Planning & Community Dev.
315 Kennel Avenue
PO Box 248
Molalla, Oregon 97038
Phone: (503) 759-0205
communityplanner@cityofmolalla.com

AGENDA
Molalla Planning Commission
6:30 PM, May 4, 2022

Meeting Location: Molalla Civic Center
315 Kennel Avenue.
Molalla, OR 97038

The Planning Commission Meeting will begin at 6:30pm. The Planning Commission has adopted Public Participation Rules. Copies of these rules and public comment cards are available at the entry desk. Public comment cards must be turned in prior to the start of the Commission meeting. The City will endeavor to provide a qualified bilingual interpreter, at no cost, if requested at least 48 hours prior to the meeting. To obtain services call the City Recorder at (503) 829-6855.

I. CALL TO ORDER

II. FLAG SALUTE AND ROLL CALL

III. PUBLIC COMMENT – Limited to 3 minutes per person

IV. MINUTES:

- April 6, 2022, Planning Commission Meeting

V. QUASI-JUDICIAL HEARING:

- SDR09-2021 – 850 W Main St. (Goodwill)

VI. REPORTS AND ANNOUNCEMENTS

VII. ADJOURNMENT

Molalla Planning Commission
MINUTES
Molalla Civic Center
315 Kennel Ave.
Molalla, OR97038
April 06, 2022

The April 06, 2022, meeting of the Molalla Planning Commission was called to order by Commissioner Doug Eaglebear at 6:30pm.

COMMISSIONER ATTENDANCE:
Chair Rae Lynn Botsford – Absent
Commissioner Rick Deaton – Present
Commissioner Doug Eaglebear – Present
Commissioner Jennifer Satter – Present
Commissioner Jacob Giberson – Present
Commissioner Connie Sharp – Absent
Commissioner Clint Ancell – Present

STAFF IN ATTENDANCE:
Mac Corthell, Planning Director - Present
Dan Zinder, Associate Planner – Present
Sam Miller, Senior Engineer- Present
Jamie Ward, Exec. Admin. Assistant-Present

AGENDA:

VII. CALL TO ORDER

VIII. FLAG SALUTE AND ROLL CALL

IX. PUBLIC COMMENT – Limited to 3 minutes per person

No Public Comment

X. MINUTES:

- February 02, 2022, Planning Commission Meeting
- March 02, 2022, Planning Commission Meeting

Planning Commission approves minutes 5-0

XI. QUASI-JUDICIAL HEARING:

- SDR05-2021, second phase of Colima Apartments

Begins at 3:49 of meeting video (*Link posted below)*

Senior Planner, Dan Zinder, presented the staff report and material for planning files SDR05-2021 a proposal for a Site Design Review of the second phase of Colima Apartments to add twelve (12) additional apartment units.

After discussion, Commissioner Giberson, made a motion to approve SDR05-2021 as modified to reflect the changes made by the Planning commission, subject to the conditions of approval as set forth in the Staff Report and to authorize the Chair to sign a final decision of approval, Commissioner Deaton made a second motion.
Motion passes 5-0

XII. REPORTS AND ANNOUNCEMENTS:

- Planning Report

Begins at 39:10 of meeting video (*Link posted below)*

XIII. ADJOURNMENT

Meeting adjourned at 7:18PM

PLANNING COMMISSION MEETING CAN BE VIEWED IN ITS ENTIRIETY HERE:

April 06, 2022 Molalla City Planning Commission Meeting

_____ _____

Chair, Rae Lynn Botsford Date

ATTEST: _____

Mac Corthell, Planning Director

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PO Box 248
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CITY OF MOLALLA STAFF REPORT for SDR09-2021

Date:	April 27, 2022 for the May 4, 2022 Planning Commission Meeting
File No.:	SDR09-2021
Proposal:	Construction of a new 23,000 SF retail building on a 2.32 acre lot within the Cascade Center subdivision.
Address:	850 W Main ST
Tax Lot:	Lot 4500 of Clackamas County Taxmap 52E08C
Applicant:	Todd Silbernagel Goodwill Industries of the Columbia Willamette 1943 SE Sixth Avenue Portland, Oregon 97214
Property Owners:	Goodwill Industries of the Columbia Willamette 1943 SE Sixth Avenue Portland, Oregon 97214
Applicable Standards:	**Applicable Standards: Molalla Municipal Code, Title 17, Development Code** **Division II, Zoning Regulations** *Section 17-2.2.030 Allowed Uses* *Section 17-2.2.040 Lot and Development Standards* **Division III, Community Design Standards** *Section 17-3.2.040 Non-Residential Buildings* *Section 17-3.2.050 Civic Space and Pedestrian Amenities* *Chapter 17-3.3 Access and Circulation* *Chapter 17-3.4 Landscaping, Fences and Walls, Outdoor Lighting* *Chapter 17-3.5 Parking and Loading* *Chapter 17-3.6 Public Facilities* **Division IV, Application Review Procedures and Approval Standards**

Section 17-4.1.040 Type III Procedure (Quasi-Judicial Review – Public Hearing)
Section 17-4.2.050 Approval Standards (Site Design Review)

TABLE OF CONTENTS:

EXHIBITS:

I. EXECUTIVE SUMMARY

Proposal:

The Applicants seek land use approvals for a new 23,000 SF retail building on a 2.32 acre lot in Molalla addressed at 850 W Main ST. The lot is also identified as Lot 7 of the Cascade Center Subdivision, as modified by a property line adjustment PLA02-2021. The applicant proposes vehicle access to the site from existing private drive networks from OR-211 and S Leroy Ave and an existing truck access from S Leroy Ave, on the south side of the existing Grocery Outlet. No change to the existing General Commercial (C-2) zoning designation is proposed as part of this application.

Site Description:

The subject site is located on a vacant 2.32 acre parcel of C-2 zoned land south of OR-211 and between S Leroy Ave and N Hezzie LN. It slopes slightly from southeast to northwest.

Surrounding Zoning and Land Uses:

The properties are surrounded by C-2 land to the north, south, and east. These parcels are part of Cascade Center and include the existing Dollar Tree and Grocery Outlet to the east, the approved Cascade Place Apartments to the south, and two vacant properties to the north the use of which has yet to be determined. Land to the west is zoned medium-high density residential land occupied by a multi-family apartment complex, Stoneplace Apartments.

Public Agency Responses:

Staff circulated notice of the project to the City's Public Works Department, Molalla Fire Marshal, and Oregon Department of Transportation on March 31, 2022. The City has included responses from Molalla Public Works and Molalla Fire Department as Exhibits C and D respectively and integrated their comments into the proposed findings and conditions of this decision. Per an email dated 4/20/2022, ODOT confirmed that they would not be submitting formal comments for this project.

Public Notice and Comments:

Per MMC 17-4.1.040, notice of the public hearing was sent to all property owners within 300 feet of the subject properties and to a group of interested parties on April 5, 2022. Notice was published in the Molalla Pioneer on April 13, 2022. Signage containing public notice information was posted on the property on April 15, 2022. As of April 27, 2022 Staff had received no written public comment on the application.

I. Recommendation

Based on the application materials and findings demonstrating present or conditioned compliance with the applicable standards, staff recommends approval of Site Design Review SDR09-2021 subject to the conditions of approval that follow this recommendation. This approval is based on the Applicant's written narrative, site plans, preliminary partition plat, and supplemental application materials. Any modifications to the approved plans other than those required by the conditions of this decision will require a new land use application and approval.

II. Conditions of Approval

1. Building Permits, Engineering Plan Approvals, and Certificate of Occupancy Required:

a. Per Molalla Municipal Code (hereinafter MMC) 17-4.2.070 and the State of Oregon Structural Specialty Code, upon approval of this Site Design Review, the applicant must submit for building permit authorization from Molalla Planning Staff and Engineering Plan Review from Molalla Public Works. Per MMC 17-4.2.070, this site design review has an approval period of 1-year from the date of approval. As a condition of approval, the Applicant/owner shall submit for both Building Permit Authorization for all proposed improvements through the City of Molalla Planning Department and Civil Plan Review through the City of Molalla Public Works Department within the 1-year approval period. Extension requests for the 1-year period are subject to the Code provisions of MMC 17-4.2.070, B.

b. Per MMC 17-4.9.020 and the State of Oregon Structural Specialty Code, upon approval of this Site Design Review (change of use), the applicant must obtain a Certificate of Occupancy from the Clackamas County Building Official. As a condition of approval, the Applicant/owner shall obtain a Certificate of Occupancy through the Clackamas County Building Official for all onsite occupants prior to operation of the new, proposed use/occupancy.

   Note: City approval is required for all Certificates of Occupancy.

2. The City of Molalla shall not grant building permit approval until the following Conditions are fulfilled.

a. The Applicant shall submit revised building elevation sheets showing at least 60% transparency between 30 and 72 inches above the sidewalk grade for the northern

and eastern facing building facades. Transom windows or additional similar detailing may be provided where full transparency is not feasible to meet this standard. Proposed loading areas need not be included in this calculation (MMC 17-3.2.040 D, 8).

b. The Applicant shall show pedestrian amenity type and locations for civic space on submitted site plans for building permit authorization (MMC 17-3.2.050 C, 2, b).

c. The Applicant shall provide include permanent weather protection that at a minimum covers proposed bicycle parking and areas reserved for seating within the proposed civic space on their submitted site plans for building permit authorization (MMC 17-3.2.050 C, 2, c).

d. The Applicant shall confirm that the turning radius for the new parking area can accommodate fire apparatus in their engineering plan submittals (MMC 17-3.3.030 D, 6).

e. The Applicant shall include eastbound stop signs on submitted engineering plans for the northeast and southeast corners of the site where the site intersects the north-south driveway from OR-211 (MMC 17-3.3.030 D, 11).

f. All approaches and driveways shall meet ADA accessibility requirements where they coincide with an accessible route (MMC 17-3.3.030 D, 15).

g. The Applicant shall design and construct pedestrian networks connecting the approved Cascade Place Apartments to the south to the proposed pedestrian walkway along the north-south drive east of the property (MMC 17-3.3.040 B, 1).

h. To enhance safety, the Applicant shall provide a physical separation such as bollards for portions of the pedestrian pathway that pass directly adjacent to parking stalls. The Applicant may also choose to raise these portions at least 6” and provide curbing and ADA ramps. Design should be indicated on submitted construction plans (MMC 17-3.3.040 B, 2, c).

i. The Applicant’s building permit authorization plans shall include a landscaping island within the row of parking stalls along the north side of the building to ensure that no row of parking has greater than ten (10) contiguous spaces. The island shall be of at least 48 SF with no dimension less than 6’ (MMC 17-3.4.030 E, 2).

j. The Applicant shall submit a revised photometrics plan with building permit authorization plans showing reduced spillover effects onto adjacent residential

properties. Revision of fixture orientation and styles may be considered. As a guideline, average illumination levels on the southern and western property line should be no greater than 0.8 foot candles, as prescribed for average parking lot illumination levels in MMC 17-3.4.050 C, 9 (MMC 17-3.4.050 C, 4).

k. The Applicant shall submit a revised photometrics plan that shows the average parking lot illumination near the recommended 0.8 foot candle average with a minimum/maximum foot candle ration of not more than 20:1 (MMC 17-3.4.050 C, 9).

l. From the materials submitted, it appears that the storm drain, domestic water, and sanitary sewer facilities will be obtained from main line connections and/or extensions. Separate engineering drawings reflecting the installation of public utilities will be required (MMC 17-3.6.080).

    i. All utilities to the project shall be served underground services. No overhead crossings of public right of way shall be approved by the City (MMC 17-3.6.070).

    ii. All fire hydrant locations shall be approved by the Fire Marshall. Should Fire Department regulations require additional fire flow that results in looping the water line through the site, applicants engineer shall coordinate with Public Works for the extension of a public water line, and dedication of easements in accordance with MMC 13.4 Water prior to occupancy (MMC 17-3.6.040).

    iii. Applicant's submitted application shows easements for the public fire line serving the property. As a condition of approval, the Applicant shall coordinate dedication of waterline easements with the Molalla Public Works Department in accordance with MMC 13.4 Water prior to occupancy (MMC 17-3.6.070).

    iv. For commercial and industrial development projects, no building permit may be issued until all required public facility improvements are in place and approved by the City Engineer, or otherwise bonded, in conformance with the provision of the Code and the Public Works Design Standards in accordance with MMC 17-3.6 Public Facilities. All public facilities shall be completed and accepted by the Public Works Department prior to issuance of final occupancy.

    v. Staff reserves the right to require revisions/modifications to the public improvement construction plans and completed street improvements if

additional modifications or expansion of the sight distance onto adjacent streets is required.

vi. No construction of, or connection to, any existing or proposed public utility/improvements will be permitted until all plans are approved by Staff, all fees have been paid, all necessary permits, bonding, right-of-way, and easements have been obtained and approved by staff, and Staff is notified a minimum of 24 hours in advance.

vii. All public utility/improvement plans submitted for review shall be based upon a 22"x 34" format and shall be prepared in accordance with the City of Molalla Public Work's Standards.

viii. All survey monuments on the subject site or that may be subject to disturbance within the construction area, or the construction of any off-site improvements shall be adequately referenced and protected prior to commencement of any construction activity. If the survey monuments are disturbed, moved, relocated, or destroyed as a result of any construction, the project shall, at its cost, retain the services of a registered professional land surveyor in the State of Oregon to restore the monument to its original condition and file the necessary surveys as required by Oregon State law. A copy of any recorded survey shall be submitted to Staff.

ix. Plans submitted for review shall meet the requirements described in Section 1 of the Molalla Standard Specifications for Public Works Construction.

x. All public improvement designs shall meet the requirements of the Molalla Standard Specifications for Public Works Construction as amended by the Public Works Director.

xi. General Erosion Control – The applicant shall install, operate, and maintain adequate erosion control measures in conformance with the standards adopted by the City of Molalla and DEQ during the construction of any public/private utility and building improvements until such time as approved permanent vegetative materials have been installed. Applicant or Applicant's Contractor shall be responsible for all erosion control requirements under the 1200-C permit and shall coordinate directly with DEQ for questions related to 1200-C permit compliance.

3. The City of Molalla shall not grant occupancy until the following

Conditions are fulfilled:

a. All improvements required by this site design review shall be installed and approved by the Planning Official prior to occupancy (MMC 17-3.5.020 B).

b. All public improvements shall be completed and accepted by the Public Works Department prior to issuance of any occupancy.

c. Onsite private storm system shall comply with plumbing code requirements. The detention and flow control facilities shall be reviewed, permitted, and inspected by Molalla Public Works. The onsite storm conveyance system shall be reviewed and inspected by Clackamas County Building under a plumbing permit (MMC 17-3.3.030 D, 21).

d. The Applicant shall clearly designate the four (4) proposed carpool/vanpool stalls (MMC 17-3.5.030 B,4).

e. Applicant will be required to connect to water, sanitary, and storm systems provided under Cascade Center development (MMC 17-3.6.040 and 17-3.6.050).

4. Ongoing Conditions:

a. Contractors and subcontractors performing work on this property shall obtain and maintain a valid, current business license with the City of Molalla.

b. All primary building entrances shall open to the sidewalk and shall conform to Americans with Disabilities Act (ADA) requirements, as applicable (MMC 17-3.2.040 D)

c. 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.

d. No visual obstructions shall be placed in vision clearance areas (MMC 17-3.3.030 G).

e. All landscaping shall be maintained in good condition, or otherwise replaced by the property owner (MMC 17-3.4.030 G).

f. Connections to City utilities shall be in conformance with applicable Molalla Public Works Design Standards at the time of site design review.

g. As an ongoing condition of approval, all outdoor lighting shall be maintained in good condition, or otherwise replaced by the property owner (MMC 17-3.4.050 C).

h. As a condition of approval, parking shall be provided consistent with ADA requirements (MMC17-3.5.030 H).

i. All access to and from the proposed site shall be taken from the existing, approved Cascade Center access locations. No Additional access will be permitted.

Exhibit A:

City Staff's Findings of Fact for SDR09-2021

Per MMC 17-4.2.050, an application for Site Design Review shall be approved if the proposal meets all of the following criteria. The Planning Official, in approving the application, may impose reasonable conditions of approval, consistent with the applicable criteria;

A. The application is complete, in accordance with Section 17-4.2.040;

Findings: The City received the Applicant's proposal on December 20, 2021 and deemed it incomplete in accordance with Section 17-4.2.040 on January 10, 2022. The Applicant resubmitted the application on February 9, 2022 and the application was deemed complete on February 9, 2022.

B. The application complies with all of the applicable provisions of the underlying Zoning District (Division II), including, but not limited to, building and yard setbacks, lot area and dimensions, density and floor area, lot coverage, building height, building orientation, architecture, and other applicable standards;

17-2.2.030 Allowed Uses

Findings: The proposed use of second-hand retail aligns with the "Commercial Retail Sales and Services" use from Table 17-2.2.030 and is an allowed use in the C-2 General Commercial zone. The Standard is met.

17-2.2.040 Lot and Development Standards

Findings:

Minimum Lot Area – There is no minimum lot size in commercial zones. The proposed lots are of adequate size to accommodate commercial development. This standard is met.

Minimum Lot Width and Depth – There is no minimum lot width or depth in commercial zones. The proposed site is of adequate size to accommodate commercial development. This standard is met.

Building and Structure Height – Maximum building height in the C-2 zone is 55ft. The height of the proposed structure is 34 ft, 7 in. Additionally, there are two proposed flag poles outside of the main entrance of the structure that are 38 ft tall. Per MMC 21.30.010, maximum flag height is 110% of the structure height, or just over 38 ft tall. This standard is met.

Maximum Lot Coverage - Maximum foundation plane coverage in the C-2 zone is 100%. This standard is met.

Minimum Landscape Area % (includes required parking lot, landscaping, and required screening) Minimum landscaped area in the C-2 zone is 5%. The Applicant's submitted site plan shows a total 13,849 SF accounting for 13.62% of the subject property. This standard is met.

Minimum Setbacks - 6

Front Setback Requirement: 0ft – This standard is met.

Garage Setback Requirement: 20ft – No garages are proposed. This standard does not apply.

Alley: 3ft - This property does not abut an alley. This standard does not apply.

Adjacent to R Districts: 10ft – The western line of the subject property abuts an R-3 district. The western façade of the proposed building is more than 10 ft from the property line. This standard is met.

Build to Line: 0ft – The subject site is not directly adjacent to any roadways but provides pedestrian connections to OR-211 and S Leroy Ave via direct and continuous pedestrian pathways. This criterion is therefore met under the exceptions for new buildings (MMC 17-3.2.040 B 1).

C. The proposal includes required upgrades, if any, to existing development that does not comply with the applicable zoning district standards, pursuant to Chapter 17-1.4 Nonconforming Situations;

Findings: The subject site is currently vacant. All onsite improvements will be developed to City Standards through the provisions of this site design review.

D. The proposal complies with all the Development and Design Standards of Division III, as applicable:

Findings: Applicable Standards under Division III. Community Design Standards for this project include:

Section 17-3.2.040 Non-Residential Buildings
Chapter 17-3.3 Access and Circulation

Chapter 17-3.4 Landscaping, Fences and Walls, Outdoor Lighting
Chapter 17-3.5 Parking and Loading
Chapter 17-3.6 Public Facilities

17-3.2.040 Non-Residential Buildings

A. **Purpose and Applicability.** The following requirements apply to non-residential development, including individual buildings and developments with multiple buildings such as shopping centers, office complexes, mixed-use developments, and institutional campuses. The standards are intended to create and maintain a built environment that is conducive to pedestrian accessibility, reducing dependency on the automobile for short trips, while providing civic space for employees and customers, supporting natural surveillance of public spaces, and creating human-scale design. The standards require buildings placed close to streets, with storefront windows (where applicable), with large building walls divided into smaller planes, and with architectural detailing.

Findings: This section applies to the proposed commercial development.

B. **Building Orientation.** The following standards apply to new buildings and building additions that are subject to Site Design Review. The Planning Official may approve adjustments to the standards as part of a Site Design Review approval, pursuant to Chapters 17-4.2 and 17-4.7, respectively.

1. Buildings subject to this section shall conform to the applicable build-to line standard in Table 17-2.2.040.E, as generally illustrated in Figure 17-3.2-6. The standard is met when at least 50 percent of the abutting street frontage has a building placed no farther from at least one street property line than the build-to line in Table 17-2.2.040.E; except in the Central Commercial C-1 zone, at least 80 percent of the abutting street frontage shall have a building placed no farther from at least one street property line than the required build-to-line. The Planning Official, through Site Design Review, may waive the build to line standard where it finds that one or more of the conditions in subdivisions a through g occurs.

    a. A proposed building is adjacent to a single-family dwelling, and an increased setback promotes compatibility with the adjacent dwelling.
    b. The standards of the roadway authority preclude development at the build-to line.
    c. The applicant proposes extending an adjacent sidewalk or plaza for public use, or some other pedestrian amenity is proposed to be placed between the building and public right-of-way, pursuant to Section 17-3.2.050 and subject to Site Design Review approval.

d. The build-to line may be increased to provide a private open space (e.g., landscaped forecourt), pursuant to Section 17-3.2.050, between a residential use in a mixed-use development (e.g., live-work building with ground floor residence) and a front or street property line.
e. A significant tree or other environmental feature precludes strict adherence to the standard and will be retained and incorporated in the design of the project.
f. A public utility easement or similar restricting legal condition that is outside the applicant's control makes conformance with the build-to line impracticable. In this case, the building shall instead be placed as close to the street as possible given the legal constraint, and pedestrian amenities (e.g., plaza, courtyard, landscaping, outdoor seating area, etc.) shall be provided within the street setback in said location pursuant to Section 17-3.2.050.
g. An existing building that was lawfully created but does not conform to the above standard is proposed to be expanded and compliance with this standard is not practicable.

Findings: The subject site is not directly adjacent to any roadways but provides pedestrian connections to OR-211 and S Leroy Ave via direct and continuous pedestrian pathways. This criterion is therefore met under the exceptions for new buildings (MMC 17-3.2.040 B 1).

2. Except as provided in subsections C.5 and 6, all buildings shall have at least one primary entrance (i.e., tenant entrance, lobby entrance, breezeway entrance, or courtyard entrance) facing an abutting street (i.e., within 45 degrees of the street property line); or if the building entrance must be turned more than 45 degrees from the street (i.e., front door is on a side or rear elevation) due to the configuration of the site or similar constraints, a pedestrian walkway must connect the primary entrance to the sidewalk in conformance with Section 17-3.3.040.

Findings: The proposed building is not adjacent to a public street. The Applicant's submitted application shows that the proposed building is oriented towards the access drives from Leroy Ave and OR-211. Pedestrian walkways provide safe, continuous, and direct pedestrian access throughout Cascade Center. This standard is met.

3. Off-street parking, trash storage facilities, and ground-level utilities (e.g., utility vaults), and similar obstructions shall not be placed between building entrances and the street(s) to which they are oriented. To the extent practicable, such facilities shall be oriented internally to the block and accessed by alleys or driveways.

Findings: The proposal does not include any parking, trash or utilities that obstruct the pedestrian pathways between the building entrance and street. This standard is met.

4. Off-street parking shall be oriented internally to the site to the extent practicable, and shall meet the Access and Circulation requirements of Chapter 17-3.3, the Landscape and Screening requirements of Chapter 17-3.4, and the Parking and Loading requirements of Chapter 17-3.5.

Findings: The Applicant's submitted application shows parking is located internally to the site. This standard is met. Standards pertaining to further chapters will be evaluated in Staff responses to those Chapters respectively.

5. Where a development contains multiple buildings and there is insufficient street frontage to meet the above building orientation standards for all buildings on the subject site, a building's primary entrance may orient to plaza, courtyard, or similar pedestrian space containing pedestrian amenities and meeting the requirements under Section 17-3.2.050, subject to Site Design Review approval. When oriented this way, the primary entrance(s), plaza, or courtyard shall be connected to the street by a pedestrian walkway conforming to Section 17-3.3.040.

Findings: The proposed building is within the Cascade Center subdivision and the parcel does not have any street frontage. The primary entrance of the proposed building orients towards walkways and civic space that connect the property to other buildings within the development and the ROW streets fronting Cascade Center. This standard is met.

C. **Large-Format Developments.** Plans for new developments, or any phase thereof, with a total floor plate area (ground floor area of all buildings) greater than 35,000 square feet, shall meet all of the following standards in subsections C.1 through 9, as generally illustrated in Figure 17-3.2-7. The Planning Official may approve adjustments to the standards as part of a Site Design Review approval, pursuant to Chapters 17-4.2 and 17-4.7, respectively.

Findings: The proposed building is 23,000 SF and is not part of a phased development. These standards do not apply.

D. **Primary Entrances and Windows.** The following standards, as generally illustrated in Figures 17-3.2-8 and 17.3.2-9, apply to new buildings and building additions that are subject to Site Design Review. The Planning Official may approve adjustments to the standards as part of a Site Design Review approval, pursuant to Chapters 17-4.2 and 17-4.7, respectively.

1. **All Elevations of Building.** Architectural designs shall address all elevations of a building. Building forms, detailing, materials, textures, and color shall contribute to a unified design with architectural integrity. Materials used on the front façade must

turn the building corners and include at least a portion of the side elevations, consistent with the overall composition and design integrity of the building.

Findings: The Applicant's submitted architectural plans show all elevations of the proposed building and show a cohesive design. Materials from the more highly visible eastern and north facing facades turn the corner to the south and west facing facades. This standard is met.

2. **Pedestrian Entrances.** Ground level entrances oriented to a street shall be at least partly transparent for natural surveillance and to encourage an inviting and successful business environment. This standard may be met by providing a door with a window or windows, a transom window above the door, or sidelights beside the door. Where ATMs or other kiosks are proposed on any street-facing elevation, they shall be visible from the street for security and have a canopy, awning, or other weather protection shelter.

Findings: The Applicant's submitted architectural plans show ground level entrances with nearly full transparency. This standard is met.

3. **Corner Entrances.** Buildings on corner lots are encouraged to have corner entrances. Where a corner entrance is not provided, the building plan shall provide an architectural element or detailing (e.g., tower, beveled corner, art, special trim, etc.) that accentuates the corner location.

Findings: The Applicant's proposal is not for a corner lot. This standard does not apply.

4. **Street Level Entrances.** All primary building entrances shall open to the sidewalk and shall conform to Americans with Disabilities Act (ADA) requirements, as applicable. Primary entrances above or below grade may be allowed where ADA accessibility is provided.

Findings: This standard is met subject to a condition of approval. As a condition of approval all primary building entrances shall open to the sidewalk and shall conform to Americans with Disabilities Act (ADA) requirements, as applicable.

5. **Windows—General**. Except as approved for parking structures or accessory structures, the front/street-facing elevations of buildings shall provide display windows, windowed doors, and where applicable, transom windows to express a storefront character.

Findings: Windows and transparent entrances are provided on the street facing façade. This standard is met.

6. **Storefront Windows.** Storefront windows shall consist of framed picture or bay windows, which may be recessed. Framing shall consist of trim detailing such as piers or pilasters (sides), lintels or hoods (tops), and kick plates or bulkheads (base)—or similar detailing—consistent with a storefront character. The ground floor, street-facing elevation(s) of all buildings shall comprise at least 60 percent transparent windows, measured as a section extending the width of the street-facing elevation between the building base (or 30 inches above the sidewalk grade, whichever is less) and a plane 72 inches above the sidewalk grade.

Findings: The proposed building is not adjacent to a street. See response to MMC 17-3.2.040 D 8.

7. **Defined Upper Story(ies).** Building elevations shall contain detailing that visually defines street level building spaces (storefronts) from upper stories. The distinction between street level and upper floors shall be established, for example, through the use of awnings, canopies, belt course, or similar detailing, materials, or fenestration. Upper floors may have less window area than ground floors, but shall follow the vertical lines of the lower level piers and the horizontal definition of spandrels and any cornices. Upper floor window orientation shall primarily be vertical, or have a width that is no greater than height. Paired or grouped windows that, together, are wider than they are tall, shall be visually divided to express the vertical orientation of individual windows.

Findings: The Applicant's submitted architectural plans are for a one-story building. This standard does not apply.

8. **Buildings Not Adjacent to a Street.** Buildings that are not adjacent to a street or a shopping street, such as those that are setback behind another building and those that are oriented to a civic space (e.g., internal plaza or court), shall meet the 60 percent transparency standard on all elevations abutting civic space(s) and on elevations containing a primary entrance.

Findings: This standard is met subject to a condition of approval. North and eastern facing facades of the building face Cascade Center shopping streets to which this standard applies. The Applicant's submitted site plan shows that the north and east facing facades have 40% and 58% transparency respectively. This is below standard. A portion of the eastern facing façade is a recessed loading dock to which this standard does not apply. As a condition of approval, the Applicant shall submit revised building elevation sheets showing at least 60%

transparency between 30 and 72 inches above the sidewalk grade for the northern and eastern facing building facades. Transom windows or additional similar detailing may be provided where full transparency is not feasible to meet this standard. Proposed loading areas need not be included in this calculation.

9. **Side and Rear Elevation Windows.** All side and rear elevations, except for zero lot line or common wall elevations, where windows are not required, shall provide not less than 30 percent transparency.

Findings: The Applicant's submitted architectural plans show at least 30% of lineal footage for clerestory windows along the southern and western building facades. The applicant has provided landscaping screening along lower portions of these facades, providing visual relief. This standard is met.

10. **Window Trim.** At a minimum, windows shall contain trim, reveals, recesses, or similar detailing of not less than four inches in width or depth as applicable. The use of decorative detailing and ornamentation around windows (e.g., corbels, medallions, pediments, or similar features) is encouraged.

Findings: The Applicant's submitted application proposes that the proposed windows will be recessed in the wall cavity and will align with adjacent reveals. Staff finds that this standard is met.

11. **Projecting Windows, Display Cases.** Windows and display cases shall not break the front plane of the building (e.g., projecting display boxes are discouraged). For durability and aesthetic reasons, display cases, when provided, shall be flush with the building façade (not affixed to the exterior) and integrated into the building design with trim or other detailing. Window flower boxes are allowed, provided they do not encroach into the pedestrian through-zone.

Findings: The Applicant has not proposed any projecting windows or display cases. This standard does not apply.

12. **Window Exceptions.** The Planning Official may approve an exception to the above standards where existing topography makes compliance impractical. Where it is not practicable to use glass, windows for parking garages or similar structures, the building design must incorporate openings or other detailing that resembles window patterns (rhythm and scale).

Findings: The Applicant has not requested any exceptions for windows. As stated in the response to section D, 8 the Applicant may provide additional transom windows or similar

detailing on the northern and eastern facing facades to meet the 60% transparency standard for those facades.

E. **Articulation and Detailing.** The following standards apply to new buildings and building additions that are subject to Site Design Review. The Planning Official may approve adjustments to the standards as part of a Site Design Review approval, pursuant to Chapters 17-4.2 and 17-4.7, respectively.

1. **Articulation.** All building elevations that orient to a street or civic space shall have breaks in the wall plane (articulation) of not less than one break for every 30 feet of building length or width, as applicable, pursuant to the following standards, which are generally illustrated in Figures 17-3.2-10, 17-3.2-11, and 17-3.2-12.

    a. A "break" for the purposes of this subsection is a change in wall plane of not less than 24 inches in depth. Breaks may include, but are not limited to, an offset, recess, window reveal, pilaster, frieze, pediment, cornice, parapet, gable, dormer, eave, coursing, canopy, awning, column, building base, balcony, permanent awning or canopy, marquee, or similar architectural feature.
    b. The Planning Official through Site Design Review may approve detailing that does not meet the 24-inch break-in-wall-plane standard where it finds that proposed detailing is more consistent with the architecture of historically significant or historic-contributing buildings existing in the vicinity.
    c. Changes in paint color and features that are not designed as permanent architectural elements, such as display cabinets, window boxes, retractable and similar mounted awnings or canopies, and other similar features, do not meet the 24-inch break-in-wall-plane standard.
    d. Building elevations that do not orient to a street or civic space need not comply with the 24-inch break-in-wall-plane standard but should complement the overall building design.

Findings: The Applicant's submitted architectural plans shows tilt panel offsets, accent tile fields, canopies, and changes in materials and changes in heights of parapets on the northern and eastern facing facades. This detailing complies with the 24" depth standard. These standards are met.

2. **Change in Materials.** Elevations should incorporate changes in material that define a building's base, middle, and top, as applicable, and create visual interest and relief. Side and rear elevations that do not face a street, public parking area, pedestrian access way, or plaza may utilize changes in texture and/or color of materials, provided that the design is consistent with the overall composition of the building.

Findings: The Applicant's submitted architectural plans show that the proposed material palette consists of four paint colors, accent tile fields, concrete walls with reveals, and aluminum canopies and windows. The Applicant also proposes a middle band of accent tile on the north and east elevations to create visual interest and material contrast. This standard is met.

3. **Horizontal Lines.** New buildings and exterior remodels shall generally follow the prominent horizontal lines existing on adjacent buildings at similar levels along the street frontage. Examples of such horizontal lines include, but are not limited to: the base below a series of storefront windows, an awning or canopy line, a belt course between building stories, a cornice, or a parapet line. Where existing adjacent buildings do not meet the City's current building design standards, a new building may establish new horizontal lines.

Findings: There are no adjacent buildings to match. The Applicant's submitted architectural plans shows horizontal lines through the window, canopy, and material changes on all elevations. This standard is met.

4. **Ground Floor and Upper Floor Division.** A clear visual division shall be maintained between the ground level floor and upper floors, for example, through the use of a belt course, transom, awning, canopy, or similar division.

Findings: The Applicant's proposal is for a single-story building. This standard does not apply.

5. **Vertical Rhythms.** New construction or front elevation remodels shall reflect a vertical orientation, either through breaks in volume or the use of surface details

Findings: The Applicant's submitted architectural plans show vertical rhythms with the primary entry columns, flagpoles, and material and window changes. This standard is met.

F. **Pedestrian Shelters.** The following standards apply to new buildings and building additions that are subject to Site Design Review. The Planning Official may approve adjustments to the standards as part of a Site Design Review approval, pursuant to Chapters 17-4.2 and 17-4.7, respectively.

1. **Minimum Pedestrian Shelter Coverage.** Permanent awnings, canopies, recesses, or similar pedestrian shelters shall be provided along at least 75 percent of the ground floor elevation(s) of a building where the building abuts a sidewalk, civic space, or pedestrian access way. Pedestrian shelters used to meet the above standard shall extend at least five feet over the pedestrian area; except that the Planning Official,

through Site Design Review, may reduce the above standards where it finds that existing right-of-way dimensions, easements, or building code requirements preclude standard shelters. In addition, the above standards do not apply where a building has a ground floor dwelling, as in a mixed-use development or live-work building, and the dwelling has a covered entrance. The Planning Official shall waive the above standards if the pedestrian shelter would extend into the right-of-way and the roadway authority does not allow encroachments in the right-of-way.

Findings: The Applicant's submitted application shows that approximately 76% of the elevation frontage that has an abutting pedestrian walkway is covered by a canopy 5 ft or greater in width. This standard is met.

2. **Pedestrian Shelter Design.** Pedestrian shelters shall comply with applicable building codes, and shall be designed to be visually compatible with the architecture of a building. If mezzanine or transom windows exist, the shelter shall be below such windows where practical. Where applicable, pedestrian shelters shall be designed to accommodate pedestrian signage (e.g., blade signs), while maintaining required vertical clearance.

Findings: Staff finds that the Applicant's proposed pedestrian shelters are designed in visual concert with the design of the building. This standard is met.

G. Mechanical Equipment.

1. **Building Walls.** Where mechanical equipment, such as utility vaults, air compressors, generators, antennae, satellite dishes, or similar equipment, is permitted on a building wall that abuts a public right-of-way or civic space, it shall be screened pursuant to Chapter 17-3.4. Standpipes, meters, vaults, and similar equipment need not be screened but shall not be placed on a front elevation when other practical alternatives exist; such equipment shall be placed on a side or rear elevation where practical.

2. **Rooftops.** Except as provided below, rooftop mechanical units shall be set back or screened behind a parapet wall so that they are not visible from any public right-of-way or civic space. Where such placement and screening is not practicable, the Planning Official may approve painting of mechanical units in lieu of screening; such painting may consist of colors that make the equipment visually subordinate to the building and adjacent buildings, if any.

3. **Ground-Mounted Mechanical Equipment.** Ground-mounted equipment, such as generators, air compressors, trash compactors, and similar equipment, shall be limited to side or rear yards and screened with fences or walls constructed of

materials similar to those on adjacent buildings. Hedges, trellises, and similar plantings may also be used as screens where there is adequate air circulation and sunlight, and irrigation is provided. The City may require additional setbacks and noise attenuating equipment for compatibility with adjacent uses.

Findings: All proposed mechanical equipment is rooftop mounted. The Applicant proposes parapet screening and setbacks to minimize view from the public. These standards are met.

H. **Civic Space.** Commercial development projects shall provide civic space pursuant to Section 17-3.2.050.

Findings: The proposed development meets requirements for civic space pursuant to Section 17-3.2.050. Refer to findings responses for that section.

I. **Drive-Up and Drive-Through Facilities.** Drive-up and drive-through facilities shall comply with the requirements of Section 17-3.2.060. (Ord. 2017-08 §1)

Findings: The Applicant's submitted application does not include a Drive-Up and Drive-Through Facility. These standards do not apply.

17-3.2.050 Civic Space and Pedestrian Amenities

A. **Purpose.** This section provides standards for civic spaces where such areas are required or provided voluntarily. Civic spaces allow for light and air circulation, visual relief, pedestrian resting areas, and opportunities for socialization in the most densely developed parts of the City. The code allows projects to meet minimum landscape area standards of Chapter 17-3.4 by providing civic space adjacent to street frontages or in courtyards or plazas between buildings, instead of with planted areas elsewhere on a lot as is typically done for residential developments.

B. **Applicability.** All new commercial and mixed use developments with more than 10,000 square feet of gross leasable floor area within the Central Commercial C-1 and General Commercial C-2 zones are required to meet the standards of this section.

Findings: The proposed development if for a 23,000 SF building and thus requirements for civic space pursuant to Section 17-3.2.050 apply.

C. **Standards.**

1. Civic Space Standards. Except as provided by subsections C.3 and 4, at least three percent of every development site shall be designated and improved as civic space (plaza, landscaped courtyard, or similar space) that is accessible to the general public, pursuant to all of the following standards in subdivisions a through e, and as generally illustrated in Figure 17-3.2-12:

Findings: The Applicant's proposed development is for a 23,000 SF building and thus meets requirements for civic space pursuant to Section 17-3.2.050. The Applicant proposes 4,905 SF of civic space or 4.8% of the total site area. This standard is met.

a. The highest priority locations for civic space improvements are those with the highest pedestrian activity (e.g., street corners and pedestrian access ways), as generally illustrated.

Findings: The Applicant's submitted site plans show civic space flanking the primary entrance and along the pedestrian walkway between Cascade Center lots 1-3 and the primary entrance. This standard is met.

b. Civic spaces shall abut a public right-of-way or otherwise be connected to and visible from a public right-of-way by a sidewalk or pedestrian access way. Access ways shall be identifiable with a change in paving materials (e.g., pavers inlaid in concrete or a change in pavement scoring patterns or texture).

Findings: The Applicant's submitted site plans show proposed civic space that connects the shopping streets interior to Cascade Center to the primary entrance. Civic space is interconnected via a direct and continuous pedestrian pathway to OR-211 and S Leroy Ave. This standard is met.

c. Where public access to a civic space is not practical due to existing development patterns, physical site constraints, or other hardship presented by the applicant, the City may allow a private area, such as an outdoor eating area attached to a restaurant, in finding the project complies with the standard.

Findings: The Applicant's submitted application proposes publicly accessible civic space. This standard does not apply.

d. All civic spaces shall have dimensions that allow for reasonable pedestrian access. For example, by extending the width of an existing sidewalk by four feet, a developer might provide space for an outdoor eating area; whereas a larger development at a street corner could meet the standard by creating a plaza adjacent to a building entrance.

Findings: The Applicant's submitted site plan shows civic space that extends the walkways in front of the primary entrance and from adjacent lots in Cascade Center. This standard is met.

e. Civic space improvements shall conform to Chapter 17-3.4 Landscaping, Fences and Walls, Outdoor Lighting.

Findings: Compliance with Chapter 17-3.4 will be addressed in responses to that chapter.

2. **Pedestrian Improvements in Civic Spaces.** Except as provided by subsections C.3 and 4, where this section requires the provision of civic space, such space shall be improved with pedestrian amenities, pursuant to the following standards in subdivisions a through e:

   a. Pedestrian amenities shall be provided in an amount equal to or greater than one-half of one percent of the estimated construction cost of the proposed building(s). A licensed architect, landscape architect, or other qualified professional, shall prepare cost estimates for civic space improvements, which shall be subject to review and approval by the Planning Official.

Findings: The Applicant's submitted application proposes publicly accessible civic space. This standard does not apply.

b. Pedestrian amenities include plaza surfaces (e.g., pavers, landscapes, etc.), sidewalk extensions (e.g., with outdoor café space), street furnishings (e.g., benches, public art, pedestrian-scale lighting, water fountains, trash receptacles, bus waiting shelters, shade structures, or others), way-finding signs, or similar amenities, as approved by the Planning Official.

Findings: This standard is met subject to a condition of approval. Note 19 on Page C2.1 of the Applicant's submitted site plans note that pedestrian amenities will be made available as follows:

Proposed civic space area to include different scoring patterns, building-mounted lighting for pedestrians, benches, bicycle facilities, landscape, and wayfinding signate for donation and retail entrances.

However, aside from proposed bicycle facilities, the submitted site plans do not identify precise locations of these amenities. As a condition of approval, the Applicant shall show pedestrian amenity type and locations on submitted site plans for building permit authorization.

c. Where a civic space adjoins a building entrance it should incorporate a permanent weather protection canopy, awning, pergola, or similar feature, consistent with Section 17-3.2.040.F.

Findings: This standard is met subject to a condition of approval. Canopies are required as applicable along the building frontage but the civic space is not otherwise covered. As a condition of approval, the Applicant shall provide include permanent weather protection that at a minimum covers proposed bicycle parking and areas reserved for seating within the proposed civic space on their submitted site plans for building permit authorization.

d. The City may accept pedestrian amenities proposed within a public right-of-way (e.g., street corner or mid-block pedestrian access way) and grant the developer credit toward fulfilling the above improvement standard.

e. The cost of a proposed public parking facility may be subtracted from building costs used in the assessment of civic space improvements.

Findings: The Applicant has provided civic space onsite and has not proposed public parking. These provisions do not apply.

3. **Exception for Minor Projects.** Building additions and remodels are not required to provide civic space where the estimated cost of the proposed building improvement is less than 50 percent of the existing assessed value of improvements on the subject site. Cost estimates are based on those used to estimate building permit fees, or other independent and credible source, subject to review and approval by the Planning Official. Assessed values shall be the market value of record at the Clackamas County Assessor's Office.

4. **Exception for In Lieu Fee.** Where the City finds that the creation of civic space is not practicable based on the project location or other relevant factors, it may accept an in lieu fee, to be paid to the City of Molalla Parks Improvement Fund, which shall be proportionate to the estimated cost of land and improvements (on-site) that otherwise would have been required. In such case, a licensed architect, landscape architect, or other qualified professional, shall prepare cost estimates for civic space improvements, which shall be subject to review and approval by the City Planning Official. (Ord. 2017-08 §1)

Findings: The Applicant has provided civic space exceeding the required area. These provisions do not apply.

17-3.3.030 Vehicular Access and Circulation

A. **Purpose and Intent.** Section 17-3.3.030 implements the street access policies of the City of Molalla Transportation System Plan. It is intended to promote safe vehicle access and egress to properties, while maintaining traffic operations in conformance with adopted standards. "Safety," for the purposes of this chapter, extends to all modes of transportation.

B. **Permit Required.** Vehicular access to a public street (e.g., a new or modified driveway connection to a street or highway) requires an approach permit approved by the applicable roadway authority.

Findings: Cascade Center has existing access permits from OR-211 and S Leroy Ave. The Applicant proposes connecting to internal private drives that connect with these approved access points. This standard is met.

C. **Traffic Study Requirements.** The City, in reviewing a development proposal or other action requiring an approach permit, may require a traffic impact analysis, pursuant to Section 17-3.6.020, to determine compliance with this Code.

Findings: The Applicant submitted a Traffic Impact Study (Exhibit D of the submitted application) prepared by a Registered Engineer as part of the application package. This standard is met.

D. **Approach and Driveway Development Standards.** Approaches and driveways shall conform to all of the following development standards:

1. 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.

Findings: Cascade Center has existing approved access permits from OR-211 and S Leroy Ave. The Applicant proposes connecting to internal private drives that connect with these approved access points. This standard is met.

2. Approaches shall conform to the spacing standards of subsections E and F, below, and shall conform to minimum sight distance and channelization standards of the roadway authority.

Findings: The Applicant does not propose a new approach to the public right-of-way with this development. This standard does not apply.

3. Driveways shall be paved and meet applicable construction standards. Where permeable paving surfaces are allowed or required, such surfaces shall conform to applicable Public Works Design Standards.

Findings: The Applicant has proposed a paved driveway which shall be designed to meet all Molalla Public Works Design Standards and reviewed by Molalla Public works during construction plan review. This standard is met.

4. The City Engineer may limit the number or location of connections to a street, or limit directional travel at an approach to one-way, right-turn only, or other restrictions, where the roadway authority requires mitigation to alleviate safety or traffic operations concerns.

Findings: Cascade Center has existing approved access permits from OR-211 and S Leroy Ave. The Applicant proposes connecting to internal private drives that connect with these approved access points. This standard is met.

5. Where the spacing standards of the roadway authority limit the number or location of connections to a street or highway, the City Engineer may require a driveway 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 Engineer 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).

Findings: The Applicant does not propose a new street connection and will access the site from existing internal private drive networks within Cascade Center. This standard does not apply.

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

Findings: This standard is met subject to a condition of approval. As a condition of approval, the Applicant shall confirm that the turning radius for the new parking area can accommodate fire apparatus in their engineering plan submittals.

7. As applicable, approaches and driveways shall be designed and constructed to accommodate truck/trailer-turning movements.

Findings: The Applicant submitted a truck turning radius template with their plans Exhibit G of the submitted application) showing that their driveways can accommodate projected delivery vehicles. This standard is met.

8. Except where the City Engineer and roadway authority, as applicable, permit an open access with perpendicular or angled parking, driveways shall accommodate all projected vehicular traffic on-site without vehicles stacking or backing up onto a street.

Findings: The proposed development is for retail use and the applicant has provided parking and maneuvering areas to standard. No open parking along the right of way is proposed and no queuing is anticipated from the private access drives. Some parking stalls are provided perpendicular to the east-west shopping street drive from S Leroy Ave. This standard is met.

9. 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.

Findings: The site is accessed from a private drive network internal to Cascade Center and no obstructions to the right of way are proposed. This standard is met.

10. 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.

Findings: The Applicant's submitted application shows a 30' wide approach from the Cascade Center private drive network, which is designed to accommodate trucks and emergency vehicles and is consistent with Molalla Public Works Standards. This standard is met.

11. As it deems necessary for pedestrian safety, the City Engineer, in consultation with the roadway authority, as applicable, may require that traffic-calming features, textured driveway surfaces (e.g., pavers or similar devices), curb extensions, signage or traffic control devices, or other features, be installed on or in the vicinity of a site as a condition of development approval.

Findings: This standard is met subject to a condition of approval. As a condition of approval, the Applicant shall include eastbound stop signs on submitted engineering plans for the northeast and southeast corners of the site where the site intersects the north-south driveway from OR-211.

12. Construction of approaches along acceleration or deceleration lanes, and along tapered (reduced width) portions of a roadway, shall be avoided; except where no

reasonable alternative exists and the approach does not create safety or traffic operations concern.

Findings: The Applicant's proposal does not include construction of approaches along acceleration or deceleration lanes or along tapered portions of the roadway. This standard does not apply.

13. 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.

Findings: The Applicant's submitted site plans show that loading areas are located on the south side of the building and away from pedestrian maneuvering areas. This standard is met.

14. Where sidewalks or walkways occur adjacent to a roadway, driveway aprons constructed of concrete shall be installed between the driveway and roadway edge. The roadway authority may require the driveway apron be installed outside the required sidewalk or walkway surface, consistent with Americans with Disabilities Act (ADA) requirements, and to manage surface water runoff and protect the roadway surface.

Findings: The Applicant's does not include sidewalks adjacent to the roadway. Proposed driveways from the internal drive network will be designed to meet standards of the 2020 Molalla Standard Specifications for Public Works Construction. This standard is met.

15. Where an accessible route is required pursuant to ADA, approaches and driveways shall meet accessibility requirements where they coincide with an accessible route.

Findings: This standard is met subject to a condition of approval. As a condition of approval, all approaches and driveways shall meet ADA accessibility requirements where they coincide with an accessible route.

16. The City Engineer may require changes to the proposed configuration and design of an approach, including the number of drive aisles or lanes, surfacing, traffic-calming features, allowable turning movements, and other changes or mitigation, to ensure traffic safety and operations.

Findings: No changes are required to the proposed configuration and design of the approach. This standard is met.

17. Where a new approach onto a state highway or a change of use adjacent to a state highway requires ODOT approval, the applicant is responsible for obtaining ODOT approval. The City Engineer may approve a development conditionally, requiring the

applicant first obtain required ODOT permit(s) before commencing development, in which case the City will work cooperatively with the applicant and ODOT to avoid unnecessary delays.

Findings: No new approaches from a state highway are proposed as part of this application. This standard does not apply.

18. Where an approach or driveway crosses a drainage ditch, canal, railroad, or other feature that is under the jurisdiction of another agency, the applicant is responsible for obtaining all required approvals and permits from that agency prior to commencing development.
19. Where a proposed driveway crosses a culvert or drainage ditch, the City Engineer may require the developer to install a culvert extending under and beyond the edges of the driveway on both sides of it, pursuant to applicable Public Works Design Standards.

Findings: The proposed driveway does not cross any culverts/drainage ditches or any features under the jurisdiction of a public agency. This standard does not apply.

20. 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.

Findings: These standards are met subject to a condition of approval. As a condition of approval, 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.

21. Development that increases impervious surface area shall conform to the storm drainage and surface water management requirements of Section 17-3.6.050.

Findings: The Applicant submitted a stormwater drainage plan with their application package. Onsite private storm system shall comply with plumbing code requirements. The detention and flow control facilities shall be reviewed, permitted, and inspected by Molalla Public Works. The onsite storm conveyance system shall be reviewed and inspected by Clackamas County Building under a plumbing permit. Additional stormwater analysis is provided in Staff responses to Section 17-3.6.050.

E. **Approach Separation from Street Intersections.** Except as provided by subsection H, minimum distances shall be maintained between approaches and street intersections consistent with the current version of the Public Works Design Standards and Transportation System Plan.

F. **Approach Spacing.** Except as provided by subsection H or as required to maintain street operations and safety, the following minimum distances shall be maintained between approaches consistent with the current version of the Public Works Design Standards and Transportation System Plan.

Findings: The proposed developments take access from the right of way from approved accesses within Cascade Center development that conform to spacing standards of ODOT and the Molalla TSP. These standards are met.

G. **Vision Clearance.** No visual obstruction (e.g., sign, structure, solid fence, or shrub vegetation) greater than 2.5 feet in height shall be placed in "vision clearance areas" at street intersections.. The minimum vision clearance area may be modified by the Planning Official through a Type I procedure, upon finding that more or less sight distance is required (i.e., due to traffic speeds, roadway alignment, etc.). Placement of light poles, utility poles, and tree trunks should be avoided within vision clearance areas.

Findings: This standard is met subject to conditions of approval. As an ongoing condition of approval, no visual obstructions shall be placed in vision clearance areas within the private drive network.

H. **Exceptions and Adjustments.** The City Engineer may approve adjustments to the spacing standards of subsections E and F, above, where an existing connection to a City street does not meet the standards of the roadway authority and the proposed development moves in the direction of code compliance. The Planning Official through a Type II procedure may also approve a deviation to the spacing standards on City streets where it finds that mitigation measures (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/ right-out only), or other mitigation alleviate all traffic operations and safety concerns.

Findings: No exceptions or adjustments are requested nor are any needed. This standard does not apply.

I. **Joint Use Access Easement and Maintenance Agreement.** Where the City approves a joint use driveway, the property owners shall record an easement with the deed allowing joint use of and cross access between adjacent properties. The owners of the properties agreeing to joint use of the driveway shall record a joint maintenance agreement with the deed, defining maintenance responsibilities of property owners. The applicant shall provide a fully executed copy of the agreement to the City for its records, but the City is not responsible for maintaining the driveway or resolving any dispute between property owners.

Findings: Access easements from OR-211 and S Leroy Ave have already been provided across private drives within the Cascade Center subdivision. This standard is met.

17-3.3.040 Pedestrian Access and Circulation

B. **Standards.** Developments shall conform to all of the following standards for pedestrian access and circulation as generally illustrated in Figure 17-3.3-3:

1. **Continuous Walkway System.** A pedestrian walkway system shall extend throughout the development site and connect to adjacent sidewalks, if any, and to all future phases of the development, as applicable.

Findings: This standard is met subject to a condition of approval. The Applicant's submitted site plan shows appropriate connections to the continuous walkway system within Cascade Center and connecting to OR-211 and S Leroy Ave. The abutting residential development to the south does not have a direct pedestrian connection to the site. As a condition of approval, the Applicant shall design and construct pedestrian networks connecting the approved Cascade Place Apartments to the south to the proposed pedestrian walkway along the north-south drive east of the property.

2. **Safe, Direct, and Convenient.** Walkways 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-ofway conforming to the following standards:

a. The walkway is reasonably direct when it follows a route that does not deviate unnecessarily from a straight line or it does not involve a significant amount of out-of-direction travel.

b. The walkway is designed primarily for pedestrian safety and convenience, meaning it is reasonably free from hazards and provides a reasonably smooth and consistent surface and direct route of travel between destinations. The Planning Official may require landscape buffering between walkways and adjacent parking lots or driveways to mitigate safety concerns.

c. The walkway network connects to all primary building entrances, consistent with the building design standards of Chapter 17-3.2 and, where required, Americans with Disabilities Act (ADA) requirements.

Findings: These standards are met subject to conditions of approval. Proposed sidewalks form a direct connection between the building, parking, other lots within Cascade Center,

and abutting right-of-ways. As conditioned in the response to Section 1 above, an additional pedestrian connection is needed for a direct connection with Cascade Place apartments to the south.

The portions of the walkway that directly connects to the primary entrance has portions situated directly adjacent to parking stalls. The Applicant has not identified a method to ensure pedestrian separation from these parking areas. To enhance safety, the Applicant shall provide a physical separation such as bollards for portions of the pedestrian pathway that pass directly adjacent to parking stalls. The Applicant may also choose to raise these portions at least 6" and provide curbing and ADA ramps. Design should be indicated on submitted construction plans.

As a condition of approval, all walkways connecting to primary building entrances shall be designed consistent with ADA requirements.

3. Vehicle/Walkway Separation. Except as required for crosswalks, per subsection 4, below, where a walkway abuts a driveway or street it shall be raised six inches and curbed along the edge of the driveway or street. Alternatively, the Planning Official may approve a walkway abutting a driveway at the same grade as the driveway if the walkway is physically separated from all vehicle-maneuvering areas. An example of such separation is a row of bollards (designed for use in parking areas) with adequate minimum spacing between them to prevent vehicles from entering the walkway.

Findings: The Applicant's submitted narrative states that the proposed walkway shall be raised from vehicle maneuvering areas with the exception of drive aisle crossings. This standard is met.

4. Crosswalks. Where a walkway crosses a parking area or driveway ("crosswalk"), it shall be clearly marked with contrasting paving materials (e.g., pavers, light-color concrete inlay between asphalt, or similar contrasting material). The crosswalk may be part of a speed table to improve driver-visibility of pedestrians. Painted or thermo-plastic striping and similar types of non-permanent applications are discouraged but may be approved for lesser used crosswalks not exceeding 24 feet in length.

Response: The Applicant's submitted site plan shows crosswalks at all intersections with the proposed drive aisles and the narrative states that crosswalks shall be constructed with concrete that contrasts with the asphalt of the parking lot. This standard is met.

5. Walkway Width and Surface. Walkways, including access ways required for subdivisions pursuant to Chapter 17-4.3, shall be constructed of concrete, asphalt, brick or masonry pavers, or other durable surface, as approved by the City Engineer, and not less than six feet wide. Multi-use paths (i.e., designed for shared use by bicyclists and pedestrians)

shall be concrete or asphalt and shall conform to the current version of the Public Works Design Standards and Transportation System Plan.

6. **Walkway Construction (Private).** Walkway surfaces may be concrete, asphalt, brick or masonry pavers, or other City-approved durable surface meeting ADA requirements. Walkways shall be not less than six feet in width in commercial and mixed use developments and where access ways are required for subdivisions under Division IV.

Findings: The Applicant proposes concrete sidewalks of at least nine feet in width. These standards are met.

7. **Multi-Use Pathways.** Multi-use pathways, where approved, shall be a minimum width and constructed of materials consistent with the current version of the Public Works Design Standards and Transportation System Plan.

Findings: No multi-use pathway are proposed. This standard does not apply.

Chapter 17-3.4 Landscaping, Fences and Walls, Outdoor Lighting

17-3.4.030 Landscaping and Screening

A. **General Landscape Standard.** All portions of a lot not otherwise developed with buildings, accessory structures, vehicle maneuvering areas, or parking shall be landscaped.

Findings: The Applicant's submitted landscaping plan shows that all areas of the lot that are not developed with buildings, vehicular areas or pedestrian areas will be landscaped. This standard is met.

B. **Minimum Landscape Area.** All lots shall conform to the minimum landscape area standards of the applicable zoning district, as contained in Tables 17-2.2.040.D and 17-2.2.040.E. The Planning Official, consistent with the purposes in Section 17-3.4.010, may allow credit toward the minimum landscape area for existing vegetation that is retained in the development.

Findings: The Applicant's submitted landscaping plan shows 13,849 SF of landscaping. The subject lot is 101,686 SF. This accounts for 13.6% landscaping coverage which meets the 5% standard for commercial zones in Tables 17-2.2.040.E. This standard is met.

