve property values and prevent blighted areas and, thus, increase tax revenues;

G. Insure that adequate public facilities are available to serve development as it occurs and that proper attention is given to site planning and development so as to not adversely impact the orderly, efficient and economic provision of public facilities and services.

H. Achieve the beneficial influence of pleasant environments for living and working on behavioral patterns and, thus, decrease the cost of governmental services and reduce opportunities for crime through careful consideration of physical design and site layout under defensible space guidelines that clearly define all areas as either public, semi-private, or private, provide clear identity of structures and opportunities for easy surveillance of the site that maximize resident control of behavior -- particularly crime;

I. Foster civic pride and community spirit so as to improve the quality and quantity of citizen participation in local government and in community growth, change and improvements;

J. Sustain the comfort, health, tranquility and contentment of residents and attract new residents by reason of the City's favorable environment and, thus, to promote and protect the peace, health and welfare of the City.

Response: Please refer to the Coffee Creek Design Overlay District requirements and design responses in this project narrative.

Section 4.420. Jurisdiction and Powers of the Board.

(.01) Application of Section. Except for single-family or two-family dwellings in any residential zoning district, and in the Village zone, row houses or apartments, and Class II applications in the Coffee Creek Industrial Design Overlay District, no Building Permit shall be issued for a new building or major exterior remodeling of an existing building, and no Sign Permit, except as permitted in Sections 4.156.02 and 4.156.05, shall be issued for the erection or construction of a sign relating to such new building or major remodeling, until the plans, drawings, sketches and other documents required for a Sign Permit application have been reviewed and approved by the Board. [Amended by Ord. No. 538, 2/21/02.] [Amended by Ord. No. 557, 9/5/03.] [Amended by Ord. No. 704, 6/18/12]

(.02) Development in Accord with Plans. Construction, site development and landscaping shall be carried out in substantial accord with the plans, drawings, sketches and other documents approved by the Board, unless altered with Board approval. Nothing in this subsection shall be construed to prevent ordinary repair, maintenance and replacement of any part of the building or landscaping which does not involve a substantial change from the purpose of Section 4.400. If the Board objects to such proposed changes, they shall be subject to the procedures and requirements of the site design review process applicable to new proposals.

(.03) *Variances. The Board may authorize variances from the site development requirements, based upon the procedures, standards and criteria listed in Section 4.196. Variances shall be considered in conjunction with the site design review process.*

Section 4.421. Criteria and Application of Design Standards.

(.01) *The following standards shall be utilized by the Board in reviewing the plans, drawings, sketches and other documents required for Site Design Review. These standards are intended to provide a frame of reference for the applicant in the development of site and building plans as well as a method of review for the Board. These standards shall not be regarded as inflexible requirements. They are not intended to discourage creativity, invention and innovation. The specifications of one or more particular architectural styles is not included in these standards. (Even in the Boones Ferry Overlay Zone, a range of architectural styles will be encouraged.)*

A. Preservation of Landscape. The landscape shall be preserved in its natural state, insofar as practicable, by minimizing tree and soils removal, and any grade changes shall be in keeping with the general appearance of neighboring developed areas.

Response: The proposed development has provided a thoughtful landscaping concept that includes preservation of the landscape in its natural state and retention of existing trees and soils (see Exhibit 3 Sheets L1.0-L2.0, Landscape Plan). The landscape on the entire eastern half of the site (greater than four acres) will be left in its natural grassy state. Further, the site's stormwater will be managed and treated through Low Impact Development via streetscape planters located along nearly the entire western frontage of the site along Garden Acres Road. This will create a pleasant naturalistic aesthetic for passersby to enjoy. While existing trees will be impacted by the development as shown on the Tree Preservation Plan (Exhibits 7 and 8), trees will be preserved wherever possible as well. This criterion is satisfied.

B. Relation of Proposed Buildings to Environment. Proposed structures shall be located and designed to assure harmony with the natural environment, including protection of steep slopes, vegetation and other naturally sensitive areas for wildlife habitat and shall provide proper buffering from less intensive uses in accordance with Sections 4.171 and 4.139 and 4.139.5. The achievement of such relationship may include the enclosure of space in conjunction with other existing buildings or other proposed buildings and the creation of focal points with respect to avenues of approach, street access or relationships to natural features such as vegetation or topography.

Response: The proposed building and site have been designed with thoughtful consideration of their relationship with the environment. As shown on the Site Plan (Exhibit 3 Sheets A1.0-A1.1), the building is located at the northwest corner of the site, close to the intersection of Garden Acres Road and future Java Road. This is the most urbanized area of the site, where, according to the Coffee Creek DOD Connectivity Plan, an Addressing Street intersects with a Supporting Street. The rest of the site, including the entire eastern half, is allowed to remain in its undeveloped state. The building is set back approximately 78' from Garden Acres Road, in order to provide space for the large Low Impact Development streetscape planters that will treat the site's stormwater. The site does not contain any steep slopes or other significant wildlife habitat areas. The lot to the south is wholly undeveloped at this time. To buffer that lot from the proposed development, the majority of the site activity, including access, the building main entrance, loading and most of the parking, are oriented as far north as possible on the subject site. This criterion has been satisfied.

C. *Drives, Parking and Circulation. With respect to vehicular and pedestrian circulation, including walkways, interior drives and parking, special attention shall be given to location and number of access points, general interior circulation, separation of pedestrian and vehicular traffic, and arrangement of parking areas that are safe and convenient and, insofar as practicable, do not detract from the design of proposed buildings and structures and the neighboring properties.*

Response: As illustrated on the Site Plan (Exhibit 3 Sheets A1.0-A1.1), the proposed development has been carefully designed in conformance with the Coffee Creek DOD, which has specific requirements for where access to the site can happen. A temporary access point will be constructed to access new Java Road and the site from Garden Acres Road. Java Road is a new Supporting Street built per the Coffee Creek DOD Regulating Plan, and half of it will be constructed as part of this project (see cross section on Exhibit 3 Sheet A1.1). The temporary access point will be closed once the parcel to the north is developed and the permanent intersection can be built. All other site access will be taken from Java Road consistent with the city's access standards. Pedestrian circulation walkways have been provided throughout the site connecting parking, the industrial wayside, and the building main entrance with the public right of way along Garden Acres Road and Java Road. Parking areas are distributed throughout the site, with the larger of the two being located behind the building and not visible from Garden Acres Road. The smaller parking area at the northwest corner of the site is located close to the building and includes the ADA-accessible parking spaces, as well as a limited number of visitor spaces and abundant landscaping. This criterion has been satisfied.

D. *Surface Water Drainage. Special attention shall be given to proper site surface drainage so that removal of surface waters will not adversely affect neighboring properties of the public storm drainage system.*

Response: On-site stormwater facilities have been designed so that surface water will not adversely affect neighboring properties. The site's stormwater will be managed via a large Low Impact Development planters located along most of the site's west frontage. More details can be found in the Stormwater Plan, included as Exhibit 5 of this submittal package. This criterion has been satisfied.

E. *Utility Service. Any utility installations above ground shall be located so as to have a harmonious relation to neighboring properties and site. The proposed method of sanitary and storm sewage disposal from all buildings shall be indicated.*

Response: As illustrated on the Utility Plan (Exhibit 3 Sheets C3-C3.1), all proposed utilities will be located underground in accordance with the requirements of this code. This criterion has been satisfied.

F. *Advertising Features. In addition to the requirements of the City's sign regulations, the following criteria should be included: the size, location, design, color, texture, lighting and materials of all exterior signs and outdoor advertising structures or features shall not detract from the design of proposed buildings and structures and the surrounding properties.*

Response: The proposed Sign Plan (Exhibit 3 Sheet A3.2) ensures that the size, location, design, color, texture, lighting and materials of all exterior signs and outdoor advertising structures or features do not detract from the design of the proposed building and surrounding properties. This criterion has been satisfied.

G. *Special Features. Exposed storage areas, exposed machinery installations, surface areas, truck loading areas, utility buildings and structures and similar accessory areas and structures shall be subject to such setbacks, screen plantings or other screening methods as shall be required to prevent their being incongruous with the existing or contemplated environment and its surrounding properties. Standards for screening and buffering are contained in Section 4.176.*

Response: The proposed development is consistent with the requirement above through its aforementioned conformance with the Coffee Creek DOD site design requirements for special setbacks, screening, planting related to parking and loading areas. This criterion has been satisfied.

(.02) The standards of review outlined in Sections (a) through (g) above shall also apply to all accessory buildings, structures, exterior signs and other site features, however related to the major buildings or structures.

(.03) The Board shall also be guided by the purpose of Section 4.400, and such objectives shall serve as additional criteria and standards.

(.04) Conditional application. The Planning Director, Planning Commission, Development Review Board or City Council may, as a Condition of Approval for a zone change, subdivision, land partition, variance, conditional use, or other land use action, require conformance to the site development standards set forth in this Section.

(.05) The Board may attach certain development or use conditions in granting an approval that are determined necessary to insure the proper and efficient functioning of the development, consistent with the intent of the Comprehensive Plan, allowed densities and the requirements of this Code. In making this determination of compliance and attaching conditions, the Board shall, however, consider the effects of this action on the availability and cost of needed housing. The provisions of this section shall not be used in such a manner that additional conditions either singularly or accumulatively have the effect of unnecessarily increasing the cost of housing or effectively excluding a needed housing type.

(.06) The Board or Planning Director may require that certain paints or colors of materials be used in approving applications. Such requirements shall only be applied when site development or other land use applications are being reviewed by the City.

A. Where the conditions of approval for a development permit specify that certain paints or colors of materials be used, the use of those paints or colors shall be binding upon the applicant. No Certificate of Occupancy shall be granted until compliance with such conditions has been verified.

B. Subsequent changes to the color of a structure shall not be subject to City review unless the conditions of approval under which the original colors were set included a condition requiring a subsequent review before the colors could be changed.

Section 4.430. Location, Design and Access Standards for mixed Solid Waste and Recycling Areas

(.01) The following locations, design and access standards for mixed solid waste and recycling storage areas shall be applicable to the requirements of Section 4.179 of the Wilsonville City Code.

(.02) Location Standards:

A. To encourage its use, the storage area for source separated recyclables shall be co-located with the storage area for residual mixed solid waste.

B. Indoor and outdoor storage areas shall comply with Uniform Building and Fire Code requirements.

C. *Storage area space requirements can be satisfied with a single location or multiple locations and can combine with both interior and exterior locations.*

D. *Exterior storage areas can be located within interior side yard or rear yard areas. Minimum setback shall be three (3) feet. Exterior storage areas shall not be located within a required front yard setback, including double frontage lots.*

E. *Exterior storage areas shall be located in central and visible locations on a site to enhance security for users.*

F. *Exterior storage areas can be located in a parking area if the proposed use provides at least the minimum number of parking spaces required for the use after deducting the area used for storage. Storage areas shall be appropriately screened according to the provisions of Section 4.430 (.03), below.*

G. *The storage area shall be accessible for collection vehicles and located so that the storage area will not obstruct pedestrian or vehicle traffic movement on the site or on public streets adjacent to the site.*

Response: The proposed solid waste and recycling area is located at the rear (to the east) of the building, as shown on the Site Plan (Exhibit 3 Sheets A1.0-A1.1). The location is secure, accessible, and visible to on-site users, and is not located in a required front yard area. Its location will not obstruct pedestrian or vehicle traffic movement on the site or on public streets adjacent to the site. A Service Provider Letter from the contracted waste removal and recycling service states that the location of the storage area is accessible (Exhibit 9). Please refer to the additional responses to the Coffee Creek Design Overlay District requirements and design responses in this project narrative. These standards have been met.

(.03) *Design Standards.*

A. *The dimensions of the storage area shall accommodate containers consistent with current methods of local collection.*

B. *Storage containers shall meet Uniform Fire Code standards and be made of or covered with waterproof materials or situated in a covered area.*

C. *Exterior storage areas shall be enclosed by a sight obscuring fence, wall or hedge at least six (6) feet in height. Gate openings for haulers shall be a minimum of ten (10) feet wide and shall be capable of being secured in a closed or open position. In no case shall exterior storage areas be located in conflict with the vision clearance requirements of Section 4.177.*

D. *Storage area(s) and containers shall be clearly labeled to indicate the type of materials accepted.*

Response: The proposed solid waste and recycling area is located at the rear (to the east) of the building, as shown on the Site Plan (Exhibit 3 Sheets A1.0-A1.1). The size of the storage area will accommodate containers with current methods of local collection. A Service Provider Letter from the local hauler has indicated that the location is adequate for their services (Exhibit 9). The area will be screened from the street view by a sight obscuring wall and landscaping at least six feet high. Containers will be labelled to indicate the contents accepted. These standards have been met.

(.04) *Access Standards.*

A. *Access to storage areas can be limited for security reasons. However, the storage area shall be accessible to users at convenient times of the day and to collect service personnel on the day and approximate time they are scheduled to provide collection service.*

B. Storage areas shall be designed to be easily accessible to collection trucks and equipment, considering paving, grade and vehicle access. A minimum of ten (10) feet horizontal clearance and eight feet of vertical clearance is required if the storage area is covered.

C. Storage areas shall be accessible to collection vehicles without requiring backing out of a driveway onto a public street. If only a single access point is available to the storage area, adequate turning radius shall be provided to allow collection vehicles to safely exit the site in a forward motion.

Response: Access to the proposed solid waste and recycling storage area will be accessible to users and collection service personnel at convenient and required times of the day. A Service Provider Letter from the contracted hauler states that the location is adequate for services to be successfully implemented (Exhibit 9). In addition, please refer to the previous Coffee Creek Design Overlay District requirements and design responses in this project narrative. These standards have been met.

Signs

Section 4.156.01. Sign Regulations Purpose and Objectives.

(.01) Purpose. The general purpose of the sign regulations are to provide one of the principal means of implementing the Wilsonville Comprehensive Plan by fostering an aesthetically pleasing, functional, and economically vital community, as well as promoting public health, safety, and well-being. The sign regulations strive to accomplish the above general purpose by meeting the needs of sign owners while maintaining consistency with the development and design standards elsewhere in Chapter 4. This code regulates the design, variety, number, size, location, and type of signs, as well as the processes required to permit various types of signs. Sign regulations have one or more of the following specific objectives:

A. Well-designed and aesthetically pleasing signs sufficiently visible and comprehensible from streets and rights-of-way that abut a site as to aid in wayfinding, identification and provide other needed information.

B. Sign design and placement that is compatible with and complementary to the overall design and architecture of a site, along with adjoining properties, surrounding areas, and the zoning district.

C. A consistent and streamlined sign review process that maintains the quality of sign development and ensures due process.

D. Consistent and equitable application and enforcement of sign regulations.

E. All signs are designed, constructed, installed, and maintained so that public safety, particularly traffic safety, are not compromised.

F. Sign regulations are content neutral.

Section 4.156.02. Sign Review Process and General Requirements.

(.01) Permit Required. Unless exempt under Section 4.156.05, no sign, permanent or temporary, shall be displayed or installed in the City without first obtaining a sign permit.

(.02) Sign Permits and Master Sign Plans. Many properties in the City have signs pre-approved through a Master Sign Plan. For the majority of applications where a Master Sign Plan has been approved the applicant need not consult the sign requirements for the zone, but rather

the Master Sign Plan, copies of which are available from the Planning Division. Signs conforming to a Master Sign Plan require only a Class I Sign Permit.

(.03) *Classes of Sign Permits, Master Sign Plans, and Review Process. The City has three classes of sign permits for permanent signs: Class I, Class II, and Class III. In addition, non-residential developments with three or more tenants require a Master Sign Plan. Class I sign permits are reviewed through the Class I Administrative Review Process as outlined in Subsection 4.030(.01)(A.). Class II sign permits are reviewed through the Class II Administrative Review Process as outlined in Subsection 4.030 (.01)(B.). Class III Sign Permits and Master Sign Plans are reviewed by the Development Review Board (DRB) as outlined in Section 4.031.*

Response: According to the Pre-Application Conference Notes (Exhibit 11), a Class III Sign Permit is required for the proposed development.

(.06) *Class III Sign Permit. Sign permit requests shall be processed as a Class III Sign Permit when associated with new development, except as noted in Subsection 4.156.02 (.05) C., or redevelopment requiring DRB review, and not requiring a Master Sign Plan; when a sign permit request is associated with a waiver or non-administrative variance; or when the sign permit request involves one or more freestanding or ground mounted signs greater than eight (8) feet in height in a new location.*

A. Class III Sign Permit Submission Requirements: Ten (10) paper and electronic copies of the submission requirements for Class II Sign Permits plus information on any requested waivers or variances in addition to all required fees.

B. Class III Sign Permit Review Criteria: The review criteria for Class II Sign Permits plus waiver or variance criteria when applicable.

Response: According to the Pre-Application Conference Notes (Exhibit 11), a Class III Sign Permit is required for the proposed development. The standards and review criteria are addressed later in this narrative.

Section 4.156.08. - Sign Regulations in the PDC, TC, PDI, and PF Zones

(.02) *Signs On Buildings*

A. Sign Eligible Facades. Building signs are allowed on a facade of a tenant space or single tenant building when one or more of the following criteria are met:
1. The facade has one or more entrances open to the general public
2. The facade faces a lot line with frontage on a street or private drive with a cross section similar to a public street, and no other buildings on the same lot obstruct the view of the building facade from the street or private drive; or
3. The facade is adjacent to the primary parking area for the building or tenant.

Response: The Sign Plan for the proposed development is shown on Exhibit 3 Sheet A3.2. The type of sign proposed is an 84 SF sign on the west facing façade of the building where the main entrance is located. The façade is eligible for a building sign because it has an entrance open to the general public, and it faces a lot line with frontage on Garden Acres Road, a public street, and no other buildings on the lot obstruct the view of the façade from that street. Two of the above criteria are met.

B. Sign Area Allowed:

1. The sign area allowed for all building signs on a sign eligible façade is shown in the table below:

Linear Length of Façade (feet)	Sign Area Allowed*
Greater than 72	36 sq. ft. plus 12 sq. ft. for each 24 linear feet or portion thereof greater than 72 up to a maximum of 200 sq. ft.

Response: As shown on the Signage Plan (Exhibit 3 Sheet A3.2), The proposed sign area is 70 SF, with dimensions of 40' X 1'-9". The allowed amount of signage on this façade is 85 SF based on a 170' façade length.

C. The length of individual tenant signs shall not exceed 75 percent of the length of the facade of the tenant space.

Response: As shown on The Signage Plan (Exhibit 3 Sheet A3.2), the length of the proposed sign is 40' and the building façade length is 170'. Therefore, the proposed sign is 23.5% of the length of the façade. This standard is met.

D. The height of building signs shall be within a definable sign band, fascia, or architectural feature and allow a definable space between the sign and the top and bottom of the sign band, fascia, or architectural feature.

Response: As shown on The Signage Plan (Exhibit 3 Sheet A3.2), the height of the proposed building sign is located within a definable fascia running along the façade where the sign is located, providing visible space between the sign itself and the top and bottom of the fascia. This standard is met.

E. Types of signs permitted on buildings include wall flat, fascia, projecting, blade, marquee and awning signs. Roof-top signs are prohibited.

Response: As shown on The Signage Plan (Exhibit 3 Sheet A3.2), the proposed building sign is a fascia sign, and thus is permitted on the building. A roof-top sign is not proposed. This standard is met.

Tree Removal

Section 4.600. Purpose and Declaration

(.01) Rapid growth, the spread of development, need for water and increasing demands upon natural resources have the effect of encroaching upon, despoiling, or eliminating many of the trees, other forms of vegetation, and natural resources and processes associated therewith which, if preserved and maintained in an undisturbed and natural condition, constitute important physical, aesthetic, recreational and economic assets to existing and future residents of the City of Wilsonville.

Response: Please refer to Landscape Plan (Exhibit 3 Sheets L1.0-L1.1) for location of new trees and tree species.

(.02) Specifically, the City Council finds that:

A. Woodland growth protects public health through the absorption of air pollutants and contamination, through the reduction of excessive noise and mental and physical damage related to noise pollution, and through its cooling effect in the summer months, and insulating effects in winter;

B. Woodlands provide for public safety through the prevention of erosion, siltation, and flooding; and

C. Trees make a positive contribution to water quality and water supply by absorbing rainfall, controlling surface water run-off, and filtering and assisting in ground water recharge; and

D. Trees and woodland growth are an essential component of the general welfare of the City of Wilsonville by producing play areas for children and natural beauty, recreation for all ages and an irreplaceable heritage for existing and future City residents.

(.03) Therefore, the purposes of this subchapter are:

A. To preserve Significant Resource Overlay Zone areas, recognizing that development can and will occur.

B. To provide for the protection, preservation, proper maintenance and use of trees and woodlands in order to protect natural habitat and prevent erosion.

C. To protect trees and other wooded areas for their economic contribution to local property values when preserved, and for their natural beauty and ecological or historical significance.

D. To protect water quality, control surface water run-off, and protect ground water recharge.

E. To reflect the public concern for these natural resources in the interest of health, safety and general welfare of Wilsonville residents.

F. To encourage replanting where trees are removed.

Section 4.610.10. <u>Standards For Tree Removal, Relocation Or Replacement</u>

(.01) Except where an application is exempt, or where otherwise noted, the following standards shall govern the review of an application for a Type A, B, C or D Tree Removal Permit:

A. Standard for the Significant Resource Overlay Zone. The standard for tree removal in the Significant Resource Overlay Zone shall be that removal or transplanting of any tree is not inconsistent with the purposes of this Chapter.

Response: The proposed development is not located within the Significant Resource Overlay Zone. This standard does not apply.

B. Preservation and Conservation. No development application shall be denied solely because trees grow on the site. Nevertheless, tree preservation and conservation as a design principle shall be equal in concern and importance to other design principles.

Response: The proposed development has taken tree preservation and conservation seriously as a design principle, as illustrated in the building location and site design.

C. Developmental Alternatives. Preservation and conservation of wooded areas and trees shall be given careful consideration when there are feasible and reasonable location alternatives and design options on-site for proposed buildings, structures or other site improvements.

Response: According to the Tree Maintenance and Protection Plan (Exhibit 7), a total of 21 existing trees have been identified on the site. The applicant has considered preservation and conservation of wooded areas and preserved trees where feasible and reasonable. This standard has been met.

D. Land Clearing. Where the proposed activity requires land clearing, the clearing shall be limited to designated street rights-of-way and areas necessary for the construction of buildings, structures or other site improvements.

Response: The applicant has limited clearing of land to areas necessary for the construction of buildings, structures and other site improvements such as the construction of Java Road. This standard has been met.

E. Residential Development. Where the proposed activity involves residential development, residential units shall, to the extent reasonably feasible, be designed and constructed to blend into the natural setting of the landscape.

Response: The proposed development is not residential. Therefore, this standard does not apply.

F. Compliance With Statutes and Ordinances. The proposed activity shall comply with all applicable statutes and ordinances.

Response: The proposed activity will comply with all applicable statutes and ordinances. This standard has been met.

G. Relocation or Replacement. The proposed activity shall include necessary provisions for tree relocation or replacement, in accordance with WC 4.620.00, and the protection of those trees that are not to be removed, in accordance with WC 4.620.10.

Response: The proposed development is not residential. Therefore, this standard does not apply.

H. Limitation. Tree removal or transplanting shall be limited to instances where the applicant has provided completed information as required by this Chapter and the reviewing authority determines that removal or transplanting is necessary based on the criteria of this subsection.

1. Necessary For Construction. Where the applicant has shown to the satisfaction of the reviewing authority that removal or transplanting is necessary for the construction of

a building, structure or other site improvement, and that there is no feasible and reasonable location alternative or design option on-site for a proposed building, structure or other site improvement; or a tree is located too close to existing or proposed buildings or structures, or creates unsafe vision clearance.

2. *Disease, Damage, or Nuisance, or Hazard. Where the tree is diseased, damaged, or in danger of falling, or presents a hazard as defined in WC 6.208, or is a nuisance as defined in WC 6.200 et seq., or creates unsafe vision clearance as defined in this Code.*
   (a) *As a condition of approval of Stage II development, filbert trees must be removed if they are no longer commercially grown or maintained.*
3. *Interference. Where the tree interferes with the healthy growth of other trees, existing utility service or drainage, or utility work in a previously dedicated right-of-way, and it is not feasible to preserve the tree on site.*
4. *Other. Where the applicant shows that tree removal or transplanting is reasonable under the circumstances.*

Response: The Tree Maintenance and Protection Plan (Exhibits 7 and 8) shows that trees are being removed due to disease or damage and because it is necessary for construction. This standard has been met. The site development plans and tree survey does indicate number of trees to remain.

I. *Additional Standards for Type C Permits.*
   1. *Tree survey. For all site development applications reviewed under the provisions of Chapter 4 Planning and Zoning, the developer shall provide a Tree Survey before site development as required by WC 4.610.40, and provide a Tree Maintenance and Protection plan, unless specifically exempted by the Planning Director or DRB, prior to initiating site development.*

Response: A Tree Maintenance and Protection Plan prepared by a qualified professional has been included with this submittal package as Exhibit 7. This standard has been met.

2. *Platted Subdivisions. The recording of a final subdivision plat whose preliminary plat has been reviewed and approved after the effective date of Ordinance 464 by the City and that conforms with this subchapter shall include a Tree Survey and Maintenance and Protection Plan, as required by this subchapter, along with all other conditions of approval.*

Response: This standard does not apply because the proposed development is not part of a platted subdivision.

3. *Utilities. The City Engineer shall cause utilities to be located and placed wherever reasonably possible to avoid adverse environmental consequences given the circumstances of existing locations, costs of placement and extensions, the public welfare, terrain, and preservation of natural resources. Mitigation and/or replacement of any removed trees shall be in accordance with the standards of this subchapter.*

Response: The applicant understands that mitigation and/or replacement of any removed trees for the purpose of compliance with City Engineer requirements shall be in accordance with the standards of this subchapter.

J. Exemption. Type D permit applications shall be exempt from review under standards D, E, H and I of this subsection.

Response: This standard does not apply.

Section 4.610.40. Type C Permit

(.01) Approval to remove any trees on property as part of a site development application may be granted in a Type C permit. A Type C permit application shall be reviewed by the standards of this subchapter and all applicable review criteria of Chapter 4. Application of the standards of this section shall not result in a reduction of square footage or loss of density, but may require an applicant to modify plans to allow for buildings of greater height. If an applicant proposes to remove trees and submits a landscaping plan as part of a site development application, an application for a Tree Removal Permit shall be included. The Tree Removal Permit application will be reviewed in the Stage II development review process. The DRB shall review all Type C permits, with the exception of Class II development review applications located within the Coffee Creek Industrial Design Overlay District, where the Planning Director shall have review authority. Any plan changes made that affect trees after Stage II review of a development application shall be subject to review by the original approval authority. Where mitigation is required for tree removal, such mitigation may be considered as part of the landscaping requirements as set forth in this Chapter. Tree removal shall not commence until approval of the required Stage II application and the expiration of the appeal period following that decision. If a decision approving a Type C permit is appealed, no trees shall be removed until the appeal has been settled.

(.02) The applicant must provide ten copies of a Tree Maintenance and Protection Plan completed by an arborist that contains the following information:

A. A plan, including a topographical survey bearing the stamp and signature of a qualified, registered professional containing all the following information:

1. Property Dimensions. The shape and dimensions of the property, and the location of any existing and proposed structure or improvement.

2. Tree survey. The survey must include:

a. An accurate drawing of the site based on accurate survey techniques at a minimum scale of one inch (1") equals one hundred feet (100') and which provides a) the location of all trees having six inches (6") or greater d.b.h. likely to be impacted, b) the spread of canopy of those trees, (c) the common and botanical name of those trees, and d) the approximate location and name of any other trees on the property.

b. A description of the health and condition of all trees likely to be impacted on the site property. In addition, for trees in a present or proposed public street or road right-of-way that are described as unhealthy, the description shall include recommended actions to restore such trees to full health. Trees proposed to remain, to be transplanted or to be removed shall be so designated. All trees to remain on the site are to be designated with metal tags that are to remain in place throughout the development. Those tags shall be numbered, with the numbers keyed to the tree survey map that is provided with the application.

c. *Where a stand of twenty (20) or more contiguous trees exist on a site and the applicant does not propose to remove any of those trees, the required tree survey may be simplified to accurately show only the perimeter area of that stand of trees, including its drip line. Only those trees on the perimeter of the stand shall be tagged, as provided in "b," above.*

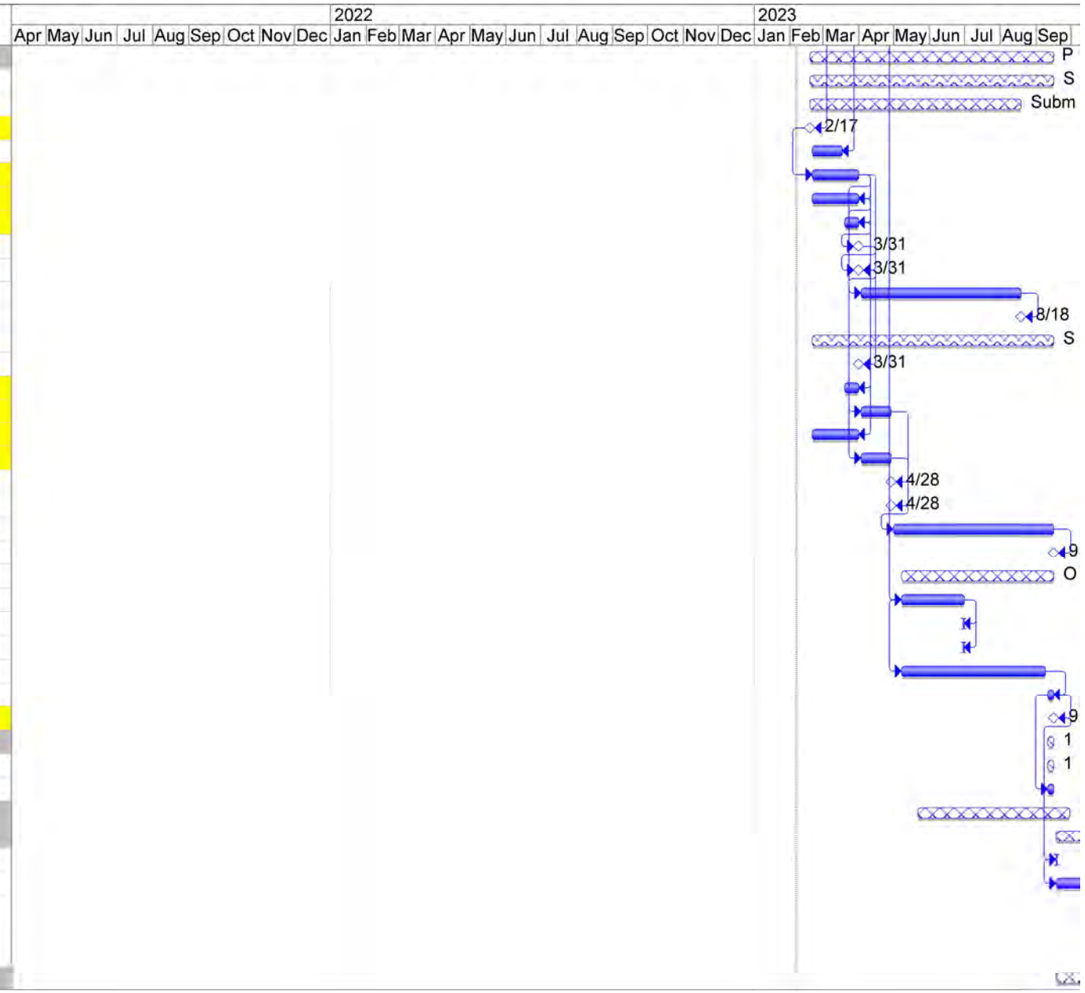
d. *All Oregon white oaks, native yews, and any species listed by either the state or federal government as rare or endangered shall be shown in the tree survey.*

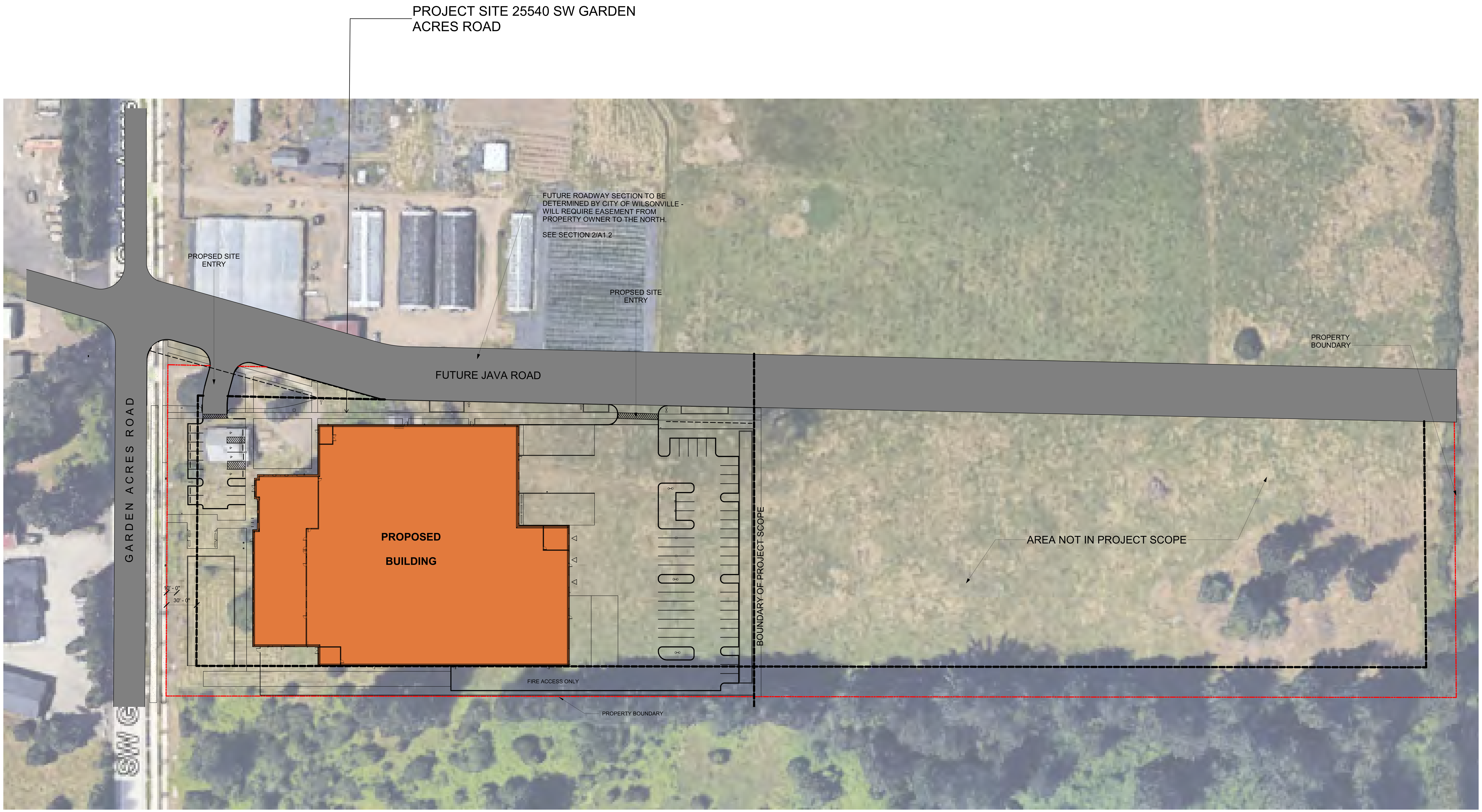
3. *Tree Protection. A statement describing how trees intended to remain will be protected during development, and where protective barriers are necessary, that they will be erected before work starts. Barriers shall be sufficiently substantial to withstand nearby construction activities. Plastic tape or similar forms of markers do not constitute "barriers."*
4. *Easements and Setbacks. Location and dimension of existing and proposed easements, as well as all setbacks required by existing zoning requirements.*
5. *Grade Changes. Designation of grade changes proposed for the property that may impact trees.*
6. *Cost of Replacement. A cost estimate for the proposed tree replacement program with a detailed explanation including the number, size and species.*
7. *Tree Identification. A statement that all trees being retained will be identified by numbered metal tags, as specified in subsection "A," above in addition to clear identification on construction documents*.

Response: The Tree Maintenance and Protection Plan is included as Exhibits 7 and 8 of this submittal package. The plan was prepared by a qualified arboricultural professional and shows the property dimensions and topographical information, as well as a Tree Survey, shows easements and setbacks, grade changes and other necessary information.

ID	Task Name	Working Days	Start	Finish	Resource Names	Pred
1	**Pre-Construction Planning Schedule**	**1175 days**	**Tue 4/13/21**	**Fri 10/31/25**		
2	**Land Feasibility Study**	**66 days**	**Tue 4/13/21**	**Thu 7/15/21**		
5	**Land Selection / Feasibilty Concepts-Pioneer**	**16 days**	**Wed 4/14/21**	**Wed 5/5/21**		
8	**Land Selection / Feasibilty Concepts-Wetzle**	**11 days**	**Wed 6/30/21**	**Thu 7/15/21**		
11	**Owner Land Selection Meetings**	**64 days**	**Wed 4/21/21**	**Wed 7/21/21**		
24	**Land Use Pre-Application**	**11 days**	**Thu 7/15/21**	**Thu 7/29/21**		
30	**30% Conceptual Design Development**	**456 days**	**Mon 7/19/21**	**Wed 5/3/23**		
120	**60% Design Development**	**750 days**	**Thu 12/15/22**	**Fri 10/31/25**		
121	**60% Design Development Drawing Set**	**65 days**	**Thu 12/15/22**	**Fri 3/17/23**		
122	**Design Development Meetings-Owner**	**34 days**	**Wed 12/21/22**	**Wed 2/8/23**		
123	Design Development Weekly Meeting-Seventeen	1 day	Wed 12/21/22	Wed 12/21/22	Owner,GC,Arch/Engrs	132SS+4 days
124	Design Development Weekly Meeting-Eighteen	1 day	Wed 12/28/22	Wed 12/28/22	Owner,GC,Arch/Engrs	123FS+3 days
125	Design Development Weekly Meeting-Nineteen	1 day	Wed 1/4/23	Wed 1/4/23	Owner,GC,Arch/Engrs	124FS+3 days
126	Design Development Weekly Meeting-Twenty	1 day	Wed 1/11/23	Wed 1/11/23	Owner,GC,Arch/Engrs	125FS+4 days
127	Design Development Weekly Meeting-Twenty One	1 day	Wed 1/18/23	Wed 1/18/23	Owner,GC,Arch/Engrs	126FS+4 days
128	Design Development Weekly Meeting-Twenty Two	1 day	Wed 1/25/23	Wed 1/25/23	Owner,GC,Arch/Engrs	127FS+4 days
129	***Design Development Weekly Meeting-Twenty Three***	***1 day***	*Wed 2/1/23*	*Wed 2/1/23*	*Owner,GC,Arch/Engrs*	*128FS+4 days*
130	Design Development Weekly Meeting-Twenty Four	1 day	Wed 2/8/23	Wed 2/8/23	Owner,GC,Arch/Engrs	129FS+4 days
131	**Phase II-Design Development Set [DD] Drawings**	**50 days**	**Thu 12/15/22**	**Fri 2/24/23**		
132	***Develop 60% Arch/Struct/Civil/Landscape Drawings***	***45 days***	*Thu 12/15/22*	*Fri 2/17/23*	*Arch/Engrs,Owner,GC*	*104*
133	Client 60% DD Drawing Review & Approval	0 days	Fri 2/17/23	Fri 2/17/23	Owner,Arch/Engrs,GC	132
134	Develop 60% DD Drawing Modifications [if required]	5 days	Mon 2/20/23	Fri 2/24/23	Arch/Engrs,Owner,GC	132FF+5 days
135	**60% Budget Estimate Update**	**15 days**	**Mon 2/20/23**	**Fri 3/10/23**		
136	Design-Build Subcontractor Bidding	15 days	Mon 2/20/23	Fri 3/10/23	GC	133
137	***60% Budget Estimate Update***	*5 days*	*Mon 3/6/23*	*Fri 3/10/23*	*GC*	*136FF*
138	Budget Estimate Meeting	1 day	Fri 3/10/23	Fri 3/10/23	GC,Owner,Arch/Engrs	136FF
139	**GC / Design Build Subcontractor Contracts**	**5 days**	**Mon 3/13/23**	**Fri 3/17/23**		
140	GC / Design Build Subcontractor Contracts	5 days	Mon 3/13/23	Fri 3/17/23	GC	138
141	**90% Construction Documents [CD] / Permit Set Drawings**	**73 days**	**Wed 2/15/23**	**Fri 5/26/23**		
142	**90% Construction Documents [CD] / Permit Set Drawings**	**73 days**	**Wed 2/15/23**	**Fri 5/26/23**		
143	**Final Design Development Meetings-Owner Weekly**	**56 days**	**Wed 2/15/23**	**Wed 5/3/23**		
144	Final Design Development Weekly Meeting-Twenty Five	1 day	Wed 2/15/23	Wed 2/15/23	Owner,GC,Arch/Engrs	130FS+4 days
145	Final Design Development Weekly Meeting-Twenty Six	1 day	Wed 2/22/23	Wed 2/22/23	Owner,GC,Arch/Engrs	144FS+4 days
146	Final Design Development Weekly Meeting-Twenty Seven	1 day	Wed 3/1/23	Wed 3/1/23	Owner,GC,Arch/Engrs	145FS+4 days
147	Final Design Development Weekly Meeting-Twenty Eight	1 day	Wed 3/8/23	Wed 3/8/23	Owner,GC,Arch/Engrs,D-B Subs	146FS+4 days
148	Final Design Development Weekly Meeting-Twenty Nine	1 day	Wed 3/15/23	Wed 3/15/23	Owner,GC,Arch/Engrs,D-B Subs	147FS+4 days
149	Final Design Development Weekly Meeting-Thirty	1 day	Wed 3/22/23	Wed 3/22/23	Owner,GC,Arch/Engrs,D-B Subs	148FS+4 days
150	Final Design Development Weekly Meeting-Thirty One	1 day	Wed 3/29/23	Wed 3/29/23	Owner,GC,Arch/Engrs,D-B Subs	149FS+4 days
151	Final Design Development Weekly Meeting-Thirty Two	1 day	Wed 4/5/23	Wed 4/5/23	Owner,GC,Arch/Engrs,D-B Subs	150FS+4 days
152	Final Design Development Weekly Meeting-Thirty Three	1 day	Wed 4/12/23	Wed 4/12/23	Owner,GC,Arch/Engrs,D-B Subs	151FS+4 days
153	Final Design Development Weekly Meeting-Thirty Four	1 day	Wed 4/19/23	Wed 4/19/23	Owner,GC,Arch/Engrs,D-B Subs	152FS+4 days
154	Final Design Development Weekly Meeting-Thirty Five	1 day	Wed 4/26/23	Wed 4/26/23	Owner,GC,Arch/Engrs,D-B Subs	153FS+4 days
155	Final Design Development Weekly Meeting-Thirty Six	1 day	Wed 5/3/23	Wed 5/3/23	Owner,GC,Arch/Engrs,D-B Subs	154FS+4 days
156	**Final Design Permit Set Drawings**	**55 days**	**Mon 2/20/23**	**Fri 5/5/23**		
157	Develop 90% DD Design [Building Permit Documents]	55 days	Mon 2/20/23	Fri 5/5/23	Arch/Engrs,Owner,GC,D-B Subs	133
158	Develop 90% Plumbing Drawings	35 days	Mon 3/20/23	Fri 5/5/23	Arch/Engrs,Owner,GC,D-B Subs	140
159	Develop 90% Electrical / Fire Alarm Drawings	35 days	Mon 3/20/23	Fri 5/5/23	Arch/Engrs,Owner,GC,D-B Subs	140
160	Develop 90% HVAC Drawings	35 days	Mon 3/20/23	Fri 5/5/23	Owner,GC,D-B Subs,Arch/Engrs	140
161	Develop 90% Fire Sprinkler Drawings	35 days	Mon 3/20/23	Fri 5/5/23	Owner,GC,D-B Subs,Arch/Engrs	140
162	Client 90% DD Drawing Review & Approval	5 days	Mon 5/1/23	Fri 5/5/23	Owner,GC,Arch/Engrs,D-B Subs	157FF
163	**Final PEMB Design Documents**	**55 days**	**Mon 2/20/23**	**Fri 5/5/23**		
164	PEMB Final Building Design Documents-VP	55 days	Mon 2/20/23	Fri 5/5/23	Owner,GC,Arch/Engrs	157SS
165	**Final Estimate & Schedule Update**	**15 days**	**Mon 5/8/23**	**Fri 5/26/23**		
166	***GC Final Estimate & Proposal***	*15 days*	*Mon 5/8/23*	*Fri 5/26/23*	*GC*	*162*
167	GC Final Estimate & Proposal Review Meeting	5 days	Mon 5/22/23	Fri 5/26/23	GC,Owner,Arch/Engrs,D-B Subs	166FF
168						
169						
170						
171						

ID	Task Name	Working Days	Start	Finish	Resource Names	Pred
172	**Permits**	**150 days**	**Fri 2/17/23**	**Fri 9/15/23**		
173	**Submit 90% DD Set Drawings before Building Code Expires 4/1/23**	**150 days**	**Fri 2/17/23**	**Fri 9/15/23**	**Arch/Engrs,Owner,GC,D-B Subs**	
174	**Submit Design Docs w/o MEP for Permit before 4/1/23**	**130 days**	**Fri 2/17/23**	**Fri 8/18/23**		
175	**60% Design Set Completion without Modifications**	**0 days**	**Fri 2/17/23**	**Fri 2/17/23**	**Arch/Engrs**	**133FF**
176	GC / Design Build Sub Bidding from 60% Set & Issue Subcontracts	20 days	Mon 2/20/23	Fri 3/17/23	D-B Subs	140FF
177	90% Construction Documents-Design Team	**30 days**	Mon 2/20/23	Fri 3/31/23	Arch/Engrs	175SS
178	90% Construction Documents-Varco Pruden Permit Docs	**30 days**	Mon 2/20/23	Fri 3/31/23	Varco Pruden	177FF
179	90% Construction Documents-Design Build Subs Permit Docs	**10 days**	Mon 3/20/23	Fri 3/31/23	D-B Subs	177FF
180	2019 Building Code Grace Period Expiration	0 days	Fri 3/31/23	Fri 3/31/23	City	119FF,179
181	90% Construction Documents-Submit for Permit	0 days	Fri 3/31/23	Fri 3/31/23	Arch/Engrs,Owner	177FF,180
182	Bldg Dept Review / Issue Bldg Permit [Expedites in 20 wks or 4.5 mos]	100 days	Mon 4/3/23	Fri 8/18/23	City	181
183	**Estimated Building Permit Issued-Earliest Date**	**0 days**	**Fri 8/18/23**	**Fri 8/18/23**	**City**	**182FF**
184	**Submit Design Docs w/o MEP for Permit. Wilsonville waits for MEP**	**150 days**	**Mon 2/20/23**	**Fri 9/15/23**		
185	90% Construction Docs w/o Deferred Docs-Submit for Permit	0 days	Fri 3/31/23	Fri 3/31/23	City	181FF
186	90% Construction Documents-Design Build Subs Permit Docs	**10 days**	Mon 3/20/23	Fri 3/31/23	D-B Subs	177FF
187	90% Construction Documents-Design Build Subs [Add DesignTime]	**20 days**	Mon 4/3/23	Fri 4/28/23	D-B Subs	177
188	90% Construction Documents-Varco Pruden Permit Docs	**30 days**	Mon 2/20/23	Fri 3/31/23	Varco Pruden	177FF
189	90% Construction Documents-Varco Pruden [Add Design Time]	**20 days**	Mon 4/3/23	Fri 4/28/23	VP	178
190	Deferred PEMB Permit Submittal	0 days	Fri 4/28/23	Fri 4/28/23	VP	189FF
191	Deferred MEP Permit Submittal	0 days	Fri 4/28/23	Fri 4/28/23	D-B Subs	187FF
192	Building Dept Review 90% Const Docs with Deferred Docs	100 days	Mon 5/1/23	Fri 9/15/23	City	191
193	**Estimated Building Permit Issued-Earliest Date**	**0 days**	**Fri 9/15/23**	**Fri 9/15/23**	**City**	**192FF**
194	**Original Plan for Permit Submittal**	**95 days**	**Mon 5/8/23**	**Fri 9/15/23**		
195	Submit 90% DD Set Drawings for Permit [after Dev Review approval]	40 days	Mon 5/8/23	Fri 6/30/23	Arch/Engrs,Owner,GC,D-B Subs	162
196	Deferred PEMB Permit Drawing Submittal	1 day	Fri 6/30/23	Fri 6/30/23	PHI	195FF
197	Deferred MEP Permit Submittal	1 day	Fri 6/30/23	Fri 6/30/23	GC,D-B Subs	195FF
198	90% DD Set Drawings Review by Building Department [estimated 4 months]	90 days	Mon 5/8/23	Fri 9/8/23	City	195SS
199	90% DD Set Drawing Redline/Checklist Revisions [if required]	5 days	Mon 9/11/23	Fri 9/15/23	Arch/Engrs,D-B Subs	198FF+5 days
200	***Building Permit Issued***	*0 days*	*Fri 9/15/23*	*Fri 9/15/23*	*City*	*199FF*
201	**100% Construction Set Drawings [CS]**	**5 days**	**Mon 9/11/23**	**Fri 9/15/23**		
202	**100% Construction Set Drawings [CS]**	**5 days**	**Mon 9/11/23**	**Fri 9/15/23**		
203	100% Construction Set Plans [with Bldg Dept Final Comments]	5 days	Mon 9/11/23	Fri 9/15/23	Arch/Engrs,Owner,GC,D-B Subs	199SS
204	**Owner / GC Construction Contract**	**95 days**	**Mon 5/22/23**	**Fri 9/29/23**		
237	**PEMB Fabrication & Delivery [Tentative]**	**105 days**	**Mon 9/18/23**	**Fri 2/9/24**		
238	PEMB Release for Fabrication [No later than]	1 day	Mon 9/18/23	Mon 9/18/23	PHI	200
239	PEMB Fabrication-18 Weeks, 130 Calendar Days	95 days	Mon 9/18/23	Fri 1/26/24	PHI	238SS
240	PEMB Delivery	10 days	Mon 1/29/24	Fri 2/9/24	PHI	
241	PEMB Delivery-Quadrant 2	5 days	Mon 1/29/24	Fri 2/2/24	PHI	239
242	PEMB Delivery-Quadrant 1	5 days	Mon 2/5/24	Fri 2/9/24	PHI	241
243	**Existing Building Lease**	**555 days**	**Mon 9/18/23**	**Fri 10/31/25**		





REFER TO SITE PLAN FOR MORE INFORMATION

1 SITE PLAN (FUTURE)
1" = 40'-0"

MDG
ARCHITECTURE | INTERIORS
4875 SW GRIFFITH DRIVE, SUITE 300
BEAVERTON, OREGON 97005
O | 503.244.0552

REGISTERED ARCHITECT STATE OF OREGON

Client/ Owner:
PRECISION COUNTERTOPS

26200 SW 95th Ave,
Wilsonville OR 97070

Project:
PRECISION COUNTERTOPS

SW Garden Acres Road
Wilsonville OR 97070

Sheet Title:
STAGE 1 (SITE PLAN)

Revisions:

#	Description	Date

Date: 02/06/2023
Job Number: 121036
Sheet

DESIGN REVIEW SET - FEBRUARY 2023

G0.0

(WP2) WALL at Lobby & Showroom

MATERIAL: Insulated Wall Panel

STYLE: Morin MX-1, MX-2, MX-3, MX-4, MX-6
(Mfr. Kingspan or Sim.)

COLOR: Dark Bronze or Sim.

Dark Bronze
SR:0.27 E:0.85 SRI:26
RGB: 55 51 50

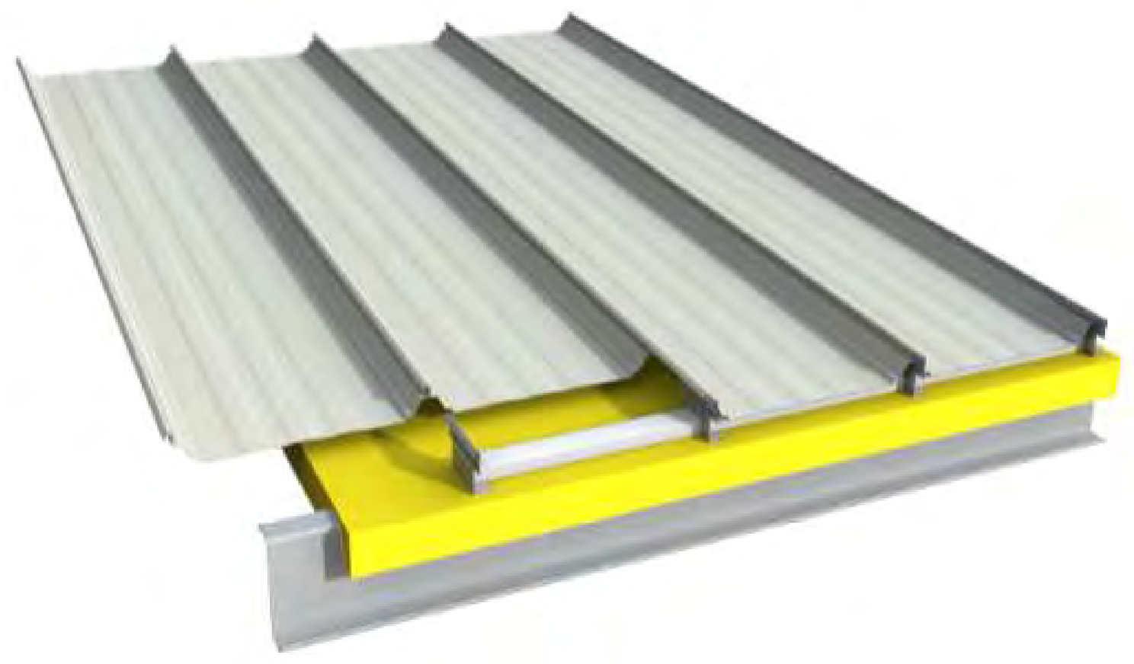
ROOF - (R1)

MATERIAL: Insulated Roof Panel

STYLE: 24 ga SSR Roof Panel
(Mfr. Varco Pruden, SIM.)

COLOR: COOL ZINC GRAY

Cool Zinc Gray

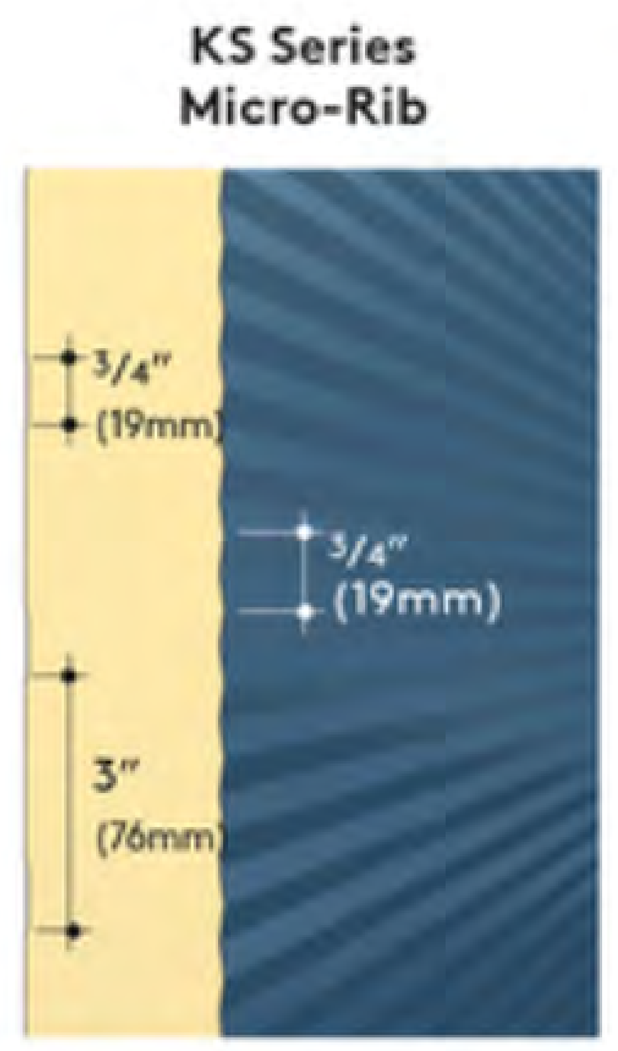


(WP1)Wall at Office

MATERIAL: Insulated Wall Panel

STYLE: KS Series: Micro Rib
(Mfr. Kingspan or Sim.)

COLOR: Zinc Gray



Zinc Gray
SR:0.35 E:0.86 SRI:37
RGB: 100 97 93

(WP4) Wall at Manufacturing and Storage Area

MATERIAL: PANEL Wall System

STYLE: 26 ga "R" panel
(Mfr. Varco Pruden, SIM.)

COLOR: Cool Zinc Gray

Cool Zinc Gray

CANOPIES, DOOR, WINDOW FRAME, CAP & FLASHING (M1)

MATERIAL: Metal

FINISHES: Anodized Finish

COLOR: Dark Bronze

WALL ACCENT (WP3)

MATERIAL: Metal

MFR: Kingspan or Sim.

COLOR: Dark Bronze

WALL BASE (WB1)

MATERIAL: Insulated Wall Panel

STYLE: KS Series: Granitstone Quartz
(Mfr. Kingspan or Sim.)

COLOR: Teton Gray or Sim.

SIGN (P1)

MATERIAL: Metal

FINISHES: Semi Gloss
(Mfr. Behr or Sim.)

COLOR: Delicate White

DESIGN REVIEW SET 2022-06-21

MILDREN DESIGN GROUP
ARCHITECTURE | INTERIORS
4875 SW Griffith Drive Suite 300
Beaverton OR, 97005
(503) 244-0552

Client/ Owner:

Project:
PRECISION COUNTERTOP

25540 SW Garden Acres Road
Wilsonville OR 97140

Sheet Title:
MATERIAL BOARD

Revisions:

#	Description	Date

Date: 2022-06-21

Drawn by: Author
Checked by: Checker

Job Number: 121036

Sheet
G0.4

Precision Countertop Site
Storm Drainage Calculations

SW Garden Acres Road
Wilsonville, Oregon

March 2023
Project Number: 21279

TM RIPPEY
CONSULTING ENGINEERS

7650 SW Beveland Street,
Suite 100
Tigard, Oregon 97223

Phone: 503 443 3900
Fax: 503 443 3700
email:kkoroch@tmrippey.com

Table of Contents

Introduction

The site currently has several small buildings but is generally undeveloped, with the majority of the surface grassed. Existing site access is from SW Garden Acres Road, which was recently improved with curbs and sidewalk. Development consists of construction of a new commercial building with paved parking and maneuvering areas.

The development site is approximately 9.34 acres. The proposed building and site improvements will create approximately 143,910 square feet of impervious area. The eastern portion of the site is approximately 4 acres and may be developed in the future. Applying the City's 15% landscape requirement, approximately 194,000 of impervious surface could be created on this eastern portion of the property. It is assumed that with future development storm treatment and flow control will be provided on that portion of the property for this future development. A pipe to convey this future runoff has been provided along the southern portion of the development area.

City staff has provided areal topographic information indicating a portion of the adjacent separately owned parcel to the north currently drains southeast toward the eastern portion of the development site. At staff's request, a field inlet has been provided to collect this potential surface flow at the development site's north boundary. A conveyance pipe routes this potential runoff to the pipe from the future east site development area. The potential basin area tributary to this field inlet is 354,000 square feet. Of this, applying the City's mandated 15% landscape requirement results in a potential impervious area of 300,900 square feet. Treatment and flow control will occur on this separate parcel upon development and runoff will likely be routed directly to the previously provided storm connection lateral along this parcel's frontage at Garden Acres Road.

With site development, runoff from north building roof areas and the west portion of the supporting street surface will be directed to a LID rain garden located NW of the building for treatment and flow control. Three LID planters have been located along the supporting street to provide treatment and flow control for the remainder of the runoff from the supporting street surface. A LID planter has been provided at the east end of the development area to provide treatment and flow control for the paving east of the building. Runoff from the various truck docks and southern building roof is directed to an LID planter located west of the building. Each of these have been sized for flow control and filtration using the Clackamas County modeling software. As the modeling software provides sizing for both treatment and flow control, no separate flow control elements are proposed.

Outflow from the rain garden and planters is directed to the pipe system provided for the east future development parcel and the separate north parcel and is directed to the existing public storm lateral located on the site's Garden Acres Road frontage.

The geotechnical analysis indicates near zero (0.01 in/hr) in their testing. Based on this, the LID treatment has been modeled presuming zero infiltration, though the bottom of the rain garden and planters will be unlined.

Pipe Sizing Design Methodology

Runoff for pipe sizing has been calculated based on Santa Barbara Unit Hydrograph methodology using HydroCAD™ software. Rainfall based on a 25-year, 24-hour Type 1A event of 3.90-inch rainfall. Piping has been sized to convey the 25-year event based on runoff rates calculated with HydroCAD software and pipe capacity based on Manning's equation with pipe runoff coefficient, n=0.013.

Appendix

WES Sizing Tool Output
HydroCAD Output
Conveyance Calculations
Basin Maps
Geotechnical Analysis

WES BMP Sizing Software Version 1.6.0.2, May 2018

WES BMP Sizing Report

Project Information

Project Name	Precision Countertop Site
Project Type	Commercial
Location	Garden Acres Road Wilsonville
Stormwater Management Area	0
Project Applicant	PHI Construction
Jurisdiction	OutofDistrict

Drainage Management Area

Name	Area (sq-ft)	Pre-Project Cover	Post-Project Cover	DMA Soil Type	BMP
DMA A NW Site Paving	6,500	Grass	ConventionalConcrete	C	BMP A NW Rain Garden
DMA A NW Building Roof	22,800	Grass	Roofs	C	BMP A NW Rain Garden
DMA E East Parking	42,650	Grass	ConventionalConcrete	C	BMP E East Paving Planter
DMA F South Roof	42,210	Grass	Roofs	C	BMP F SW of Buildin
DMA F Truck Dock and West Parking	14,150	Grass	ConventionalConcrete	C	BMP F SW of Buildin
DMA B West Center Java Road	4,900	Grass	ConventionalConcrete	C	BMP B West Center Java Road Planter
DMA C Center Java Road	2,475	Grass	ConventionalConcrete	C	BMP C Center Java Road Planter
DMA D East Java Road	4,225	Grass	ConventionalConcrete	C	BMP D East Java Road Planter

LID Facility Sizing Details

LID ID	Design Criteria	BMP Type	Facility Soil Type	Minimum Area (sq-ft)	Planned Areas (sq-ft)	Orifice Diameter (in)
BMP A NW Rain Garden	FlowControlAndTreatment	Rain Garden - Filtration	Lined	1,465.0	1,573.0	1.5

BMP B West Center Java Road Planter	FlowControlAndTreatment	Stormwater Planter - Filtration	Lined	343.0	348.0	0.7
BMP E East Paving Planter	FlowControlAndTreatment	Stormwater Planter - Filtration	Lined	2,985.5	3,001.0	2.0
BMP F SW of Buildin	FlowControlAndTreatment	Stormwater Planter - Filtration	Lined	3,945.2	3,956.0	2.3
BMP C Center Java Road Planter	FlowControlAndTreatment	Stormwater Planter - Filtration	Lined	173.3	177.0	0.5
BMP D East Java Road Planter	FlowControlAndTreatment	Stormwater Planter - Filtration	Lined	295.8	301.0	0.6

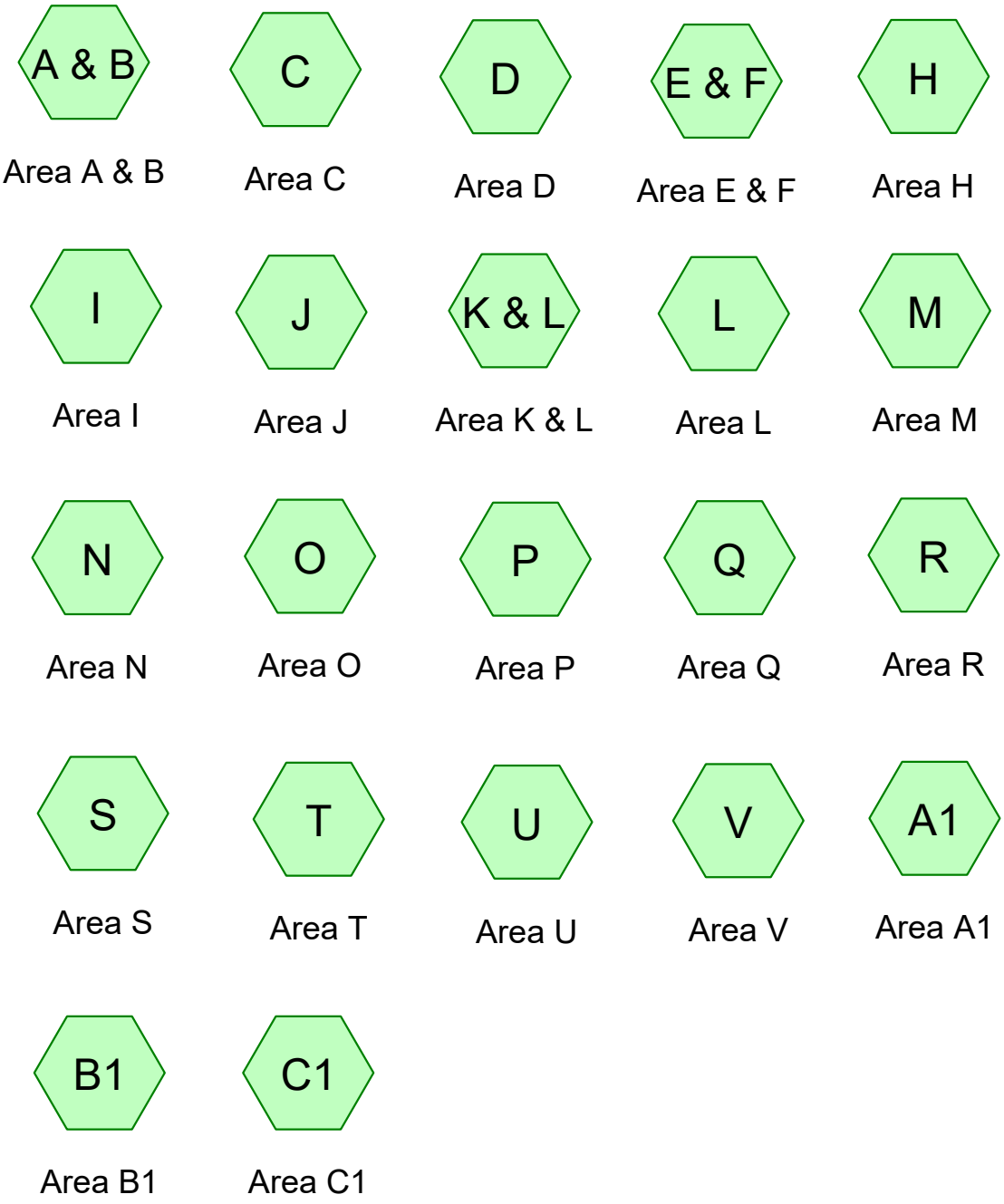
Pond Sizing Details

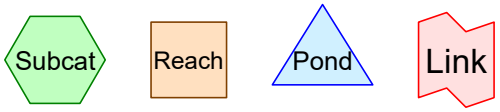
1. FCWQT = Flow control and water quality treatment, WQT = Water quality treatment only

2. Depth is measured from the bottom of the facility and includes the three feet of media (drain rock, separation layer and growing media).

3. Maximum volume of the facility. Includes the volume occupied by the media at the bottom of the facility.

4. Maximum water storage volume of the facility. Includes water storage in the three feet of soil media assuming a 40 percent porosity.





Routing Diagram for 2023-1-27 Pipe Sizing
Prepared by {enter your company name here}, Printed 1/27/2023

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	25yr24hr	Type IA 24-hr		Default	24.00	1	3.90	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
13.083	98	Paved parking, HSG C (A & B, A1, B1, C1, E & F, L, M, N, O, P, U, V)
1.063	98	Roofs, HSG C (D, H, I, J, K & L, Q)
0.434	98	Unconnected roofs, HSG C (C, R, S, T)
14.580	**98**	**TOTAL AREA**

Time span=0.00-150.00 hrs, dt=0.01 hrs, 15001 points
Runoff by SBUH method, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentA & B: Area A & B Runoff Area=2,475 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.05 cfs 0.017 af

SubcatchmentA1: Area A1 Runoff Area=4,000 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.08 cfs 0.028 af

SubcatchmentB1: Area B1 Runoff Area=1,800 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.04 cfs 0.013 af

SubcatchmentC: Area C Runoff Area=1,090 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.02 cfs 0.008 af

SubcatchmentC1: Area C1 Runoff Area=42,650 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.90 cfs 0.299 af

SubcatchmentD: Area D Runoff Area=1,400 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.03 cfs 0.010 af

SubcatchmentE & F: Area E & F Runoff Area=1,700 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.04 cfs 0.012 af

SubcatchmentH: Area H Runoff Area=10,080 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.21 cfs 0.071 af

SubcatchmentI: Area I Runoff Area=14,140 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.30 cfs 0.099 af

SubcatchmentJ: Area J Runoff Area=11,900 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.25 cfs 0.083 af

SubcatchmentK & L: Area K & L Runoff Area=3,800 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.08 cfs 0.027 af

SubcatchmentL: Area L Runoff Area=4,290 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.09 cfs 0.030 af

SubcatchmentM: Area M Runoff Area=2,475 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.05 cfs 0.017 af

SubcatchmentN: Area N Runoff Area=4,225 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.09 cfs 0.030 af

SubcatchmentO: Area O Runoff Area=300,900 sf 100.00% Impervious Runoff Depth=3.67"
Flow Length=700' Slope=0.0070 '/' Tc=34.0 min CN=98 Runoff=4.44 cfs 2.110 af

SubcatchmentP: Area P Runoff Area=194,000 sf 100.00% Impervious Runoff Depth=3.67"
Flow Length=700' Slope=0.0070 '/' Tc=34.0 min CN=98 Runoff=2.86 cfs 1.360 af

SubcatchmentQ: Area Q Runoff Area=5,000 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.11 cfs 0.035 af

SubcatchmentR: Area R Runoff Area=8,500 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.18 cfs 0.060 af

SubcatchmentS: Area S Runoff Area=6,300 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.13 cfs 0.044 af

SubcatchmentT: Area T Runoff Area=3,000 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.06 cfs 0.021 af

SubcatchmentU: Area U Runoff Area=6,500 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.14 cfs 0.046 af

SubcatchmentV: Area V Runoff Area=4,900 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=98 Runoff=0.10 cfs 0.034 af

Total Runoff Area = 14.580 ac Runoff Volume = 4.454 af Average Runoff Depth = 3.67"
0.00% Pervious = 0.000 ac 100.00% Impervious = 14.580 ac

Summary for Subcatchment A & B: Area A & B

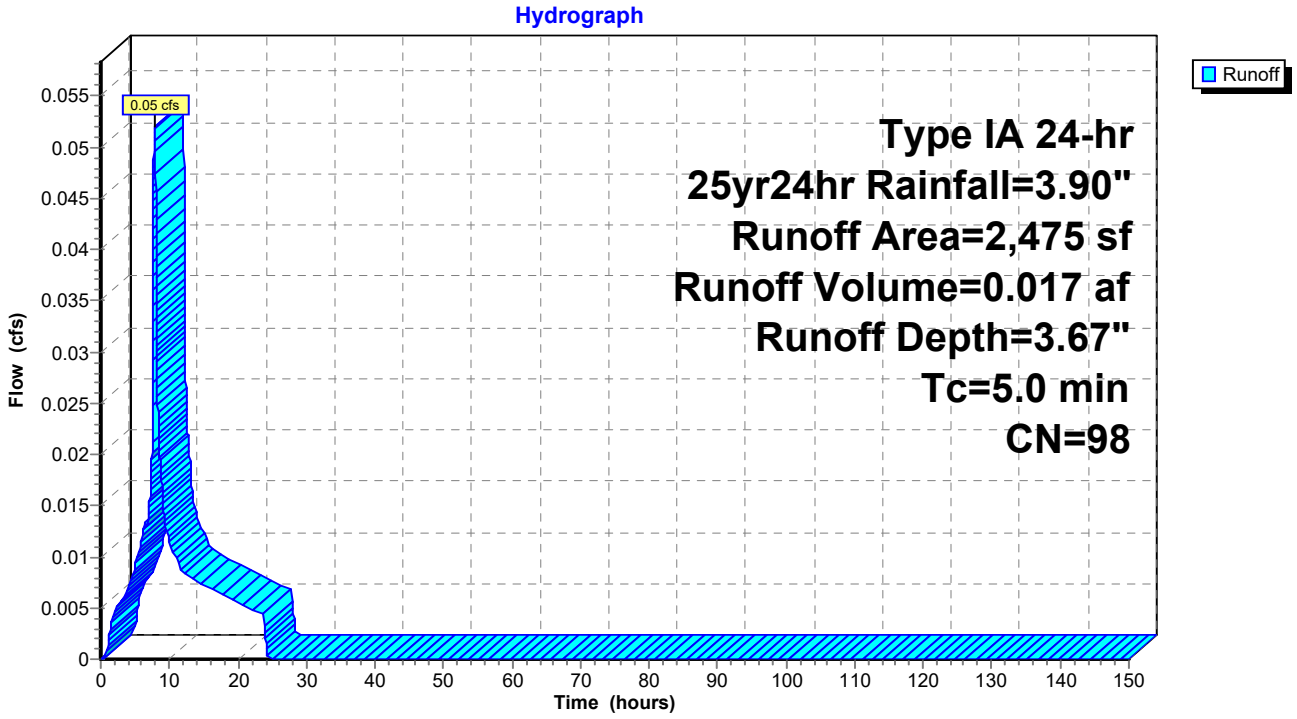
Runoff = 0.05 cfs @ 7.88 hrs, Volume= 0.017 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
2,475	98	Paved parking, HSG C
2,475		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment A & B: Area A & B



Summary for Subcatchment A1: Area A1

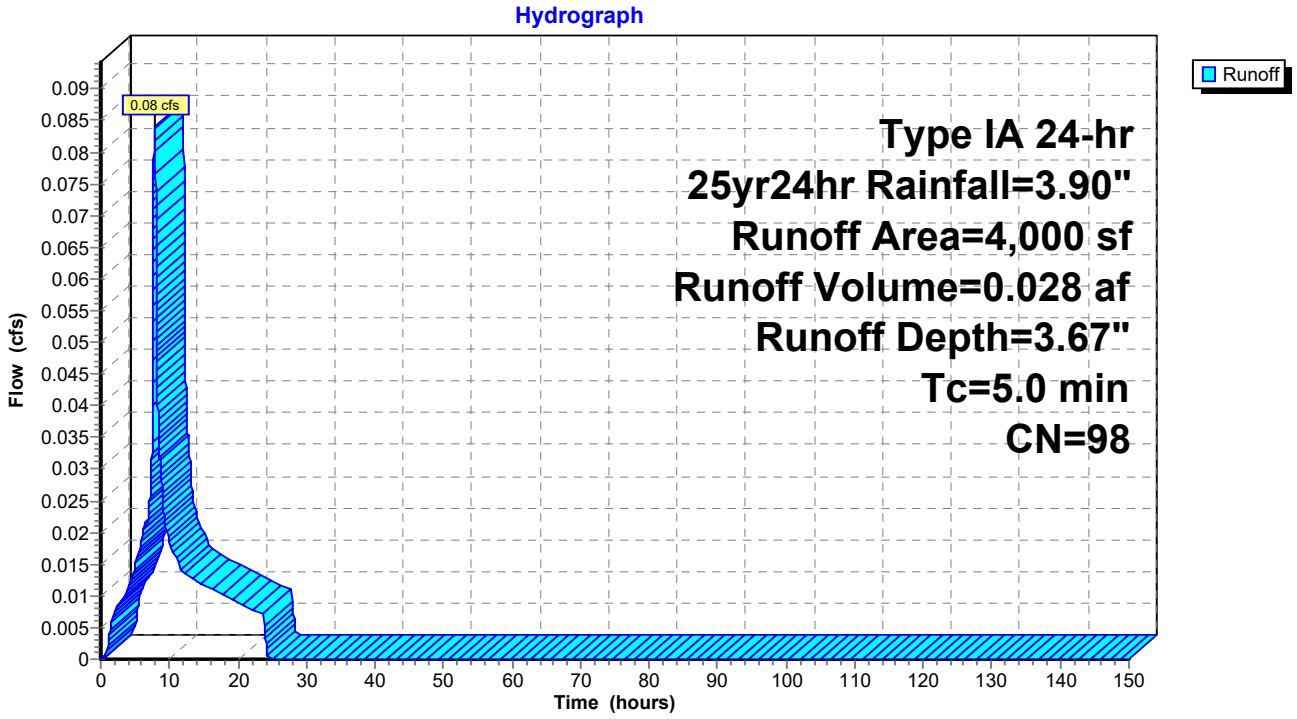
Runoff = 0.08 cfs @ 7.88 hrs, Volume= 0.028 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
4,000	98	Paved parking, HSG C
4,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment A1: Area A1