C. Plant Selection. A combination of deciduous and evergreen trees, shrubs, and ground covers shall be used for all planted areas, the selection of which shall be based on local climate, exposure, water availability, and drainage conditions, among other factors. When new vegetation is planted, soils shall be amended and irrigation shall be provided, as necessary, to allow for healthy plant growth. The selection of plants shall be based on all of the following standards and guidelines:

1. Use plants that are appropriate to the local climate, exposure, and water availability. The presence of utilities and drainage conditions shall also be considered.
2. Plant species that do not require irrigation once established (naturalized) are preferred over species that require irrigation.
3. Trees shall be not less than two-inch caliper for street trees and one and one-half-inch caliper for other trees at the time of planting. Trees to be planted under or near power lines shall be selected so as to not conflict with power lines at maturity.
4. Shrubs shall be planted from five-gallon containers, minimum, where they are for required screens or buffers, and two-gallon containers minimum elsewhere.
5. Shrubs shall be spaced in order to provide the intended screen or canopy cover within two years of planting.
6. All landscape areas, whether required or not, that are not planted with trees and shrubs or covered with allowable non-plant material, shall have ground cover plants that are sized and spaced to achieve plant coverage of not less than 75 percent at maturity.
7. Bark dust, chips, aggregate, or other non-plant ground covers may be used, but shall cover not more than 35 percent of any landscape area. Non-plant ground covers cannot be a substitute for required ground cover plants.
8. Where stormwater retention or detention, or water quality treatment facilities are proposed, they shall meet the requirements of the current version of the Public Works Design Standards.
9. Existing mature trees that can thrive in a developed area and that do not conflict with other provisions of this Code shall be retained where specimens are in good health, have desirable aesthetic characteristics, and do not present a hazard.
10. Landscape plans shall avoid conflicts between plants and buildings, streets, walkways, utilities, and other features of the built environment.
11. Evergreen plants shall be used where a sight-obscuring landscape screen is required.
12. Deciduous trees should be used where summer shade and winter sunlight is desirable.
13. Landscape plans should provide focal points within a development, for example, by preserving large or unique trees or groves or by using flowering plants or trees with fall color.
14. Landscape plans should use a combination of plants for seasonal variation in color and yearlong interest.

15. Where plants are used to screen outdoor storage or mechanical equipment, the selected plants shall have growth characteristics that are compatible with such features.
16. Landscape plans shall provide for both temporary and permanent erosion control measures, which shall include plantings where cuts or fills, including berms, swales, stormwater detention facilities, and similar grading, is proposed.
17. When new vegetation is planted, soils shall be amended and irrigation provided, as necessary, until the plants are naturalized and able to grow on their own.

Findings: The Applicant's submitted landscaping plan shows locally adapted plants that meet size specifications. The plan is compliant with coverage specifications. No substantial trees exist on the site. These standards are met.

D. **Central Commercial C-1 District Streetscape Standard.** Developers of projects within the Central Commercial C-1 zoning district can meet the landscape area requirement of subsection B, in part, by installing street trees in front of their projects. The Planning Official shall grant credit toward the landscape area requirement using a ratio of 1:1, where one square foot of planted area (e.g., tree well or planter surface area) receives one square foot of credit. The Planning Official may grant additional landscape area credit by the same ratio where the developer widens the sidewalk or creates a plaza or other civic space pursuant to Section 17-3.2.050.

Findings: The subject property is not in the C-1 zone. These standards do not apply.

E. **Parking Lot Landscaping.** All of the following standards shall be met for parking lots. If a development contains multiple parking lots, then the standards shall be evaluated separately for each parking lot.

1. A minimum of 10 percent of the total surface area of all parking areas, as measured around the perimeter of all parking spaces and maneuvering areas, shall be landscaped. Such landscaping shall consist of shade trees distributed throughout the parking area. A combination of deciduous and evergreen trees, shrubs, and ground cover plants is required. The trees shall be planned so that they provide a partial canopy cover over the parking lot within five years. At a minimum, one tree per 12 parking spaces on average shall be planted over and around the parking area.

Findings: The Applicant's submitted landscaping plan shows ~34,000 SF dedicated to parking areas. The Applicant's submitted application shows ~7700 SF of landscaping, greater than 10%, is placed within parking areas. Twelve (12) trees are proposed within the vehicle maneuvering areas, exceeding the seven (7) required tress for 77 parking spaces by this section. This standard is met.

2. All parking areas with more than 20 spaces shall provide landscape islands with trees that break up the parking area into rows of not more than 10 contiguous parking spaces. Landscape islands and planters shall have dimensions of not less than 48 square feet of area and no dimension of less than six feet, to ensure adequate soil, water, and space for healthy plant growth.

Findings: This standard is met subject to a condition of approval. The Applicant's submitted landscaping plans show 77 parking spaces so this standard applies. The parking row on the north side of the building has eleven (11) contiguous parking spaces without a breaking landscape island. As a condition of approval, the Applicant's building permit authorization plans shall include a landscaping island within the row of parking stalls along the north side of the building to ensure that no row of parking has greater than ten (10) contiguous spaces. The island shall be of at least 48 SF with no dimension less than 6'.

Proposed landscape islands are of appropriate dimensions.

3. All required parking lot landscape areas not otherwise planted with trees must contain a combination of shrubs and groundcover plants so that, within two years of planting, not less than 50 percent of that area is covered with living plants.

Findings: The Applicant's submitted landscaping plant shows that parking landscaping areas not planted with trees have proposed shrubs and groundcover that cover at least 50% of the landscaping area. This standard is met.

4. Wheel stops, curbs, bollards, or other physical barriers are required along the edges of all vehicle-maneuvering areas to protect landscaping from being damaged by vehicles. Trees shall be planted not less than two feet from any such barrier.

Findings: The Applicant's submitted narrative states that areas around parking stalls will be curbed to protect landscaping areas with no tree planted within 2' of any curbing. This standard is met.

5. Trees planted in tree wells within sidewalks or other paved areas shall be installed with root barriers, consistent with applicable nursery standards.

Findings: The Applicant's submitted narrative states that any trees planted in paved areas will be installed with root barriers. This standard is met.

F. **Screening Requirements.** Screening is required for outdoor storage areas, unenclosed uses, and parking lots, and may be required in other situations as determined by the

Planning Official. Landscaping shall be provided pursuant to the standards of subsections F.1 through 3. (See also Figure 17-3.4-4.)

1. **Outdoor Storage and Unenclosed Uses.** All areas of a site containing or proposed to contain outdoor storage of goods, materials, equipment, and vehicles (other than required parking lots and service and delivery areas, per Site Design Review), and areas containing junk, salvage materials, or similar contents, shall be screened from view from adjacent rights-of-way and residential uses by a sight-obscuring fence, wall, landscape screen, or combination of screening methods. See also Section 17-3.4.040 for related fence and wall standards.

Findings: The Applicant's submitted application does not include any outdoor storage areas. This standard does not apply.

2. **Parking Lots.** The edges of parking lots shall be screened to minimize vehicle headlights shining into adjacent rights-of-way and residential yards. Parking lots abutting a sidewalk or walkway shall be screened using a low-growing hedge or low garden wall to a height of between three feet and four feet.

Findings: The Applicant's submitted landscaping plan shows that all parking areas are screened by evergreen plants. This standard is met.

3. **Other Uses Requiring Screening.** The Planning Official may require screening in other situations as authorized by this Code, including, but not limited to, outdoor storage areas, blank walls, Special Uses pursuant to Chapter 17-2.3, flag lots, and as mitigation where an applicant has requested an adjustment pursuant to Chapter 17-4.7.

Findings: Staff does not propose additional requirements for screening with this application.

G. **Maintenance.** All landscaping shall be maintained in good condition, or otherwise replaced by the property owner.

Findings: This standard can be met with a condition of approval. As an ongoing condition of approval all landscaping shall be maintained in good condition, or otherwise replaced by the property owner.

17-3.4.040 Fences and Walls

A. **Purpose.** This section provides general development standards for fences, and walls that are not part of a building, such as screening walls and retaining walls.

B. **Applicability.** Section 17-3.4.040 applies to all fences, and to walls that are not part of a building, including modifications to existing fences and walls.

Findings: There are no proposed fences or exterior walls proposed as part of this development. Therefore, this section does not apply.

17-3.4.050 Outdoor Lighting

A. **Purpose.** This section contains regulations requiring adequate levels of outdoor lighting while minimizing negative impacts of light pollution.
B. **Applicability.** All outdoor lighting shall comply with the standards of this section.
C. **Standards.**
   1. Light poles, except as required by a roadway authority or public safety agency, shall not exceed a height of 20 feet; pedestal- or bollard-style lighting shall be used to illuminate walkways. Flag poles, utility poles, and streetlights are exempt from this requirement.

Findings: The Applicant's submitted lighting specifications show no proposed poles over 20 feet in height. This standard is met.

   2. Where a light standard is placed over a sidewalk or walkway, a minimum vertical clearance of eight feet shall be maintained.

Findings: The Applicant's submitted lighting plan shows no proposed poles over walkways with less than 8 feet of clearance. This standard is met.

   3. Outdoor lighting levels shall be subject to review and approval through Site Design Review. As a guideline, lighting levels shall be no greater than necessary to provide for pedestrian safety, property or business identification, and crime prevention.

   4. Except as provided for up-lighting of flags and permitted building-mounted signs, all outdoor light fixtures shall be directed downward, and have full cutoff and full

shielding to preserve views of the night sky and to minimize excessive light spillover onto adjacent properties.

Findings: These standards are met subject to a condition of approval.

The applicants submitted photometrics plan shows that illumination levels next to the abutting residential uses to the south and west are substantial, exceeding 6 foot candles on adjacent property lines. As a condition of approval, the Applicant shall submit a revised photometrics plan with building permit authorization plans showing reduced spillover effects onto adjacent residential properties. Revision of fixture orientation and styles may be considered. As a guideline, average illumination levels on the southern and western property line should be no greater than 0.8 foot candles, as prescribed for average parking lot illumination levels in MMC 17-3.4.050 C, 9.

The Applicant's submitted lighting specifications show fixtures that direct light downwards with cutoff and shielding toward the night sky. This standard is met.

5. Lighting shall be installed where it will not obstruct public ways, driveways, or walkways.

Findings: The Applicant's submitted lighting plan shows that light fixtures do not obstruct any walkways, driveways, or public ways. This standard is met.

6. Walkway lighting in private areas shall have a minimum average illumination of not less than 0.2 foot-candles. Lighting along public walkways shall meet the current version of the Public Works Design Standards and AASHTO lighting requirements.

Findings: The Applicant's submitted lighting plan shows that the average walkway lighting exceeds 0.2 foot candles. This standard is met.

7. Active building entrances shall have a minimum average illumination of not less than two foot-candles.

Findings: The Applicant's submitted lighting plan shows that average illumination around the proposed primary building entrance is greater than or equal to the minimum average illumination of two foot-candles. This standard is met.

8. Surfaces of signs shall have an illumination level of not more than two foot-candles.

Findings: No signs are proposed with this application. This standard will be met with any sign permit applications.

9. Parking lots and outdoor services areas, including quick vehicle service areas, shall have a minimum illumination of not less than 0.2 foot-candles, average illumination of approximately 0.8 foot-candles, and a uniformity ratio (maximum-to-minimum ratio) of not more than 20:1.

Findings: These standards are met subject to a condition of approval. The Applicant's submitted site plan shows that the proposed parking area meet minimum illumination standards. Average illumination is significantly greater than the recommended 0.8 foot candle limit. As a condition of approval, the Applicant shall submit a revised photometrics plan that shows the average parking lot illumination near the recommended 0.8 foot candle average with a minimum/maximum foot candle ration of not more than 20:1.

10. Where illumination grid lighting plans cannot be reviewed or if fixtures do not provide photometrics and bulbs are under 2,000 lumens, use the following guidelines:
    a. Poles should be no greater in height than four times the distance to the property line.
    b. Maximum lumen levels should be based on fixture height.
    c. Private illumination shall not be used to light adjoining public right-of-way.

Findings: The Applicant's submitted narrative states that the parking lights are over 2000 lumens These standards are met.

11. Where a light standard is placed within a walkway, an unobstructed pedestrian through zone not less than 48 inches wide shall be maintained.

Findings: The Applicant's submitted lighting plan does not include lighting standards within the pedestrian walkway. This standard is met.

12. Lighting subject to this section shall consist of materials approved for outdoor use and shall be installed according to the manufacturer's specifications.

Findings: This Applicant's submitted lighting specifications show lighting that are intended for outdoor use. Applicant states in their narrative that they will install lighting to manufacturers specifications. This standard is met.

D. Permitting. A Type I approval is required to install or replace outdoor lighting. The Planning Official may require lighting as a condition of approval for some projects, pursuant to other Code requirements.
E. Maintenance. For public health and safety, outdoor lighting shall be maintained in good condition, or otherwise replaced by the property owner. (Ord. 2017-08 §1)

Findings: These standards are met subject to a condition of approval. As an ongoing condition of approval, all outdoor lighting shall be maintained in good condition, or otherwise replaced by the property owner.

Chapter 17-3.5 Parking and Loading

Section 17-3.5.020 Applicability and General Regulations

A. **Where the Regulations Apply.** The regulations of this chapter apply to all parking areas in all zones, at all times, whether parking is required by this Code or put in for the convenience of property owners or users.
B. **Occupancy.** All required parking areas must be developed in accordance with the requirements of this Code prior to occupancy of any structure on the subject site. Where landscaping, screening, or other improvements are required pursuant to this Code, all such improvements must be installed and approved by the Planning Official prior to occupancy.

Findings: These standards are met subject to a condition of approval. As a condition of approval, all landscaping, parking, lighting, and other improvements shall be installed and approved by the Planning Official prior to occupancy.

C. **Calculations of Amounts of Required and Allowed Parking.**
    1. When computing parking spaces based on floor area, parking structures and non-leasable floor spaces, such as storage closets, mechanical equipment rooms, and similar spaces, are not counted.
    2. The number of parking spaces is computed based on the primary uses on the site except as stated in subsection C.3. When there are two or more separate primary uses on a site, the minimum and maximum parking for the site is the sum of the required or allowed parking for the individual primary uses. For shared parking, see Section 17-3.5.030.D.

3. When more than 50 percent of the floor area on a site is in an accessory use, the required or allowed parking is calculated separately for the accessory use. An example would be a 10,000 square foot building with a 7,000 square foot warehouse and a 3,000 square foot accessory retail area. The minimum and maximum parking would be computed separately for the retail and warehouse uses.
4. Required parking spaces periodically used for the storage of equipment or goods may be counted toward meeting minimum parking standards, provided that such storage is an allowed use under Section 17-2.2.030, and is permitted as a Temporary Use under Section 17-2.3.160.

Findings: Only one retail tenant is considered in the evaluation of parking for this proposal. There are no accessory uses. Parking spaces are intended for temporary vehicle storage uses only.

D. **Use of Required Parking Spaces.** Except as otherwise provided by this section, required parking spaces must be available for residents, customers, or employees of the use. Fees may be charged for the use of required parking spaces. Required parking spaces may not be assigned in any way to a use on another site, except for shared parking pursuant to Section 17-3.5.030.D.

E. **Proximity of Parking to Use.** Required parking spaces for residential uses must be located on the site of the use or on a parcel or tract owned in common by all the owners of the properties that will use the parking area. Required parking spaces for nonresidential uses must be located on the site of the use or in a parking area that has its closest pedestrian access point within 800 feet of the site.

Findings: Staff finds that the proposed parking spaces are provided for customers and employees of the site and that the proposed parking lot is on site and closer than 800 ft from primary pedestrian entrances. These standards are met.

F. **Improvement of Parking Areas.** Motorized vehicle parking is allowed only on streets with an improved shoulder of sufficient width; within garages, carports, and other approved structures; and on driveways or parking lots that have been developed in conformance with this Code. For applicable design standards, see Chapter 17-3.2 Building Orientation and Design; Chapter 17-3.3 Access and Circulation; Chapter 17-3.4 Landscaping, Fences and Walls, Outdoor Lighting and Chapter 17-3.6 Public Facilities. (Ord. 2017-08 §1)

Findings: There is no proposed parking within the right-of-way. This standard is met.

Section 17-3.5.030 Automobile Parking

A. **Minimum Number of Off-Street Automobile Parking Spaces.** Except as provided by this subsection A, or as required for Americans with Disabilities Act compliance under subsection G, off-street parking shall be provided pursuant to one of the following three standards:
    1. The standards in Table 17-3.5.030.A;
    2. A standard from Table 17-3.5.030.A for a use that the Planning Official determines is similar to the proposed use; or
    3. Subsection B Exceptions, which includes a Parking Demand Analysis option.

Findings: Staff finds that the Applicant is providing parking for 23,000 SF of retail space. Retail uses require one (1) parking stall per 400 SF of space. Minimum parking allowances for the site is 58 vehicular stalls. The Applicant's proposal includes 77 parking stalls, which includes the 4 ADA accessible stalls. Minimum parking standards are met.

B. **Carpool and Vanpool Parking Requirements.**
    1. Carpool and vanpool parking spaces shall be identified for the following uses:
        b. New commercial and industrial developments with 50 or more parking spaces;
        c. New institutional or public assembly uses; and
        d. Transit park-and-ride facilities with 50 or more parking spaces.

Findings: The submitted proposal is for a commercial use with greater than 50 parking spaces. These standards apply.

    2. 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.

Findings: The Applicant has proposed four (4) carpool/vanpool spaces on the north side of the building, or 5% of the total spaces. This standard is met.

    3. 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.

Findings: The proposed carpool/vanpool spaces are on the north side of the building, closest to the main entrance. This standard is met.

    4. Required carpool/vanpool spaces shall be clearly marked "Reserved—Carpool/Vanpool Only."

Findings: This standard is met subject to a condition of approval. As a condition of approval, the Applicant shall clearly designate the four (4) proposed carpool/vanpool stalls.

C. Exceptions and Reductions to Off-Street Parking.

Findings: The Applicant has not requested any off-street parking exceptions and Staff finds that no exceptions are necessary to meet compliance with this code. This standard does not apply.

D. **Maximum Number of Off-Street Automobile Parking Spaces.** The maximum number of off-street automobile parking spaces allowed per site equals the minimum number of required spaces for the use pursuant to Table 17-3.5.030.A, times a factor of:

1. 1.2 spaces for uses fronting a street with adjacent on-street parking spaces; or
2. 1.5 spaces, for uses fronting no street with adjacent on-street parking; or
3. A factor based on applicant's projected parking demand, subject to City approval.

Findings: Staff finds that the proposal has no available adjacent off-street parking, which allows for a maximum number of parking stalls that is 1.5x minimum requirements. The maximum number of parking stalls for the proposed development is eighty-six (86) vehicle stalls. The Applicant has proposed seventy-seven (77) vehicle stalls. This standard is met.

E. **Shared Parking.** Required parking facilities for two or more uses, structures, or parcels of land may be satisfied by the same parking facilities used jointly, to the extent that the owners or operators show that the need for parking facilities does not materially overlap (e.g., uses primarily of a daytime versus nighttime nature; weekday uses versus weekend uses), and provided that the right of joint use is evidenced by a recorded deed, lease, contract, or similar written instrument establishing the joint use. Shared parking requests shall be subject to review and approval through a Type I Review.

Findings: The Applicant has not requested any shared parking arrangements. This standard does not apply.

F. **Parking Stall Design and Minimum Dimensions.** Where a new off-street parking area is proposed, or an existing off-street parking area is proposed for expansion, the entire parking area shall be improved in conformance with this Code. At a minimum the parking spaces and drive aisles shall be paved with asphalt, concrete, or other City-approved materials, provided the Americans with Disabilities Act requirements are met, and shall conform to the minimum dimensions in Table 17-3.5.030.F and the figures below. All off-street parking areas shall contain wheel stops, perimeter curbing, bollards, or other edging as required to prevent vehicles from damaging buildings or encroaching into walkways, sidewalks, landscapes, or the public right-of-way. Parking areas shall also provide for surface water management, pursuant to Section 17-3.6.050.

Findings: All proposed stalls are at a 90 degree angle from the drive aisle. MMC Table 17-3.5.030 F requires that 90 degree angled spaces, as proposed, have at least:

18' stall depth.

8.5' stall curb width

23' drive aisle (2 way).

The Applicant's submitted site plan shows 18' stall depths, 9' stall widths, and a 24' drive aisle. This standard is met.

G. **Adjustments to Parking Area Dimensions.** The dimensions in subsection E are minimum standards. The Planning Official, through a Type II procedure, may adjust the dimensions based on evidence that a particular use will require more or less maneuvering area. For example, the Planning Official may approve an adjustment where an attendant will be present to move vehicles, as with valet parking. In such cases, a form of guarantee must be filed with the City ensuring that an attendant will always be present when the lot is in operation.

Findings: The Applicant has not requested any modifications to parking area dimensions and Staff finds that no adjustments are necessary to meet compliance with this code. This standard does not apply.

H. **Americans with Disabilities Act (ADA).** Parking shall be provided consistent with ADA requirements, including, but not limited to, the minimum number of spaces for automobiles, van-accessible spaces, location of spaces relative to building entrances, accessible routes between parking areas and building entrances, identification signs, lighting, and other design and construction requirements.

Findings: The Applicant has proposed two wheelchair accessible ADA stalls adjacent to the building and two standard ADA accessible spaces. This meets Oregon ADA standards.

I. **Electric Charging Stations.** Charging stations for electric vehicles are allowed as an accessory use to parking areas developed in conformance with this Code, provided the charging station complies with applicable building codes and any applicable state or federal requirements.

Findings: No electric charging stations are proposed. This standard does not apply.

17-3.5.040 Bicycle Parking

A. **Standards.** Bicycle parking spaces shall be provided with new development and, where a change of use occurs, at a minimum, shall follow the standards in Table 17-3.5.040.A. Where an application is subject to Conditional Use Permit approval or the applicant has requested a reduction to an automobile-parking standard, pursuant to Section 17-3.5.030.C, the Planning Official may require bicycle parking spaces in addition to those in Table 17-3.5.040.A.

B. **Design.** Bicycle parking shall consist of staple-design steel racks or other City-approved racks, lockers, or storage lids providing a safe and secure means of storing a bicycle, consistent with the Public Works Design Standards.

C. **Exemptions.** This section does not apply to single-family and duplex housing, home occupations, and agricultural uses.

D. **Hazards.** Bicycle parking shall not impede or create a hazard to pedestrians or vehicles and shall be located to not conflict with the vision clearance standards of Section 17-3.3.030.G.

Findings: The Applicant's submitted site plan shows 15 staple racks. The racks are provided onsite, both east of the building and adjacent to the civic space provided near the northeast corner of the site. With 77 proposed on-site vehicle spaces, parking for 15 bicycles is required. The proposed bicycle parking area does not impede pedestrian traffic nor does it impede vision. Bicycle parking is near the primary retail entrances. These standards are met.

17-3.5.040 Loading Areas

A. **Purpose.** The purpose of Section 17-3.5.050 is to provide adequate loading areas for commercial and industrial uses that do not interfere with the operation of adjacent streets.

B. **Applicability.** Section 17-3.5.050 applies to uses that are expected to have service or delivery truck visits. It applies only to uses visited by trucks with a 40-foot or longer wheelbase, at a frequency of one or more vehicles per week. The Planning Official shall determine through a Type I review the number, size, and location of required loading areas, if any.

Findings: The Applicant's submitted site plans show a proposed loading area at the southern portion of the proposed building, and they anticipate trucks with a wheelbase of 40ft or longer to visit at a frequency greater than one vehicle per week. These criteria apply.

C. **Standard.** Where an off-street loading space is required, it shall be large enough to accommodate the largest vehicle that is expected to serve the use without obstructing vehicles or pedestrian traffic on adjacent streets and driveways. The Planning Official may restrict the use of other public rights-of-way, so applicants are advised to provide complete and accurate information about the potential need for loading spaces.

Findings: The Applicant's submitted site plans show three proposed loading spaces on the south side of the proposed secondhand retail store. The loading dock is set back from the front (east side) of the building which allows for unobstructed loading and unloading without obstructing vehicles or pedestrian traffic on adjacent streets and driveways. This standard is met.

D. **Placement, Setbacks, and Landscaping.** Loading areas shall conform to the standards of Chapter 17-3.2 Building Orientation and Design; Chapter 17-3.3 Access and Circulation; and Chapter 17-3.4 Landscaping, Fences and Walls, Outdoor Lighting. Where parking areas are prohibited between a building and the street, loading areas are also prohibited.

Findings: The Applicant's submitted application addresses Chapters 17-3.2, 17-3.3, and 17-3.4 and Staff has addressed any issues in responses to those sections.

E. **Exceptions and Adjustments.** The Planning Official, through a Type I Review, may approve a loading area adjacent to or within a street right-of-way where it finds that loading and unloading operations are short in duration (i.e., less than one hour), infrequent, do not obstruct traffic during peak traffic hours, do not interfere with emergency response services, and are acceptable to the applicable roadway authority.

Findings: The Applicant's submitted site plans show that the proposed loading area does not require adjacency to or to be within a street right-of-way. This provision does not apply.

Chapter 17-3.6 Public Facilities

17-3.6.020 Transportation Standards

Findings: Transportation standards are met subject to a condition of approval.

A Traffic Impact Analysis analyzing all warrants for the OR-211 and Leroy Ave Intersection is required. Applicant has prepared and submitted a Traffic Impact Analysis for the proposed development which has been analyzed and accepted by the City and ODOT. The Proposed development does not meet signal threshold at the OR 211/Leroy intersection and therefor no signal improvements will be required.

This project is within the Cascade Center development. Applicant is not proposing new connection to the public street system and the proposed development complies with the Cascade Center Development plan. All access to and from the proposed site shall be taken from the existing, approved Cascade Center access locations. No Additional access will be permitted.

17-3.6.030 Public Use Areas

Findings: No public use areas are proposed with this application. These standards do not apply.

17-3.6.040 Sanitary Sewer and Water Service Improvements

Findings:

Sanitary:

This project is within the Cascade Center development. Applicant will be required to connect to sanitary system provided under Cascade Center development.

Water:

This project is within the Cascade Center development. Applicant will be required to connect to water system provided under Cascade Center development. All fire hydrant locations shall be approved by the Fire Marshall. Should Fire Department regulations require additional fire flow that results in looping the water line through the site, applicants engineer shall coordinate with Public Works for the extension of a public water line, and dedication of easements in accordance with MMC 13.4 Water prior to occupancy.

17-3.6.050 Storm Drainage and Surface Water Management Facilities

Findings: This project is within the Cascade Center development. Applicant will be required to connect to storm system provided under Cascade Center development.

17-3.6.060 Utilities

Findings: Utilities standards are met subject to a condition of approval. All utilities to the project shall be served underground services. No overhead crossings of public right of way shall be approved by the City.

17-3.6.070 Easements

Findings: Theses standards are met subject to a condition of approval. Applicant's submitted application shows easements for the public fire line serving the property. As a condition of approval, the Applicant shall coordinate dedication of waterline easements with the Molalla Public Works Department in accordance with MMC 13.4 Water prior to occupancy.

17-3.6.80 Construction Plan Approval

Findings: Construction Plan Approval standards are met subject to conditions of approval. From the materials submitted, it appears that the storm drain, domestic water, and sanitary sewer facilities will be obtained from main line connections and/or extensions. Separate engineering drawings reflecting the installation of public utilities will be required. All public improvements shall be completed and accepted by the Public Works Department prior to issuance of any occupancy.

City of Molalla Construction plan approval requirements include:

A. For commercial and industrial development projects, no building permit may be issued until all required public facility improvements are in place and approved by the City Engineer, or otherwise bonded, in conformance with the provision of the Code and the Public Works Design Standards in accordance with MMC 17-3.6 Public Facilities. All public facilities shall be completed and accepted by the Public Works Department prior to issuance of final occupancy.

B. Staff reserves the right to require revisions/modifications to the public improvement construction plans and completed street improvements if additional modifications or expansion of the sight distance onto adjacent streets is required.

C. No construction of, or connection to, any existing or proposed public utility/improvements will be permitted until all plans are approved by Staff, all fees have been paid, all necessary permits, bonding, right-of-way, and easements have been obtained and approved by staff, and Staff is notified a minimum of 24 hours in advance.

D. All public utility/improvement plans submitted for review shall be based upon a 22"x 34" format and shall be prepared in accordance with the City of Molalla Public Work's Standards.

E. All survey monuments on the subject site or that may be subject to disturbance within the construction area, or the construction of any off-site improvements shall be adequately referenced and protected prior to commencement of any construction activity. If the survey monuments are disturbed, moved, relocated, or destroyed as a result of any construction, the project shall, at its cost, retain the services of a registered

professional land surveyor in the State of Oregon to restore the monument to its original condition and file the necessary surveys as required by Oregon State law. A copy of any recorded survey shall be submitted to Staff.

F. Plans submitted for review shall meet the requirements described in Section 1 of the Molalla Standard Specifications for Public Works Construction.

G. All public improvement designs shall meet the requirements of the Molalla Standard Specifications for Public Works Construction as amended by the Public Works Director.

H. General Erosion Control – The applicant shall install, operate, and maintain adequate erosion control measures in conformance with the standards adopted by the City of Molalla and DEQ during the construction of any public/private utility and building improvements until such time as approved permanent vegetative materials have been installed. Applicant or Applicant's Contractor shall be responsible for all erosion control requirements under the 1200-C permit and shall coordinate directly with DEQ for questions related to 1200-C permit compliance.

E. For non-residential uses, all adverse impacts to adjacent properties, such as light, glare, noise, odor, vibration, smoke, dust, or visual impact, are avoided; or where impacts cannot be avoided, they are minimized; and

Findings: The Applicant's site abuts an existing residential use to the west and an approved residential use to the south. Per the Applicant's submitted photometric plan, substantial light spillover was projected onto these properties. Staff conditioned substantial mitigation of that spillover effect in response to MMC Section 17-3.4.050. Other adverse impacts from the proposed use are not anticipated.

F. The proposal meets all existing conditions of approval for the site or use, as required by prior land use decision(s), as applicable. Note: Compliance with other City codes and requirements, though not applicable land use standards, may be required prior to issuance of building permits. (Ord. 2017-08 §1)

Findings: Staff finds that a previous decision for the Cascade Center Subdivision, Planning File# DRW01-2019, applies to this site and that conditions for that project are satisfied. This standard is met.

Exhibit B:

Application Package For SDR09-2021

Goodwill Molalla

Land Use Application: Site Design Review

Molalla, OR

November 2021

Chicago Title - Oregon
1211 SW Fifth Ave., Ste 2130, Portland, OR 97204

Prelim Title Report

Title Officer: Tony Schadle
Email:
Title No.: 472521007094

Escrow Officer: Patricia Parsons
Email: Patricia.Parsons@ctt.com
Phone No.: 503-973-7417

Property Address: W. Main Street & S. Leroy Avenue (Vacant Land), Molalla, OR 97038

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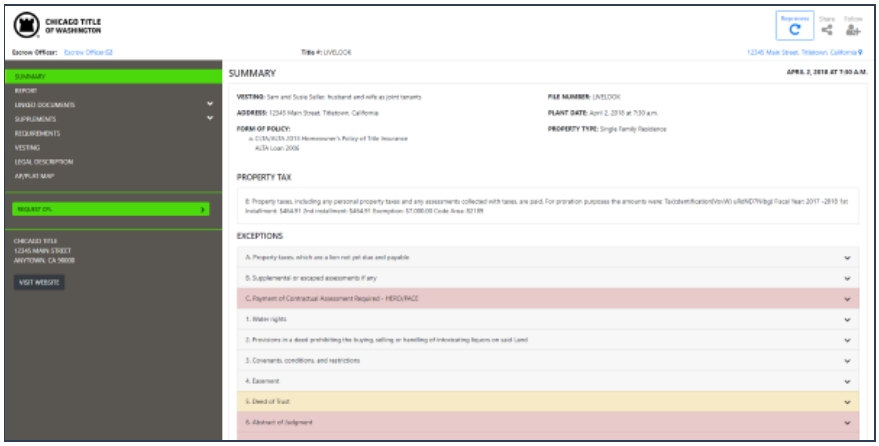

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Chicago Title
Company of Oregon

PRELIMINARY REPORT

In response to the application for a policy of title insurance referenced herein Chicago Title Company of Oregon hereby reports that it is prepared to issue, or cause to be issued, as of the specified date, a policy or policies of title insurance describing the land and the estate or interest hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an exception herein or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations or Conditions of said policy forms.

The printed Exceptions and Exclusions from the coverage of said policy or policies are set forth in Exhibit One. Copies of the policy forms should be read. They are available from the office which issued this report.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby.

The policy(s) of title insurance to be issued hereunder will be policy(s) of Chicago Title Insurance Company, a/an Florida corporation.

Please read the exceptions shown or referred to herein and the Exceptions and Exclusions set forth in Exhibit One of this report carefully. The Exceptions and Exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects and encumbrances affecting title to the land.

This preliminary report is for the exclusive use of the parties to the contemplated transaction, and the Company does not have any liability to any third parties nor any liability until the full premium is paid and a policy is issued. Until all necessary documents are placed of record, the Company reserves the right to amend or supplement this preliminary report.

Countersigned

Maggie Metcalf

Chicago Title Company of Oregon
1211 SW Fifth Ave., Ste 2130, Portland, OR 97204
(503)973-7400 FAX (503)248-0324

PRELIMINARY REPORT

ESCROW OFFICER: Patricia Parsons
Patricia.Parsons@ctt.com
503-973-7417

ORDER NO.: 472521007094

TITLE OFFICER: Tony Schadle
Tony.Schadle@TitleGroup.FNTG.com

TO: Chicago Title Company of Oregon
1211 SW Fifth Ave., Ste 2130
Portland, OR 97204

ESCROW LICENSE NO.: 201004072
OWNER/SELLER: Cascade Center Molalla LLC
BUYER/BORROWER: Goodwill Industries of the Columbia Willamette
PROPERTY ADDRESS: W. Main Street & S. Leroy Avenue (Vacant Land), Molalla, OR 97038

EFFECTIVE DATE: September 27, 2021, 08:00 AM

1. THE POLICY AND ENDORSEMENTS TO BE ISSUED AND THE RELATED CHARGES ARE:

	AMOUNT	PREMIUM
ALTA Owner's Policy 2006 **Owner's Standard (Short Term Rate)** **Proposed Insured: Goodwill Industries of the Columbia Willamette**	$ 1,350,000.00	$ 1,969.00
Government Lien Search		$ 70.00

2. THE ESTATE OR INTEREST IN THE LAND HEREINAFTER DESCRIBED OR REFERRED TO COVERED BY THIS REPORT IS:

   A Fee

3. TITLE TO SAID ESTATE OR INTEREST AT THE DATE HEREOF IS VESTED IN:

   Cascade Center Molalla LLC, an Oregon limited liability company

4. THE LAND REFERRED TO IN THIS REPORT IS SITUATED IN THE CITY OF MOLALLA, COUNTY OF CLACKAMAS, STATE OF OREGON, AND IS DESCRIBED AS FOLLOWS:

   SEE EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF

EXHIBIT "A"

Legal Description

Lots 7 and 8, CASCADE CENTER, in the City of Molalla, County of Clackamas and State of Oregon.

AS OF THE DATE OF THIS REPORT, ITEMS TO BE CONSIDERED AND EXCEPTIONS TO COVERAGE IN ADDITION TO THE PRINTED EXCEPTIONS AND EXCLUSIONS IN THE POLICY FORM WOULD BE AS FOLLOWS:

GENERAL EXCEPTIONS:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.

2. Any facts, rights, interests or claims, which are not shown by the Public Records but which could be ascertained by an inspection of the Land or which may be asserted by persons in possession thereof.

3. Easements, or claims thereof, which are not shown by the Public Records; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.

4. Any encroachment, encumbrance, violation, variation or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records. The term "encroachment" includes encroachments of existing improvements located on the Land onto adjoining land, and encroachments onto the Land of existing improvements located on adjoining land.

5. Any lien, or right to a lien, for services, labor, material or equipment rental, or for contributions due to the State of Oregon for unemployment compensation or worker's compensation, heretofore or hereafter furnished, imposed by law and not shown by the Public Records.

SPECIFIC ITEMS AND EXCEPTIONS:

6. Property taxes in an undetermined amount, which are a lien but not yet payable, including any assessments collected with taxes to be levied for the fiscal year 2021-2022.

7. City Liens, if any, in favor of the City of Molalla. An inquiry has been directed to the City Clerk concerning the status of said liens and a report will follow if such liens are found.

   NOTE: As disclosed by City of Molalla Resolution 2010-01, recorded April 13, 2010 as Recorder's Fee No. 2010-022085 and amended by instrument recorded June 18, 2013 as Recorder's Fee No. 2013-042319, at the time when connection to City utility is sought, the City of Molall shall collectan Advance Finance District Reimbursement Fee in addtion to any normal applicable system development charges and permit fees, which charges are not a lien untill such time as service connection is sought during the permitting process.

8. Waiver of Remonstrance and Consent to Local Improvement District:
   Purpose: Sewer system
   Recording Date: July 23, 1996
   Recording No.: 96-053377

9. City of Molalla Resolution 2010-01 Authorizing an Advance Financing Agreement and Spreading Reimbursement Costs for a Public Improvement, including the terms and provisions thereof;
   Recording Date: April 13, 2010
   Recording No.: 2010-022085

   As amended by instrument;
   Recording Date: June 18, 2013
   Recording No.: 2013-042319

10. Easements for the purposes shown below and rights incidental thereto as delineated or as offered for dedication on the recorded plat of CASCAE CENTER;
a: Purpose: Access
Affects: Various strip through the Northerly and Easterly portions of Lot 7

b: Purpose: Public utility
Affects: The West and South 8 feet of Lot 7 and the East 10 feet of Lot 8

c: Purpose: Public sanitary sewer
Affects: The East 15 feet of Lot 7 and a 15 foot strip through the central portion of Lot 8

d: Purpose: Public waterline
Affects: A 15 foot wide strip through the Northerly and Southeasterly portions of Lot 7

11. Amended and Restated Declaration of Covenants, Servitudes, Restrictions and Easements but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, source of income, gender, gender identity, gender expression, medical condition or genetic information, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth in the document:
Recording Date: May 20, 2021
Recording No.: 2021-050457
(Affects Lot 7)

NOTE: Said instrument contains, among other things, provisions for maintenance obligations and assessments imposed by the Manager for maintenance costs.

12. Easement for the purpose shown below and rights incidental thereto, as granted in a document:
Granted to: The City of Molalla
Purpose: Pipeline
Recording Date: May 21, 2021
Recording No.: 2021-050925
Affects: The Northerly and Southeasterly portions of Lot 7

13. Existing leases and tenancies, if any, and any interests that may appear upon examination of such leases.

14. Please be advised that our search did not disclose any open Deeds of Trust of record. If you should have knowledge of any outstanding obligation, please contact the Title Department immediately for further review prior to closing.

15. The Company will require the following documents for review prior to the issuance of any title insurance predicated upon a conveyance or encumbrance from the entity named below.
Limited Liability Company: **Cascade Center Molalla LLC**
a. A copy of its operating agreement, if any, and any and all amendments, supplements and/or modifications thereto, certified by the appropriate manager or member.
b. If a domestic Limited Liability Company, a copy of its Articles of Organization and all amendment thereto with the appropriate filing stamps.
c. If the Limited Liability Company is member-managed a full and complete current list of members certified by the appropriate manager or member.
d. A current dated certificate of good standing from the proper governmental authority of the state in which the entity was created.
e. If less than all members, or managers, as appropriate, will be executing the closing documents, furnish evidence of the authority of those signing.

The Company reserves the right to add additional items or make further requirements after review of the requested documentation.

16. If requested to issue an extended coverage ALTA loan policy, the following matters must be addressed:
a: The rights of tenants holding under unrecorded leases or tenancies
b: Matters disclosed by a statement as to parties in possession and as to any construction, alterations or repairs to the Land within the last 75 days. The Company must be notified in the event that any funds are to be used for construction, alterations or repairs.
c: Any facts which would be disclosed by an accurate survey of the Land

ADDITIONAL REQUIREMENTS/NOTES:

A. NOTE: Property taxes for the fiscal year shown below were paid prior to the dedication of the plat.
Fiscal Year: 2020-2021
Number of Lots: 12
Amount: $1,632.14
Levy Code: 035-039
Account No.: 01092169
Map No.: 52E08C 00400

Amount: $143.35
Levy Code: 035-039
Account No.: 01092178
Map No.: 52E08C 00500

Amount: $2,007.98
Levy Code: 035-039
Account No.: 01092187
Map No.: 52E08C 00600

Amount: $1,920.24
Levy Code: 035-039
Account No.: 01092196
Map No.: 52E08C 00700

Amount: $4,223.35
Levy Code: 035-039
Account No.: 01092203
Map No.: 52E08C 00800

Amount: $155.29
Levy Code: 035-039
Account No.: 01092212
Map No.: 52E08C 00801

Amount: $1,270.29
Levy Code: 035-039
Account No.: 01092221
Map No.: 52E08C 00900

The new Tax information appears as follows:
Account No.: 05036560
Map No.: 52E08C 04500
(Affects Lot 7)

Account No.: 05036561
Map No.: 52E08C 04600
(Affects a portion of Lot 8)

Account No.: 05036563
Map No.: 52E08C 04601
(Affects a portion of Lot 8)

B. NOTE: There are no matters against the party shown below which would appear as exceptions to coverage in a title insurance product:
Party: **Goodwill Industries of the Columbia Willamette**

C. NOTE: The Company will require the following documents for review prior to the issuance of any title insurance predicated upon a conveyance or encumbrance by the non-profit named below.
Name of Non-Profit: **Goodwill Industries of the Columbia Willamette**
a: Proof of incorporation from the state or other place of incorporation.
b: A copy of its discipline, by-laws or other regulations authorizing real estate transactions.
c: A copy of the resolution authorizing the purchase, sale or encumbrance of real property and designating appropriate officers to represent the non-profit.
d: A current dated certificate of good standing from the proper governmental authority of the state in which the entity was created.

The Company reserves the right to add additional items or make further requirements after review of the requested documentation.

D. In addition to the standard policy exceptions, the exceptions enumerated above shall appear on the final 2006 ALTA Policy unless removed prior to issuance.

E. NOTE: No utility search has been made or will be made for water, sewer or storm drainage charges unless the City/Service District claims them as liens (i.e. foreclosable) and reflects them on its lien docket as of the date of closing. Buyers should check with the appropriate city bureau or water service district and obtain a billing cutoff. Such charges must be adjusted outside of escrow.

F. NOTE: Effective January 1, 2008, Oregon law (ORS 314.258) mandates withholding of Oregon income taxes from sellers who do not continue to be Oregon residents or qualify for an exemption. Please contact your Escrow Closer for further information.

G. THE FOLLOWING NOTICE IS REQUIRED BY STATE LAW: YOU WILL BE REVIEWING, APPROVING AND SIGNING IMPORTANT DOCUMENTS AT CLOSING. LEGAL CONSEQUENCES FOLLOW FROM THE SELECTION AND USE OF THESE DOCUMENTS. YOU MAY CONSULT AN ATTORNEY ABOUT THESE DOCUMENTS. YOU SHOULD CONSULT AN ATTORNEY IF YOU HAVE QUESTIONS OR CONCERNS ABOUT THE TRANSACTION OR ABOUT THE DOCUMENTS. IF YOU WISH TO REVIEW TRANSACTION DOCUMENTS THAT YOU HAVE NOT SEEN, PLEASE CONTACT THE ESCROW AGENT.

H. NOTE: This map/plat is being furnished as an aid in locating the herein described Land in relation to adjoining streets, natural boundaries and other land. Except to the extent a policy of title insurance is expressly modified by endorsement, if any, the Company does not insure dimensions, distances or acreage shown thereon.

I. Recording Charge (Per Document) is the following:

County	First Page	Each Additional Page
Clackamas	$93.00	$5.00

NOTE: When possible the company will record electronically. An additional charge of $5.00 applies to each document that is recorded electronically.

NOTE: Please send any documents for recording to the following address:
Portland Title Group
Attn: Recorder
1433 S.W. 6th Avenue
Portland, OR 97201

J. NOTICE: Please be aware that due to the conflict between federal and state laws concerning the cultivation, distribution, manufacture or sale of marijuana, the Company is not able to close or insure any transaction involving Land that is associated with these activities.

K. NOTE: IMPORTANT INFORMATION REGARDING PROPERTY TAX PAYMENTS

Fiscal Year: July 1st through June 30th

Taxes become a lien on real property, but are not yet payable: July 1st

Taxes become certified and payable (approximately on this date): October 15th

First one third payment of taxes is due: November 15th

Second one third payment of taxes is due: February 15th

Final payment of taxes is due: May 15th

Discounts: If two thirds are paid by November 15th, a 2% discount will apply. If the full amount of the taxes are paid by November 15th, a 3% discount will apply.

Interest: Interest accrues as of the 15th of each month based on any amount that is unpaid by the due date. No interest is charged if the minimum amount is paid according to the above mentioned payment schedule.

EXHIBIT ONE

2006 AMERICAN LAND TITLE ASSOCIATION LOAN POLICY (06-17-06)
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses that arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning) restricting, regulating, prohibiting or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions or location of any improvement erected on the land;
   (iii) the subdivision of land; or
   (iv) environmental protection;
   or the effect of any violation of these laws, ordinances or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed or agreed to by the Insured Claimant;
   (b) not known to the Company, not recorded in the Public Records at Date of Policy, but known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13, or 14); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with the applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in the Covered Risk 13(b) of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage.

SCHEDULE B - GENERAL EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Facts, rights, interests or claims which are not shown by the Public Records but which could be ascertained by an inspection of the Land or by making inquiry of persons in possession thereof.
3. Easements, or claims of easement, not shown by the Public Records; reservations or exceptions in patents or in Acts authorizing the issuance thereof, water rights, claims or title to water.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land. The term "encroachment" includes encroachments of existing improvements located on the Land onto adjoining land, and encroachments onto the Land of existing improvements located on adjoining land.
5. Any lien for services, labor or material heretofore or hereafter furnished, or for contributions due to the State of Oregon for unemployment compensation or worker's compensation, imposed by law and not shown by the Public Records.

2006 AMERICAN LAND TITLE ASSOCIATION OWNER'S POLICY (06-17-06)
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses that arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning) restricting, regulating, prohibiting or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions or location of any improvement erected on the land;
   (iii) the subdivision of land; or
   (iv) environmental protection;
   or the effect of any violation of these laws, ordinances or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed or agreed to by the Insured Claimant;
   (b) not known to the Company, not recorded in the Public Records at Date of Policy, but known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 and 10); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in the Covered Risk 9 of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage.

SCHEDULE B - GENERAL EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Facts, rights, interests or claims which are not shown by the Public Records but which could be ascertained by an inspection of the Land or by making inquiry of persons in possession thereof.
3. Easements, or claims of easement, not shown by the Public Records; reservations or exceptions in patents or in Acts authorizing the issuance thereof, water rights, claims or title to water.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land. The term "encroachment" includes encroachments of existing improvements located on the Land onto adjoining land, and encroachments onto the Land of existing improvements located on adjoining land.
5. Any lien for services, labor or material heretofore or hereafter furnished, or for contributions due to the State of Oregon for unemployment compensation or worker's compensation, imposed by law and not shown by the Public Records.

WIRE FRAUD ALERT

This Notice is not intended to provide legal or professional advice.
If you have any questions, please consult with a lawyer.

All parties to a real estate transaction are targets for wire fraud and many have lost hundreds of thousands of dollars because they simply relied on the wire instructions received via email, without further verification. **If funds are to be wired in conjunction with this real estate transaction, we strongly recommend verbal verification of wire instructions through a known, trusted phone number prior to sending funds.**

In addition, the following non-exclusive self-protection strategies are recommended to minimize exposure to possible wire fraud.

- **NEVER RELY** on emails purporting to change wire instructions. Parties to a transaction rarely change wire instructions in the course of a transaction.
- **ALWAYS VERIFY** wire instructions, specifically the ABA routing number and account number, by calling the party who sent the instructions to you. DO NOT use the phone number provided in the email containing the instructions, use phone numbers you have called before or can otherwise verify. **Obtain the number of relevant parties to the transaction as soon as an escrow account is opened.** DO NOT send an email to verify as the email address may be incorrect or the email may be intercepted by the fraudster.
- **USE COMPLEX EMAIL PASSWORDS** that employ a combination of mixed case, numbers, and symbols. Make your passwords greater than eight (8) characters. Also, change your password often and do NOT reuse the same password for other online accounts.
- **USE MULTI-FACTOR AUTHENTICATION** for email accounts. Your email provider or IT staff may have specific instructions on how to implement this feature.

For more information on wire-fraud scams or to report an incident, please refer to the following links:

Federal Bureau of Investigation:
http://www.fbi.gov

Internet Crime Complaint Center:
http://www.ic3.gov

FIDELITY NATIONAL FINANCIAL
PRIVACY NOTICE

Effective January 1, 2021

Fidelity National Financial, Inc. and its majority-owned subsidiary companies (collectively, "FNF," "our," or "we") respect and are committed to protecting your privacy. This Privacy Notice explains how we collect, use, and protect personal information, when and to whom we disclose such information, and the choices you have about the use and disclosure of that information.

A limited number of FNF subsidiaries have their own privacy notices. If a subsidiary has its own privacy notice, the privacy notice will be available on the subsidiary's website and this Privacy Notice does not apply.

Collection of Personal Information

FNF may collect the following categories of Personal Information:

- contact information (*e.g.*, name, address, phone number, email address);
- demographic information (*e.g.*, date of birth, gender, marital status);
- identity information (*e.g.* Social Security Number, driver's license, passport, or other government ID number);
- financial account information (*e.g.* loan or bank account information); and
- other personal information necessary to provide products or services to you.

We may collect Personal Information about you from:

- information we receive from you or your agent;
- information about your transactions with FNF, our affiliates, or others; and
- information we receive from consumer reporting agencies and/or governmental entities, either directly from these entities or through others.

Collection of Browsing Information

FNF automatically collects the following types of Browsing Information when you access an FNF website, online service, or application (each an "FNF Website") from your Internet browser, computer, and/or device:

- Internet Protocol (IP) address and operating system;
- browser version, language, and type;
- domain name system requests; and
- browsing history on the FNF Website, such as date and time of your visit to the FNF Website and visits to the pages within the FNF Website.

Like most websites, our servers automatically log each visitor to the FNF Website and may collect the Browsing Information described above. We use Browsing Information for system administration, troubleshooting, fraud investigation, and to improve our websites. Browsing Information generally does not reveal anything personal about you, though if you have created a user account for an FNF Website and are logged into that account, the FNF Website may be able to link certain browsing activity to your user account.

Other Online Specifics

Cookies. When you visit an FNF Website, a "cookie" may be sent to your computer. A cookie is a small piece of data that is sent to your Internet browser from a web server and stored on your computer's hard drive. Information gathered using cookies helps us improve your user experience. For example, a cookie can help the website load properly or can customize the display page based on your browser type and user preferences. You can choose whether or not to accept cookies by changing your Internet browser settings. Be aware that doing so may impair or limit some functionality of the FNF Website.

Web Beacons. We use web beacons to determine when and how many times a page has been viewed. This information is used to improve our websites.

Do Not Track. Currently our FNF Websites do not respond to "Do Not Track" features enabled through your browser.

Links to Other Sites. FNF Websites may contain links to unaffiliated third-party websites. FNF is not responsible for the privacy practices or content of those websites. We recommend that you read the privacy policy of every website you visit.

Use of Personal Information

FNF uses Personal Information for three main purposes:

- To provide products and services to you or in connection with a transaction involving you.
- To improve our products and services.
- To communicate with you about our, our affiliates', and others' products and services, jointly or independently.

When Information Is Disclosed

We may disclose your Personal Information and Browsing Information in the following circumstances:

- to enable us to detect or prevent criminal activity, fraud, material misrepresentation, or nondisclosure;
- to nonaffiliated service providers who provide or perform services or functions on our behalf and who agree to use the information only to provide such services or functions;
- to nonaffiliated third party service providers with whom we perform joint marketing, pursuant to an agreement with them to jointly market financial products or services to you;
- to law enforcement or authorities in connection with an investigation, or in response to a subpoena or court order; or
- in the good-faith belief that such disclosure is necessary to comply with legal process or applicable laws, or to protect the rights, property, or safety of FNF, its customers, or the public.

The law does not require your prior authorization and does not allow you to restrict the disclosures described above. Additionally, we may disclose your information to third parties for whom you have given us authorization or consent to make such disclosure. We do not otherwise share your Personal Information or Browsing Information with nonaffiliated third parties, except as required or permitted by law. We may share your Personal Information with affiliates (other companies owned by FNF) to directly market to you. Please see "Choices with Your Information" to learn how to restrict that sharing.

We reserve the right to transfer your Personal Information, Browsing Information, and any other information, in connection with the sale or other disposition of all or part of the FNF business and/or assets, or in the event of bankruptcy, reorganization, insolvency, receivership, or an assignment for the benefit of creditors. By submitting Personal Information and/or Browsing Information to FNF, you expressly agree and consent to the use and/or transfer of the foregoing information in connection with any of the above described proceedings.

Security of Your Information

We maintain physical, electronic, and procedural safeguards to protect your Personal Information.

Choices With Your Information

If you do not want FNF to share your information among our affiliates to directly market to you, you may send an "opt out" request as directed at the end of this Privacy Notice. We do not share your Personal Information with nonaffiliates for their use to direct market to you without your consent.

Whether you submit Personal Information or Browsing Information to FNF is entirely up to you. If you decide not to submit Personal Information or Browsing Information, FNF may not be able to provide certain services or products to you.

For California Residents: We will not share your Personal Information or Browsing Information with nonaffiliated third parties, except as permitted by California law. For additional information about your California privacy rights, please visit the "California Privacy" link on our website (https://fnf.com/pages/californiaprivacy.aspx) or call (888) 413-1748.

For Nevada Residents: You may be placed on our internal Do Not Call List by calling (888) 934-3354 or by contacting us via the information set forth at the end of this Privacy Notice. Nevada law requires that we also provide you with the following contact information: Bureau of Consumer Protection, Office of the Nevada Attorney General, 555 E. Washington St., Suite 3900, Las Vegas, NV 89101; Phone number: (702) 486-3132; email: BCPINFO@ag.state.nv.us.

For Oregon Residents: We will not share your Personal Information or Browsing Information with nonaffiliated third parties for marketing purposes, except after you have been informed by us of such sharing and had an opportunity to indicate that you do not want a disclosure made for marketing purposes.

For Vermont Residents: We will not disclose information about your creditworthiness to our affiliates and will not disclose your personal information, financial information, credit report, or health information to nonaffiliated third parties to market to you, other than as permitted by Vermont law, unless you authorize us to make those disclosures.

Information From Children

The FNF Websites are not intended or designed to attract persons under the age of eighteen (18). We do not collect Personal Information from any person that we know to be under the age of thirteen (13) without permission from a parent or guardian.

International Users

FNF's headquarters is located within the United States. If you reside outside the United States and choose to provide Personal Information or Browsing Information to us, please note that we may transfer that information outside of your country of residence. By providing FNF with your Personal Information and/or Browsing Information, you consent to our collection, transfer, and use of such information in accordance with this Privacy Notice.

FNF Website Services for Mortgage Loans

Certain FNF companies provide services to mortgage loan servicers, including hosting websites that collect customer information on behalf of mortgage loan servicers (the "Service Websites"). The Service Websites may contain links to both this Privacy Notice and the mortgage loan servicer or lender's privacy notice. The sections of this Privacy Notice titled When Information is Disclosed, Choices with Your Information, and Accessing and Correcting Information do not apply to the Service Websites. The mortgage loan servicer or lender's privacy notice governs use, disclosure, and access to your Personal Information. FNF does not share Personal Information collected through the Service Websites, except as required or authorized by contract with the mortgage loan servicer or lender, or as required by law or in the good-faith belief that such disclosure is necessary: to comply with a legal process or applicable law, to enforce this Privacy Notice, or to protect the rights, property, or safety of FNF or the public.

Your Consent To This Privacy Notice; Notice Changes; Use of Comments or Feedback

By submitting Personal Information and/or Browsing Information to FNF, you consent to the collection and use of the information in accordance with this Privacy Notice. We may change this Privacy Notice at any time. The Privacy Notice's effective date will show the last date changes were made. If you provide information to us following any change of the Privacy Notice, that signifies your assent to and acceptance of the changes to the Privacy Notice.

Accessing and Correcting Information; Contact Us

If you have questions, would like to correct your Personal Information, or want to opt-out of information sharing for affiliate marketing, visit FNF's Opt Out Page or contact us by phone at (888) 934-3354 or by mail to:

Fidelity National Financial, Inc.
601 Riverside Avenue,
Jacksonville, Florida 32204
Attn: Chief Privacy Officer

EXHIBIT A

Application Forms

Planning & Community Development
117 N. Molalla Avenue
Molalla, OR. 97038
(503) 759-0219
Fax: (503) 829-3676

FOR OFFICE USE ONLY:	
Planning File No. : _____	City Approval: _____
Date Received: _____ Fee: _____	Title _____
Land Use Type: II	Date: _____
Received by: _____	Fee Paid: _____

APPLICATION FOR LAND USE ACTION

Type of Land Use Action Requested: (check all that apply)

- ☐ Annexation
- ☐ Plan Amendment (Proposed Zone_____)
- ☐ Planned Unit Development
- ☑ Site Design Review
- ☐ Variance (list standards to be varied in description
- ☐ Conditional Use
- ☐ Partition (# of lots _____)
- ☐ Subdivision (# of lots _____)
- ☐ Other: _____

Owner/Applicant:

Applicant:	Goodwill Industries of the Columbia Willamette Attn: Todd Silbernagel	Phone:	503-963-3200
Applicant Address:	1943 SE Sixth Avenue, Portland, OR 97214	Email:	Tsilbernagel@gicw.org
Owner:	Cascade Center Molalla, LLC	Phone:	503. 388. 3640
Owner Address:	27375 SW Parkway Ave, Wilsonville, OR 97070	Email:	jeffbe iccon.us
Contact for additional info:	DOWL Attn: Mike Towle, mtowle@dowl.com, (971) 280-8645		

Property Information:

Address:	Lot 7: 850 West Main St., Molalla, OR 97039; Lot 8: 200 S Leroy Ave., Molalla, OR 97038		
Assessors Map/Taxlot #:	Parcel IDs: 05036561 & 05036560; T5 R23 S8C Tax Lot #s 04500 & 04600		
Current Use of Site:	Vacant	Zoning Designation:	General Commercial (C-2)
Intended Use:	25,000 SF Second-Hand Retail Store		General Commercial (C-2)

Proposed Action:

The applicant is requesting a site design review for the proposed 25,000 SF second-hand retail store. The proposed retail use exceeds 5,000 SF of gross leasable floor area and involves more than one-acre total site area, therefore, a type III site design review procedure is requested.