Summary for Subcatchment B1: Area B1

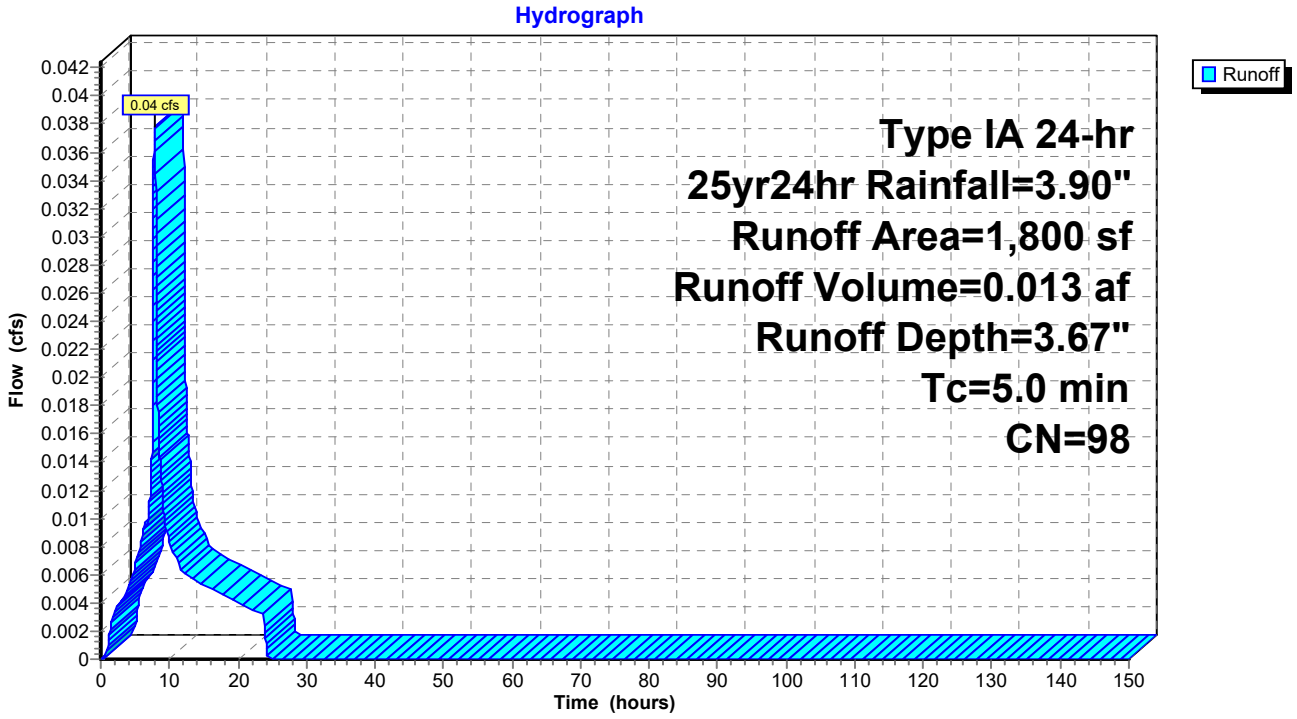
Runoff = 0.04 cfs @ 7.88 hrs, Volume= 0.013 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
1,800	98	Paved parking, HSG C
1,800		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment B1: Area B1



Summary for Subcatchment C: Area C

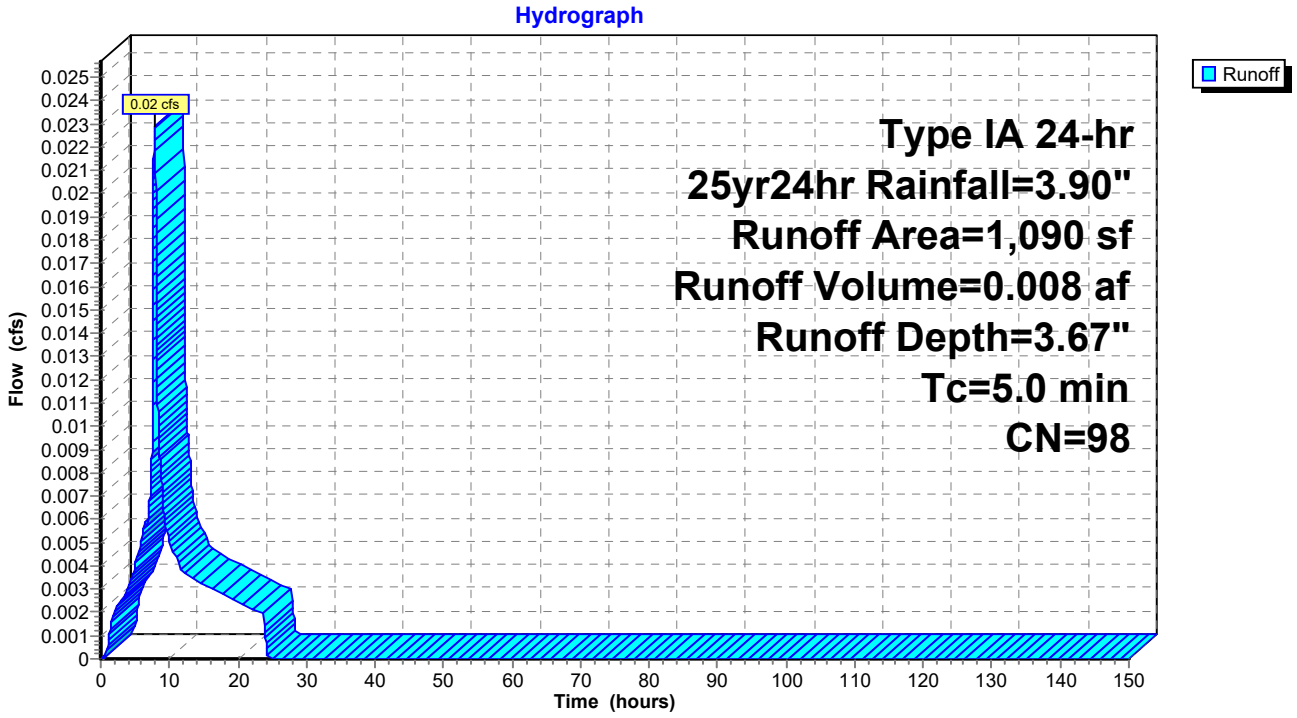
Runoff = 0.02 cfs @ 7.88 hrs, Volume= 0.008 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
1,090	98	Unconnected roofs, HSG C
1,090		100.00% Impervious Area
1,090		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment C: Area C



Summary for Subcatchment C1: Area C1

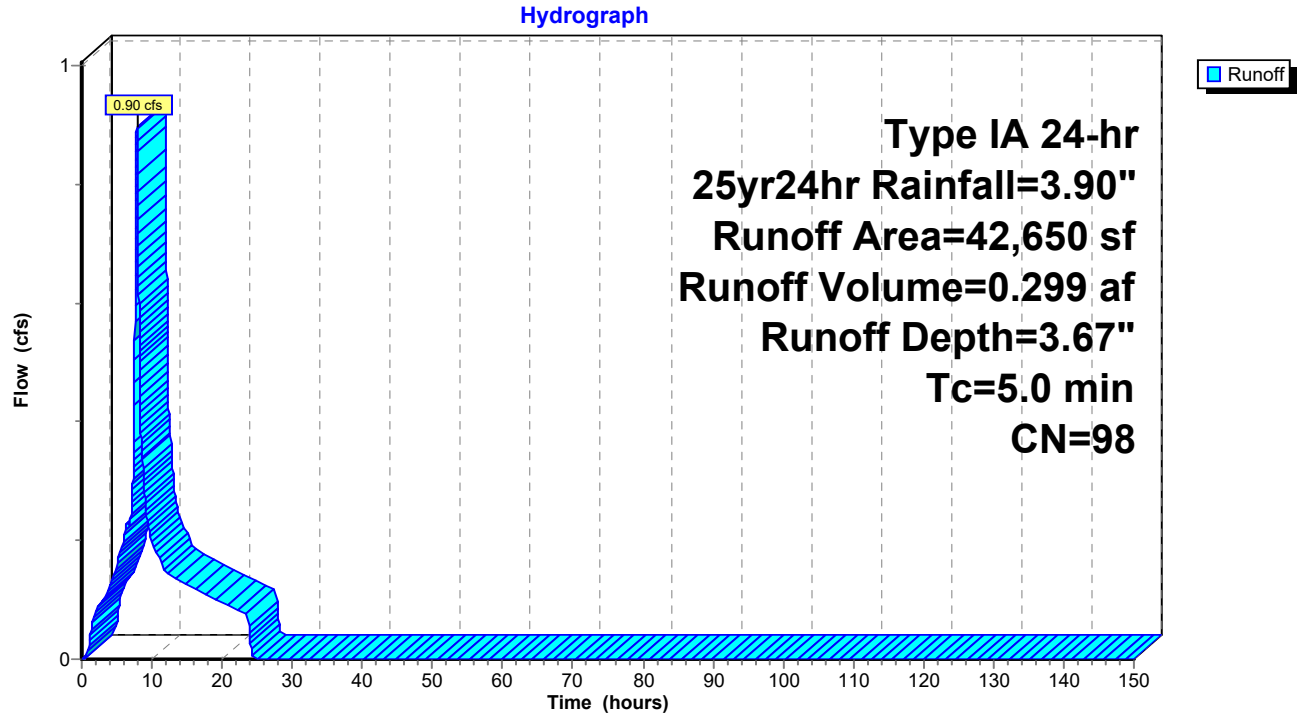
Runoff = 0.90 cfs @ 7.88 hrs, Volume= 0.299 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
42,650	98	Paved parking, HSG C
42,650		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment C1: Area C1



Summary for Subcatchment D: Area D

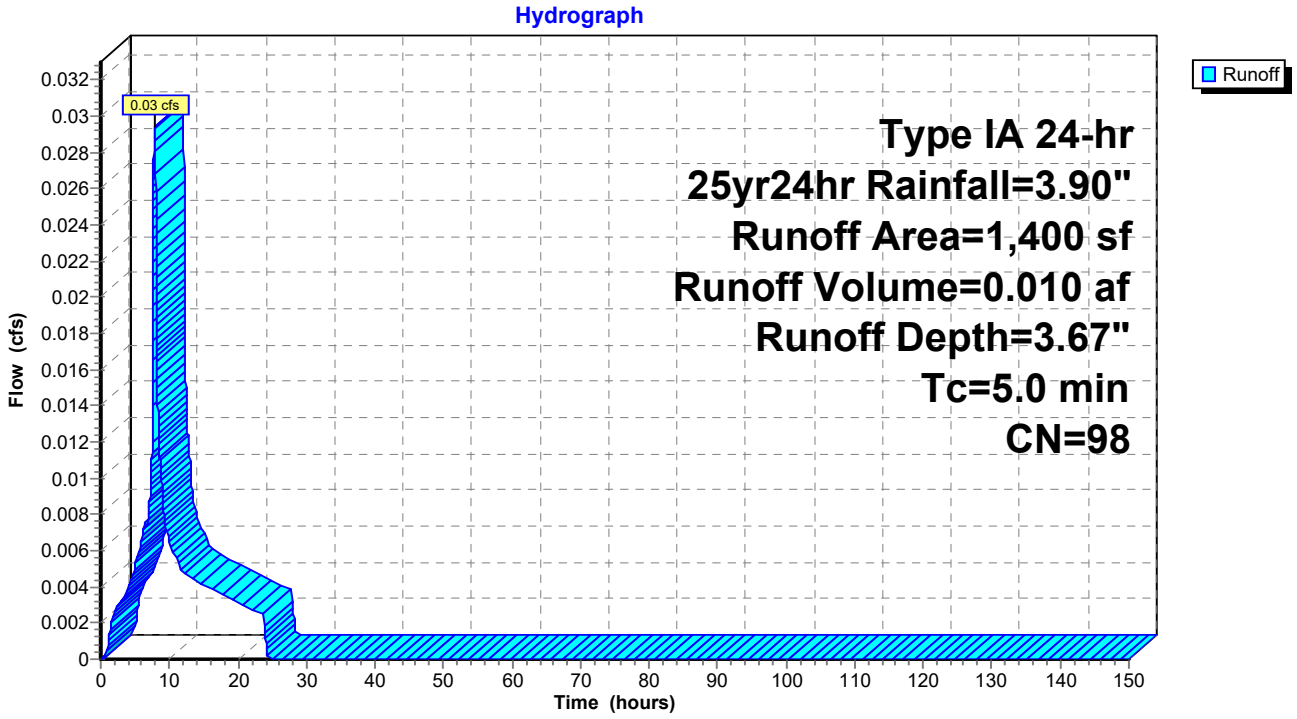
Runoff = 0.03 cfs @ 7.88 hrs, Volume= 0.010 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
1,400	98	Roofs, HSG C
1,400		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment D: Area D



Summary for Subcatchment E & F: Area E & F

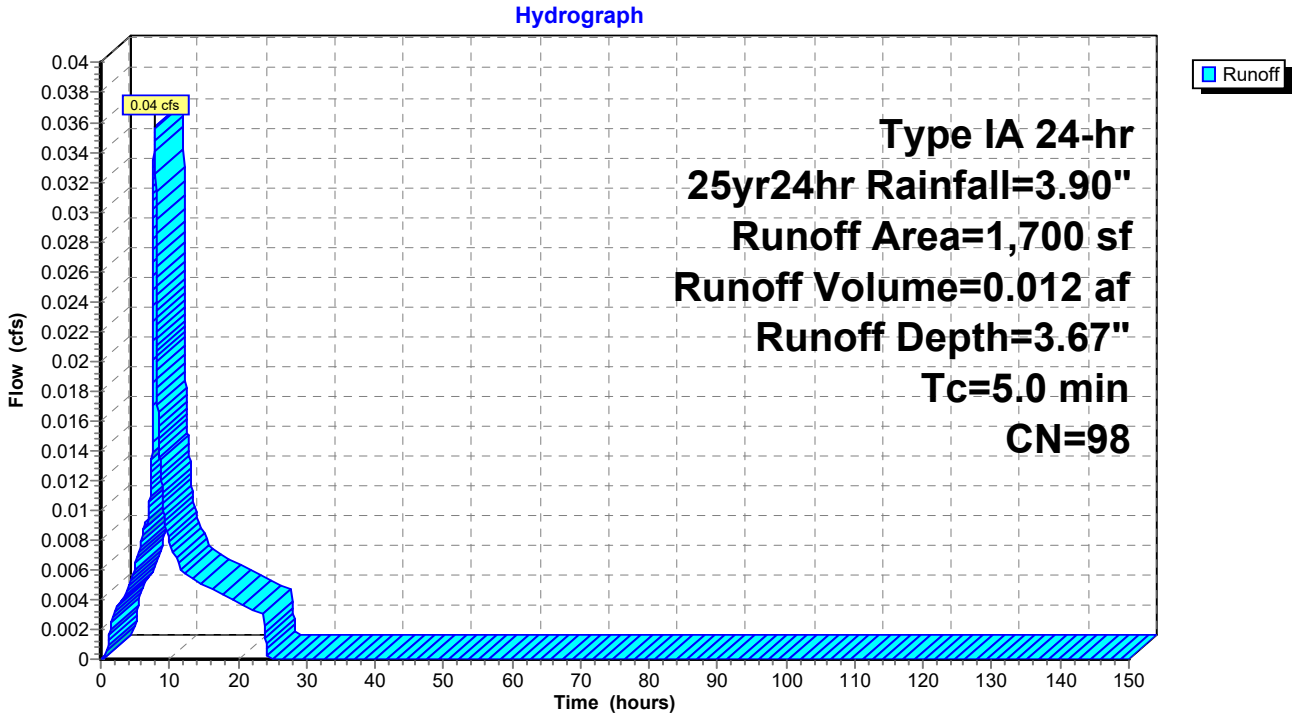
Runoff = 0.04 cfs @ 7.88 hrs, Volume= 0.012 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
1,700	98	Paved parking, HSG C
1,700		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment E & F: Area E & F



Summary for Subcatchment H: Area H

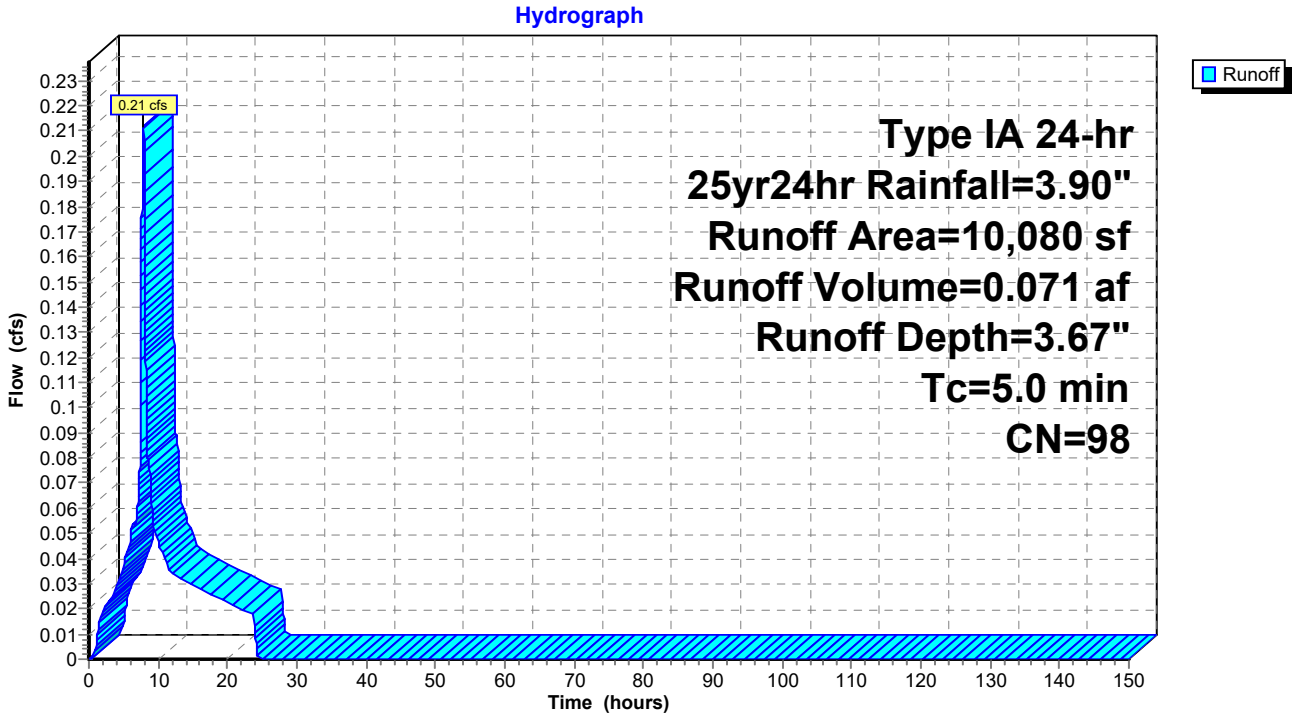
Runoff = 0.21 cfs @ 7.88 hrs, Volume= 0.071 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
10,080	98	Roofs, HSG C
10,080		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment H: Area H



Summary for Subcatchment I: Area I

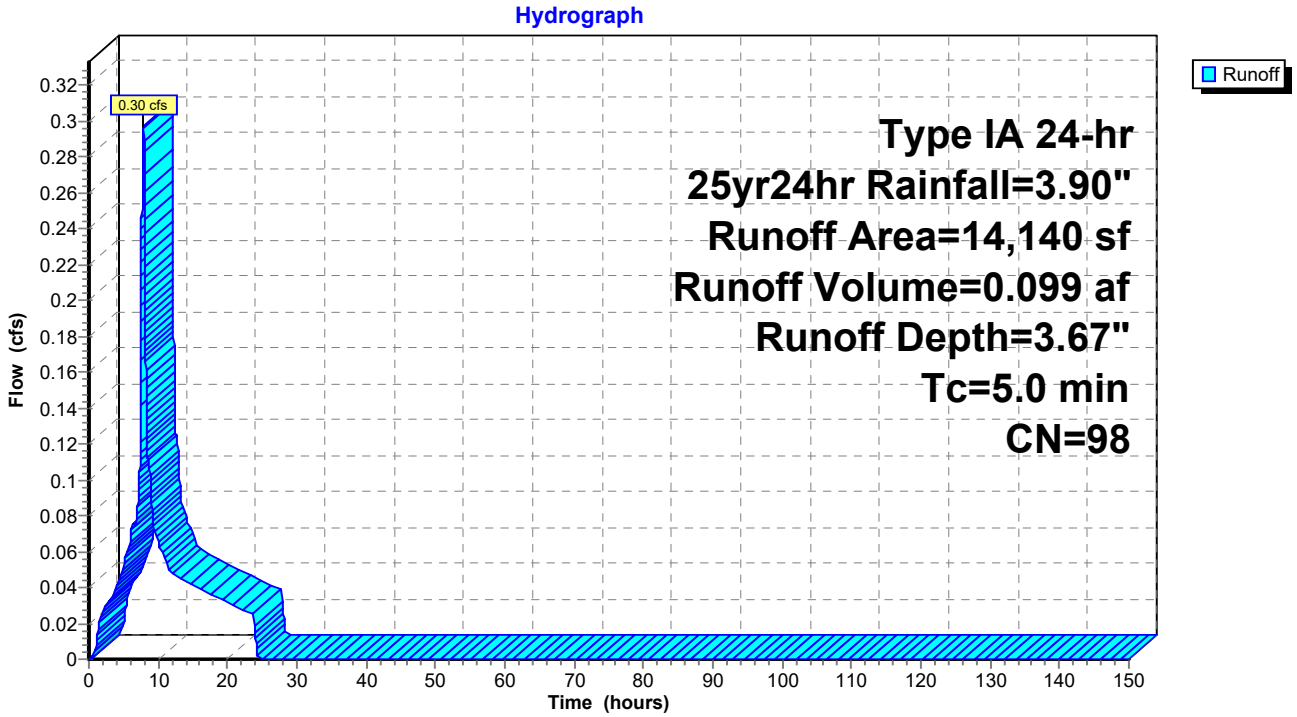
Runoff = 0.30 cfs @ 7.88 hrs, Volume= 0.099 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
14,140	98	Roofs, HSG C
14,140		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment I: Area I



Summary for Subcatchment J: Area J

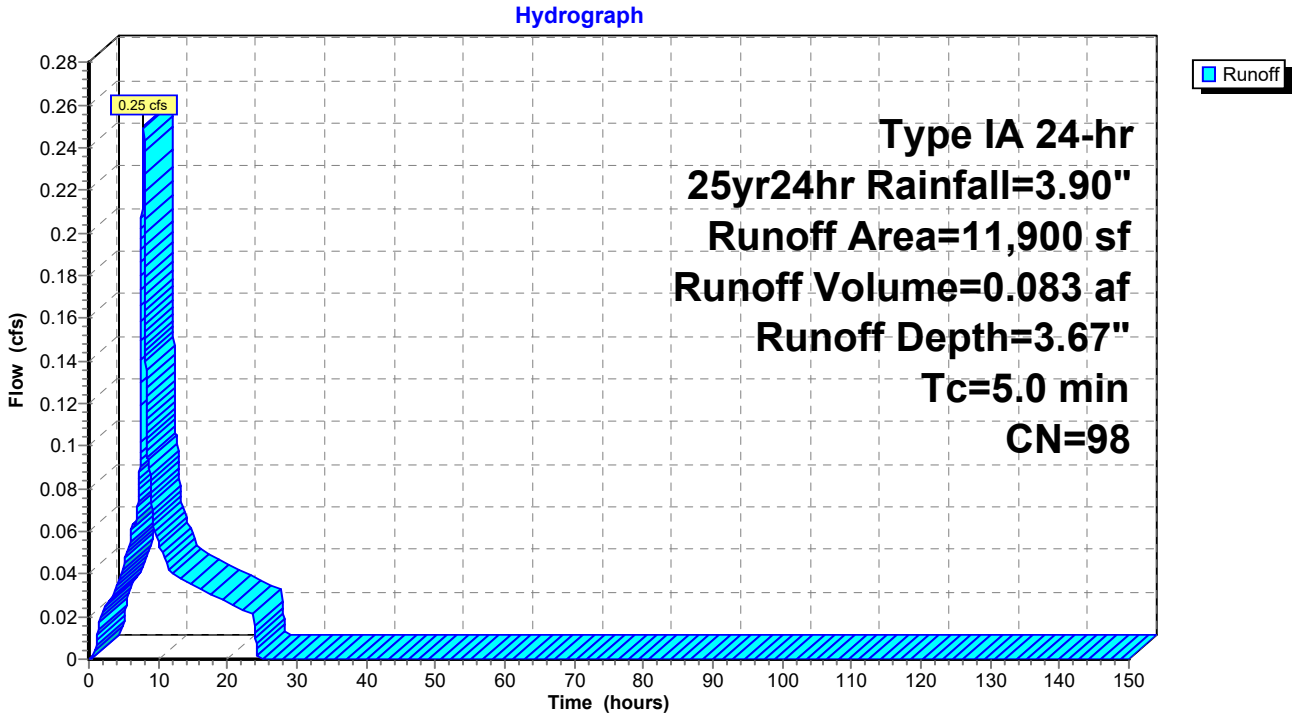
Runoff = 0.25 cfs @ 7.88 hrs, Volume= 0.083 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
11,900	98	Roofs, HSG C
11,900		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment J: Area J



Summary for Subcatchment K & L: Area K & L

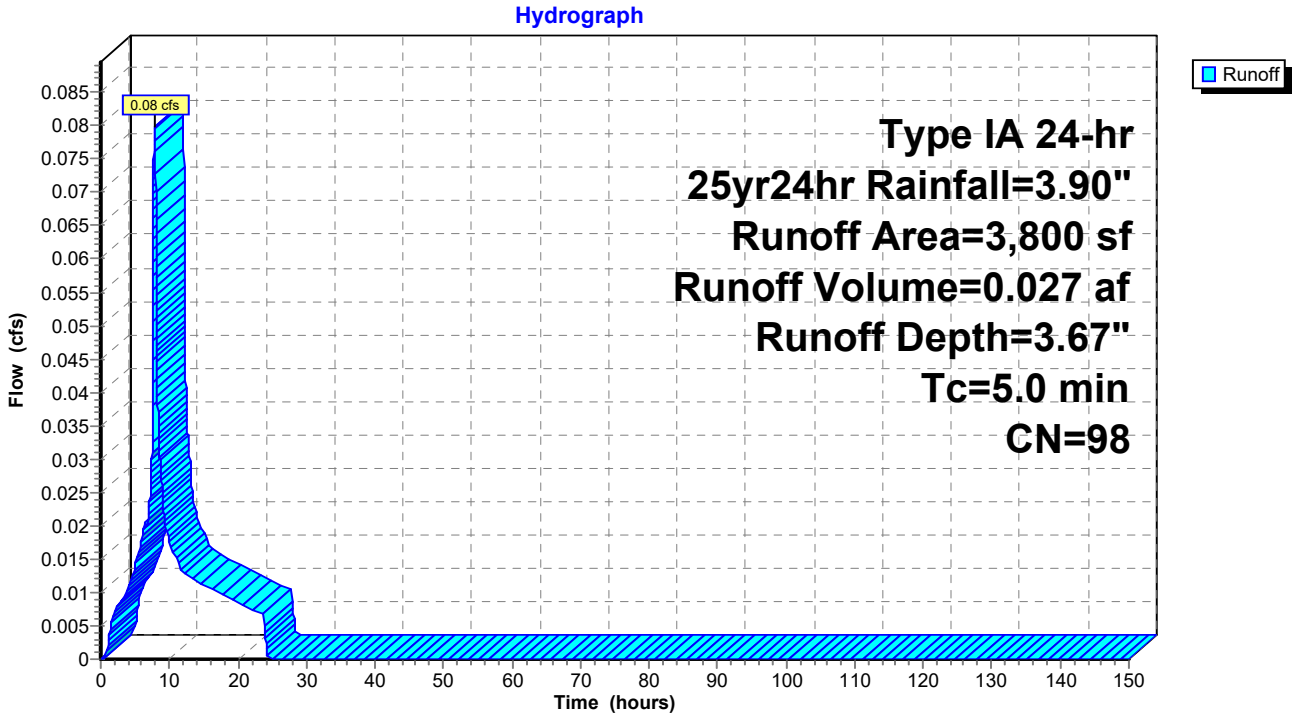
Runoff = 0.08 cfs @ 7.88 hrs, Volume= 0.027 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
3,800	98	Roofs, HSG C
3,800		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment K & L: Area K & L



Summary for Subcatchment L: Area L

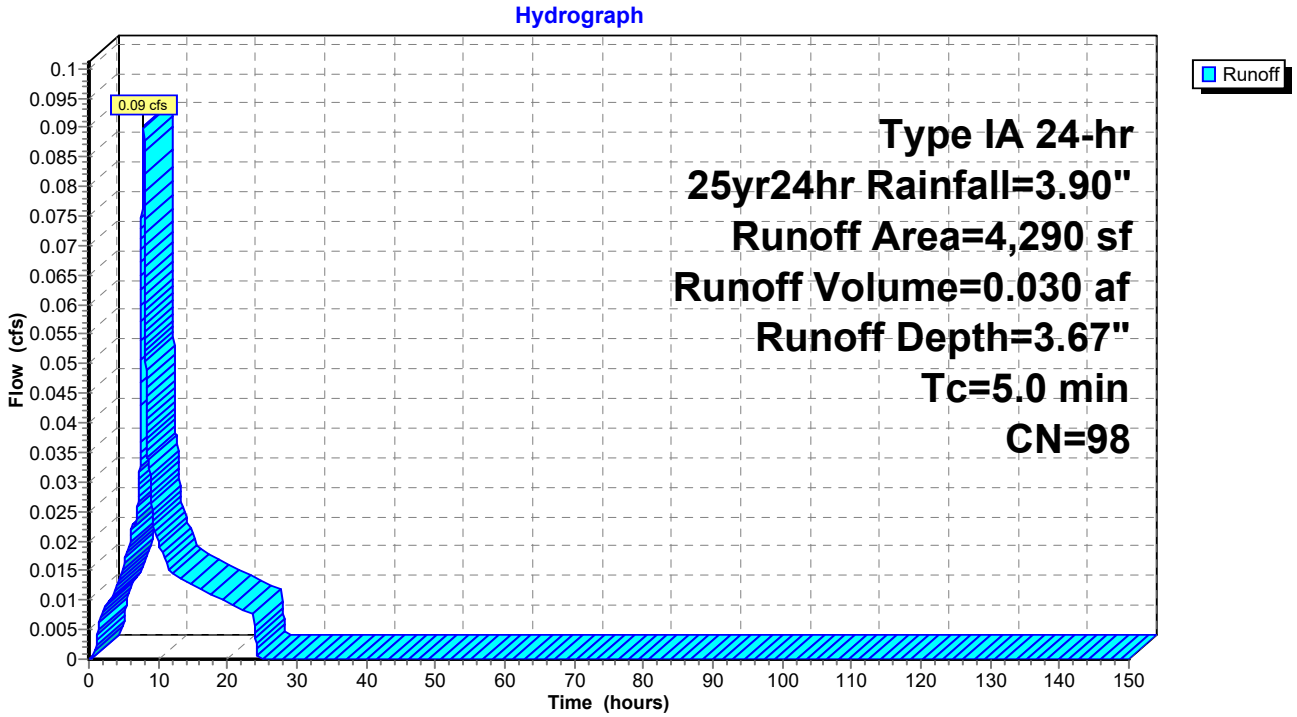
Runoff = 0.09 cfs @ 7.88 hrs, Volume= 0.030 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
4,290	98	Paved parking, HSG C
4,290		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment L: Area L



Summary for Subcatchment M: Area M

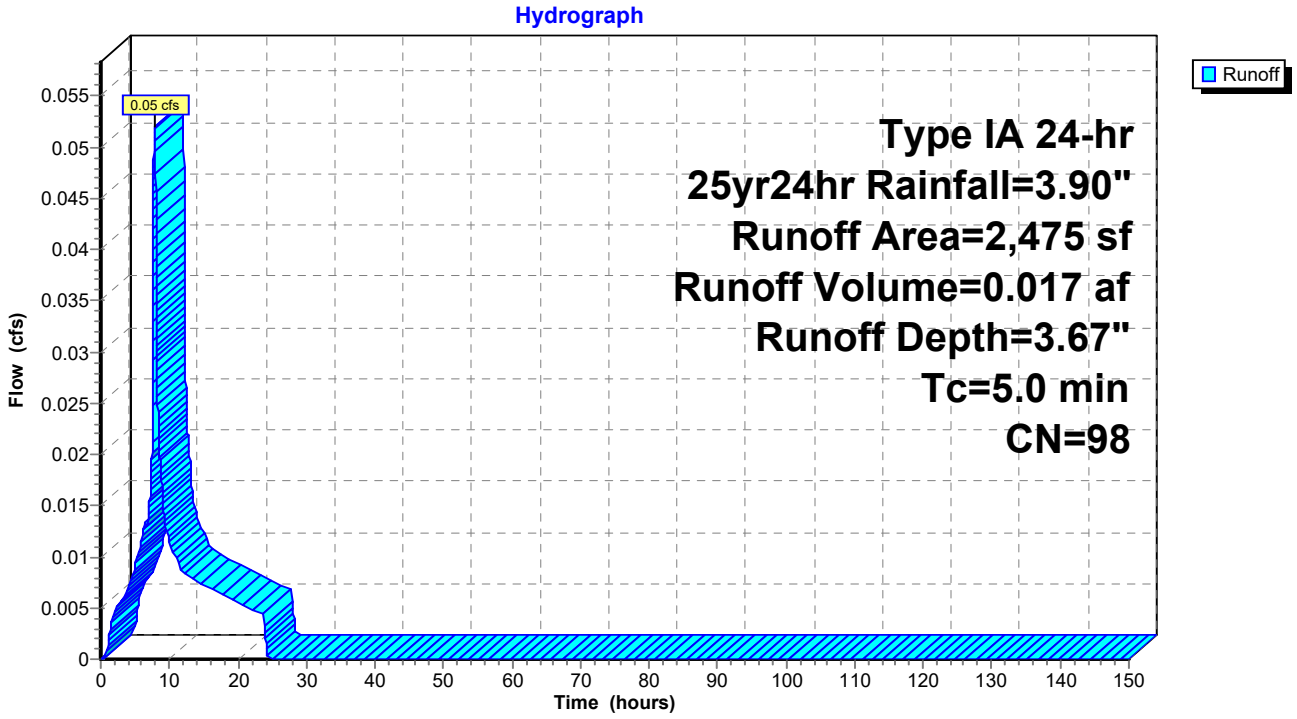
Runoff = 0.05 cfs @ 7.88 hrs, Volume= 0.017 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
2,475	98	Paved parking, HSG C
2,475		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment M: Area M



Summary for Subcatchment N: Area N

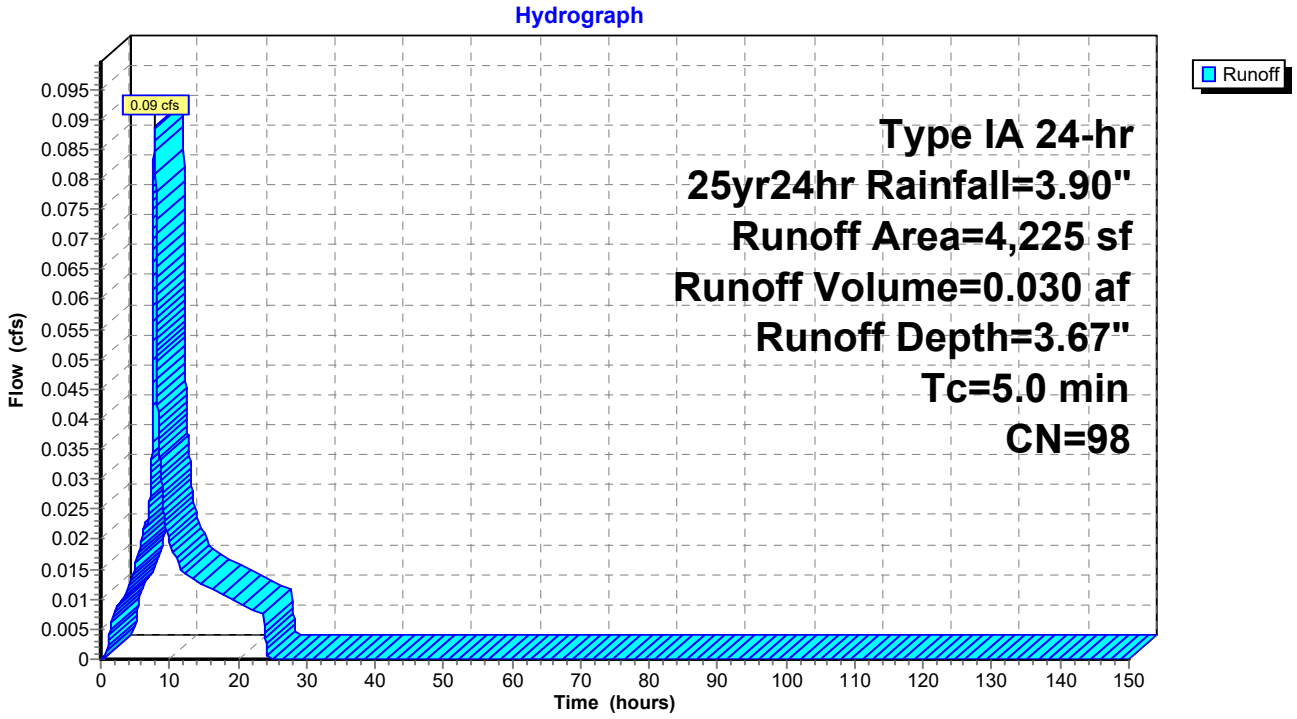
Runoff = 0.09 cfs @ 7.88 hrs, Volume= 0.030 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
4,225	98	Paved parking, HSG C
4,225		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment N: Area N



Summary for Subcatchment O: Area O

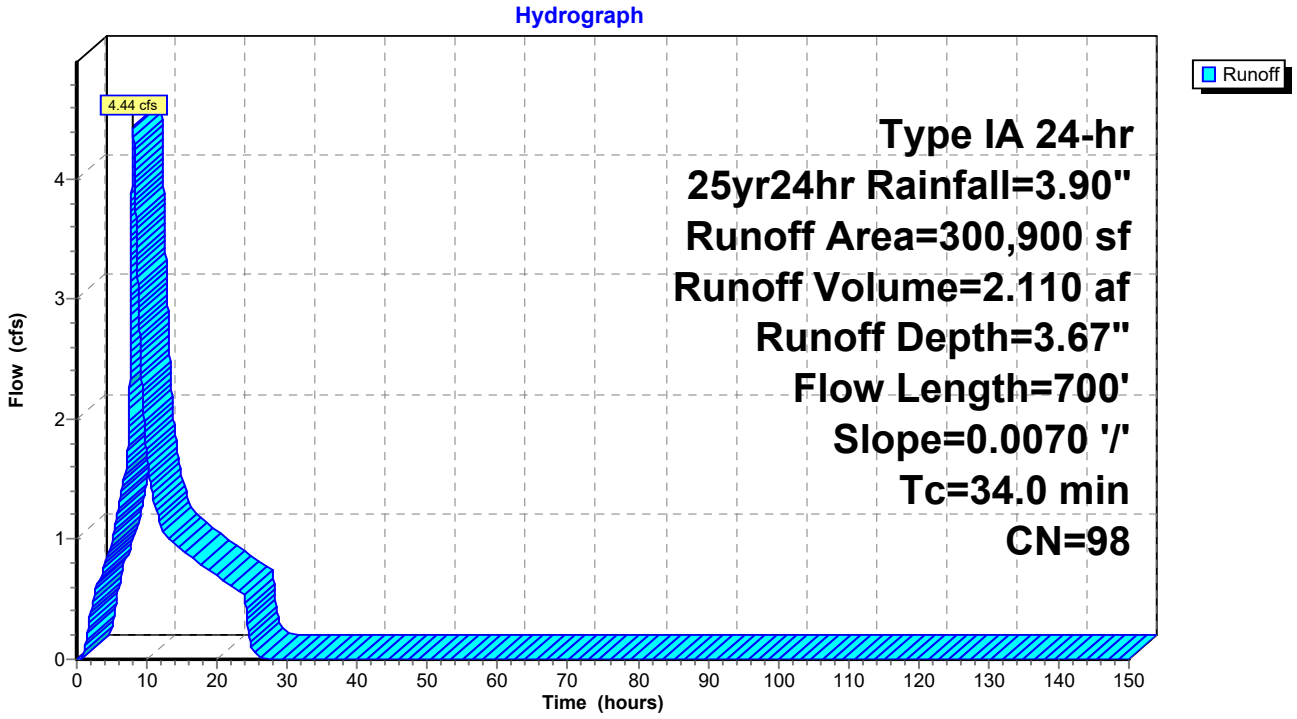
Runoff = 4.44 cfs @ 8.01 hrs, Volume= 2.110 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
300,900	98	Paved parking, HSG C
300,900		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	100	0.0070	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.50"
17.1	600	0.0070	0.59		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
34.0	700	Total			

Subcatchment O: Area O



Summary for Subcatchment P: Area P

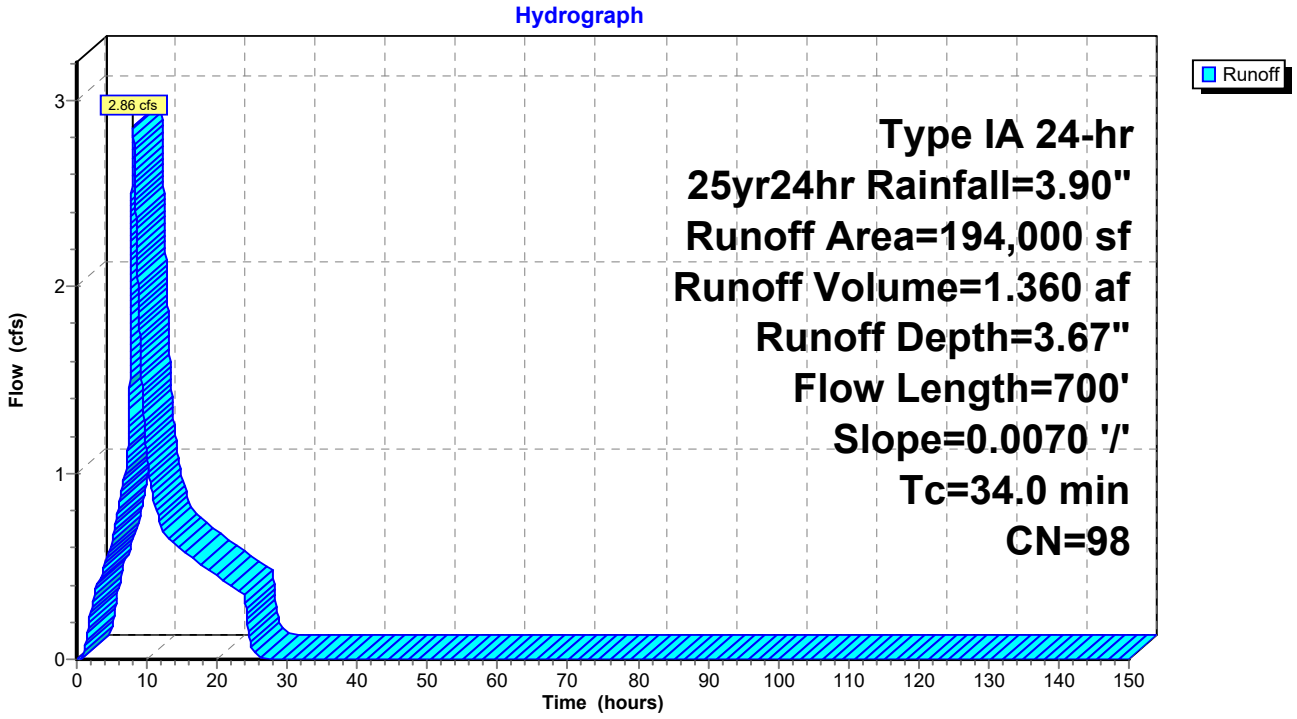
Runoff = 2.86 cfs @ 8.01 hrs, Volume= 1.360 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
194,000	98	Paved parking, HSG C
194,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	100	0.0070	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.50"
17.1	600	0.0070	0.59		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
34.0	700	Total			

Subcatchment P: Area P



Summary for Subcatchment Q: Area Q

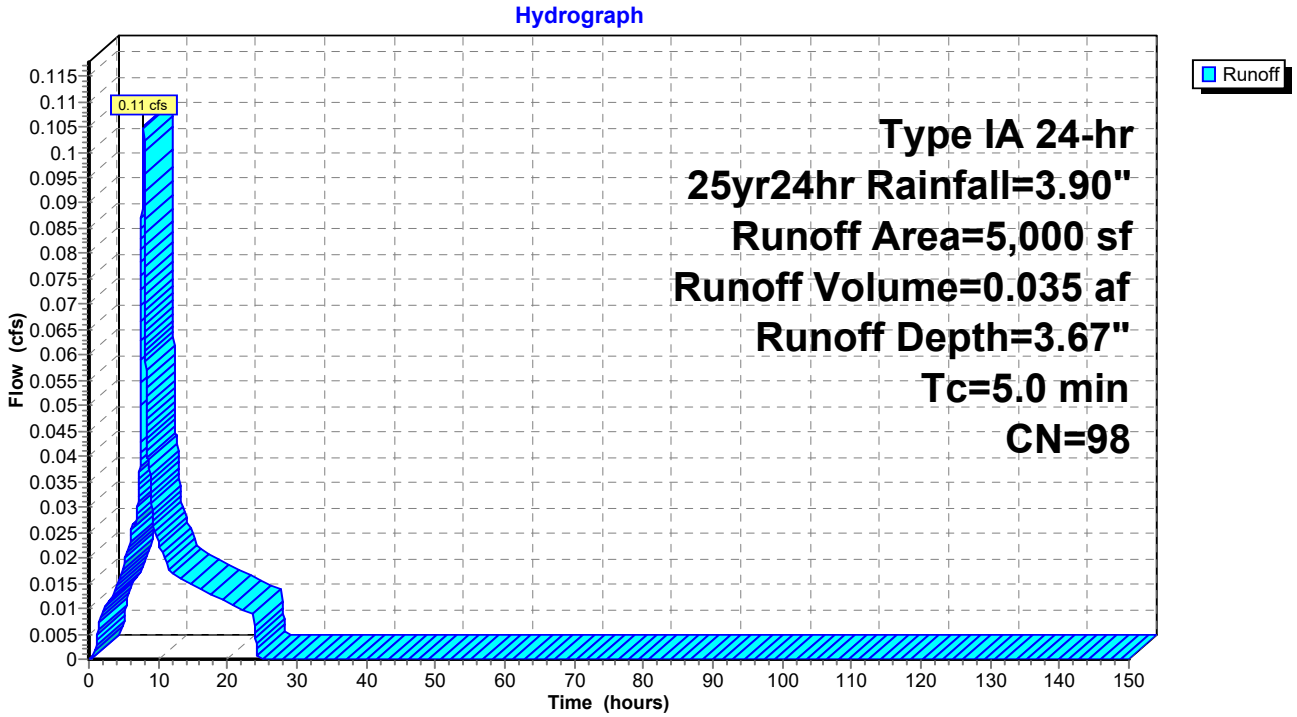
Runoff = 0.11 cfs @ 7.88 hrs, Volume= 0.035 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
5,000	98	Roofs, HSG C
5,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment Q: Area Q



Summary for Subcatchment R: Area R

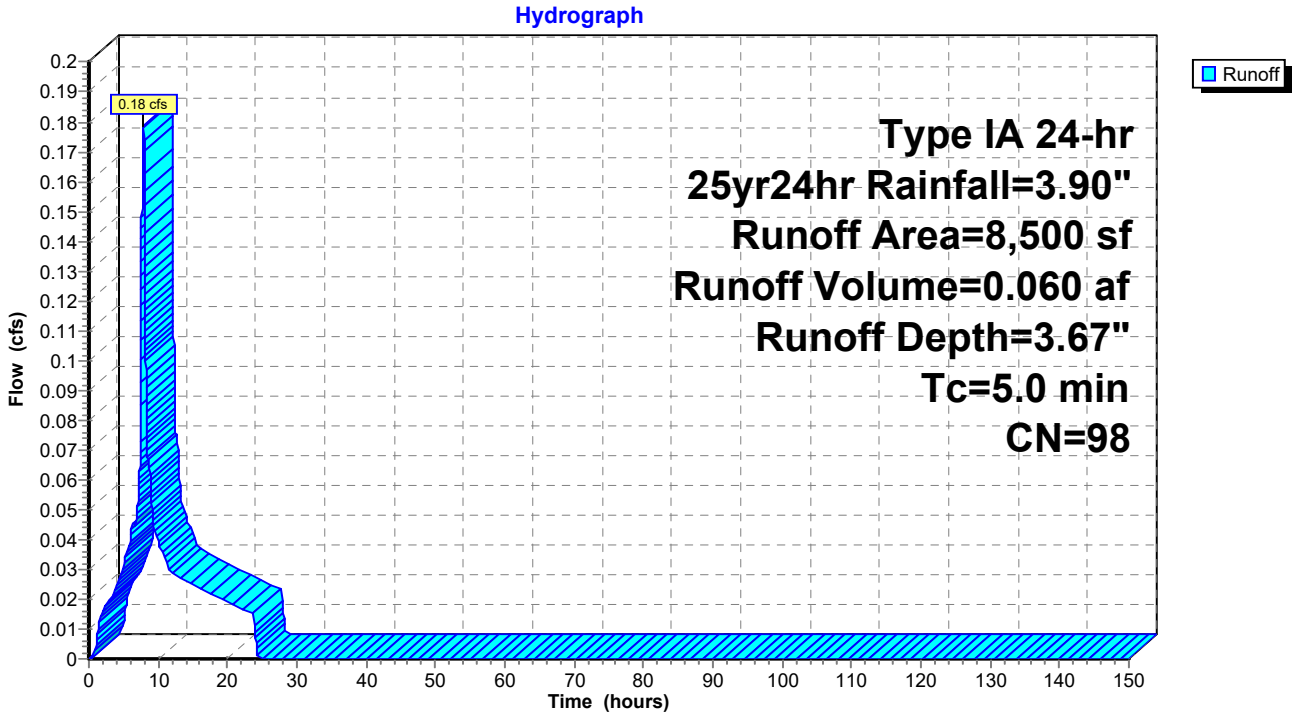
Runoff = 0.18 cfs @ 7.88 hrs, Volume= 0.060 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
8,500	98	Unconnected roofs, HSG C
8,500		100.00% Impervious Area
8,500		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment R: Area R



Summary for Subcatchment S: Area S

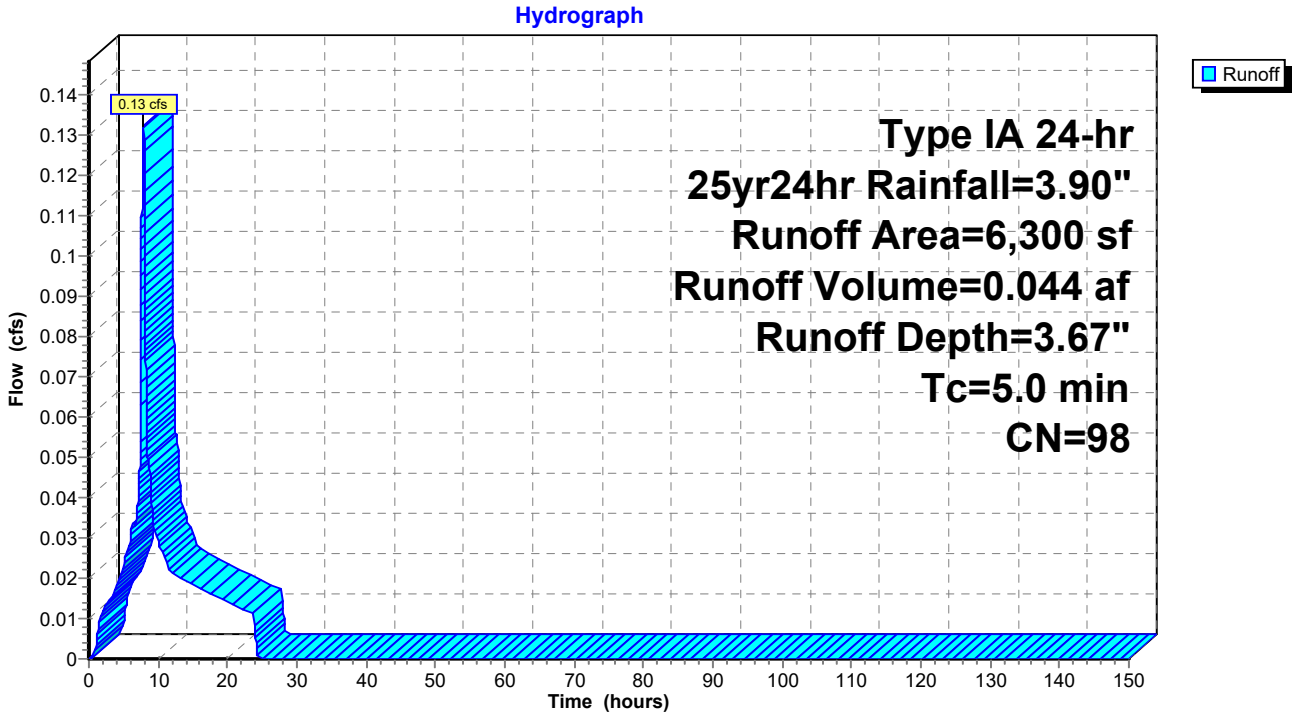
Runoff = 0.13 cfs @ 7.88 hrs, Volume= 0.044 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
6,300	98	Unconnected roofs, HSG C
6,300		100.00% Impervious Area
6,300		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment S: Area S



Summary for Subcatchment T: Area T

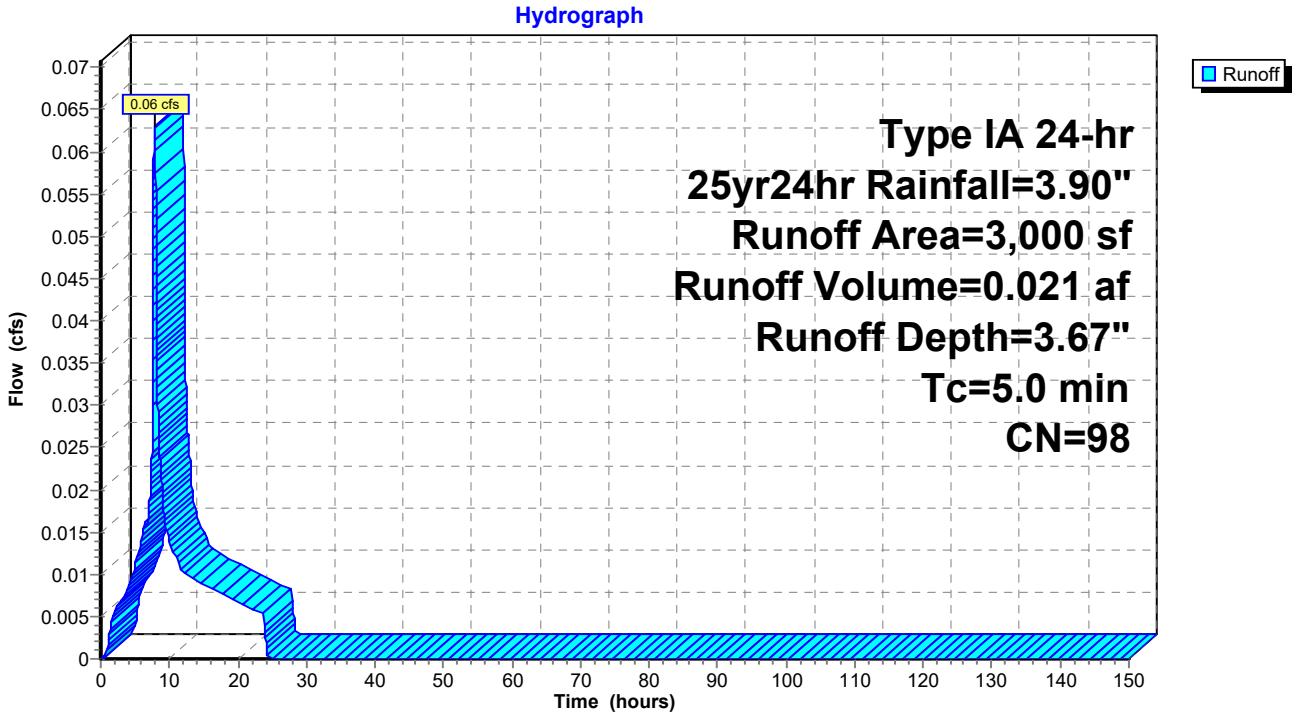
Runoff = 0.06 cfs @ 7.88 hrs, Volume= 0.021 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
3,000	98	Unconnected roofs, HSG C
3,000		100.00% Impervious Area
3,000		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment T: Area T



Summary for Subcatchment U: Area U

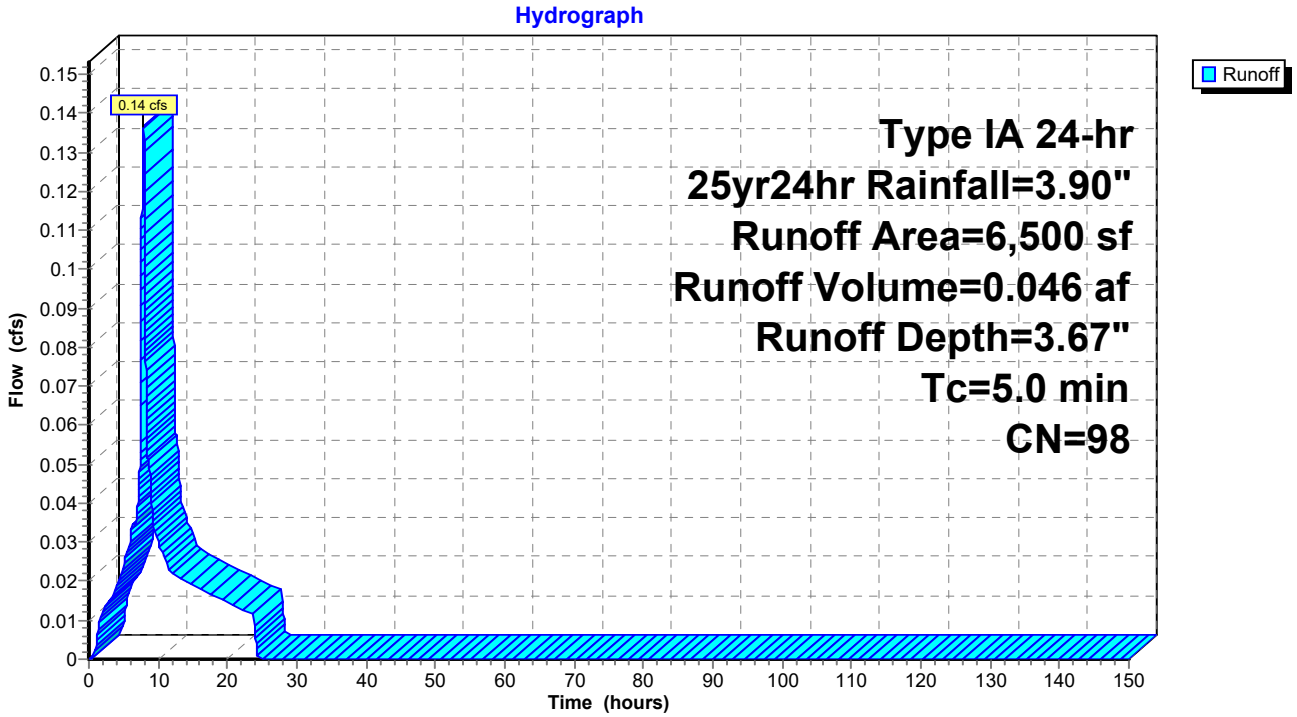
Runoff = 0.14 cfs @ 7.88 hrs, Volume= 0.046 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
6,500	98	Paved parking, HSG C
6,500		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment U: Area U



Summary for Subcatchment V: Area V

Runoff = 0.10 cfs @ 7.88 hrs, Volume= 0.034 af, Depth= 3.67"

Runoff by SBUH method, Weighted-CN, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25yr24hr Rainfall=3.90"

Area (sf)	CN	Description
4,900	98	Paved parking, HSG C
4,900		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment V: Area V

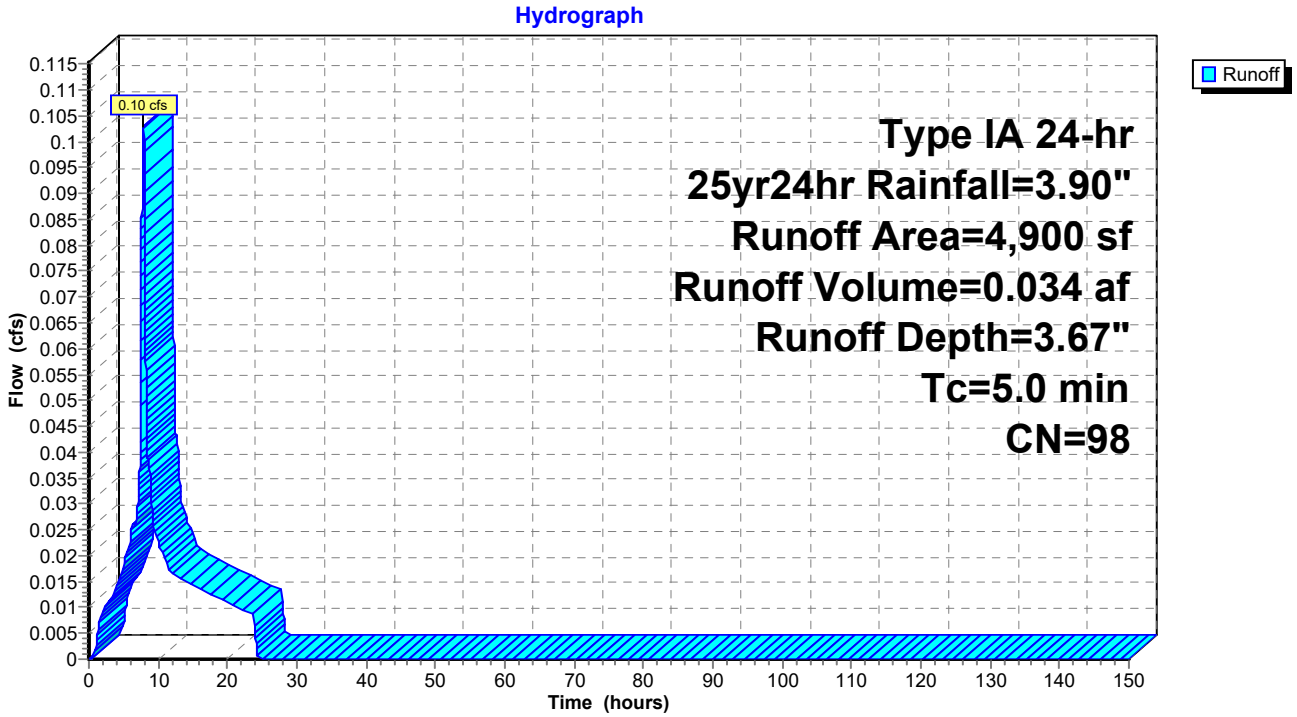


TABLE OF CONTENTS

TM Rippey Consulting Engineers

7650 SW Beveland St
Suite 100
Tigard, Oregon 97223
Phone: 503 443 3900

STORM SEWER DESIGN FORM
Project Number: 21279
Precision Countertop Site
January 27, 2023

Unit Conversion (acre/ft^2) 2.30E-05
Runoff Coefficient: 0.9
Rainfall Intensity (in/hr): 3.9 (25 Year from HydroCAD)
Manning's Coefficient (n)= 0.013

DESIGN AREA	DRAINAGE BASIN PIPE #	AREA ft^2	AREA acres	Equiv. Area for 100% Runoff (C)(A)	CUMULATIVE DRAINAGE AREA acres	PIPE LENGTH L	PIPE SIZE in	INVERT SLOPE ft/ft	DESIGN DISCHARGE cfs	FULL FLOW CAPACITY cfs	VELOC. @ Q/Qf V	T_t	COMMENTS
A	1	2475	0.0568	0.051	0.0568	70	6	0.0050	0.050	0.400	8.01	9.34	Catch Basin
B	2	2475	0.0568	0.051	0.0568	5	6	0.0100	0.050	0.566	11.32	0.94	Catch Basin
	3	4950	0.1136	0.102	0.1136	20	6	0.0050	0.100	0.400	4.00	1.33	
C	4	1090	0.0250	0.023	0.0250	20	4	0.0100	0.020	0.192	9.60	3.20	Roof
	5	6040	0.1387	0.125	0.1387	135	6	0.0050	0.120	0.400	3.34	7.51	
D	6	1400	0.0321	0.029	0.0321	30	6	0.0100	0.030	0.566	18.87	9.44	Roof
	7	7440	0.1708	0.154	0.1708	25	6	0.0050	0.150	0.400	2.67	1.11	
E	8	1700	0.0390	0.035	0.0390	5	6	0.0100	0.040	0.566	14.15	1.18	Catch Basin
	9	9140	0.2098	0.189	0.2098	35	6	0.0050	0.190	0.400	2.11	1.23	
F	10	1700	0.0390	0.035	0.0390	5	6	0.0100	0.040	0.566	14.15	1.18	Catch Basin
	11	10840	0.2489	0.224	0.2489	65	6	0.0050	0.230	0.400	1.74	1.89	
H	12	10080	0.2314	0.208	0.2314	20	6	0.0100	0.210	0.566	2.70	0.90	Roof
	15	20920	0.4803	0.432	0.4803	125	8	0.0050	0.440	0.862	1.96	4.08	
I	16	14140	0.3246	0.292	0.3246	20	6	0.0100	0.300	0.566	1.89	0.63	Roof

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STORM SEWER DESIGN FORM
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January 27, 2023

Unit Conversion (acre/ft^2) 2.30E-05
Runoff Coefficient: 0.9
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Manning's Coefficient (n)= 0.013

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	17	35060	0.8049	0.724	0.8049	105	8	0.0050	0.740	0.862	1.16	2.04	
J	18	11900	0.2732	0.246	0.2732	10	6	0.0100	0.250	0.566	2.26	0.38	Roof
	19	46960	1.0781	0.970	1.0781	50	10	0.0050	0.990	1.563	1.58	1.32	
K	20	3800	0.0872	0.079	0.0872	5	6	0.0100	0.080	0.566	7.08	0.59	Roof
	21	50760	1.1653	1.049	1.1653	35	10	0.0050	1.070	1.563	1.46	0.85	
L	22	3800	0.0872	0.079	0.0872	5	6	0.0100	0.080	0.566	7.08	0.59	Roof
	23	54560	1.2525	1.127	1.2525	50	10	0.0050	1.150	1.563	1.36	1.13	To Planter F
	73	60360	1.3857	1.247	1.3857	40	10	0.0050	1.270	1.563	1.23	0.82	From Planter F

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January 27, 2023

Unit Conversion (acre/ft^2) 2.30E-05
Runoff Coefficient: 0.9
Rainfall Intensity (in/hr): 3.9 (25 Year from HydroCAD)
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M	100	2475	0.0568	0.051	0.0568	130	6	0.0100	0.050	0.566	11.32	24.53	From Planter C
N	101	4225	0.0970	0.087	0.0970	10	6	0.0100	0.090	0.566	6.29	1.05	From Planter D
O	103	300900	6.9077	6.217	6.9077	35	10	0.0800	4.440	6.252	1.41	0.82	North Parcel
	102	305125	7.0047	6.304	7.0047	15	15	0.0050	4.530	4.608	1.02	0.25	
	104	307600	7.0615	6.355	7.0615	265	15	0.0050	4.580	4.608	1.01	4.44	
P	105	194000	4.4536	4.008	4.4536	15	15	0.0050	2.860	4.608	1.61	0.40	Future East Development
C1	106	42650	0.9791	0.881	0.9791	80	6	0.0300	0.900	0.981	1.09	1.45	From Planter E
	107	236650	5.4327	4.889	5.4327	10	15	0.0050	3.760	4.608	1.23	0.20	
	108	544250	12.4943	11.245	12.4943	490	18	0.0065	8.340	8.544	1.02	8.37	
	109	578450	13.2794	11.951	13.2794	60	18	0.0110	9.060	11.115	1.23	1.23	
	110	638810	14.6651	13.199	14.6651	30	18	0.0830	10.330	30.532	2.96	1.48	To Existing Public Lateral

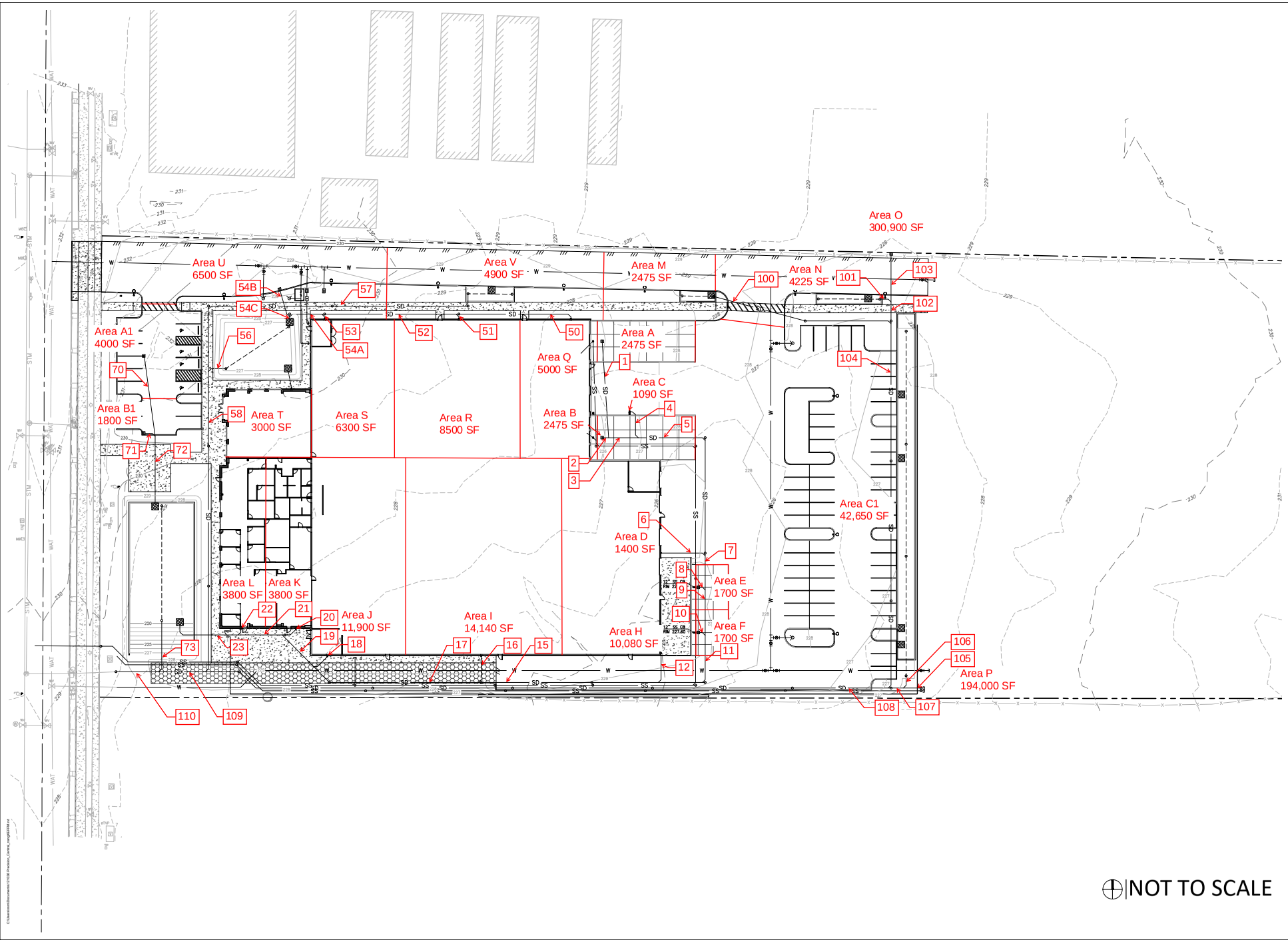
TM Rippey Consulting Engineers

7650 SW Beveland St
Suite 100
Tigard, Oregon 97223
Phone: 503 443 3900

STORM SEWER DESIGN FORM
Project Number: 21279
Precision Countertop Site
January 27, 2023

Unit Conversion (acre/ft^2) 2.30E-05
Runoff Coefficient: 0.9
Rainfall Intensity (in/hr): 3.9 (25 Year from HydroCAD)
Manning's Coefficient (n)= 0.013

DESIGN AREA	DRAINAGE BASIN PIPE #	AREA ft^2	AREA acres	Equiv. Area for 100% Runoff (C)(A)	CUMULATIVE DRAINAGE AREA acres	PIPE LENGTH L	PIPE SIZE in	INVERT SLOPE ft/ft	DESIGN DISCHARGE cfs	FULL FLOW CAPACITY cfs	VELOC. @ Q/Qf V	T_t	COMMENTS
Q	50	5000	0.1148	0.103	0.1148	85	6	0.0050	0.110	0.400	3.64	5.16	Roof
R	51	8500	0.1951	0.176	0.1951	5	6	0.0100	0.180	0.566	3.15	0.26	Roof
	52	13500	0.3099	0.279	0.3099	100	6	0.0050	0.290	0.400	1.38	2.30	
S	53	6300	0.1446	0.130	0.1446	5	6	0.0100	0.130	0.566	4.35	0.36	Roof
	54A	19800	0.4545	0.409	0.4545	30	6	0.0050	0.420	0.400	0.95	0.48	
T	55	3000	0.0689	0.062	0.0689	15	6	0.0330	0.060	1.028	17.14	4.28	Roof
U	54B	6500	0.1492	0.134	0.1492	20	6	0.0100	0.140	0.566	4.04	1.35	Catch Basin
	54C	26300	0.6038	0.543	0.6038	30	6	0.0050	0.560	0.400	0.71	0.36	To Rain Garden A
	56	29300	0.6726	0.605	0.6726	20	6	0.0280	0.620	0.947	1.53	0.51	From Rain Garden A
V	57	4900	0.1125	0.101	0.1125	175	6	0.0050	0.100	0.400	4.00	11.68	Paving to Planter B
	58	34200	0.7851	0.707	0.7851	225	8	0.0050	0.720	0.862	1.20	4.49	
A1	70	4000	0.0918	0.083	0.0918	60	6	0.0050	0.080	0.400	5.00	5.00	Catch Basin
B1	71	1800	0.0413	0.037	0.0413	10	6	0.0100	0.040	0.566	14.15	2.36	Catch Basin
	72	5800	0.1331	0.120	0.1331	50	6	0.0680	0.120	1.476	12.30	10.25	To Planter F



MDG
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4875 SW Griffith Drive Suite 300
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T.M. RIPPEY
CONSULTING ENGINEERS
7650 SW Beveland, Suite 100
Tigard, Oregon 97223
Phone: (503) 443-3900
Fax: (503) 443-3700

Client/ Owner:

Project:
Precision Countertops

25540 SW Garden Acres Rd.
Wilsonville OR

Sheet Title:

Basin and Pipe Key Map

Revisions:

#	Description	Date

Date: 2023-01-13

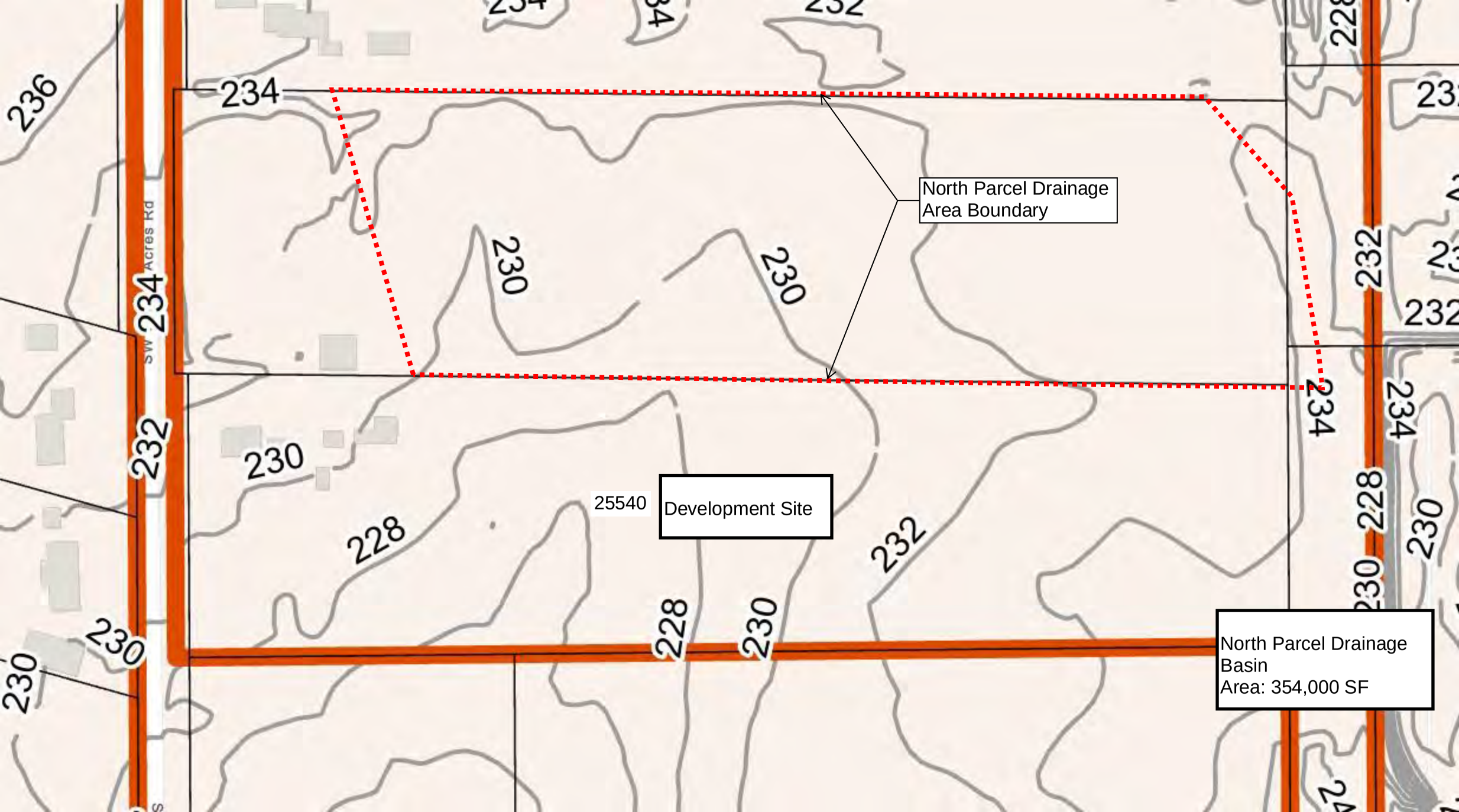
Drawn by: AS

Checked by: KJK

TMR Job Number: 21279

Sheet

BASIN


North Parcel Drainage Area Boundary
25540
Development Site
North Parcel Drainage Basin
Area: 354,000 SF
SW 234th Ave
234
232
230
228
236

REPORT OF GEOTECHNICAL ENGINEERING SERVICES

Precision Facility, 25540 SW Garden Acres Road
Wilsonville, Oregon

Geotech Solutions Inc.

August 22, 2021

GSI Project: precision-21-1-gi

Geotech Solutions Inc.