Proposed Use: Second-Hand Retail Store

Proposed No. of Phases (one each year): 1

Authorizing Signatures:

I hereby certify that the information on this application and attachments are correct and that the property affected by this application is in the exclusive ownership or control of the applicant, or that the applicant has the consent of all partners in ownership of the affected property. An authorization letter from the property owner has been attached in the event that the owner's signature has not been provided below.

Property Owner(s):

Kiril Ivanov — Print or Type

Signature

Print or Type

Signature

Applicant(s) or Authorized Agent:

Todd Silbernagel (for GICW) — Print or Type

Signature

Print or Type

Signature

The following materials must be submitted with your application or it will not be accepted at the counter. Once taken at the counter, the City has up to 30 days to review the materials submitted to determine if we have everything we need to complete the review. Applicant can verify submittal includes specific materials necessary for the application per checklist.

- ☐ **3 Copies of Application Form*** completely filled out and signed by the property owner (or person with authority to make decisions on the property.
- ☐ **Copy of Deed** to verify ownership, easements, etc.
- ☐ **At least 3 folded** sets of plans*
- ☐ **At least 3 copies** of narrative addressing application criteria*
- ☐ **Fee** (along with calculations utilized to determine fee if applicable)

***Please Note** that the required numbers of copies identified on the checklist are required for completeness; however, upon initial submittal applicants are encouraged to submit only 3 copies for completeness review. Prior to completeness, the required number of copies identified on the checklist and one full electronic copy will be required to be submitted.

EXHIBIT B

Pre-application Conference Notes

Planning Department
117 N Molalla Avenue
PO Box 248
Molalla, Oregon 97038
Phone: (503) 759-0205
communityplanner@cityofmolalla.com

Planning Process Summary: Pre10-2021

Applicant:	DOWL Engineering – Mike Towle
Site Address (or TLNO):	850 W Main
Site Zoning:	General Commercial (C-2)
Proposed Use:	New 25,000 SF retail building on a parcel with size to be determined between 1.91 and 4.5 acres after property line adjustment.
Pre-App Conference Date:	May 27, 2021

Process

Concurrent application for Site Design Review and Property Line Adjustment

- Per Molalla Municipal Code Section 17-4.2.020 site design review is required
- Per Molalla Municipal Code Section 17-4.3.120 a property line adjustment is required
- Per Molalla Municipal Code Section 17-4.2.030 the proposed project meets thresholds for Type III Review: Quasi-Judicial Review with a Public Hearing
- Type III Review processes are detailed in Molalla Municipal Code Section 17-4.1.040

Timeline

Site Design Review and Property Line Adjustment

- Upon application submittal, the City has ***30 days*** for "Completeness Review" to determine whether the project meets submission requirements of 17-4.2.040 Application Submission Requirements
- If the project is deemed complete the City has ***120 days*** from that Completeness determination to bring the project to hearing and render a decision

- If the submission is not complete the Applicant has ***180 days*** from the incompleteness determination to resubmit a complete application
- If the project is not appealed, the Decision becomes final **10 days** after issuance of a notice of decision
- If *approved by the Molalla Planning Commission*, the Applicant may submit plans for Public Works Civil Review, integrating all conditions of approval, upon the decision becoming final
- If *approved by the Molalla Planning Commission*, the Applicant may submit plans for building permit authorization, integrating all conditions of approval, upon the decision becoming final. Once issued, the authorization release letter authorizes Clackamas County to conduct building permit review.

Molalla Planning Department Fees

- Type III Site Design Review: $3000
- Property Line Adjustment: $500
- Building Permit Authorization: $750 based on current proposed square footage

Applicable Approval Criteria

Staff has determined that narrative responses to each criterion from the sections below are required:

Chapter 17, Division 2
Section 17-2.2.030 Allowed Uses
Section 17-2.2.040 Lot and Development Standards

Chapter 17, Division 3
Section 17-3.2.040 Non-Residential Buildings
Section 17-3.2.050 Civic Space and Pedestrian Amenities
Chapter 17-3.3 Access and Circulation
Chapter 17-3.4 Landscaping, Fences and Walls, Outdoor Lighting,
Chapter 17-3.5 Parking and Loading
Chapter 17-3.6 Public Facilities

Chapter 17, Division 4
Chapter 17-4.3.120 B Property Line Adjustments Approval Criteria

Reference Sections:

Chapter 17, Division 4
Review all portions of Chapter 17-4.2 Site Design Review
Review all portions of Chapter 17-4.3.120 Property Line Adjustments

Type III procedures are outlined in Section 17-4.1.040

1. *Please confirm all required land use applications, fees, and submittal items to accomplish the project as proposed.*
2. *Please confirm all applicable approval criteria to be addressed with the application (Site Design Review).*
3. *Please confirm the applicable approval criteria for the lot line adjustment to relocate the northern lot line between lots 7 and 8.*

See process document

4. *Please specify Molalla Municipal Code provisions that affect the proposal, including any potential code changes that will affect the proposal.*

The City doesn't have any current or considered ordinance proposals that would affect this project.

5. *Please verify the expected City review and approval process including an expected timeline for the project.*

See process document.

6. *Please confirm that the property is not subject to additional design review standards or overlays.*

No overlays. The notable "additional" review required would be civic space requirements – 3% of total site. May consider PLA dimensions for that purpose. For pedestrian purposes, one primary entrance ought to be at the northeast corner.

7. *Please provide some potential or anticipated conditions of approval expected for the project.*

Planning conditions will pertain to areas where applicable criteria standards are not met or could be improved upon for the submitted application.

For the current proposal:

- Overall, there is too much parking. ~86 spaces is the max.
- Truck turning movements for loading encroach on other properties. Reduction of parking and/or movement of the proposed property line are methods to resolve this.
- Make sure landscaping (5%), parking lot landscaping (10%), bike parking (1 per 5 auto spaces) meet standards
- Parking can not be located in drive aisle movement areas. Needs parking reduction and separation (NE Corner)
- Inclusion of civic space
- If no use is proposed for lot 8, it can be left blank

Other departments/agencies should also weigh in on this one.

8. *Please confirm any required traffic studies or other special studies that may be required.*

Gerald can extrapolate on necessity for a revised TIA due to modification of the building and site.

9. *Please confirm if there are any conditions of approval from the original master plan approval that would impact the proposed development.*

These conditions been covered in construction of the overall development. Planning will assess this application for its compliance with applicable criteria to this site design review.

10. *Please confirm any specific architectural standards or requirements for the building design (see attached photo for typical building aesthetic).*

Refer to Section 17-3.2.040 – Non-Residential buildings.

First impression - the included design hits many of the design standards. You probably wouldn't need to stray too far from this model. Be particularly mindful

of window and pedestrian canopy coverage as those are areas that are clearly deficient.

11. *Please confirm if there are any required public improvements required for the site.*

Defer to Gerald.

May 27, 2021

Below are preliminary comments for the Goodwill Store located in the Cascade Center.

Watch FDC locations as they cannot block roadways. Please submit FDC locations to Molalla Fire for approval. See 2019 Oregon Fire Code section 912.

Need construction type of the building (Type II, IIIB, V) as this building was not part of the complex when it was the plan was initially developed. It appears possibly Type 5 but I want to be sure.

Emergency Responder Radio Coverage will need to be evaluated as per section 510 of the 2019 Oregon Fire Code. Please red this section carefully. If you choose performance testing after the building is constructed, and the test does not meet the requirements of Section 510 of the 2019 Oregon Fire Code, you will be required to install the system outlined in section 510, or an equivalent approved by Molalla Fire District, prior to Molalla Fire Signing off on the C of O.

Michael C. Penunuri

The above comments are based solely on the site plan provided. Molalla Fire reserves the right to review and comment on the plans that are to be submitted for full review or revisions to plans that have already been reviewed.

Review of submitted plans is not an approval of omissions, oversights or authorization of non-compliance with any regulations of this agency or of the regulations of any other agency. This decision should not be considered a precedent setting recommendation, as we will review each project on a case-by-case basis.

Molalla Fire District No 73
320 N Molalla Avenue
Molalla, OR 97038

Office No: 503.829.2200
Office Fax: 503.829.5794

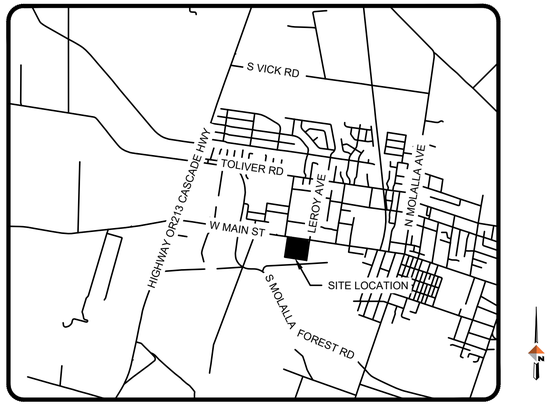
www.molallafire.org

EXHIBIT C

Plan Set

GOODWILL MOLALLA

MOLALLA, OREGON
DESIGN DOCUMENTS



VICINITY MAP
SCALE = NTS

SITE INFORMATION

SITE LOCATION: LOCATED ON THE SOUTHWEST CORNER OF THE INTERSECTION OF W MAIN STREET AND LEROY AVENUE LOCATED IN THE NORTHEAST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 8, TOWNSHIP 5 SOUTH, RANGE 2 EAST OF THE WILLAMETTE MERIDIAN, IN THE CITY OF MOLALLA, COUNTY OF CLACKAMAS AND STATE OF OREGON.

DISTURBED AREA: 1.88 ACRES

VERTICAL DATUM

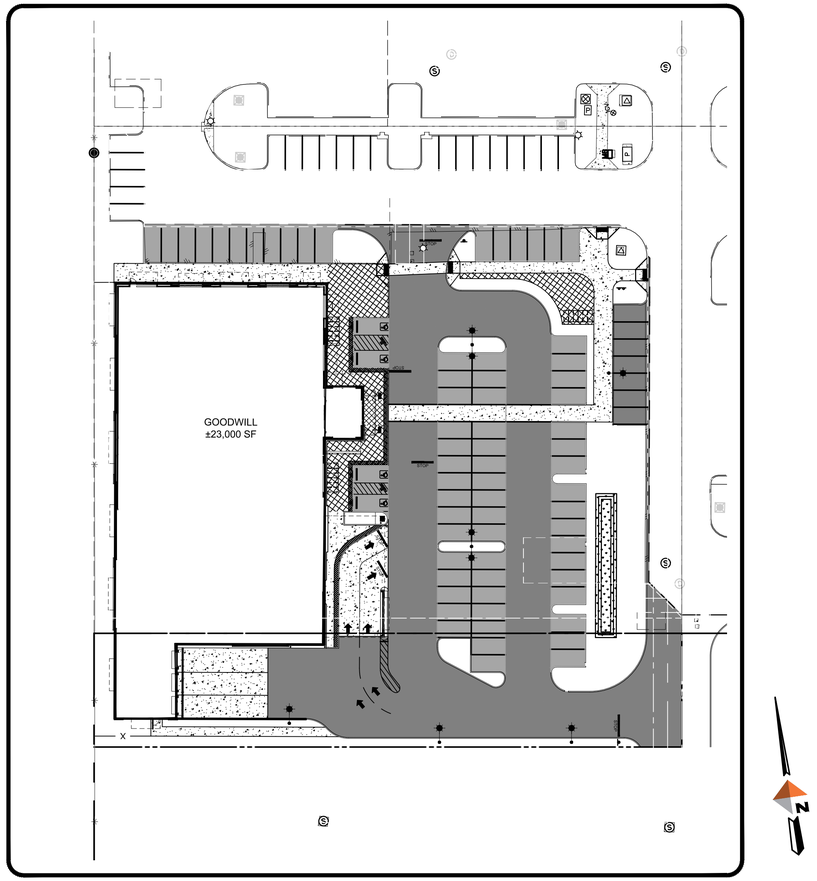
BASED PROVIDED PREVIOUS DESIGN DATA OF CASCADE CENTER. MULTIPLE PUBLISHED DESIGN DATA OINTS WERE TIED TO AND MATCHED THE ELEVATIONS WITHIN 0.06+-. SEE CONSTRUCTION DOCUMENTS OF CASCADE CENTER PLAT FOR FULL DATUM PARTICULARS.

HORIZONTAL DATUM (BASIS OF BEARINGS)

BASIS OF BEARINGS FOR THE SURVEY IS MATCHED TO FOUND MONUMENTS PER THE PLAT OF CASCADE CENTER.

PROJECT DESCRIPTION

A GOODWILL RETAIL STORE ON A PROPERTY WITH AN AREA OF XXX SF (XXX ACRES) WILL CONSIST OF A BUILDING FOOTPRINT OF APPROXIMATELY 23,000 SF WITH 3 TRUCK LOADING BAYS AND ASSOCIATED ASPHALT-PAVED PARKING AND DRIVING AREAS. THE SITE ALSO INCLUDES STORMWATER (CONVEYANCE & FACILITIES), SANITARY SEWER, AND WATER UTILITIES. THE OWNER PROPOSED TO PURCHASE A PORTION OF THE ADJACENT SOUTHERN PROPERTY TO INCLUDE IN THE PREVIOUSLY MENTIONED PROPERTY AREA. THIS RETAIL FACILITY IS PART OF THE PROPOSED CASCADE CENTER COMMERCIAL DEVELOPMENT.



SITE MAP
SCALE: 1" = 40'

SHEET INDEX

OREGON UTILITY
NOTIFICATION CENTER
1-800-332-2344

CALL BEFORE YOU DIG

ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER. (NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503) 232-1987).

PROJECT TEAM

APPLICANT
GOODWILL IND. OF THE COLUMBIA WILLAMETTE
ATTN: TODD SILBERNAGEL
1943 SE SIXTH AVENUE
PORTLAND, OREGON 97214
PHONE: (503)-963-3200
FAX: (503)-925-1903

ARCHITECT
WOODBLOCK ARCHITECTURE
ATTN: MICHAEL PARSHALL
827 SW 2ND AVENUE, STE. 300
PORTLAND, OREGON 97204
PHONE: (503)-889-0604

CIVIL ENGINEER
DOWL
ATTN: MIKE TOWLE, PE
720 SW WASHINGTON STREET, STE. 750
PORTLAND, OREGON 97205
PHONE: (971)-280-8645
FAX: (800)-865-9847

LANDSCAPE ARCHITECT
DOWL
ATTN: PAT GAYNOR, RLA
720 SW WASHINGTON STREET, STE. 750
PORTLAND, OREGON 97205
PHONE: (971)-280-8645
FAX: (800)-865-9847

SURVEYOR
S&F LAND SERVICES
ATTN: JERED MCGRATH, PLS
4858 SW SCHOLLS FERRY ROAD, STE. A
PORTLAND, OREGON 97225
PHONE: (503)-345-0328

GEOTECHNICAL ENGINEER
NV5
ATTN: NICK PAVEGLIO, PE
703 BROADWAY STREET, STE. 650
VANCOUVER, WASHINGTON 98660
PHONE: (360)-693-8416

REVISIONS

REV.	DATE	DESCRIPTION	BY

REGISTERED PROFESSIONAL ENGINEER
OREGON
EXPIRATION DATE: 06/30/22
FOR REFERENCE ONLY

GOODWILL INDUSTRIES
OF THE COLUMBIA WILLAMETTE
Donate. Shop. Make a difference.

DOWL
720 SW Washington St.
Suite #750
Portland, Oregon 97205
971-280-8641

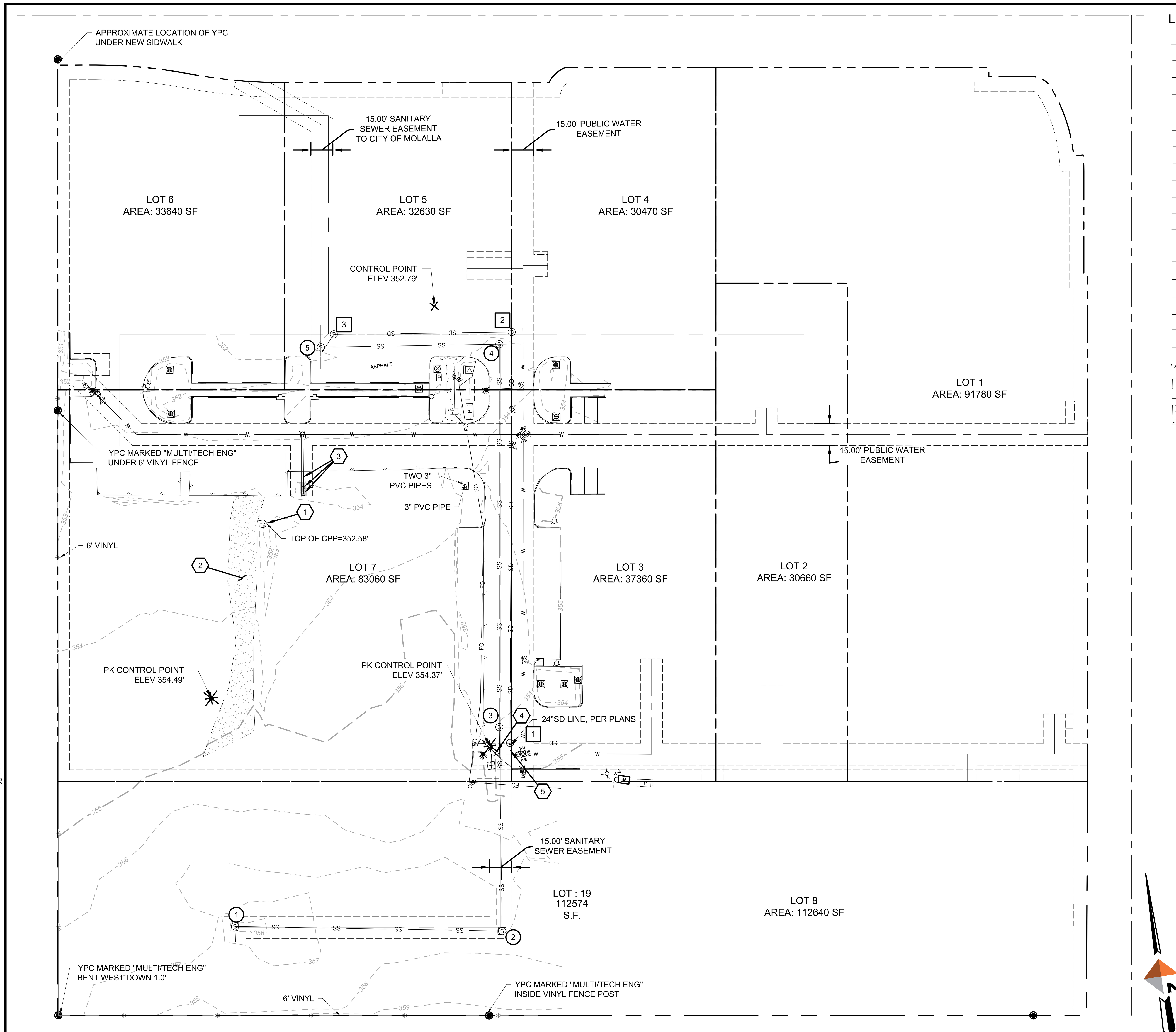
GOODWILL MOLALLA
MOLALLA, OR

COVER SHEET

LOCATED IN THE SOUTHEAST 1/4 OF SECTION 8
TOWNSHIP 05 SOUTH RANGE 02 EAST OF THE WILLAMETTE MERIDIAN
CITY OF MOLALLA, CLACKAMAS COUNTY, OREGON

PROJECT	14818.01
DATE	01/19/2022

SHEET
C0.0



LEGEND

- PARKING STRIPES
- FLOW LINE CURB
- STANDARD CURB
- EDGE OF PAVEMENT
- EDGE OF CONCRETE
- EDGE OF GRAVEL
- WALL-TOP
- WALL-TOE
- SANITARY SEWER
- STORM SEWER
- FIBER OPTIC
- FENCE - VINYL
- CENTERLINE
- RIGHT OF WAY
- BOUNDARY LINE
- EASEMENT
- LOT/PARCEL LINE
- MAJOR CONTOUR
- MINOR CONTOUR
- REMOVE/DEMO
- CONCRETE HATCH
- GRAVEL HATCH
- FOUND MONUMENT - 5/8" IRON ROD
- MAILBOX
- POWER METER
- POWER TRANSFORMER
- POWER VAULT
- POWER JUNCTION BOX
- LIGHT-LAMP POST
- SANITARY SEWER MANHOLE
- STORM AREA DRAIN
- STORM MANHOLE
- STORM CULVERT
- WATER FIRE DEPT. CONNECT
- FIRE HYDRANT
- WATER METER
- WATER VALVE
- GAS FINK
- IRRIGATION CONTROL VALVE
- CATV RISER
- UNKNOWN VAULT

SEWER STRUCTURES

1	SAN MH RIM:	356.09'
	IE 8" PVC IN (S):	345.79'
	IE 8" PVC OUT (E):	345.69'
2	SAN MH RIM:	357.16'
	IE 8" PVC IN (W):	344.66'
	IE 8" PVC OUT (N):	344.61'
3	SAN MH RIM:	354.13'
	IE 8" PVC IN (E):	344.47'
	IE 8" PVC IN (S):	343.97'
	IE 8" PVC OUT (N):	343.90'
4	SAN MH RIM:	353.06'
	IE 6" PVC IN (E):	343.50'
	IE 8" PVC IN (S):	342.86'
	IE 8" PVC OUT (W):	342.76'
5	SAN MH RIM:	352.29'
	IE 6" PVC IN (S):	342.35'
	IE 8" PVC IN (E):	342.21'
	IE 8" PVC OUT (N):	342.15'

STORM STRUCTURES

1	STM MH RIM:	354.41'
	IE 24" CPP IN (W):	347.19'
	IE 24" CPP IN (S):	347.19'
	IE 24" CPP IN (E):	347.26'
	IE 24" CPP OUT (N):	347.26'
2	STM MH RIM:	352.82'
	IE 24" CPP IN (S):	346.82'
	IE 24" CPP OUT (W):	346.82'
3	STM MH RIM:	352.19'
	IE 8" CPP IN (SW):	347.34'
	IE 24" CPP IN (E):	346.67'
	IE 24" CPP OUT (N):	346.69'

GENERAL NOTES

1. PROTECT EXISTING UNDERGROUND UTILITIES UNLESS OTHERWISE STATED.

EXISTING CONDITIONS & DEMOLITION NOTES

1. REMOVE CPP STRUCTURE AND ANY OTHER ASSOCIATED STRUCTURES.
2. REMOVE EXISTING GRAVEL, OR ANY OTHER FILL, ON THE SITE.
3. REMOVE WATER LATERAL UTILITY, WATER VALVES, AND ASSOCIATED CONCRETE PADS.
4. REMOVE CONCRETE CURB WITHIN PROPERTY AREA.
5. REMOVE 24" SD UTILITY LINE.

OREGON UTILITY NOTIFICATION CENTER
1-800-332-2344

CALL BEFORE YOU DIG

REV	DATE	DESCRIPTION	BY

REVISIONS

REGISTERED PROFESSIONAL ENGINEER 92613PE OREGON
FOR REFERENCE ONLY
EXPIRATION DATE: 06/30/22

GOODWILL INDUSTRIES
OF THE COLUMBIA WILLAMETTE
Donate. Shop. Make a difference.

DOWL
720 SW Washington St.
Suite #750
Portland, Oregon 97205
971-280-8641

GOODWILL MOLALLA MOLALLA, OR

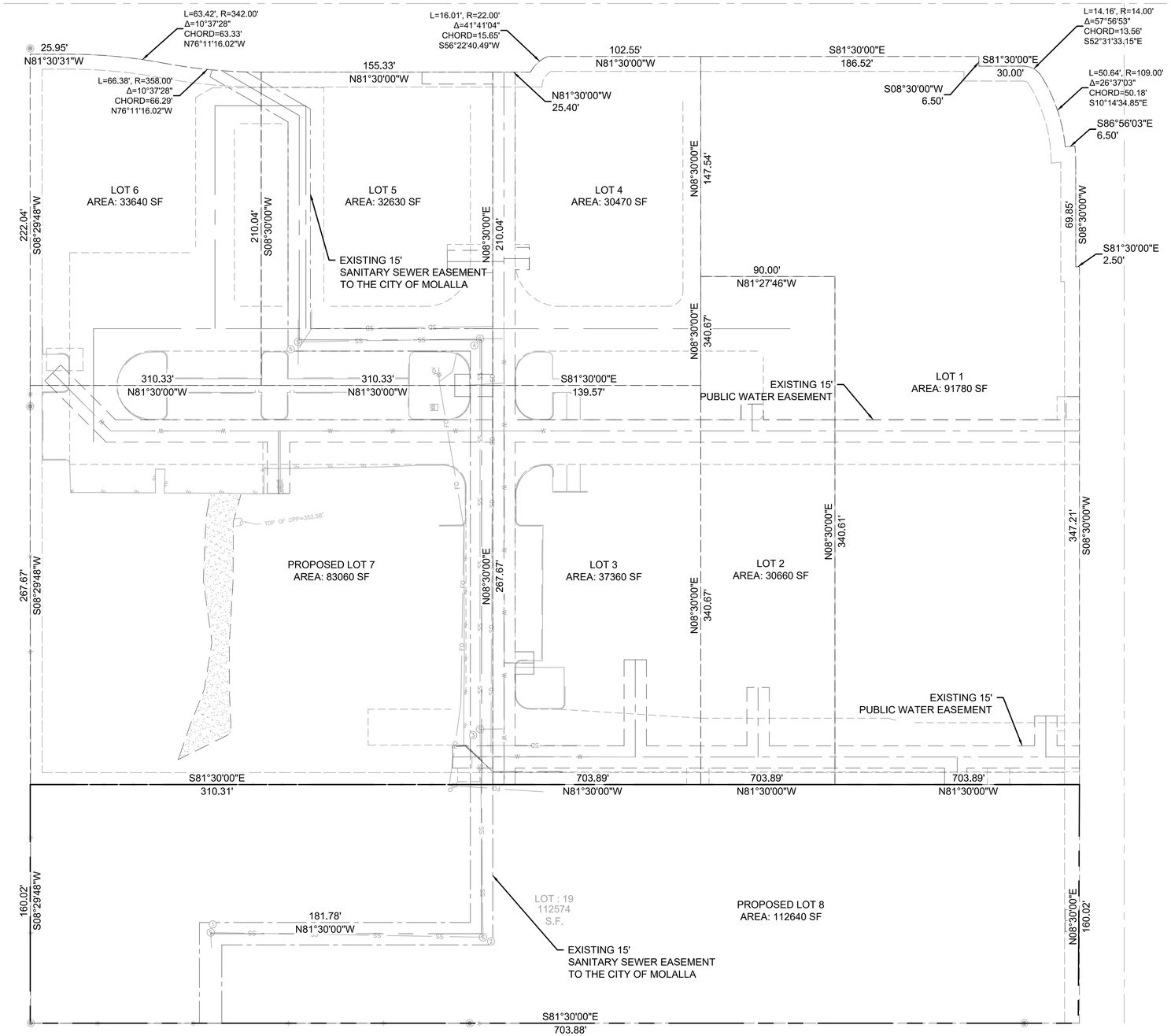
EXISTING CONDITIONS & DEMO PLAN

LOCATED IN THE SOUTHEAST 1/4 OF SECTION 8
TOWNSHIP 05 SOUTH RANGE 02 EAST OF THE WILLAMETTE MERIDIAN
CITY OF MOLALLA, CLACKAMAS COUNTY, OREGON

PROJECT	14818.01
DATE	01/19/2022

SHEET
C1.0

c:\dowl_pw\d0394338\SC-CS-EG-14818.dwg PLOT DATE 2022-2-1 17:11 SAVED DATE 2022-02-01 16:09 USER: jglueck



LEGEND

- EXISTING BOUNDARY LINE
- PROPOSED BOUNDARY LINE
- EXISTING EASEMENT
- CENTERLINE

N

40 0 40 80
SCALE IN FEET

OREGON UTILITY
NOTIFICATION CENTER
1-800-332-2344

CALL BEFORE YOU DIG

REVISIONS

REV.	DESCRIPTION	DATE	BY

REGISTERED PROFESSIONAL ENGINEER
82613 PE
OREGON
JUNE 16, 2014
MICHAEL D. TOWLE
EXPIRATION DATE: 06/30/22

GOODWILL INDUSTRIES
OF THE COLUMBIA WILLAMETTE
Donate. Shop. Make a difference.

DOWL
720 SW Washington St.
Suite #750
Portland, Oregon 97205
971-280-8641

GOODWILL MOLALLA
MOLALLA, OR
EXISTING PARTITION PLAN

LOCATED IN THE SOUTHEAST 1/4 OF SECTION 8
TOWNSHIP 05 SOUTH RANGE 02 EAST OF THE WILLAMETTE MERIDIAN
CITY OF MOLALLA, CLACKAMAS COUNTY, OREGON

PROJECT	14818.01
DATE	09/20/2021

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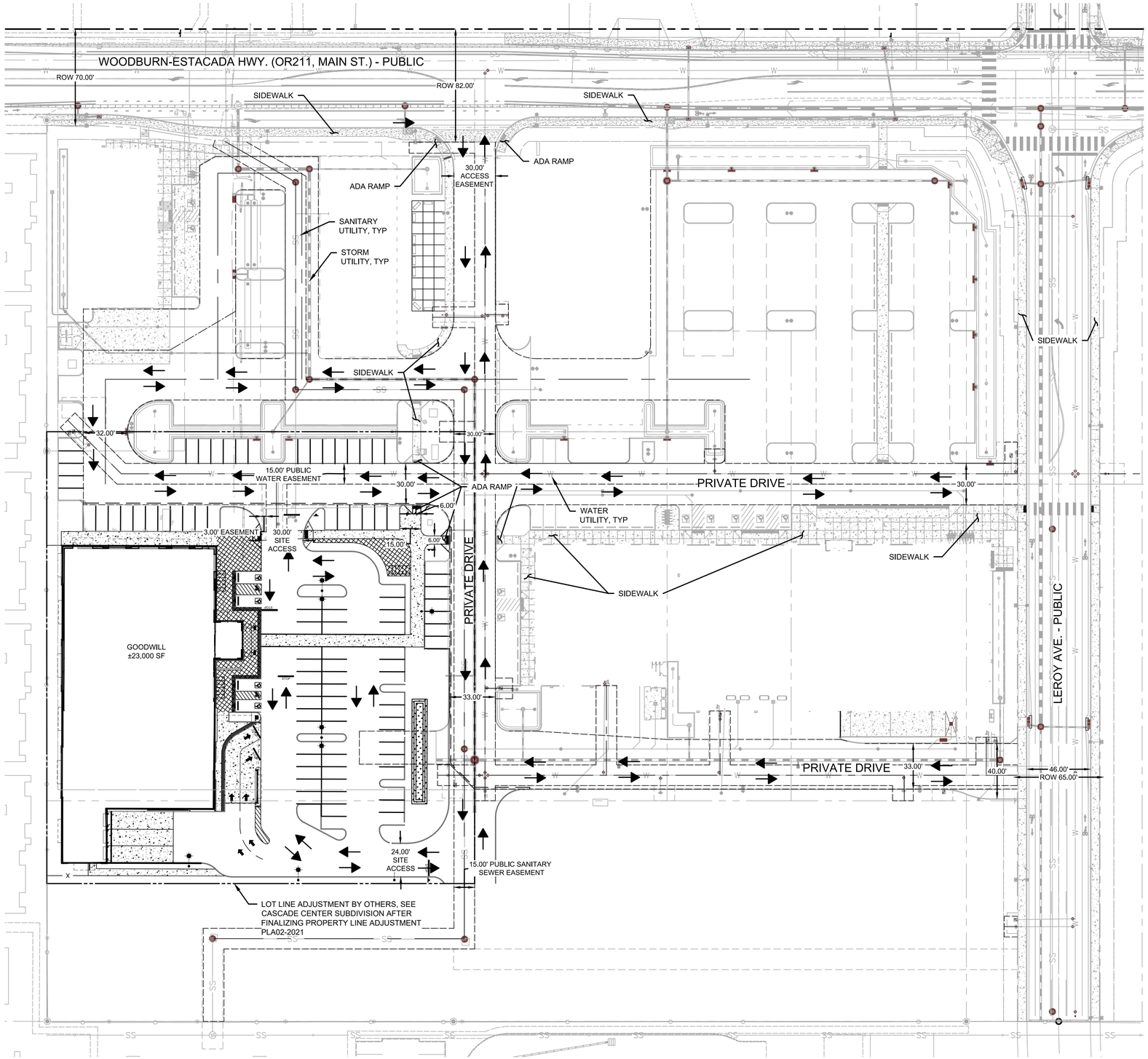

LEGEND

- EXISTING CURB
- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- PROPOSED CURB
- PROPOSED FENCE
- EXISTING EASEMENT
- EXISTING DECIDUOUS TREE
- EXISTING CONCRETE SIDEWALK
- PROPOSED CONCRETE SURFACE
- PROPOSED LIGHT AC
- PROPOSED HEAVY AC
- PROPOSED CIVIC SPACE
- PROPOSED STOP SIGN
- DRIVE NETWORK PATH

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GOODWILL MOLALLA
MOLALLA, OR

SITE ANALYSIS MAP

LOCATED IN THE SOUTHEAST 1/4 OF SECTION 8
TOWNSHIP 05 SOUTH RANGE 02 EAST OF THE WILLAMETTE MERIDIAN
CITY OF MOLALLA, CLACKAMAS COUNTY, OREGON

PROJECT	14818.01
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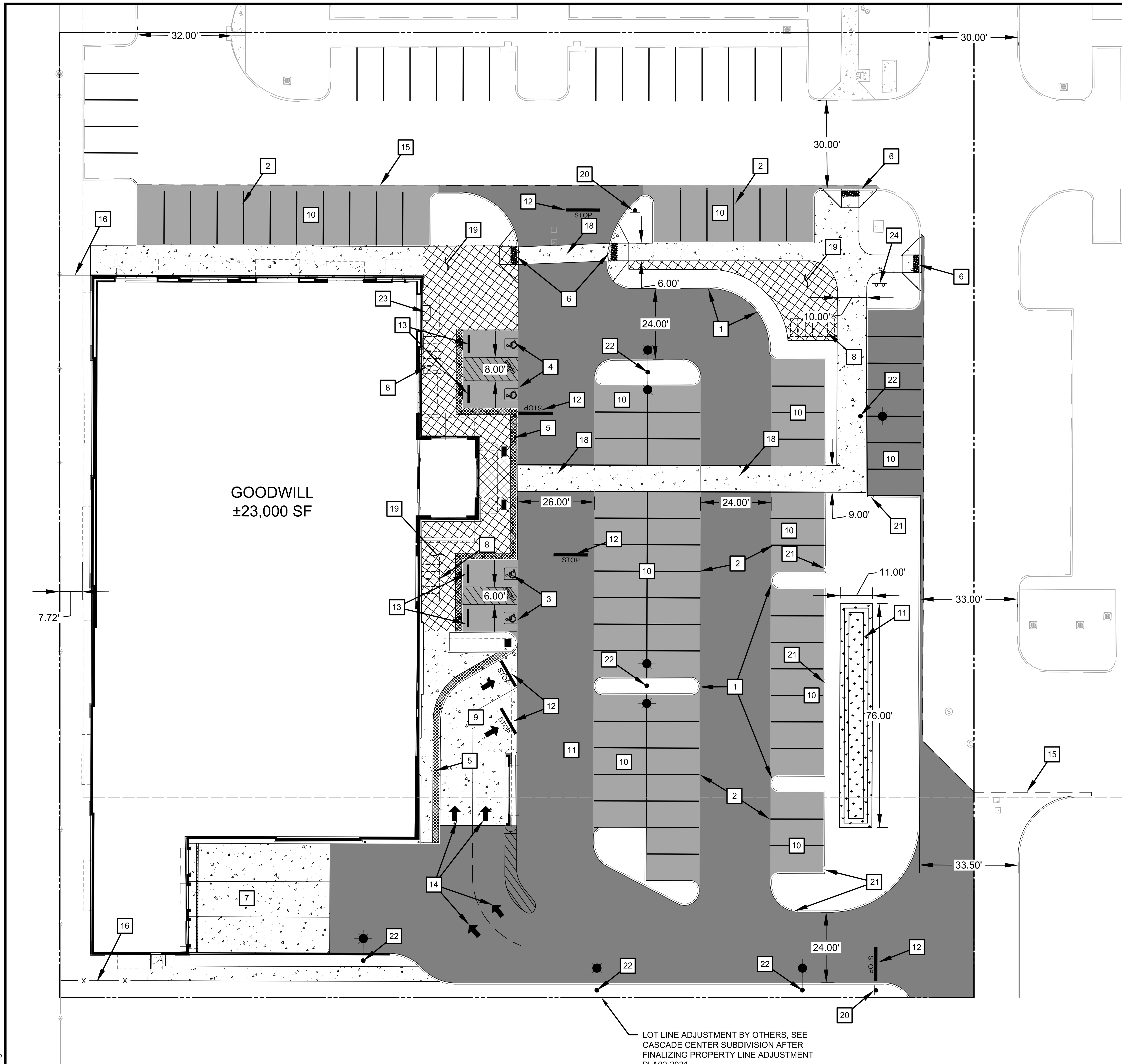

CONSTRUCTION NOTES

1. PROPOSED STANDARD CONCRETE CURB.
2. PROPOSED 4" WHITE PAINTED PARKING STALL STRIPING.
3. PROPOSED STANDARD ADA ACCESSIBLE STALL.
4. PROPOSED WHEELCHAIR ACCESSIBLE STALL.
5. PROPOSED FLUSH CURB.
6. PROPOSED ADA RAMP.
7. PROPOSED LOADING DOCK.
8. PROPOSED BIKE RACKS
9. PROPOSED DONATION DROP-OFF AREA.
10. PROPOSED PARKING STALL. 18' X 9' TYPICAL.
11. PROPOSED WATER QUALITY PLANTER. SEE STORM WATER PLAN C4.0.
12. "STOP" BAR STRIPING.
13. PROPOSED WHEEL STOP.
14. PROPOSED DIRECTIONAL ARROW STRIPING.
15. SAWCUT LINE, MATCH EXISTING AC.
16. PROPOSED 48" CHAINLINE FENCE AND GATE WHERE SHOWN.
17. PROPOSED STAIRS WITH HANDRAIL.
18. PROPOSED CONCRETE SIDEWALK AND IMPACT SLAB.
19. PROPOSED CIVIC SPACE AREA TO INCLUDE DIFFERENT SCORING PATTERNS, BUILDING-MOUNTED LIGHTING FOR PEDESTRIANS, BENCHES, BICYCLE FACILITIES, LANDSCAPE, AND WAYFINDING SIGNAGE FOR DONATION AND RETAIL ENTRANCES.
20. PROPOSED STOP SIGN.
21. PROPOSED CURB CUT.
22. PROPOSED LIGHT POLE, SEE PHOTOMETRIC PLAN FOR MORE INFORMATION.
23. PROPOSED BENCH FOR CIVIC SPACE
24. PROPOSED DIRECTIONAL SIGNAGE FOR DONATIONS AND RETAIL

LEGEND

- EXISTING CURB
- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- PROPOSED CURB
- PROPOSED FENCE
- EXISTING EASEMENT
- EXISTING DECIDUOUS TREE
- EXISTING CONCRETE SIDEWALK
- PROPOSED CONCRETE SURFACE
- PROPOSED LIGHT AC
- PROPOSED HEAVY AC
- PROPOSED CIVIC SPACE
- PROPOSED STOP SIGN
- DRIVE NETWORK PATH

SITE INFORMATION

850 W MAIN STREET
MOLALLA, OREGON 97038, TAX LOT: 52E08C 04500, PARCEL: 05036560

TOTAL SITE AREA:	101,686 SF (2.33 AC)
TOTAL REQUIRED CIVIC SPACE (3%):	3,050 SF
TOTAL CIVIC SPACE PROVIDED:	4,905 SF
TOTAL REQUIRED LANDSCAPE (5%):	5085 SF
TOTAL LANDSCAPE PROVIDED:	X SF (X%)

SITE PARKING STATISTICS

MINIMUM REQUIRED VEHICLE PARKING:	57 STALLS
PROVIDED:	77 STALLS (INC. 4 ADA)
VANPOOL/CARPOOL STALLS REQUIRED:	4 STALLS
PROVIDED:	4 STALLS
ADA PARKING STALLS REQUIRED:	4 STALLS
PROVIDED:	4 STALLS
MINIMUM BIKE PARKING:	15 SPACES
PROVIDED:	18 SPACES

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SITE PLAN

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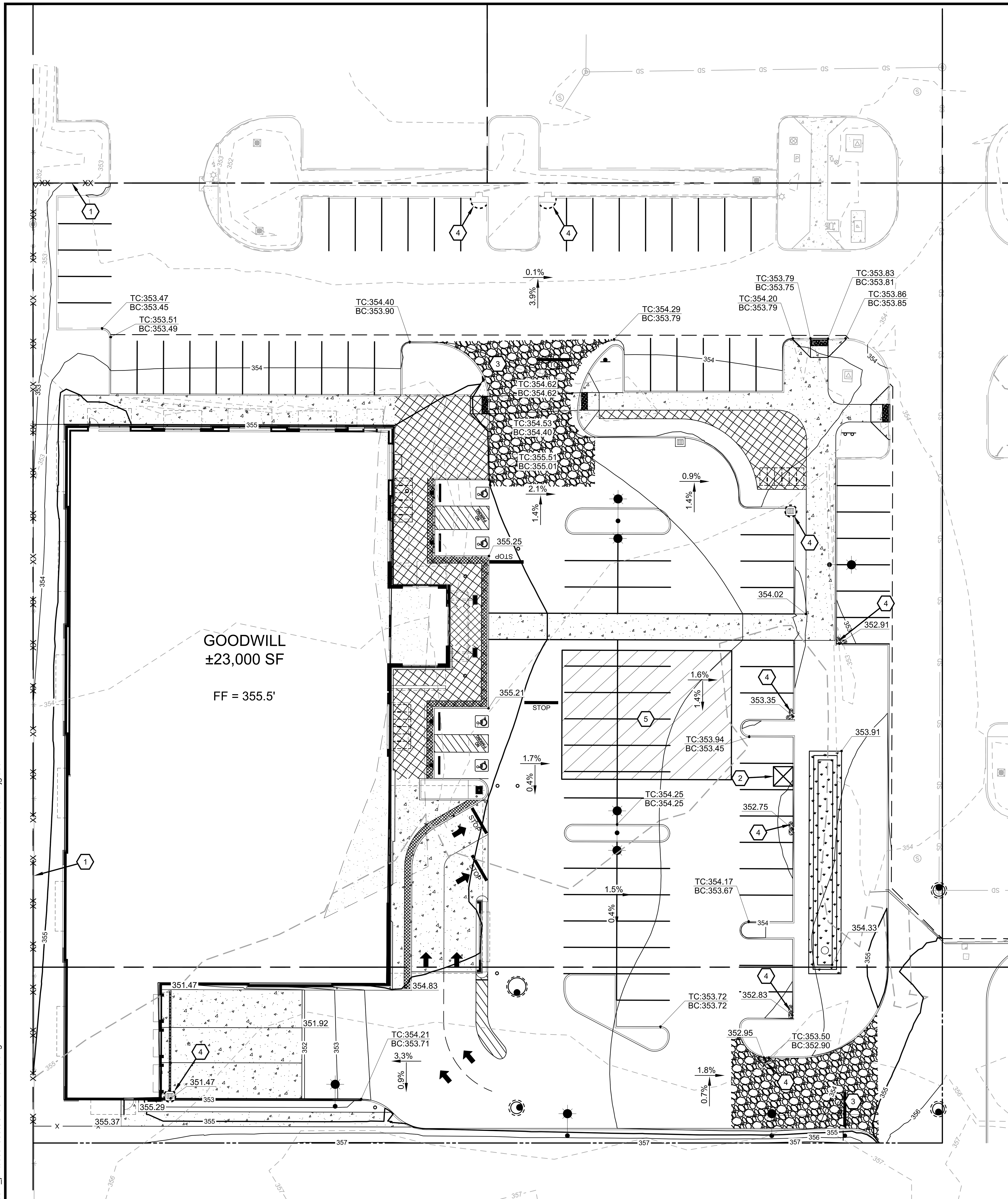

GRADING ABBREVIATIONS

BW	BOTTOM OF WALL (TOP OF FINISHED SURFACE)
TW	TOP OF WALL
TC	TOP OF CURB
BC	BOTTOM OF CURB
CC	CURB CUT
S	SPOT ELEVATION
R	RIM ELEVATION
GB	GRADE BREAK
FF	FINISH FLOOR
FC	FLUSH CURB
TS	TOP OF STAIR
BS	BOTTOM OF STAIR
(XXX.XX)	EXISTING SPOT ELEVATION

* ALL CURB EXPOSURES ARE 6" UNLESS OTHERWISE NOTED

ADA NOTE

PAVEMENT IN ADA PARKING AREA TO HAVE A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.

LEGEND

- PROPOSED 5' CONTOUR
- PROPOSED 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING 1' CONTOUR
- EXISTING CURB
- PROPOSED CURB
- PROPOSED EDGE OF PAVEMENT
- GRADE BREAK
- VALLEY
- DRAINAGE DITCH
- EXISTING STORM CATCH BASIN
- EXISTING STORM MANHOLE
- EXISTING STORM SEWER CLEANOUT
- EXISTING STORM SEWER AREA DRAIN
- PROPOSED STORM CATCH BASIN
- PROPOSED STORM AREA DRAIN
- 5.0% PROPOSED SLOPE
- (5.0%) EXISTING SLOPE
- SEDIMENT FENCE
- WOVEN INLET PROTECTION
- BIO-BAG INLET PROTECTION

TC:XXX.XX
FC:XXX.XX
= "TC" ELEV / "FC" ELEV / STD CURB / FLUSH CURB / "FC" ELEV

EROSION CONTROL NOTES

1. INSTALL AND MAINTAIN SEDIMENT FENCE PARALLEL TO SLOPE CONTOURS. REFER TO SHEET ESC05 FOR SEDIMENT FENCE DETAIL.
2. INSTALL 10' X 10' CONCRETE WASHOUT, ECOPAN, (OR APPROVED EQUAL). LOCATION MAY VARY DUE TO CONSTRUCTION. CONTRACTOR TO CLEAN OUT AREA AS NECESSARY TO MAINTAIN CAPACITY. DO NOT DISPOSE OF WASHOUT WATER INTO STORM DRAINS OR COMBINED SEWER DRAINS. REFER TO SHEET ESC05 FOR CONCRETE WASHOUT DETAIL. INCLUDE SIGN PER DETAIL.
3. INSTALL GRAVEL CONSTRUCTION ENTRANCE. CONTRACTOR TO INSPECT, CLEAN AND MAINTAIN GRAVEL CONSTRUCTION ENTRANCE TO PREVENT SEDIMENT FROM LEAVING THE SITE THROUGHOUT CONSTRUCTION. REFER TO SHEET ESC05 FOR GRAVEL CONSTRUCTION ENTRANCE DETAIL.
4. INSTALL WOVEN INLET PROTECTION AND/OR BIO-BAGS. INSPECT CLEAN AND MAINTAIN PROTECTION TO PREVENT SEDIMENT LADEN WATER FROM ENTERING THE STORM SYSTEM THROUGHOUT CONSTRUCTION. REFER TO SHEET ESC05 FOR INLET PROTECTION DETAIL.
5. STAGING, EQUIPMENT MAINTENANCE, FUELING PORTA-POTTY, SOLID WASTE AREA, AND STOCKPILE AREA. INSTALL STRAW WATTLES, SEDIMENT FENCE, AND PLASTIC SHEETING AS NECESSARY TO PREVENT SEDIMENT LADEN AND PETROLEUM RUNOFF FROM THE AREA. STAGING AND STOCKPILE ARE LOCATION SUBJECT TO RELOCATION DUE TO CONSTRUCTION ACTIVITY. SEE STRAW WATTLE, SEDIMENT FENCE, AND PLASTIC SHEETING DETAIL ON SHEET ESC05 AND REFER TO CLEAN WATER SERVICES EROSION CONTROL MANUAL FOR ADDITIONAL EROSION CONTROL INFORMATION.

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GRADING & EROSION CONTROL PLAN

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PROJECT	14818.01
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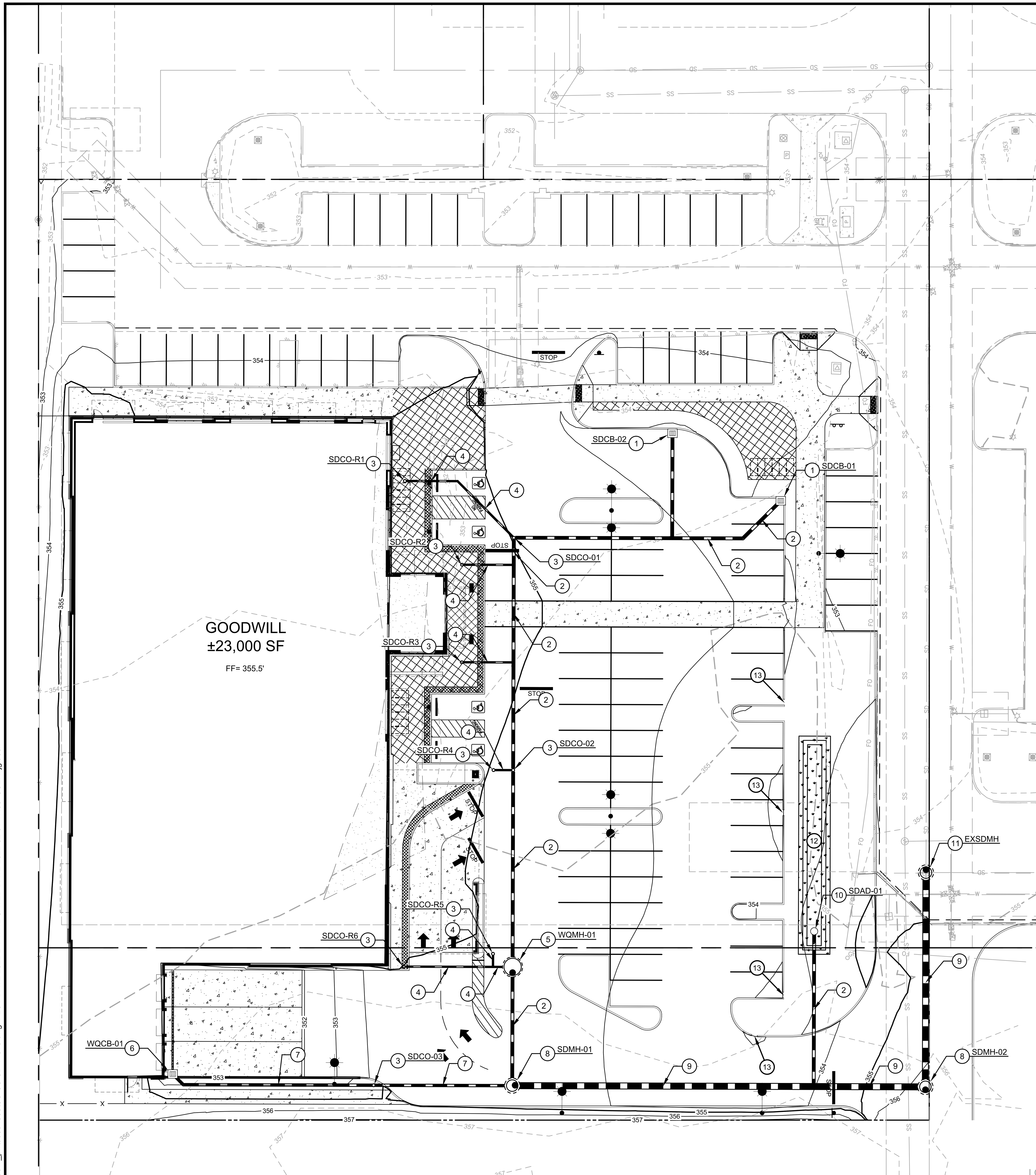

STORM CONSTRUCTION NOTES

1. PROPOSED TRAPPED LYNCH BASIN
2. PROPOSED 12" PVC D3034 STORM PIPE
3. PROPOSED STORM CLEANOUT
4. PROPOSED 6" PVC D3034 STORM PIPE
5. PROPOSED 96" WATER QUALITY MANHOLE
6. PROPOSED 1-CARTRIDGE WATER QUALITY CATCH BASIN
7. PROPOSED 10" HDPE STORM PIPE
8. PROPOSED STANDARD MANHOLE
9. PROPOSED 24" HDPE STORM PIPE
10. PROPOSED STORM AREA DRAIN
11. CONNECT TO EXISTING STORM DRAIN MANHOLE
12. PROPOSED WATER QUALITY PLANTER
13. PROPOSED 1-1/2' WIDE CURB CUT

LEGEND

- EXISTING CURB
- PROPOSED CURB
- PROPOSED STORM DRAIN LINE
- EXISTING STORM MANHOLE
- EXISTING STORM SEWER CLEANOUT
- EXISTING SIGN
- EXISTING/PROPOSED CONCRETE SIDEWALK
- EXISTING STORM CATCH BASIN
- PROPOSED STORM CATCH BASIN
- PROPOSED STORM MANHOLE
- PROPOSED STORM SEWER CLEANOUT
- PROPOSED STORM AREA DRAIN

ALL PRIVATE STORM CONNECTIONS NOT MADE AT A STRUCTURE TO BE MADE WITH A WYE FITTING UNLESS OTHERWISE NOTED.

CLEANOUT DATA

SDCO-01
RIM: 354.98
IE (12") = 350.87

SDCO-02
RIM: 354.86
IE (12") = 350.55

SDCO-03
RIM: 354.62
IE (10") = 348.72

SDCO-R1
RIM: 355.44
IE (6") = 351.50

SDCO-R2
RIM: 355.40
IE (6") = 351.50

SDCO-R3
RIM: 355.40
IE (6") = 351.50

SDCO-R4
RIM: 354.97
IE (6") = 351.50

SDCO-R5
RIM: 354.73
IE (6") = 351.00

SDCO-R6
RIM: 354.97
IE (6") = 351.50

MANHOLE DATA

EXSDMH
RIM: 354.41
IE IN (24"S) = 347.30

SDMH-01
RIM: 354.49
IE IN (10"W) = 348.53
IE IN (12"N) = 347.83
IE OUT (24"E) = 347.61

SDMH-02
RIM: 356.27
IE IN (24"W) = 347.47
IE OUT (24"N) = 347.37

WQMH-01
RIM: 354.60
IE IN (12"N) = 350.28
IE IN (6"W) = 350.50
IE OUT (12"S) = 348.00

CATCH BASIN DATA

SDAD-01
RIM: 354.55
IE OUT (12"S) = 348.25

SDCB-01
RIM: 353.24
IE OUT (12"SW) = 351.36

SDCB-02
RIM: 353.43
IE OUT (12"S) = 351.32

WQCB-01
RIM: 351.47
IE OUT (10"SE) = 349.00

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STORMWATER PLAN

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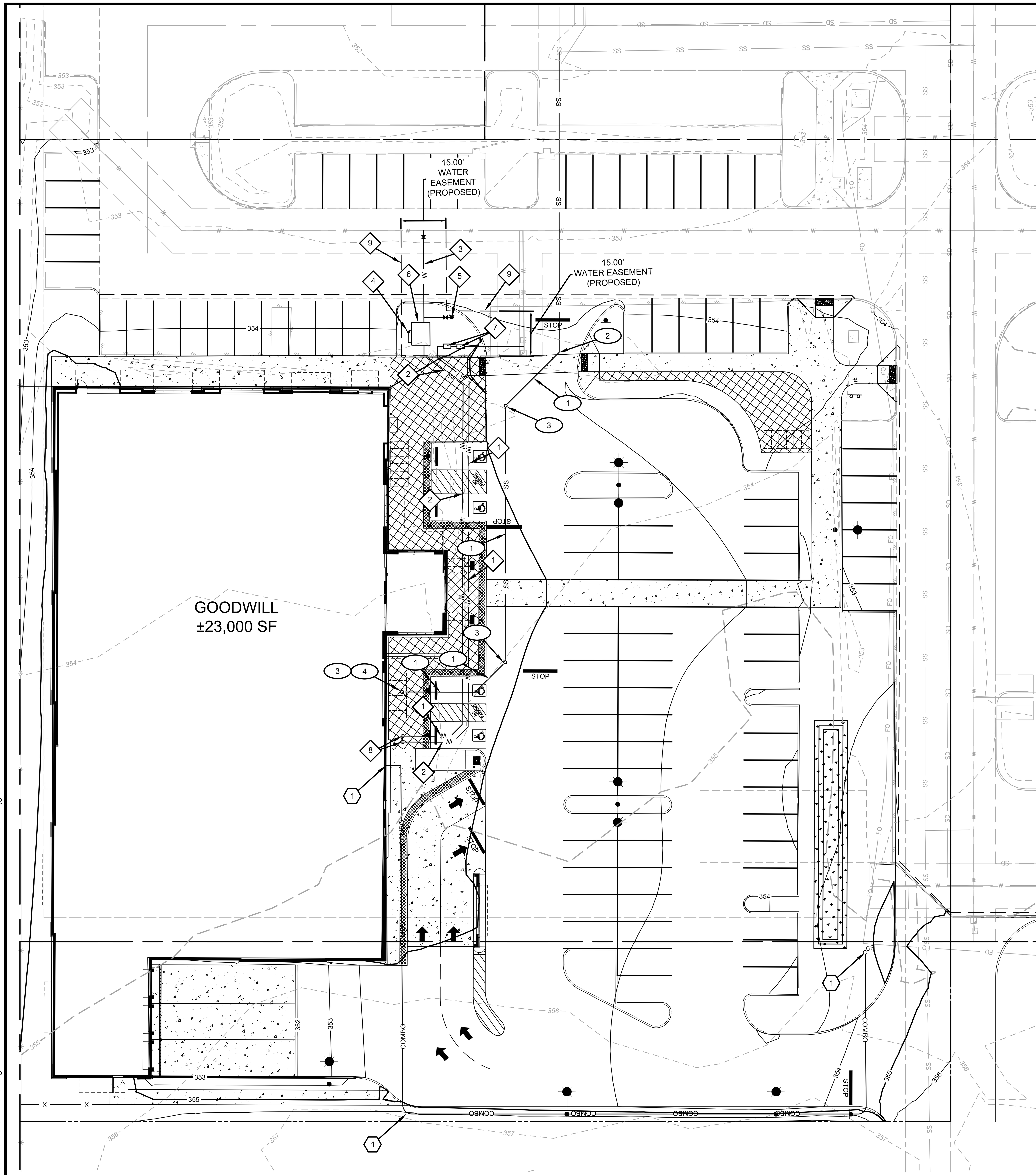

SANITARY SEWER CONSTRUCTION NOTES:

1. PROPOSED 4" PVC SANITARY SEWER LINE.
2. PROPOSED CONNECTION TO EXISTING 6" PVC SANITARY SEWER LINE.
3. PROPOSED SANITARY SEWER CLEANOUT.
4. PROPOSED SANITARY SEWER CONNECTION TO BUILDING. STUB SANITARY LINE 5' FROM FACE OF BUILDING. SEE PLAN FOR IE'S.