August 22, 2021 *precision-21-1-gi*

PHI Construction
kelly@phiconst.com

REPORT OF GEOTECHNICAL ENGINEERING SERVICES
Precision Facility, 25540 SW Garden Acres Road
Wilsonville, Oregon

As authorized, herein we present our report of geotechnical engineering services for the proposed project. Based on information you provided we understand that the roughly 10-acre site is to be developed with one roughly 88,000 square foot manufacturing facility with associated truck docks, pavements, and utilities, with future expansion to the east. Building loads are expected to be up to 200 kips for columns, 6 kips per foot for walls, and 500 psf for floors. The purpose of our work was to investigate the soil conditions and provide geotechnical engineering for project design. For site investigation we used previous recent extensive explorations on this site and a new site reconnaissance. Our specific scope of work included the following:

- Provide principal-level geotechnical project management including client communications, management of field and subcontracted services, report writing, analyses, and invoicing.
- Review geologic maps and vicinity geotechnical information as indicators of subsurface conditions.
- Complete a site reconnaissance to observe surface features relevant to geotechnical issues, such as topography, vegetation, presence and condition of springs, exposed soils and rock, and evidence of previous grading.
- Review explored subsurface conditions of 12 test pits to depths of up to 15 feet or refusal, and two borings to depths of up to 36.5 feet or refusal.
- Review classifications and sampling of materials encountered and a detailed log of the explorations.
- From same day falling head infiltration testing in two of the test pits, provide an infiltration rate and corresponding strata.
- Provide moisture content of selected samples obtained from the explorations.
- Provide recommendations for earthwork including site preparation, reuse of existing fill in place or stabilized or reinstalled, seasonal material usage, compaction criteria, utility trench backfill, and the need for subsurface drainage.
- Evaluate site liquefaction potential and estimate site deformations and provide qualitative means to address unsuitable deformations if needed.
- Provide recommendations for shallow foundations including suitable soils, stabilization, bearing pressures, sliding coefficient, and a seismic site class.
- Provide recommendations for truck dock retaining walls, including lateral earth pressures, backfill, and drainage.
- Provide recommendations for slab support, including a subgrade modulus if needed, underslab rock thickness and materials, and the need for stabilization.
- Provide recommendations for pavements including subgrade preparation and stabilization, and base rock and asphalt concrete and portland cement concrete thicknesses.
- Provide a written report summarizing the results of our geotechnical evaluation.

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SITE CONDITIONS

Surface Conditions

The site vicinity is primarily in residential and light farm and grazing use, with industrial uses to the west, and commercial buildings to the south. Basalt rock quarries are present within 3/4 mile to the northwest. The parcel is relatively flat and includes residential and farm outbuildings in the west and trees and brush to the northwest and southern boundary. Much of the land is in grass and grazed by cattle. The site use and features have not changed appreciably since 2019.

Subsurface Conditions

We explored subsurface conditions at the site by completing eleven test pits (TP-1 through TP-12, TP-11 was inaccessible)) to depths of up to 12 feet or refusal on August 12, 2019, and two borings with a truck mounted CME 75 drill rig to depths of 36.5 feet on August 9, 2019. The locations of our explorations are shown in the attached ***Site Plan***, and detailed logs and moisture contents are attached.

In general, we encountered silt underlain by silt with gravel, clay, and sand as residual soils from severely weathered basalt, underlain at depth by weathered basalt. Refusal with the rubber-tired backhoe was met at depths of 6 to 8 feet in the central portion of the property in test pits TP-6, TP-8, and TP-9.

Rooty topsoil was generally 5 to 8 inches thick. The silt was generally stiff with blow counts (N_{85}) of 9 to 16 and extended to depths of generally 3 to 7 feet, deeper in TP-7. Under the upper silt we encountered residual soils of severely weathered basalt that was primarily silt with variable clay, sand, and gravel content. Blow counts in the borings ranged from 10 to 14 in this unit. The basalt generally became moderately weathered with blow counts of 24 to 63 below depths of 18 feet in the borings, and at depths of 6 to 8 feet in the central test pits. In B-2 we encountered a soil layer within the basalt from 24-28 feet that had a blow count of 6. This may represent an older weathered flow top. The rock is generally fractured with filled weathered joints in the explored depths.

No seepage was observed in the test pits. Wet soils were noted in the B-2 soil layer at 24 feet. High seasonal perched ground water is expected within a few feet of the ground surface.

Infiltration testing

Double ring configuration falling head infiltration testing was completed in test pits TP-2 feet and TP-10 at 2 feet. After initial saturation the system was filled more, and water level readings were taken. Infiltration rates were very low at less than 0.1 in3/hr/in2. This is typical in these fine-grained soils. Deeper tests were not done as rates are expected to be even lower in the severely weathered basalt with clay content.

CONCLUSIONS AND RECOMMENDATIONS

General

This site is near original grades except for thin fills of organics near the barns, gravel fill at drives, and landscape fills near the residences. Site soils include topsoil in vegetated areas with a 5-8 inch root zone away from trees and brush. Near surface soils will require moisture conditioning and stabilization in wet conditions and contain appreciable clay in severely weathered basalt at depth. Boulders and shallow refusal on hard basalt is possible in deeper excavations and utilities, with refusal met at depths of 6 to 8 feet with a rubber-tired backhoe in several test pits.

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Site Preparation

General - Prior to earthwork construction, the site must be prepared by removing any existing structures, utilities, and any organic fill, mulch, and topsoil. Exposed boulders should also be removed. Any excavation resulting from the aforementioned preparation must be brought back to grade with structural fill. Site preparation for earthwork will also require the removal of the root zone and topsoil/till zone soils and organic fills from all pavement, building, and fill areas. The root zone thickness observed in our explorations was 5 to 8 inches away from trees and brush.

Root balls from trees and shrubs may extend several feet and grubbing operations can cause considerable subgrade disturbance. All disturbed material must be removed to undisturbed subgrade and backfilled with structural fill. In general, roots greater than one-inch in diameter must be removed as well as areas of concentrated smaller roots.

The test pit excavations were backfilled using relatively minimal compactive effort. Therefore, soft spots can be expected at these locations. We recommend that these relatively uncompacted soils be completely removed from the test pits located within the proposed building(s), and in paved areas to a depth of 3 feet below finished subgrade. The resulting excavations must be brought back to grade with structural fill.

Earthwork

Working Blankets and Haul Roads - Construction equipment must not operate directly on the subgrade, as it is susceptible to disturbance and softening in all but the driest of late summer conditions. Rock working blankets and haul roads placed over a geosynthetic in a thickened advancing pad can be used to protect subgrades. We recommend that sound, angular, pit run or crushed basalt with no more than 6 percent passing a #200 sieve be used to construct haul roads and working blankets, overlying the preceding separation geosynthetics and stabilizations for building pads. Haul roads should be at least 18 inches thick overlying the geogrid with separation fabric at the bottom. Alternatively, the soils could be amended to a minimum depth of 12 inches and covered with a minimum of 4 inches of crushed rock. Some repair of working blankets and haul roads should be expected.

The preceding rock and amendment thicknesses are the minimum recommended. Subgrade protection is the responsibility of the contractor and thicker sections may be required based on subgrade conditions and type and frequency of construction equipment.

Fill – In dry summer conditions re-use of site soils as fill is possible with moisture conditioning. Boulders must not be included in fills. Soils must be moisture conditioned to within 3% of optimum and compacted to 92% of ASTM D-1557 or until deemed suitably stiff or dense by the geotechnical engineer and passing a proof roll with a loaded dump truck. Some of the residual soils where more clay is present have high moisture contents and would likely require discing. Soils observed have a moderate plasticity, but zones of high plasticity can occur in the residual soils which may require additional discing and drying time. Lifts should be no more than 10 inches in loose thickness.

As an alternative to the methods described above, stabilization may be possible by soil amendment using portland cement. This will first require removal of any boulders from the depth to be mixed, which can be observed by pre-ripping where needed. Amendment requires an experienced contractor using specialty spreading and mixing equipment. Typically, 5 to 6 percent cement is used for an amendment (i.e., mix) depth of 12 inches. However, the materials used and quantities can vary based on moisture

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and organic contents, plasticity, and required amendment depth. Compaction and grading of amended soils must be completed within 4 hours of mixing, and the amended soil must be allowed to cure for 4 days prior to trafficking. Generally, in fine grained soils 50 percent of mixed particles should pass a No. 4 sieve.

The permeability of amended soil is very low. The surface of amended soils in building and pavement areas should therefore be sloped at a minimum of 0.3 percent in wet season construction to reduce collection of surface water. Amended soils must be removed from all landscape areas prior to planting. A second treatment phase is often needed in a small percentage of the area to stiffen soils not sufficiently cured during the first phase.

Trenches – Our explorations encountered refusal on boulders and basalt at the depths noted on the attached explorations. Difficult excavations and/or special excavation techniques will be required if such conditions are present at design inverts or grades. Project budgets and schedules must include a contingency for rock/boulder/rubble excavation.

Ground water seepage is expected, even in the dry season after rainfall events, and is expected to be near the ground surface in the wet season. Seepage was not observed in our test pits done during a long dry period. Seepage rates are expected to be slow but could be faster in fractured basalt gravels and cobbles with less silt and clay. Shoring of utility trenches will be required for depths greater than 4 feet and where groundwater seepage is present. We recommend that the type and design of the shoring system be the responsibility of the contractor, who is in the best position to choose a system that fits the overall plan of operation.

Depending on the excavation depth and amount of groundwater seepage, dewatering may be necessary for construction of underground utilities. Flow rates for dewatering are likely to vary depending on location, soil type, and the season during which the excavation occurs. The dewatering systems, if necessary, must be capable of adapting to variable flows.

Pipe bedding must be installed in accordance with the pipe manufacturers' recommendations. If groundwater is present in the base of utility trench excavations and softens conditions, over-excavating the trench and placing trench stabilization material may be needed. Trench stabilization material must consist of well-graded, crushed rock or crushed gravel with a maximum particle size of 4 inches and be free of deleterious materials. The percent passing the U.S. Standard No. 200 Sieve must be less than 5 percent by weight when tested in accordance with ASTM C 117. A minimum of one foot of stabilization rock is recommended if soft conditions are encountered.

Trench backfill above the pipe zone must consist of well graded, angular crushed rock or sand fill with no more than 7 percent passing a #200 sieve. Trench backfill must be compacted to 92 percent relative to ASTM D-1557, and construction of hard surfaces, such as sidewalks or pavement, must not occur within one week of backfilling.

Infiltration

We recommend against infiltration of storm water due to the very low infiltration rates and the presence of high seasonal perched ground water in this area.

Foundations
Buildings with loads less than 500 psf for floors, 200 kips for columns, and 6 kips per foot for walls, can be supported on shallow spread and continuous footings bearing on medium stiff or better native soils and structural fills, which we will need to observe. These footings can be designed for a bearing pressure of 3,000 psf. Resistance to lateral loads can be obtained by a footing base friction factor of 0.38, and passive soil resistance of 400 pcf below the top one foot (the top foot can be used if it is directly abutting permanent hardscaping such as pavement or sidewalks) which includes a factor of safety of 1.5.

Slabs
Floor slab loads up to 500 psf are expected to induce less than one inch of settlement, and 120 pci can be used as a subgrade modulus. Working blankets are required for slabs in all but the driest late summer conditions. In dry late summer conditions, with no expected truck traffic on the pads, a minimum of six inches of clean, angular crushed rock with no more than 5 % passing a #200 sieve is recommended for underslab rock. Again, this will need to be thickened as a working blanket if trafficked and in all but dry late summer conditions. Prior to slab rock placement the subgrade will need to be evaluated by us by probing or observing a wheel roll using a fully loaded truck. Underslab rock must be compacted to 92 % compaction relative to ASTM D1557 and must be proof rolled as well. In addition, any areas contaminated with fines must be removed and replaced with clean rock. If the base rock is saturated or trapping water, this water must be removed prior to slab placement.

Some flooring manufacturers require specific slab moisture levels and/or vapor barriers to validate the warranties on their products. A properly installed and protected vapor flow retardant can reduce slab moistures. If moisture sensitive floor coverings or operations are planned, we recommend a vapor barrier be used. Typically, a reinforced product or thicker product (such as a 15 mil STEGO wrap) can be used. Experienced contractors using special concrete mix design and placement have been successful placing concrete directly over the vapor barrier which overlies the rock. This avoids the issue of water trapped in the rock between the slab and vapor barrier, which otherwise requires removal. In either case, slab moisture should be tested/monitored until it meets floor covering manufacturer's recommendations.

Seismic Design
General - In accordance with the International Building Code (IBC) as adapted by State of Oregon Structural Specialty Code (SOSSC) and based on our explorations and experience in the site vicinity, the subject project must be evaluated using the parameters associated with Site Class C.

Liquefaction - Liquefaction occurs in loose, saturated, granular, or non-plastic soils. Strong shaking, such as that experienced during earthquakes, causes the densification and the subsequent settlement of these soils. The site fine grained soils have significant plasticity and are not susceptible to liquefaction, nor is the weathered rock. The risk of damaging deformations from such phenomena is low.

Retaining Walls
General - The following recommendations are based on the assumptions that: (1) Walls are fully drained, (2) Wall backfill consists of level, drained, angular, granular material, (3) Walls are concrete cantilever-type walls and are less than 5 feet in height, and (4) No surcharges such as stockpiled soil, equipment, or footings are located within 10 feet of the wall.

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Walls restrained against rotation must be designed using an equivalent fluid pressure of 48 pcf. Walls not restrained against rotation must be designed using an equivalent fluid pressure of 28 pcf. Seismic design for roughly one inch of deflection can be evaluated for an 11H rectangular wall pressure (to determine if this controls wall design over the preceding static condition). These forces can be resisted by passive pressure at the toe of the wall using an equivalent fluid pressure of 400 pcf (this must exclude the top 12 inches of embedment) and friction along the base using a friction coefficient of 0.38. These include a factor of safety of 1.5

Footings for retaining walls must be designed as recommended in the ***Shallow Foundations*** section of the report. Footings and floor slabs located above retaining walls and within a zone defined by a plane extending upward at 1H:1V from the bottom of the wall will increase lateral pressures on the wall. We must be consulted for lateral pressure and footing support issues if footings or other surcharge loads are located within this zone.

Backfill - Retaining walls must be backfilled with clean, imported, granular soil with less than 6 % fines, such as clean sand or rock. This material must also be compacted to a minimum of 92 % relative to ASTM D1557 (modified proctor). Within 3 feet of the wall, backfill must be compacted to not more than 90 % relative to ASTM D1557 using hand-operated equipment.

Retaining structures typically rotate and displace roughly 1% of the wall height during development of active pressures behind the wall. We therefore recommend that construction of improvements adjacent to the top of the walls greater than 5 feet high be delayed until approximately two weeks after wall construction.

Drainage

General - All retaining walls must be fully drained. We also recommend installing perimeter foundation drains around all exterior foundations. The surface around building perimeters must be sloped to drain away from the buildings. Foundation and wall drains must consist of a two-foot-wide zone of drain rock encompassing a 4-inch diameter perforated pipe, all enclosed with a non-woven filter fabric. The drain rock must have no more than 2 percent passing a #200 sieve and must extend to within one foot of the ground surface. The geosynthetic should be Propex Geotex 601 or equivalent. An alternative to the rock drain would be geo-composite drain board, such as an Amerdrain 500/520 or equivalent. In either case one foot of low permeability soil (such as the on-site silt) must be placed over the fabric at the top of the drain to isolate the drain from surface runoff, and the drain must be routed to suitable down gradient discharge determined by the civil engineer.

If a continuous vapor barrier is used, with floor slabs above surrounding grades and perimeter grades sloped away from the building and building finished floor elevations in no more than 2 feet of cut, perimeter foundation drains would not be needed. In this case, footing/wall joints must still be water-proofed.

Pavement

Asphalt Concrete – At the time of this report we did not have specific information regarding the type and frequency of expected traffic. We therefore developed asphalt concrete pavement thicknesses for

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areas exposed to passenger vehicles only and areas exposed to up 10 and 25 mixed 3 and 5-axle trucks per day based on a 20-year design life. Traffic volumes can be revised if specific data is available.

Our pavement analyses are based on AASHTO methods and subgrade of stiff silt or structural fill as discussed in this report and having a resilient modulus of at least 6,000 psi. We have also assumed that roadway construction will be completed during an extended period of dry weather. The results of our analyses based on these parameters are provided in the following table.

Traffic	**ESAL's**	**AC (inches)**	**CR (inches)**
Passenger Vehicle Only	-	2.5	6
Up to 10 Trucks Per Day	75,000	3.5	9
Up to 25 Trucks Per Day	189,000	4	11

The thicknesses listed in the preceding table are the minimum acceptable for construction during an extended period of dry summer weather. Increased rock thicknesses will be required for construction during wet conditions. Crushed rock must conform to ODOT base rock standards and have less than 6 percent passing the #200 sieve. Asphalt concrete must be compacted to a minimum of 91 percent of a Rice Density.

Portland Cement Concrete - We developed PCC pavement thicknesses at the site for the assumed one-way traffic levels as shown in the table below. Each of these sections is based on AASHTO methods with no reduction for wander and a composite modulus of subgrade reaction of 350 pci (AASHTO Figure 3.3 with M_r = 6,000 psi and 6 inches crushed rock base). Other parameters include 4,000 psi compressive strength portland cement concrete (PCC), and plain jointed concrete ***without*** load transfer devices or tied concrete shoulders. PCC pavements over trench backfill should not be placed within one week of fill installation unless survey data indicates that settlement of the backfill is complete.

Traffic	**ESALS**	**PCC (inches)**	**CRB (inches)**
Up to 10 Trucks Per Day	75,000	6	6
Up to 25 Trucks Per Day	189,000	7	6

Crushed rock from stabilized working blankets and haul roads that are sufficiently low in fines and pass our observation of a wheel roll may be used in the preceding base rock thickness.

Subgrade Preparation - The pavement subgrade must be prepared in accordance with the ***Earthwork*** *and* ***Site Preparation*** recommendations presented in this report. All pavement subgrades must pass a proof roll prior to paving. Soft areas must be repaired per the preceding ***Stabilization*** section.

LIMITATIONS AND OBSERVATION DURING CONSTRUCTION

We have prepared this report for use by Phelan Development and members of their design and construction teams for this project only. The information herein can be used for bidding or estimating purposes but must not be construed as a warranty of subsurface conditions. We have made observations only at the identified exploration locations and depths and noted exposed surface soil locations. These observations do not reflect soil types, strata thicknesses, water levels or seepage that

may exist between observations. We must be consulted to review final design and specifications in order to see that our recommendations are suitably followed. If any changes are made to the anticipated locations, loads, configurations, or construction timing, our recommendations may not be applicable, and we must be consulted. The preceding recommendations must be considered preliminary, as actual soil conditions may vary. In order for our recommendations to be final, we must be retained to review final building plans, to observe actual subsurface conditions encountered, and to observe foundation subgrades and pile driving. Our observations will allow us to adapt to actual conditions and to update our recommendations if needed.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with the generally accepted practices in this area at the time this report was prepared. No warranty, expressed or implied, is given.

We appreciate the opportunity to work with you on this project and look forward to our continued involvement. Please call if you have questions.

Sincerely,

Don Rondema, MS, PE, GE
Principal Engineer

Attachments: site plan, guidelines for classification of soil, boring logs, test pit logs, moisture contents

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NOT TO SCALE

BASE PHOTO FROM GOOGLE EARTH July 2018

Geotech Solutions Inc.

SITE PLAN

precision-21-gi

GUIDELINES FOR CLASSIFICATION OF SOIL

Description of Relative Density for Granular Soil	
Relative Density	**Standard Penetration Resistance (N-values) blows per foot**
very loose	0 - 4
loose	4 - 10
medium dense	10 - 30
dense	30 - 50
very dense	over 50

Description of Consistency for Fine-Grained (Cohesive) Soils		
Consistency	**Standard Penetration Resistance (N-values) blows per foot**	**Torvane Undrained Shear Strength, tsf**
very soft	0 - 2	less than 0.125
soft	2 - 4	0.125 - 0.25
medium stiff	4 - 8	0.25 - 0.50
stiff	8 - 15	0.50 - 1.0
very stiff	15 - 30	1.0 - 2.0
hard	over 30	over 2.0

Grain-Size Classification	
Description	**Size**
Boulders	12 - 36 in.
Cobbles	3 - 12 in.
Gravel	¼ - ¾ in. (fine)
	¾ - 3 in. (coarse)
Sand	No. 200 - No. 40 Sieve (fine)
	No. 40 - No. 10 sieve (medium)
	No. 10 - No. 4 sieve (coarse)
Silt/Clay	Pass No. 200 sieve

Modifier for Subclassification	
Adjective	**Percentage of Other Material In Total Sample**
Clean/Occasional	0 - 2
Trace	2 - 10
Some	10 - 30
Sandy, Silty, Clayey, etc.	30 - 50

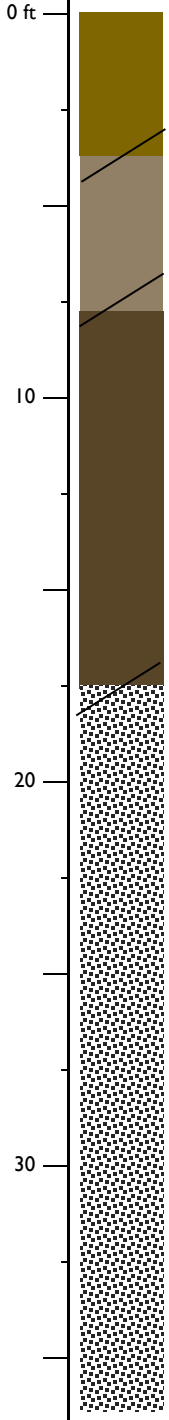
Test Pit #	Depth (ft)	Soil Description

Explorations completed on August 12, 2019 with a Case backhoe (Approx. 15,000 pounds).

TP-1		**Location:** NE portion of site.
		Surface conditions: Long grass.
	0 – 3	Stiff, brown SILT; dry. (primary root zone to 5 in.)
	3 – 5	Stiff, brown SILT; moist.
	5 – 10	Very stiff/hard black/brown WEATHERED BASALT; moist.
		No caving. No seepage.
TP-2		**Location:** NE portion of site.
		Surface conditions: Long grass.
	0 – 2	Stiff, brown SILT; dry. (primary root zone to 6 in.)
		Double ring configuration falling head infiltration test at 2'.
		No caving. No seepage.
TP-3		**Location:** NE portion of site.
		Surface conditions: Long grass.
	0 – 2	Stiff, brown SILT; dry. (primary root zone to 5 in.)
	2 – 5	Stiff, brown SILT; moist.
	5 – 10	Very stiff/hard black/brown WEATHERED BASALT; moist.
		No caving. No seepage.
TP-4		**Location:** N portion of site.
		Surface conditions: Long grass.
	0 – 2	Stiff, brown SILT; dry. (primary root zone to 6 in.)
	2 – 6	Stiff, brown SILT; moist.
	6 – 11	Very stiff/hard black/brown WEATHERED BASALT; moist.
		No caving. No seepage.
TP-5		**Location:** SE portion of site.
		Surface conditions: Long grass.
	0 – 2	Stiff, brown SILT; dry. (primary root zone to 6 in.)
	2 – 3	Stiff, brown SILT; moist.
	3 – 4	Very stiff/hard black/brown WEATHERED BASALT; moist.
	4	Refusal on hard BASALT.
		No caving. No seepage.

Test Pit #	Depth (ft)	Soil Description
TP-6		**Location:** S central portion of site.
		Surface conditions: Long grass.
	0 – 3	Stiff, brown SILT; dry. (primary root zone to 7 in.)
	3 – 4	Stiff, brown SILT with some basalt cobbles/boulders; moist.
	4 – 6	Very stiff/hard black/brown WEATHERED BASALT; moist.
	6	Refusal on hard BASALT.
		No caving. No seepage.
TP-7		**Location:** N central portion of site.
		Surface conditions: Long grass.
	0 – 2	Stiff, brown SILT; dry. (primary root zone to 6 in.)
	2 – 11	Stiff, brown SILT; moist.
	11 – 15	Stiff, brown SILT, with some clay; moist.
		No caving. No seepage.
TP-8		**Location:** Central portion of site.
		Surface conditions: Long grass.
	0 – 1	Stiff, brown SILT, with some gravels/cobbles; dry. (primary root zone to 7 in.)
	1 – 7	Stiff, brown SILT; moist.
	7 – 8	Very stiff/hard black/brown WEATHERED BASALT; moist.
	8	Refusal on hard BASALT.
		No caving. No seepage.
TP-9		**Location:** NW portion of site.
		Surface conditions: Long grass.
	0 – 2	Stiff, brown SILT; dry. (primary root zone to 6 in.)
	2 – 5	Stiff, brown SILT; moist.
	5 – 6	Very stiff/hard black/brown WEATHERED BASALT; moist.
	6	Refusal on hard BASALT.
		No caving. No seepage.
TP-10		**Location:** SW portion of site.
		Surface conditions: Long grass.
	0 – 3	Stiff, brown SILT, with trace roots; dry. (primary root zone to 6 in.)
	3 – 4	Stiff, brown SILT; moist.
	4 – 6	Medium stiff brown SILT, with trace clay; moist.
		Double ring configuration falling head infiltration test at 2'.
		No caving. No seepage.

Test Pit #	Depth (ft)	Soil Description
TP-11		Inaccessible.
TP-12		**Location:** NW portion of site.
		Surface conditions: Short grass.
	0 – 2	Stiff, brown SILT;dry. (primary root zone to 8 in.)
	2 – 4	Stiff, brown SILT; moist.
	4 – 5	Stiff, brown SILT, with some weathered basalt; moist.
	5 – 10	Very stiff/hard WEATHERED BASALT; moist.
		No caving. No seepage.



Soil and Rock Description

Stiff, brown SILT, with trace coarse sand; moist.

Becomes gray/brown with fine sand.

Stiff, black/brown SILT with some sand, clay and gravel; moist. (severely weathered basalt)

Medium Dense, gray/black WEATHERED BASALT; moist.

Becomes dense to medium dense

Boring completed to 36.5 feet and backfilled with bentonite on August 9, 2019.

Samples and Data

16	w = 32%
9	w = 37%
12	w =47%
14	w = 58%
24	w = 41%
37	w = 46%
28	w = 48%
43	w = 46%

N_{85} = SPT blowcount
w = moisture content
f = percent fines
γ_d = dry unit weight

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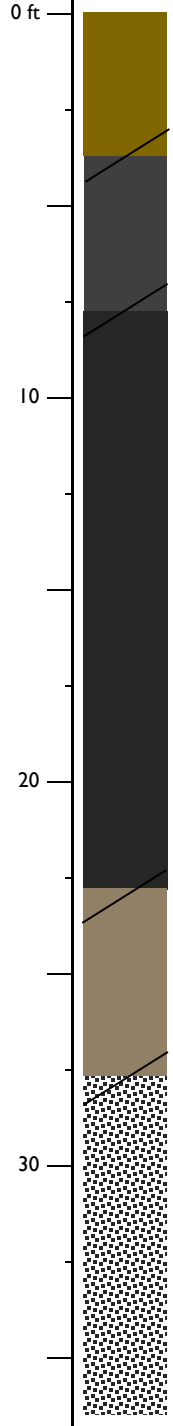
BORING B-1

Precision-21-1gi



Soil and Rock Description

Stiff, brown SILT; moist.

Stiff, black/brown SILT with some sand, clay and gravel; moist. (severely weathered basalt)

Medium dense, gray/black WEATHERED BASALT; moist.

Becomes dense.

Becomes very dense.

Medium stiff, brown sandy clayey SILT; wet.

Dense, gray/black WEATHERD BASALT; moist.

Becomes medium dense.

Boring completed to 36.5 feet and backfilled with bentonite on August 9, 2019.

Samples and Data

12	w = 30%
10	w = 51%
27	w =45%
36	w = 45%
63	w = 44%
6	w = 60%
39	w = 57%
23	w = 47%

N_{85} = SPT blowcount
w = moisture content
f = percent fines
γ_d = dry unit weight

Geotech Solutions Inc.

BORING B-2

Precision-21-1gi

Exploration	Depth, ft	Moisture Content
TP-1	4.0	24%
TP-1	9.0	53%
TP-3	5.0	16%
TP-4	4.0	24%
TP-5	3.0	14%
TP-6	5.0	32%
TP-7	4.0	29%
TP-7	12.0	33%
TP-8	4.0	28%
TP-9	5.0	33%
TP-10	4.0	33%
TP-12	5.0	41%
TP-12	8.0	48%

Exploration	Depth, ft	Moisture Content
B-1	2.5	32%
B-1	5.0	37%
B-1	10.0	47%
B-1	15.0	58%
B-1	20.0	41%
B-1	25.0	46%
B-1	30.0	48%
B-1	35.0	46%
B-2	2.5	30%
B-2	5.0	51%
B-2	10.0	45%
B-2	15.0	45%
B-2	20.0	44%
B-2	25.0	60%
B-2	30.0	57%
B-2	35.0	47%

RIVER CITY
ENVIRONMENTAL, INC.

January 3, 2023

TM Rippey Consulting Engineers
Karl Koroch, PE
7650 SW Beveland Street
Tigard, Oregon 97223

Re: Precision Countertop Site
Wilsonville

Mr. Koroch,

We have reviewed the site drawing you provided showing the various private storm runoff treatment and flow control facilities proposed for the property on SW Garden Acres Road in Wilsonville.

All of the facilities shown on the plans will be accessible to our vactor truck and other maintenance equipment. You asked specifically about the large storm planter treatment/flow control facility situated west of the building and showed a possible parking location for our vactor truck north of the facility and a route for our maintenance staff along the east side to access the facility on foot from the south. This route works well for access and maintenance. We have the ability to dispatch a support vehicle with the vactor truck that has several rolls of extension hose for the vactor equipment. Our equipment and extension hoses can accommodate the lengths shown on the attached plan.

River City Environmental offers plumbing and drain cleaning; lift station services; parking lot sweeping; parking lot maintenance—including seal coating, striping & signage; service agreements for routine maintenance; septic and sewage removal; water truck services and drop box services.
River City Environmental also offers a complete range of stormwater B.M.P. installations, operation and maintenance services.

Please feel free to call me @ 503-252-6144 or Cell 503-969-2924. Thank you once again for this opportunity to offer these services to you.

Sincerely,
Daniel Zundel
Daniel Zundel
River City Environmental, Inc.
CCB#147355

Proposal must be accepted within ten (10) days

Accepted by: _____ Date: _____
Name & Title


Site access driveway
Vactor Truck Staging location
Path of travel for maintenance personnel with vactor hose. Approximately 250 lf hose length from truck to planter outlet
Storm runoff treatment and flow control planter
Outlet "beehive" structure to be maintained
SW GARDEN ACRES ROAD
MATCHLINE - SEE C4.1
FF 230.00
BMP A RAIN GARDEN BOTTOM EL. 226.50
BMP B RAIN GARDEN BOTTOM EL. 226.90
BMP C RAIN GARDEN BOTTOM EL. 226.85
BMP F PLANTER BOTTOM EL. 220.00
FOUND SANITARY LATERAL BOARD UNKNOWN LENGTH
15' PUBLIC WATER EASEMENT TO BE DEDICATED
8" PUBLIC WATER MAIN
6" PUBLIC WATER MAIN
8" DCDA IN VAULT. SEE GUN 16 & 18.
1.5" DOMESTIC METER, 2" SERVICE & 2" BFP. SEE GUN 15 & 18.
INSTALL FDC. SEE GUN 17.
INSTALL PUBLIC FH
SEE BUILDING PLUMBING PLANS FOR CONTINUATION. SEE GUN 15.
SEE BUILDING FIRE PLANS FOR CONTINUATION. SEE GUN 16 & 18.
CONNECT TO (E) PUBLIC MAIN. SEE GUN 15, 16 & 18.
CONNECT TO (E) PUBLIC SS IE 210.07 (21") (E) IE 210.70 (6") NEW INSTALL 6" @ 1%
21" IE 210.02 8" SERVICE IE 210.65 INFO PROVIDED BY CITY AS-BUILTS, NOT FIELD VERIFIED.
CITY OF WILSONVILLE ASBUILTS, NOT FIELD VERIFIED
SAN MANHOLE RIM=232.52 21" PVC (N) = 213.24' IE 21" PVC (S) = 212.63' IE 18" PVC (W) = 212.78' IE
STORM MANHOLE RIM = 232.36' 36" (N) = 215.81' IE 18" (E) = 217.35' IE 10" (E) = 222.85' IE 36" (S) = 124.83' IE
STORM INLET RIM = 232.87' 10" (S) = 229.52' IE
STORM CURB INLET RIM = 232.66' 10" (N) = 229.56' IE 10" (W) = 229.51' IE
STORM INLET RIM = 231.58' 10" (S) = 228.09' IE
STORM CURB INLET RIM = 231.39' 10" (N) = 227.83' IE 10" (W) = 227.64' IE
STORM MANHOLE RIM = 231.12' 36" (N) = 214.28' IE 10" (E) = 221.35' IE 36" (S) = 214.00' IE
SAN MANHOLE RIM=230.84 21" PVC (N) = 210.87' IE 21" PVC (S) = 210.65' IE
STORM INLET RIM = 229.61' 10" (S) = 226.08' IE
STORM CURB INLET RIM = 229.43' 10" (N) = 225.75' IE 10" (W) = 225.74' IE
STORM MANHOLE RIM = 229.22' 10" (E) = 219.38' IE 18" (E) = 213.95' IE 36" (N) = 212.53' IE 42" (S) = 212.20' IE BASED ON
CB RIM 229.00
CB RIM 225.90
12" SS CB RIM 225.90 IE 223.90
12" SS CB RIM 227.60 IE 225.10 4" @ 1% MIN.
SSCO IE 222.50 6" @ 1%, 15 LF SEE BUILDING PLUMBING PLANS.
FIELD INLET RIM 224.25
(E) PUBLIC FH
SCALE: 1" = 20'

MDG
ARCHITECTURE | INTERIORS
4875 SW Griffith Drive Suite 300
Beaverton OR, 97005
(503) 244-0552

TMR
T.M. RIPPEY
CONSULTING ENGINEERS
7650 SW Beveland, Suite 100
Tigard, Oregon 97223
Phone: (503) 443-3900
Fax: (503) 443-3700

Client/ Owner:

Project:
Precision Countertops

25540 SW Garden Acres Rd.
Wilsonville OR

Sheet Title:
Water & Sanitary Sewer Plan

Revisions:

#	Description	Date

Date: 2022-11-08
Drawn by: AS
Checked by: KJK
TMR Job Number: 21279
Sheet
C4

DESIGN REVIEW SET 11/08/2022

Geotech Solutions Inc.

January 20, 2023 *precision-21-1-cms*

PHI Construction ; kelly@phiconst.com

cc: kkoroch@tmrippey.com

GEOTECHNICAL ENGINEERING SERVICES – Aggregate Access Road
Precision Facility, 25540 SW Garden Acres Road, Wilsonville, Oregon

As requested, this letter summarizes our analyses of all-weather road thickness needed for occasional maintenance access to facilities at the subject site. We previously provided a geotechnical engineering report for the project that included explorations, testing, and analyses (attached). We understand that a 30-ton GVW maintenance vehicle will need occasional access and have assumed over 100 trips. Based on our site observations of subgrade stiffness, a subgrade resilient modulus of 6,000 psi can be used for design. With the preceding traffic, our analyses indicate that 13 inches of crushed rock would be needed. However, an equivalent and more economical section would be 8 inches of crushed rock base overlying a Propex Gridpro BXP-12 geogrid (or equivalent punched and drawn grid with a bi-directional tensile strength of at least 400 pounds per foot at 2% strain) overlying a Propex 801 nonwoven fabric. An alternative would be 5 inches of crushed rock overlying 12 inches of cement amended soil.

We have assumed that construction will be completed during extended dry conditions. The cement amended soil alternative could be done in non-rainfall wet season conditions, as could protection and stabilization of subgrades and increased rock thickness. Crushed rock should conform to ODOT base rock standards and have less than 6 percent passing the #200 sieve. The preceding analyses used a maximum rut depth of 1.5 inches. The Limitations of our report apply. We appreciate the opportunity to work with you on this project and look forward to our continued involvement. Please contact us if you have questions.

Sincerely,

Don Rondema, MS, PE, GE
Principal Engineer

Attachments: geotechnical report

20978 S Springwater Road, Estacada, OR 97023 *503.869.8679; don@geotechsolutionsinc.com*

REPORT OF GEOTECHNICAL ENGINEERING SERVICES

Precision Facility, 25540 SW Garden Acres Road
Wilsonville, Oregon

Geotech Solutions Inc.

August 22, 2021

GSI Project: precision-21-1-gi

Geotech Solutions Inc.

August 22, 2021 *precision-21-1-gi*

PHI Construction
kelly@phiconst.com

REPORT OF GEOTECHNICAL ENGINEERING SERVICES
Precision Facility, 25540 SW Garden Acres Road
Wilsonville, Oregon

As authorized, herein we present our report of geotechnical engineering services for the proposed project. Based on information you provided we understand that the roughly 10-acre site is to be developed with one roughly 88,000 square foot manufacturing facility with associated truck docks, pavements, and utilities, with future expansion to the east. Building loads are expected to be up to 200 kips for columns, 6 kips per foot for walls, and 500 psf for floors. The purpose of our work was to investigate the soil conditions and provide geotechnical engineering for project design. For site investigation we used previous recent extensive explorations on this site and a new site reconnaissance. Our specific scope of work included the following:

- Provide principal-level geotechnical project management including client communications, management of field and subcontracted services, report writing, analyses, and invoicing.
- Review geologic maps and vicinity geotechnical information as indicators of subsurface conditions.
- Complete a site reconnaissance to observe surface features relevant to geotechnical issues, such as topography, vegetation, presence and condition of springs, exposed soils and rock, and evidence of previous grading.
- Review explored subsurface conditions of 12 test pits to depths of up to 15 feet or refusal, and two borings to depths of up to 36.5 feet or refusal.
- Review classifications and sampling of materials encountered and a detailed log of the explorations.
- From same day falling head infiltration testing in two of the test pits, provide an infiltration rate and corresponding strata.
- Provide moisture content of selected samples obtained from the explorations.
- Provide recommendations for earthwork including site preparation, reuse of existing fill in place or stabilized or reinstalled, seasonal material usage, compaction criteria, utility trench backfill, and the need for subsurface drainage.
- Evaluate site liquefaction potential and estimate site deformations and provide qualitative means to address unsuitable deformations if needed.
- Provide recommendations for shallow foundations including suitable soils, stabilization, bearing pressures, sliding coefficient, and a seismic site class.
- Provide recommendations for truck dock retaining walls, including lateral earth pressures, backfill, and drainage.
- Provide recommendations for slab support, including a subgrade modulus if needed, underslab rock thickness and materials, and the need for stabilization.
- Provide recommendations for pavements including subgrade preparation and stabilization, and base rock and asphalt concrete and portland cement concrete thicknesses.
- Provide a written report summarizing the results of our geotechnical evaluation.

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SITE CONDITIONS

Surface Conditions

The site vicinity is primarily in residential and light farm and grazing use, with industrial uses to the west, and commercial buildings to the south. Basalt rock quarries are present within 3/4 mile to the northwest. The parcel is relatively flat and includes residential and farm outbuildings in the west and trees and brush to the northwest and southern boundary. Much of the land is in grass and grazed by cattle. The site use and features have not changed appreciably since 2019.

Subsurface Conditions

We explored subsurface conditions at the site by completing eleven test pits (TP-1 through TP-12, TP-11 was inaccessible)) to depths of up to 12 feet or refusal on August 12, 2019, and two borings with a truck mounted CME 75 drill rig to depths of 36.5 feet on August 9, 2019. The locations of our explorations are shown in the attached ***Site Plan***, and detailed logs and moisture contents are attached.

In general, we encountered silt underlain by silt with gravel, clay, and sand as residual soils from severely weathered basalt, underlain at depth by weathered basalt. Refusal with the rubber-tired backhoe was met at depths of 6 to 8 feet in the central portion of the property in test pits TP-6, TP-8, and TP-9.

Rooty topsoil was generally 5 to 8 inches thick. The silt was generally stiff with blow counts (N_{85}) of 9 to 16 and extended to depths of generally 3 to 7 feet, deeper in TP-7. Under the upper silt we encountered residual soils of severely weathered basalt that was primarily silt with variable clay, sand, and gravel content. Blow counts in the borings ranged from 10 to 14 in this unit. The basalt generally became moderately weathered with blow counts of 24 to 63 below depths of 18 feet in the borings, and at depths of 6 to 8 feet in the central test pits. In B-2 we encountered a soil layer within the basalt from 24-28 feet that had a blow count of 6. This may represent an older weathered flow top. The rock is generally fractured with filled weathered joints in the explored depths.

No seepage was observed in the test pits. Wet soils were noted in the B-2 soil layer at 24 feet. High seasonal perched ground water is expected within a few feet of the ground surface.

Infiltration testing

Double ring configuration falling head infiltration testing was completed in test pits TP-2 feet and TP-10 at 2 feet. After initial saturation the system was filled more, and water level readings were taken. Infiltration rates were very low at less than 0.1 in3/hr/in2. This is typical in these fine-grained soils. Deeper tests were not done as rates are expected to be even lower in the severely weathered basalt with clay content.

CONCLUSIONS AND RECOMMENDATIONS

General

This site is near original grades except for thin fills of organics near the barns, gravel fill at drives, and landscape fills near the residences. Site soils include topsoil in vegetated areas with a 5-8 inch root zone away from trees and brush. Near surface soils will require moisture conditioning and stabilization in wet conditions and contain appreciable clay in severely weathered basalt at depth. Boulders and shallow refusal on hard basalt is possible in deeper excavations and utilities, with refusal met at depths of 6 to 8 feet with a rubber-tired backhoe in several test pits.

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Site Preparation

General - Prior to earthwork construction, the site must be prepared by removing any existing structures, utilities, and any organic fill, mulch, and topsoil. Exposed boulders should also be removed. Any excavation resulting from the aforementioned preparation must be brought back to grade with structural fill. Site preparation for earthwork will also require the removal of the root zone and topsoil/till zone soils and organic fills from all pavement, building, and fill areas. The root zone thickness observed in our explorations was 5 to 8 inches away from trees and brush.

Root balls from trees and shrubs may extend several feet and grubbing operations can cause considerable subgrade disturbance. All disturbed material must be removed to undisturbed subgrade and backfilled with structural fill. In general, roots greater than one-inch in diameter must be removed as well as areas of concentrated smaller roots.

The test pit excavations were backfilled using relatively minimal compactive effort. Therefore, soft spots can be expected at these locations. We recommend that these relatively uncompacted soils be completely removed from the test pits located within the proposed building(s), and in paved areas to a depth of 3 feet below finished subgrade. The resulting excavations must be brought back to grade with structural fill.

Earthwork

Working Blankets and Haul Roads - Construction equipment must not operate directly on the subgrade, as it is susceptible to disturbance and softening in all but the driest of late summer conditions. Rock working blankets and haul roads placed over a geosynthetic in a thickened advancing pad can be used to protect subgrades. We recommend that sound, angular, pit run or crushed basalt with no more than 6 percent passing a #200 sieve be used to construct haul roads and working blankets, overlying the preceding separation geosynthetics and stabilizations for building pads. Haul roads should be at least 18 inches thick overlying the geogrid with separation fabric at the bottom. Alternatively, the soils could be amended to a minimum depth of 12 inches and covered with a minimum of 4 inches of crushed rock. Some repair of working blankets and haul roads should be expected.

The preceding rock and amendment thicknesses are the minimum recommended. Subgrade protection is the responsibility of the contractor and thicker sections may be required based on subgrade conditions and type and frequency of construction equipment.

Fill – In dry summer conditions re-use of site soils as fill is possible with moisture conditioning. Boulders must not be included in fills. Soils must be moisture conditioned to within 3% of optimum and compacted to 92% of ASTM D-1557 or until deemed suitably stiff or dense by the geotechnical engineer and passing a proof roll with a loaded dump truck. Some of the residual soils where more clay is present have high moisture contents and would likely require discing. Soils observed have a moderate plasticity, but zones of high plasticity can occur in the residual soils which may require additional discing and drying time. Lifts should be no more than 10 inches in loose thickness.

As an alternative to the methods described above, stabilization may be possible by soil amendment using portland cement. This will first require removal of any boulders from the depth to be mixed, which can be observed by pre-ripping where needed. Amendment requires an experienced contractor using specialty spreading and mixing equipment. Typically, 5 to 6 percent cement is used for an amendment (i.e., mix) depth of 12 inches. However, the materials used and quantities can vary based on moisture

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and organic contents, plasticity, and required amendment depth. Compaction and grading of amended soils must be completed within 4 hours of mixing, and the amended soil must be allowed to cure for 4 days prior to trafficking. Generally, in fine grained soils 50 percent of mixed particles should pass a No. 4 sieve.

The permeability of amended soil is very low. The surface of amended soils in building and pavement areas should therefore be sloped at a minimum of 0.3 percent in wet season construction to reduce collection of surface water. Amended soils must be removed from all landscape areas prior to planting. A second treatment phase is often needed in a small percentage of the area to stiffen soils not sufficiently cured during the first phase.

Trenches – Our explorations encountered refusal on boulders and basalt at the depths noted on the attached explorations. Difficult excavations and/or special excavation techniques will be required if such conditions are present at design inverts or grades. Project budgets and schedules must include a contingency for rock/boulder/rubble excavation.

Ground water seepage is expected, even in the dry season after rainfall events, and is expected to be near the ground surface in the wet season. Seepage was not observed in our test pits done during a long dry period. Seepage rates are expected to be slow but could be faster in fractured basalt gravels and cobbles with less silt and clay. Shoring of utility trenches will be required for depths greater than 4 feet and where groundwater seepage is present. We recommend that the type and design of the shoring system be the responsibility of the contractor, who is in the best position to choose a system that fits the overall plan of operation.

Depending on the excavation depth and amount of groundwater seepage, dewatering may be necessary for construction of underground utilities. Flow rates for dewatering are likely to vary depending on location, soil type, and the season during which the excavation occurs. The dewatering systems, if necessary, must be capable of adapting to variable flows.

Pipe bedding must be installed in accordance with the pipe manufacturers' recommendations. If groundwater is present in the base of utility trench excavations and softens conditions, over-excavating the trench and placing trench stabilization material may be needed. Trench stabilization material must consist of well-graded, crushed rock or crushed gravel with a maximum particle size of 4 inches and be free of deleterious materials. The percent passing the U.S. Standard No. 200 Sieve must be less than 5 percent by weight when tested in accordance with ASTM C 117. A minimum of one foot of stabilization rock is recommended if soft conditions are encountered.

Trench backfill above the pipe zone must consist of well graded, angular crushed rock or sand fill with no more than 7 percent passing a #200 sieve. Trench backfill must be compacted to 92 percent relative to ASTM D-1557, and construction of hard surfaces, such as sidewalks or pavement, must not occur within one week of backfilling.

Infiltration

We recommend against infiltration of storm water due to the very low infiltration rates and the presence of high seasonal perched ground water in this area.

Foundations
Buildings with loads less than 500 psf for floors, 200 kips for columns, and 6 kips per foot for walls, can be supported on shallow spread and continuous footings bearing on medium stiff or better native soils and structural fills, which we will need to observe. These footings can be designed for a bearing pressure of 3,000 psf. Resistance to lateral loads can be obtained by a footing base friction factor of 0.38, and passive soil resistance of 400 pcf below the top one foot (the top foot can be used if it is directly abutting permanent hardscaping such as pavement or sidewalks) which includes a factor of safety of 1.5.

Slabs
Floor slab loads up to 500 psf are expected to induce less than one inch of settlement, and 120 pci can be used as a subgrade modulus. Working blankets are required for slabs in all but the driest late summer conditions. In dry late summer conditions, with no expected truck traffic on the pads, a minimum of six inches of clean, angular crushed rock with no more than 5 % passing a #200 sieve is recommended for underslab rock. Again, this will need to be thickened as a working blanket if trafficked and in all but dry late summer conditions. Prior to slab rock placement the subgrade will need to be evaluated by us by probing or observing a wheel roll using a fully loaded truck. Underslab rock must be compacted to 92 % compaction relative to ASTM D1557 and must be proof rolled as well. In addition, any areas contaminated with fines must be removed and replaced with clean rock. If the base rock is saturated or trapping water, this water must be removed prior to slab placement.

Some flooring manufacturers require specific slab moisture levels and/or vapor barriers to validate the warranties on their products. A properly installed and protected vapor flow retardant can reduce slab moistures. If moisture sensitive floor coverings or operations are planned, we recommend a vapor barrier be used. Typically, a reinforced product or thicker product (such as a 15 mil STEGO wrap) can be used. Experienced contractors using special concrete mix design and placement have been successful placing concrete directly over the vapor barrier which overlies the rock. This avoids the issue of water trapped in the rock between the slab and vapor barrier, which otherwise requires removal. In either case, slab moisture should be tested/monitored until it meets floor covering manufacturer's recommendations.

Seismic Design
General - In accordance with the International Building Code (IBC) as adapted by State of Oregon Structural Specialty Code (SOSSC) and based on our explorations and experience in the site vicinity, the subject project must be evaluated using the parameters associated with Site Class C.

Liquefaction - Liquefaction occurs in loose, saturated, granular, or non-plastic soils. Strong shaking, such as that experienced during earthquakes, causes the densification and the subsequent settlement of these soils. The site fine grained soils have significant plasticity and are not susceptible to liquefaction, nor is the weathered rock. The risk of damaging deformations from such phenomena is low.

Retaining Walls
General - The following recommendations are based on the assumptions that: (1) Walls are fully drained, (2) Wall backfill consists of level, drained, angular, granular material, (3) Walls are concrete cantilever-type walls and are less than 5 feet in height, and (4) No surcharges such as stockpiled soil, equipment, or footings are located within 10 feet of the wall.

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Walls restrained against rotation must be designed using an equivalent fluid pressure of 48 pcf. Walls not restrained against rotation must be designed using an equivalent fluid pressure of 28 pcf. Seismic design for roughly one inch of deflection can be evaluated for an 11H rectangular wall pressure (to determine if this controls wall design over the preceding static condition). These forces can be resisted by passive pressure at the toe of the wall using an equivalent fluid pressure of 400 pcf (this must exclude the top 12 inches of embedment) and friction along the base using a friction coefficient of 0.38. These include a factor of safety of 1.5

Footings for retaining walls must be designed as recommended in the ***Shallow Foundations*** section of the report. Footings and floor slabs located above retaining walls and within a zone defined by a plane extending upward at 1H:1V from the bottom of the wall will increase lateral pressures on the wall. We must be consulted for lateral pressure and footing support issues if footings or other surcharge loads are located within this zone.

Backfill - Retaining walls must be backfilled with clean, imported, granular soil with less than 6 % fines, such as clean sand or rock. This material must also be compacted to a minimum of 92 % relative to ASTM D1557 (modified proctor). Within 3 feet of the wall, backfill must be compacted to not more than 90 % relative to ASTM D1557 using hand-operated equipment.

Retaining structures typically rotate and displace roughly 1% of the wall height during development of active pressures behind the wall. We therefore recommend that construction of improvements adjacent to the top of the walls greater than 5 feet high be delayed until approximately two weeks after wall construction.

Drainage

General - All retaining walls must be fully drained. We also recommend installing perimeter foundation drains around all exterior foundations. The surface around building perimeters must be sloped to drain away from the buildings. Foundation and wall drains must consist of a two-foot-wide zone of drain rock encompassing a 4-inch diameter perforated pipe, all enclosed with a non-woven filter fabric. The drain rock must have no more than 2 percent passing a #200 sieve and must extend to within one foot of the ground surface. The geosynthetic should be Propex Geotex 601 or equivalent. An alternative to the rock drain would be geo-composite drain board, such as an Amerdrain 500/520 or equivalent. In either case one foot of low permeability soil (such as the on-site silt) must be placed over the fabric at the top of the drain to isolate the drain from surface runoff, and the drain must be routed to suitable down gradient discharge determined by the civil engineer.

If a continuous vapor barrier is used, with floor slabs above surrounding grades and perimeter grades sloped away from the building and building finished floor elevations in no more than 2 feet of cut, perimeter foundation drains would not be needed. In this case, footing/wall joints must still be water-proofed.

Pavement

Asphalt Concrete – At the time of this report we did not have specific information regarding the type and frequency of expected traffic. We therefore developed asphalt concrete pavement thicknesses for

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areas exposed to passenger vehicles only and areas exposed to up 10 and 25 mixed 3 and 5-axle trucks per day based on a 20-year design life. Traffic volumes can be revised if specific data is available.

Our pavement analyses are based on AASHTO methods and subgrade of stiff silt or structural fill as discussed in this report and having a resilient modulus of at least 6,000 psi. We have also assumed that roadway construction will be completed during an extended period of dry weather. The results of our analyses based on these parameters are provided in the following table.

Traffic	**ESAL's**	**AC (inches)**	**CR (inches)**
Passenger Vehicle Only	-	2.5	6
Up to 10 Trucks Per Day	75,000	3.5	9
Up to 25 Trucks Per Day	189,000	4	11

The thicknesses listed in the preceding table are the minimum acceptable for construction during an extended period of dry summer weather. Increased rock thicknesses will be required for construction during wet conditions. Crushed rock must conform to ODOT base rock standards and have less than 6 percent passing the #200 sieve. Asphalt concrete must be compacted to a minimum of 91 percent of a Rice Density.

Portland Cement Concrete - We developed PCC pavement thicknesses at the site for the assumed one-way traffic levels as shown in the table below. Each of these sections is based on AASHTO methods with no reduction for wander and a composite modulus of subgrade reaction of 350 pci (AASHTO Figure 3.3 with M_r = 6,000 psi and 6 inches crushed rock base). Other parameters include 4,000 psi compressive strength portland cement concrete (PCC), and plain jointed concrete ***without*** load transfer devices or tied concrete shoulders. PCC pavements over trench backfill should not be placed within one week of fill installation unless survey data indicates that settlement of the backfill is complete.

Traffic	**ESALS**	**PCC (inches)**	**CRB (inches)**
Up to 10 Trucks Per Day	75,000	6	6
Up to 25 Trucks Per Day	189,000	7	6

Crushed rock from stabilized working blankets and haul roads that are sufficiently low in fines and pass our observation of a wheel roll may be used in the preceding base rock thickness.

Subgrade Preparation - The pavement subgrade must be prepared in accordance with the ***Earthwork*** *and* ***Site Preparation*** recommendations presented in this report. All pavement subgrades must pass a proof roll prior to paving. Soft areas must be repaired per the preceding ***Stabilization*** section.

LIMITATIONS AND OBSERVATION DURING CONSTRUCTION

We have prepared this report for use by Phelan Development and members of their design and construction teams for this project only. The information herein can be used for bidding or estimating purposes but must not be construed as a warranty of subsurface conditions. We have made observations only at the identified exploration locations and depths and noted exposed surface soil locations. These observations do not reflect soil types, strata thicknesses, water levels or seepage that

may exist between observations. We must be consulted to review final design and specifications in order to see that our recommendations are suitably followed. If any changes are made to the anticipated locations, loads, configurations, or construction timing, our recommendations may not be applicable, and we must be consulted. The preceding recommendations must be considered preliminary, as actual soil conditions may vary. In order for our recommendations to be final, we must be retained to review final building plans, to observe actual subsurface conditions encountered, and to observe foundation subgrades and pile driving. Our observations will allow us to adapt to actual conditions and to update our recommendations if needed.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with the generally accepted practices in this area at the time this report was prepared. No warranty, expressed or implied, is given.

We appreciate the opportunity to work with you on this project and look forward to our continued involvement. Please call if you have questions.

Sincerely,

Don Rondema, MS, PE, GE
Principal Engineer

Attachments: site plan, guidelines for classification of soil, boring logs, test pit logs, moisture contents

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NOT TO SCALE

BASE PHOTO FROM GOOGLE EARTH July 2018

Geotech Solutions Inc.

SITE PLAN

precision-21-gi

GUIDELINES FOR CLASSIFICATION OF SOIL

Description of Relative Density for Granular Soil	
Relative Density	**Standard Penetration Resistance (N-values) blows per foot**
very loose	0 - 4
loose	4 - 10
medium dense	10 - 30
dense	30 - 50
very dense	over 50

Description of Consistency for Fine-Grained (Cohesive) Soils		
Consistency	**Standard Penetration Resistance (N-values) blows per foot**	**Torvane Undrained Shear Strength, tsf**
very soft	0 - 2	less than 0.125
soft	2 - 4	0.125 - 0.25
medium stiff	4 - 8	0.25 - 0.50
stiff	8 - 15	0.50 - 1.0
very stiff	15 - 30	1.0 - 2.0
hard	over 30	over 2.0

Grain-Size Classification	
Description	**Size**
Boulders	12 - 36 in.
Cobbles	3 - 12 in.
Gravel	¼ - ¾ in. (fine)
	¾ - 3 in. (coarse)
Sand	No. 200 - No. 40 Sieve (fine)
	No. 40 - No. 10 sieve (medium)
	No. 10 - No. 4 sieve (coarse)
Silt/Clay	Pass No. 200 sieve

Modifier for Subclassification	
Adjective	**Percentage of Other Material In Total Sample**
Clean/Occasional	0 - 2
Trace	2 - 10
Some	10 - 30
Sandy, Silty, Clayey, etc.	30 - 50

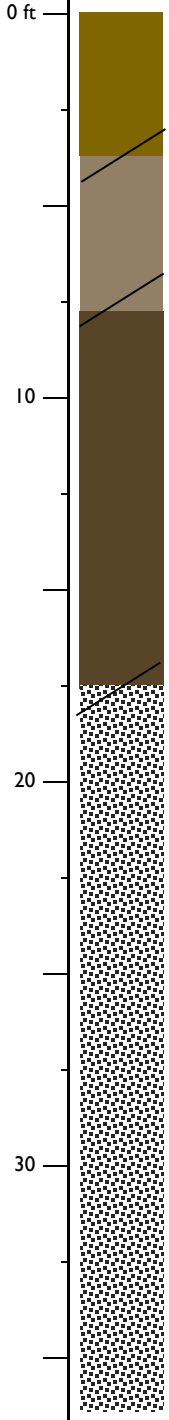
Test Pit #	Depth (ft)	Soil Description

Explorations completed on August 12, 2019 with a Case backhoe (Approx. 15,000 pounds).

TP-1		**Location:** NE portion of site.
		Surface conditions: Long grass.
	0 – 3	Stiff, brown SILT; dry. (primary root zone to 5 in.)
	3 – 5	Stiff, brown SILT; moist.
	5 – 10	Very stiff/hard black/brown WEATHERED BASALT; moist.
		No caving. No seepage.
TP-2		**Location:** NE portion of site.
		Surface conditions: Long grass.
	0 – 2	Stiff, brown SILT; dry. (primary root zone to 6 in.)
		Double ring configuration falling head infiltration test at 2'.
		No caving. No seepage.
TP-3		**Location:** NE portion of site.
		Surface conditions: Long grass.
	0 – 2	Stiff, brown SILT; dry. (primary root zone to 5 in.)
	2 – 5	Stiff, brown SILT; moist.
	5 – 10	Very stiff/hard black/brown WEATHERED BASALT; moist.
		No caving. No seepage.
TP-4		**Location:** N portion of site.
		Surface conditions: Long grass.
	0 – 2	Stiff, brown SILT; dry. (primary root zone to 6 in.)
	2 – 6	Stiff, brown SILT; moist.
	6 – 11	Very stiff/hard black/brown WEATHERED BASALT; moist.
		No caving. No seepage.
TP-5		**Location:** SE portion of site.
		Surface conditions: Long grass.
	0 – 2	Stiff, brown SILT; dry. (primary root zone to 6 in.)
	2 – 3	Stiff, brown SILT; moist.
	3 – 4	Very stiff/hard black/brown WEATHERED BASALT; moist.
	4	Refusal on hard BASALT.
		No caving. No seepage.

Test Pit #	Depth (ft)	Soil Description
TP-6		**Location:** S central portion of site.
		Surface conditions: Long grass.
	0 – 3	Stiff, brown SILT; dry. (primary root zone to 7 in.)
	3 – 4	Stiff, brown SILT with some basalt cobbles/boulders; moist.
	4 – 6	Very stiff/hard black/brown WEATHERED BASALT; moist.
	6	Refusal on hard BASALT.
		No caving. No seepage.
TP-7		**Location:** N central portion of site.
		Surface conditions: Long grass.
	0 – 2	Stiff, brown SILT; dry. (primary root zone to 6 in.)
	2 – 11	Stiff, brown SILT; moist.
	11 – 15	Stiff, brown SILT, with some clay; moist.
		No caving. No seepage.
TP-8		**Location:** Central portion of site.
		Surface conditions: Long grass.
	0 – 1	Stiff, brown SILT, with some gravels/cobbles; dry. (primary root zone to 7 in.)
	1 – 7	Stiff, brown SILT; moist.
	7 – 8	Very stiff/hard black/brown WEATHERED BASALT; moist.
	8	Refusal on hard BASALT.
		No caving. No seepage.
TP-9		**Location:** NW portion of site.
		Surface conditions: Long grass.
	0 – 2	Stiff, brown SILT; dry. (primary root zone to 6 in.)
	2 – 5	Stiff, brown SILT; moist.
	5 – 6	Very stiff/hard black/brown WEATHERED BASALT; moist.
	6	Refusal on hard BASALT.
		No caving. No seepage.
TP-10		**Location:** SW portion of site.
		Surface conditions: Long grass.
	0 – 3	Stiff, brown SILT, with trace roots; dry. (primary root zone to 6 in.)
	3 – 4	Stiff, brown SILT; moist.
	4 – 6	Medium stiff brown SILT, with trace clay; moist.
		Double ring configuration falling head infiltration test at 2'.
		No caving. No seepage.

Test Pit #	Depth (ft)	Soil Description
TP-11		Inaccessible.
TP-12		**Location:** NW portion of site.
		Surface conditions: Short grass.
	0 – 2	Stiff, brown SILT;dry. (primary root zone to 8 in.)
	2 – 4	Stiff, brown SILT; moist.
	4 – 5	Stiff, brown SILT, with some weathered basalt; moist.
	5 – 10	Very stiff/hard WEATHERED BASALT; moist.
		No caving. No seepage.



Soil and Rock Description

Stiff, brown SILT, with trace coarse sand; moist.

Becomes gray/brown with fine sand.

Stiff, black/brown SILT with some sand, clay and gravel; moist. (severely weathered basalt)

Medium Dense, gray/black WEATHERED BASALT; moist.

Becomes dense to medium dense

Boring completed to 36.5 feet and backfilled with bentonite on August 9, 2019.

Samples and Data

16	w = 32%
9	w = 37%
12	w =47%
14	w = 58%
24	w = 41%
37	w = 46%
28	w = 48%
43	w = 46%

N_{85} = SPT blowcount
w = moisture content
f = percent fines
γ_d = dry unit weight

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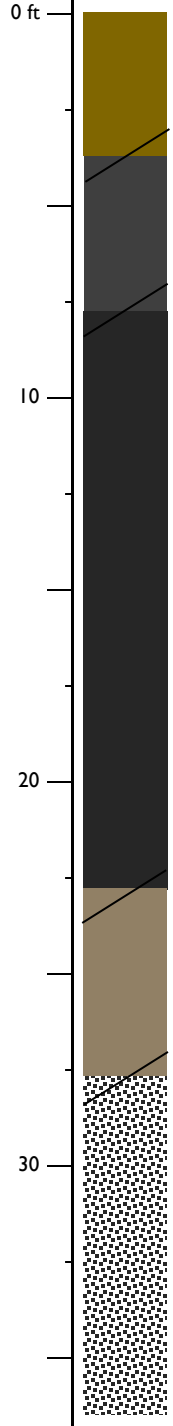
BORING B-1

Precision-21-1gi



Soil and Rock Description

Stiff, brown SILT; moist.

Stiff, black/brown SILT with some sand, clay and gravel; moist. (severely weathered basalt)

Medium dense, gray/black WEATHERED BASALT; moist.

Becomes dense.

Becomes very dense.

Medium stiff, brown sandy clayey SILT; wet.

Dense, gray/black WEATHERD BASALT; moist.

Becomes medium dense.

Boring completed to 36.5 feet and backfilled with bentonite on August 9, 2019.

Samples and Data

12	w = 30%
10	w = 51%
27	w =45%
36	w = 45%
63	w = 44%
6	w = 60%
39	w = 57%
23	w = 47%

N_{85} = SPT blowcount
w = moisture content
f = percent fines
γ_d = dry unit weight

Geotech Solutions Inc.

BORING B-2

Precision-21-1gi

Exploration	Depth, ft	Moisture Content
TP-1	4.0	24%
TP-1	9.0	53%
TP-3	5.0	16%
TP-4	4.0	24%
TP-5	3.0	14%
TP-6	5.0	32%
TP-7	4.0	29%
TP-7	12.0	33%
TP-8	4.0	28%
TP-9	5.0	33%
TP-10	4.0	33%
TP-12	5.0	41%
TP-12	8.0	48%

Exploration	Depth, ft	Moisture Content
B-1	2.5	32%
B-1	5.0	37%
B-1	10.0	47%
B-1	15.0	58%
B-1	20.0	41%
B-1	25.0	46%
B-1	30.0	48%
B-1	35.0	46%
B-2	2.5	30%
B-2	5.0	51%
B-2	10.0	45%
B-2	15.0	45%
B-2	20.0	44%
B-2	25.0	60%
B-2	30.0	57%
B-2	35.0	47%

PRECISION COUNTERTOPS

TRANSPORTATION IMPACT STUDY

MARCH 2022

PREPARED FOR CITY OF WILSONVILLE

WILSONVILLE
OREGON

PREPARED BY DKS ASSOCIATES

Scott Mansur, P.E., PTOE

Jenna Bogert, P.E.

REGISTERED PROFESSIONAL ENGINEER
56,267
Digitally Signed 2022.03.07 11:19:59-08'00'
OREGON
JULY 9, 2002
SCOTT M. MANSUR
EXPIRES: DEC. 31, 2022

DKS

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INTRODUCTION

This study evaluates the transportation impacts associated with the proposed Precision Countertops building to be located on SW Garden Acres Road in Wilsonville, Oregon. The project will consist of approximately 65,800 square-feet of industrial manufacturing space used for countertop fabrication, countertop storage, a showroom, and office space. The building will be occupied by a single user, Precision Countertops.

The purpose of this transportation impact analysis is to identify potential mitigation measures needed to offset transportation impacts that the proposed development may have on the nearby transportation network. The impact analysis is focused on the study intersections, which were selected for evaluation in coordination with City staff. The intersections are listed below and shown in Figure 1.

1. SW Garden Acres Road/SW Ridder Road/SW Clutter Street
2. SW Ridder Road/SW 95th Avenue

This chapter introduces the proposed development. Table 1 lists important characteristics of the study area and proposed project.

FIGURE 1: STUDY AREA

TABLE 1: STUDY AREA AND PROPOSED PROJECT CHARACTERISTICS

STUDY AREA	
NUMBER OF STUDY INTERSECTIONS	Two
ANALYSIS PERIODS	Weekday PM peak hour (one hour between 4pm – 6pm)
PROPOSED DEVELOPMENT	
SIZE AND LAND USE	65,800 square-foot industrial manufacturing building
PROJECT TRIPS	43 total PM peak hour trips (13 in, 30 out)
VEHICLE ACCESS POINTS	Two full accesses to the site are proposed, both via SW Garden Acres Road.
OTHER TRANSPORTATION FACILITIES	
PEDESTRIAN AND BICYCLE FACILITIES	Sidewalks exist on SW Ridder Road. Sidewalks and bike lanes exist on SW 95th Avenue. Two-way cycle track and sidewalks are provided on the east side of Garden Acres Road.
TRANSIT FACILITIES	Bus stop for SMART Transit Route 5 is located on SW Ridder Road, about half a mile from the site.

EXISTING CONDITIONS

This chapter provides documentation of existing study area conditions, including the study area roadway network, pedestrian and bicycle facilities, and existing traffic volumes and operations.

STUDY AREA ROADWAY NETWORK

Key roadways in the study area are summarized in Table 2 along with their existing roadway characteristics. The functional classifications for City of Wilsonville streets are provided in the City of Wilsonville Transportation System Plan (TSP).[1]

[1] Wilsonville Transportation System Plan, Amended November 16, 2020.

TABLE 2: STUDY AREA ROADWAY CHARACTERISTICS

ROADWAY	FUNCTIONAL CLASSIFICATION	LANES	POSTED SPEED	SIDEWALKS	BIKE FACILITIES	ON-STREET PARKING
SW GARDEN ACRES ROAD	Minor Arterial	2	25 mph (unposted)	Yes	Yes	No
SW CLUTTER STREET	Collector	2	40 mph	No	No	No
SW RIDDER ROAD	Minor Arterial	3	40 mph [a] 30 mph [b]	Partial [c]	No	No
SW 95TH AVENUE	Minor Arterial	3	35 mph	Yes	Yes	No

[a] Posted speed limit on SW Ridder Road is 40 mph west of SW 95th Avenue.
[b] Posted speed limit on SW Ridder Road is 30 mph east of SW 95th Avenue.
[c] Sidewalks are missing on the south side of SW Ridder Road for approximately 1,600 feet between SW Garden Acres Road and SW 95th Avenue.

BICYCLE AND PEDESTRIAN FACILITIES

There are existing marked bicycle lanes on SW 95th Avenue. Sidewalks currently exist on SW Ridder Road and SW 95th Avenue. No sidewalks currently exist on SW Clutter Street. Sidewalk and two-way cycle track facilities were recently built on Garden Acres Road along the east side.

PUBLIC TRANSIT SERVICE

South Metro Area Regional Transit (SMART) provides public transportation services within Wilsonville and outlying areas, including Canby, Salem, and the south end of Portland. There are two bus stops along SW Ridder Road for Route 5. Route 5 provides service between SW Day Road and the Wilsonville Transit Center via SW 95th Avenue (see Figure 2 to the right). Service is provided Monday through Friday with headways of 30 mins between the hours of 6 am – 10 am and 3 pm – 7 pm.

PLANNED PROJECTS

The City of Wilsonville Transportation System Plan (TSP) has a list of Higher Priority projects which includes the recommended projects reasonably expected to be funded through 2035. These are the highest priority solutions to

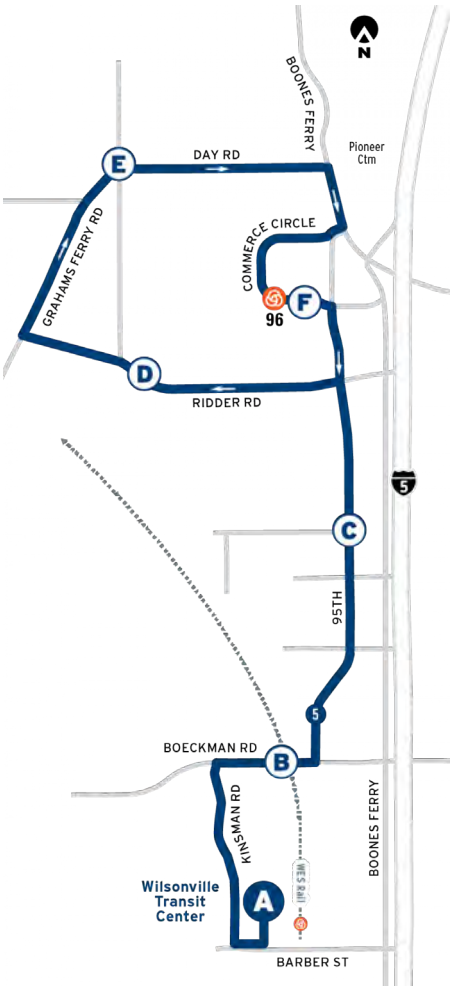

FIGURE 2: SMART BUS ROUTE 5 MAP

meet the City's most important needs. The list includes the following projects that impact the key roadways near the proposed project site.[2]

- RE-13 - Construct Java Road from Garden Acres Road to Grahams Ferry Road and install a signal at the Java Road/Grahams Ferry Road intersection and disconnect Clutter Street from Grahams Ferry Road.
- UU-08 – Upgrade Garden Acres Road to a three-lane collector with bicycle lanes and upgrade the Garden Acres Road/Day Road intersection to either a signal or a roundabout. ~~Realign Ridder Road to Garden Acres Road.~~ Close the existing Coffee Creek Correctional Facility driveway to Grahams Ferry Road and relocate the driveway to Cahalin Road.

The Long-term plan for Garden Acres Road will be to update it to a minor arterial through street. The traffic volumes will increase and the function of the road will significantly change once the extension and intersection improvements are completed as described in UU-08.

EXISTING TRAFFIC VOLUMES

New intersection turn movement count data was collected during a weekday p.m. peak period (4:00-6:00 p.m.) at the SW Garden Acres Road/SW Ridder Road/SW Clutter Road and the SW Ridder Road/SW 95th Avenue intersections.[3]

Figure 1 shows the 2021 p.m. peak hour traffic volumes for the study intersections, along with the lane configurations and traffic control. The traffic counts are included in Appendix A.

[2] Table 5-2/Figure 5-2 and Figure 5-3, Wilsonville Transportation System Plan, Amended November 16, 2020.

[3] For the two study intersections, historical tube counts[3] were used with a 1% annual growth rate to estimate 2021 volume without COVID impacts. These were compared to the newly collected turning movement counts and it was determined that the current traffic levels at the study intersections should be increased by 6% to account for impacts from COVID-19.

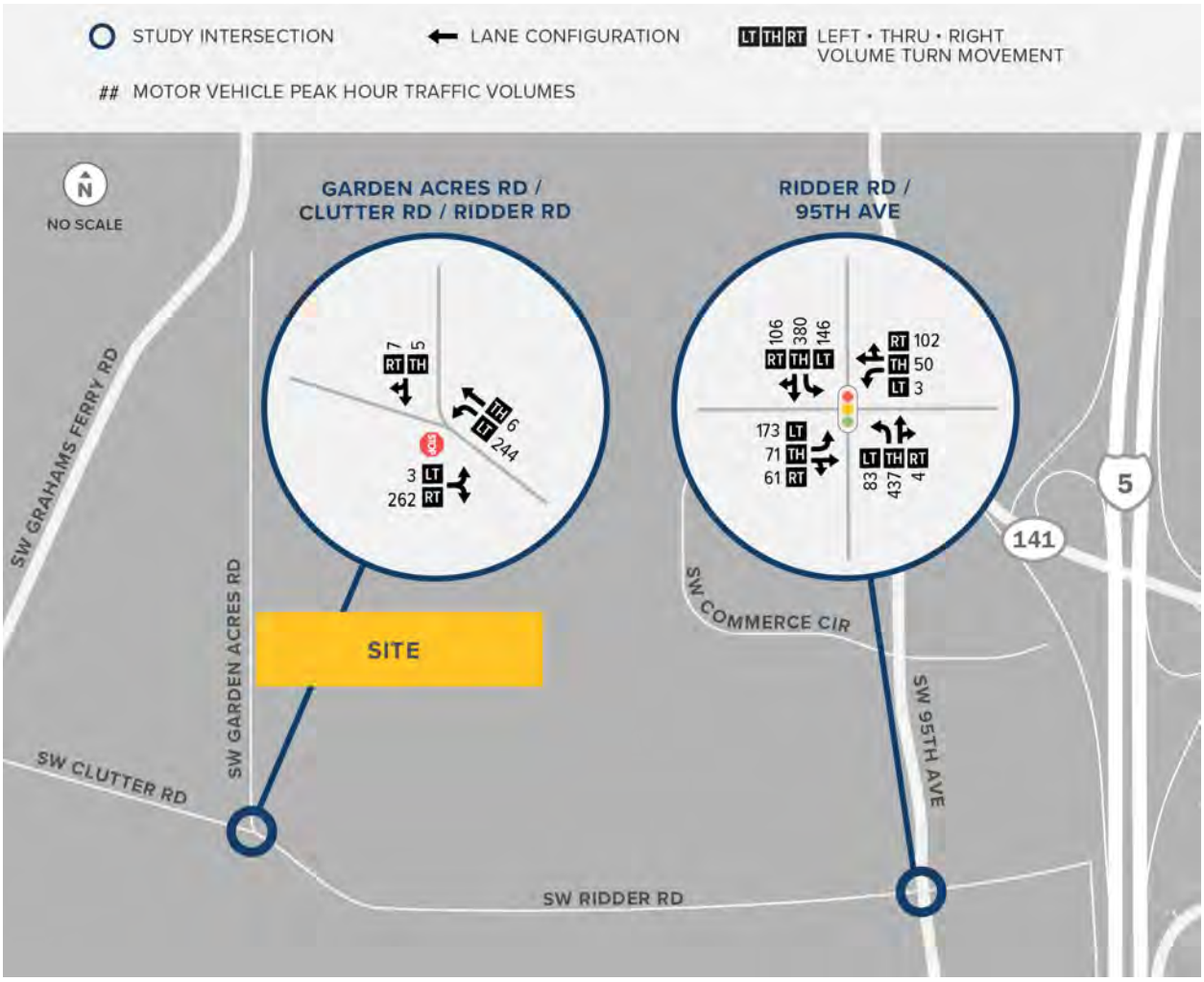

FIGURE 3: 2021 EXISTING TRAFFIC VOLUMES, LANE GEOMETRIES, AND TRAFFIC CONTROL

INTERSECTION PERFORMANCE MEASURES

Agency mobility standards often require intersections to meet level of service (LOS) or volume-to-capacity (V/C) intersection operation thresholds. Additional details about LOS and delay are provided in Appendix B.

- The intersection LOS is similar to a "report card" rating based upon average vehicle delay. Level of service A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. Level of service D and E are progressively worse operating conditions. Level of service F represents conditions where average vehicle delay has become excessive, and demand has exceeded capacity. This condition is typically evident in long queues and delays.
- The volume-to-capacity (v/c) ratio represents the level of saturation of the intersection or individual movement. It is determined by dividing the peak hour traffic volume by the maximum hourly capacity of an intersection or turn movement. When the V/C ratio

approaches 0.95, operations become unstable and small disruptions can cause the traffic flow to break down, resulting in the formation of excessive queues.

The City of Wilsonville requires study intersections on public streets to meet its minimum acceptable level of service (LOS) standard, which is LOS D for the overall intersection for the PM peak period.

EXISTING INTERSECTION OPERATIONS

An analysis of the 2021 existing intersection operations was performed at the two study intersections to determine the current operating conditions of the study area. Intersection operations were analyzed for the PM peak hour using Highway Capacity Manual (HCM) 6th Edition methodology.[4] The volume to capacity (v/c) ratio, delay, and level of service (LOS) of each study intersection are listed in Table 3.

TABLE 3: EXISTING 2021 STUDY INTERSECTION OPERATIONS

INTERSECTION	OPERATING STANDARD	PM PEAK HOUR		
		V/C	DELAY	LOS
UNSIGNALIZED				
SW GARDEN ACRES ROAD/SW RIDDER ROAD/SW CLUTTER STREET*	LOS D	0.29	9.8	A/A
SIGNALIZED				
SW RIDDER ROAD/SW 95TH AVENUE	LOS D	0.69	21.0	C

***TWO-WAY STOP INTERSECTIONS:**
Delay = Average Stopped Delay per Vehicle (sec) at Worst Movement
LOS = Level of Service of Major Street/Minor Street
v/c = Volume-to-Capacity Ratio of Worst Movement

SIGNALIZED INTERSECTION:
Delay = Average Intersection Delay (secs)
v/c = Total Volume-to-Capacity Ratio
LOS = Total Level of Service

As shown, all study intersections meet the operating standard (LOS D) for the existing conditions. The HCM reports are provided in Appendix C.