WATER CONSTRUCTION NOTES:

1. PROPOSED 2" DOMESTIC WATER LINE.
2. PROPOSED 4" FIRE WATER LINE.
3. PROPOSED 6" FIRE WATER LINE.
4. PROPOSED FDC
5. PROPOSED PUBLIC FIRE HYDRANT AND 6" FIRE LINE.
6. PROPOSED 6" FIRE LINE AND DCDA IN 676-LA UTILITY VAULT.
7. PROPOSED 1.5" DOMESTIC WATER METER AND DCVA.
8. PROPOSED WATER CONNECTION TO BUILDING. STUB WATER LINE 5' FROM FACE OF BUILDING.
9. PROPOSED 15' WATER EASEMENT

PRIVATE UTILITY CONSTRUCTION NOTES:

1. PROPOSED JOINT UTILITY TRENCH FOR CABLE CONDUIT, TELEPHONE CONDUIT, ELECTRICAL CONDUIT AND NATURAL GAS LINE. COORDINATE WITH RESPECTIVE UTILITY COMPANIES FOR JOINT TRENCHING REQUIREMENTS. STUB 5' FROM FACE OF BUILDING .

LEGEND

- POWER METER
- POWER TRANSFORMER
- POWER VAULT
- POWER JUNCTION BOX
- LIGHT-LAMP POST
- SANITARY SEWER MANHOLE
- STORM AREA DRAIN
- STORM MANHOLE
- STORM CULVERT
- WATER FIRE DEPT. CONNECT
- FIRE HYDRANT
- WATER METER
- WATER VALVE
- GAS FINK
- IRRIGATION CONTROL VALVE
- CATV RISER
- UNKNOWN VAULT
- PROPOSED WATER METER/DCVA/BACKFLOW PROTECTION
- PROPOSED FIRE VAULT
- PROPOSED FIRE DEPARTMENT CONNECTION
- PROPOSED WATER VALVE
- PROPOSED FIRE HYDRANT
- PROPOSED SANITARY SEWER CLEANOUT
- PROPOSED SANITARY SEWER MANHOLE
- COMBO — PROPOSED ELECTRICAL, CABLE, AND TELEPHONE SHARED TRENCH
- G — PROPOSED GAS LINE
- W — PROPOSED WATER LINE
- FO — PROPOSED FIBER OPTIC LINE
- SS — PROPOSED SANITARY SEWER LINE

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UTILITY PLAN

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EXHIBIT D

Trip Generation Assessment

KITTELSON & ASSOCIATES
851 SW 6th Avenue, Suite 600
Portland, OR 97204
P 503.228.5230

November 10, 2021

Project #: 27156

Dan Zinder
City of Molalla, OR
117 N Molalla Avenue
Molalla, OR 97038

RE: Cascade Center Goodwill - Trip Generation Assessment

Dear Dan:

Goodwill proposes to construct an approximately 23,000 square-foot store on Lot 7 of the Cascade Center property located south of OR 211 near Leroy Avenue in Molalla. A transportation impact analysis (TIA) for the Cascade Center retail development was submitted to the City of Molalla and Oregon Department of Transportation (ODOT) in August 2019 and approved to accommodate up to 72,381 square feet of retail land uses, as well as 6,300 square feet of fast food, 1,400 square feet of drive through coffee shop, and 256 storage units. Since the time of the Cascade Center TIA approval, the land use mix has been adjusted based on market conditions to reduce the amount of fast food and increase the amount of retail space, including an expanded building on Lot 7 compared to the original site plan. This letter documents the estimated difference in site-generated trips as a result of the change in land uses and quantifies the impact to the adjacent transportation system.

As documented herein, the proposed changes in land uses, including construction of the Goodwill store, will result in fewer net new weekday daily, AM peak hour, and PM peak hour trips than were studied in the original Cascade Center site plan. Accordingly, no additional off-site improvements are recommended beyond those identified in the August 2019 Cascade Center TIA.

BACKGROUND

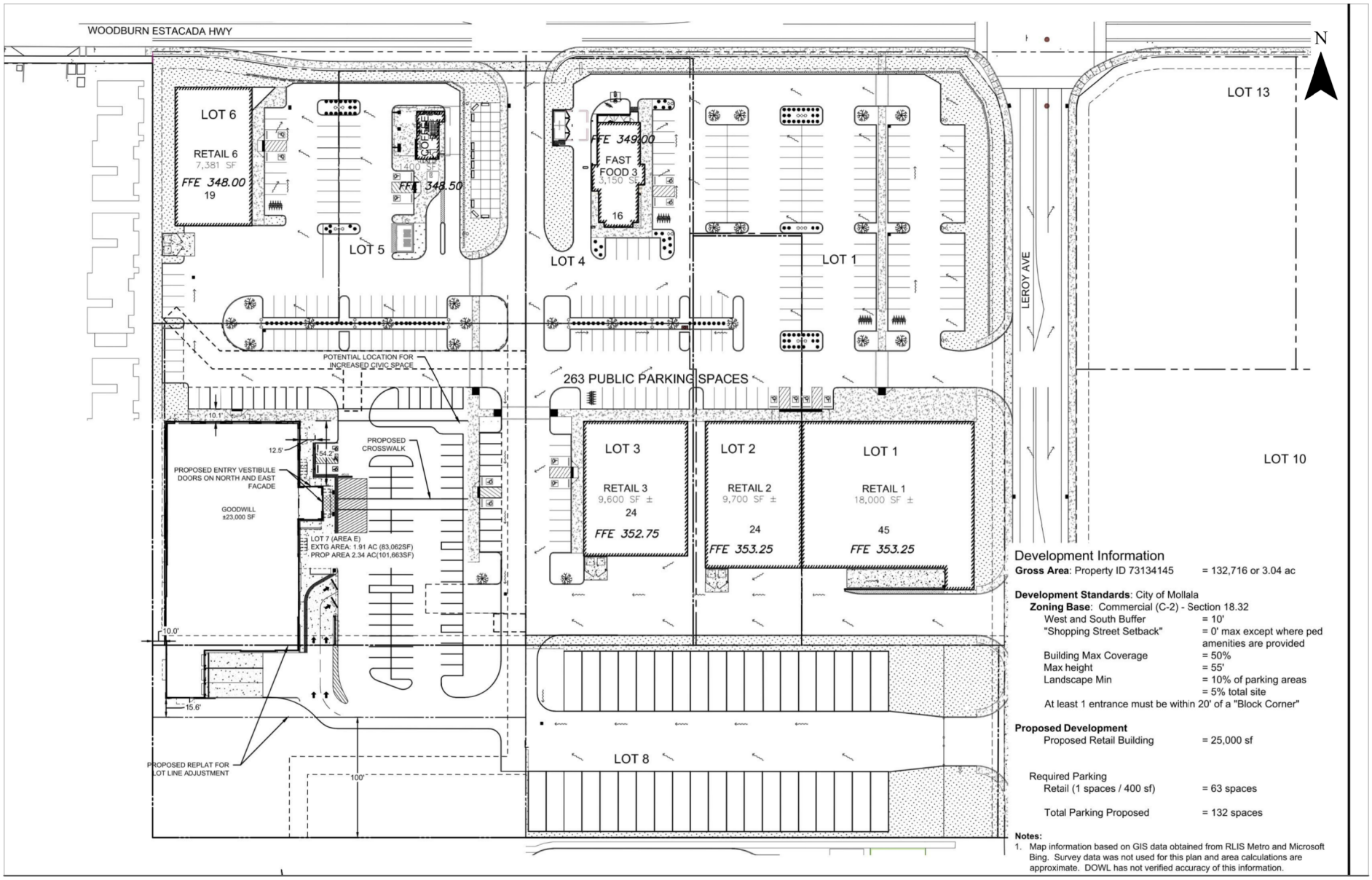
Kittelson prepared a TIA for the Cascade Center retail development in August 2019, which was approved by the City of Molalla and ODOT under conditions that included signalization and turn lane improvements at the OR 211/Molalla Avenue intersection, as well as turn lane improvements at the OR 211/Leroy Avenue intersection. At that time (pre-COVID-19), the anticipated build-out year for the project was 2020. While some tenants for the development have been secured, the site remains under construction and is largely unoccupied as of November 2021. Site frontage improvements along OR 211 and turn lane improvements at the OR 211/ Leroy Avenue intersection are near completion. Attachment "A" contains the August 2019 Cascade Center TIA.

PROPOSED DEVELOPMENT PLAN

Figure 1 displays the revised site plan for Cascade Center, including the proposed Goodwill store layout. The following two changes are proposed relative to the original Cascade Center site plan provided in the August 2019 TIA:

- Expansion of the Lot 7 building area from 18,600 square feet to 23,000 square feet (Goodwill store)
- Reduction of the fast food land use building area from 6,300 square feet to 3,150 square feet.

The operating hours of Goodwill also have a direct impact on site trip generation compared to other retail uses, particularly fast food restaurants with a breakfast menu. Goodwill facilities open to customers beginning at 10:00 AM. Goodwill sorting staff and retail staff typically begin arriving on-site approximately one hour before store opening (i.e., the first six Goodwill employees arrive on-site around 9:00 AM) and depart approximately 30 minutes after store closing (departure around 8:30 PM). Due to the store and staff shift hours, no Goodwill staff are expected on-site before 9:00 AM, thus 7:00-9:00 AM site-trips will be minimal.



Site plan provided on 10/11/2021

Revised Site Plan
Molalla, Oregon

Figure
1

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KITTELSON & ASSOCIATES

Trip Generation Estimates

Table 1 provides a comparison of the trip generation associated with the original and revised land uses, based on trip data from the *Trip Generation Manual, 10th Edition*, published by the Institute of Transportation Engineers (ITE, Reference 1). Consistent with the Cascade Center TIA, internal and pass-by trips have been estimated from the ITE *Trip Generation Handbook, 3rd Edition* (Reference 2). Note that the assumed trip internalization between developments has been revised to account for the reduced fast food land uses.

It should be further noted that the *Trip Generation Manual, 10th Edition* fitted curve for shopping center inherently assumes the retail uses are operational during the weekday AM peak hour. As a result, the morning peak hour trip potential of the site is likely overestimated considering that the proposed Goodwill building will not be open to the public, nor will Goodwill employees be expected to commute to the site during the morning peak hour.

As shown, the revised trip generation is projected to result in 344 fewer weekday daily trips, 63 fewer weekday AM peak hour trips, and 18 fewer weekday PM peak hour trips compared to the original Cascade Center site plan. However, the change in site plan is forecast to add up to 14 additional outbound trips, even though the total trip generation will be lower—this is explored in the following section.

Table 1. Updated Trip Generation

Land Use	ITE Code	Size	Weekday Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Original Cascade Center Land Uses - Submitted August 2019									
Fast Food Restaurant with Drive Through	934	6,300 ft²	2,966	253	129	124	206	107	99
Less Internal (17% Daily, 3% AM, 14% PM)			*-504*	*-8*	*-4*	*-4*	*-29*	*-15*	*-14*
Less Pass-by (50% Daily, 49% AM, 50% PM)			*1,232*	*120*	*60*	*60*	*88*	*44*	*44*
Coffee Shop with Drive Through	937	1,400 ft²	1,148	124	63	61	61	30	31
Less Internal (17% Daily, 3% AM, 14% PM)			*-196*	*-4*	*-2*	*-2*	*-9*	*-4*	*-5*
Less Pass-by (89% Daily, 89% AM, 89% PM)			*-848*	*-106*	*-53*	*-53*	*-46*	*-23*	*-23*
Shopping Center (fitted)	820	63,281 ft²	4,404	184	114	70	387	209	178
Less Internal (17% Daily, 3% AM, 14% PM)			*-748*	*-6*	*-3*	*-3*	*-54*	*-29*	*-25*
Less Pass-by (34% Daily, 34% PM)			*-1,244*	0	0	0	*-114*	*-57*	*-57*
Storage Units	151	256 units	46	2	1	1	5	3	2
Free-Standing Discount Store	815	9,100 ft²	484	11	8	3	44	22	22
Less Pass-by (34% Daily, 34% PM)			*-164*	0	0	0	*-14*	*-7*	*-7*
Gross Trips			9,048	574	315	259	703	371	332
Less Internal			*-1,448*	*-18*	*-9*	*-9*	*-92*	*-48*	*-44*
Less Pass-by			*-3,488*	*-226*	*-113*	*-113*	*-262*	*-131*	*-131*
Net New Trips			**4,112**	**330**	**193**	**137**	**349**	**192**	**157**
Revised Cascade Center Land Uses with Expanded Goodwill Store									
Fast Food Restaurant with Drive Through	934	3,150 ft²	1,484	127	65	62	103	54	49
Less Internal (13% Daily, 4% AM, 10% PM)			*-192*	*-5*	*-3*	*-2*	*-10*	*-5*	*-5*
Less Pass-by (50% Daily, 49% AM, 50% PM)			*-646*	*-60*	*-30*	*-30*	*-46*	*-23*	*-23*
Coffee Shop with Drive Through	937	1,400 ft²	1,148	124	63	61	61	30	31
Less Internal (13% Daily, 4% AM, 10% PM)			*-150*	*-5*	*-3*	*-2*	*-6*	*-3*	*-3*
Less Pass-by (89% Daily, 89% AM, 89% PM)			*-888*	*-106*	*-53*	*-53*	*-48*	*-24*	*-24*
Shopping Center (fitted)	820	67,681 ft²	4,610	186	115	71	407	195	212
Less Internal (13% Daily, 4% AM, 10% PM)			*-600*	*-7*	*-5*	*-2*	*-41*	*-20*	*-21*
Less Pass-by (34% Daily, 34% PM)			*-1,364*	0	0	0	*-124*	*-62*	*-62*
Storage Units	151	256 units	46	2	1	1	5	3	2
Free-Standing Discount Store	815	9,100 ft²	484	11	8	3	44	22	22
Less Pass-by (34% Daily, 34% PM)			*-164*	0	0	0	*-14*	*-7*	*-7*
Gross Trips			7,772	450	252	198	620	304	316
Less Internal			*-942*	*-17*	*-11*	*-6*	*-57*	*-28*	*-29*
Less Pass-by			*-3,062*	*-166*	*-83*	*-83*	*-232*	*-116*	*-116*
Net New Trips			**3,768**	**267**	**158**	**109**	**331**	**160**	**171**
Revised Land Uses with Expanded Goodwill Store minus Original Cascade Center Land Uses									
Net New Trips			*-344*	*-63*	*-35*	*-28*	*-18*	*-32*	14

OR 211/LEROY AVENUE INTERSECTION ANALYSIS

Given the shift in forecast turning movement volumes at the OR 211/Leroy Avenue intersection based on the changes in land use, the traffic operations analysis from the August 2019 Cascade Center TIA was revisited to assess whether the increase in outbound trips at the intersection will cause additional deficiencies. Figure 2 displays the updated total traffic volumes at the intersection during the weekday PM peak hour, and Table 2 compares the level of service (LOS), delay (in seconds per vehicle) volume-to-capacity ratio (v/c), and 95th-percentile queue (rounded to the nearest 25 feet, or approximately one vehicle length) for the critical movement at the intersection (the northbound left turn stop-controlled Leroy Avenue approach to OR 211) before and after the change in land uses.

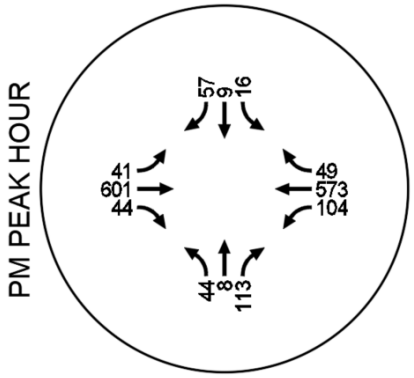

Figure 2. OR 211/Leroy Avenue Revised Total Traffic Volume

Table 2. OR 211/Leroy Avenue Intersection Analysis

Scenario	Northbound Leroy Avenue at OR 211 Total Build-Out Conditions, Weekday PM Peak Hour			
	LOS	Delay	v/c	95th-percentile Queue (ft)
Site Plan from August 2019 TIA	F	291.5	1.06	125
Revised Site Plan	F	234.7	0.94	100

As shown, while the northbound left turn movement is still projected to operate at LOS F during the weekday PM peak hour, the delay, v/c and queuing for this movement are all projected to be lower under the revised site plan than what was shown in the August 2019 Cascade Center TIA. Attachment "B" provides the level of service worksheet for this scenario.

OR 211/LEROY AVENUE SIGNAL WARRANT ANALYSIS

The August 2019 Cascade Center TIA estimated that traffic conditions after build-out of the Cascade Center development would result in LOS F at the OR 211/Leroy Avenue intersection during the weekday PM peak hour, but that traffic volumes would remain below the volume-based MUTCD traffic signal warrants. The TIA recommended continued collaboration and monitoring of the intersection as additional development causes traffic volumes to increase at the intersection, resulting in eventual signalization, but to-date a traffic signal has not been funded. Recognizing the number of net external trips assigned to the

OR 211/Leroy Avenue intersection as a result of the Cascade Center development is forecast to reduce as a result of the change in land uses described in this document, the volume-based MUTCD signal warrants are not expected to be met.

In support of continued monitoring of the OR 211/Leroy Avenue intersection by the City of Molalla, Table 3 lists the City's identified threshold for weekday PM peak hour trips on northbound Leroy Avenue (excluding right turns) where signalization would be warranted. As shown, the revised Cascade Center site plan will result in the northbound PM peak hour trips dropping further below the City's trip threshold.

Table 3. Summary of OR 211/Leroy Avenue Signal Warrant Analysis

	Northbound PM Peak Hour Volume (vehicles per hour)
Threshold to Meet Signal Warrants	95
Total Traffic Volumes - Original Cascade Center Site Plan	53
Total Traffic Volumes - Revised Site Plan with Expanded Goodwill Store	**52**

FINDINGS AND RECOMMENDATIONS

The results of this analysis indicate the proposed changes in land uses, including construction of the Goodwill store, will result in fewer net new weekday daily, AM peak hour, and PM peak hour trips than were associated with the previously approved Cascade Center site plan. Furthermore, traffic operations at the OR 211/Leroy Avenue intersection are forecast to operate better under the revised site plan compared with those shown in the August 2019 Cascade Center TIA. Therefore, no additional off-site improvements are recommended beyond those identified in the August 2019 Cascade Center TIA.

We request confirmation from the City of Molalla that the analysis and results documented herein meet the City requirements for traffic-related review of the proposed Cascade Center Goodwill and that no additional analysis is needed to support the land use application. If you have any questions, please call us at 910-399-5699.

Sincerely,
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REFERENCES

1. Institute of Transportation Engineers. *Trip Generation Manual, 10th Edition*. Institute of Transportation Engineers: Washington, DC, 2017.
2. Institute of Transportation Engineers. *Trip Generation Handbook, 3rd Edition*. Institute of Transportation Engineers: Washington, DC, 2017.

ATTACHMENTS

A. Cascade Center Transportation Impact Analysis. August 2019
B. Revised OR 211/Leroy Avenue Weekday PM Peak Hour Level of Service Worksheet

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Portland, OR 97204
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January 20, 2022

Project #: 27156

Mr. Dan Zinder
City of Molalla Planning Department
117 N Molalla Avenue
Molalla, OR 97038

RE: Incomplete Letter for SDR09-2021: Goodwill, 850 W Main ST, Molalla

Dear Mr. Zinder,

We reviewed the January 10, 2022 completeness comments provided by the City of Molalla regarding the Goodwill at Cascade Center. One of the comments pertains to transportation and a request for additional supplemental signal warrant analyses and reads as follows:

> *The submitted Transportation Impact Analysis analyzes Warrants 1 and 2. For projects where the OR-211/Leroy Ave intersection is impacted, Staff is requiring analysis for all nine signal warrants are required for that intersection. Ensure all new projects with approved or pending TIAs are included in the study including Cascade Place, Colima Apartments (31514 S HWY 213), 1000 W Main ST, and Molalla Center Market (501 E Main) are included.*

This letter provides background context and documents further analyses prepared in response to the completeness comments.

BACKGROUND CONTEXT

The proposed Goodwill store will be one tenant of the Cascade Center Transportation Impact Analysis (TIA), which was submitted in August 2019 and later approved by the Oregon Department of Transportation (ODOT) and City of Molalla. At the time the Cascade Center TIA was prepared, the Cascade Place, Colima Apartments, 1000 W Main ST, and Molalla Center Market developments were not yet in process and were therefore not included in the traffic analysis or signal warrant analysis at OR 211/Leroy Avenue.

The subsequent trip generation assessment prepared for the Goodwill application noted that the adjustment in land use mix, including the expanded building in Lot 7 intended to house Goodwill and the reduction in fast food land uses, resulted in fewer net new weekday daily, AM peak hour, and PM peak hour trips relative to the approved Cascade Center TIA. In short, the tenant mix now being realized at Cascade Center is expected to generate fewer trips than were assumed in the Cascade Center TIA and thus the site development alone should not warrant signalization.

The OR 211/Leroy Avenue signal warrant analysis was provided for the Goodwill application[1] in recognition of the City's desire to monitor the need for signalization while acknowledging that trips at the intersection would be reduced relative to the original Cascade Center TIA. The remainder of this letter provides an updated analysis in response to the completeness comments.

[1] November 15, 2021 Cascade Center Goodwill – Trip Generation Assessment

MUTCD SIGNAL WARRANT ANALYSIS

The *2009 Manual on Uniform Traffic Control Devices* (MUTCD) is published by the Federal Highway Administration (FHWA) and contains national standards developed to ensure uniformity in the application and design of traffic signals, signs and pavement marking throughout the country. The MUTCD identifies nine traffic signal warrants and notes "The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal." These are the warrants that ODOT evaluates when considering the need for potential signalization.

Supplemental Volume-Based Signal Warrant Analysis With Additional Off-Site Development

We prepared a supplemental signal warrant analysis to assess whether the additional traffic from the in-process developments the City identified would change the findings of the prior signal warrant analysis. The horizon year analyzed in the August 2019 Cascade Center TIA was the year 2022. While the Cascade Center TIA utilized traffic counts from 2018, the City has provided a more recent count, performed in September 2021, as well as the adjusted volumes to account for seasonality and COVID-19 effects[2].

Table 1 summarizes the analysis associated with the nine warrants using the more recent traffic counts based on projected buildout of the Cascade Center with Goodwill as a tenant plus the addition of trips associated with the Cascade Place, Colima Apartments, 1000 W Main ST, and Molalla Center Market developments. The updated volumes and signal warrant analysis are documented in Attachment A.

Table 1 – Signal Warrant Analysis Results – OR 211/Leroy Avenue Intersection

Warrant		Signal Warrant Met?	Assessment
#1	8-Hour Volume	No	This warrant is intended for application where a large volume of intersecting traffic is the principal reason to consider a traffic control signal. A review of the counted demand profile indicates there is an insufficient amount of intersecting traffic that exists at the intersection for the 8 highest hours of an average day.
#2	4-Hour Volume	No	This warrant is intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal. A review of the counted demand profile indicates there is an insufficient amount of intersecting traffic demand during the four highest hours of an average day.
#3	Peak Hour	No	This warrant intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street. A review of the counted demand profile indicates there is an insufficient amount of delay on the minor street approaches (Leroy Avenue and the Cascade Center northbound egress) for a minimum of one hour of an average day. Specifically, the critical peak hour (weekday PM peak) did not meet the warrant.
#4	Pedestrian Volume	No	This warrant is designed to be applied where pedestrians experience excessive delay trying to cross a street due to heavy traffic volumes. At the time the Cascade Center analysis was conducted, full signalization of the OR 211/Leroy Avenue intersection was deemed unwarranted by ODOT. A total of four pedestrians were counted at the intersection over the course of a typical weekday (16 hours), which is well below the pedestrian volume thresholds in this warrant. Accordingly, we prepared a memorandum to ODOT in August 2019 (Attachment B) to document a pedestrian crossing analysis at the intersection and identified a red signal or beacon as the recommended interim pedestrian treatment for the intersection. A rectangular rapid flashing beacon (RRFB) has been installed on the west leg of the intersection by Cascade Center in conjunction with development of the Center.

[2] First Home Molalla Traffic Impact Study. October 2021.

Warrant		Signal Warrant Met?	Assessment
#5	School Crossing	No	This warrant is designed to be applied at locations where school children are trying to cross a major street and there are not adequate gaps in the major street traffic stream. The intersection's proximity to Molalla River Middle School to the north and the presence of the Stoneplace Apartments and other future residential developments to the south of OR 211 could create additional demand for school crossings across the intersection. As documented in the August 2019 memorandum noted in the Warrant #4 discussion above, we counted a total of seven pedestrian crossings at the existing crosswalk at OR 211/Hezzie Lane near the Stoneplace Apartments during the weekday morning school peak hour. As discussed in the following section and in the Cascade Place Multi-Family TIA dated August 2021, and school crossing activity is not projected to meet the 20 crossings per hour required by the warrant as a result of future development to the south of OR 211 within the intersection vicinity. The recently installed pedestrian-activated RRFB on the west approach of the intersection will facilitate people crossing OR 211 at Leroy Avenue until a full traffic signal can be installed with ODOT's approval.
#6	Coordinated Signal System	N/A	This warrant is intended to facilitate progressed traffic flow within a coordinated traffic signal system and allows for installation of traffic control signals at intersections where they would otherwise not be needed in order to maintain proper platooning of vehicles. Warrant 6 does not appear applicable at this time due to the lack of signals along the OR 211 corridor in the vicinity of Cascade Center. The nearest signal is the OR 211/OR 213 intersection, located over 0.8 mile to the west. Signalization of the OR 211/Molalla Avenue intersection, located approximately 0.6 mile to the east, is underway in conjunction with Cascade Center development. Neither of these intersections is sufficiently close to the OR 211/Leroy Ave intersection for this warrant to apply.
#7	Crash Experience	No	This warrant is intended for application where the severity and frequency of crashes are the principal reasons to consider traffic signal installation. The OR 211/Leroy Avenue intersection has been completely reconstructed in conjunction with Cascade Center development including provision of the new south approach, turn lanes on all approaches, new street lighting and an enhanced pedestrian treatment (RRFB) on the west leg of the intersection. The intersection crash experience will need to be monitored post-implementation of the intersection reconstruction to assess whether a pattern of five or more crashes within a 12-month period occurs that would warrant signalization.
#8	Roadway Network	No	This warrant involves installing a traffic signal at an intersection to encourage concentration and organization of traffic flow on a roadway network. The warrant requires the intersection of two or more major routes that serve as the principal roadway network for through traffic flow. While OR 211 meets the criteria for a major route, Leroy Avenue does not so the warrant does not apply.
#9	Intersection Near a Grade Crossing	No	This warrant is intended for use at a location where the proximity to the intersection of a railroad grade crossing on an intersection approach controlled by a STOP or YIELD sign in the principal reason to consider installing a traffic signal. The warrant requires, among other criteria, an at-grade crossing that is located within 140 feet of the intersection stop line. As no at-grade crossing is present near the OR 211/Leroy Avenue intersection, this warrant is not appliable.

Despite traffic signal warrants not yet being satisfied, the eventual need for signalization is apparent. We continue to recommend that applicants whose land use proposals impact the intersection work with the City to determine what proportionate share contribution (if any) is appropriate for future signalization improvements at OR 211/Leroy Avenue.

PROJECTED SCHOOL CROSSING VOLUME ANALYSIS

The Cascade Place Multi-Family TIA, dated August 2021, and subsequent responses to ODOT comments provide a discussion of the projected increase in pedestrian demand (Warrant #4) and school crossing demand (Warrant #5) at the OR 211/Leroy Avenue intersection as a result of additional residential development to the south of OR 211. The Cascade Place TIA examined the October 2018 pedestrian demand at the mid-block crosswalk of OR 211 at Hezzie Lane and compared the relative sizes of the Cascade Place multi-family units (151 proposed unit), to the Stoneplace Apartments complex (96 units) to estimate the additional pedestrian demand at Leroy Avenue. The increase in demand was projected at 10 pedestrians/hour during the weekday AM peak hour and 6 pedestrians/hour during the weekday PM peak hour, in addition to the seven pedestrian crossings at OR 211/Hezzie Lane that were counted during the

weekday AM peak hour—this brings the total estimated weekday AM peak hour pedestrian demand at OR 211/Leroy Avenue to a maximum of 17 pedestrians/hour, which is below the threshold of 20 school crossings/hour needed to trigger Warrant #5.

The recently installed pedestrian-activated RRFB on the west approach of the intersection will facilitate people crossing OR 211 at Leroy Avenue until a full traffic signal can be installed with ODOT's approval.

NEXT STEPS

Thank you for providing comments on the Goodwill application and for the opportunity to continue dialogue related to the need for signalization of the OR 211/Leroy Avenue intersection. If you have any additional questions about the application, traffic analysis, or our responses documented in this letter, please contact us using the information below.

Sincerely,
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ATTACHMENTS

A. Revised Volume-Based Signal Warrant Analysis
B. OR 211/Leroy Avenue Pedestrian Crossing Analysis Memorandum

Attachment A
Revised Volume-Based Signal
Warrant Analysis

Note right turns on Leroy Ave have been removed from the signal warrant analysis per the ODOT Analysis Procedures Manual.

Intersection	
Int Delay, s/veh	31.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	42	650	63	115	628	50	66	9	127	16	10	58
Future Vol, veh/h	42	650	63	115	628	50	66	9	127	16	10	58
Conflicting Peds, #/hr	2	0	0	0	0	2	7	0	0	0	0	7
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	7	2	2	8	2	2	2	2	0	2	2
Mvmt Flow	46	707	68	125	683	54	72	10	138	17	11	63

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	739	0	0	775	0	0	1837	1822	741	1869	1829	719
Stage 1	-	-	-	-	-	-	833	833	-	962	962	-
Stage 2	-	-	-	-	-	-	1004	989	-	907	867	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.318
Pot Cap-1 Maneuver	867	-	-	841	-	-	~ 58	77	416	56	77	428
Stage 1	-	-	-	-	-	-	363	384	-	310	334	-
Stage 2	-	-	-	-	-	-	291	325	-	333	370	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	865	-	-	841	-	-	~ 36	62	416	28	62	424
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 36	62	-	28	62	-
Stage 1	-	-	-	-	-	-	344	364	-	293	284	-
Stage 2	-	-	-	-	-	-	201	276	-	205	350	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.5	248.1	71.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	36	302	865	-	-	841	-	-	28	228
HCM Lane V/C Ratio	1.993	0.489	0.053	-	-	0.149	-	-	0.621	0.324
HCM Control Delay (s)	$ 702	27.8	9.4	-	-	10	-	-	256.2	28.2
HCM Lane LOS	F	D	A	-	-	B	-	-	F	D
HCM 95th %tile Q(veh)	7.9	2.5	0.2	-	-	0.5	-	-	2	1.3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

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610 SW Alder, Suite 700
Portland, Oregon 97205
(503) 228-5230

Project #: 27156
Project Name: Goodwill
Analyst: ZHB
Date: 1/20/2022
File: H:\27\27156 - Molalla Goodwill\report\final\City Completeness Comments_January 2022\analysis\[Signal Warrant OR 211 Lerov total 2021 Counts.xls]Warrant
Intersection: OR 211/Leroy Ave
Scenario: Year 2022 Total Traffic (2021 Counts)

Analysis Traffic Volumes

Hour		Major Street		Minor Street	
Begin	End	EB	WB	NB	SB
12:00 AM	1:00 AM	0	0	0	0
1:00 AM		0	0	0	0
2:00 AM		0	0	0	0
3:00 AM		0	0	0	0
4:00 AM		0	0	0	0
5:00 AM		0	0	0	0
6:00 AM		287	480	14	9
7:00 AM		461	662	67	51
8:00 AM		377	460	29	17
9:00 AM		386	512	36	19
10:00 AM		430	617	47	16
11:00 AM		518	691	67	39
12:00 PM		577	658	77	39
1:00 PM		576	650	71	35
2:00 PM		591	686	72	46
3:00 PM		700	726	72	34
4:00 PM		757	794	78	30
5:00 PM		802	805	83	38
6:00 PM		668	598	71	53
7:00 PM		389	413	54	44
8:00 PM		285	315	40	13
9:00 PM		207	165	28	8
10:00 PM		0	0	0	0
11:00 PM		0	0	0	0

Warrant Summary

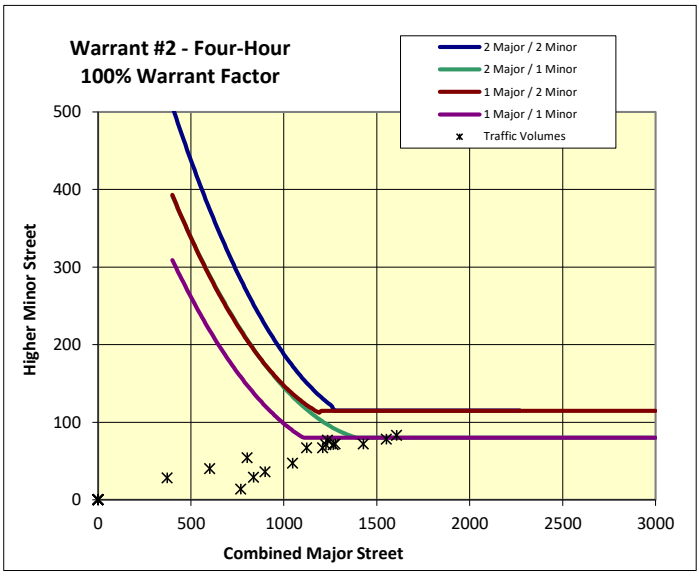
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	No
#3	Peak Hour	Yes	No
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

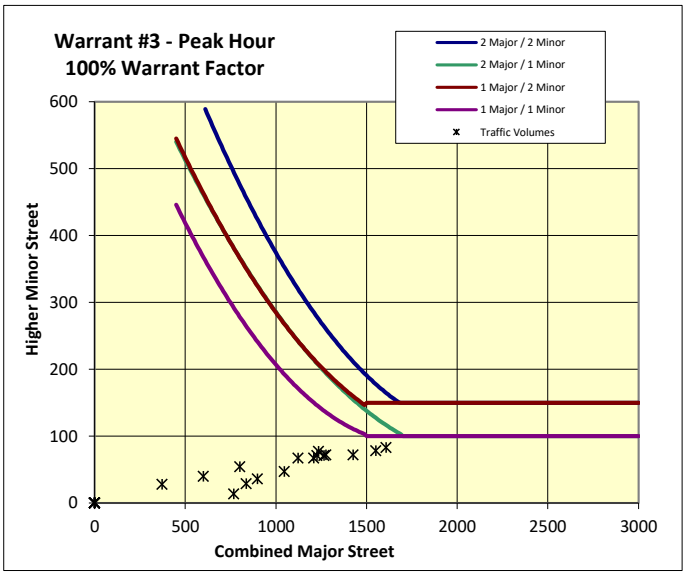
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	2
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Daily

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	600	150	0	No	**No**
	B	900	75	3	No	
80%	A	480	120	0	No	**Yes**
	B	720	60	9	Yes	
70%	A	420	105	0	No	**Yes**
	B	630	53	10	Yes	
56%	A	336	84	0	No	**Yes**
	B	504	42	11	Yes	





*Extrapolated from 2021 peak hour count / 16-hour profile from 2018

Table A. 2018 Raw Volumes

Time	NB	SB Left	EB	WB
6:00		5	240	410
7:00		23	338	452
8:00		8	300	368
9:00		9	306	400
10:00		6	342	471
11:00		19	406	507
12:00		18	451	459
13:00		16	454	462
14:00		22	464	494
15:00		15	560	530
16:00		13	604	583.5
17:00		17	604	537
18:00		27	529	422
19:00		22	297	284
20:00		5	216	218
21:00		3	158	107

Table B. 2021 Seasonally-adjusted Volumes*

Time	NB	SB Left	EB	WB	Major Street Sum
6:00	7	8	268	457	725
7:00	1	41	394	530	924
8:00	11	13	335	411	745
9:00	12	14	341	446	788
10:00	8	10	382	526	907
11:00	26	30	453	566	1019
12:00	24	29	503	512	1015
13:00	22	25	507	516	1022
14:00	30	35	518	551	1069
15:00	20	24	625	591	1216
16:00	18	21	674	651	1325
17:00	23	27	709	655	1364
18:00	37	43	590	471	1061
19:00	30	35	331	317	648
20:00	7	8	241	243	484
21:00	4	5	176	119	296

Where: NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound, Left = Left-turn movement, TH = Through movement

8 Highest Hours Shaded

Table C. 2022 Background Growth (2.5%, applied to EB, WB, SB)

Time	NB	SB Left	EB	WB	Major Street Sum
6:00	7	8	274	469	743
7:00	1	42	403	542	945
8:00	11	13	343	421	764
9:00	12	15	350	457	807
10:00	8	10	391	539	930
11:00	26	31	464	580	1044
12:00	24	29	516	525	1041
13:00	22	26	519	528	1048
14:00	30	36	531	565	1096
15:00	20	24	640	606	1247
16:00	18	21	691	667	1358
17:00	23	28	727	671	1398
18:00	37	44	605	483	1088
19:00	30	36	340	325	665
20:00	7	8	247	249	496
21:00	4	5	181	122	303

8 Highest Hours Shaded

Table D. 2022 Background Traffic Volumes with Cascade Center Commercial

Time	NB LT & TH	SB Left & TH	EB	WB	Major Street Sum
6:00	7	8	276	473	749
7:00	47	52	465	680	1145
8:00	12	15	356	451	807
9:00	21	19	371	510	881
10:00	33	16	423	622	1045
11:00	49	40	511	701	1212
12:00	59	40	572	670	1242
13:00	55	36	572	663	1236
14:00	53	46	583	696	1279
15:00	52	34	691	734	1426
16:00	54	31	744	802	1546
17:00	55	38	781	808	1589
18:00	47	53	651	601	1252
19:00	36	43	376	415	791
20:00	26	13	272	315	587
21:00	18	8	198	164	362

8 Highest Hours Shaded

Table E. 2022 Total Traffic Volumes

Time	NB LT & TH	SB Left & TH	EB	WB	Major Street Sum
6:00	14	9	286	478	764
7:00	78	53	468	681	1149
8:00	28	17	377	460	837
9:00	34	20	388	517	905
10:00	43	17	435	626	1061
11:00	61	41	526	706	1232
12:00	71	41	587	676	1263
13:00	65	37	585	667	1253
14:00	66	48	600	702	1302
15:00	66	36	709	741	1451
16:00	72	32	765	809	1574
17:00	77	40	809	819	1628
18:00	66	55	675	610	1285
19:00	50	45	394	422	816
20:00	38	14	288	322	610
21:00	26	9	209	169	378

8 Highest Hours Shaded

Table E. 2022 Total Traffic Volumes with Goodwill Trips/Land Use Adjustments, and 1000 W Main St*

Time	NB LT & TH	SB Left & TH	EB	WB	Major Street Sum
6:00	14	9	287	480	767
7:00	67	51	461	662	1123
8:00	29	17	377	460	837
9:00	36	19	386	512	898
10:00	47	16	430	617	1047
11:00	67	39	518	691	1209
12:00	77	39	577	658	1235
13:00	71	35	576	650	1227
14:00	72	46	591	686	1277
15:00	72	34	700	726	1427
16:00	78	30	757	794	1551
17:00	83	38	802	805	1607
18:00	71	53	668	598	1266
19:00	54	44	389	413	802
20:00	40	13	285	315	600
21:00	28	8	207	165	372

8 Highest Hours Shaded

*Includes site trips and in process traffic identified in Tables 2-2C and 4-4C on the following pages

Table 1. Cascade Center Trip Assignment (From TIA Figure 6)

	TIA OR 211/Leroy Intersection						
	NBLT	NBTH	SBTH	WBLT	EBRT	EBT	WBT
AM Peak Hour	40	7	9	125	41	-3	-9
PM Peak Hour	46	8	10	125	51	-17	-9

Table 1A. Storage Trips to Be Removed

	TIA OR 211/Leroy Intersection						
	NBLT	NBTH	SBTH	WBLT	EBRT	EBT	WBT
AM Peak Hour	2			2	2		
PM Peak Hour	2			3	3		

Table 1B. Center Market Trips

	TIA OR 211/Leroy Intersection						
	NBLT	NBTH	SBTH	WBLT	EBRT	EBT	WBT
AM Peak Hour						21	21
PM Peak Hour						17	16

Table 1C. Change in Trip Generation due to Goodwill / Other Adjustments*

	TIA OR 211/Leroy Intersection						
	NBLT	NBTH	SBTH	WBLT	EBRT	EBT	WBT
AM Peak Hour	-10	-1	-2	-21	-12		
PM Peak Hour	5	1	-2	-20	-11		

*Note Goodwill Store will not open until 10AM and staff do not typically arrive until after 9AM, so AM peak hour trip generation is minimal. Goodwill will replace some trips already accounted for in the Cascade Center TIA, resulting in a net reduction in volume for some movements.

Table 2. Cascade Center Trip Assignment Extrapolated Across Day

Hour	ITE Shopping Center Percent of Daily Trips	NBLT	NBTH	SBTH	WBLT	EBRT	EBT	WBT
6:00	0.2	1	0	0	3	1	0	0
7:00	1.1	40	7	9	125	41	-3	-9
8:00	2	10	2	2	27	11	-4	-2
9:00	3.6	18	3	4	49	20	-7	-4
10:00	5.6	28	5	6	76	31	-10	-5
11:00	8.3	42	7	9	113	46	-15	-8
12:00	10	50	9	11	136	55	-18	-10
13:00	9.3	47	8	10	126	52	-17	-9
14:00	9	45	8	10	122	50	-17	-9
15:00	8.8	44	8	10	120	49	-16	-9
16:00	9.2	46	8	10	125	51	-17	-9
17:00	9.3	47	8	10	126	52	-17	-9
18:00	8	40	7	9	109	44	-15	-8
19:00	6.1	31	5	7	83	34	-11	-6
20:00	4.4	22	4	5	60	24	-8	-4
21:00	2.9	15	3	3	39	16	-5	-3

Table 2A. Storage Trip Assignment Extrapolated Across Day

Hour	ITE Shopping Center Percent of Daily Trips	NBLT	NBTH	SBTH	WBLT	EBRT	EBT	WBT
6:00	0.2	0	0	0	0	0	0	0
7:00	1.1	2	0	0	2	2	0	0
8:00	2	0	0	0	1	1	0	0
9:00	3.6	1	0	0	1	1	0	0
10:00	5.6	1	0	0	2	2	0	0
11:00	8.3	2	0	0	3	3	0	0
12:00	10	2	0	0	3	3	0	0
13:00	9.3	2	0	0	3	3	0	0
14:00	9	2	0	0	3	3	0	0
15:00	8.8	2	0	0	3	3	0	0
16:00	9.2	2	0	0	3	3	0	0
17:00	9.3	2	0	0	3	3	0	0
18:00	8	2	0	0	3	3	0	0
19:00	6.1	1	0	0	2	2	0	0
20:00	4.4	1	0	0	1	1	0	0
21:00	2.9	1	0	0	1	1	0	0

Table 2B. Center Market Trip Assignment Extrapolated Across Day

Hour	ITE Shopping Center	NBLT	NBTH	SBTH	WBLT	EBRT	EBT	WBT
6:00	0.2	0	0	0	0	0	0	0
7:00	1.1	0	0	0	0	0	21	21
8:00	2	0	0	0	0	0	4	3
9:00	3.6	0	0	0	0	0	7	6
10:00	5.6	0	0	0	0	0	10	10
11:00	8.3	0	0	0	0	0	15	14
12:00	10	0	0	0	0	0	18	17
13:00	9.3	0	0	0	0	0	17	16
14:00	9	0	0	0	0	0	17	16
15:00	8.8	0	0	0	0	0	16	15
16:00	9.2	0	0	0	0	0	17	16
17:00	9.3	0	0	0	0	0	17	16
18:00	8	0	0	0	0	0	15	14
19:00	6.1	0	0	0	0	0	11	11
20:00	4.4	0	0	0	0	0	8	8
21:00	2.9	0	0	0	0	0	5	5

Table 2C. Goodwill Trip Assignment Extrapolated Across Day

Hour	ITE Shopping Center	NBLT	NBTH	SBTH	WBLT	EBRT	EBT	WBT
6:00	0.2	0	0	0	0	0	0	0
7:00	1.1	-10	-1	-2	-21	-12	0	0
8:00	2	1	0	0	-4	-2	0	0
9:00	3.6	2	0	-1	-8	-4	0	0
10:00	5.6	3	1	-1	-12	-7	0	0
11:00	8.3	5	1	-2	-18	-10	0	0
12:00	10	5	1	-2	-22	-12	0	0
13:00	9.3	5	1	-2	-20	-11	0	0
14:00	9	5	1	-2	-20	-11	0	0
15:00	8.8	5	1	-2	-19	-11	0	0
16:00	9.2	5	1	-2	-20	-11	0	0
17:00	9.3	5	1	-2	-20	-11	0	0
18:00	8	4	1	-2	-17	-10	0	0
19:00	6.1	3	1	-1	-13	-7	0	0
20:00	4.4	2	0	-1	-10	-5	0	0
21:00	2.9	2	0	-1	-6	-3	0	0

Table 3. Cascade Place Apartments Trip Assignment

	TIA OR 211/Leroy Intersection						
	NBLT	NBTH	SBTH	WBLT	EBRT	EBT	WBT
AM Peak Hour	24	2	1	3	9	0	0
PM Peak Hour	17	0	2	12	26	0	0

Table 3A. Colima Apartments Trip Assignment

	TIA OR 211/Leroy Intersection						
	NBLT	NBTH	SBTH	WBLT	EBRT	EBT	WBT
AM Peak Hour						3	1
PM Peak Hour						2	3

Table 3B. Stoneplace Apartments Rerouted Trips

	TIA OR 211/Leroy Intersection						
	NBLT	NBTH	SBTH	WBLT	EBRT	EBT	WBT
AM Peak Hour	7	0	0	2	0	-4	-2
PM Peak Hour	3	0	0	4	2	-2	-4

Table 3C. 1000 W Main ST Trip Assignment

	TIA OR 211/Leroy Intersection						
	NBLT	NBTH	SBTH	WBLT	EBRT	EBT	WBT
AM Peak Hour						5	2
PM Peak Hour						3	5

Table 4. TIA Trip Assignment Extrapolated Across Day

Hour	ITE Multi-Family Percent of Daily Trips	NBLT	NBTH	SBTH	WBLT	EBRT	EBT	WBT
6:00	2.9	6	0	1	5	10	0	0
7:00	7.4	24	2	1	3	9	0	0
8:00	6.3	14	0	2	10	22	0	0
9:00	5.3	12	0	1	8	18	0	0
10:00	4	9	0	1	6	14	0	0
11:00	5.3	12	0	1	8	18	0	0
12:00	5.4	12	0	1	9	18	0	0
13:00	4.6	10	0	1	7	16	0	0
14:00	5.7	13	0	2	9	20	0	0
15:00	6.2	14	0	2	10	21	0	0
16:00	7.6	17	0	2	12	26	0	0
17:00	9.1	20	0	2	14	31	0	0
18:00	7.9	18	0	2	12	27	0	0
19:00	5.7	13	0	2	9	20	0	0
20:00	5.1	11	0	1	8	17	0	0
21:00	3.6	8	0	1	6	12	0	0

Table 4A. Colima Trip Assignment Extrapolated Across Day

Hour	ITE Multi-Family Percent	NBLT	NBTH	SBTH	WBLT	EBRT	EBT	WBT
6:00	2.9	0	0	0	0	0	1	1
7:00	7.4	0	0	0	0	0	3	1
8:00	6.3	0	0	0	0	0	2	2
9:00	5.3	0	0	0	0	0	1	2
10:00	4	0	0	0	0	0	1	2
11:00	5.3	0	0	0	0	0	1	2
12:00	5.4	0	0	0	0	0	1	2
13:00	4.6	0	0	0	0	0	1	2
14:00	5.7	0	0	0	0	0	2	2
15:00	6.2	0	0	0	0	0	2	2
16:00	7.6	0	0	0	0	0	2	3
17:00	9.1	0	0	0	0	0	2	4
18:00	7.9	0	0	0	0	0	2	3
19:00	5.7	0	0	0	0	0	2	2
20:00	5.1	0	0	0	0	0	1	2
21:00	3.6	0	0	0	0	0	1	1

Table 4B. TIA Trip Assignment Extrapolated Across Day

Hour	ITE Multi-Family Percent	NBLT	NBTH	SBTH	WBLT	EBRT	EBT	WBT
6:00	2.9	1	0	0	2	1	-1	-2
7:00	7.4	7	0	0	2	0	-4	-2
8:00	6.3	2	0	0	3	2	-2	-3
9:00	5.3	2	0	0	3	1	-1	-3
10:00	4	2	0	0	2	1	-1	-2
11:00	5.3	2	0	0	3	1	-1	-3
12:00	5.4	2	0	0	3	1	-1	-3
13:00	4.6	2	0	0	2	1	-1	-2
14:00	5.7	2	0	0	3	2	-2	-3
15:00	6.2	2	0	0	3	2	-2	-3
16:00	7.6	3	0	0	4	2	-2	-4
17:00	9.1	4	0	0	5	2	-2	-5
18:00	7.9	3	0	0	4	2	-2	-4
19:00	5.7	2	0	0	3	2	-2	-3
20:00	5.1	2	0	0	3	1	-1	-3
21:00	3.6	1	0	0	2	1	-1	-2

Table 4C. 1000 W Main ST Trip Assignment Extrapolated Across Day

Hour	ITE Multi-Family Percent	NBLT	NBTH	SBTH	WBLT	EBRT	EBT	WBT
6:00	2.9	0	0	0	0	0	1	2
7:00	7.4	0	0	0	0	0	5	2
8:00	6.3	0	0	0	0	0	2	4
9:00	5.3	0	0	0	0	0	2	3
10:00	4	0	0	0	0	0	2	3
11:00	5.3	0	0	0	0	0	2	3
12:00	5.4	0	0	0	0	0	2	4
13:00	4.6	0	0	0	0	0	2	3
14:00	5.7	0	0	0	0	0	2	4
15:00	6.2	0	0	0	0	0	2	4
16:00	7.6	0	0	0	0	0	3	5
17:00	9.1	0	0	0	0	0	4	6
18:00	7.9	0	0	0	0	0	3	5
19:00	5.7	0	0	0	0	0	2	4
20:00	5.1	0	0	0	0	0	2	3
21:00	3.6	0	0	0	0	0	1	2

Attachment B
OR 211/Leroy Avenue
Pedestrian Crossing Analysis
Memorandum

KITTELSON & ASSOCIATES
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MEMORANDUM

Date:	August 29, 2019	Project #: 23301
To:	Benjamin Chaney, PE ODOT Region 1	
From:	Zachary Bugg and Chris Brehmer, PE	
Cc:	Gerald Fisher, PE, City of Molalla	
Project:	Cascade Center, Molalla, OR	
Subject:	OR 211/Leroy Avenue Pedestrian Crossing Analysis	

This memorandum documents a pedestrian crossing assessment conducted for the OR 211/Leroy Avenue intersection in partial fulfillment of a condition of Land Use approval for the Cascade Center development. Review of the assessment and final determination of pedestrian treatments to be installed at the intersection will be made by the Oregon Department of Transportation (ODOT).

As documented herein, the range of appropriate pedestrian treatments that may be approved by ODOT varies depending in part of whether or not a pedestrian median refuge is provided on OR 211 at the Leroy Avenue intersection. At a minimum, the analysis conducted suggests provision of a marked pedestrian crossing would be appropriate in conjunction with site development if a pedestrian median refuge is provided on OR 211. If a median refuge is not provided (introduction of a median refuge at the intersection may not be acceptable to ODOT considering the projected turn movement demand along OR 211 at this location), then the appropriate pedestrian treatments identified range from provision of a minimum of "active when present" devices[1] to installation of a pedestrian hybrid beacon[2] or a standard red-yellow-green signal.

[1] "Active when present" devices are activated by pedestrians using a given crossing and alert motorists to the presence of pedestrians. By way of example, the Rectangular Rapid Flash Beacon located to the west of Leroy Avenue at Hezzie Lane is considered an "active when present" device.

[2] A pedestrian hybrid beacon is a traffic control device designed to facilitate pedestrian crossing of roadways at midblock crossings and uncontrolled intersections. These devices are activated by pedestrians and, once activated, provide a yellow to red lighting sequence consisting of steady and flashing lights directing vehicle traffic to stop for the pedestrian crosswalk while also providing an indicated to the pedestrian of when to cross.

BACKGROUND

As approved by the City, Cascade Center will be constructed on a 15-acre site south of OR 211 between Leroy Avenue and Hezzie Lane. By the year 2020, the site could include a 9,100 square-foot Dollar General, 70,981 square feet of various other retail, office, and restaurant uses, and 256 storage units, providing convenient commercial opportunities to nearby residents as well as to through travelers on OR 211. Access to the site will be provided at three locations along OR 211, including at a southward extension of Leroy Avenue across OR 211. While the Leroy Avenue extension will terminate north of Lowe Road at Cascade Center buildout, a future connection to Lowe Road is anticipated in the *City of Molalla Transportation System Plan*.

A Traffic Impact Study associated with the Cascade Center development was submitted to the City and ODOT in March 2019 as part of the land use process. To fulfill the conditions of approval, Cascade Center is required to construct frontage improvements along OR 211 and the extension of Leroy Avenue. As part of these improvements, a new sidewalk will be provided along the south side of OR 211 from the west property line near Hezzie Lane to a point just west of Ridings Avenue, thereby providing a continuous pedestrian route to the Stoneplace Apartments to the west.

With the extension of Leroy Avenue south of OR 211, increased pedestrian crossings at this intersection can be expected to the new Cascade Center commercial uses, the Molalla River Middle School to the north and the homes/apartments both north and south of OR 211. Pedestrian crossings of OR 211 are also anticipated to/from the South Clackamas Transportation District bus stop located just to the southeast of the Leroy Avenue/OR 211 intersection[3]. Finally, public testimony at the Cascade Center Planning Commission hearing included comments from a community member who is legally blind noted that she will be crossing OR 211 at the Leroy Avenue intersection to access the new uses within Cascade Center.

Potential traffic signalization of the OR 211/Leroy Avenue intersection was considered in conjunction with the land use approvals for Cascade Center but was deemed unwarranted at this time by ODOT. In response to the ODOT comments, the City of Molalla imposed a condition of approval requiring a pedestrian crossing analysis for the OR 211/Leroy Avenue intersection to further assess how pedestrian crossings can be accommodated prior to potential future signalization.

[3] Installation of a transit stop served by the South Clackamas Transportation District is required on the southeast corner of the OR 211/Leroy Avenue intersection in conjunction with site development. Limited ridership data for the existing transit stops near the intersection is available today and the available data does not specify the side of OR 211 where transit stops are made.

PEDESTRIAN CROSSING LOCATION

Based on a review of intersection geometrics and vehicular traffic volumes, if provided, a designated crosswalk across OR 211 is likely to be located on the west side of the OR 211/Leroy Avenue intersection. This location is preferred over the east side of the intersection for the following reasons:

- Right-turns and left-turns to/from Leroy Avenue are estimated to be slightly higher on the east leg as compared to the west leg;
- Local destinations, such as Molalla River Middle School and Fred's Food-o-Mart, are located on the west side of Leroy Avenue north of OR 211, thereby providing the most direct pedestrian route;
- Further, the commercial uses planned within Cascade Center will also be constructed on the west side of Leroy Avenue; and
- The existing sidewalk network extends farther to the west side of Leroy Avenue as compared to the east side.

Notwithstanding the considerations above, some pedestrian trips can be expected on the east leg of the intersection given the reconstructed transit stop to be located on the southeast quadrant of the intersection with Cascade Center development.

PEDESTRIAN VOLUME DEVELOPMENT

As described in the March 2019 TIS, pedestrian and vehicle turning movement volumes were collected at the OR 211/Leroy Avenue intersection from 6:00 AM to 10:00 PM on a mid-weekday in October 2018 when school was in session. Currently there is no marked crosswalk at the intersection. The October 2018 traffic count recorded 42 pedestrians using the intersection including 35 crossing east-west on the north side of the intersection, 3 crossing east-west along the south side of the intersection, and 4 crossing north-south on the west side of the intersection over the course of the 16-hour count.

The combination of vacant land along the south side of OR 211 and the lack of existing pedestrian facilities at or across OR 211 near Leroy Avenue makes it challenging to predict future pedestrian demand in the area. However, pedestrian demand can be expected given the now approved Cascade Center site land uses, the forthcoming new transit stop, and the new pedestrian facilities that will link the school site north of OR 211 with existing housing along the south side of OR 211. Some considerations regarding potential pedestrian demand are outlined below.

- **Provision of new pedestrian facilities.** Pedestrian trips between the Molalla River Middle School and residential homes south of OR 211 led to the installation of a pedestrian crossing of OR 211 at Hezzie Lane by ODOT in February 2019 (located 0.15 mile west of the Cascade Center site). The crossing treatment was installed after a child crossing the highway was struck by a vehicle in 2018. Completion of sidewalks on OR 211 along the Cascade Center site frontage improvements will provide a continuous sidewalk from the apartments to the extension of Leroy Avenue, thereby providing a more favorable walking route to Molalla River

Middle School as compared to the currently available Hezzie Lane route, which connects to the school in part via a gravel path with limited sidewalk.