PROJECT IMPACTS

This chapter reviews the impacts that the proposed development may have on the study area transportation system. This analysis includes site plan evaluation, trip generation, trip distribution, and future year traffic volumes and operating conditions for the four study intersections.

[4] Highway Capacity Manual, 6th Edition, Transportation Research Board, 2017.

PROPOSED DEVELOPMENT

The project will consist of approximately 65,800 square-feet of industrial manufacturing space used for countertop fabrication, countertop storage, a showroom, and office space.

FUTURE ANALYSIS SCENARIOS

Operating conditions were analyzed at the study intersections for the following traffic scenarios. The comparison of the following scenarios enables the assessment of project impacts:

- Existing + Stage II
- Existing + Project
- Existing + Stage II + Project

All future analysis scenarios assume the same traffic control as existing conditions. Stage II represents traffic from other developments that have Stage II approval or are under construction in Wilsonville.

TRIP GENERATION

Trip generation is the method used to estimate the number of vehicles added to site driveways and the adjacent roadway network by a development during a specified period (i.e., such as the PM peak hour). For this study, the Institute of Transportation Engineers (ITE) trip generation rates for the various building uses were applied and combined to estimate the entire site's vehicle trip generation.[5] The total trip generation for the proposed development is shown in Table 4.

TABLE 4: VEHICLE TRIP GENERATION

LAND USE	LAND USE CODE	SIZE (KSF [A])	PM PEAK HOUR			DAILY TRIPS
			ENTER TRIPS	EXIT TRIPS	TOTAL TRIPS	
MANUFACTURING [B]	140	18.0	5	9	14	86
OFFICE	710	7.8	4	16	20	126
FURNITURE STORE [B]	890	3.0	1	1	2	19
WAREHOUSE/STORAGE [B]	150	37.0	3	4	7	63
	TOTAL	**65.8**	**13**	**30**	**43**	**294**

[A] KSF = 1,000 square feet

[B] Number of trips is based on the average rate.

As shown, the proposed development is expected to generate a total 43 PM peak hour trips (13 in, 30 out). The project trips at the study intersections are shown in Figure 2 in the following section.

[5] Trip Generation Manual, 11th Edition, Institute of Transportation Engineers, 2021.

VEHICLE TRIP DISTRIBUTION

Vehicle trip distribution provides an estimation of where vehicles would be coming from and going to. It is given as a percentage at key gateways to the study area and is used to route project trips through the study intersections. Figure 2 shows the trip distribution for the proposed site. The trip distribution was based on the Wilsonville Travel Demand Model.[6]

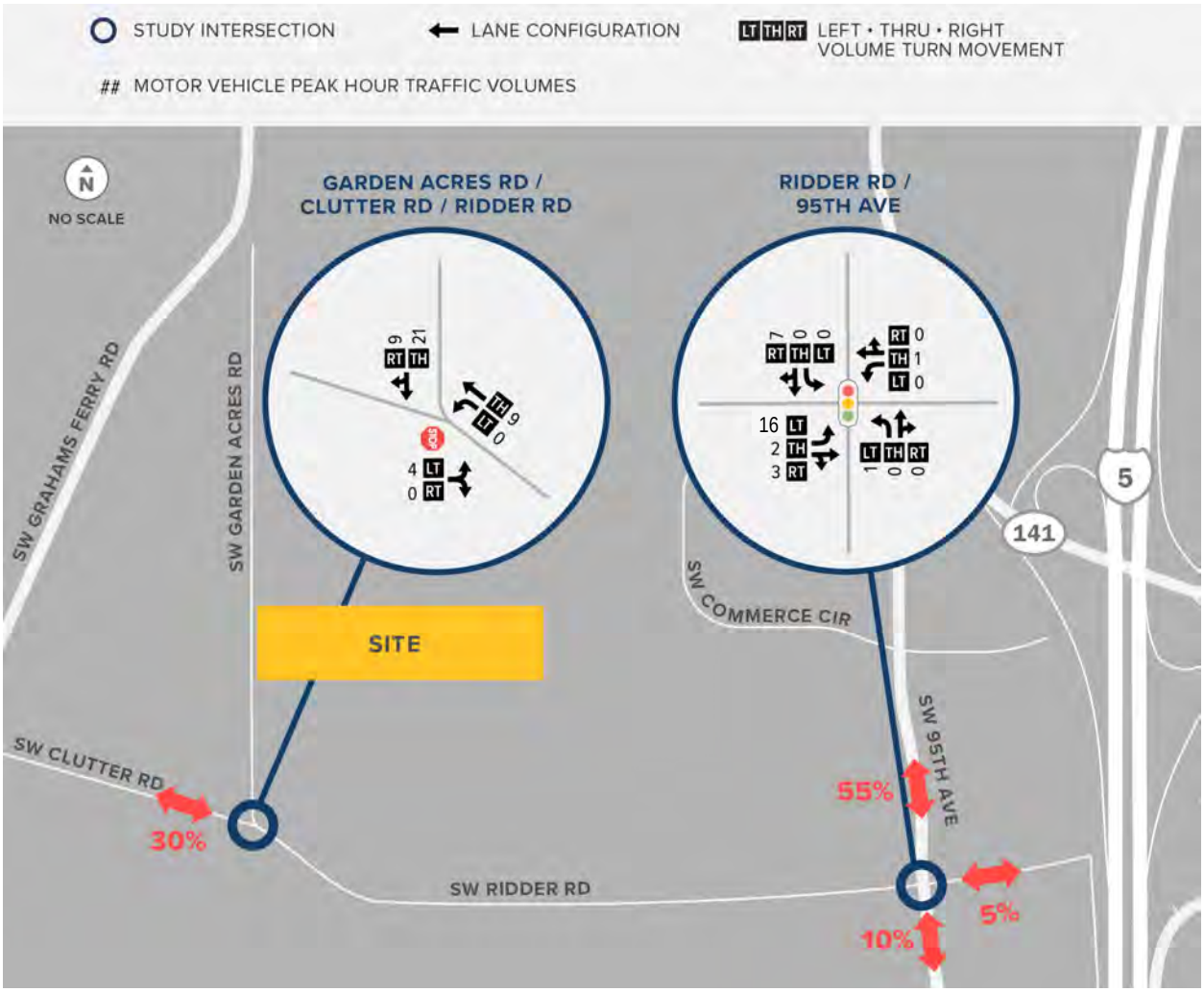

FIGURE 4: TRIP DISTRIBUTION AND PROJECT TRIPS

PROJECT TRIPS THROUGH CITY OF WILSONVILLE INTERCHANGE AREAS

The project trips through the two City of Wilsonville I-5 interchange areas were estimated based on the trip generation and distribution assumptions as discussed prior.

Approximately 5% of the project trips are expected to travel through the I-5/Wilsonville Road interchange area and 45% are expected to travel through the I-5/Elligsen Road interchange area;

[6] Select zone analysis for zone 4146 in 2035 Wilsonville Travel Demand Model.

that is, the proposed development is expected to generate 2 new PM peak hour trips through the I-5/Wilsonville Road interchange area and 19 new PM peak hour trips through the I-5/Elligsen Road interchange area.

FUTURE TRAFFIC VOLUMES

Traffic volumes were estimated at the study intersections for the two future analysis scenarios. The future scenarios include various combinations of three types of traffic: Existing, Project, and Stage II. Stage II development trips are estimated based on the list of currently approved Stage II developments provided by City staff.[7] The Stage II list is included in Appendix D. Figure 3 shows the PM peak hour traffic volumes used to analyze the two future scenarios.

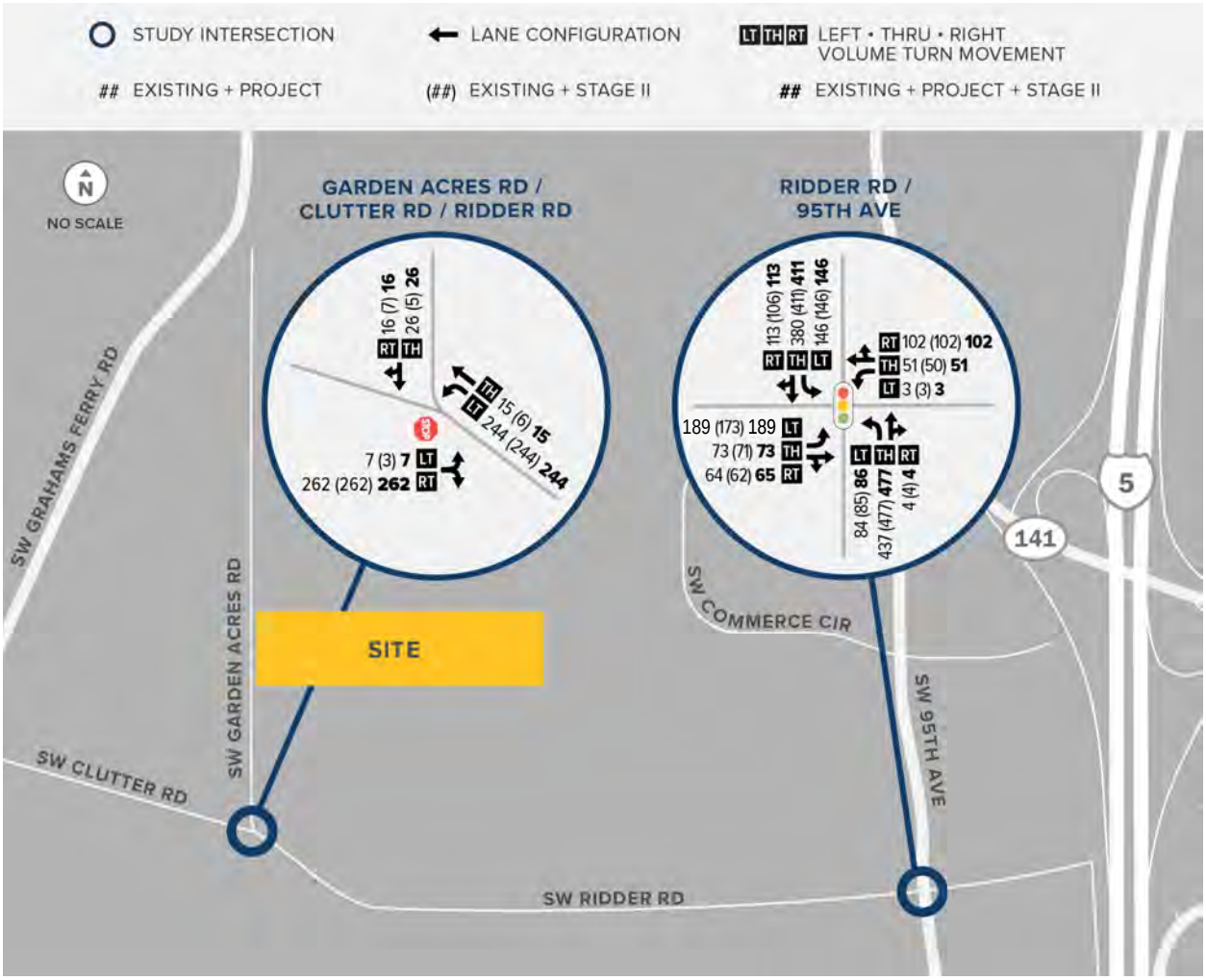

FIGURE 5: FUTURE PM PEAK HOUR TRAFFIC VOLUMES

[7] Email from Daniel Pauly, City of Wilsonville, September 21, 2021.

FUTURE INTERSECTION OPERATIONS

Future operating conditions were analyzed based on the traffic volumes shown in Figure 3. The intersection operations for both future scenarios are shown in Table 5. The HCM reports are provided in Appendices E – G.

TABLE 5: FUTURE INTERSECTION OPERATIONS

INTERSECTION	OPERATING STANDARD	EXISTING + PROJECT PM			EXISTING + STAGE II PM			EXISTING + STAGE II + PROJECT PM		
		V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
UNSIGNALIZED										
SW GARDEN ACRES RD/SW RIDDER RD/SW CLUTTER ST*	LOS D	0.31	10.3	A/B	0.29	9.8	A/A	0.31	10.3	A/B
SIGNALIZED										
SW RIDDER ROAD/SW 95TH AVENUE	LOS D	0.72	21.2	C	0.72	22.0	C	0.74	22.2	C

***TWO-WAY STOP INTERSECTIONS:**
Delay = Average Stopped Delay per Vehicle (sec) at Worst Movement
LOS = Level of Service of Major Street/Minor Street
v/c = Volume-to-Capacity Ratio of Worst Movement

SIGNALIZED INTERSECTION:
Delay = Average Intersection Delay (secs)
v/c = Total Volume-to-Capacity Ratio
LOS = Total Level of Service

As shown, the study intersections are expected to meet the City's operating standard under all future analysis scenarios.

SITE REVIEW

The following sections discuss the site access and sight distance, pedestrian and bicycle facilities, and the parking for the proposed development. The site plan is provided in Appendix H.

SITE ACCESSES

The site plan shows two new proposed site access points on SW Garden Acres Road, which will be full-movement access points (no turn restrictions). The driveways are located at the northern and southern ends of the site and are spaced approximately 250 feet apart measured center-to-center. Based on the site plan, the northern access will eventually be removed and shared with the adjacent property owner via with the future Java Road street extension to Grahams Ferry Road (Wilsonville TSP Project #RE-13).

The proposed access points on SW Garden Acres Road are required to meet the City's public works construction standards.[8] The minimum access spacing standard for an access on a minor arterial is 600 feet, but the desired spacing is 1,000 feet. Based on the City's access spacing standards, one of the two accesses will need to be removed or a variance to the City access spacing standards will

[8] Table 2.12 Public Works Construction Standards, City of Wilsonville, Revised September 2017.

be required. The secondary access may be feasible in the future via a cross access agreement and shared access with the adjacent property owner.

SIGHT DISTANCE

With a worst case assumed design speed of 40 miles per hour (for future minor arterial function), the sight distance requirement along SW Garden Acres Road is 280 feet for vehicles turning left from the minor roadway and 240 feet for vehicles turning right from the minor roadway.[9] Preliminary sight distance was evaluated at the southern staff driveway location on SW Garden Acres Road. The driveway location was found to be sufficient to meet the stated requirements.

Prior to occupancy, sight distance at any new or modified access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.

PEDESTRIAN AND BICYCLE FACILITIES

As stated earlier, there are existing marked bicycle lanes on SW 95th Avenue. Sidewalks currently exist on SW Ridder Road and SW 95th Avenue. No sidewalks currently exist on Clutter Street. Sidewalks and a two-way cycle track were recently built on the east side of SW Garden Acres Road. No additional frontage improvements will be required on Garden Acres Road other than the modifications to the site driveways.

On-site, the preliminary plan shows sidewalks between parking areas and the nearest entrance, and the western entrance includes an entry plaza.

FIGURE 6: RECENTLY BUILT SIDEWALK AND CYCLE TRACK (EAST SIDE)

PARKING

The proposed project is required to comply with the City code for the number of vehicular parking stalls and bicycle parking spaces that are provided on site.[10] Table 6 lists the vehicular and bicycle parking requirements for the project site. The parking requirements are based on the building use and size.

[9] American Association of State Highway and Transportation Officials (AASHTO), 2018, Table 9-7 and 9-9.

[10] Wilsonville Development Code, Section 4.155, Table 5, updated October 2019.

TABLE 6: VEHICLE AND BICYCLE PARKING REQUIREMENTS

LAND USE	SIZE (KSF)	MINIMUM RATE	MAXIMUM RATE	SPACES REQUIRED BY CODE		
				VEHICLE MINIMUM	VEHICLE MAXIMUM	BICYCLE MINIMUM
MANUFACTURING	18.0	1.6 stalls/KSF	No Limit	29	No Limit	2
OFFICE	7.8	2.7 stalls/KSF	4.1 stalls/KSF	21	32	3
RETAIL (SHOWROOM)	3.0	1.67 stalls/KSF	6.2 stalls/KSF	5	19	1
WAREHOUSE/STORAGE	37.0	0.3 stalls/KSF	0.5 stalls/KSF	11	19	2
TOTAL BUILDING	**65.8**	-	-	**66**	**No Limit**	**8**
PROPOSED NUMBER OF STALLS				**67**		**12**

As shown above, 66 vehicular parking stalls are needed to meet the minimum Code requirements for the project. The site plan proposes 67 vehicular parking stalls, meeting the requirements.

The City code requires a minimum of 8 bicycle parking spaces for the site. The site plans propose 12 bicycle parking spaces, meeting the minimum.

SUMMARY OF PROJECT IMPACTS

The key findings of the transportation impact study for the Precision Countertops development are discussed below.

- The project will consist of approximately 65,800 square-feet of space used for countertop fabrication, countertop storage, a showroom, and office space. The building will be occupied by a single user, Precision Countertops.
- The proposed development is expected to generate 43 new PM peak hour trips (13 in, 30 out).
- Of those project trips, 2 new trips are expected to travel through the I-5/Wilsonville Road interchange area and 19 new trips are expected to travel through the I-5/Elligsen Road interchange area.
- The traffic operations at the three study intersections are expected to operate within the City's LOS D standard under project build conditions.
- Based on the City's access spacing standards, one of the two accesses on Garden Acres Road will need to be removed or a variance to the City access spacing standards will be required. The secondary access may be feasible in the future via cross access agreement and shared access with the adjacent property owner.

- Prior to occupancy, sight distance at the proposed project access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.
- The proposed vehicle and bicycle parking stalls shown on the site plan are sufficient to meet the City's parking requirements.

APPENDIX

CONTENTS

DKS

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APPENDIX A.

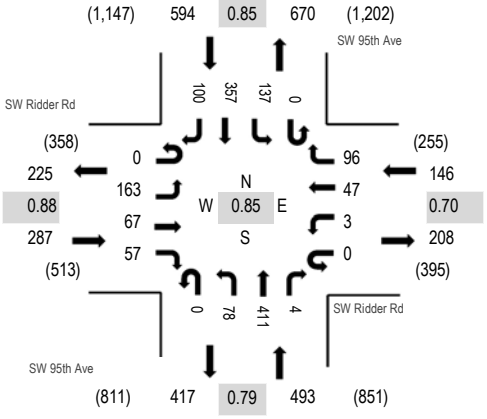
TRAFFIC COUNT DATA

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

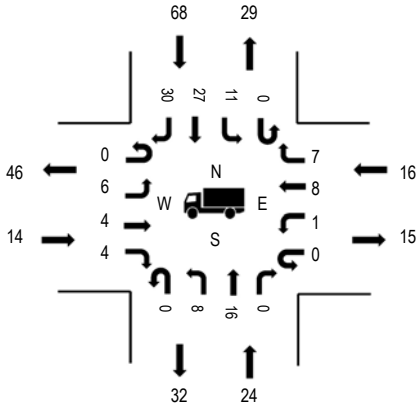
Location: 1 SW 95th Ave & SW Ridder Rd PM
Date: Tuesday, September 28, 2021
Study Peak Hour: 04:25 PM - 05:25 PM
Peak 15-Minutes in Study Peak Hour: 05:05 PM - 05:20 PM

Study Peak Hour (for all study intersections)

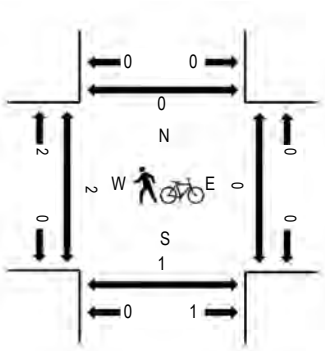
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	4.9%	0.88
WB	11.0%	0.70
NB	4.9%	0.79
SB	11.4%	0.85
All	8.0%	0.85

Traffic Counts - Motorized Vehicles

Interval Start Time	SW Ridder Rd Eastbound				SW Ridder Rd Westbound				SW 95th Ave Northbound				SW 95th Ave Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	16	2	4	0	0	3	11	0	4	30	1	0	16	33	10	130	1,396
4:05 PM	0	8	7	1	0	0	2	6	0	10	41	0	0	12	27	4	118	1,383
4:10 PM	0	22	4	4	0	0	4	7	0	6	26	1	0	6	22	4	106	1,444
4:15 PM	0	8	6	3	0	0	5	4	0	5	26	1	0	16	34	4	112	1,489
4:20 PM	0	16	5	3	0	0	3	5	0	2	25	0	0	10	23	6	98	1,493
4:25 PM	0	9	4	8	0	0	5	4	0	4	29	0	0	17	26	6	112	1,520
4:30 PM	0	22	2	7	0	0	3	5	0	2	26	1	0	7	33	8	116	1,509
4:35 PM	0	21	5	4	0	0	6	7	0	9	45	0	0	14	16	15	142	1,493
4:40 PM	0	6	10	5	0	0	5	8	0	6	38	0	0	15	27	9	129	1,466
4:45 PM	0	13	7	5	0	1	3	4	0	7	26	0	0	8	27	3	104	1,436
4:50 PM	0	18	3	5	0	0	0	6	0	8	29	1	0	12	33	5	120	1,426
4:55 PM	0	14	5	5	0	0	5	8	0	6	26	0	0	8	24	8	109	1,385
5:00 PM	0	10	8	2	0	0	2	8	0	5	26	0	0	12	37	7	117	1,370
5:05 PM	0	14	11	3	0	0	5	15	0	14	62	1	0	9	35	10	179	
5:10 PM	0	10	6	2	0	2	5	12	0	9	39	1	0	17	35	13	151	
5:15 PM	0	15	3	3	0	0	3	10	0	6	25	0	0	11	31	9	116	
5:20 PM	0	11	3	8	0	0	5	9	0	2	40	0	0	7	33	7	125	
5:25 PM	0	10	5	3	0	0	3	8	0	1	24	0	0	14	29	4	101	
5:30 PM	0	18	2	3	0	1	3	7	0	2	16	1	0	14	28	5	100	
5:35 PM	0	13	4	8	0	0	1	5	0	1	26	0	0	14	38	5	115	
5:40 PM	0	11	3	2	0	0	2	0	0	2	29	0	0	10	37	3	99	
5:45 PM	0	6	2	3	0	0	1	8	0	4	19	0	0	10	33	8	94	
5:50 PM	0	4	3	2	0	0	3	7	0	1	29	0	0	8	17	5	79	
5:55 PM	0	11	3	1	0	1	2	7	0	2	23	0	0	7	34	3	94	
Count Total	0	306	113	94	0	5	79	171	0	118	725	8	0	274	712	161	2,766	
Peak Hour	0	163	67	57	0	3	47	96	0	78	411	4	0	137	357	100	1,520	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

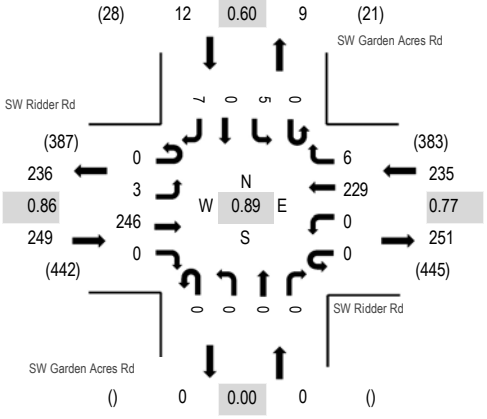
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	4	0	5	9	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	1	5	2	3	11	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	3	7	0	3	13	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	1	5	0	8	14	4:15 PM	0	0	0	0	0	4:15 PM	0	0	1	0	1
4:20 PM	1	1	0	4	6	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	3	2	8	13	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	1	3	0	3	7	4:30 PM	0	0	0	0	0	4:30 PM	0	1	0	0	1
4:35 PM	0	1	2	8	11	4:35 PM	0	1	0	0	1	4:35 PM	0	0	0	0	0
4:40 PM	1	2	2	8	13	4:40 PM	0	0	0	1	1	4:40 PM	0	0	0	0	0
4:45 PM	3	1	0	3	7	4:45 PM	0	0	0	1	1	4:45 PM	2	0	0	0	2
4:50 PM	4	5	1	9	19	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	1	1	1	3	6	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	3	0	4	7	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	3	2	1	6	12	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	1	1	6	8	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	1	3	2	6	5:15 PM	0	0	0	1	1	5:15 PM	0	0	0	0	0
5:20 PM	1	1	3	8	13	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	1	1	1	3	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	1	3	1	3	8	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	1	0	1	3	5	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	1	2	0	3	6	5:40 PM	0	1	0	0	1	5:40 PM	0	0	2	0	2
5:45 PM	0	0	1	1	2	5:45 PM	0	1	0	0	1	5:45 PM	0	0	2	0	2
5:50 PM	1	0	1	2	4	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	1	0	5	6	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	24	53	23	109	209	Count Total	0	3	0	3	6	Count Total	2	1	5	0	8
Peak Hour	14	24	16	68	122	Peak Hour	0	1	0	3	4	Peak Hour	2	1	0	0	3

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

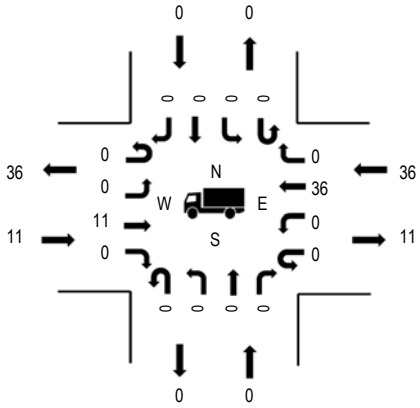
Location: 2 SW Garden Acres Rd & SW Ridder Rd PM
Date: Tuesday, September 28, 2021
Study Peak Hour: 04:25 PM - 05:25 PM
Peak 15-Minutes in Study Peak Hour: 05:05 PM - 05:20 PM

Study Peak Hour (for all study intersections)

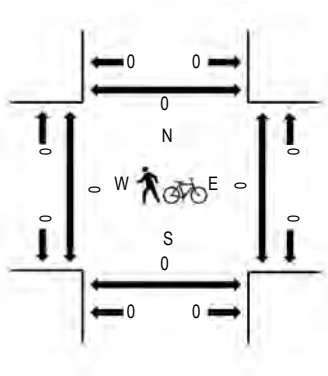
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	4.4%	0.86
WB	15.3%	0.77
NB	0.0%	0.00
SB	0.0%	0.60
All	9.5%	0.89

Traffic Counts - Motorized Vehicles

Interval Start Time	SW Ridder Rd Eastbound				SW Ridder Rd Westbound				SW Garden Acres Rd Northbound				SW Garden Acres Rd Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	2	19	0	0	0	13	2	0	0	0	0	0	1	0	1	38	475
4:05 PM	0	0	20	0	0	0	18	0	0	0	0	0	0	0	0	0	38	469
4:10 PM	0	0	21	0	0	0	13	0	0	0	0	0	0	0	0	0	34	489
4:15 PM	0	0	16	0	0	0	13	3	0	0	0	0	0	0	0	2	34	495
4:20 PM	0	0	18	0	0	0	13	0	0	0	0	0	0	0	0	1	32	498
4:25 PM	0	0	19	0	0	0	18	0	0	0	0	0	0	2	0	1	40	496
4:30 PM	0	1	21	0	0	0	17	1	0	0	0	0	0	0	0	1	41	489
4:35 PM	0	0	25	0	0	0	25	1	0	0	0	0	0	0	0	1	52	483
4:40 PM	0	1	24	0	0	0	20	0	0	0	0	0	0	2	0	0	47	457
4:45 PM	0	0	14	0	0	0	13	0	0	0	0	0	0	0	0	1	28	436
4:50 PM	0	0	23	0	0	0	18	2	0	0	0	0	0	0	0	0	43	426
4:55 PM	0	1	26	0	0	0	19	0	0	0	0	0	0	0	0	2	48	408
5:00 PM	0	0	18	0	0	0	13	0	0	0	0	0	0	1	0	0	32	378
5:05 PM	0	0	27	0	0	0	31	0	0	0	0	0	0	0	0	0	58	
5:10 PM	0	0	15	0	0	0	25	0	0	0	0	0	0	0	0	0	40	
5:15 PM	0	0	17	0	0	0	19	1	0	0	0	0	0	0	0	0	37	
5:20 PM	0	0	17	0	0	0	11	1	0	0	0	0	0	0	0	1	30	
5:25 PM	0	0	19	0	0	0	12	0	0	0	0	0	0	0	0	2	33	
5:30 PM	0	0	20	0	0	0	10	2	0	0	0	0	0	1	0	2	35	
5:35 PM	0	0	17	0	0	0	8	0	0	0	0	0	0	0	0	1	26	
5:40 PM	0	0	15	0	0	0	9	1	0	0	0	0	0	1	0	0	26	
5:45 PM	0	0	4	0	0	0	10	2	0	0	0	0	0	0	0	2	18	
5:50 PM	0	0	14	0	0	0	9	0	0	0	0	0	0	0	0	2	25	
5:55 PM	0	0	8	0	0	0	10	0	0	0	0	0	0	0	0	0	18	
Count Total	0	5	437	0	0	0	367	16	0	0	0	0	0	8	0	20	853	
Peak Hour	0	3	246	0	0	0	229	6	0	0	0	0	0	5	0	7	496	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	2	0	2	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	2	0	0	0	2	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	2	0	2	0	4	4:10 PM	0	0	0	0	0	4:10 PM	2	0	0	0	2
4:15 PM	0	0	3	0	3	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	0	3	0	3	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	3	0	3	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	2	0	4	0	6	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	1	0	4	0	5	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	1	0	4	0	5	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	2	0	1	0	3	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	1	0	5	0	6	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	2	0	3	0	5	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	1	0	3	0	4	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	0	5	0	5	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	0	2	0	2	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	2	0	2	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	1	0	0	0	1	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	1	0	2	0	3	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	0	1	0	1	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	1	0	1	0	2	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0	5:40 PM	0	0	2	0	2
5:45 PM	0	0	1	0	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	2	0	2
5:50 PM	1	0	1	0	2	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	2	0	2	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	18	0	54	0	72	Count Total	0	0	0	0	0	Count Total	2	0	4	0	6
Peak Hour	11	0	36	0	47	Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0

APPENDIX B

LOS DESCRIPTION

TRAFFIC LEVELS OF SERVICE

Analysis of traffic volumes is useful in understanding the general nature of traffic in an area, but by itself indicates neither the ability of the street network to carry additional traffic nor the quality of service afforded by the street facilities. For this, the concept of level of service has been developed to subjectively describe traffic performance. Level of service can be measured at intersections and along key roadway segments.

Levels of service categories are similar to report card ratings for traffic performance. Intersections are typically the controlling bottlenecks of traffic flow and the ability of a roadway system to carry traffic efficiently is generally diminished in their vicinities. Levels of Service A, B and C indicate conditions where traffic moves without significant delays over periods of peak travel demand. Level of service D and E are progressively worse peak hour operating conditions and F conditions represent where demand exceeds the capacity of an intersection. Most urban communities set level of service D as the minimum acceptable level of service for peak hour operation and plan for level of service C or better for all other times of the day. The Highway Capacity Manual provides level of service calculation methodology for both intersections and arterials[1]. The following two sections provide interpretations of the analysis approaches.

[1] *2000 Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2000, Chapter 16 and 17.

UNSIGNALIZED INTERSECTIONS (Two-Way Stop Controlled)

Unsignalized intersection level of service is reported for the major street and minor street (generally, left turn movements). The method assesses available and critical gaps in the traffic stream which make it possible for side street traffic to enter the main street flow. The 2010 Highway Capacity Manual describes the detailed methodology. It is not unusual for an intersection to experience level of service E or F conditions for the minor street left turn movement. It should be understood that, often, a poor level of service is experienced by only a few vehicles and the intersection as a whole operates acceptably.

Unsignalized intersection levels of service are described in the following table.

Level-of-Service Criteria: Automobile Mode

Control Delay (s/vehicle)	**LOS by Volume-to-Capacity Ratio**	
	***v/c* ≤ 1.0**	***v/c* > 1.0**
0-10	A	F
>10-15	B	F
>15-25	C	F
>25-35	D	F
>35-50	E	F
>50	F	F

Note: The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole

SIGNALIZED INTERSECTIONS

For signalized intersections, level of service is evaluated based upon average vehicle delay experienced by vehicles entering an intersection. Control delay (or signal delay) includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. In previous versions of this chapter of the HCM (1994 and earlier), delay included only stopped delay. As delay increases, the level of service decreases. Calculations for signalized and unsignalized intersections are different due to the variation in traffic control. The 2000 Highway Capacity Manual provides the basis for these calculations.

Level of Service	Delay (secs.)	Description
A	<10.00	**Free Flow/Insignificant Delays:** No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Most vehicles do not stop at all. Progression is extremely favorable and most vehicles arrive during the green phase.
B	10.1-20.0	**Stable Operation/Minimal Delays:** An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles. This level generally occurs with good progression, short cycle lengths, or both.
C	20.1-35.0	**Stable Operation/Acceptable Delays:** Major approach phases fully utilized. Most drivers feel somewhat restricted. Higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, and the number of vehicles stopping is significant.
D	35.1-55.0	**Approaching Unstable/Tolerable Delays:** The influence of congestion becomes more noticeable. Drivers may have to wait through more than one red signal indication. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. The proportion of vehicles not stopping declines, and individual cycle failures are noticeable.
E	55.1-80.0	**Unstable Operation/Significant Delays:** Volumes at or near capacity. Vehicles may wait though several signal cycles. Long queues form upstream from intersection. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are a frequent occurrence.
F	>80.0	**Forced Flow/Excessive Delays:** Represents jammed conditions. Queues may block upstream intersections. This level occurs when arrival flow rates exceed intersection capacity, and is considered to be unacceptable to most drivers. Poor progression, long cycle lengths, and v/c ratios approaching 1.0 may contribute to these high delay levels.

Source: *2000 Highway Capacity Manual*, Transportation Research Board, Washington D.C.

APPENDIX C

HCM REPORT – EXISTING CONDITIONS

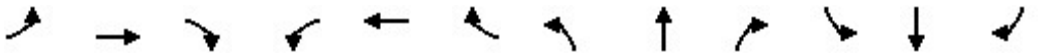
Intersection	
Int Delay, s/veh	8.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	262	244	6	5	7
Future Vol, veh/h	3	262	244	6	5	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	4	17	0	0	0
Mvmt Flow	3	294	274	7	6	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	565	10	14	0	-	0
Stage 1	10	-	-	-	-	-
Stage 2	555	-	-	-	-	-
Critical Hdwy	6.4	6.24	4.27	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.336	2.353	-	-	-
Pot Cap-1 Maneuver	490	1066	1512	-	-	-
Stage 1	1018	-	-	-	-	-
Stage 2	579	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	401	1066	1512	-	-	-
Mov Cap-2 Maneuver	401	-	-	-	-	-
Stage 1	834	-	-	-	-	-
Stage 2	579	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	7.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1512	-	1046	-	-
HCM Lane V/C Ratio	0.181	-	0.285	-	-
HCM Control Delay (s)	7.9	-	9.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.7	-	1.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	173	71	61	3	50	102	83	437	4	146	380	106
Future Volume (veh/h)	173	71	61	3	50	102	83	437	4	146	380	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1811	1796	1411	1648	1796	1752	1841	1900	1781	1781	1455
Adj Flow Rate, veh/h	204	84	72	4	59	120	98	514	5	172	447	125
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	4	6	7	33	17	7	10	4	0	8	8	30
Cap, veh/h	346	237	203	283	76	154	263	654	6	342	527	147
Arrive On Green	0.11	0.27	0.27	0.00	0.16	0.16	0.05	0.36	0.36	0.09	0.39	0.39
Sat Flow, veh/h	1753	894	766	1344	484	984	1668	1819	18	1697	1339	375
Grp Volume(v), veh/h	204	0	156	4	0	179	98	0	519	172	0	572
Grp Sat Flow(s),veh/h/ln	1753	0	1660	1344	0	1467	1668	0	1837	1697	0	1714
Q Serve(g_s), s	6.8	0.0	5.4	0.2	0.0	8.3	2.4	0.0	17.8	4.4	0.0	21.5
Cycle Q Clear(g_c), s	6.8	0.0	5.4	0.2	0.0	8.3	2.4	0.0	17.8	4.4	0.0	21.5
Prop In Lane	1.00		0.46	1.00		0.67	1.00		0.01	1.00		0.22
Lane Grp Cap(c), veh/h	346	0	440	283	0	229	263	0	660	342	0	675
V/C Ratio(X)	0.59	0.00	0.35	0.01	0.00	0.78	0.37	0.00	0.79	0.50	0.00	0.85
Avail Cap(c_a), veh/h	346	0	634	429	0	560	361	0	961	384	0	896
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.0	0.0	21.1	19.1	0.0	28.7	15.2	0.0	20.2	14.8	0.0	19.5
Incr Delay (d2), s/veh	2.3	0.0	0.4	0.0	0.0	4.3	0.6	0.0	4.8	0.9	0.0	8.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	2.0	0.0	0.0	3.0	0.9	0.0	7.7	1.6	0.0	9.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.2	0.0	21.4	19.2	0.0	33.0	15.8	0.0	25.0	15.7	0.0	27.6
LnGrp LOS	C	A	C	B	A	C	B	A	C	B	A	C
Approach Vol, veh/h		360			183			617			744	
Approach Delay, s/veh		23.0			32.7			23.6			24.9	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	32.8	13.0	16.1	11.3	30.4	5.3	23.8
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	8.0	37.0	8.0	27.0	8.0	37.0	8.0	27.0
Max Q Clear Time (g_c+I1), s	4.4	23.5	8.8	10.3	6.4	19.8	2.2	7.4
Green Ext Time (p_c), s	0.1	4.4	0.0	0.5	0.1	4.3	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

APPENDIX D

STAGE II LIST

Updated by D. Pauly 09.21.2021

Stage II Approved

Project	Land Use	Status	Size	Total PM Peak Trips	Trip Allocation Percentage		Net New (Primary + Diverted) PM Peak Hour Trips not yet active		
					Internal	Pass-By	In	Out	Total
Hydro-Temp: Recent agreement with the City, the project is vested and so are the traffic trips	Office/Flex-Space	Not built	60.8 KSF				44	46	90
Mercedes Benz (Phase 2)	Auto Dealership	Not built					20	26	46
Shredding Systems (SQFT does not including paint canopy and another canopy)	Industrial/Commercial	Under construction	66.8 KSF				20	46	66
Town Center Ph III *and trip dedication to Miller Paint store Uses marked with "*" have not been built and PM peak hr trip sum exceeds remaining vested trip level by 2 trips. It has yet to be determined how to allocate trips between remaining buildings.*	*High Turnover Restaurant (Pad 1)	Not built	7.5 KSF				24	17	47*
	Remaining Approved Total								47
Wilsonville Road Business Park Phase II	Phase 2 - office (2-story building on west parcel)	Partially Built	21.7 KSF				15	71	86
Frog Pond-Stafford Meadows (Phase 2 and 3a of 10/18 study)	Residential	Partially Built, 24 homes built and occupied	46 units				12	10	22
Frog Pond-Frog Pond Meadows (Phase 3B, 4A, 4B of 10/18 Study)	Residential	Partially Built, 3 homes built and occupied	74 units				44	27	71
Frog Pond Ridge	Residential	ruction, no homes built	71 units				43	28	71
Frog Pond-Morgan Farm	Residential	Partially Built, 38 homes built and occupied	80 units				28	14	42
Fir Avenue Commons	Residential	Partially Built, 2 homes built and occupied	10 units				6	2	8
Magnolia Townhomes	Residential	Under construction	6 units				3	2	5
Aspen Meadows II	Residential	Under construction, no homes sold and occupied	5 units				2	3	5
Canyon Creek III	Residential	Approved	5 units (traffic study was for 11)				2	3	5
Coffee Creek Logistics	Industrial/Commercial	Under construction	115K				16	41	57

Stage II Approved – Villebois

Project	Phase	Status	Land Use					Total PM Peak Trips	Trip Allocation Percentage		Net New (Primary + Diverted) PM Peak Hour Trips not yet active		
			SF	Town.	Apt.	Retail	School		Internal	Pass-By	In	Out	Total
North (Entirety)	Residential	Partially built, 364 homes sold and occupied	466								65	37	102
Central	Residential	Partially Built, 735 homes (102 single family, 319 condo/row homes, 365 apartments) occupied	102	391	365	8.5 KSF					30	13	43

Pending Projects for Which Traffic Analysis has been completed (except Villebois)

Project	Land Use	Status	Size	Total PM Peak	Trip Allocation Percentage			Net New (Primary) PM Peak Hour Trips		
					Internal	Pass-By	Diverted	In	Out	Total
PW Complex on Boberg	Public	under review	15,800 office, 17,900 warehouse					11	39	50
DAS North Valley Complex	Public/Industrial	under review	174,700 sf					5	15	20
Frog Pond Crossing								19	9	28
Boones Ferry Gas Station/Convenience Store	Commercial	under review	3,460 sf store, 12 gas pumps	240		134		53	53	106

APPENDIX E

HCM REPORT – EXISTNG + PROJECT

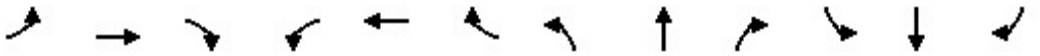
Intersection	
Int Delay, s/veh	8.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	262	244	15	26	16
Future Vol, veh/h	7	262	244	15	26	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	4	17	0	0	0
Mvmt Flow	8	294	274	17	29	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	603	38	47	0	-	0
Stage 1	38	-	-	-	-	-
Stage 2	565	-	-	-	-	-
Critical Hdwy	6.4	6.24	4.27	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.336	2.353	-	-	-
Pot Cap-1 Maneuver	465	1028	1469	-	-	-
Stage 1	990	-	-	-	-	-
Stage 2	573	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	378	1028	1469	-	-	-
Mov Cap-2 Maneuver	378	-	-	-	-	-
Stage 1	805	-	-	-	-	-
Stage 2	573	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.3	7.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1469	-	984	-	-
HCM Lane V/C Ratio	0.187	-	0.307	-	-
HCM Control Delay (s)	8	-	10.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.7	-	1.3	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	73	64	3	51	102	84	437	4	146	380	113
Future Volume (veh/h)	190	73	64	3	51	102	84	437	4	146	380	113
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1811	1796	1411	1648	1796	1752	1841	1900	1781	1781	1455
Adj Flow Rate, veh/h	224	86	37	4	60	24	99	514	4	172	447	121
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	4	6	7	33	17	7	10	4	0	8	8	30
Cap, veh/h	397	264	114	273	110	44	291	672	5	368	544	147
Arrive On Green	0.13	0.22	0.22	0.00	0.10	0.10	0.06	0.37	0.37	0.09	0.40	0.40
Sat Flow, veh/h	1753	1195	514	1344	1118	447	1668	1824	14	1697	1350	365
Grp Volume(v), veh/h	224	0	123	4	0	84	99	0	518	172	0	568
Grp Sat Flow(s),veh/h/ln	1753	0	1710	1344	0	1565	1668	0	1838	1697	0	1716
Q Serve(g_s), s	7.2	0.0	3.8	0.1	0.0	3.2	2.2	0.0	15.7	3.9	0.0	18.7
Cycle Q Clear(g_c), s	7.2	0.0	3.8	0.1	0.0	3.2	2.2	0.0	15.7	3.9	0.0	18.7
Prop In Lane	1.00		0.30	1.00		0.29	1.00		0.01	1.00		0.21
Lane Grp Cap(c), veh/h	397	0	378	273	0	154	291	0	677	368	0	692
V/C Ratio(X)	0.56	0.00	0.33	0.01	0.00	0.54	0.34	0.00	0.76	0.47	0.00	0.82
Avail Cap(c_a), veh/h	397	0	731	438	0	669	410	0	1076	430	0	1005
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.8	0.0	20.7	19.1	0.0	27.1	13.0	0.0	17.5	12.8	0.0	16.8
Incr Delay (d2), s/veh	1.6	0.0	0.4	0.0	0.0	2.2	0.5	0.0	3.9	0.7	0.0	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	1.4	0.0	0.0	1.2	0.7	0.0	6.5	1.3	0.0	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	0.0	21.0	19.2	0.0	29.3	13.5	0.0	21.4	13.4	0.0	22.8
LnGrp LOS	C	A	C	B	A	C	B	A	C	B	A	C
Approach Vol, veh/h		347			88			617			740	
Approach Delay, s/veh		22.6			28.9			20.1			20.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	30.5	13.0	11.2	10.7	28.3	5.3	19.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	8.0	37.0	8.0	27.0	8.0	37.0	8.0	27.0
Max Q Clear Time (g_c+I1), s	4.2	20.7	9.2	5.2	5.9	17.7	2.1	5.8
Green Ext Time (p_c), s	0.1	4.8	0.0	0.2	0.1	4.5	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	21.2
HCM 6th LOS	C

APPENDIX F

HCM REPORT – EXISTNG + STAGE II

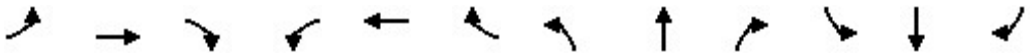
Intersection	
Int Delay, s/veh	8.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	262	244	6	5	7
Future Vol, veh/h	3	262	244	6	5	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	4	17	0	0	0
Mvmt Flow	3	294	274	7	6	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	565	10	14	0	-	0
Stage 1	10	-	-	-	-	-
Stage 2	555	-	-	-	-	-
Critical Hdwy	6.4	6.24	4.27	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.336	2.353	-	-	-
Pot Cap-1 Maneuver	490	1066	1512	-	-	-
Stage 1	1018	-	-	-	-	-
Stage 2	579	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	401	1066	1512	-	-	-
Mov Cap-2 Maneuver	401	-	-	-	-	-
Stage 1	834	-	-	-	-	-
Stage 2	579	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	7.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1512	-	1046	-	-
HCM Lane V/C Ratio	0.181	-	0.285	-	-
HCM Control Delay (s)	7.9	-	9.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.7	-	1.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	173	71	62	3	50	102	85	477	4	146	411	106
Future Volume (veh/h)	173	71	62	3	50	102	85	477	4	146	411	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1811	1796	1411	1648	1796	1752	1841	1900	1781	1781	1455
Adj Flow Rate, veh/h	204	84	35	4	59	22	100	561	4	172	484	116
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	4	6	7	33	17	7	10	4	0	8	8	30
Cap, veh/h	388	260	108	267	110	41	283	702	5	349	580	139
Arrive On Green	0.12	0.22	0.22	0.00	0.10	0.10	0.05	0.38	0.38	0.09	0.42	0.42
Sat Flow, veh/h	1753	1208	503	1344	1143	426	1668	1825	13	1697	1389	333
Grp Volume(v), veh/h	204	0	119	4	0	81	100	0	565	172	0	600
Grp Sat Flow(s),veh/h/ln	1753	0	1712	1344	0	1569	1668	0	1838	1697	0	1722
Q Serve(g_s), s	6.7	0.0	3.8	0.2	0.0	3.2	2.2	0.0	17.7	3.9	0.0	20.2
Cycle Q Clear(g_c), s	6.7	0.0	3.8	0.2	0.0	3.2	2.2	0.0	17.7	3.9	0.0	20.2
Prop In Lane	1.00		0.29	1.00		0.27	1.00		0.01	1.00		0.19
Lane Grp Cap(c), veh/h	388	0	368	267	0	151	283	0	707	349	0	719
V/C Ratio(X)	0.53	0.00	0.32	0.01	0.00	0.54	0.35	0.00	0.80	0.49	0.00	0.83
Avail Cap(c_a), veh/h	388	0	713	427	0	653	398	0	1049	410	0	982
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.5	0.0	21.5	19.9	0.0	27.9	13.2	0.0	17.7	13.1	0.0	16.9
Incr Delay (d2), s/veh	1.0	0.0	0.4	0.0	0.0	2.2	0.6	0.0	4.9	0.8	0.0	6.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	1.4	0.0	0.0	1.2	0.7	0.0	7.5	1.3	0.0	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.5	0.0	21.8	19.9	0.0	30.1	13.8	0.0	22.6	13.9	0.0	23.6
LnGrp LOS	C	A	C	B	A	C	B	A	C	B	A	C
Approach Vol, veh/h		323			85			665			772	
Approach Delay, s/veh		22.9			29.7			21.3			21.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	32.1	13.0	11.2	10.7	29.9	5.3	19.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	8.0	37.0	8.0	27.0	8.0	37.0	8.0	27.0
Max Q Clear Time (g_c+I1), s	4.2	22.2	8.7	5.2	5.9	19.7	2.2	5.8
Green Ext Time (p_c), s	0.1	4.9	0.0	0.2	0.1	4.8	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	22.0
HCM 6th LOS	C

APPENDIX G

HCM REPORT – EXISTNG + PROJECT + STAGE II

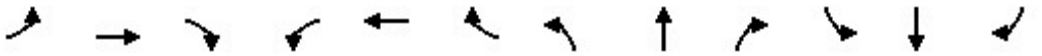
Intersection	
Int Delay, s/veh	8.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	262	244	15	26	16
Future Vol, veh/h	7	262	244	15	26	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	4	17	0	0	0
Mvmt Flow	8	294	274	17	29	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	603	38	47	0	-	0
Stage 1	38	-	-	-	-	-
Stage 2	565	-	-	-	-	-
Critical Hdwy	6.4	6.24	4.27	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.336	2.353	-	-	-
Pot Cap-1 Maneuver	465	1028	1469	-	-	-
Stage 1	990	-	-	-	-	-
Stage 2	573	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	378	1028	1469	-	-	-
Mov Cap-2 Maneuver	378	-	-	-	-	-
Stage 1	805	-	-	-	-	-
Stage 2	573	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.3	7.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1469	-	984	-	-
HCM Lane V/C Ratio	0.187	-	0.307	-	-
HCM Control Delay (s)	8	-	10.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.7	-	1.3	-	-



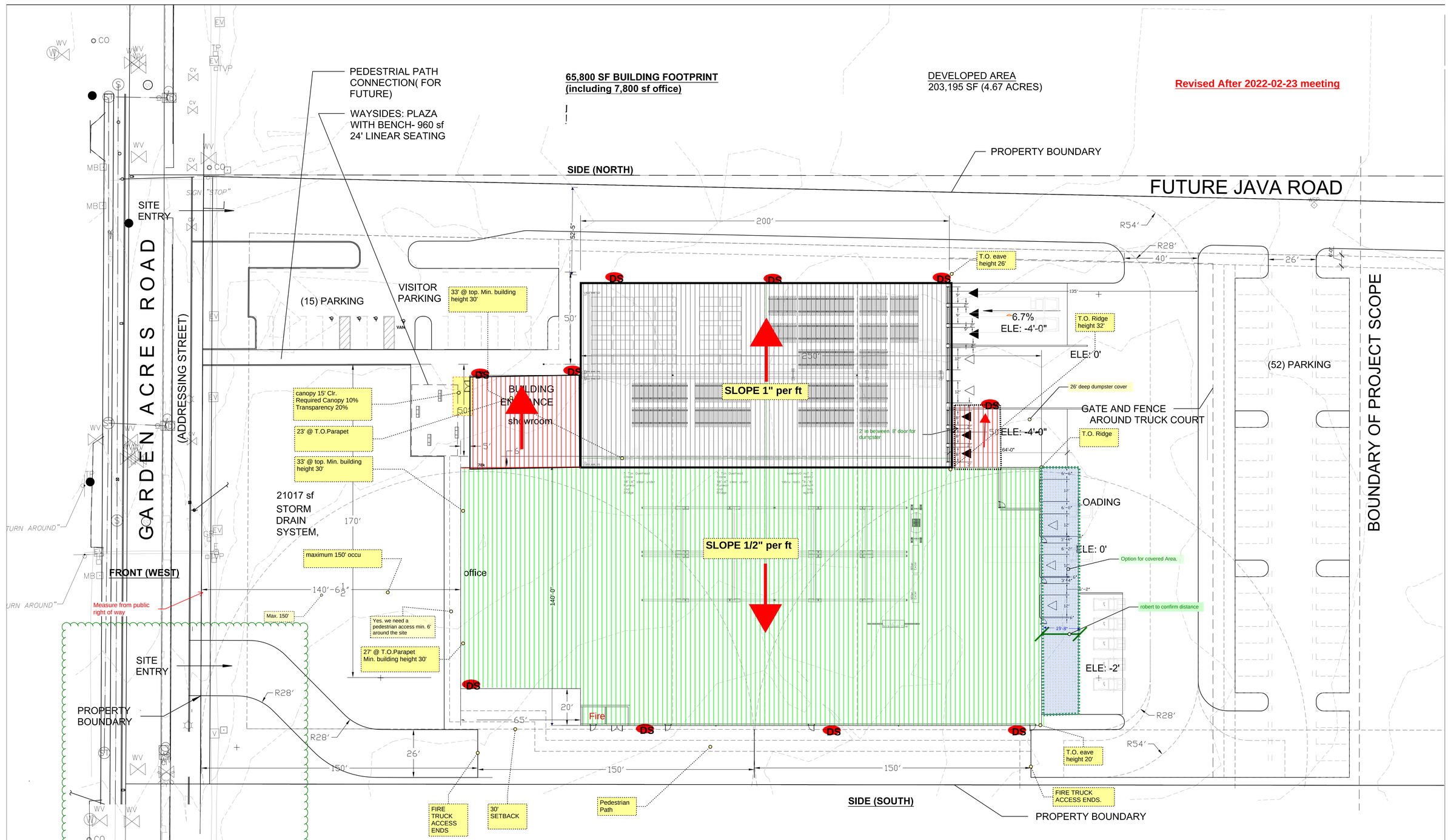
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	73	65	3	51	102	86	477	4	146	411	113
Future Volume (veh/h)	190	73	65	3	51	102	86	477	4	146	411	113
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1811	1796	1411	1648	1796	1752	1841	1900	1781	1781	1455
Adj Flow Rate, veh/h	224	86	37	4	60	22	101	561	4	172	484	122
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	4	6	7	33	17	7	10	4	0	8	8	30
Cap, veh/h	384	256	110	262	110	40	282	708	5	352	577	146
Arrive On Green	0.12	0.21	0.21	0.00	0.10	0.10	0.06	0.39	0.39	0.09	0.42	0.42
Sat Flow, veh/h	1753	1195	514	1344	1149	421	1668	1825	13	1697	1373	346
Grp Volume(v), veh/h	224	0	123	4	0	82	101	0	565	172	0	606
Grp Sat Flow(s),veh/h/ln	1753	0	1710	1344	0	1570	1668	0	1838	1697	0	1719
Q Serve(g_s), s	7.5	0.0	4.0	0.2	0.0	3.3	2.2	0.0	17.7	3.9	0.0	20.6
Cycle Q Clear(g_c), s	7.5	0.0	4.0	0.2	0.0	3.3	2.2	0.0	17.7	3.9	0.0	20.6
Prop In Lane	1.00		0.30	1.00		0.27	1.00		0.01	1.00		0.20
Lane Grp Cap(c), veh/h	384	0	366	262	0	150	282	0	714	352	0	723
V/C Ratio(X)	0.58	0.00	0.34	0.02	0.00	0.55	0.36	0.00	0.79	0.49	0.00	0.84
Avail Cap(c_a), veh/h	384	0	707	421	0	649	395	0	1042	412	0	974
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.0	0.0	21.7	20.1	0.0	28.2	13.3	0.0	17.6	13.1	0.0	16.9
Incr Delay (d2), s/veh	1.9	0.0	0.4	0.0	0.0	2.3	0.6	0.0	4.6	0.8	0.0	7.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	1.5	0.0	0.0	1.2	0.7	0.0	7.4	1.3	0.0	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.9	0.0	22.1	20.1	0.0	30.4	13.9	0.0	22.3	13.8	0.0	23.9
LnGrp LOS	C	A	C	C	A	C	B	A	C	B	A	C
Approach Vol, veh/h		347			86			666			778	
Approach Delay, s/veh		23.9			30.0			21.0			21.7	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	32.4	13.0	11.3	10.7	30.3	5.3	19.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	8.0	37.0	8.0	27.0	8.0	37.0	8.0	27.0
Max Q Clear Time (g_c+I1), s	4.2	22.6	9.5	5.3	5.9	19.7	2.2	6.0
Green Ext Time (p_c), s	0.1	4.8	0.0	0.2	0.1	4.8	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	22.2
HCM 6th LOS	C

APPENDIX H

SITE PLAN



1 SITE PLAN
1" = 20'-0"

Auto parking	SQFT	Per Table 5 Parking standard	Parking per 1000 NET	Parking (Required)
Manufacturing	18000	1.6/ 1000sf	18.0	28.80
Warehouse/ Storage	37000	.3/ 1000sf	37.0	11.10
Retail/ showroom	3000	1.67/ 1000sf	3.0	5.01
Office	7800	2.7/ 1000sf	7.8	21.06
Total	65800			65.97

Total Required per Proposed Plan	65.97
Total Provided	**67**

MILDREN DESIGN GROUP
ARCHITECTURE | INTERIORS
4875 SW Griffith Drive Suite 300
Beaverton OR, 97005
(503) 244-0552

Client/ Owner:

Project:
Precision Countertops

25540 SW Garden Acres Road
Wilsonville OR

Sheet Title:
FIRST FLOOR PLAN

Revisions:

#	Description	Date

Date: 2021-09-22
Drawn by: Author
Checked by: Checker
Job Number: 121036
Sheet
A2.2

MILDREN
DESIGN
GROUP

ARCHITECTURE INTERIORS

RENDERING: ENTRY

PRECISION GARDEN ACRES

121036 (2022-02-21)

MILDREN DESIGN GROUP

ARCHITECTURE INTERIORS

RENDERING VIEW: Bird's EYE VIEW

PRECISION GARDEN ACRES

121036 (2022-02-21)

REPUBLIC SERVICES

January 31, 2023

Simone O'Halloran / MDG

Re: Precision Countertop
25540 SW Garden Acres Rd.
Wilsonville, OR 97140

Dear Simone,

Thank you, for sending us the revised site design plans for this proposed development in Wilsonville.

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

We have reviewed the revised site design that you sent us on January 26, 2023 and have determined that the design modifications will allow Republic Services to provide trash and recycle service at this location as previously approved on May 30, 2022.

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

Sincerely,

Kelly Herrod
Operations Supervisor
Republic Services Inc.

FIRE CODE / LAND USE / BUILDING REVIEW APPLICATION

Tualatin Valley Fire & Rescue

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

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

REV 6-30-20

Project Information

Applicant Name: Nang Ma

Address: 4875 SW Griffith Drive, Suite 300, Beaverton OR 97005

Phone: 503.244.0552

Email: nang@mdgpc.com

Site Address: 25540 SW Garden Acres Rd,

City: Wilsonville, OR 97140

Map & Tax Lot #: 500, section 2c, township 3, south, Range 1 West, Willamette Meridian, Washington County, Oregon

Business Name: Precision Countertop

Land Use/Building Jurisdiction: Wilisonville

Land Use/ Building Permit # Not Assigned

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

Project Description

The proposed development scope is constructing a new headquarters and countertop fabrication facility for precision countertops. The proposed building is approximately 65,800 sf consists of a 3000sf showroom, office, storage, and fabrication spaces. The building will be constructed with metal construction. The structure will have a varying height of 25'-40'. The development will be occupying approximately 5 acres of the 10 acres property. The eastern portion of the site would be held for future development or expansion. No work shall be done beyond the limit of the construction boundary.

Permit/Review Type (check one):

X Land Use / Building Review - Service Provider Permit

☐ Emergency Radio Responder Coverage Install/Test

☐ LPG Tank (Greater than 2,000 gallons)

☐ Flammable or Combustible Liquid Tank Installation (Greater than 1,000 gallons)

* Exception: Underground Storage Tanks (UST) are deferred to DEQ for regulation.

☐ Explosives Blasting (Blasting plan is required)

☐ Exterior Toxic, Pyrophoric or Corrosive Gas Installation (in excess of 810 cu.ft.)

☐ Tents or Temporary Membrane Structures (in excess of 10,000 square feet)

☐ Temporary Haunted House or similar

☐ OLCC Cannabis Extraction License Review

☐ Ceremonial Fire or Bonfire (For gathering, ceremony or other assembly)

For Fire Marshal's Office Use Only

TVFR Permit # 2022-0031

Permit Type: SPP-COW

Submittal Date: 3-15-22

Assigned To: DFM Arn

Due Date: NA

Fees Due:

Fees Paid: Ø

Approval/Inspection Conditions

(For Fire Marshal's Office Use Only)

This section is for application approval only

0430 — 3/17/22
Fire Marshal or Designee — Date

Conditions: See attached Fire Service Plans.

See Attached Conditions: ☐ Yes ☐ No

Site Inspection Required: ☒ Yes ☐ No

This section used when site inspection is required

Inspection Comments:

Final TVFR Approval Signature & Emp ID — Date

GENERAL NOTES - FIRE RESPONSE

1. APPROVED FIRE DEPARTMENT ACCESS ROADS, REQURIED WATER SUPPLY, FIRE HYDRANTS AND SAFETY PRECAUTIONS SHALL BE MADE AVAILABLE PRIOR TO COMBUSTIBLE MATERIALS ARRIVING ON SITE.
2. FIRE LANES SHALL BE DESIGNED WITH A UNIFORM ALL-WEATHER DRIVING SURFACE TO SUPPORT THE IMPOSED GVW OF 75,000 LBS WITH A WHEEL LOAD OF 12,500 LBS AND A VERTICAL CLEARANCE OF NOT LESS THAN 13'-6". GRADING SHALL NOT EXCEED 10%.
3. WHERE REQUIRED BY FIRE MARSHAL, FIRE APPARATUS ACCESS ROADS SHALL BE MARKED WITH PERMANENT "NO PARKING - FIRE LANE" SIGNS COMPLYING WITH OFC APPENDIX D103.6. FIRE APPARATUS ACCESS ROADS 20-26 FT WIDE SHALL BE POSTED ON BOTHS SIDES, AND ON ONE SIDE WHERE 26-32 FT WIDE.
4. DUMPSTERS AND CONTAINERS WITH AN INDIVIDUAL CAPACITY OF 1.5 CU YD OR MORE SHALL NOT BE STORED IN BUILDINGS OR PLACED WITHIN 5 FT OF COMBUSTIBLE WALLS, OPENINGS, OR COMBUSTIBLE ROOF EVES UNLESS AREA IS PROTECTED BY AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM.
5. ABOVE-GROUND GAS METERS, REGULATORS AND PIPING EXPOSED TO VEHICULAR DAMAGE DUE TO PROXIMITY TO ALLEYS, DRIVEWAYS OR PARKING AREAS SHALL BE PROTECTED IN AN APPROVED MANNER.
6. 3 FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF FIRE HYDRANTS. WHEN EXPOSED TO VEHICULAR DAMAGE, CONCRETE CURBING, SIDEWALKS OR 4-INCH CONCRETE FILLED BOLLARDS PLACED 3 FT FROM HYDRANTS SHALL SUITABLY PROTECT FIRE HYDRANTS. HYDRANTS SHALL BE COATED WITH APPROVED RED PAINT COLOR AND MARKINGS.
7. FIRE EXTINGUISHERS SHALL BE INSTALLED THROUGHOUT THE FACILITY PER SECTION 906 OF THE FIRE CODE AND NFPA 10. THE SIZE AND DISTRIBUTION OF FIRE EXTINGUISHERS SHALL BE IN ACCORDANCE WITH SECTIONS 906.3.1 THROUGH 906.3.4. FIRE EXTINGUISHER RATING SHALL NOT BE LESS THAN A 2A:10BC. MAX UNOBSTRUCTED TRAVEL DISTANCE TO ANY APPROVED EXTINGUISHER SHALL NOT BE MORE THAN 75 FT.
8. DELEGATED DESIGN NFPA 13 FIRE SPRINKLER SYSTEM DESIGNED IN ACCORDANCE WITH OSSC 903.3.1.1 WILL BE A DEFERRED SUBMITTAL.
9. PLANS FOR FIRE DEPARTMENT CONNECTION (FDC) INDICATING SHUTOFF VALVES (WIV OR PIV) AND WATER VAULTS FOR FIRE SUPPRESSION SYSTEMS SHALL BE SUBMITTED TO THE FIRE OFFICIAL FOR APPROVAL PRIOR TO CONSTRUCTION.
10. FIRE SUPPRESSION CONNECTIONS, VALVES AND VAULTS SHALL BE INSTALLED IN REMOTE LOCATIONS AWAY FROM THE BUILDINGS PROTECTED.
11. FIRE FLOW DEMAND PER OFC APPENDIX B:
    A. PER TABLE B105.2, SECTION 903.3.1.1 DESIGN STANDARD:
       TABLE B105.1(2) - TYPE IIB, 65,071 SF:
          FIRE FLOW RATE: 2,750 GPM
          FIRE FLOW DURATION: 2 HRS
       TABLE B105.2 REQUIRED FIRE FLOW - SPRINKLERED PER IFC 903.3.1.1:
          FIRE FLOW REDUCTION: 2,750 GPM x 0.25 = 687.5 GPM[a]
             [a] *THE REDUCED FIRE FLOW RATE SHALL NOT BE LESS THAN 1,000 GPM*
       MIN. REQUIRED FIRE FLOW RATE = 1,000 GPM
       MIN. REQUIRED FIRE FLOW DURATION = 2 HRS
1. SIGNAGE NOTES:
    a. PER OFC 509.1, ROOMS CONTAINING FIRE PROTECTION EQUIPMENT (AIR CONDITIONING SYSTEMS, FIRE SPRINKLER RISERS AND VALVES OR OTHER FIRE DETECTION, SUPPRESSION OR CONTROL ELEMENTS) SHALL BE IDENTIFIED IN AN APPROVED MANNER. REQUIRED SIGNS SHALL BE CONSTRUCTED OF DURABLE MATERIALS, PERMANENTLY INSTALLED AND READILY VISIBLE. SIGNAGE TO BE APPROVED PRIOR TO OCCUPANCY.
    b. PER OFC 605.3.1 AND NFPA 20: DOORS INTO ELECTRICAL CONTROL PANEL ROOMS SHALL BE MARKED WITH A PLAINLY VISIBLE AND LEGIBLE SIGN STATING "ELECTRICAL ROOM". SIGNAGE TO BE APPROVED PRIOR TO OCCUPANCY.
    c. PER OSCC1011.4 A SIGN STATING "EXIT" IN RAISED LETTERS AND BRAILLE AND COMPLYING WITH ICC A117.1 SHALL BE PROVIDED ADJACENT TO EACH DOOR IN AN AREA OF REFUGE, EXTERIOR AREA FOR ASSISTED RESCUE, EXIT STAIRWAY, EXIT RAMP, EXIT PASSAGEWAY AND EXIT DISCHARGE.
    d. FIRE DEPARTMENT ACCESS DOORS SHALL BE LABELED ON THE EXTERIOR SIDE WITH THE FOLLOWING SIGN OR OTHER APPROVED SIGN:

       FIRE DEPARTMENT ACCESS DOOR
       DO NOT BLOCK

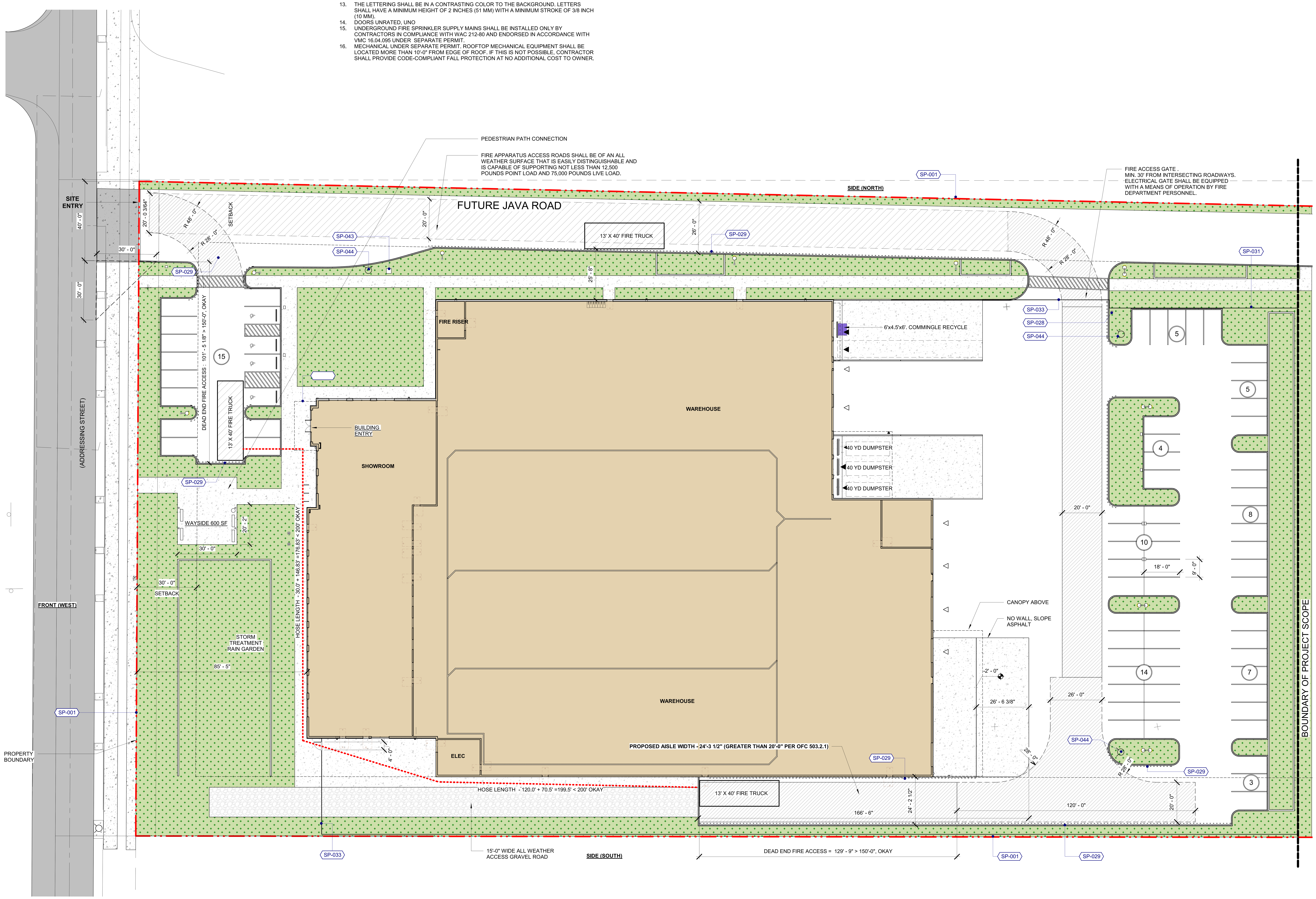
13. THE LETTERING SHALL BE IN A CONTRASTING COLOR TO THE BACKGROUND. LETTERS SHALL HAVE A MINIMUM HEIGHT OF 2 INCHES (51 MM) WITH A MINIMUM STROKE OF 3/8 INCH (10 MM).
14. DOORS UNRATED, UNO
15. UNDERGROUND FIRE SPRINKLER SUPPLY MAINS SHALL BE INSTALLED ONLY BY CONTRACTORS IN COMPLIANCE WITH WAC 212-80 AND ENDORSED IN ACCORDANCE WITH VMC 16.04.095 UNDER SEPARATE PERMIT.
16. MECHANICAL UNDER SEPARATE PERMIT. ROOFTOP MECHANICAL EQUIPMENT SHALL BE LOCATED MORE THAN 10'-0" FROM EDGE OF ROOF. IF THIS IS NOT POSSIBLE, CONTRACTOR SHALL PROVIDE CODE-COMPLIANT FALL PROTECTION AT NO ADDITIONAL COST TO OWNER.

FIRE RESPONSE PLAN LEGEND

- FIRE HYDRANT
- FIRE APPARATUS ACCESS ROAD, 20'W UNO
- FIRE LANE CURB MARKING PER OFC 503.3
- HOSE PULL

KEYNOTES

- SP-001 PROPERTY LINE
- SP-028 KNOX BOX, COORDINATE FINAL LOCATION(S) WITH FIRE MARSHAL
- SP-029 FIRE LANE CURB PAINTED RED, MARKED "NO PARKING FIRE LANE" AT 20 FT INTERVALS AND CHANGES IN DIRECTION, WHITE LETTERING: 1" STROKE, 6" HIGH
- SP-031 FENCE, ORNAMENTAL BLACK BAR, 6'-0"H
- SP-033 GATE, ORNAMENTAL BLACK BAR, 20'W MIN CLR. ELECTRIC GATES SHALL BE EQUIPPED WITH A MEANS FOR OPERATION BY FIRE DEPT PERSONNEL
- SP-043 FDC - COORDINATE LOCATION WITH FIRE MARSHAL
- SP-044 FIRE HYDRANT (N)



2 FIRE SERVICE SITE PLAN
1" = 20'-0"

DESIGN REVIEW SET - FEBRUARY 2023

MDG
ARCHITECTURE | INTERIORS
4875 SW Griffith Drive Suite 300
Beaverton OR, 97005
(503) 244-0552

TVF&R Tualatin Valley Fire & Rescue
APPROVED PLANS
APPROVAL OF PLANS IS NOT AN APPROVAL OF OMISSIONS OR OVERSIGHTS.
Deputy Fire Marshal II

TVFR Permit# 2022-0031

FD Notes:

Building will be required to test for Emergency Responder Radio Coverage or opt into our Mobile Emergency Radio program (MERRC). If the MERRC option is chosen, fees will need to be paid to TVF&R prior to the issuance of a Building permit OFC 510.

Fire Lane markings to be determined OFC 503.3.

Fire department final inspection required OFC 107.2.

Client/ Owner:
PRECISION COUNTERTOPS

26200 SW 95th AVE
WILSONVILLE OR
97070

Project:
PRECISION COUNTERTOPS

SW GARDEN ACRES ROAD
WILSONVILLE, OREGON 97070

Sheet Title:
FIRE SERVICE SITE PLAN

Revisions:

#	Description	Date

Date: 12/23/2022
Job Number: 121036
Sheet
FS1.0

TERAGAN & ASSOCIATES, INC.
ARBORICULTURAL CONSULTANTS

	Survey Number	Common and Scientific Name	DBH	Condition Health	Condition Structure	Field Notes/ Comments
t	1	Pinus palustris	42	Good	Good	
t	2	Pinus palustris	36	Good	Good	
t	3	Pinus palustris	38	Good	Good	low canopy
t	4	Pinus palustris	32	Good	Good	
t	5	Pinus palustris	20	Good	Good	
t	6	Pinus palustris	13	Good	Good	
t	7	Pinus palustris	13	Good	Good	
t	8	Pinus palustris	22	Good	Good	
t	9	Douglas-fir (Pseudotsuga menziesii)	10	Good	Good	
t	10	Douglas-fir (Pseudotsuga menziesii)	25	Good	Good	
t	11	Douglas-fir (Pseudotsuga menziesii)	29	Fair	Fair	
t	12	Douglas-fir (Pseudotsuga menziesii)	24	Fair	Poor	
t	13	Douglas-fir (Pseudotsuga menziesii)	21	Fair	Poor	
t	14	madrone (Arbutus menziesii)	8	Fair	Poor	
t	15	Douglas-fir (Pseudotsuga menziesii)	21	Fair	Poor	
t	16	Douglas-fir (Pseudotsuga menziesii)	27	Fair	Poor	
t	17	Douglas-fir (Pseudotsuga menziesii)	12	Fair	Poor	heavy lean
t	18	Douglas-fir (Pseudotsuga menziesii)	27	Fair	Poor	
t	19	Douglas-fir (Pseudotsuga menziesii)	16	Fair	Fair	
t	20	grand-fir (Abies grandis)	19	Fair	Fair	
t	21	grand-fir (Abies grandis)	27	Fair	Fair	
t	22	Douglas-fir (Pseudotsuga menziesii)	11	Fair	Fair	
t	23	Douglas-fir (Pseudotsuga menziesii)	24	Fair	Fair	
t	24	grand-fir (Abies grandis)	22	Fair	Fair	poison oak
t	25	grand-fir (Abies grandis)	20	Fair	Fair	
t	26	grand-fir (Abies grandis)	23	Fair	Fair	
t	27	madrone (Arbutus menziesii)	14	Fair	Poor	
t	28	grand-fir (Abies grandis)	26	Fair	Fair	

TERAGAN & ASSOCIATES, INC.
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t	29	grand-fir (Abies grandis)	17	Fair	Fair	
t	30	grand-fir (Abies grandis)	23	Fair	Fair	
t	31	grand-fir (Abies grandis)	16	Fair	Fair	
t	32	Douglas-fir (Pseudotsuga menziesii)	16	Fair	Fair	
t	33	Douglas-fir (Pseudotsuga menziesii)	31	Fair	Fair	
t	34	grand-fir (Abies grandis)	16	Fair	Fair	
t	35	grand-fir (Abies grandis)	16	Dead/Dying	Failed/Failing	
t	36	grand-fir (Abies grandis)	18	Fair	Fair	
t	37	grand-fir (Abies grandis)	10	Fair	Failed/Failing	broken top
t	38	Douglas-fir (Pseudotsuga menziesii)	8	Fair	Failed/Failing	broken top
t	39	giant-sequoia (Sequoiadendron giganteum	34	Good	Good	
t	40	grand-fir (Abies grandis)	18	Fair	Poor	heavy lean
t	41	grand-fir (Abies grandis)	16	Good	Good	
t	42	grand-fir (Abies grandis)	16	Good	Good	
t	43	grand-fir (Abies grandis)	24	Good	Good	
t	44	grand-fir (Abies grandis)	17	Fair	Fair	
t	45	red pine (Pinus resinosa)	20	Poor	Poor	
t	46	grand-fir (Abies grandis)	29	Fair	Fair	
t	47	Douglas-fir (Pseudotsuga menziesii)	40	Fair	Fair	
t	48	Douglas-fir (Pseudotsuga menziesii)	36	Fair	Fair	
t	49	Douglas-fir (Pseudotsuga menziesii)	36	Fair	Fair	
t	50	Douglas-fir (Pseudotsuga menziesii)	24	Fair	Fair	
t	51	Douglas-fir (Pseudotsuga menziesii)	36	Fair	Fair	
t	52	Douglas-fir (Pseudotsuga menziesii)	28	Fair	Fair	
t	53	Douglas-fir (Pseudotsuga menziesii)	18	Fair	Fair	
t	54	Douglas-fir (Pseudotsuga menziesii)	42	Fair	Fair	
t	55	Douglas-fir (Pseudotsuga menziesii)	24	Fair	Fair	
t	56	Douglas-fir (Pseudotsuga menziesii)	46	Fair	Fair	
t	57	Douglas-fir (Pseudotsuga menziesii)	34	Fair	Fair	
t	58	Douglas-fir (Pseudotsuga menziesii)	40	Fair	Fair	
t	59	Douglas-fir (Pseudotsuga menziesii)	40	Fair	Fair	

t	60	Douglas-fir (Pseudotsuga menziesii)	38	Fair	Fair	
t	61	Douglas-fir (Pseudotsuga menziesii)	38	Fair	Fair	
t	62	Douglas-fir (Pseudotsuga menziesii)	38	Fair	Fair	
t	63	Douglas-fir (Pseudotsuga menziesii)	38	Fair	Fair	