- **Increased trip generators.** Per the March 2019 TIS, the retail and restaurant/coffee shop components of the Cascade Center development are expected to generate approximately 263 weekday AM peak hour trips and 314 weekday PM peak hour trips[4]. A portion of this demand can be anticipated from local residences north of OR 211 and could be completed in the form of walking trips (reducing vehicle trips) if appropriate facilities are provided.

Based on these considerations and in consultation with ODOT staff, we calculated a range of potential peak hour pedestrian volume projections for the OR 211/Leroy Avenue intersection. More specifically, potential pedestrian demand was estimated as a function of existing and proposed land uses as follows:

- There are approximately 22 single-family homes north of OR 211 that are within ¼ mile of the proposed Cascade Center development and 112 single-family homes north of OR 211 within ½ mile of the development.
- There are approximately ten apartment units within the Stoneplace Apartments complex that would be within a walking distance of ¼ mile of the school and retail land uses north of OR 211 routing via the planned Leroy Avenue extension. The number of apartment units increases to approximately 80 when a walking distance of ½ mile is considered[5].
- To develop a **low estimate** for pedestrian demand, we assumed 15 percent of the homes/apartments within ½ mile of the intersection would generate a pedestrian crossing between the north and southside of the highway on a daily basis. This would result in 29 pedestrian crossings.
- To develop a **high estimate** for pedestrian demand, we assumed 35 percent of the homes/apartments within ½ mile of the intersection would cross, resulting in 64 pedestrian crossings.
- We took the average of the low and high estimates as a **medium estimate** for pedestrian demand, or 47 peak hour pedestrian trips.

[4]Person trip rates published in *Trip Generation Manual, 10th Edition* were used to estimate Cascade Plaza pedestrian demand for informational purposes assuming 80,000 square feet of shopping center space (Land Use 820) and result in an estimate of 620 weekday PM peak hour person trips using the average trip rate. Assuming a 5 percent walk share of the 620 projected person trips yields an estimated 31 weekday PM peak hour pedestrian trips to/from the new retail area.

[5] There are approximately 280 units in the Stoneplace Apartments complex. All units would be located within ½ mile of the school and retail land uses north of OR 211, but we assumed most of the units west of Hezzie Lane would cross OR 211 at Hezzie Lane. Approximately 80 units are located east of Hezzie Lane and south of the proposed Cascade Center.

CROSSING TYPE

At ODOT's request, we considered potential signalized crossing treatments at the intersection with and without a center median refuge. Per the Cascade Center conditions of approval, OR 211 will be widened to a 3-lane section through the Leroy Avenue intersection including one vehicle travel lane in each direction, a center left-turn lane, and bicycle lanes eastbound and westbound. ODOT has indicated the center left-turn lane area should be striped as a two-way left-turn lane. Installation of a median refuge instead of an eastbound left turn lane may not be feasible due to consistent eastbound left turn volume (more than 30 vehicles per hour and including school bus trips to the nearby middle school) during the AM and PM peak hours, as well as during school ingress/egress times.

NCHRP REPORT 562 ANALYSIS

The potential pedestrian crossing of OR 211 was assessed for a range of potential treatments using a spreadsheet application of the methodology described in NCHRP Report 562 (Reference 1)[6]. Table 1 summarizes the results for the low, medium, and high estimates for pedestrian demand at the proposed crosswalk without and with a median refuge on OR 211. Spreadsheet outputs are provided in *Attachment "A"*.

Table 1. NCHRP Report 562 Analysis Results

Demand Level	Without Median Refuge		With Median Refuge	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Low (29 pedestrians/peak hour)	Provide "active when present" devices.*	Provide a red signal or beacon.**	Provide a marked crosswalk.	Provide a marked crosswalk.
Medium (47 pedestrians/peak hour)	Provide "active when present" devices.*	Provide a red signal or beacon.**	Provide a marked crosswalk.	Provide a marked crosswalk.
High (64 pedestrians/peak hour)	Provide "active when present" devices.*	Provide a red signal or beacon.**	Provide a marked crosswalk.	Provide a marked crosswalk.

*These include rectangular rapid flashing beacons (RRFBs) and overhead flashing amber beacons.
**These include "half" red-yellow-green signals controlling mainline approaches on OR 211 only or a pedestrian hybrid beacon (HAWK signal).

As shown, the projected weekday PM peak hour volumes result in a red signal or beacon being identified as an appropriate treatment under a medium pedestrian volume estimate in the scenario with no median refuge. A sensitivity analysis confirmed a red signal or beacon would be identified per the NCHRP evaluation methodology with a peak hour pedestrian volume of 24 or more.

[6] OR 211 is designated as a district highway by ODOT. For the purposes of this analysis, a three-lane roadway section with bike lanes was assumed as per the Cascade Center conditions of approval for frontage improvements and assuming the currently posted 35 miles per hour speed limit is maintained.

FINDINGS

We offer the following findings based on this analysis:

- Assuming a pedestrian crossing would only be provided on the east or west leg of the intersection prior to future signalization, provision of a crossing location on the west side of the OR 211/Leroy Avenue intersection should be explored (as opposed to the east side) given the comparative lower right/left turning movement volumes to/from Leroy Avenue, presence of local trip generators/pedestrian desired walking routes, and the location of existing/proposed sidewalk facilities.
- Installation of a median refuge on OR 211 at the Leroy Avenue intersection appears unlikely to be approved due to the volume of eastbound left turning traffic during peak hours as well as during school ingress/egress times.
- Pedestrian demand at the Leroy Avenue location is expected to increase reflecting improved sidewalk facilities, development of commercial uses within Cascade Center, construction of the new transit stop in the southeast quadrant of the intersection, and the construction of a new pedestrian link between the residential and school area north of OR 211 to the Stoneplace Apartments (via the Cascade Center development frontage improvements).
- An NCHRP Report 562 based assessment suggests consideration be given to installing a minimum of a marked crosswalk (assuming provision of a pedestrian median refuge) with higher volume pedestrian assumptions supporting installation of treatments ranging from "active when present" devices (such as a Rectangular Rapid Flash Beacon) to a standard red-yellow-green signal for the crosswalk or a pedestrian hybrid beacon (HAWK signal).
- If a Marked Crosswalk and Rectangular Rapid Flash Beacon are provided, the installation should include Audible Pedestrian Signals given community member feedback from a legally blind resident that will be crossing at the intersection.
- If a Marked Crosswalk and enhanced crossing are provided on the west leg of the Leroy Avenue intersection, ODOT may choose to consider closure of the east crosswalk to encourage pedestrians to the use the enhanced facility.

Please contact us if you have questions or comments as you review this material.

REFERENCES

1. Fitzpatrick, K., et al. *TCRP Report 112/NCHRP Report 562: Improving Pedestrian Safety at Unsignalized Crossings.* Transportation Research Board of the National Academies: Washington, DC, 2006.

ATTACHMENT

A. NCHRP Report 562 Spreadsheet Output Sheets

GUIDELINES FOR PEDESTRIAN CROSSING TREATMENTS

This spreadsheet combines Worksheet 1 and Worksheet 2 (Appendix A, pages 69-70) of TCRP Report 112/NCHRP Report 562 (*Improving Pedestrian Safety at Unsignalized Intersections*) into an electronic format. This spreadsheet should be used in conjunction with, and not independent of, Appendix A documentation.

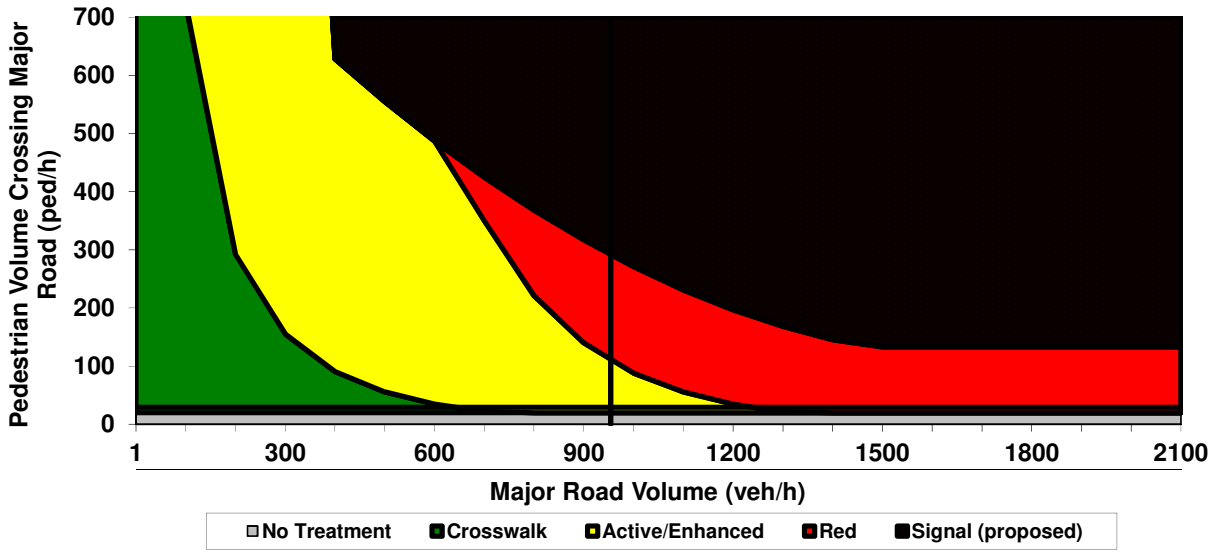
This spreadsheet is still under development, please inform TTI if errors are identified.

Key

- Blue fields contain descriptive information.
- Green fields are required and must be completed.
- Tan fields are adjustments that are filled out only under certain conditions (follow instructions to the left of the cell).
- Gray fields are automatically calculated and should not be edited.

Analyst and Site Information			
Analyst	ZHB	Major Street	OR 211
Analysis Date	June 13, 2019	Minor Street or Location	Leroy Ave
Data Collection Date		Peak Hour	2020 AM

Step 1: Select worksheet:			
Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)		*1a*	35
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)		*1b*	NO
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?			
Peak-hour pedestrian volume (ped/h), V_p		*2a*	29
Result: Go to step 3.			
Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?			
Major road volume, total of both approaches during peak hour (veh/h), $V_{maj\text{-}s}$		*3a*	954
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant		*3b*	291
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant		*3c*	291
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)		*3d*	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%.	% rate of reduction for *3c* (up to 50%)	*3e*	50%
	Reduced value or *3c*	*3f*	291
Result: The signal warrant is not met. Go to step 4.			
Step 4: Estimate pedestrian delay.			
Pedestrian crossing distance, curb to curb (ft), L		*4a*	59
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)		*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)		*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c		*4d*	20
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), $V_{maj\text{-}d}$		*4e*	954
Major road flow rate (veh/s), v		*4f*	0.27
Average pedestrian delay (s/person), d_p		*4g*	765
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.		*4h*	6.2
		4i	
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.			
Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***		*5a*	HIGH
Treatment Category:	**ACTIVE OR ENHANCED**		



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GUIDELINES FOR PEDESTRIAN CROSSING TREATMENTS

This spreadsheet combines Worksheet 1 and Worksheet 2 (Appendix A, pages 69-70) of TCRP Report 112/NCHRP Report 562 (*Improving Pedestrian Safety at Unsignalized Intersections*) into an electronic format. This spreadsheet should be used in conjunction with, and not independent of, Appendix A documentation.

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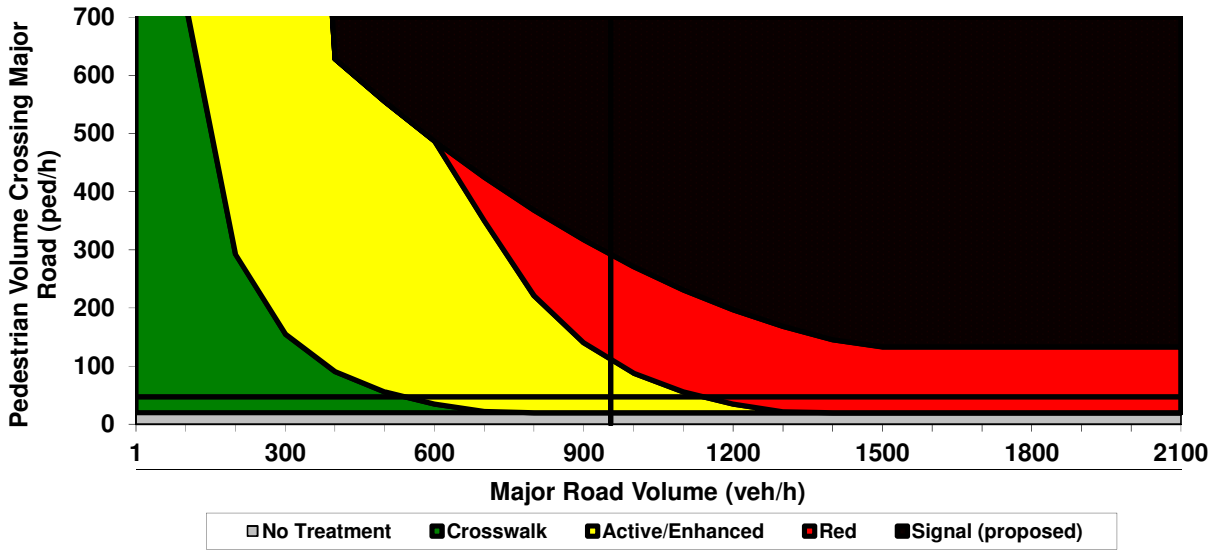
Analyst and Site Information			
Analyst	ZHB	Major Street	OR 211
Analysis Date	June 13, 2019	Minor Street or Location	Leroy Ave
Data Collection Date		Peak Hour	2020 AM

Step 1: Select worksheet:			
Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)		*1a*	35
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)		*1b*	NO
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?			
Peak-hour pedestrian volume (ped/h), V_p		*2a*	47
Result: Go to step 3.			
Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?			
Major road volume, total of both approaches during peak hour (veh/h), $V_{maj\text{-}s}$		*3a*	954
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant		*3b*	291
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant		*3c*	291
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)		*3d*	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%.	% rate of reduction for *3c* (up to 50%)	*3e*	50%
	Reduced value or *3c*	*3f*	291
Result: The signal warrant is not met. Go to step 4.			
Step 4: Estimate pedestrian delay.			
Pedestrian crossing distance, curb to curb (ft), L		*4a*	59
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)		*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)		*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c		*4d*	20
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), $V_{maj\text{-}d}$		*4e*	954
Major road flow rate (veh/s), v		*4f*	0.27
Average pedestrian delay (s/person), d_p		*4g*	765
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.		*4h*	10.0
		4i	
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.			
Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***		*5a*	HIGH

Treatment Category:	**ACTIVE OR ENHANCED**



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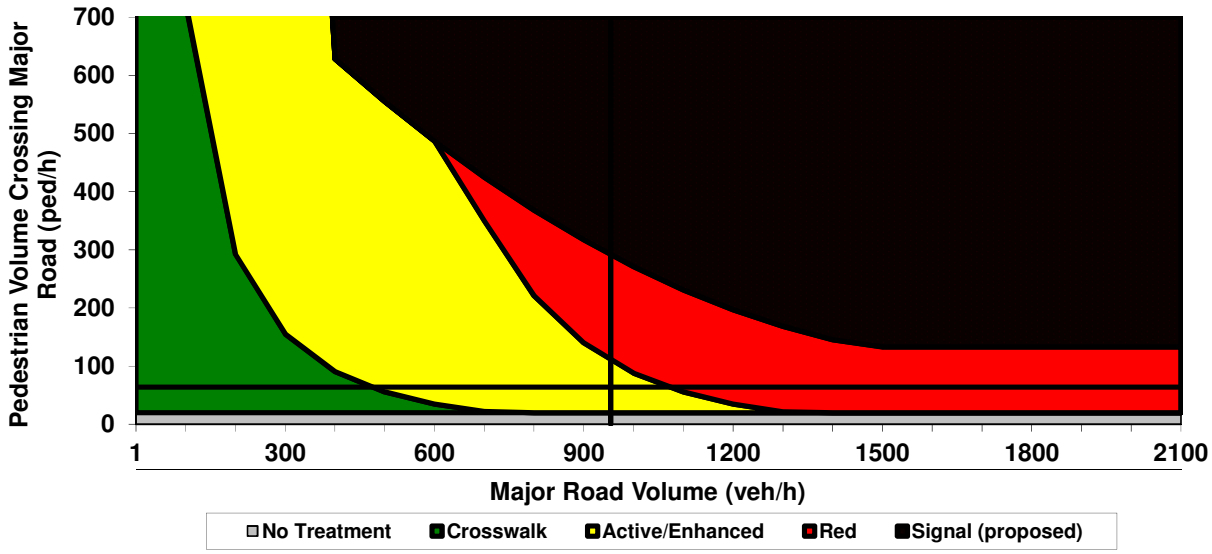
Analyst and Site Information			
Analyst	ZHB	Major Street	OR 211
Analysis Date	June 13, 2019	Minor Street or Location	Leroy Ave
Data Collection Date		Peak Hour	2020 AM

Step 1: Select worksheet:			
Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)		*1a*	35
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)		*1b*	NO
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?			
Peak-hour pedestrian volume (ped/h), V_p		*2a*	64
Result: Go to step 3.			
Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?			
Major road volume, total of both approaches during peak hour (veh/h), $V_{maj\text{-}s}$		*3a*	954
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant		*3b*	291
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant		*3c*	291
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)		*3d*	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%.	% rate of reduction for *3c* (up to 50%)	*3e*	50%
	Reduced value or *3c*	*3f*	291
Result: The signal warrant is not met. Go to step 4.			
Step 4: Estimate pedestrian delay.			
Pedestrian crossing distance, curb to curb (ft), L		*4a*	59
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)		*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)		*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c		*4d*	20
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), $V_{maj\text{-}d}$		*4e*	954
Major road flow rate (veh/s), v		*4f*	0.27
Average pedestrian delay (s/person), d_p		*4g*	765
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.		*4h*	13.6
		4i	
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.			
Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***		*5a*	HIGH
Treatment Category:	**ACTIVE OR ENHANCED**		



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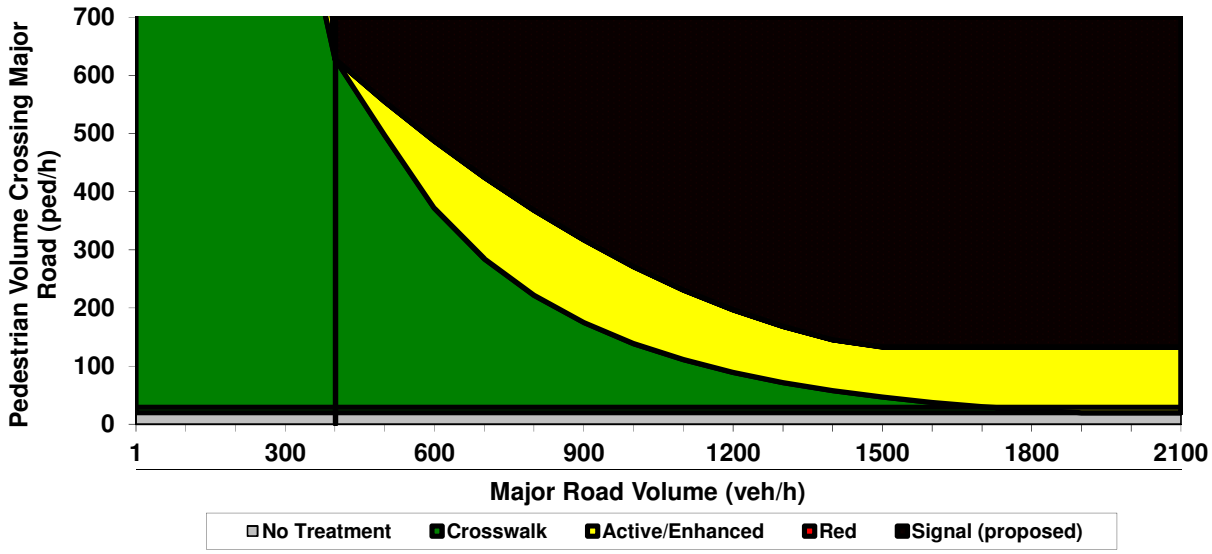
Analyst and Site Information			
Analyst	ZHB	Major Street	OR 211
Analysis Date	June 13, 2019	Minor Street or Location	Leroy Ave
Data Collection Date		Peak Hour	2020 AM

Step 1: Select worksheet:			
Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)		*1a*	35
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)		*1b*	NO
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?			
Peak-hour pedestrian volume (ped/h), V_p		*2a*	29
Result: Go to step 3.			
Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?			
Major road volume, total of both approaches during peak hour (veh/h), $V_{maj\text{-}s}$		*3a*	954
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant		*3b*	291
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant		*3c*	291
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)		*3d*	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%.	% rate of reduction for *3c* (up to 50%)	*3e*	50%
	Reduced value or *3c*	*3f*	291
Result: The signal warrant is not met. Go to step 4.			
Step 4: Estimate pedestrian delay.			
Pedestrian crossing distance, curb to curb (ft), L		*4a*	22
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)		*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)		*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c		*4d*	9
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), $V_{maj\text{-}d}$		*4e*	401
Major road flow rate (veh/s), v		*4f*	0.11
Average pedestrian delay (s/person), d_p		*4g*	7
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.		*4h*	0.1
		4i	
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.			
Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***		*5a*	HIGH
Treatment Category:	**CROSSWALK**		



Because the volume in Step 4e is different from the volume in Step 3a, the graph may show a different result than the Treatment Category above.

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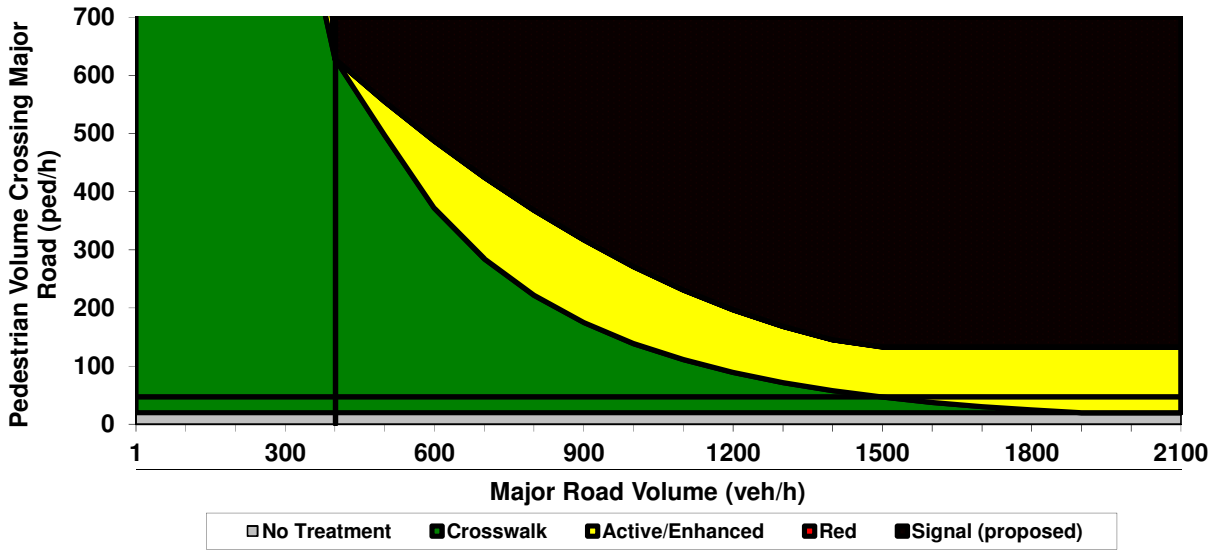
Analyst and Site Information			
Analyst	ZHB	Major Street	OR 211
Analysis Date	June 13, 2019	Minor Street or Location	Leroy Ave
Data Collection Date		Peak Hour	2020 AM

Step 1: Select worksheet:			
Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)		*1a*	35
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)		*1b*	NO
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?			
Peak-hour pedestrian volume (ped/h), V_p		*2a*	47
Result: Go to step 3.			
Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?			
Major road volume, total of both approaches during peak hour (veh/h), $V_{maj\text{-}s}$		*3a*	954
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant		*3b*	291
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant		*3c*	291
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)		*3d*	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%.	% rate of reduction for *3c* (up to 50%)	*3e*	50%
	Reduced value or *3c*	*3f*	291
Result: The signal warrant is not met. Go to step 4.			
Step 4: Estimate pedestrian delay.			
Pedestrian crossing distance, curb to curb (ft), L		*4a*	22
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)		*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)		*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c		*4d*	9
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), $V_{maj\text{-}d}$		*4e*	401
Major road flow rate (veh/s), v		*4f*	0.11
Average pedestrian delay (s/person), d_p		*4g*	7
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.		*4h*	0.1
		4i	
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.			
Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***		*5a*	HIGH
Treatment Category:	**CROSSWALK**		



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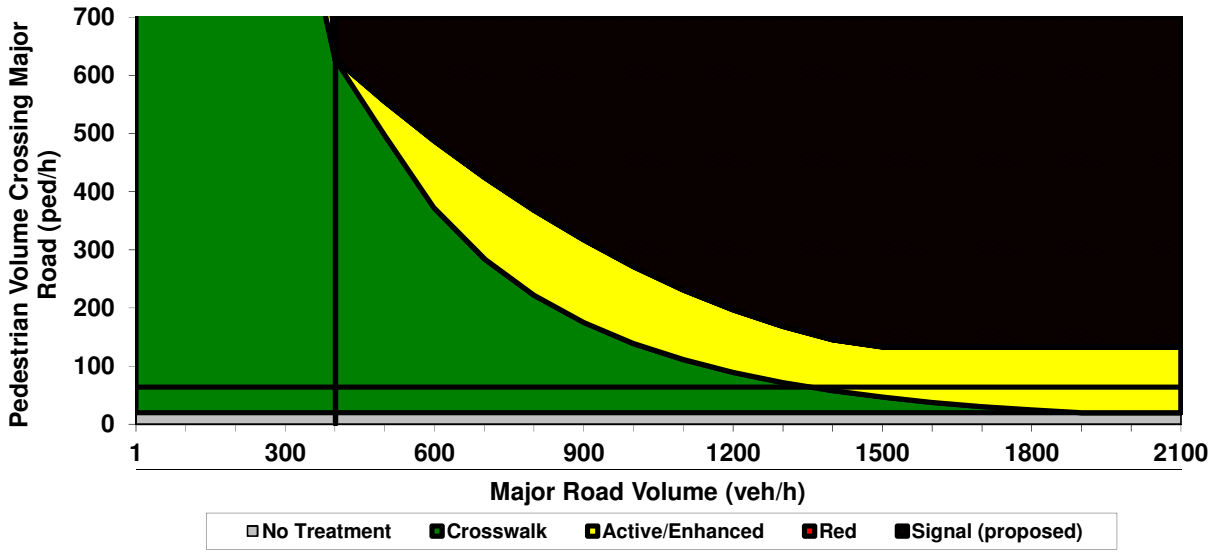
Analyst and Site Information			
Analyst	ZHB	Major Street	OR 211
Analysis Date	June 13, 2019	Minor Street or Location	Leroy Ave
Data Collection Date		Peak Hour	2020 AM

Step 1: Select worksheet:			
Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)		*1a*	35
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)		*1b*	NO
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?			
Peak-hour pedestrian volume (ped/h), V_p		*2a*	64
Result: Go to step 3.			
Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?			
Major road volume, total of both approaches during peak hour (veh/h), $V_{maj\text{-}s}$		*3a*	954
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant		*3b*	291
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant		*3c*	291
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)		*3d*	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%.	% rate of reduction for *3c* (up to 50%)	*3e*	50%
	Reduced value or *3c*	*3f*	291
Result: The signal warrant is not met. Go to step 4.			
Step 4: Estimate pedestrian delay.			
Pedestrian crossing distance, curb to curb (ft), L		*4a*	22
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)		*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)		*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c		*4d*	9
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), $V_{maj\text{-}d}$		*4e*	401
Major road flow rate (veh/s), v		*4f*	0.11
Average pedestrian delay (s/person), d_p		*4g*	7
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.		*4h*	0.1
		4i	
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.			
Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***		*5a*	HIGH
Treatment Category:	**CROSSWALK**		



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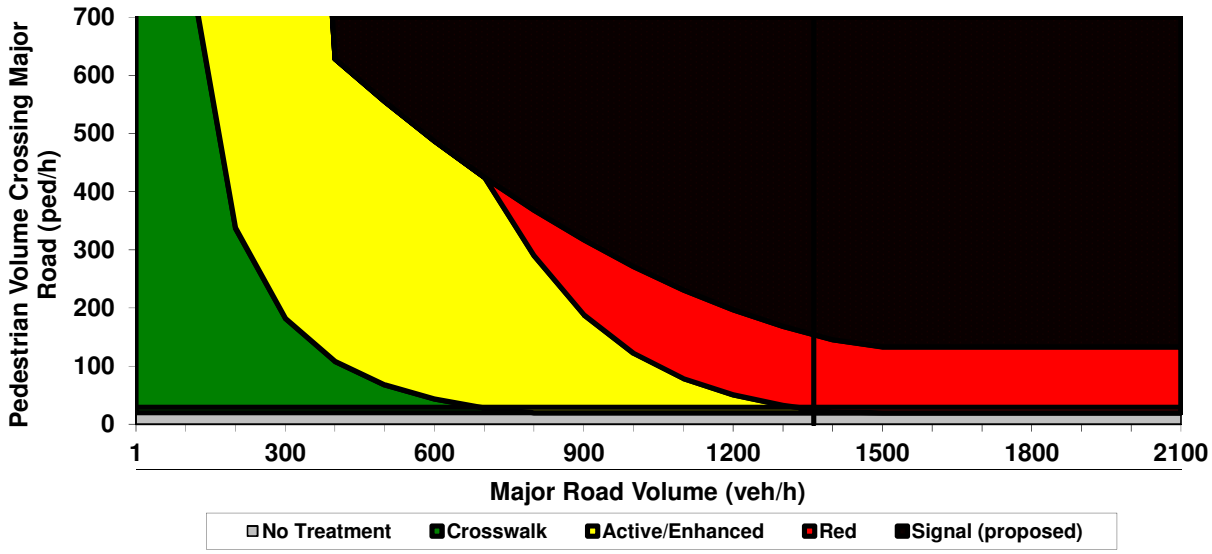
Analyst and Site Information			
Analyst	ZHB	Major Street	OR 211
Analysis Date	June 13, 2019	Minor Street or Location	Leroy Ave
Data Collection Date		Peak Hour	PM

Step 1: Select worksheet:		
Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)	*1a*	35
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)	*1b*	NO
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?		
Peak-hour pedestrian volume (ped/h), V_p	*2a*	29
Result: Go to step 3.		
Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?		
Major road volume, total of both approaches during peak hour (veh/h), $V_{maj\text{-}s}$	*3a*	1362
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant	*3b*	153
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant	*3c*	153
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)	*3d*	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%. — % rate of reduction for *3c* (up to 50%)	*3e*	50%
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%. — Reduced value or *3c*	*3f*	153
Result: The signal warrant is not met. Go to step 4.		
Step 4: Estimate pedestrian delay.		
Pedestrian crossing distance, curb to curb (ft), L	*4a*	55
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)	*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)	*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c	*4d*	19
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), $V_{maj\text{-}d}$	*4e*	1362
Major road flow rate (veh/s), v	*4f*	0.38
Average pedestrian delay (s/person), d_p	*4g*	3205
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.	*4h*	25.8
	4i	
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.		
Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***	*5a*	HIGH
Treatment Category:		**RED**



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GUIDELINES FOR PEDESTRIAN CROSSING TREATMENTS

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- Green fields are required and must be completed.
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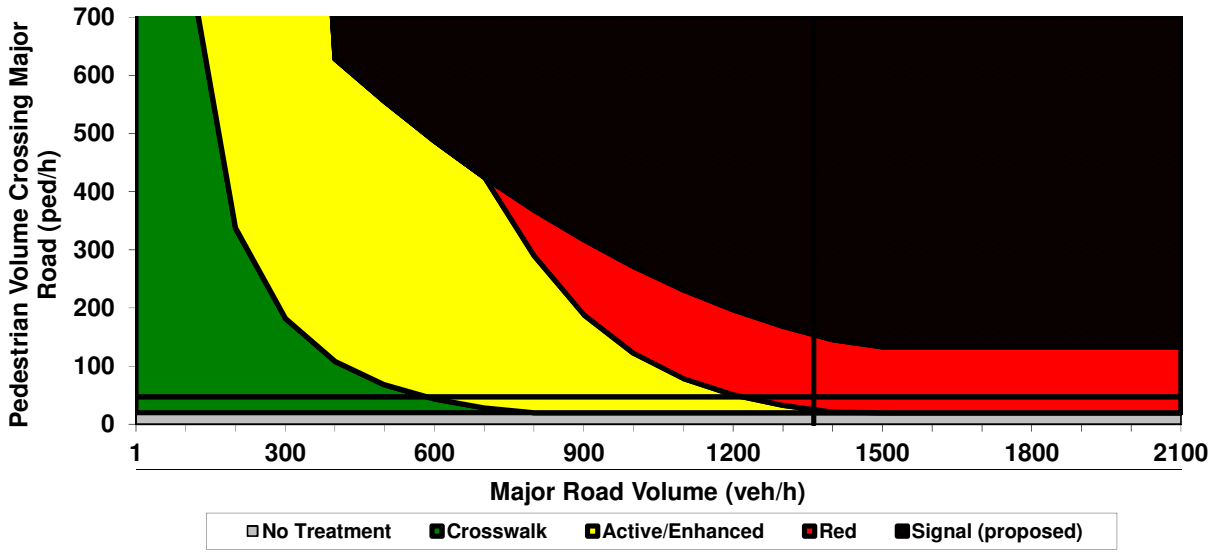
- Gray fields are automatically calculated and should not be edited.

Analyst and Site Information			
Analyst	ZHB	Major Street	OR 211
Analysis Date	June 13, 2019	Minor Street or Location	Leroy Ave
Data Collection Date		Peak Hour	PM

Step 1: Select worksheet:			
Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)		*1a*	35
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)		*1b*	NO
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?			
Peak-hour pedestrian volume (ped/h), V_p		*2a*	47
Result: Go to step 3.			
Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?			
Major road volume, total of both approaches during peak hour (veh/h), $V_{maj\text{-}s}$		*3a*	1362
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant		*3b*	153
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant		*3c*	153
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)		*3d*	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%.	% rate of reduction for *3c* (up to 50%)	*3e*	50%
	Reduced value or *3c*	*3f*	153
Result: The signal warrant is not met. Go to step 4.			
Step 4: Estimate pedestrian delay.			
Pedestrian crossing distance, curb to curb (ft), L		*4a*	55
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)		*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)		*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c		*4d*	19
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), $V_{maj\text{-}d}$		*4e*	1362
Major road flow rate (veh/s), v		*4f*	0.38
Average pedestrian delay (s/person), d_p		*4g*	3205
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.		*4h*	41.8
		4i	
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.			
Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***		*5a*	HIGH
Treatment Category:	**RED**		



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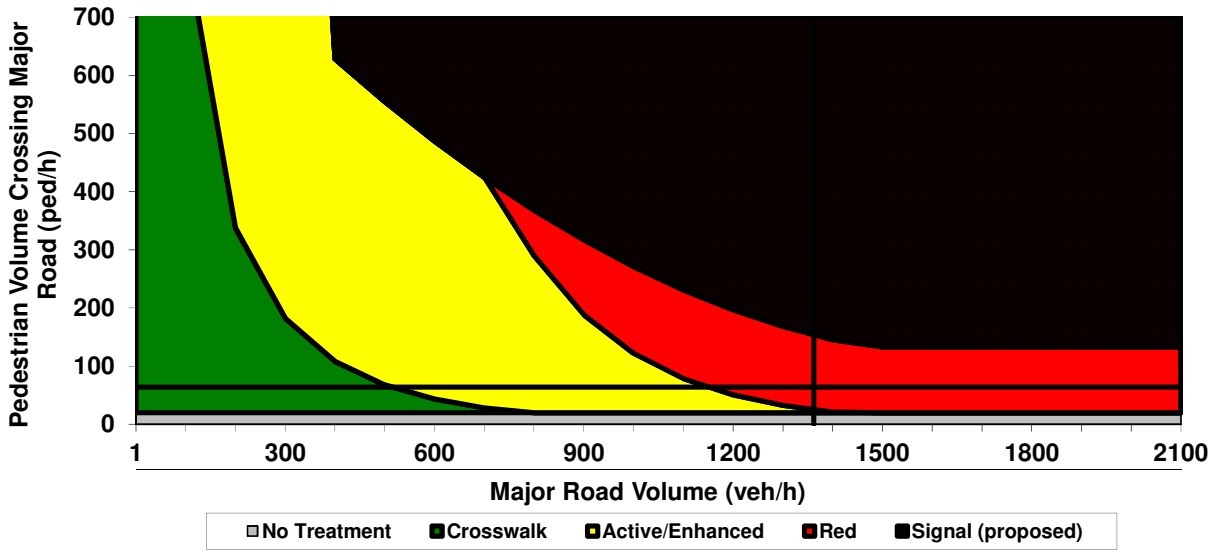
Analyst and Site Information			
Analyst	ZHB	Major Street	OR 211
Analysis Date	June 13, 2019	Minor Street or Location	Leroy Ave
Data Collection Date		Peak Hour	PM

Step 1: Select worksheet:		
Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)	*1a*	35
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)	*1b*	NO
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?		
Peak-hour pedestrian volume (ped/h), V_p	*2a*	64
Result: Go to step 3.		
Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?		
Major road volume, total of both approaches during peak hour (veh/h), $V_{maj\text{-}s}$	*3a*	1362
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant	*3b*	153
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant	*3c*	153
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)	*3d*	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%. — % rate of reduction for *3c* (up to 50%)	*3e*	50%
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%. — Reduced value or *3c*	*3f*	153
Result: The signal warrant is not met. Go to step 4.		
Step 4: Estimate pedestrian delay.		
Pedestrian crossing distance, curb to curb (ft), L	*4a*	55
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)	*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)	*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c	*4d*	19
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), $V_{maj\text{-}d}$	*4e*	1362
Major road flow rate (veh/s), v	*4f*	0.38
Average pedestrian delay (s/person), d_p	*4g*	3205
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.	*4h*	57.0
	4i	
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.		
Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***	*5a*	HIGH
Treatment Category:		**RED**



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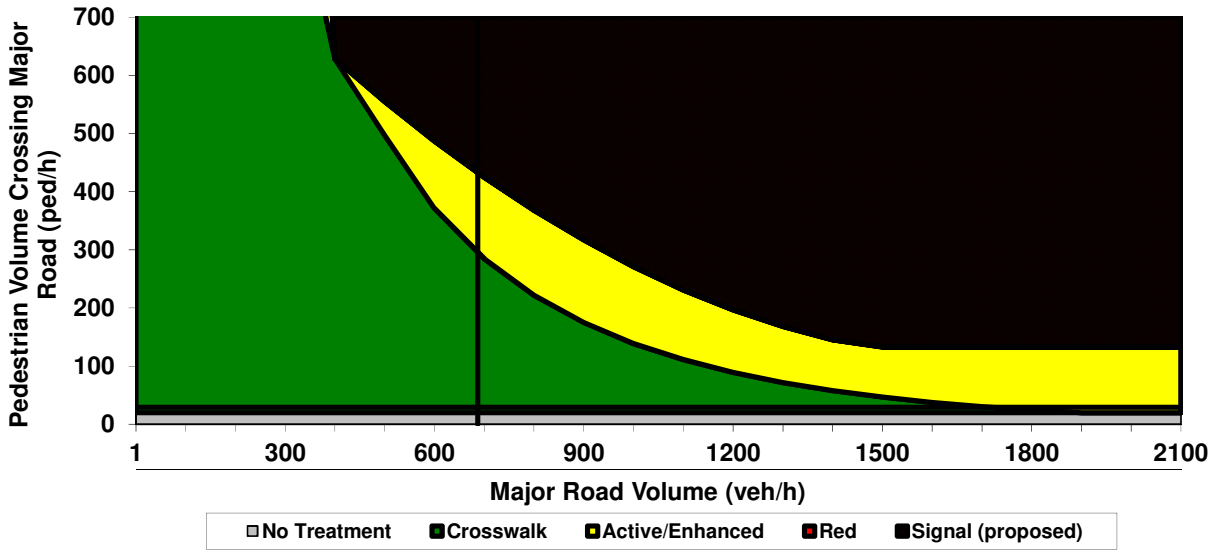
Analyst and Site Information			
Analyst	ZHB	Major Street	OR 211
Analysis Date	June 13, 2019	Minor Street or Location	Leroy Ave
Data Collection Date		Peak Hour	2020 PM

Step 1: Select worksheet:			
Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)		*1a*	35
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)		*1b*	NO
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?			
Peak-hour pedestrian volume (ped/h), V_p		*2a*	29
Result: Go to step 3.			
Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?			
Major road volume, total of both approaches during peak hour (veh/h), $V_{maj\text{-}s}$		*3a*	1362
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant		*3b*	153
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant		*3c*	153
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)		*3d*	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%.	% rate of reduction for *3c* (up to 50%)	*3e*	50%
	Reduced value or *3c*	*3f*	153
Result: The signal warrant is not met. Go to step 4.			
Step 4: Estimate pedestrian delay.			
Pedestrian crossing distance, curb to curb (ft), L		*4a*	22
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)		*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)		*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c		*4d*	9
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), $V_{maj\text{-}d}$		*4e*	687
Major road flow rate (veh/s), v		*4f*	0.19
Average pedestrian delay (s/person), d_p		*4g*	16
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.		*4h*	0.1
		4i	
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.			
Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***		*5a*	HIGH
Treatment Category:	**CROSSWALK**		



Because the volume in Step 4e is different from the volume in Step 3a, the graph may show a different result than the Treatment Category above.

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Analyst and Site Information			
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Data Collection Date		Peak Hour	2020 PM

Step 1: Select worksheet:			
Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)		*1a*	35
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)		*1b*	NO
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?			
Peak-hour pedestrian volume (ped/h), V_p		*2a*	47
Result: Go to step 3.			
Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?			
Major road volume, total of both approaches during peak hour (veh/h), $V_{maj\text{-}s}$		*3a*	1362
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant		*3b*	153
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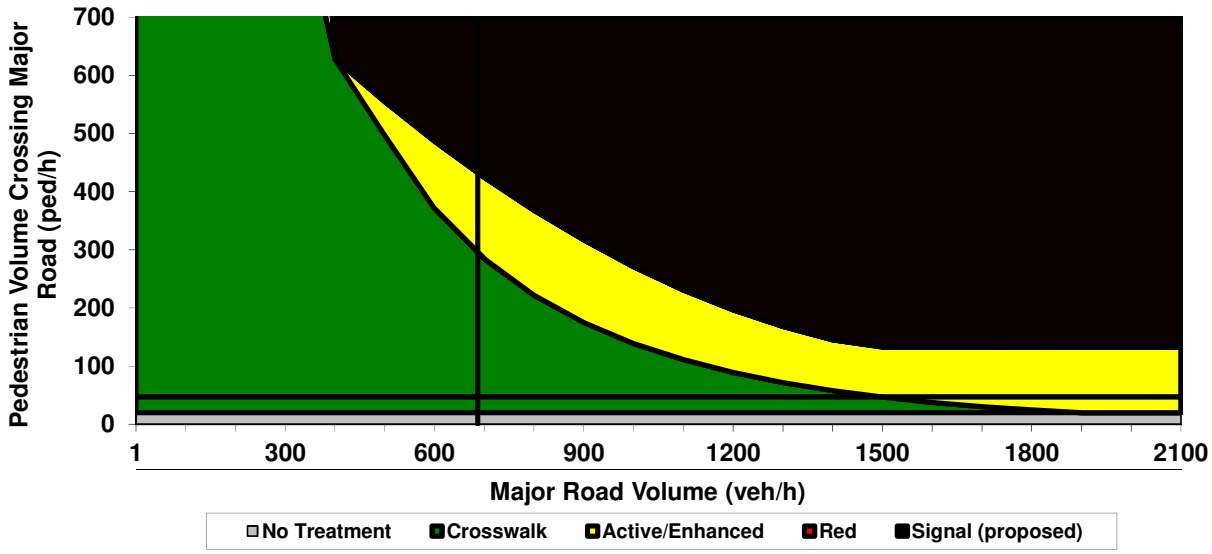
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)		*3d*	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%.	% rate of reduction for *3c* (up to 50%)	*3e*	50%
	Reduced value or *3c*	*3f*	153
Result: The signal warrant is not met. Go to step 4.			
Step 4: Estimate pedestrian delay.			
Pedestrian crossing distance, curb to curb (ft), L		*4a*	22
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)		*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)		*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c		*4d*	9
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), $V_{maj\text{-}d}$		*4e*	687
Major road flow rate (veh/s), v		*4f*	0.19
Average pedestrian delay (s/person), d_p		*4g*	16
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.		*4h*	0.2
		4i	
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.			
Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***		*5a*	HIGH
Treatment Category:	**CROSSWALK**		



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Analyst and Site Information			
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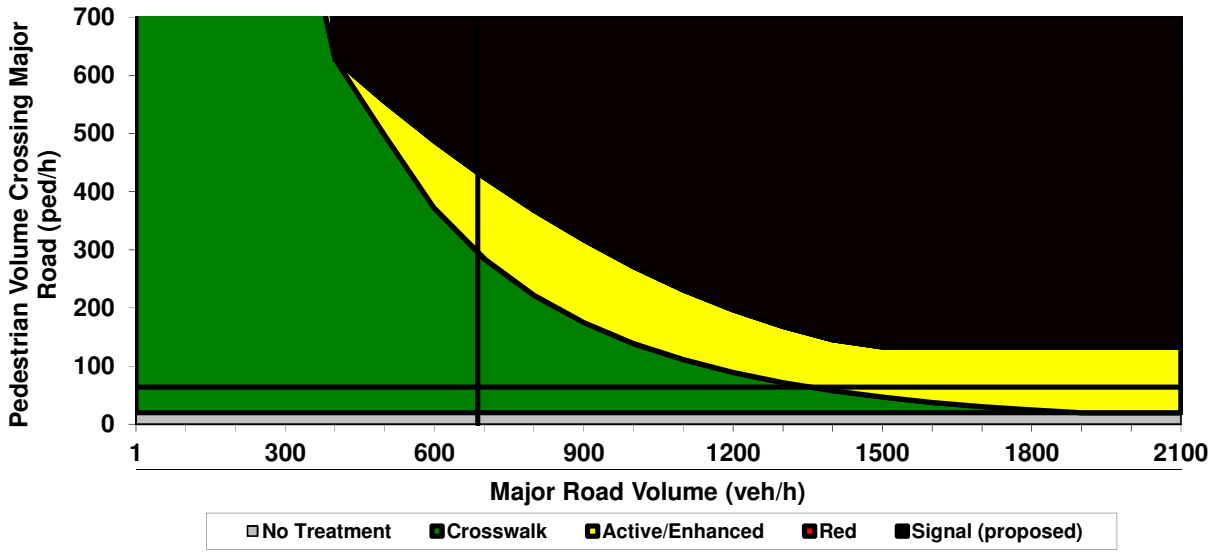
Analysis Date	June 13, 2019	Minor Street or Location	Leroy Ave
Data Collection Date		Peak Hour	2020 PM

Step 1: Select worksheet:			
Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)		*1a*	35
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)		*1b*	NO
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?			
Peak-hour pedestrian volume (ped/h), V_p		*2a*	64
Result: Go to step 3.			
Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?			
Major road volume, total of both approaches during peak hour (veh/h), $V_{maj\text{-}s}$		*3a*	1362
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant		*3b*	153
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant		*3c*	153
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)		*3d*	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%.	% rate of reduction for *3c* (up to 50%)	*3e*	50%
	Reduced value or *3c*	*3f*	153
Result: The signal warrant is not met. Go to step 4.			
Step 4: Estimate pedestrian delay.			
Pedestrian crossing distance, curb to curb (ft), L		*4a*	22
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)		*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)		*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c		*4d*	9
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), $V_{maj\text{-}d}$		*4e*	687
Major road flow rate (veh/s), v		*4f*	0.19
Average pedestrian delay (s/person), d_p		*4g*	16
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.		*4h*	0.3
		4i	
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.			
Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***		*5a*	HIGH

Treatment Category:	**CROSSWALK**



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ATTACHMENT A

Cascade Center Transportation Impact Analysis, August 2019

Transportation Impact Analysis

Cascade Center

Molalla, Oregon

August 2019

KITTELSON & ASSOCIATES

Transportation Impact Analysis

Cascade Center

Molalla, Oregon

Prepared For:
I&E Construction
9550 SE Clackamas Rd
Clackamas, OR 97015
(503) 807-5048

Prepared By:
Kittelson & Associates, Inc.
851 SW 6th Avenue, Suite 600
Portland, OR 97204
(503) 228-5230

Project Manager: Zachary Bugg
Project Principal: Chris Brehmer, PE

Project No. 23301

August 2019

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Executive Summary

EXECUTIVE SUMMARY

I&E Construction proposes to develop up to 256 storage units, a 9,100 square-foot Dollar General, and up to 70,981 square feet of other retail, office, and restaurant uses on an approximately 15-acre site on OR 211 between Hezzie Lane and Ridings Avenue in Molalla, Oregon. The site will be served by three full-movement accesses, including a southward extension of Leroy Avenue across OR 211. The anticipated build-out year is 2020.

The results of this study indicate that the proposed Cascade Center development can be constructed while maintaining acceptable traffic operations and safety at the study intersections, assuming provision of the recommended mitigation measures.

FINDINGS

Existing Conditions

- All of the study intersections currently meet ODOT mobility standards during the weekday AM and PM peak hours.
- A review of historical crash data did not reveal any patterns or trends in the site vicinity that require mitigation associated with this project.

Year 2020 Background Traffic Conditions

- A 2.5-percent annual growth rate was applied to the existing traffic volumes to account for regional growth in the area.
- The *City of Molalla Transportation System Plan* identifies the future need to signalize the OR 211/Leroy Avenue intersection. The traffic signal was identified to provide motor vehicle capacity at the intersection to serve anticipated traffic growth and also serves as a north-south pedestrian crossing opportunity linking residents south of OR 211 with Molalla River Middle School to the north. Signalization is not currently funded.
- All but one of the study intersections are expected to continue meeting ODOT mobility standards during the weekday AM and PM peak hours prior to site development:
    - The all-way stop-controlled OR 211/Molalla Avenue intersection is projected to experience a volume-to-capacity (v/c) ratio greater than 0.90 on the eastbound approach during the PM peak hour. The *City of Molalla Transportation System Plan* identifies the future need to signalize the intersection; however, signalization is not currently funded.

Proposed Development Plan

- The proposed development is expected to generate approximately 4,112 weekday net new trips, of which 330 (193 in, 137 out) will occur during the AM peak hour and 349 (192 in, 157 out) will occur during the PM peak hour. The development is also expected to generate approximately 3,488 weekday pass-by trips, of which 226 (113 in, 113 out) will occur during the AM peak hour and 262 (131 in, 131 out) will occur during the PM peak hour.
- The City of Molalla has requested I&E Construction signalize the OR 211/Leroy Avenue intersection in conjunction with site development. Signalization requires ODOT approval; therefore, intersection operations were analyzed without and with a traffic signal in place for study purposes.
- ODOT has requested the construction of a two-way left-turn lane on OR 211 along the site frontage.

Year 2020 Total Traffic Conditions

- All but two of the study intersections are expected to continue meeting ODOT mobility standards during the weekday AM and PM peak hours after site development:
    - The northbound left turn at OR 211/Leroy Avenue is projected to experience a v/c ratio above the ODOT mobility target of 0.95 during the weekday PM peak hour, and projected northbound delays are expected to reach Level of Service "F".
    - Consistent with background conditions, the all-way stop-controlled OR 211/Molalla Avenue intersection is projected to continue to experience a v/c ratio greater than 0.90 on the eastbound approach during the PM peak hour as a result of full site buildout.

Traffic Signal and Turn Lane Considerations

- Per the MUTCD signal warrants and the estimated 24-hour volume profile of the OR 211/Molalla Avenue intersection, a traffic signal will be warranted at OR 211/Molalla Avenue prior to site development.
- Per the MUTCD signal warrants and the estimated 24-hour volume profile of the OR 211/Leroy Avenue intersection, the traffic volume-based signal warrants will not be met at OR 211/Leroy Avenue in conjunction with site development. However, the City of Molalla requested signalization of the OR 211/Leroy Avenue intersection with site redevelopment to address both failing side-street level of service at the intersection and to provide a signalized pedestrian crossing of OR 211 to provide connectivity between residential areas south of OR 211 and Molalla River Middle School and Molalla Elementary School, located north of OR 211.

- A right turn lane with at least 100 feet of storage should be installed on eastbound OR 211 at the west site access per ODOT criteria. The eastbound OR 211 approach at Leroy Avenue also meets ODOT right turn lane criteria if unsignalized.
- A left turn lane with at least 75 feet of storage should be installed on westbound OR 211 at both the west site access and the east site access per ODOT criteria.

Year 2020 Total Traffic Conditions with Mitigation

- The OR 211/Leroy Avenue intersection satisfies ODOT v/c ratio mobility standards with signalization. Projected side street delays are much higher under stop control (resulting in weekday PM peak hour northbound approach Level of Service "F") as compared to a condition with signalization (resulting in weekday AM and PM peak hour intersection Level of Service "A").

95th-Percentile Queueing Analysis

- The proposed storage lengths at the study intersections are expected to accommodate each of the 95th-percentile queues in the AM and PM peak hours under 2020 total traffic conditions, assuming provision of the identified turn lanes and signalization.

RECOMMENDATIONS

The following are recommended in conjunction with site redevelopment:

- OR 211/Molalla Avenue:
  - Provide a traffic signal.
- OR 211/West Site Access:
  - Provide an eastbound right turn lane with at least 100 feet of storage.
  - Provide a two-way left-turn lane along the site frontage.
- OR 211/Leroy Avenue:
  - Restripe the north leg of the intersection to provide an exclusive left turn lane with at least 100 feet of storage and a shared thought/right lane on southbound Leroy Avenue.
  - Collaborate with City and ODOT staff to determine if and when signalization of the OR 211/Leroy Avenue intersection should be completed considering the following:
    - the City of Molalla's *Transportation System Plan* identifies the need for future signalization;
    - the City's desire for signalization in conjunction with site development;

- the northbound left turn v/c ratio at the OR 211/Leroy Avenue intersection is forecast to exceed ODOT mobility targets after site build-out without signalization, but the intersection would meet ODOT mobility targets with signalization; and
- installation of a traffic signal would serve pedestrian crossings of OR 211, facilitating pedestrian access to Molalla River Middle School on Leroy Avenue and the Molalla Elementary School to the northwest.

- Collaborate with the City and ODOT to further assess the need for an eastbound right turn lane at the OR 211/Leroy Avenue intersection pending decisions regarding signalization of the intersection.

- OR 211/East Site Access:
  - Provide a two-way left-turn lane along the site frontage.
- All landscaping, signage, and utilities near the site access points should be placed and maintained to provide adequate sight distance.

Additional details of the study methodology, findings, and recommendations are provided within this report.

Section 2
Introduction

INTRODUCTION

PROJECT DESCRIPTION

I&E Construction proposes to develop up to 256 storage units, a 9,100 square-foot Dollar General, and up to 70,981 square feet of other retail, office, and restaurant uses on an approximately 15-acre site on OR 211 between Hezzie Lane and Ridings Avenue in Molalla, Oregon. Figure 1 illustrates the site vicinity. The site will be served by three full-movement accesses, including a southward extension of Leroy Avenue across OR 211. The anticipated build-out year is 2020. Figure 2 illustrates the proposed site plan.

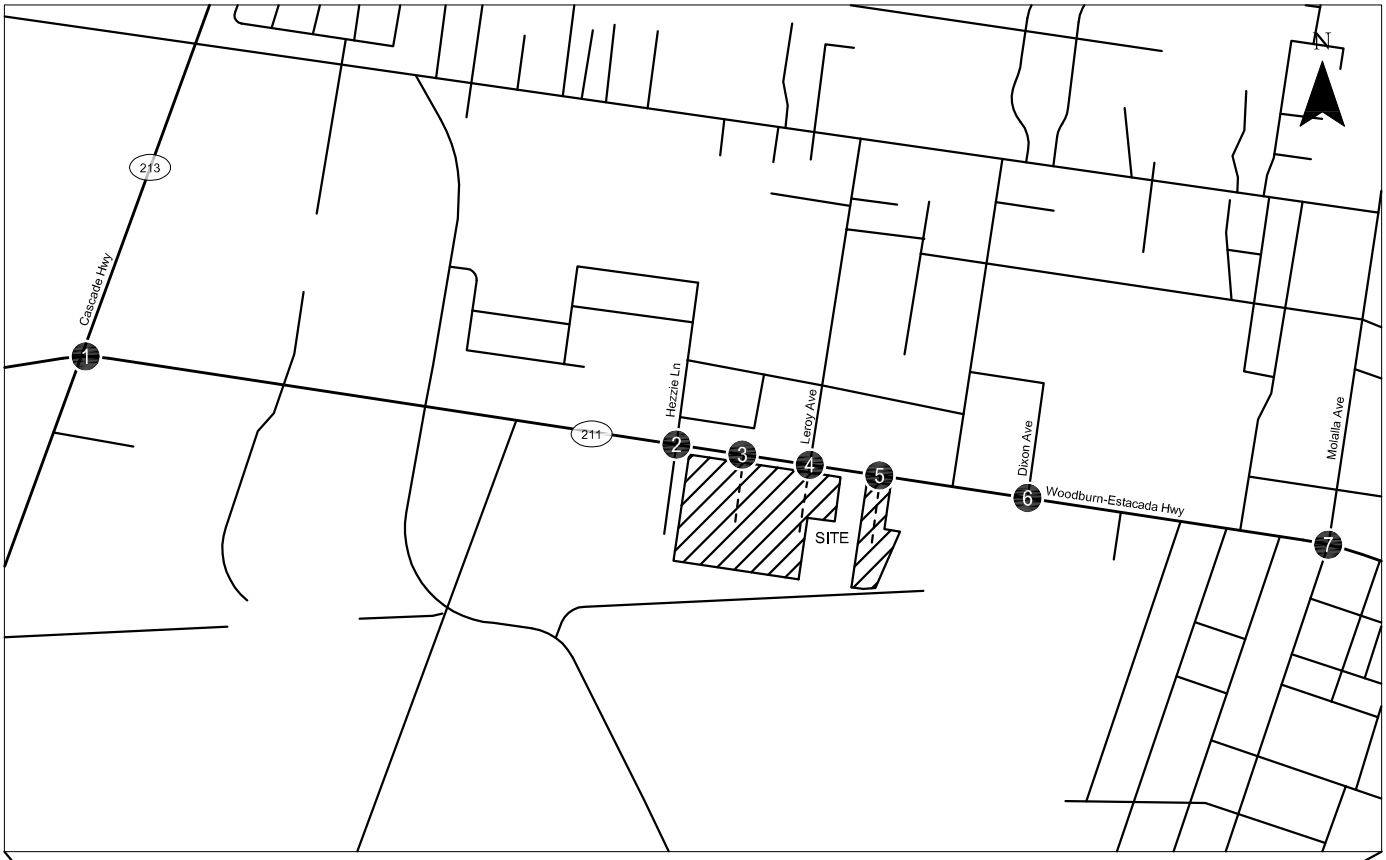
SCOPE OF THE REPORT

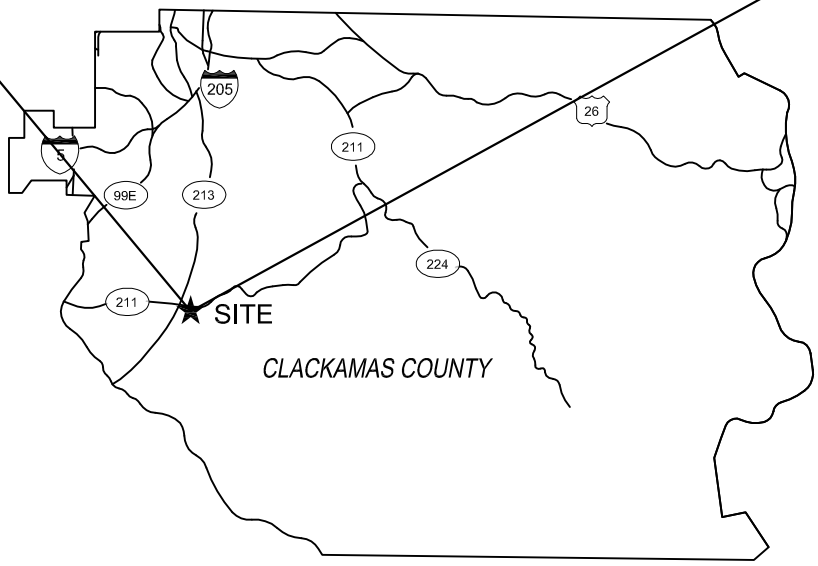
This analysis determines the transportation-related impacts associated with the proposed Cascade Center and was prepared in accordance with the City of Molalla and Oregon Department of Transportation (ODOT) requirements for traffic impact studies. The study intersections and scope of this project were selected in consultation with City and ODOT staff. Operational analyses were performed at these intersections:

1. OR 211 (Woodburn-Estacada Highway/Main Street)/OR 213 (Cascade Highway)
2. OR 211 (Woodburn-Estacada Highway/Main Street)/Hezzie Lane
3. OR 211 (Woodburn-Estacada Highway/Main Street)/West Site Access
4. OR 211 (Woodburn-Estacada Highway/Main Street)/Leroy Avenue
5. OR 211 (Woodburn-Estacada Highway/Main Street)/East Site Access
6. OR 211 (Woodburn-Estacada Highway/Main Street)/Dixon Avenue/Lowe Rd
7. OR 211 (Woodburn-Estacada Highway/Main Street)/Molalla Avenue

This report evaluates these transportation issues:

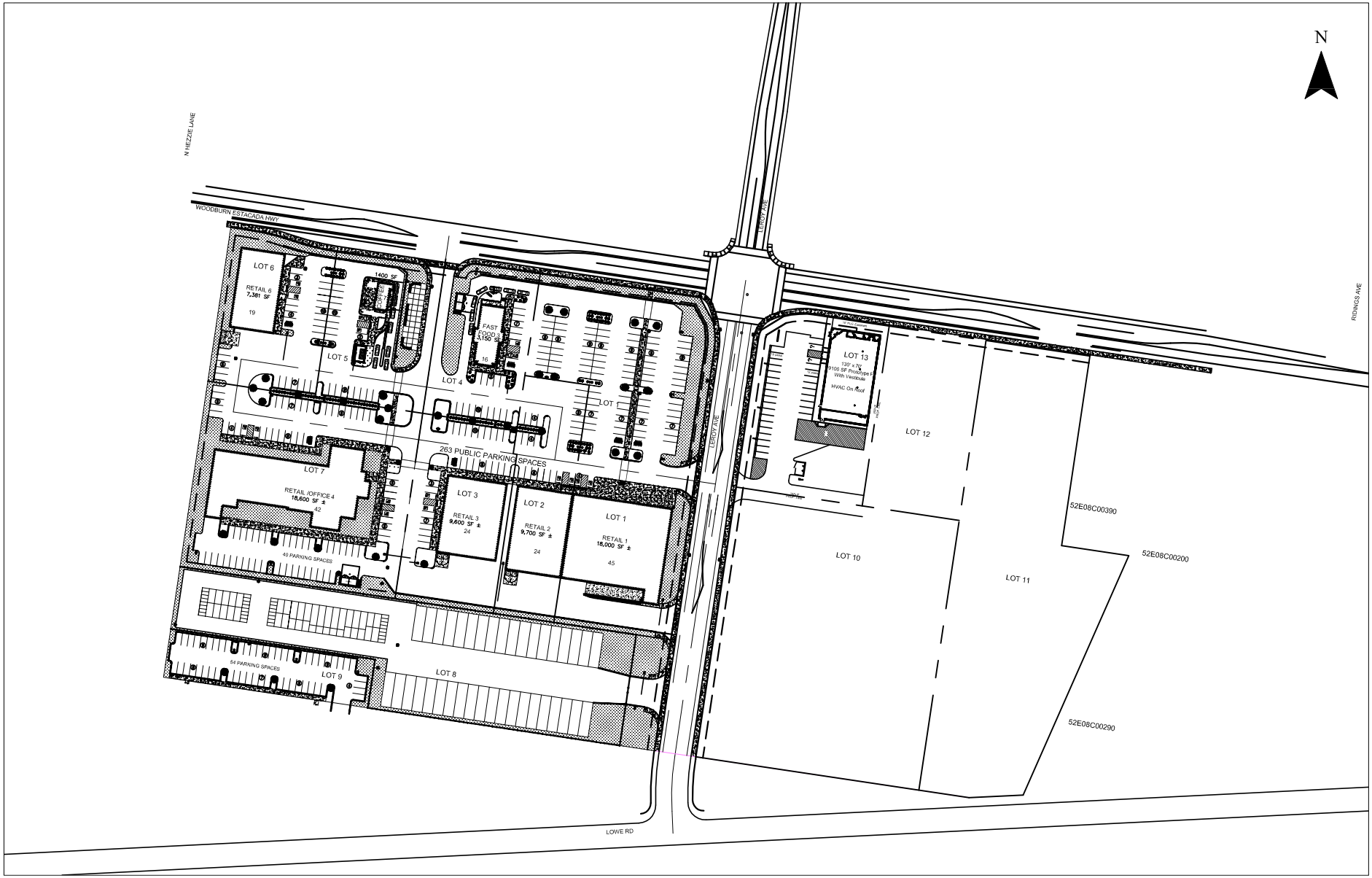
- Existing land-use and transportation-system conditions within the site vicinity during the weekday AM and PM peak hours;
- Developments and transportation improvements planned in the study area;
    - Forecast year 2020 background traffic conditions (without the proposed development) during the weekday AM and PM peak hours;
- Trip generation and distribution estimates for the proposed Cascade Center development;
- Forecast year 2020 (including the proposed development) total traffic conditions during the weekday AM and PM peak hours with build-out of the site;
- Traffic signal and turn lane considerations; and
- On-site traffic operations and circulation.





Site Vicinity Map
Molalla, Oregon

Figure
1



Site plan provided by I&E Construction on 2/25/2019

SCALE

0 200' 400'

Proposed Site Plan
Molalla, Oregon

Figure
2

H:\23\23301 - Molalla Commercial Project\dwgs\23301_figs.dwg Aug 15, 2019 - 12:42pm - zbugg Layout Tab: 02 Site Plan

KITTELSON & ASSOCIATES

Section 3
Existing Conditions

EXISTING CONDITIONS

The existing conditions analysis identifies the site conditions and current operational and geometric characteristics of the roadways within the study area. These conditions will be compared with future conditions later in this report.

Kittelson & Associates, Inc. (KAI) staff visited and inventoried the proposed development site and surrounding study area in October 2018. At that time, KAI collected information regarding site conditions, adjacent land uses, existing traffic operations, and transportation facilities in the study area.

SITE CONDITIONS AND ADJACENT LAND USES

The proposed site is within the City of Molalla limits, is currently occupied by nine single-family homes, and is zoned for commercial use. Adjacent land uses are predominantly residential and include the Stoneplace Apartments to the west and south. Northwest Self Storage borders the site to the east. Molalla River Middle School is located approximately one block north of OR 211 on the west side of Leroy Avenue.

TRANSPORTATION FACILITIES

Table 1 lists the existing transportation facilities and roadways in the study area.

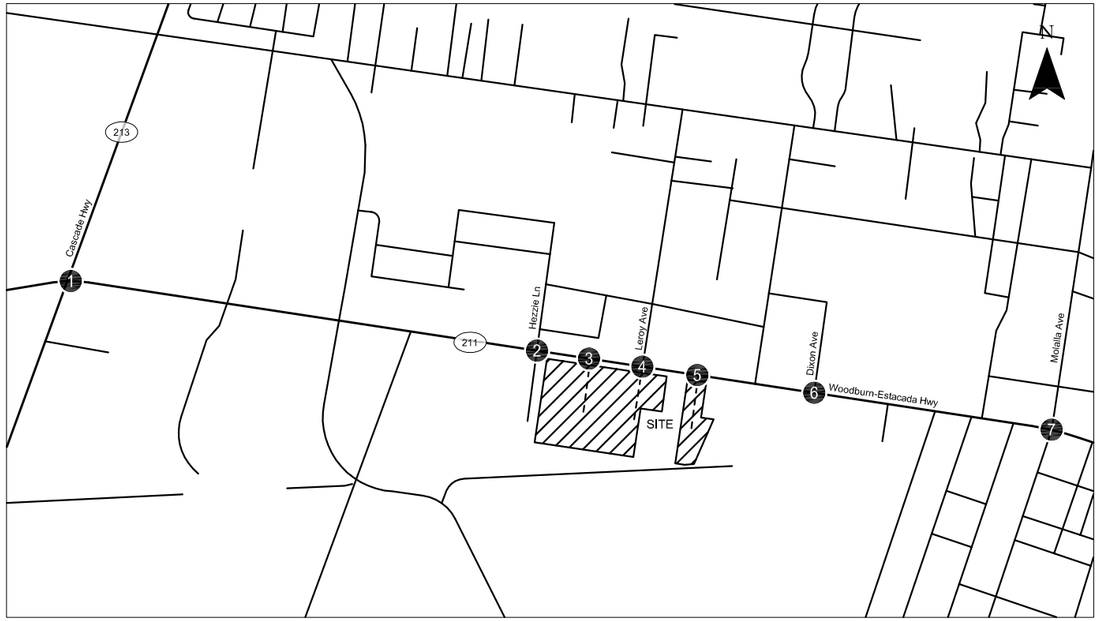
Table 1. Existing Transportation Facilities

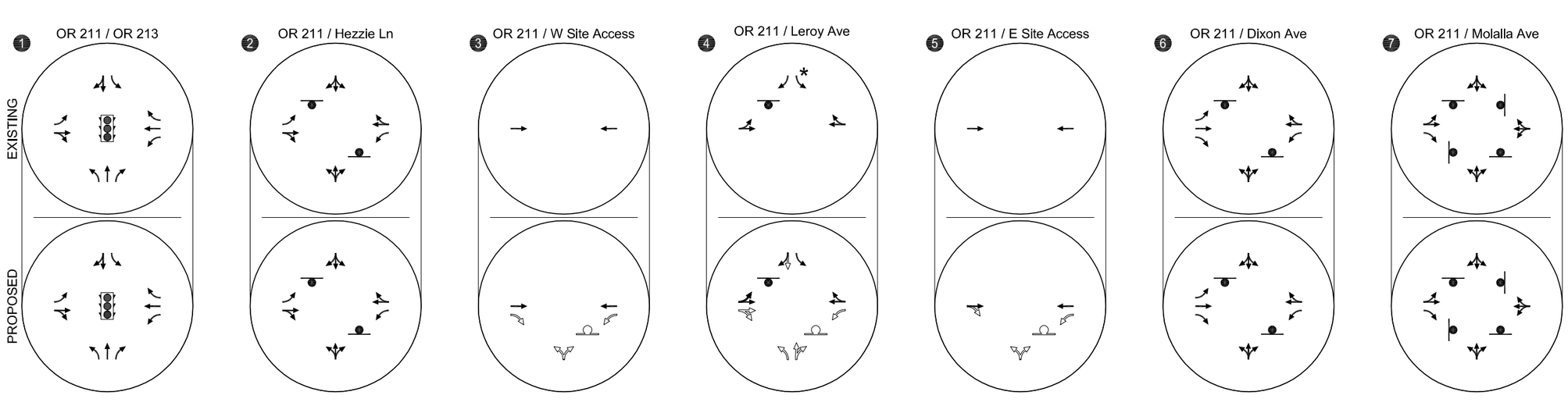
Roadway	Functional Classification[1]	Number of Lanes	Posted Speed	Sidewalks	Bicycle Lanes	On-Street Parking
OR 211	Arterial (W of Molalla Forest Rd) Major Collector (E of Molalla Forest Rd)	2	45 mph (W of OR 213) 35 mph (OR 213 to Thelander Ln) 25 mph (E of Thelander Ln)	Partial[2]	Partial[3]	No
OR 213	Arterial	2-3	45 mph (N of OR 211) 40 mph (S of OR 211)	East Side	Yes	No
Hezzie Lane	Neighborhood Street	2	Not Posted	Both Sides	No	No
Leroy Avenue	Major Collector	2	Not Posted	Both Sides	No	Yes
Dixon Avenue	Local Street	2	Not Posted	No	No	Yes
Molalla Avenue	Arterial	2	25 mph	Both Sides	No	Yes

[1]Per City of Molalla Transportation System Plan (Reference 1)
[2]Sidewalks are provided on the north side from OR 213 to Commercial Parkway and east of Hezzie Lane. Sidewalks are provided on the south side along the Stoneplace Apartments frontage and east of Ridings Avenue.
[3]Bike lanes are provided west of Commercial Parkway, and paved shoulders are provided in some other areas of the corridor.

Roadway Facilities

Figure 3 illustrates the existing lane configurations and traffic control devices at the study intersections, as well as the proposed site improvements. All access to the site will be provided via OR 211 (Woodburn-Estacada Highway/Main Street), and the main site access will be a southward extension of Leroy Avenue across the intersection with OR 211. Leroy Avenue may be extended southward to Lowe Road as part of a future development.





*Sufficient roadway width is currently available for a separate left turn lane

- STOP SIGN
- TRAFFIC SIGNAL
- EXISTING
- PROPOSED

Existing and Proposed Lane Configurations and Traffic Control Devices
Molalla, Oregon

Figure 3

Pedestrian and Bicycle Facilities

No pedestrian or bicycle facilities are currently provided along the proposed site frontage. Sidewalks are provided on the north side from OR 213 to Commercial Parkway and east of Hezzie Lane. Sidewalks are provided on the south side along the Stoneplace Apartments frontage and east of Ridings Avenue. Bike lanes are provided on OR 211 west of Commercial Parkway, and paved shoulders are provided in some other areas of the corridor.

Transit Facilities

Local bus service is provided by South Clackamas Transportation District, which operates the Molalla City Route and the Molalla to Clackamas Community College route, both of which stop at OR 211/Leroy Avenue (Reference 2). Molalla City service is provided Monday through Friday from 7:30 AM to 5:35 PM, and Molalla to Clackamas Community College service is provided Monday through Friday from 5:00 AM to 8:30 PM and Saturday from 7:00 AM to 5:00 PM. Headways are approximately 30 minutes in peak periods and 60 minutes in off-peak periods.

TRAFFIC VOLUMES AND PEAK HOUR OPERATIONS

Turning movement count data were collected at the study intersections in October 2018 when school was in session. Counts were performed on a typical mid-week day from 7:00 to 9:00 AM and from 4:00 to 6:00 PM. The system-wide peak hours were identified as 7:00 to 8:00 AM and 4:15 to 5:15 PM.

Seasonal Adjustment

The ODOT Analysis Procedures Manual (APM), Chapter 5 describes how to develop existing year volumes (Reference 3). The nearest ODOT Automated Traffic Recorder (ATR) to the site is 03-014, which is located on OR 211 approximately 12 miles east of the site. This ATR is likely too far away from the development site to provide a meaningful seasonal adjustment, and traffic volumes there are likely more recreational and less influenced by commuter patterns.

The ODOT ATR Characteristic Table was used to identify an ATR with a similar volume, geometry, and seasonal trend to the development site. ATR 24-001 was selected due to its 2016 AADT (12,000) being similar to the 2017 AADT on OR 211 near the site (13,400), as well as having a similar geometry (two lanes) and seasonal trend (commuter pattern). Table 2 displays the percent of AADT experienced during the peak month (typically July through September) and the count month (October) for ATR 24-001. The years shaded in dark grey represent the highest and lowest values and were removed from the average percent of AADT calculation per the APM.

Table 2. ODOT ATR 24-001 (Characteristic) Percent of AADT by Year

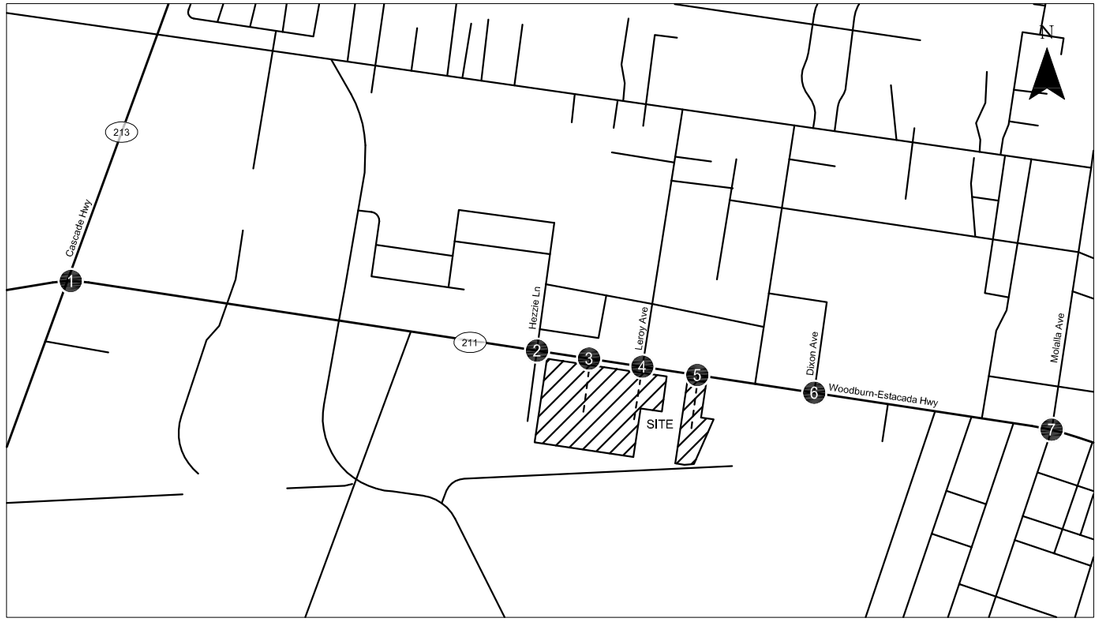
Year	2016	2015	2014	2013	2012
Peak Month	109	110	110	109	111
Count Month (October)	103	105	110	108	105

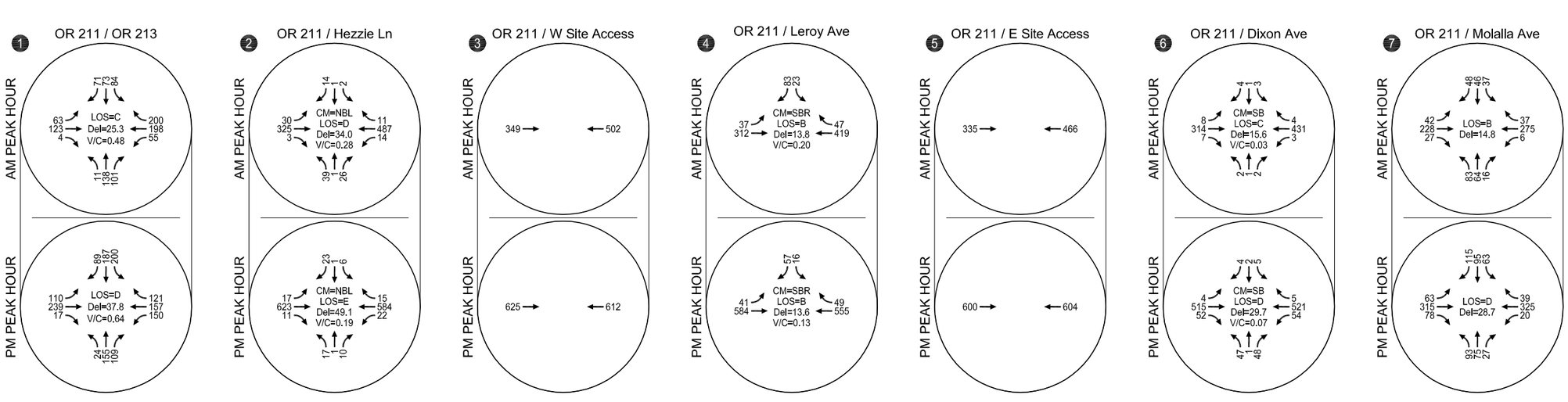
The seasonal adjustment was then calculated as (110 + 110 + 109) / (105 + 108 + 105) = 1.035 and applied to mainline traffic volumes along OR 211 and OR 213. Figure 4 provides a summary of the seasonally-adjusted turning movement counts at the study intersections. *Appendix "A" contains the traffic count worksheets used in this study.*

Current Intersection Operations

All traffic operations analyses described in this report were performed in accordance with the procedures stated in the 2000 *Highway Capacity Manual* (Reference 4) for signalized intersections and the *2010 Highway Capacity Manual* (Reference 5) for unsignalized intersections. Each of the study intersections is under the maintenance and jurisdiction of ODOT. The Oregon Highway Plan (Reference 6), Policy 1F establishes mobility targets for state highways based on volume-to-capacity ratio. Within the study area, OR 211 is a Regional Highway with a posted speed limit of 35 mph or less, which corresponds to a mobility target of 0.90. To meet ODOT standards, signalized intersections must not exceed an overall v/c ratio of 0.90. At unsignalized intersections, approaches on OR 211 must not exceed a v/c ratio of 0.90, and approaches on side streets must not exceed a v/c ratio of 0.95.

Figure 4 summarizes the operations analysis for the study intersections under the weekday AM and PM peak hour existing traffic conditions. All of the study intersections currently meet ODOT mobility standards during the weekday AM and PM peak hours. *Appendix "B" includes the level-of-service worksheets under existing traffic conditions.*





CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = CRITICAL MOVEMENT LEVEL OF SERVICE (SIGNALIZED)/
CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/
CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

Existing Traffic Conditions
Weekday AM and PM Peak Hours
Molalla, Oregon

Figure
4

Traffic Safety

ODOT-reported crash data was reviewed for the most recent five-year period, from January 1, 2012 through December 31, 2016. Table 3 summarizes the crash data at the study intersections, as well as the intersection crash rates and critical crash rates (based on a 95 percent confidence level). None of the observed crash rates exceed the respective critical crash rates.

Table 3. Summary of Reported Crash Data (January 1, 2012 through December 31, 2016)

Intersection	Crash Severity		Crash Type				Total Crashes	Crash Rate[2]	Critical Crash Rate[2]
	Injury	PDO[1]	Angle	Rear End	Turning	Sideswipe			
OR 211 / OR 213	11	7	4	4	10	0	18	0.63	1.04
OR 211 / Hezzie Ln	1	0	0	0	1	0	1	0.04	0.63
OR 211 / Leroy Ave	5	3	0	6	1	1	8	0.34	0.51
OR 211 / Dixon Ave	2	0	1	0	1	0	2	0.09	0.65
OR 211 / Molalla Ave	1	7	3	2	3	0	8	0.33	*

[1]Property Damage Only

[2]Per million entering vehicles

ODOT maintains a ranking of intersections with potential safety issues known as the Safety Priority Index System (SPIS). Based upon a 2016 analysis, none of the study intersections ranked within the top five percent of the highest-scoring intersections in Region 1.

No other crash trends were identified at the study intersections.

Appendix "C" contains the reported crash data from ODOT.

Section 4
Transportation Impact Analysis

TRANSPORTATION IMPACT ANALYSIS

The transportation impact analysis identifies how the study area's transportation system will operate in the year the proposed development is expected to be fully built, year 2020. The impact of traffic generated by the proposed Cascade Center during the typical weekday AM and PM peak hours was examined as follows:

- Background conditions were developed by applying a 2.5-percent annual growth rate to the existing traffic volumes to account for regional growth in the site vicinity.
- Site-generated trips were estimated for build-out of the site.
- Site trip-distribution patterns were derived considering the existing traffic patterns and the major trip origins and destinations in the study area.
- Site-generated trips and pass-by trips were assigned to the study intersections and site accesses.
- Year 2020 (build-out year of the Cascade Center) total traffic conditions were analyzed at each of the study intersections and site-access points during the weekday AM and PM peak hours.
- On-site circulation issues and site-access operations were evaluated.
- Traffic signal warrant and turn lane needs were evaluated where appropriate.

YEAR 2020 BACKGROUND TRAFFIC CONDITIONS

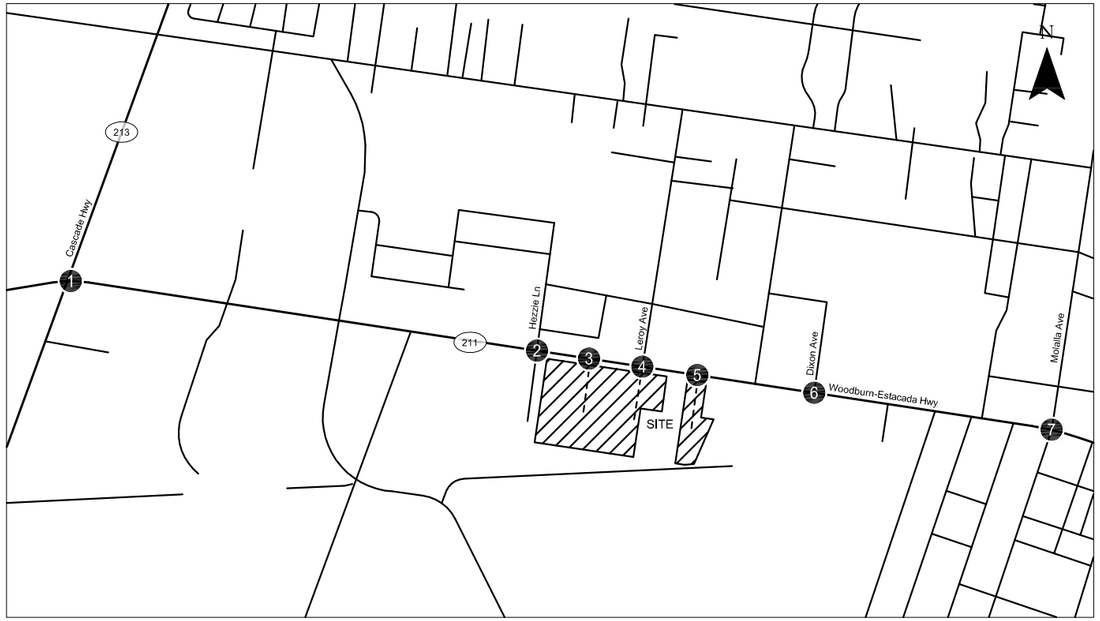
The year 2020 background traffic analysis identifies how the study area's transportation system will operate without the proposed Cascade Center. This analysis includes traffic attributed to planned developments within the study area and to general growth in the region but does not include traffic from the proposed development.

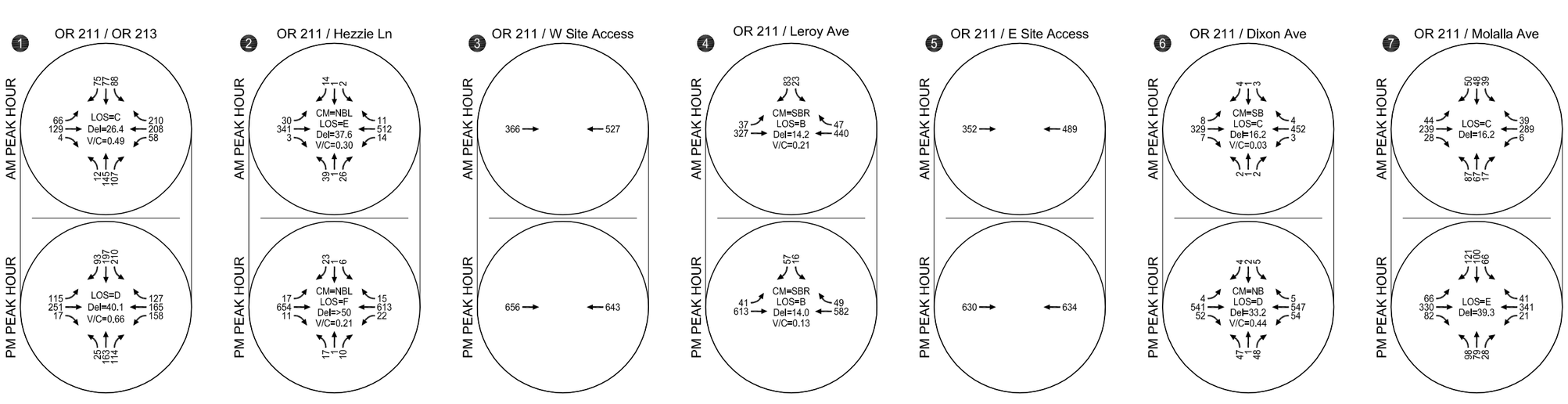
Traffic Volumes

The year 2020 background traffic volumes were developed by applying a 2.5-percent annual growth rate to the existing (seasonally adjusted) traffic volumes shown in Figure 4. This growth rate was identified from population and employment data in the Molalla TSP. Figure 5 displays the resulting 2020 background traffic volumes.

Operations Analysis

The weekday AM and PM peak-hour turning-movement volumes shown in Figure 5 were used to conduct an operational analysis at each study intersection to determine the year 2020 background traffic levels of service. All of the study intersections are expected to continue meeting ODOT mobility standards, with the exception of the OR 211/Molalla Avenue, which is expected to experience a v/c ratio above the ODOT





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V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

Year 2020 Background Traffic Conditions
Weekday AM and PM Peak Hours
Molalla, Oregon

Figure
5

mobility target of 0.90 on the eastbound approach during the PM peak hour. Appendix "D" contains the year 2020 background traffic level-of-service worksheets.

PROPOSED DEVELOPMENT PLAN

I&E Construction proposes to develop up to 256 storage units, a 9,100 square-foot Dollar General, and up to 70,981 square feet of other retail, office, and restaurant uses on the study site. The existing on-site structures will be removed with redevelopment. The site will be served by three full-movement accesses, including a southward extension of Leroy Avenue across OR 211. Leroy Avenue may be extended southward to Lowe Road as part of a future development. The anticipated build-out year is 2020.

It is assumed that the Applicant will restripe the north leg of Leroy Avenue at OR 211 to provide an exclusive left turn lane with at least 100 feet of storage and a shared through/right lane on southbound Leroy Avenue, mirroring the proposed new northbound approach.

The City of Molalla requested that I&E Construction signalize the OR 211/Leroy Avenue intersection in conjunction with site development based in part on the *City of Molalla Transportation System Plan (TSP).* The TSP identifies the future signal need to provide motor vehicle capacity at the intersection serving anticipated traffic growth and also to serve as a north-south pedestrian crossing opportunity linking residents south of OR 211 with Molalla River Middle School and other points to the north along Leroy Avenue. Recognizing signalization requires ODOT approval, intersection operations were analyzed without and with a traffic signal in place. Additionally, ODOT requested a two-way left-turn lane be provided on OR 211 along the site frontage.

Trip Generation

The projected weekday daily, AM, and PM peak-hour vehicle trip ends for the proposed development were based on the *Trip Generation Manual*, *10th Edition* (Reference 7). Pass-by trips for the retail and restaurant land uses, as well as internal trips between the retail and restaurant land uses, were estimated from *Trip Generation Handbook, 3rd Edition* (Reference 8). No pass-by or internal trips were assumed to be associated with the RV parking/storage units, and no internal trips were assumed to be associated with the Dollar General. As the split between the office and retail uses in Lot 4 is currently unknown, all 18,600 square feet of Lot 4 were assumed to be retail. Table 4 summarizes the anticipated number of trips that will be generated by the proposed Cascade Center.

As shown, the proposed development is expected to generate approximately 4,112 weekday net new trips, of which 330 will occur during the AM peak hour and 349 will occur during the PM peak hour. The development is also expected to generate approximately 3,488 weekday pass-by trips, of which 226 will occur during the AM peak hour and 262 will occur during the PM peak hour.

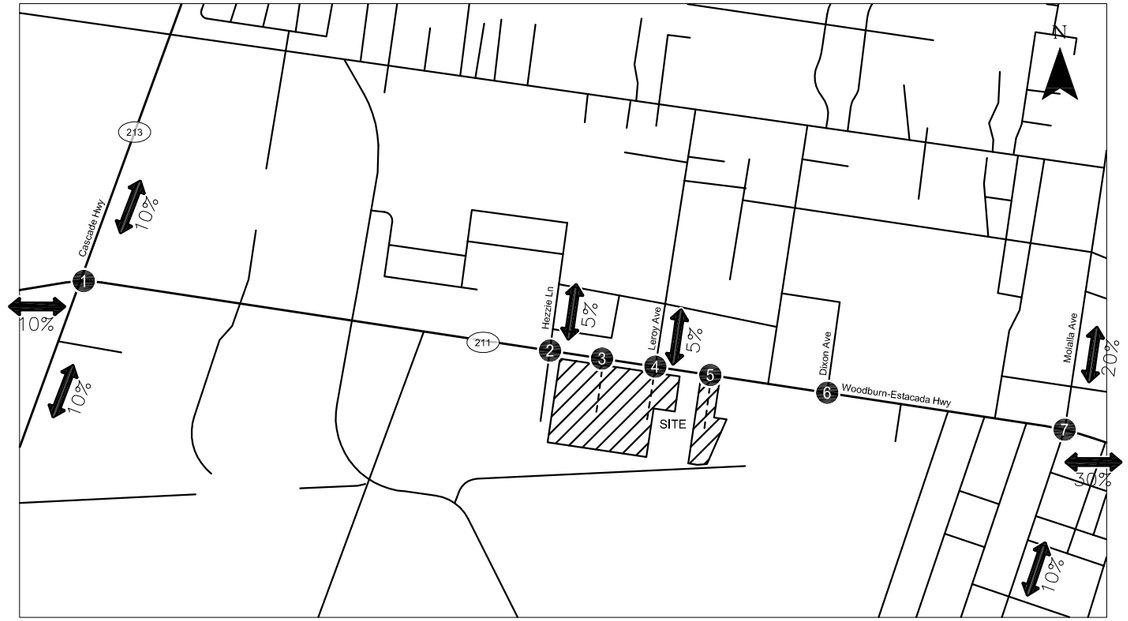
Table 4. Trip Generation

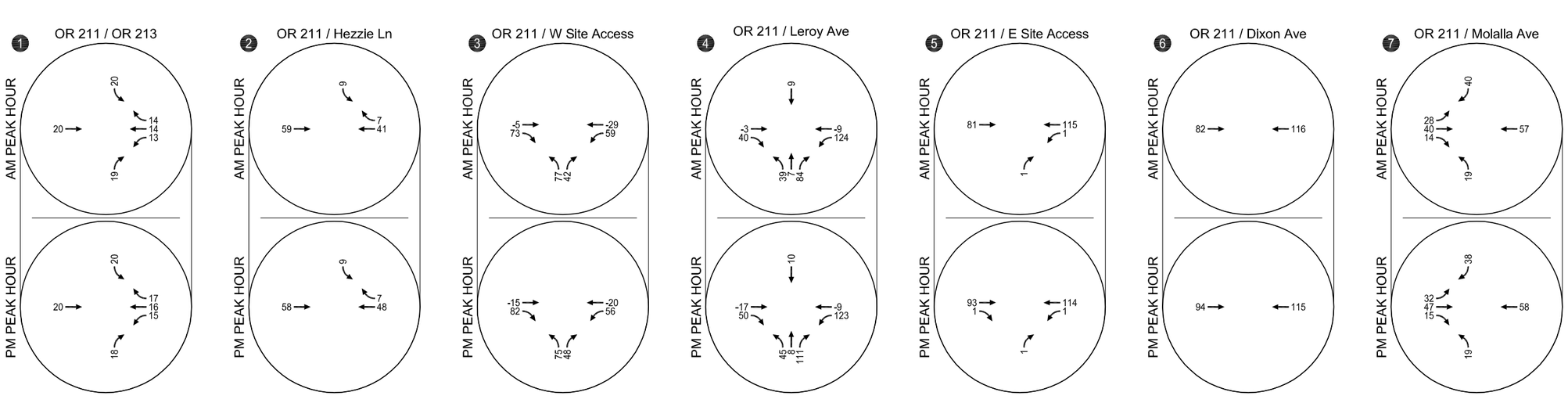
Land Use	ITE Code	Size	Weekday Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Fast Food Restaurant with Drive Through	934	6,300 ft²	2,966	253	129	124	206	107	99
Less Internal (16% Daily, 3% AM, 13% PM)			*504*	*8*	*4*	*4*	*29*	*15*	*14*
Less Pass-by (50% Daily, 49% AM, 50% PM)			*1,232*	*120*	*60*	*60*	*88*	*44*	*44*
Coffee Shop with Drive Through	937	1,400 ft²	1,148	124	63	61	61	30	31
Less Internal (16% Daily, 3% AM, 13% PM)			*196*	*4*	*2*	*2*	*9*	*4*	*5*
Less Pass-by (89% Daily, 89% AM, 89% PM)			*848*	*106*	*53*	*53*	*46*	*23*	*23*
Shopping Center (fitted)*	820	63,281 ft²	4,404	184	114	70	387	209	178
Less Internal (16% Daily, 3% AM, 13% PM)			*748*	*6*	*3*	*3*	*54*	*29*	*25*
Less Pass-by (34% Daily, 34% PM)			*1,244*	*0*	*0*	*0*	*114*	*57*	*57*
Free-Standing Discount Store	815	9,100 ft²	484	11	8	3	44	22	22
Less Pass-by (34% Daily, 34% PM)			*164*	*0*	*0*	*0*	*14*	*7*	*7*
Storage Units	151	256 units	46	2	1	1	5	3	2
Gross Trips			9,048	574	315	259	703	371	332
Less Internal			*1,448*	*18*	*9*	*9*	*92*	*48*	*44*
Less Pass-by			*3,488*	*226*	*113*	*113*	*262*	*131*	*131*
Net New Trips			**4,112**	**330**	**193**	**137**	**349**	**192**	**157**

*Lot 4 represents a mix of 18,600 square feet of office and retail space. Recognizing the split between office and retail land uses is currently unknown and that the office space could range between relatively low trip generators such as an insurance agent to relatively high trip generators such medical-dental space, all 18,600 square feet was analyzed as retail.

Site Trip Distribution/Trip Assignment

The site-generated trips were distributed onto the study area roadway system according to the existing traffic patterns, as well as general population centers within the area. The estimated site-generated trips were assigned to the network by distributing the trips shown in Table 5 according to the trip distribution pattern shown in Figure 6. Figure 6 illustrates the site-generated trips that are expected to use the roadway system during the weekday AM and PM peak hours. Note that no trip reduction was made for the existing site structures that will be removed with the proposed site development.





Negative values indicate pass-by trips

Site-Generated Trips
Weekday AM and PM Peak Hours
Molalla, Oregon

Figure
6

YEAR 2020 TOTAL TRAFFIC CONDITIONS

The total traffic conditions analysis forecasts how the study area's transportation system will operate with the traffic generated by the proposed Cascade Center development. The year 2020 background traffic volumes for the weekday AM and PM peak hours (shown in Figure 5) were added to the site-generated trips (shown in Figure 6) to arrive at the year 2020 total traffic volumes that are shown in Figure 7.

Intersection Operations

The weekday AM and PM peak hour turning-movement volumes shown in Figure 7 were used to conduct an operational analysis at each study intersection to determine the year 2020 total traffic levels of service. The results of the total traffic analysis shown in Figure 7 indicate that all of the study intersections and site access points are expected to continue meeting ODOT mobility standards, with the following exceptions:

- The northbound left turn at OR 211/Leroy Avenue is projected to experience a v/c ratio above the ODOT mobility target of 0.95 during the weekday PM peak hour, and projected northbound delays are expected to reach Level of Service "F".[1]
- Consistent with background traffic conditions, the OR 211/Molalla Avenue intersection is projected to continue to experience a v/c ratio above the ODOT mobility target of 0.90 on the eastbound and westbound approaches during the weekday AM and PM peak hours.

Appendix "E" contains the year 2020 total traffic level-of-service worksheets.

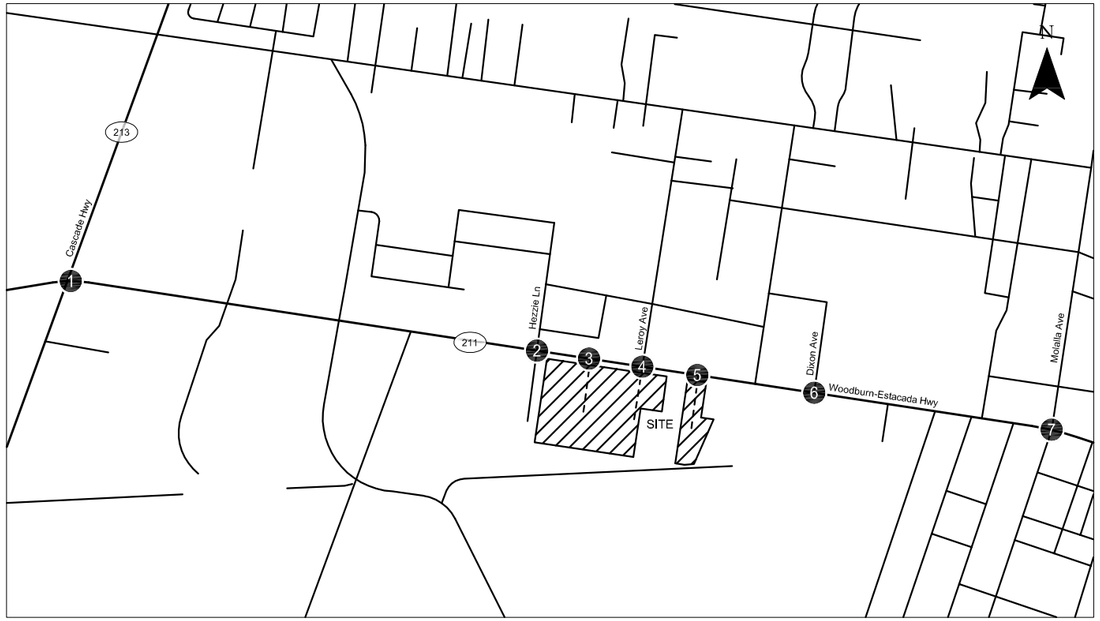
TRAFFIC SIGNAL AND TURN LANE CONSIDERATIONS

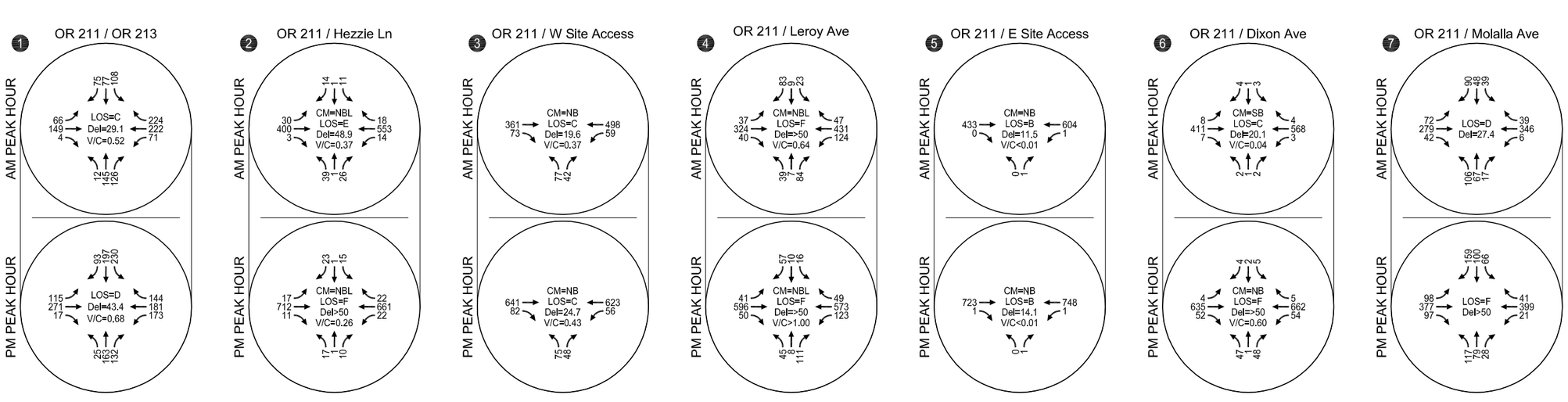
As previously noted, the *Molalla Transportation System Plan* (Reference 1) identifies an anticipated need for future signalization of the OR 211/Leroy Avenue and OR 211/Molalla Avenue intersections. This section of the report provides an assessment of potential intersection signalization and turn lane considerations associated with the proposed site development.

MUTCD Signal Warrants

The *Manual on Uniform Traffic Control Devices* (MUTCD, Reference 9) identifies nine warrants for traffic signal installation. The first two volume-based warrants (#1-Eight Hour and #2-Four Hour) were evaluated based on the existing and future traffic volumes at OR 211/Leroy Avenue and OR 211/Molalla Avenue.

[1] Per ODOT's request, we assumed two-stage gap acceptance for left turns from the unsignalized site accesses east and west of Leroy Avenue. However, we did not assume two-stage gap acceptance at Leroy Avenue due to the exclusive left turn lanes being striped in both directions of OR 211, as well as the considerable left turn volume from OR 211.





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Year 2020 Total Traffic Conditions
Weekday AM and PM Peak Hours
Molalla, Oregon

Figure
7

Weekday daily 24-hour volumes were estimated based on a 16-hour traffic volume count at the OR 211/Leroy Avenue intersection and peak hour volumes at the OR 211/Molalla Avenue intersection. Table 5 summarizes the warrant analysis results. As shown, the OR 211/Molalla Avenue intersection warrants signalization prior to build-out of the site, while motor vehicle traffic volumes at the OR 211/Leroy Avenue intersection are not forecast to warrant signalization with site build-out[2].

Table 5. Signal Warrant Analysis Results

Intersection	Scenario	Warrant Met?	
		Warrant #1: Eight Hour	Warrant #2: Four Hour
OR 211/Leroy Avenue	Existing	No	No
	2020 Background	No	No
	2020 Total	No	No
OR 211/Molalla Avenue	Existing	Yes	Yes
	2020 Background	Yes	Yes
	2020 Total	Yes	Yes

The City of Molalla requested signalization of the OR 211/Leroy Avenue intersection with site redevelopment to address both failing side-street level of service at the intersection and to provide a signalized pedestrian crossing of OR 211. The signalized pedestrian crossing would facilitate pedestrian connectivity between residential areas south of OR 211 and Molalla River Middle School, located on the west side of Leroy Avenue one block north of OR 211. The signalized crossing could also facilitate pedestrian connectivity with Molalla Elementary School to the northwest of the Middle School.

We recommend I&E Construction collaborate with City and ODOT staff to determine if and when signalization should be completed considering the following:

- the City of Molalla's *Transportation System Plan* identifies the need for future signalization;
- the City's desire for signalization in conjunction with site development;
- the northbound left turn v/c ratio at the OR 211/Leroy Avenue intersection is forecast to exceed ODOT mobility standards during the PM peak hour after site build-out without signalization;
- projected side street delays at the OR 211/Leroy Avenue intersection are much higher under stop control (resulting in weekday PM peak hour northbound approach Level of Service "F")

[2] Currently there are no marked or signalized crosswalks of OR 211 within the site vicinity. Depending on Molalla School District busing and walking requirements, future pedestrian volumes at the OR 211/Leroy Avenue intersection may satisfy Warrant #5-School Crossing pending connectivity needs associated with the Molalla River Middle School (0.1 mile north of the intersection), Molalla Elementary School located to the northwest, and residential areas south of OR 211.

as compared to a condition with signalization (resulting in weekday AM and PM peak hour intersection Level of Service "A"); and

- installation of a traffic signal would serve pedestrian crossings of OR 211, facilitating pedestrian access to Molalla River Middle School and other points along Leroy Avenue.

Appendix "F" contains the signal warrant analysis worksheets.

ODOT Turn Lane Criteria

The *ODOT Analysis Procedures Manual* (Reference 3) identifies volume-based turn lane criteria at unsignalized intersections. The two proposed site accesses on OR 211 east and west of Leroy Avenue were evaluated for turn lane needs based on the 2020 total traffic AM and PM peak hour volumes. Based on this analysis, the right turn lane criteria are satisfied on eastbound OR 211 at the west site access, and the left turn lane criteria are satisfied on westbound OR 211 at the west site access. Consistent with the City's request, the Applicant proposes to construct a center two-way left-turn lane along OR 211 providing a left-turn area for each of the three site accesses to provide a consistent three-lane section on OR 211 across the site frontage.

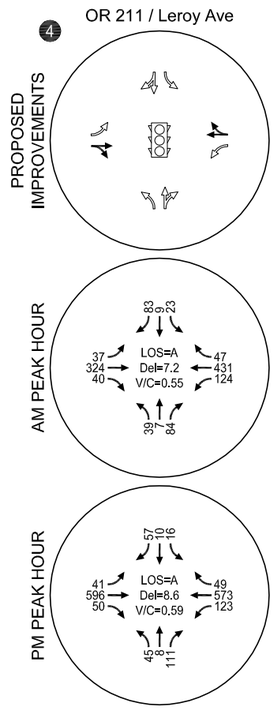
The ODOT right turn lane criteria are satisfied on eastbound OR 211 at Leroy Avenue if the intersection remains unsignalized; however, constructing a right-turn lane increases the north-south pedestrian crossing distance and would not be needed from a capacity perspective if the intersection becomes signalized. As such, we recommend the I&E Construction collaborate work with the City and ODOT to further assess the need for an eastbound right turn lane at the OR 211/Leroy Avenue intersection in conjunction with evaluation of future intersection signalization requirements. *Appendix "G" contains the ODOT turn lane criteria analysis worksheets*.

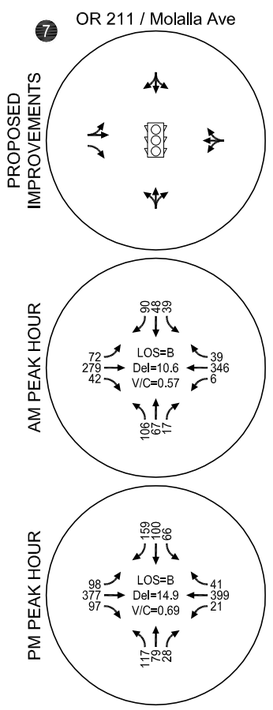
YEAR 2020 TOTAL TRAFFIC CONDITIONS WITH MITIGATION

Figure 8 displays the year 2020 total traffic conditions with signalization of the OR 211/Leroy Avenue and OR 211/Molalla Avenue intersections. With signalization, the OR 211/Molalla Avenue intersection is projected to operate with a v/c ratio of 0.57 during the weekday AM peak hour and a v/c ratio of 0.69 during the weekday PM peak hour, satisfying ODOT mobility standards. The OR 211/Leroy intersection is projected to operated well under capacity during both periods. *Appendix "H" contains the year 2020 total traffic with mitigation level-of-service worksheets.*

ON-SITE CIRCULATION/SITE-ACCESS OPERATIONS

KAI staff performed a preliminary field review of stopping and intersection sight distance based upon the proposed access locations shown on the project site plan and found that adequate sight lines can be provided. Landscaping, signage, and utilities near the site accesses and frontage should be placed and maintained to allow adequate site distance per applicable City and ODOT standards.





CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = CRITICAL MOVEMENT LEVEL OF SERVICE (SIGNALIZED)/ CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/ CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

↙ - EXISTING
↙ - PROPOSED IMPROVEMENTS

Year 2020 Total Traffic Conditions (with Mitigation)
Weekday AM and PM Peak Hours
Molalla, Oregon

Figure 8

Site Access Spacing

The Oregon Highway Plan establishes a minimum access spacing standard of 350 feet for district highways with an Annual Average Daily Traffic (AADT) of more than 5,000 vehicles per day. The site access spacing shown on the proposed site plan satisfies this standard, as the proposed site accesses on OR 211 west and east of Leroy Avenue are both more than 350 feet from existing intersections along OR 211.

95th-percentile Queuing Analysis

95th-percentile queues at the study intersections were analyzed in Synchro for the weekday AM and PM peak hours for the existing, 2020 background, and 2020 total (before and after mitigation) conditions. Table 6 displays the results. As shown, all but one of the existing and proposed turn lane storage lengths is expected to accommodate the 95th-percentile queues under 2020 total traffic conditions, with the identified mitigations in place. The southbound left-turn 95th-percentile queue at OR 211/OR 213 is expected to exceed the striped storage length by 2020 background conditions, but the queue can still be accommodated by the upstream two-way left-turn lane. No additional mitigation measures are recommended to address 95th-percentile queues at the study intersections.

Table 6. Summary of 95th-percentile Queues

Intersection	Movement	Storage (ft)	AM Peak Hour 95th-percentile Queue (ft)			PM Peak Hour 95th-percentile Queue (ft)			Adequate Storage Provided?
			Existing	2020 Background	2020 Total Before/After Mitigation	Existing	2020 Background	2020 Total Before/After Mitigation	
1: OR 213/ OR 211	EB L	290	100	100	100	200	200	200	Yes
	EB T/R	>500	125	150	175	350	375	400	Yes
	WB L	330	100	100	125	250	250	275	Yes
	WB T	>400	200	225	250	200	225	250	Yes
	WB R	240	75	75	75	75	75	75	Yes
	NB L	250	50	50	50	75	75	75	Yes
	NB T	>400	175	175	200	225	250	250	Yes
	NB R	270	50	50	75	75	75	75	Yes
	SB L	310*	125	125	150	300	350	400	Yes
	SB T/R	>400	150	150	150	350	375	400	Yes
2: OR 211/ Hezzie Ln	EB L	210	25	25	25	25	25	25	Yes
	WB L	180	<25	<25	<25	25	25	25	Yes
	NB L	50	50	50	50	25	25	25	Yes
	NB T/R	>50	25	25	25	25	25	25	Yes
	SB L/T/R	>100	25	25	25	25	25	50	Yes
3: OR 211/ W Site Access	EB R	100	-	-	<25	-	-	<25	Yes
	WB L	75	-	-	25	-	-	25	Yes
	NB L/R	150	-	-	50	-	-	50	Yes
4: OR 211/ Leroy Ave	EB L	100	25	25	25 / 25	25	25	25 / 25	Yes
	EB T/R	>500	-	-	- / 100	-	-	- / 225	Yes
	WB L	100	-	-	25 / 50	-	-	25 / 50	Yes
	WB T/R	>500	-	-	- / 150	-	-	- / 200	Yes
	NB L	120	-	-	75 / 50	-	-	125 / 50	Yes
	NB T/R	>200	-	-	25 / 50	-	-	50 / 50	Yes
	SB L**	100**	25	25	50 / 25	25	25	50 / 25	Yes
	SB T/R	>500	25	25	50 / 50	25	25	50 / 50	Yes
5: OR 211/ E Site Access	WB L	70	-	-	<25	-	-	<25	Yes
	NB L/R	25	-	-	<25	-	-	<25	Yes
6: OR 211/ Dixon Ave	EB L	100	<25	<25	<25	<25	<25	<25	Yes
	EB R	130	<25	<25	<25	<25	<25	<25	Yes
	WB L	170	<25	<25	<25	25	25	25	Yes
	NB L/T/R	100	<25	<25	25	50	75	100	Yes
	SB L/T/R	>75	25	25	25	25	25	25	Yes
7: OR 211/ Molalla Ave	EB L/T	>350	100	100	200 / 200	225	275	500 / 350	Yes
	EB R	180	25	25	25 / 25	25	25	25 / 25	Yes
	WB L/T/R	>300	100	125	225 / 200	200	250	400 / 300	Yes
	NB L/T/R	>250	50	50	75 /125	75	75	100 / 200	Yes
	SB L/T/R	>250	25	50	50 /100	100	125	175 / 225	Yes

*Additional storage available in two-way left-turn lane (over 425 feet)
**Sufficient roadway width is currently available for a separate left turn lane. The left turn queues for existing and background conditions are shown to provide a baseline for assessment of queues after site build-out.

Section 5
Conclusions and Recommendations

CONCLUSIONS AND RECOMMENDATIONS

The results of the traffic impact analysis indicate that the proposed Cascade Center development can be constructed while maintaining acceptable study intersection operations as long as the appropriate mitigations are in place. The findings of this analysis and our recommendations are discussed below.

FINDINGS

Existing Conditions

- All of the study intersections currently meet ODOT mobility standards during the weekday AM and PM peak hours.
- A review of historical crash data did not reveal any patterns or trends in the site vicinity that require mitigation associated with this project.

Year 2020 Background Traffic Conditions

- A 2.5-percent annual growth rate was applied to the existing traffic volumes to account for regional growth in the area.
- The *City of Molalla Transportation System Plan* identifies the future need to signalize the OR 211/Leroy Avenue intersection. The traffic signal was identified to provide motor vehicle capacity at the intersection to serve anticipated traffic growth and also serves as a north-south pedestrian crossing opportunity linking residents south of OR 211 with Molalla River Middle School to the north. Signalization is not currently funded.
- All but one of the study intersections are expected to continue meeting ODOT mobility standards during the weekday AM and PM peak hours prior to site development:
    - The all-way stop-controlled OR 211/Molalla Avenue intersection is projected to experience a volume-to-capacity (v/c) ratio greater than 0.90 on the eastbound approach during the PM peak hour. The *City of Molalla Transportation System Plan* identifies the future need to signalize the intersection; however, signalization is not currently funded.

Proposed Development Plan

- The proposed development is expected to generate approximately 4,112 weekday net new trips, of which 330 (193 in, 137 out) will occur during the AM peak hour and 349 (192 in, 157 out) will occur during the PM peak hour. The development is also expected to generate approximately 3,488 weekday pass-by trips, of which 226 (113 in, 113 out) will occur during the AM peak hour and 262 (131 in, 131 out) will occur during the PM peak hour.
- The City of Molalla has requested I&E Construction signalize the OR 211/Leroy Avenue intersection in conjunction with site development. Signalization requires ODOT approval;

therefore, intersection operations were analyzed without and with a traffic signal in place for study purposes.

- ODOT has requested the construction of a two-way left-turn lane on OR 211 along the site frontage.

Year 2020 Total Traffic Conditions

- All but two of the study intersections are expected to continue meeting ODOT mobility standards during the weekday AM and PM peak hours after site development:
  - The northbound left turn at OR 211/Leroy Avenue is projected to experience a v/c ratio above the ODOT mobility target of 0.95 during the weekday PM peak hour, and projected northbound delays are expected to reach Level of Service "F".
  - Consistent with background conditions, the all-way stop-controlled OR 211/Molalla Avenue intersection is projected to continue to experience a v/c ratio greater than 0.90 on the eastbound approach during the PM peak hour as a result of full site buildout.

Traffic Signal and Turn Lane Considerations

- Per the MUTCD signal warrants and the estimated 24-hour volume profile of the OR 211/Molalla Avenue intersection, a traffic signal will be warranted at OR 211/Molalla Avenue prior to site development.
- Per the MUTCD signal warrants and the estimated 24-hour volume profile of the OR 211/Leroy Avenue intersection, the traffic volume-based signal warrants will not be met at OR 211/Leroy Avenue in conjunction with site development. However, the City of Molalla requested signalization of the OR 211/Leroy Avenue intersection with site redevelopment to address both failing side-street level of service at the intersection and to provide a signalized pedestrian crossing of OR 211 to provide connectivity between residential areas south of OR 211 and Molalla River Middle School and Molalla Elementary School, located north of OR 211.
- A right turn lane with at least 100 feet of storage should be installed on eastbound OR 211 at the west site access per ODOT criteria. The eastbound OR 211 approach at Leroy Avenue also meets ODOT right turn lane criteria if unsignalized.
- A left turn lane with at least 75 feet of storage should be installed on westbound OR 211 at both the west site access and the east site access per ODOT criteria.

Year 2020 Total Traffic Conditions with Mitigation

- The OR 211/Leroy Avenue intersection satisfies ODOT v/c ratio mobility standards with signalization. Projected side street delays are much higher under stop control (resulting in weekday PM peak hour northbound approach Level of Service "F") as compared to a

condition with signalization (resulting in weekday AM and PM peak hour intersection Level of Service "A").

95th-Percentile Queueing Analysis

- The proposed storage lengths at the study intersections are expected to accommodate each of the 95th-percentile queues in the AM and PM peak hours under 2020 total traffic conditions, assuming provision of the identified turn lanes and signalization.

RECOMMENDATIONS

The following are recommended in conjunction with site redevelopment:

- OR 211/Molalla Avenue:
  - Provide a traffic signal.
- OR 211/West Site Access:
  - Provide an eastbound right turn lane with at least 100 feet of storage.
  - Provide a westbound left turn lane with at least 75 feet of storage.
- OR 211/Leroy Avenue:
  - Restripe the north leg of the intersection to provide an exclusive left turn lane with at least 100 feet of storage and a shared thought/right lane on southbound Leroy Avenue.
  - Collaborate with City and ODOT staff to determine if and when signalization of the OR 211/Leroy Avenue intersection should be completed considering the following:
    - the City of Molalla's *Transportation System Plan* identifies the need for future signalization;
    - the City's desire for signalization in conjunction with site development;
    - the northbound left turn v/c ratio at the OR 211/Leroy Avenue intersection is forecast to exceed ODOT mobility targets after site build-out without signalization, but the intersection would meet ODOT mobility targets with signalization; and
    - installation of a traffic signal would serve pedestrian crossings of OR 211, facilitating pedestrian access to Molalla River Middle School on Leroy Avenue and the Molalla Elementary School to the northwest.
  - Collaborate with the City and ODOT to further assess the need for an eastbound right turn lane at the OR 211/Leroy Avenue intersection pending decisions regarding signalization of the intersection.

- OR 211/East Site Access:
    - Provide a two-way left-turn lane along the site frontage.
- All landscaping, signage, and utilities near the site access points should be placed and maintained to provide adequate sight distance.

Section 6
References

REFERENCES

1. City of Molalla, OR. *City of Molalla Transportation System Plan*. 2018.
2. South Clackamas Transportation District. "Routes & Schedules." 2018. < http://sctd.org/routes.html>.
3. Oregon Department of Transportation (ODOT). *Analysis Procedures Manual, Version 2*. 2018.
4. Transportation Research Board of the National Academies. *Highway Capacity Manual 2000*.
5. Transportation Research Board of the National Academies. *Highway Capacity Manual 2010*.
6. Oregon Department of Transportation (ODOT). *Oregon Highway Plan*. 1999.
7. Institute of Transportation Engineers. *Trip Generation, 10th Edition*. 2017.
8. Institute of Transportation Engineers. *Trip Generation Handbook, 3rd Edition*. 2017.
9. *Manual on Uniform Traffic Control Devices.* 2009 Edition. 2009.

ATTACHMENT B

Revised OR 211/Leroy Avenue Weekday PM Peak Hour Level of Service Worksheet

Intersection	
Int Delay, s/veh	10.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	41	601	44	104	573	49	44	8	113	16	9	57
Future Vol, veh/h	41	601	44	104	573	49	44	8	113	16	9	57
Conflicting Peds, #/hr	2	0	0	0	0	2	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	7	2	2	8	2	2	2	2	0	2	2
Mvmt Flow	45	653	48	113	623	53	48	9	123	17	10	62

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	678	0	0	701	0	0	1680	1671	677	1711	1669	653
Stage 1	-	-	-	-	-	-	767	767	-	878	878	-
Stage 2	-	-	-	-	-	-	913	904	-	833	791	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.318
Pot Cap-1 Maneuver	914	-	-	896	-	-	75	96	453	72	96	467
Stage 1	-	-	-	-	-	-	395	411	-	345	366	-
Stage 2	-	-	-	-	-	-	328	356	-	366	401	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	912	-	-	896	-	-	51	80	453	42	80	466
Mov Cap-2 Maneuver	-	-	-	-	-	-	51	80	-	42	80	-
Stage 1	-	-	-	-	-	-	376	391	-	327	319	-
Stage 2	-	-	-	-	-	-	241	310	-	248	381	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.4	78.4	45.4
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	51	346	912	-	-	896	-	-	42	281
HCM Lane V/C Ratio	0.938	0.38	0.049	-	-	0.126	-	-	0.414	0.255
HCM Control Delay (s)	234.7	21.6	9.2	-	-	9.6	-	-	141.5	22.1
HCM Lane LOS	F	C	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	4	1.7	0.2	-	-	0.4	-	-	1.4	1

EXHIBIT E

Photometric Plan

N:\Document Services (CAD)\02-Projects\GOODWILL\Goodwill Molalla\05 - CAD\WORKING\Goodwill Molalla Photometric.dwg, 2/3/2022 11:03:24 AM, DWG To PDF.pc3

1 SITE LIGHTING PHOTOMETRIC

SCALE: 1"=20'-0"

Schedule					
Label	Quantity	Manufacturer	Description	Catalog Number	Wattage
EXISTING	3	Lithonia	RSX Area Fixture Size 2 P4 Lumen Package 4000K CCT Type R4 Distribution with HS Shield	RSX2 LED P4 40K R4 HS	379
M2	15	Lithonia	CNY LED Canopy P2=6,600lm	CNY LED P2 40K MVOLT	52
N1	10	Lithonia	WDGE3 LED WITH P1 - PERFORMANCE PACKAGE, 4000K, 70CRI, TYPE 3 OPTIC	WDGE3 LED P1 70CRI R3 40K	51
N2E	4	Lithonia	WDGE3 LED WITH P1 - PERFORMANCE PACKAGE, 4000K, 70CRI, TYPE 3 OPTIC	WDGE3 LED P1 70CRI R3 40K	51
N3	3	Lithonia	FEM LED 48", 6,000 lumens, polycarbonate, low profile clear lens, medium distribution, 80 CRI, 4000 K	FEM L48 6000LM LPPCL MD 80CRI 40K	38
P1	3	Lithonia	RSX Area Fixture Size 2 P2 Lumen Package 4000K CCT Type R4 Distribution with HS Shield	RSX2 LED P2 40K R4 HS	114
P2	2	Lithonia	RSX Area Fixture Size 2 P2 Lumen Package 4000K CCT Type R4 Distribution with HS Shield	RSX2 LED P2 40K R4 HS	228
P5	1	Lithonia	RSX Area Fixture Size 2 P2 Lumen Package 4000K CCT Type R5 Distribution	RSX2 LED P2 40K R5	114

2 SITE PHOTOMETRIC FIXTURE SCHEDULE

SCALE: N.T.S.

Statistics			
Description	Avg	Max	Min
Parking & Bldg Exterior	3.3 fc	19.0 fc	0.1 fc
Donation Drop-off Only	27.0 fc	37.5 fc	8.8 fc

3 SITE PHOTOMETRIC STATISTICS

SCALE: N.T.S.

STONER™
ELECTRIC GROUP
ELECTRICAL
STRUCTURED CABLING
FIRE LIFE SAFETY & SECURITY
LIGHTING

1904 SE Ochoco
Milwaukie, Oregon 97222
(503)462-6500
www.stonergroup.com

Scale: AS NOTED
Date: 2/3/2022
PROJECT NO.: XX
Drawn By: DDW
Checked By: D.WHITCOMB

SUPERVISOR
OREGON
6063S
BRANDON HANSON
EXPIRES: 10/1/2022

REVISIONS

GOODWILL INDUSTRIES

XXX
MOLALLA,, OREGON

SHEET TITLE
SITE PHOTOMETRIC

SHEET NO.
E 0.02

EXHIBIT F

Stormwater Report

GOODWILL MOLALLA

Preliminary Drainage Report

Prepared for:

Goodwill Industries of the Columbia Willamette
1943 SE Sixth Ave
Portland, OR 97214

Prepared by:

720 SW Washington Street, Suite 750
Portland, Oregon 97205
971-280-8641
mgillette@dowl.com

November 2021

TABLE OF CONTENTS

FIGURES

TABLES

EXECUTIVE SUMMARY

The proposed Goodwill Molalla project will construct a new Goodwill building on a parcel of land in the Cascade Center Commercial development in Molalla, Oregon. The development will include the new Goodwill building, a surface parking lot, and associated landscaping and civic areas. New sanitary, water, and storm drain utilities will be constructed to service the development.

Water quality and detention will be provided by a LIDA rain garden facility, Bayfilter systems, and underground detention pipe. The rain garden and Bayfilter systems are designed to treat the entire water quality design storm, as defined in Section 3.3.4 of the 2020 City of Molalla Public Works Standard Specifications.

Treated runoff will discharge to a proposed detention pipe installed under the parking lot. The proposed detention pipe will tie into the existing 24-inch detention system and flow control manhole that was installed during earlier phases of the Cascade Center Commercial development. The flow control tee installed during the first phase of the Cascade Center Commercial development accounted for future development on Lot 7, which is where the Goodwill is being constructed. Approximately 0.32 acres of area were added to the system from Lot 8; therefore, a proportionate amount of detention pipe was added to the system to account for the added areas. Treated and detained runoff from the Goodwill development will discharge to the public storm system in W Main Street (OR 211).

The proposed storm design will meet the requirements listed in the 2020 Molalla Standard Specifications for Public Works Construction.

1.0 PROJECT OVERVIEW

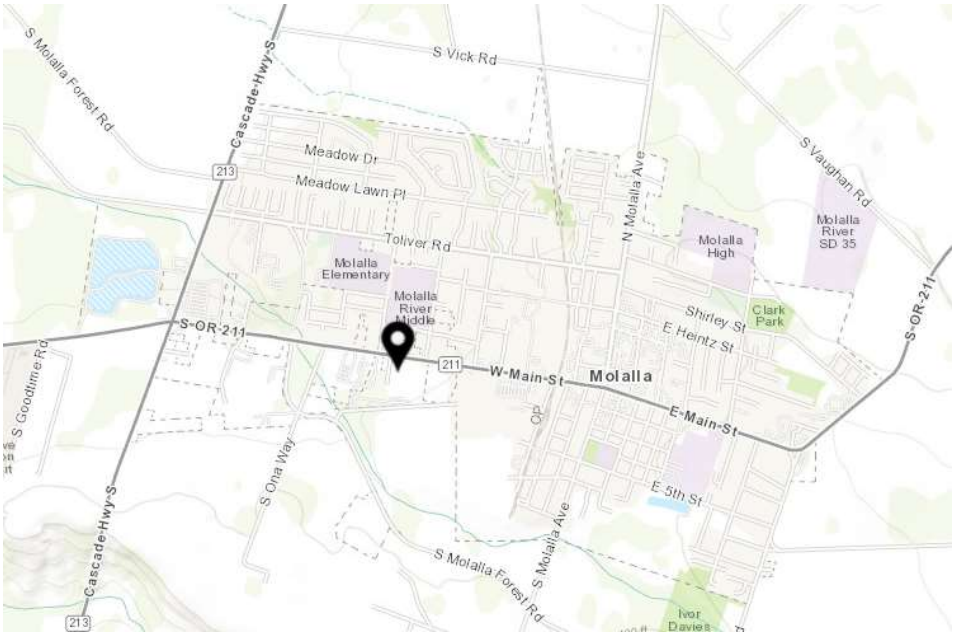
1.1 Project Description

The proposed Goodwill Molalla project will construct a new Goodwill building on a parcel of land in the Cascade Center Commercial development in Molalla, Oregon. The development will include the new Goodwill building, a surface parking lot, and associated landscaping and civic areas. New sanitary, water, and storm drain utilities will be constructed to service the development.

1.2 Location

The project is on the south side of state highway OR 211, between N Hezzie Lane and Ridings Ave in Molalla, Oregon.

Figure 1-1 Vicinity Map



1.3 Methodology

The proposed storm design will meet the requirements listed in the 2020 Molalla Standard Specifications for Public Works Construction.

2.0 SITE CONDITIONS

2.1 Topography

The existing site is an empty lot on the southwest corner of the Cascade Center Commercial development. The area has gradual slopes between 1 and 3%, generally to the north. The high elevation of 357’ is located on the south side of the site. The low elevation of 353’ is located on the north side of the site.

2.2 Climate

The site is located in Molalla, Oregon. There is a gradual change in seasons with defined seasonal characteristics. Average daily temperatures range from 44°F to 82°F. Average annual rainfall recorded in this area is 41 inches.

2.3 Geology

The underlying soil type on the existing site as classified by the USDA Soil Survey of Clackamas County, Oregon as Clackamas Silt Loam (D soils) and Dayton Silt Loam (D soils) (See Technical Appendix: USDA Soils Map – Clackamas County).

2.4 Hydrology

Existing

Stormwater runoff the existing site sheet flows north to existing storm infrastructure installed during the earlier phases of the Cascade Center Commercial development. Per the Drainage Report prepared by MultiTech Engineering Services in September 2020, stormwater planters and 24" detention pipe were installed throughout the development.

Proposed

Stormwater from the proposed development will be routed to a rain garden facility, Bayfilter manhole, and Bayfilter catch basin for water quality treatment, and an underground 24-inch detention pipe for detention/flow control. These proposed facilities will tie into the existing 24-inch detention pipe installed during earlier phases of the development. Treated and detained runoff from the Goodwill development will discharge to the public storm system in W Main Street (OR 211).

2.5 Basin Areas

Table 2-1 lists the basin areas under existing and proposed conditions (See Technical Appendix: Figure 1 and Figure 2). The proposed development is 87% impervious.

Table 2-1 Basin Areas

Site Condition	Impervious Area (ac)	Pervious Area (ac)	Total Area (ac)
Existing	0.20	1.59	1.79
Proposed	1.63	0.16	1.79

3.0 HYDROLOGIC ANALYSIS

3.1 Design Guidelines

The proposed storm design will meet the requirements listed in the 2020 Molalla Standard Specifications for Public Works Construction.

3.2 Hydrologic Method

The Santa Barbara Urban Hydrograph (SBUH) method was used for this analysis. The SBUH method is based on the curve number (CN) approach and uses the Natural Resource Conservation Service's (NRCS) equations for computing soil absorption and precipitation excess. The SBUH method converts the incremental runoff depths into instantaneous hydrographs, which are then routed through an imaginary reservoir with a time delay equal to the basin time of concentration.

The XPSWMM software version 18.1 was used for the hydrology and hydraulics analysis. The runoff function of XPSWMM generates surface and subsurface runoff based on design or measured rainfall conditions, land use and topography.

The XPSWMM software is based on the public EPA SWMM program.

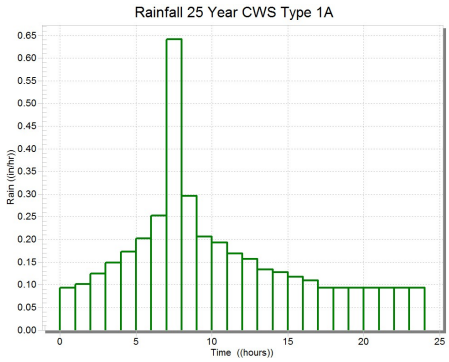
3.3 Design Storm

The rainfall distribution used within the Clean Water Services jurisdiction is the design storm of 24-hour duration based on the standard Type 1A rainfall distribution. Table 3-1 shows total precipitation depths for different 24-hr storm events per CWS Standard Detail 1280. The design storm distribution for a Type 1A 25-yr 24-hr rainfall event is shown in Figure 3-1.

Table 3-1 Precipitation Depth

Recurrence Interval (years)	Total Precipitation Depth (inches)
2	2.50
5	3.10
10	3.45
25	3.90
50	4.20
100	4.50

Figure 3-1 Type 1A Rainfall Distribution



4.0 WATER QUALITY

4.1 Design Overview

The proposed water quality facilities were designed per the requirements set forth in Section 3.3.4 of the 2020 City of Molalla Public Works Standard Specifications. The facilities were designed using a rainfall depth of 0.36" over a 4-hour period with a return period of 96-hours. Per Section 3.3.4(c), the water quality volume and flow rate are calculated according to the equations below:

$$\text{Water Quality Volume (cf)} = \frac{0.36\text{ (in)} \times \text{Area (sf)}}{12\text{ (in/ft)}} \qquad \text{Water Quality Flow (cfs)} = \frac{\text{WQV (cf)}}{14{,}400}$$

4.2 LIDA Rain Garden

Rain gardens are landscaped reservoirs that collect and treat stormwater runoff through vegetation and soil media. They also provide pollutant reduction and flow attenuation to reduce hydraulic impacts from urban developments on downstream rivers. Specific elements are incorporated into the rain garden design to increase the effectiveness of this stormwater facility type. Design elements include using soil media to provide stormwater filtration, and vegetation to provide plant uptake. The rain garden section is listed below:

- Freeboard Depth: 6 inches
- Ponding Depth: 6 inches
- Growing Media Depth: 18 inches
- Underdrain Stone Depth: 15 inches (12" drain rock + 3" separation layer)

The rain garden facility will have a 6" perforated underdrain at the base of the underdrain stone layer. A 12" Nyloplast catch basin with dome grate will be set 6" above the top of media to allow for peak flow bypass. Media infiltration rate was modeled as 2 inches per hour.

The facility has a bottom area (top of media) of 350 SF and a top area (top of rain garden) of 836 SF. Side slopes are 3:1 on all sides. The rain garden can treat up the entire sub basin (0.92 acres at 84% impervious) without going into bypass.

The rain garden was modeled using XPSWMM (See Technical Appendix: XPSWMM Results – Rain Garden). A storage node was used to represent the available ponding depth in the facility. The storage volume in the media layer and stone layer was excluded to be conservative. A multi-link representing infiltration through the media at 2 inches per hour was used to connect the surface ponding and stone storage nodes. A 6" underdrain connects the stone storage and system outlet nodes. Another multi-link representing the overflow standpipe at 6" above the top of media was used to connect the surface ponding and system outlet nodes. Results from the XPSWMM model show the facility does not go into bypass during the WQ storm event (See Technical Appendix: XPSWMM Results – Rain Garden).

4.3 Bayfilter Systems

Water quality treatment for the remaining site area will be provided a Bayfilter catch basin and manhole (See Technical Appendix: Bayfilter Details). The Bayfilter systems will be designed to treat the City of Molalla water quality flow, and bypass peak storm events using the internal weir within the structures. See Table 4-2 below for specific design information.

Table 4-1 Bayfilter Vault Design Table

Facility	Impervious Area (ac)	WQ Flow (cfs)	25-yr Peak Flow Rate (cfs)	Cartridge Count	System Size
Bayfilter Catch Basin	0.12	0.011	0.121	(1) - 522 cart	Steel Catch Basin
Bayfilter Manhole	0.78	0.071	0.721	(2) - 522 carts	60" Manhole

5.0 DETENTION AND FLOW CONTROL

5.1 Design Overview

The detention/flow control facilities were designed in accordance with the standards listed in the 2020 City of Molalla Public Works Standard Specifications. The detention system and flow control manhole for the entire Cascade Center Commercial development were designed by MultiTech Engineering Services in September 2020 (See Technical Appendix: MultiTech Drainage Report). The Goodwill development is being built on Lot 7 and a portion of Lot 8.

5.2 ADS Detention System

Detention for the Goodwill development will be provided in a 24" ADS pipe system. As mentioned above, this system will tie into the existing 24" detention system and flow control tee installed during earlier phases of the Cascade Center development. The Goodwill development will include an additional 0.32 acres of area, since a portion of Lot 8 is being built on / routed through the detention system. To account for this extra area in the system, additional detention pipe will be added to ensure the correct storage volume is achieved.

Per the MultiTech drainage report, the total storage volume provided for the 5.23 ac "A-C" basin is 6,910 cf. This correlates with 7,451 cf of volume required to manage the 5.64 ac of area (which includes the 0.32 ac from Lot 8 that was not included in the original design). The original design showed 7,400 CF of storage provided within the detention system. To account for the extra 51 cf of volume required, an additional 17 LF of detention pipe needs to be added to the system. Detention pipe "CCB" shown on Sheet C4.1 of the MultiTech stormwater plans is 290 LF and was originally intended to provide storage volume for Lot 7. To provide storage volume for the Goodwill development, 307 LF of 24" detention pipe will be installed.

6.0 CONVEYANCE ANALYSIS

6.1 Design Overview

The analysis and design criteria described in this section will follow Section 3.2.6 of the 2020 City of Molalla Public Works Standard Specifications. The manual states the storm drainage system and facilities be designed to convey the 25-year storm event with at least one foot of freeboard within the system.

6.2 System Capacity

The proposed conveyance system will be designed to convey and contain the peak runoff from a 25-year design storm.

6.3 System Performance

The full conveyance analysis will be included in the final drainage report.

7.0 SUMMARY

The proposed storm design will meet the requirements listed in the 2020 Molalla Standard Specifications for Public Works Construction.

Water quality and detention will be provided by a LIDA rain garden facility, Bayfilter systems, and underground detention pipe. The rain garden and Bayfilter systems are designed to treat the entire water quality design storm, and bypass peak storm events.

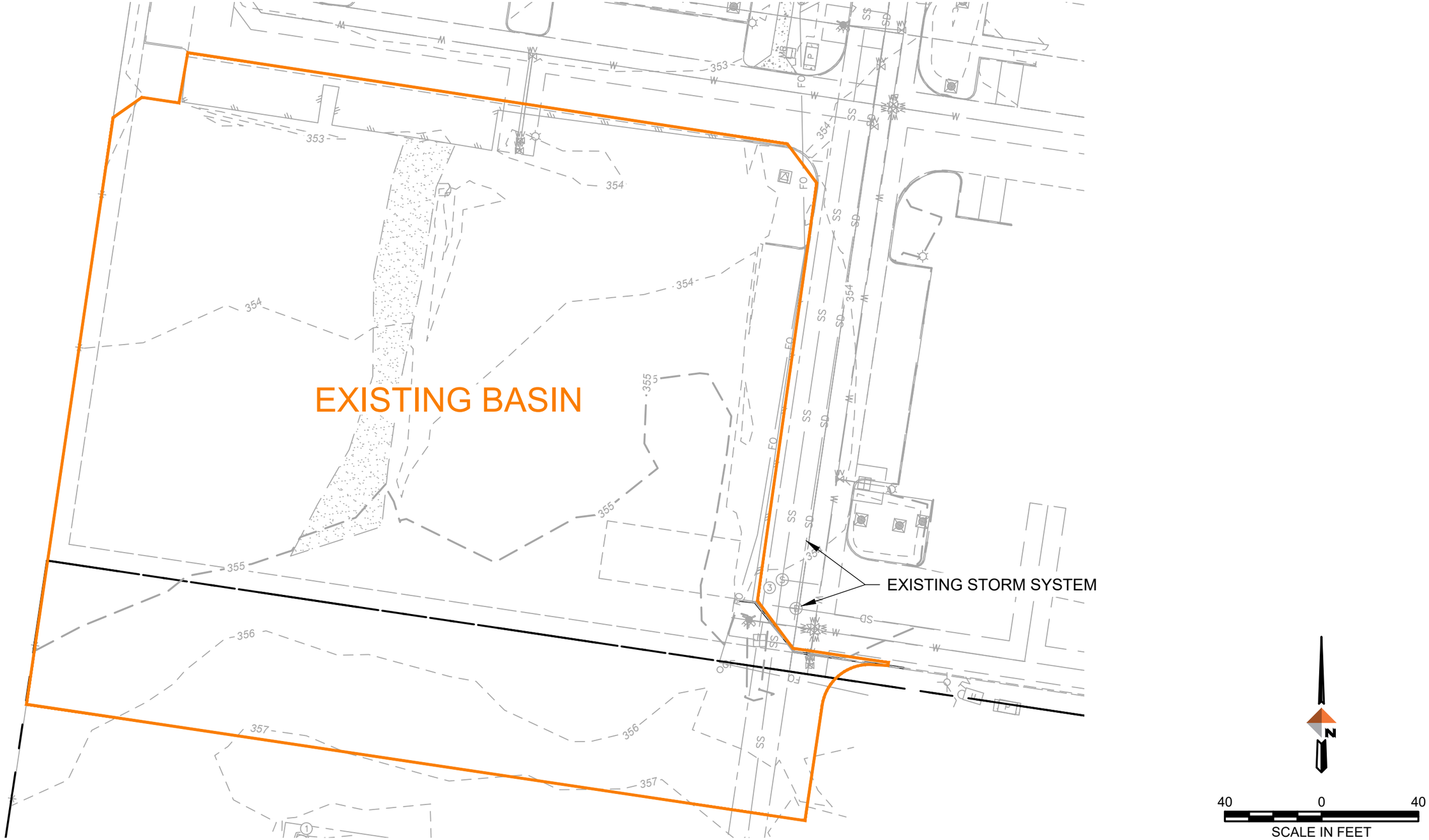
Treated runoff will discharge to a proposed detention pipe installed under the parking lot. The proposed detention pipe will tie into the existing 24-inch detention system and flow control manhole that was installed during earlier phases of the Cascade Center Commercial development. Treated and detained runoff from the Goodwill development will discharge to the public storm system in W Main Street (OR 211).

TECHNICAL APPENDIX

- Figure 1 – Existing Conditions
- Figure 2 – Proposed Conditions

- Bayfilter Details
- XPSWMM Results
- Hydrologic Soil Map – Clackamas County – USDA Web Soil Survey

- Cascade Center Drainage Report – MultiTech Engineering Services – September 2020
- Cascade Center Commercial Development – MultiTech Engineering Services – April 2021



DOWL
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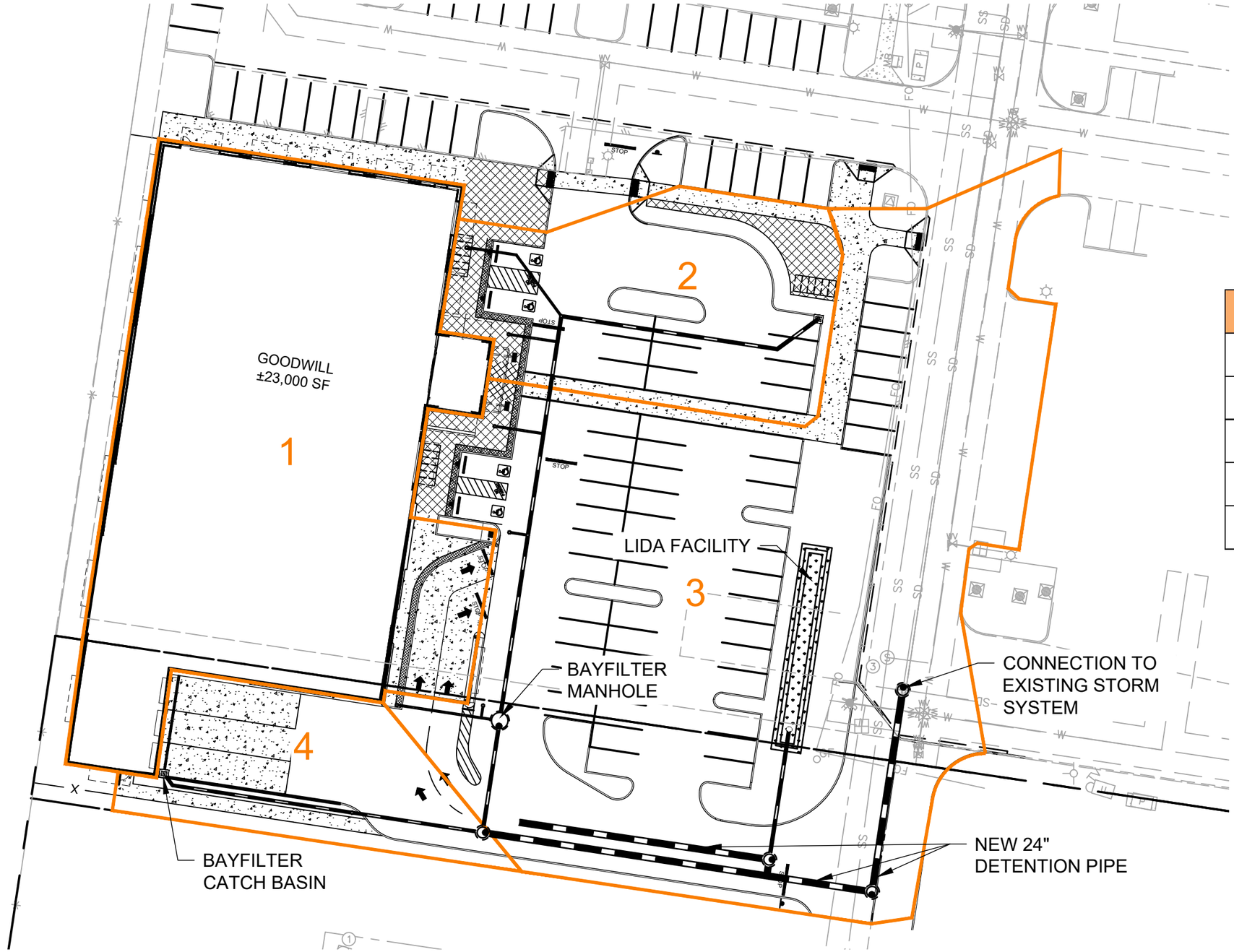
Portland, Oregon 97205
971-280-8641

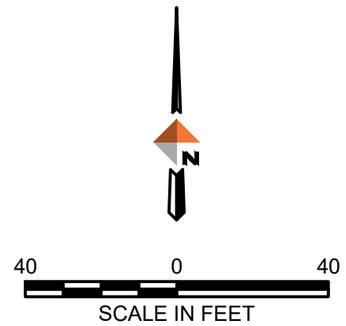
GOODWILL MOLALLA
EXISTING CONDITIONS
MOLALLA, OREGON

PROJECT	14818
DATE	11/22/2021

FIGURE 1



Basin	Impervious Area (ac)	Pervious Area (ac)	Total Area (ac)
1	0.58	0.00	0.58
2	0.20	0.02	0.22
3	0.76	0.14	0.90
4	0.12	0.02	0.14
Total	1.66	0.18	1.84



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Portland, Oregon 97205
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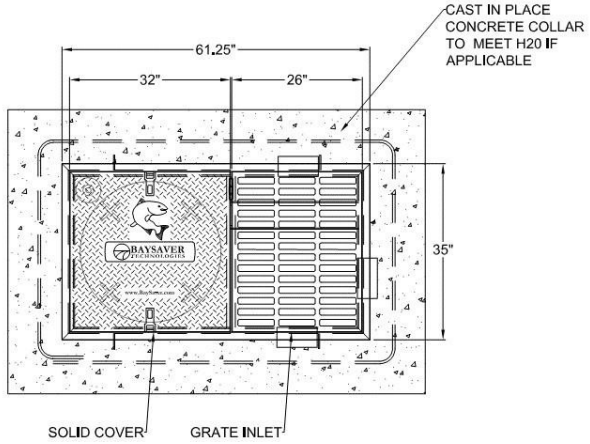
GOODWILL MOLALLA
PROPOSED CONDITIONS
MOLALLA, OREGON

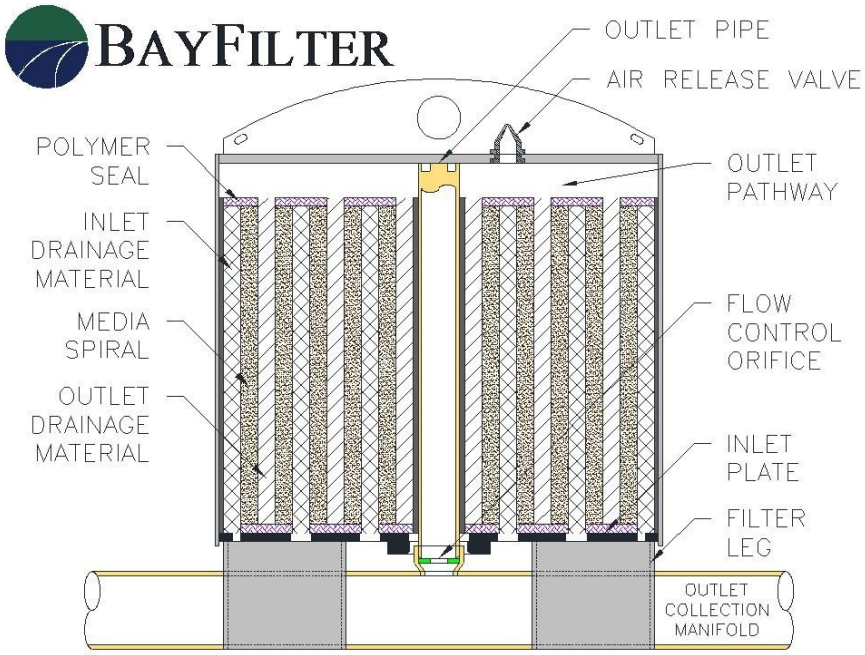
PROJECT 14818
DATE 11/22/2021

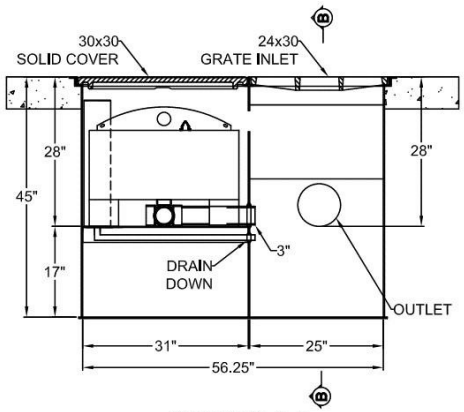
FIGURE 2

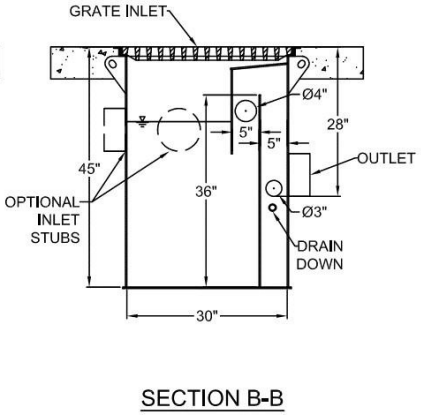
StreamFilter™

Creation Date:	11/22/2021 12:16:26 PM
Treatment Flow Rate:	0.011 cfs
Cartridge Type:	BayFilter™ 522
# of Cartridges:	1
Model Number:	CBF-1
Rim Elevation:	351.5 ft.
Outlet Elevation:	349 ft.
Drop:	30 in.







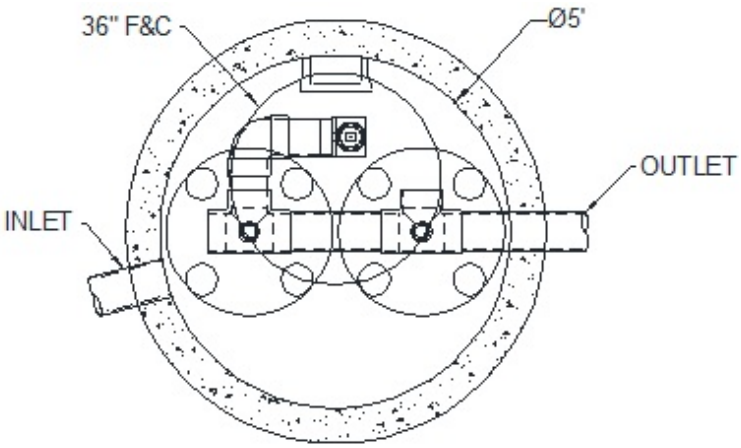


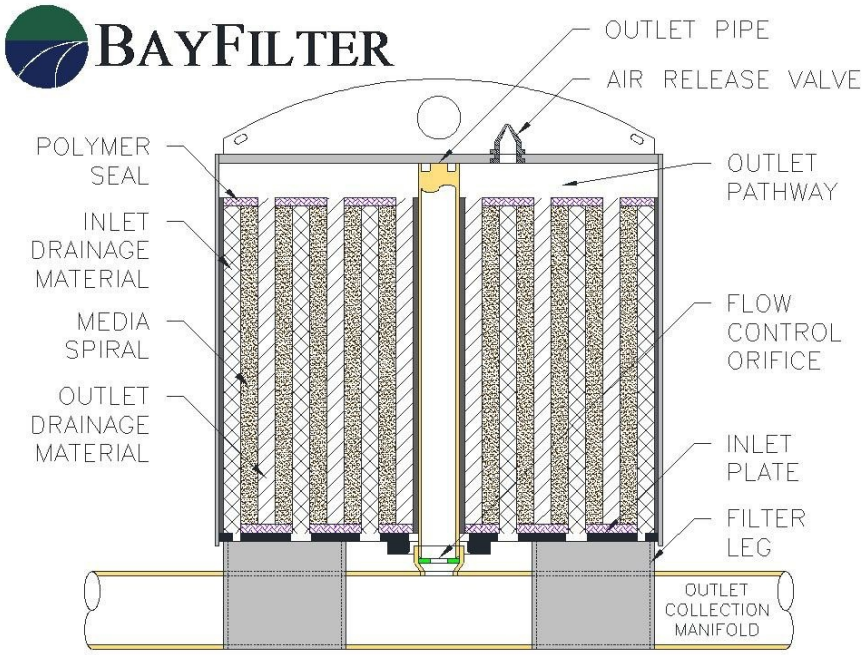
BAYSAVER TECHNOLOGIES®

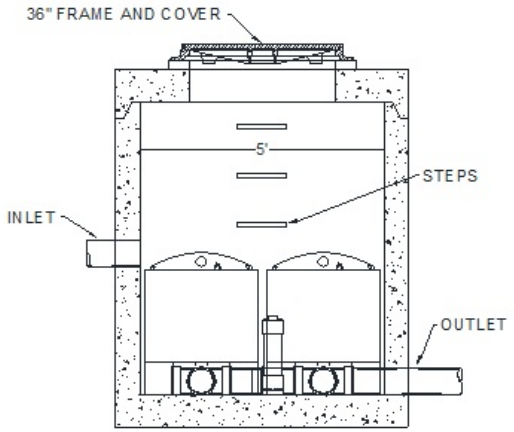
ADS

Creation Date:	11/22/2021 12:58:14 PM
Treatment Flow Rate:	0.071 cfs
Cartridge Type:	BayFilter™ 522
# of Cartridges:	2
Model Number:	BF-60-2
Rim Elevation:	354.6 ft.
Inlet Elevation:	350.28 ft.
Outlet Elevation:	348 ft.
Drop:	27 in.

60" Manhole





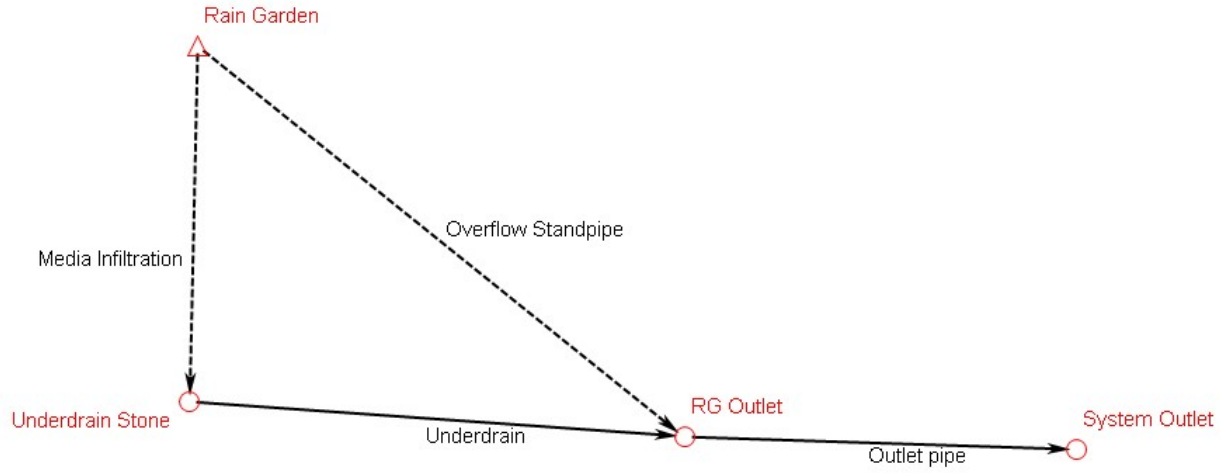


BAYSAVER TECHNOLOGIES®

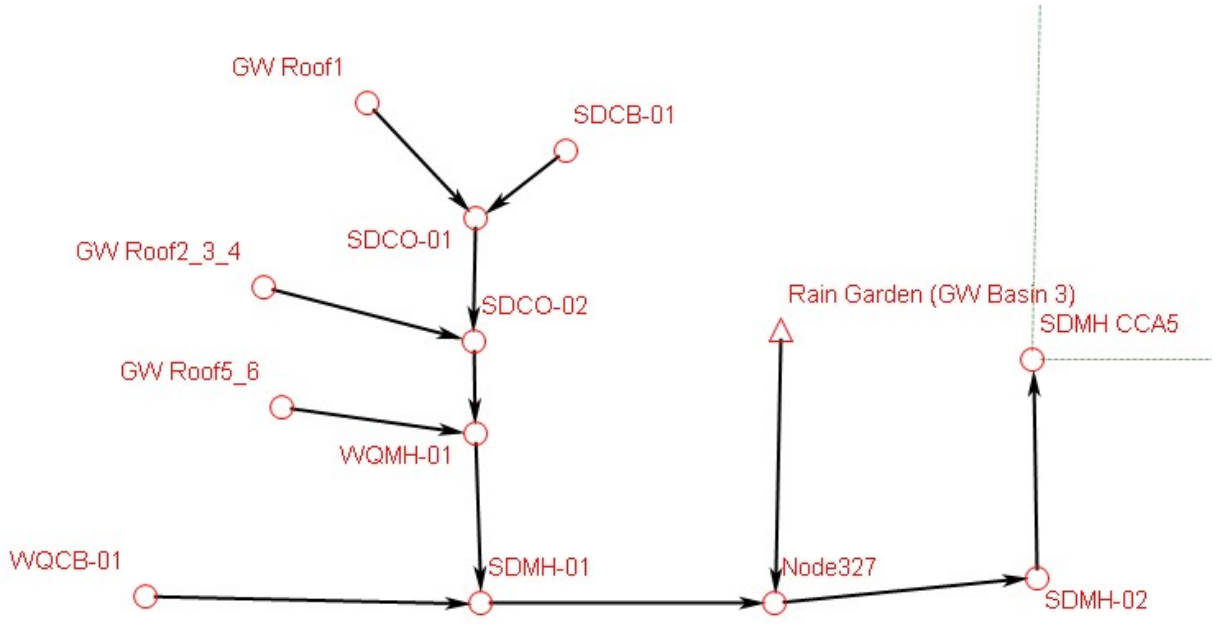
ADS

XPSWMM Results

Schematic Layout – Rain Garden:

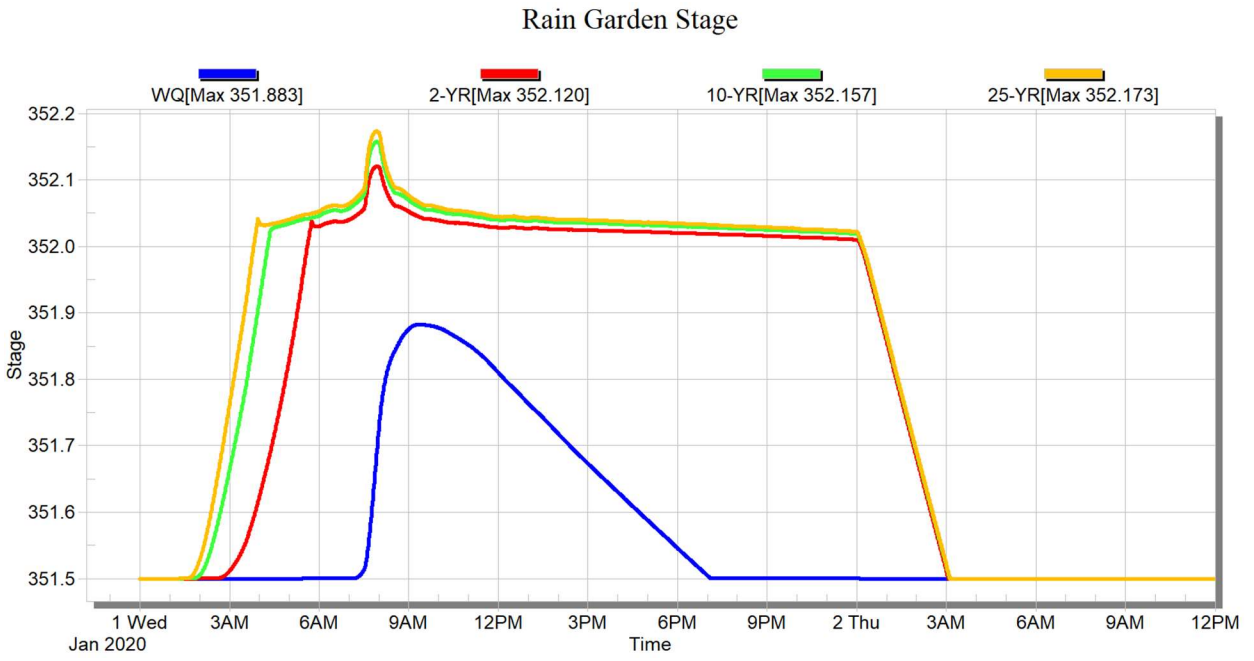


Schematic Layout – Whole Site:

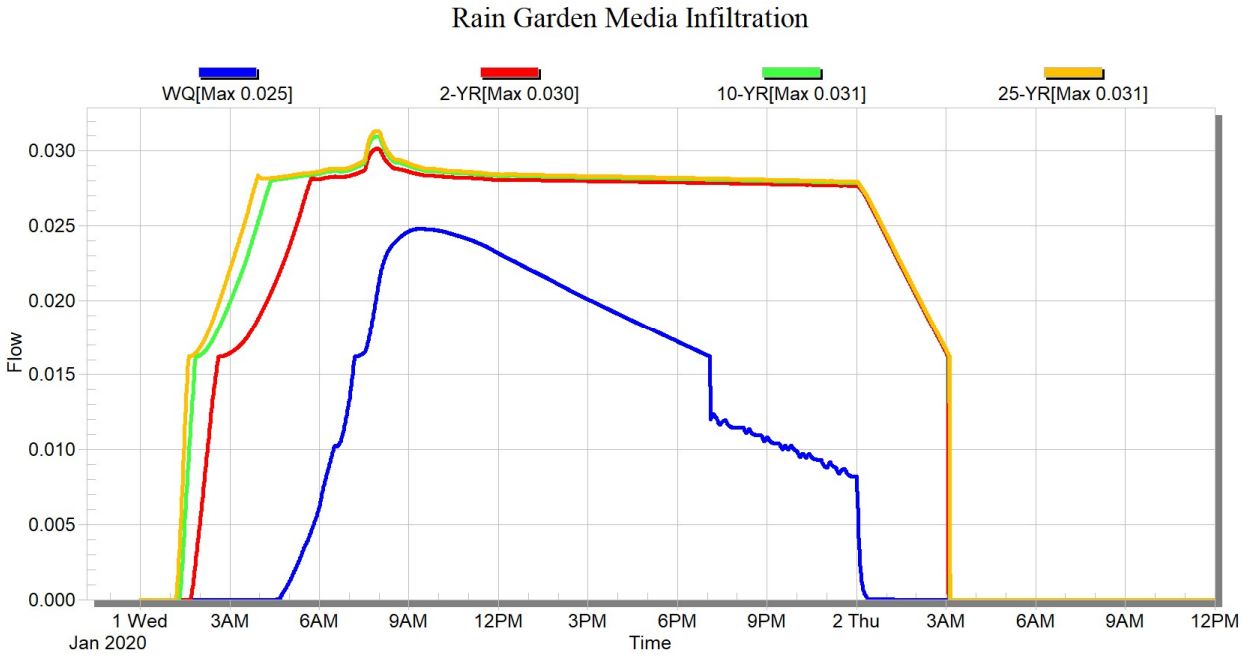


XPSWMM Results

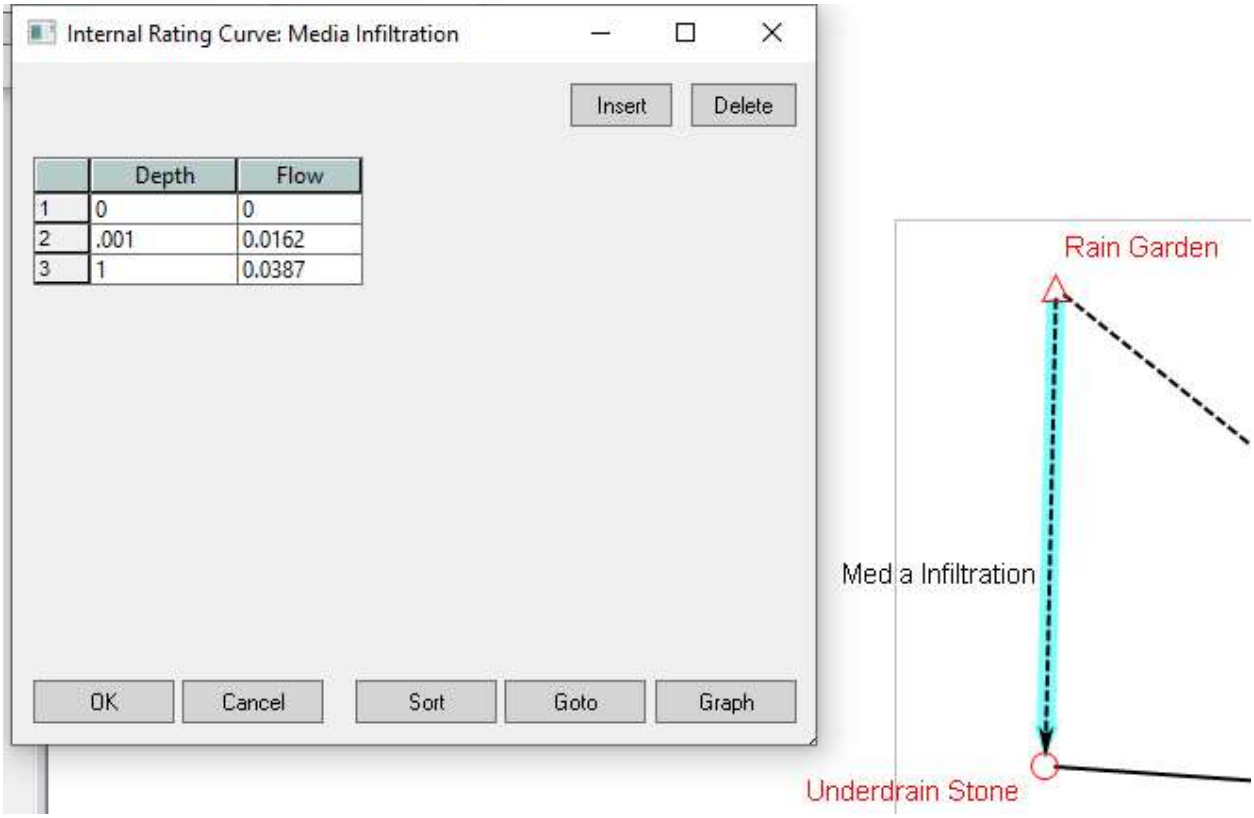
Rain Garden Results:



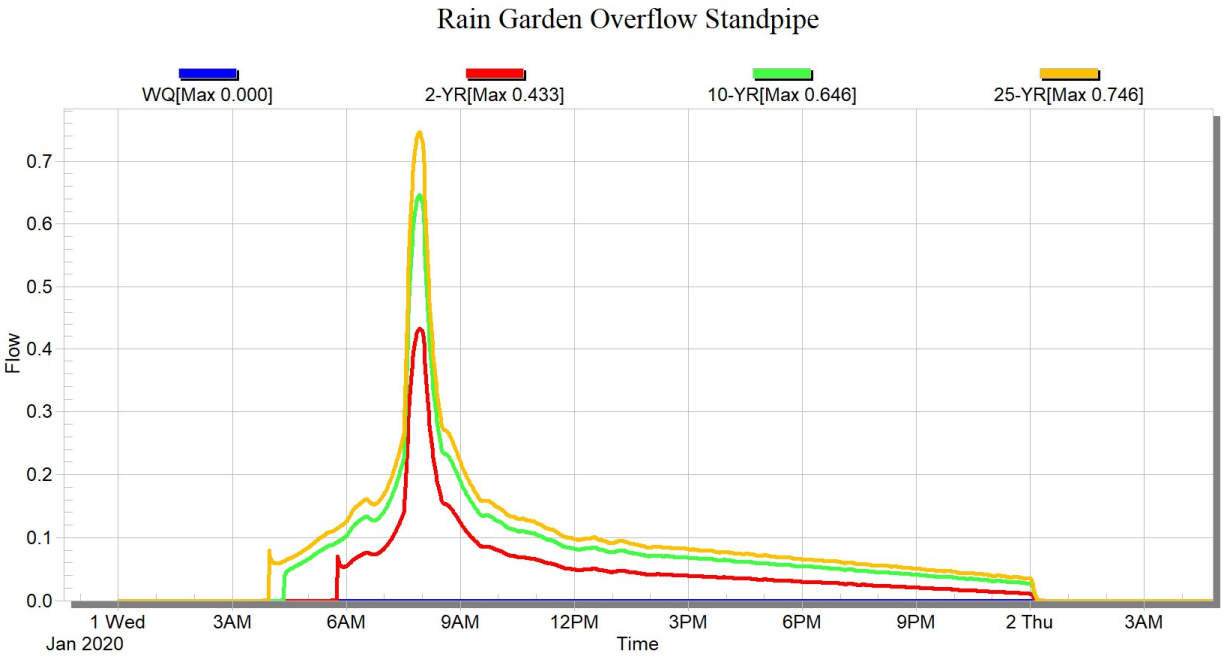
The below graph shows the rain garden media infiltration multi-link result. The system is designed to infiltrate at 2 in/hr across the bottom area (350 SF) to the top area (836 SF). The internal rating curve for the media infiltration data is also shown below.



XPSWMM Results



The below graph shows the flows out of the rain garden standpipe. The water quality storm event fully infiltrates through the media and does not stage up high enough to go into bypass.



Hydrologic Soil Group—Clackamas County Area, Oregon
(Goodwill Molalla)

Map Scale: 1:1,930 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clackamas County Area, Oregon
Survey Area Data: Version 18, Oct 27, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 19, 2015—Sep 13, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
17	Clackamas silt loam	C/D	7.2	69.4%
29	Dayton silt loam	D	2.5	24.2%
79B	Sawtell silt loam, 0 to 8 percent slopes	C	0.7	6.4%
Totals for Area of Interest			**10.3**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

6684

DRAINAGE REPORT
FOR

Cascade Center
Molalla, Oregon

Prepared For:
Ivanoff Investment Group, LLC
9500 SE Clackamas Road
Clackamas, Oregon 97015

September 23, 2020

MULTI/TECH
ENGINEERING SERVICES, INC.

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Salem OR 97302
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FAX: (503) 364-1260
EMAIL: mhendrick@mtengineering.net

Contents

PROJECT DESCRIPTION

The applicant has been approved by the City of Molalla to re-plat seven (7) lots into a 13-lot commercial subdivision per Notice of Planning Commission Decision DRW01-2019 (Cascade Center). The location of the site is 121 S. Hezzie Lane. The parcel of lands to be developed are Tax Lots 400, 600, 700, 800, and 900 of Clackamas County Assessor's map 5 2E 8C. A vicinity map and supporting maps are in Appendix A of this report.

Project Site

Because the development will occur in phases, this report focuses on the development of future lots 1 through 7 and the extension of Leroy Avenue. The development will consist of commercial buildings with paved parking lots, required landscaping, gravel surface pads for future buildings and the extension of the Leroy Avenue improvements on an 8.90-acre portion of the site. The proposed development will be connected to public water and public sewer. Stormwater detention and water quality will be designed per the City of Molalla Public Works Design Standards.

Existing Conditions

The 8.90-acre site is generally rectangular in shape. Surface vegetation consists of meadow type grasses. There is a small isolated identified wetland located on the property. It has been determined that it is a non-jurisdictional wetland from the US Army Corps of Engineers. An aerial image of the site can be seen above.

A topographical high point is located near the southerly portion of the site. Drainage from this high point flows northerly towards Highway 211. The topographic relief is approximately 11-feet with a high point elevation of approximately 360.5-feet. Because of the surrounding development, the parcel of land has been considered hydrologically isolated.

The majority of the abutting properties are single family residences with public improvements that include storm water conveyance systems. Appendix A contains maps of existing and proposed conditions.

Soils

The Soil Conservation Service Soil Survey of Clackamas County identifies the predominate soils on the site as a: Clackamas silt loam (map unit 17), Dayton silt loam (map unit 29) and Sawtell silt loam, 0 to 8 percent slopes (map unit 79B). All soils are in the hydrologic soil group C except the Sawtell soil. That soil is in in the hydrologic soil group C. Appendix B contains the NRCS soil survey for the site.

Developed Conditions

The proposed development will develop approximately 8.90-acres of the site with asphalt parking, commercial building structures and a gravel building pads that will create new impervious surfaces. Approximately 15 percent of the site will have landscaped areas per city code requirements. In addition, Leroy Avenue will be extended to the southerly terminus of the property. A copy of the site plan is shown in Appendix A of this report.

The site will ultimately drain to an existing 24-inch diameter conveyance system located within the south side of Highway 211. Connections points to this system will be constructed to serve the development. Detention will be provided via a detention pipes and storage galleries located within the site. The combined systems will have a capacity to detain approximately 13,270 cubic feet of water and will outlet into the existing 24-inch conveyance system.

STORMWATER ANALYSIS

The Rational Method, Q=CiA, was used for determining the required detention for the project. Stormwater conveyance and detention will be designed per the 2020 City of Molalla's Public Works Design Standards for Stormwater Management. According to the manual, the design storm for developed conditions with detention is the 2-year, 10-year and 25-year storm events. Runoff from the project is limited to the pre-developed flow rate for the respective storm events.

Runoff coefficients for pre-developed and post developed conditions were obtained from the ODOT Hydraulics Manual. A pre-developed runoff coefficient of 0.30 was used for Meadow, Pasture or Farm; Rolling slopes and a post developed runoff coefficient of 0.85 was used for City Business Areas; Rolling. A composite C value of 0.86 was calculated for the Leroy Avenue improvement.

The time of concentration was calculated to be approximately 27 minutes. The calculations with supporting data are in Appendix C. The rainfall intensities for the 2-year, 5-year and 25-year events are 0.80, 1.29 and 1.52 inches/hour, respectively. The tabulated City of Molalla 7 IDF Curve sheets are attached for reference in Appendix D. The calculated allowable pre-developed flow rates are 2.14 cfs, 3.44 cfs and 4.06 cfs for the 8.90-acre site.

CONTRIBUTING AREAS

The site was divided into three main basins. Table 1 below lists the sub-areas that will contribute stormwater to each independent system. The proposed storm systems were assumed to only accept storm water runoff from the development but were design for future development expansion. Note that the areas in Table 1 do not add up to 8.90-acres. A future truck ramp area of 0.04-acres will outlet into the sanitary sewer per City requirements.

Table 1

Basin	Sub-basin	Area (sf)	Area (Ac)
A-C	A1-A5	99,431	2.28
A-C	C1-C6	128,291	2.95
B	B1-B3	110,347	2.53
E	E1	48,122	1.10

STORMWATER MANAGEMENT

Design Elements

Stormwater management will be accomplished via flow and volume control as well as water quality treatment.

Flow and volume control will be accomplished by restricting developed flow rates to pre-developed rates using the City of Molalla's 2020 Stormwater Design & Construction Standards. The City standards require that the 2, 10 and 25-year storm events be restricted to pre-developed flow rates.

STORMWATER DETENTION

In the detention analysis of the site, the 8.90-acre developed area was divided into three basins. Site grading and conveyance pipes will direct stormwater runoff to sub-surface detention systems located within the site and Leroy Avenue. The detention system was sized for full development conditions. Appendix D contains the analysis and supporting data. Summary tables are located below with the pertinent data.

Basin A-C Combined

Storm Event	Allowable Release Rate (cfs)	Release Rate (cfs)	Required Detention (cu. ft.)	Provided Detention (cu. ft.)
2-year	1.26	1.24	3,740	7,400
10-year	2.02	1.98	5,960	7,400
25-year	2.38	2.34	6,910	7,400

Basin A-C Combined

Storm Event	Orifice	Diameter (inches)	Elevation (feet)	Water Surface Elevation (feet)
2-year	#1	6.5	346.40	347.65
10-year	#2	5.5	347.65	348.10
25-year	#2	5.5	348.10	348.50
	Overflow	Weir	349.00	

Basin B

Storm Event	Allowable Release Rate (cfs)	Release Rate (cfs)	Required Detention (cu. ft.)	Provided Detention (cu. ft.)
2-year	0.61	0.57	1,810	3,950
10-year	0.98	0.98	2,885	3,950
25-year	1.16	1.16	3,330	3,950

Basin B

Storm Event	Orifice	Diameter (inches)	Elevation (feet)	Water Surface Elevation (feet)
2-year	#1	4.5	347.86	349.00
10-year	#2	5.5	349.00	349.50
25-year	#2	5.5	349.00	349.90
	Overflow	Weir	350.00	

Basin E

Storm Event	Allowable Release Rate (cfs)	Release Rate (cfs)	Required Detention (cu. ft.)	Provided Detention (cu. ft.)
2-year	0.26	0.25	800	1,920
10-year	0.43	0.43	1,280	1,920
25-year	0.50	0.48	1,480	1,920

Basin E

Storm Event	Orifice	Diameter (inches)	Elevation (feet)	Water Surface Elevation (feet)
2-year	#1	3.0	348.14	349.23
10-year	#2	5.5	349.25	349.72
25-year	#2	5.5	349.25	349.94
	Overflow	Weir	350.75	

WATER QUALITY

Water quality (WQ) treatment for the development will be from rain gardens and planters. The WQ flow rate from the development was calculated using the City of Molalla's Design Standards and are located in Appendix E. The pollution reduction goal for this project is 70% removal of total suspended solids (TSS) for 80% of the stormwater generated from the Impervious Surface Area (ISA).

Table 2 below identifies the contributing ISA that flow into each treatment facility as well as the Water Quality Volume (WQV) and Water Quality Flow (WQF). A Basin Map has been provided in Appendix E as a visual reference. Table 2 also identifies the volume and flow capacity for each facility. It should be noted that a filtering rate of 2 inches/hour was used to check system capacity.

Table 2

Basin	ISA (sq-ft)	WQV (cu-ft)	WQF (cfs)	Media Area (sq-ft)	Capacity (cu-ft)	Capacity (cfs)
A1	7,700	231	0.016	520	260	0.024
A2	18,500	555	0.039	1,160	580	0.053
A3	5,600	168	0.012	416	208	0.019
A4	22,240	667	0.046	1,400	700	0.065
A5	25,270	758	0.053	1,960	980	0.091
B1	31,332	940	0.065	2,020	1,010	0.095
B2	28,255	848	0.059	2,818	1,409	0.131
B3	20,292	609	0.042	1,620	810	0.075
C1	27,725	832	0.058	2,012	1,006	0.093
C2	21,172	635	0.044	1,332	666	0.062
E	45,452	1,364	0.095			0.70

It should be noted that several future sub-basins were not analyzed for water quality. These areas are located where rock base pads are being placed for future buildings. It was assumed that water quality facilities will be designed and constructed as part of the City permit process for those structures. Detention requirements were met for the sub-basin areas within the development and the detention system was sized for flow-volume control to meet current standards.

Because of street section geometry requirements for Leroy Avenue, Basin E, a proprietary device will serve as the treatment mechanism for stormwater runoff. The device will be a CONTECH Engineered Solutions CDS® manhole. The model type is CDS2015-4-C and has the capacity to treat 0.7 cfs. The calculated WQF is approximately 0.1 cfs. A detail of the structure is in Appendix E.

Operation and Maintenance

Operation and maintenance of the on-site facilities will be the responsibility of the property owner. Checklists have been included in Appendix F. The items listed on the checklists are based on the recommended maintenance tasks from the 2016 Portland Stormwater Management Manual.

Operation and maintenance of the CDS water quality manhole in Leroy Avenue will be the responsibility of the City of Molalla. A checklist has been included in Appendix F. The items listed on the checklist are based on the recommended maintenance tasks from Contech Stormwater Solutions.

Conclusion

The proposed stormwater design provides detention that meets the City of Molalla requirements. The post-developed runoff flow rates will be control to pre-developed flow rates for the 2, 10 and 25-year storm events.

The proposed water quality treatment and detention strategy complies with all state and local guidelines, standards, and best management practices for the stormwater while ensuring the viability of the overall project. The propose facilities meet all the design criteria specified by the City of Molalla.

Contact

For any questions regarding the information presented in this Stormwater Management Plan, please contact Matthew Hendrick at Multi/Tech Engineering by phone at (503) 363-9227 or via e-mail at mhendrick@mtengineering.net.

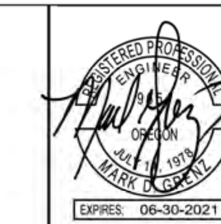
Appendix A


MOLALLA FOREST RD
MT VIEW LN
HOMESTEAD PL
HARVEST LN
MEADOW DR
MEADOWLARK PL
MEADOWLAWN PL
HARVEY LN
JUNE DR
KELSEY LOOP
JULIE LN
ERIC DR
MARY DR
JAMES DR
RACHEL LN
ANNE LN
COLUMBIA DR
SHENANDOAH DR
BOARDWALK AVE
ST JAMES PL
STOREY DR
ANDRIAN DR
ZIMMERMAN LN
RIVERS LN
KALUGIN CT
VILLAGE DR
TRINITY CT
WEDGEWOOD DR
CORRAL CT
STACY LN
ZEPHER WAY
LAKOTA LN
BURGHARDT DR
HOUSER CT
ESCORT ST
PROBE ST
TAURUS ST
EXPLORER AVE
BRONCO AVE
GLORY LN
CHURCH ST
THUNDERBIRD
TOLIVER CT
TOLIVER DR
BERWICK CT
REVILOT CT
MILLER ST
FRANCES ST
CHRISTOPH
SHIRLEY ST
HEINTZ ST
KENNEL AVE
Wastewater Treatment Plant
Sheets Field /BMX Park
Molalla Elementary School
Molalla Middle School
LYNN LN
LEROY AVE
KAE CT
CAROL CT
RIDINGS AVE
PRINCE CT
PEGASUS CT
INDUSTRIAL WAY
HWY 211
HWY 211
CROMPTONS LN
COMMERCIAL PKWY
HEZZIE LN
WEST LN
HOYT ST
MAIN ST
Site
DIXON AVE
Long Park
ROBBINS AVE
ROSS ST
City Hall
CENTER AVE
GRANGE AVE
THELANDER LN
LOWE RD
ONA WAY
SHAVER AVE
HART AVE
METZLER AVE
ENGLE AVE
SWIEGLE AVE
MAIN ST
2ND ST
3RD ST
4TH ST
4TH ST
5TH ST
Fox Park Library
BERKLEY AVE
LOLA AVE
ECKERD AVE
4TH ST
Heckard
SECTION ST
Historic Houses
TAYLOR CT
MAY ST
HOOD ST
5TH ST
7TH ST
MOLALLA FOR
207

Drawing is NOT to scale

CASCADE CENTER
COMMERCIAL DEVELOPMENT
MOLALLA, OREGON

MULTI/TECH
ENGINEERING SERVICES, INC.
1155 13th ST. S.E. SALEM, OR. 97302
PH. (503) 363 - 9227 FAX (503) 364-1260
www.mtengineering.net office@mtengineering.net



PROJECT INFORMATION

PROPERTY INFORMATION

Address: 121 S Hezzie Lane, Molalla, OR
Tax Maps: 52E08C00800, 52E08C00801, 52E08C00900, 52E08C00700, 52E08C00400
Development Site Area: 19 Acres
Current Zone: General Commercial
Location: South Side of State Highway 211 Between N Hezzie Lane and Ridings Avenue.

APPLICANT/OWNER

I & E CONSTRUCTION
9550 SE Clackamas Road
Clackamas, OR. 97015
503–655–7933
CONTACT: Karl Ivanov

PROJECT SURVEYOR

MULTI/TECH ENGINEERING SERVICES INC.
1151 13th Street S.E.
Salem, OR. 97302
503–363–9227
CONTACT: Robert Hamman, P.L.S.

PROJECT CIVIL ENGINEER

MARK D. GRENZ, P.E.
1151 13th Street S.E.
Salem, OR. 97302
503–363–9227

PROJECT TRAFFIC ENGINEER

KITTELSON & ASSOCIATES, INC
851 SW 6th Avenue, Suite 600
Portland, OR. 97204
503–228–5230
CONTACT: Chris Brehmer P.E.

PROJECT ENVIRONMENTAL CONSULTANT

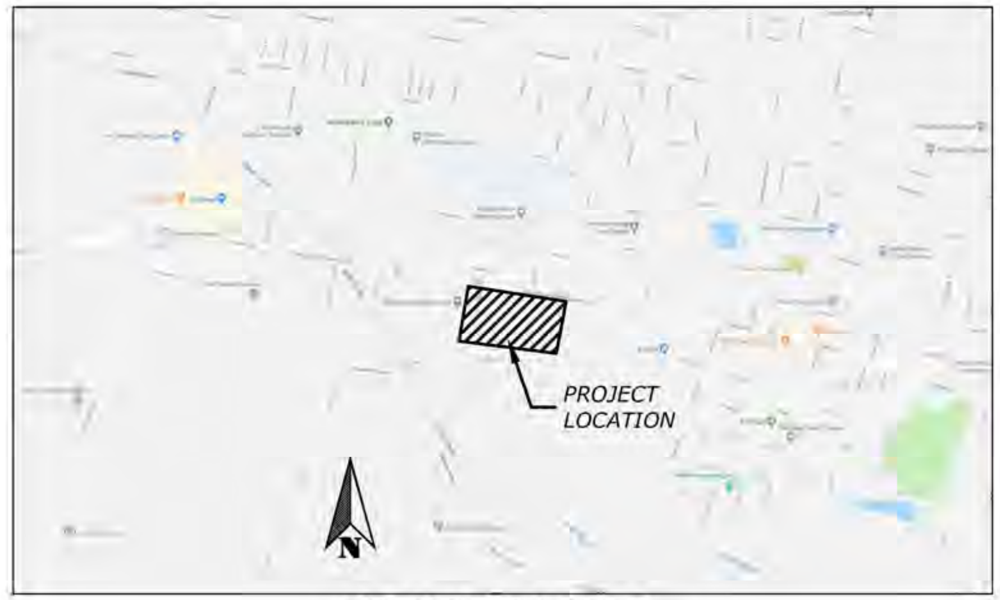
REDMOND GEOTECHNICAL SERVICES, LLC
PO Box 20547
Portland, OR. 97294
503–285–0598
CONTACT: Daniel M. Redmond P.E., G.E.

BENCHMARK

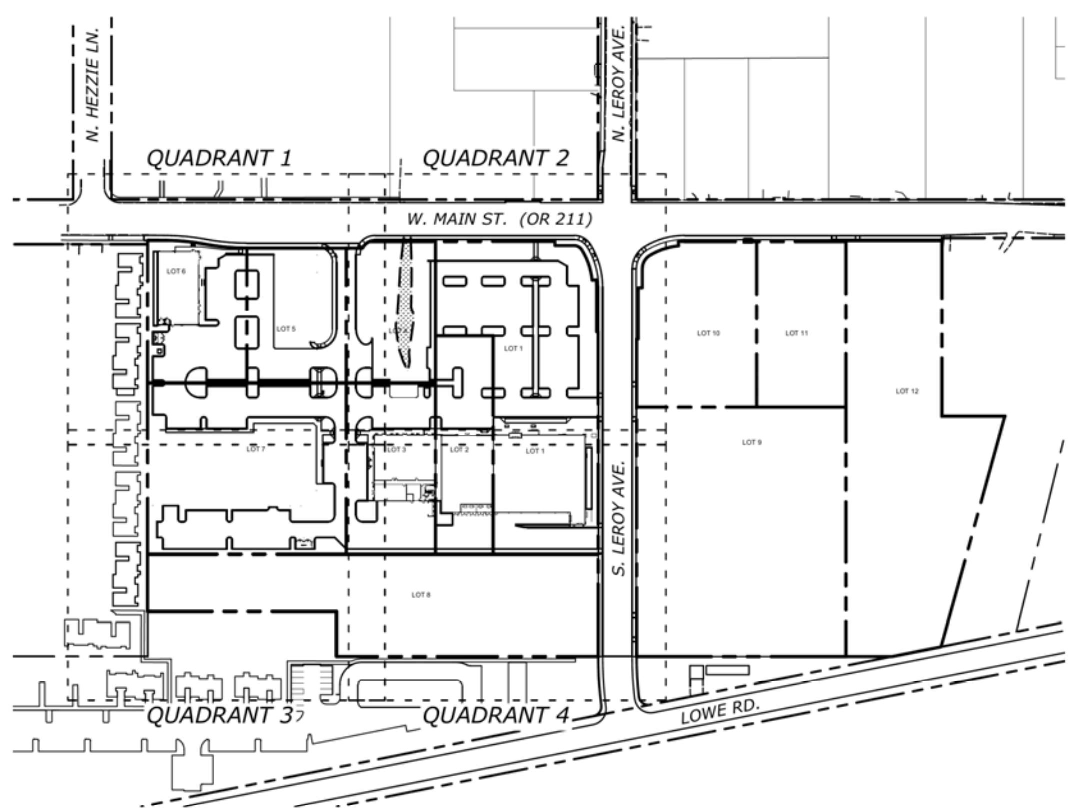
CLACKAMAS COUNTY BENCHMARK.
3–1/4" BRONZE DISK LOCATED AT THE INTERSECTION OF STATE HIGHWAY 211 AND ONA WAY. BENCHMARK ELEVATION = 340.16 NAVD 88

UTILITIES / SERVICES

WATER: CITY OF MOLALLA 503–829–6855
SEWER: CITY OF MOLALLA 503–829–6855
POWER: PORTLAND GENERAL ELECTRIC (PGE) 503–323–6700
GAS: N.W. NATURAL GAS 503–422–4012 ext. 2427
PHONE: MOLALLA COMMUNICATIONS 503–829–1100
CABLE: WAVE BROADBAND 503–899–3267



VICINITY MAP



SITE MAP

SHEET INDEX

CASCADE CENTER COMMERCIAL
CITY OF MOLALLA
COMMERCIAL DEVELOPMENT
COVER SHEET

REV.	DATE	BY

PROJECT NUMBER
6684

DATE:	06/15/2020
SCALE:	AS SHOWN
DRAWN BY:	D.G.G.
DESIGNED BY:	M.D.G.
CHECKED BY:	J.C.B.

FILE: CCCD01C00.dwg

SHEET NUMBER
C0.0

CITY OF MOLALLA
DRW-01-2019

CASCADE CENTER

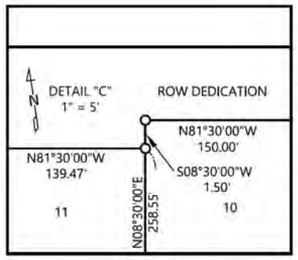
A REPLAT OF OF PARCEL 1, PARTITION PLAT 2017-070
IN THE SW 1/4, SEC. 8, T. 5 S., R. 2 E., W.M.
CITY OF MOLALLA, CLACKAMAS COUNTY, OREGON

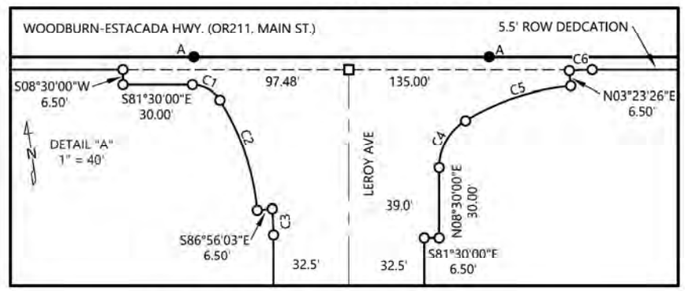
BOOK _____ PAGE _____
PLAT NUMBER _____

BY:
MULTI/TECH ENGINEERING SERVICES, INC.
1155 13TH ST. S.E. SALEM, OREGON 97302
503-363-9227

NW CORNER DLC 43
FOUND 3 1/4" BRONZE DISK
IN MONUMENT BOX
PER U.S.B.T. ENTRY 2002–145

CLACKAMAS COUNTY SURVEYOR
2002
T5S R2E
DLC 40
DLC 41 | DLC 43
UNLAWFUL TO DISTURB





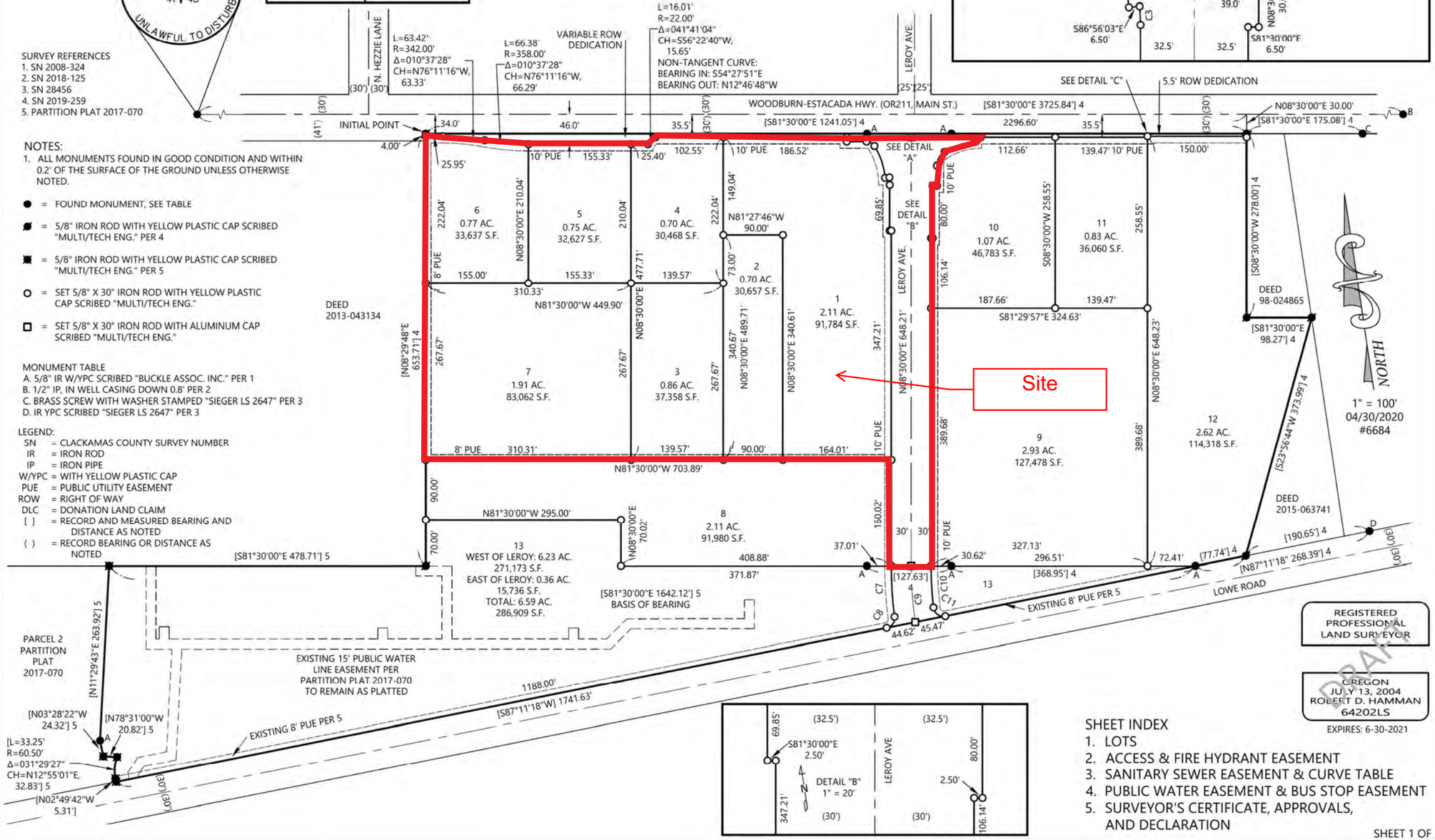
SURVEY REFERENCES
1. SN 2008-324
2. SN 2018-125
3. SN 28456
4. SN 2019-259
5. PARTITION PLAT 2017-070

NOTES:
1. ALL MONUMENTS FOUND IN GOOD CONDITION AND WITHIN 0.2' OF THE SURFACE OF THE GROUND UNLESS OTHERWISE NOTED.

● = FOUND MONUMENT, SEE TABLE
◪ = 5/8" IRON ROD WITH YELLOW PLASTIC CAP SCRIBED "MULTI/TECH ENG." PER 4
■ = 5/8" IRON ROD WITH YELLOW PLASTIC CAP SCRIBED "MULTI/TECH ENG." PER 5
○ = SET 5/8" X 30" IRON ROD WITH YELLOW PLASTIC CAP SCRIBED "MULTI/TECH ENG."
□ = SET 5/8" X 30" IRON ROD WITH ALUMINUM CAP SCRIBED "MULTI/TECH ENG."

MONUMENT TABLE
A. 5/8" IR W/YPC SCRIBED "BUCKLE ASSOC. INC." PER 1
B. 1/2" IP, IN WELL CASING DOWN 0.8' PER 2
C. BRASS SCREW WITH WASHER STAMPED "SIEGER LS 2647" PER 3
D. IR YPC SCRIBED "SIEGER LS 2647" PER 3

LEGEND:
SN = CLACKAMAS COUNTY SURVEY NUMBER
IR = IRON ROD
IP = IRON PIPE
W/YPC = WITH YELLOW PLASTIC CAP
PUE = PUBLIC UTILITY EASEMENT
ROW = RIGHT OF WAY
DLC = DONATION LAND CLAIM
[ ] = RECORD AND MEASURED BEARING AND DISTANCE AS NOTED
( ) = RECORD BEARING OR DISTANCE AS NOTED



REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JULY 13, 2004
ROBERT D. HAMMAN
64202LS
EXPIRES: 6-30-2021

SHEET INDEX
1. LOTS
2. ACCESS & FIRE HYDRANT EASEMENT
3. SANITARY SEWER EASEMENT & CURVE TABLE
4. PUBLIC WATER EASEMENT & BUS STOP EASEMENT
5. SURVEYOR'S CERTIFICATE, APPROVALS, AND DECLARATION

SHEET 1 OF 5

MULTI/TECH
ENGINEERING SERVICES, INC.

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 14, 1978
MARK D. GRENZ
EXPIRES: 06-30-2021

CASCADE CENTER COMMERCIAL
CITY OF MOLALLA

EXISTING CONDITIONS PLAN

REV.	DATE	BY

PROJECT NUMBER
6684

DATE:	06/15/2020
SCALE:	AS SHOWN
DRAWN BY:	D.G.G.
DESIGNED BY:	M.D.G.
CHECKED BY:	J.C.B.
FILE: DmEx.dwg	

SHEET NUMBER

Appendix B

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Clackamas County Area, Oregon

Cascade Center Commercial Development

June 4, 2020

Hydrologic Soil Group—Clackamas County Area, Oregon
(Cascade Center Commercial Development)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clackamas County Area, Oregon
Survey Area Data: Version 15, Sep 10, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 19, 2015—Sep 13, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
17	Clackamas silt loam	C/D	9.0	74.1%
29	Dayton silt loam	D	2.3	19.4%
79B	Sawtell silt loam, 0 to 8 percent slopes	C	0.8	6.6%
Totals for Area of Interest			**12.1**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

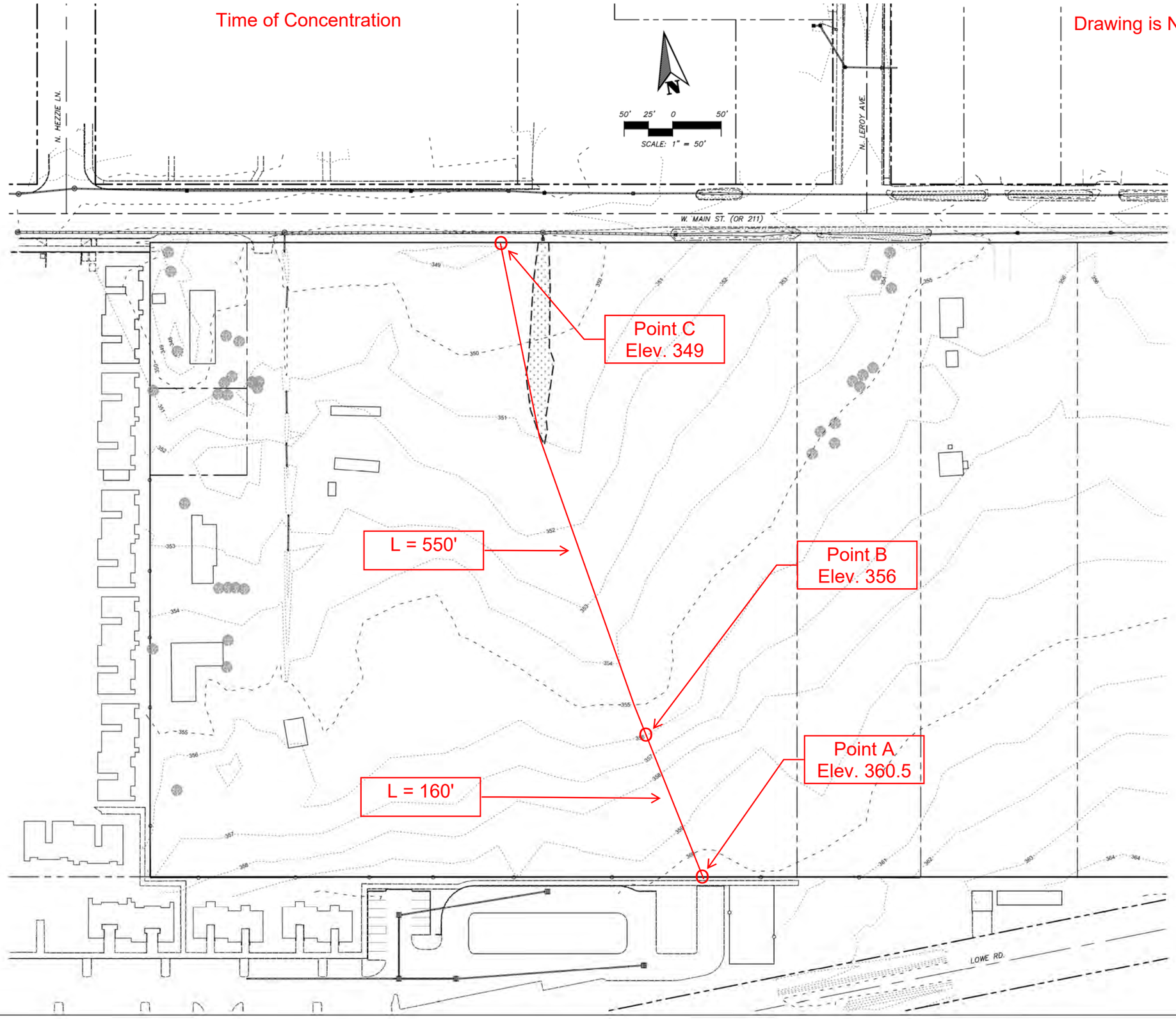
Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Appendix C

Time of Concentration

Drawing is NOT to scale



MULTI/TECH
ENGINEERING SERVICES, INC.

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 14, 1978
MARK D. GRENZ
EXPIRES: 06-30-2021

CASCADE CENTER COMMERCIAL
CITY OF MOLALLA

EXISTING CONDITIONS PLAN

REV.	DATE	BY

PROJECT NUMBER
6684

DATE:	06/15/2020
SCALE:	AS SHOWN
DRAWN BY:	D.G.G.
DESIGNED BY:	M.D.G.
CHECKED BY:	J.C.B.
FILE: DmEx.dwg	

SHEET NUMBER

CITY OF MOLALLA
DRW-01-2019

Worksheet 3: Time of Concentration (T_c) or travel time (T_t)

Project	By	Date
Cascade Center Commercial	M. Hendrick	6/2020
Location	**Checked**	**Date**
Molalla, Oregon		

Check one: ☑ Present ☐ Developed

Check one: ☑ T_c ☑ T_t through subarea

Notes: Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to Tc only)

	Segment ID	A-B		
1.	Surface description (Table 4D-4)	Undeveloped: Meadow, Pasture or Farm		
2.	Manning's roughness coefficient, n (Table 4D-4)	0.15		
3.	Flow length, L (total L † 300 ft) ft	160		
4.	Two-year 24-hour rainfall, P_2 in	2.5		
5.	Land slope, s ft/ft	0.0281		
6.	$T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$ Compute T_t hr	0.235	+	= 0.235

Shallow concentrated flow

	Segment ID	B-C		
7.	Surface description (paved or unpaved)	Minimum Tillage		
8.	Flow length, L ft	550		
9.	Watercourse slope, s ft/ft	0.0127		
10.	Average velocity, V (figure 3-1) ft/s	0.7		
11.	$T_t = \frac{L}{3600\ V}$ Compute T_t hr	0.218	+	= 0.218

Channel flow

	Segment ID			
12.	Cross sectional flow area, a ft^2			
13.	Wetted perimeter, p_w ft			
14.	Hydraulic radius, $r = \frac{a}{p_w}$ Compute r ft			
15	Channel slope, s ft/ft			
16.	Manning's roughness coefficient, n			
17.	$V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$ Compute V ft/s			
18.	Flow length, L ft			
19.	$T_t = \frac{L}{3600\ V}$ Compute T_t hr		+	=

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) Hr 0.45

0.45 Hrs = 27 Minutes

Manning's Roughness Coefficients for Overland Sheet Flow	
Surface Types:	**n**
Impervious Areas	0.014
Gravel Pavement	0.02
Developed: Landscape Areas (Except Lawns)	0.08
Undeveloped: Meadow, Pasture, or Farm	0.15
Developed: Lawns	0.24
Pre-developed: Mixed	0.30
Pre-developed: Woodland and Forest	0.40
Development Types:	**n**
Commercial Development	0.015
Industrial Development, Heavy	0.04
Industrial Development, Light	0.05
Dense Residential (over 6 units/acre)	0.08
Normal Residential (3 to 6 units/acre)	0.20
Light Residential (1 to 3 units/acre)	0.30
Parks	0.40

Table 4D-4. Manning's Roughness Coefficients for Overland Sheet Flow

Table 3.2. RAINFALL DISTRIBUTION

Recurrence Interval (years)	Total Precipitation Depth (inches)
2	2.50
5	3.10
10	3.45
25	3.90
50	4.20
100	4.50

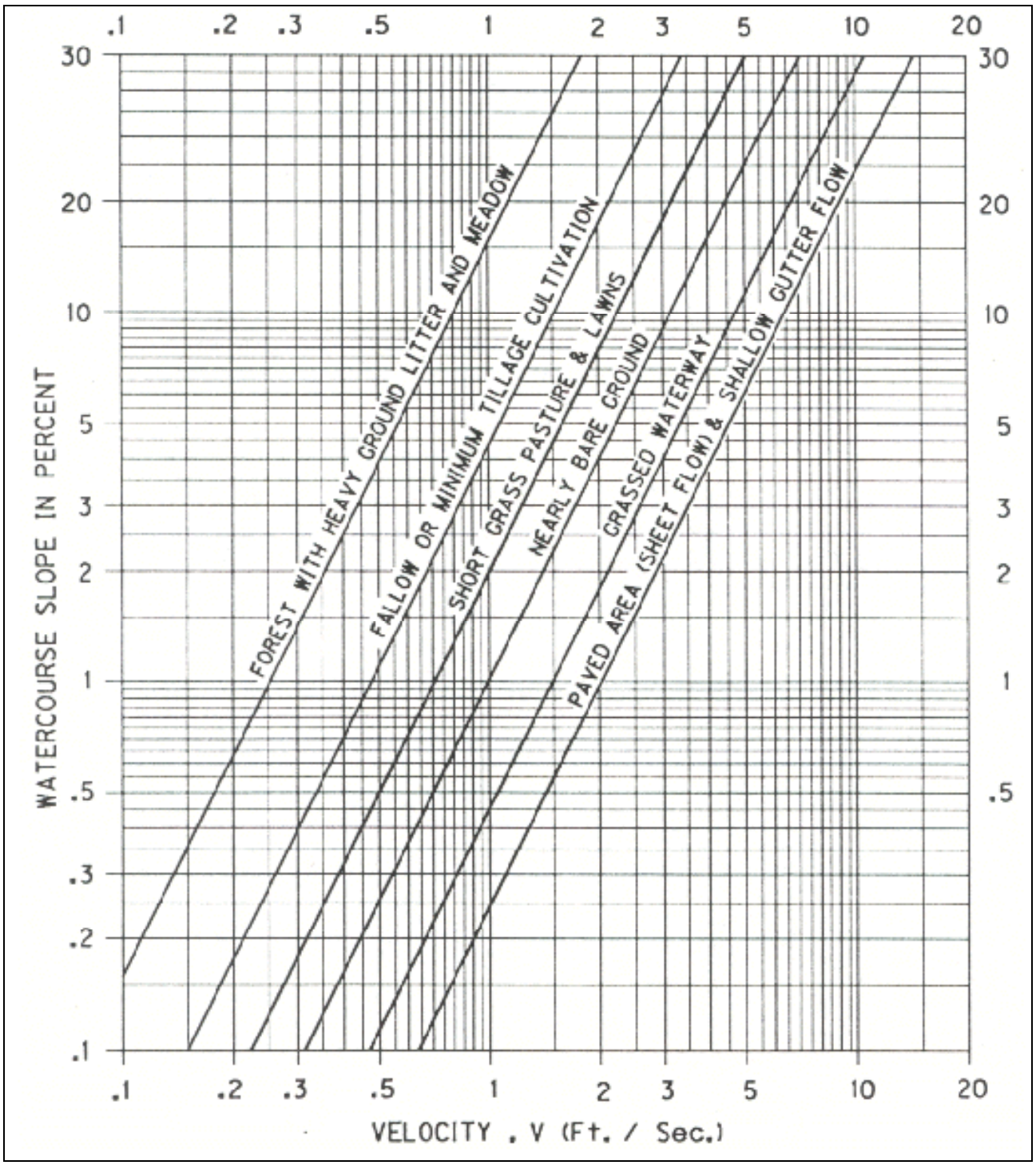


Figure 4D-2. Average Velocity of Shallow Concentrated Flow

Appendix D

Table 1 Runoff Coefficients for the Rational Method

	FLAT	ROLLING	HILLY
Pavement & Roofs	**0.90**	**0.90**	**0.90**
Earth Shoulders	0.50	0.50	0.50
Drives & Walks	0.75	0.80	**0.85**
Gravel Pavement	**0.85**	**0.85**	**0.85**
City Business Areas	0.80	**0.85**	**0.85**
Apartment Dwelling Areas	0.50	0.60	0.70
Light Residential: 1 to 3 units/acre	0.35	0.40	0.45
Normal Residential: 3 to 6 units/acre	0.50	0.55	0.60
Dense Residential: 6 to 15 units/acre	0.70	0.75	0.80
Lawns	0.17	0.22	0.35
Grass Shoulders	0.25	0.25	0.25
Side Slopes, Earth	0.60	0.60	0.60
Side Slopes, Turf	0.30	0.30	0.30
Median Areas, Turf	0.25	0.30	0.30
Cultivated Land, Clay & Loam	0.50	0.55	0.60
Cultivated Land, Sand & Gravel	0.25	0.30	0.35
Industrial Areas, Light	0.50	0.70	0.80
Industrial Areas, Heavy	0.60	0.80	**0.90**
Parks & Cemeteries	0.10	0.15	0.25
Playgrounds	0.20	0.25	0.30
Woodland & Forests	0.10	0.15	0.20
Meadows & Pasture Land	0.25	0.30	0.35
Unimproved Areas	0.10	0.20	0.30

Note:

- ***Impervious surfaces in bold***
- *Rolling = ground slope between 2 percent to 10 percent*
- *Hilly = ground slope greater than 10 percent*

DETERMINATION OF REQUIRED DETENTION STORAGE

SITE - **Entire Site** ***PRESENT PROPOSED DEVELOPMENT***

C =	0.85	(DEVELOPED)	Rainfall Inten.	0.80	(INCHES/HOUR, 2YR)
A =	8.90	(TOTAL SITE)	C =	0.30	(UNDEVELOPED)

1	2	3	4	5	6	7	8
TIME	C x A	RAIN INTEN.	INFLOW RATE	INFLOW VOL	OUTFLOW RATE	OUTFLOW VOL	REQ. STORAGE
(MIN)	(ACRES)	(IN/HR)	(CFS)	(CU FT)	(CFS)	(CU FT)	(CU FT)
5	7.57	1.900	14.37	4312.05	2.14	640.80	3671.25
10	7.57	1.300	9.83	5900.70	2.14	1281.60	4619.10
15	7.57	1.100	8.32	7489.35	2.14	1922.40	5566.95
20	7.57	0.900	6.81	8170.20	2.14	2563.20	5607.00
30	7.57	0.750	5.67	10212.75	2.14	3844.80	6367.95
40	7.57	0.600	4.54	10893.60	2.14	5126.40	5767.20
50	7.57	0.550	4.16	12482.25	2.14	6408.00	6074.25
70	7.57	0.450	3.40	14297.85	2.14	8971.20	5326.65
100	7.57	0.400	3.03	18156.00	2.14	12816.00	5340.00

DETERMINATION OF REQUIRED DETENTION STORAGE

SITE - **Entire Site** ***PRESENT PROPOSED DEVELOPMENT***

C =	0.85	(DEVELOPED)	Rainfall Inten.	1.29	(INCHES/HOUR, 10YR)
A =	8.90	(TOTAL SITE)	C =	0.30	(UNDEVELOPED)

1	2	3	4	5	6	7	8
TIME	C x A	RAIN INTEN.	INFLOW RATE	INFLOW VOL	OUTFLOW RATE	OUTFLOW VOL	REQ. STORAGE
(MIN)	(ACRES)	(IN/HR)	(CFS)	(CU FT)	(CFS)	(CU FT)	(CU FT)
5	7.57	3.000	22.70	6808.50	3.44	1033.29	5775.21
10	7.57	2.200	16.64	9985.80	3.44	2066.58	7919.22
15	7.57	1.800	13.62	12255.30	3.44	3099.87	9155.43
20	7.57	1.500	11.35	13617.00	3.44	4133.16	9483.84
30	7.57	1.200	9.08	16340.40	3.44	6199.74	10140.66
40	7.57	1.000	7.57	18156.00	3.44	8266.32	9889.68
50	7.57	0.850	6.43	19290.75	3.44	10332.90	8957.85
70	7.57	0.700	5.30	22241.10	3.44	14466.06	7775.04
100	7.57	0.550	4.16	24964.50	3.44	20665.80	4298.70

DETERMINATION OF REQUIRED DETENTION STORAGE

SITE - **Entire Site** ***PRESENT PROPOSED DEVELOPMENT***

C =	0.85	(DEVELOPED)	Rainfall Inten.	1.52	(INCHES/HOUR,25YR)
A =	8.90	(TOTAL SITE)	C =	0.30	(UNDEVELOPED)

1	2	3	4	5	6	7	8
TIME	C x A	RAIN INTEN.	INFLOW RATE	INFLOW VOL	OUTFLOW RATE	OUTFLOW VOL	REQ. STORAGE
(MIN)	(ACRES)	(IN/HR)	(CFS)	(CU FT)	(CFS)	(CU FT)	(CU FT)
5	7.57	3.400	25.72	7716.30	4.06	1217.52	6498.78
10	7.57	2.500	18.91	11347.50	4.06	2435.04	8912.46
15	7.57	2.100	15.89	14297.85	4.06	3652.56	10645.29
20	7.57	1.800	13.62	16340.40	4.06	4870.08	11470.32
30	7.57	1.400	10.59	19063.80	4.06	7305.12	11758.68
40	7.57	1.150	8.70	20879.40	4.06	9740.16	11139.24
50	7.57	1.000	7.57	22695.00	4.06	12175.20	10519.80
70	7.57	0.820	6.20	26053.86	4.06	17045.28	9008.58
100	7.57	0.670	5.07	30411.30	4.06	24350.40	6060.90

DETERMINATION OF REQUIRED DETENTION STORAGE

SITE - **Basin A & C** ***PRESENT PROPOSED DEVELOPMENT***

C = 0.85 (DEVELOPED) Rainfall Inten. 0.80 (INCHES/HOUR, 2YR)

A = 5.23 (TOTAL SITE) C = 0.30 (UNDEVELOPED)

1 TIME (MIN)	2 C x A (ACRES)	3 RAIN INTEN. (IN/HR)	4 INFLOW RATE (CFS)	5 INFLOW VOL (CU FT)	6 OUTFLOW RATE (CFS)	7 OUTFLOW VOL (CU FT)	8 REQ. STORAGE (CU FT)
5	4.45	1.900	8.45	2533.94	1.26	376.56	2157.38
10	4.45	1.300	5.78	3467.49	1.26	753.12	2714.37
15	4.45	1.100	4.89	4401.05	1.26	1129.68	3271.37
20	4.45	0.900	4.00	4801.14	1.26	1506.24	3294.90
30	4.45	0.750	3.33	6001.43	1.26	2259.36	3742.07
40	4.45	0.600	2.67	6401.52	1.26	3012.48	3389.04
50	4.45	0.550	2.45	7335.08	1.26	3765.60	3569.48
70	4.45	0.450	2.00	8402.00	1.26	5271.84	3130.16
100	4.45	0.400	1.78	10669.20	1.26	7531.20	3138.00

WS = 347.65 WS - INV = 1.25 (HEAD)

INV = 346.40

Allowable Qa 1.26

Head 1.25

Prop. dia Do 6.50

DESIGN DATA:

Allow. Qa	1.26	cfs
basin Vol	7,400	cu ft
orifice dia	6.50	in
head	1.35	ft

Given Qa & H, Do = 6.53

Given Do & H, Qd = 1.24

DETERMINATION OF REQUIRED DETENTION STORAGE

SITE - **Basin A & C** ***PRESENT PROPOSED DEVELOPMENT***

C = 0.85 (DEVELOPED) Rainfall Inten. 1.29 (INCHES/HOUR, 10YR)

A = 5.23 (TOTAL SITE) C = 0.30 (UNDEVELOPED)

1 TIME (MIN)	2 C x A (ACRES)	3 RAIN INTEN. (IN/HR)	4 INFLOW RATE (CFS)	5 INFLOW VOL (CU FT)	6 OUTFLOW RATE (CFS)	7 OUTFLOW VOL (CU FT)	8 REQ. STORAGE (CU FT)
5	4.45	3.000	13.34	4000.95	2.02	607.20	3393.75
10	4.45	2.200	9.78	5868.06	2.02	1214.41	4653.65
15	4.45	1.800	8.00	7201.71	2.02	1821.61	5380.10
20	4.45	1.500	6.67	8001.90	2.02	2428.81	5573.09
30	4.45	1.200	5.33	9602.28	2.02	3643.22	5959.06
40	4.45	1.000	4.45	10669.20	2.02	4857.62	5811.58
50	4.45	0.850	3.78	11336.03	2.02	6072.03	5264.00
70	4.45	0.700	3.11	13069.77	2.02	8500.84	4568.93
100	4.45	0.550	2.45	14670.15	2.02	12144.06	2526.09

DETERMINATION OF REQUIRED DETENTION STORAGE

SITE - **Basin A & C** ***PRESENT PROPOSED DEVELOPMENT***

C = 0.85 (DEVELOPED) Rainfall Inten. 1.52 (INCHES/HOUR, 25YR)

A = 5.23 (TOTAL SITE) C = 0.30 (UNDEVELOPED)

1 TIME (MIN)	2 C x A (ACRES)	3 RAIN INTEN. (IN/HR)	4 INFLOW RATE (CFS)	5 INFLOW VOL (CU FT)	6 OUTFLOW RATE (CFS)	7 OUTFLOW VOL (CU FT)	8 REQ. STORAGE (CU FT)
5	4.45	3.400	15.11	4534.41	2.38	715.46	3818.95
10	4.45	2.500	11.11	6668.25	2.38	1430.93	5237.32
15	4.45	2.100	9.34	8402.00	2.38	2146.39	6255.60
20	4.45	1.800	8.00	9602.28	2.38	2861.86	6740.42
30	4.45	1.400	6.22	11202.66	2.38	4292.78	6909.88
40	4.45	1.150	5.11	12269.58	2.38	5723.71	6545.87
50	4.45	1.000	4.45	13336.50	2.38	7154.64	6181.86
70	4.45	0.820	3.65	15310.30	2.38	10016.50	5293.81
100	4.45	0.670	2.98	17870.91	2.38	14309.28	3561.63

Basin A-C

2 Year Event

Orifice #1

WS =	347.65	WS - INV = (H)	1.25
INV =	346.40		
Allowable Qa		1.26	
Head		1.25	
Prop. dia Do		6.50	
Given Qa & H,	Do =		6.55
Given Do & H,	Qd =		1.24
		Qd Total =	1.24

10 Year Event

	Orifice #1			Orifice #2			
WS =	348.10	WS - INV = (H)	1.70	WS =	348.10	WS - INV = (H)	0.45
INV =	346.40			INV =	347.65		
Allowable Qa		1.45		Allowable Qa		0.57	
Head		1.70		Head		0.45	
Prop. dia Do		6.50		Prop. dia Do		5.50	
Given Qa & H,	Do =		6.50	Given Qa & H,	Do =		5.68
Given Do & H,	Qd =		1.45	Given Do & H,	Qd =		0.53
		Qd Total =	1.98				

25 Year Event

	Orifice #1			Orifice #2			
WS =	348.50	WS - INV = (H)	2.10	WS =	348.50	WS - INV = (H)	0.85
INV =	346.40			INV =	347.65		
Allowable Qa		1.61		Allowable Qa		0.40	
Head		2.10		Head		0.85	
Prop. dia Do		6.50		Prop. dia Do		5.50	
Given Qa & H,	Do =		6.50	Given Qa & H,	Do =		4.06
Given Do & H,	Qd =		1.61	Given Do & H,	Qd =		0.73
		Qd Total =	2.34				

DETERMINATION OF REQUIRED DETENTION STORAGE

SITE - **Basin B** ***PRESENT PROPOSED DEVELOPMENT***

C =	0.85	(DEVELOPED)	Rainfall Inten.	0.80	(INCHES/HOUR, 2YR)
A =	2.53	(TOTAL SITE)	C =	0.30	(UNDEVELOPED)

1 TIME (MIN)	2 C x A (ACRES)	3 RAIN INTEN. (IN/HR)	4 INFLOW RATE (CFS)	5 INFLOW VOL (CU FT)	6 OUTFLOW RATE (CFS)	7 OUTFLOW VOL (CU FT)	8 REQ. STORAGE (CU FT)
5	2.15	1.900	4.09	1225.79	0.61	182.16	1043.63
10	2.15	1.300	2.80	1677.39	0.61	364.32	1313.07
15	2.15	1.100	2.37	2129.00	0.61	546.48	1582.52
20	2.15	0.900	1.94	2322.54	0.61	728.64	1593.90
30	2.15	0.750	1.61	2903.18	0.61	1092.96	1810.22
40	2.15	0.600	1.29	3096.72	0.61	1457.28	1639.44
50	2.15	0.550	1.18	3548.33	0.61	1821.60	1726.73
70	2.15	0.450	0.97	4064.45	0.61	2550.24	1514.21
100	2.15	0.400	0.86	5161.20	0.61	3643.20	1518.00

WS =	349.00	WS - INV =	1.14	(HEAD)
INV =	347.86			

Allowable Qa	0.61
Head	1.14
Prop. dia Do	4.50

DESIGN DATA:

Allow. Qa	0.61	cfs
basin Vol	3,950	cu ft
orifice dia	4.50	in
head	1.14	ft

Given Qa & H,	Do =	4.65
Given Do & H,	Qd =	0.57

DETERMINATION OF REQUIRED DETENTION STORAGE

SITE -	**Basin B**		***PRESENT PROPOSED DEVELOPMENT***		
C =	0.85	(DEVELOPED)	Rainfall Inten.	1.29	(INCHES/HOUR, 10YR)
A =	2.53	(TOTAL SITE)	C =	0.30	(UNDEVELOPED)

1	2	3	4	5	6	7	8
TIME	C x A	RAIN INTEN.	INFLOW RATE	INFLOW VOL	OUTFLOW RATE	OUTFLOW VOL	REQ. STORAGE
(MIN)	(ACRES)	(IN/HR)	(CFS)	(CU FT)	(CFS)	(CU FT)	(CU FT)
5	2.15	3.000	6.45	1935.45	0.98	293.73	1641.72
10	2.15	2.200	4.73	2838.66	0.98	587.47	2251.19
15	2.15	1.800	3.87	3483.81	0.98	881.20	2602.61
20	2.15	1.500	3.23	3870.90	0.98	1174.93	2695.97
30	2.15	1.200	2.58	4645.08	0.98	1762.40	2882.68
40	2.15	1.000	2.15	5161.20	0.98	2349.86	2811.34
50	2.15	0.850	1.83	5483.78	0.98	2937.33	2546.45
70	2.15	0.700	1.51	6322.47	0.98	4112.26	2210.21
100	2.15	0.550	1.18	7096.65	0.98	5874.66	1221.99

DETERMINATION OF REQUIRED DETENTION STORAGE

SITE - **Basin B** ***PRESENT PROPOSED DEVELOPMENT***

C = 0.85 (DEVELOPED) Rainfall Inten. 1.53 (INCHES/HOUR, 25YR)

A = 2.53 (TOTAL SITE) C = 0.30 (UNDEVELOPED)

1 TIME (MIN)	2 C x A (ACRES)	3 RAIN INTEN. (IN/HR)	4 INFLOW RATE (CFS)	5 INFLOW VOL (CU FT)	6 OUTFLOW RATE (CFS)	7 OUTFLOW VOL (CU FT)	8 REQ. STORAGE (CU FT)
5	2.15	3.400	7.31	2193.51	1.16	348.38	1845.13
10	2.15	2.500	5.38	3225.75	1.16	696.76	2528.99
15	2.15	2.100	4.52	4064.45	1.16	1045.14	3019.30
20	2.15	1.800	3.87	4645.08	1.16	1393.52	3251.56
30	2.15	1.400	3.01	5419.26	1.16	2090.29	3328.97
40	2.15	1.150	2.47	5935.38	1.16	2787.05	3148.33
50	2.15	1.000	2.15	6451.50	1.16	3483.81	2967.69
70	2.15	0.820	1.76	7406.32	1.16	4877.33	2528.99
100	2.15	0.670	1.44	8645.01	1.16	6967.62	1677.39

Basin B

2 Year Event

Orifice #1

WS =	349.00	WS - INV = (H)	1.14
INV =	347.86		
Allowable Qa		0.61	
Head		1.14	
Prop. dia Do		4.50	
Given Qa & H,	Do =		4.66
Given Do & H,	Qd =		0.57
		Qd Total =	0.57

10 Year Event

Orifice #1				Orifice #2			
WS =	349.50	WS - INV = (H)	1.64	WS =	349.50	WS - INV = (H)	0.50
INV =	347.86			INV =	349.00		
Allowable Qa		0.68		Allowable Qa		0.30	
Head		1.64		Head		0.50	
Prop. dia Do		4.50		Prop. dia Do		4.00	
Given Qa & H,	Do =		4.49	Given Qa & H,	Do =		4.02
Given Do & H,	Qd =		0.68	Given Do & H,	Qd =		0.30
		Qd Total =	0.98				

25 Year Event

Orifice #1				Orifice #2			
WS =	349.90	WS - INV = (H)	2.04	WS =	349.90	WS - INV = (H)	0.90
INV =	347.86			INV =	349.00		
Allowable Qa		0.76		Allowable Qa		0.40	
Head		2.04		Head		0.90	
Prop. dia Do		4.50		Prop. dia Do		4.00	
Given Qa & H,	Do =		4.50	Given Qa & H,	Do =		4.00
Given Do & H,	Qd =		0.76	Given Do & H,	Qd =		0.40
		Qd Total =	1.16				

DETERMINATION OF REQUIRED DETENTION STORAGE

SITE - **Basin E** ***PRESENT PROPOSED DEVELOPMENT***

C =	0.86	(DEVELOPED)	Rainfall Inten.	0.80	(INCHES/HOUR, 2YR)
A =	1.10	(TOTAL SITE)	C =	0.30	(UNDEVELOPED)

1 TIME (MIN)	2 C x A (ACRES)	3 RAIN INTEN. (IN/HR)	4 INFLOW RATE (CFS)	5 INFLOW VOL (CU FT)	6 OUTFLOW RATE (CFS)	7 OUTFLOW VOL (CU FT)	8 REQ. STORAGE (CU FT)
5	0.95	1.900	1.80	539.22	0.26	79.20	460.02
10	0.95	1.300	1.23	737.88	0.26	158.40	579.48
15	0.95	1.100	1.04	936.54	0.26	237.60	698.94
20	0.95	0.900	0.85	1021.68	0.26	316.80	704.88
30	0.95	0.750	0.71	1277.10	0.26	475.20	801.90
40	0.95	0.600	0.57	1362.24	0.26	633.60	728.64
50	0.95	0.550	0.52	1560.90	0.26	792.00	768.90
70	0.95	0.450	0.43	1787.94	0.26	1108.80	679.14
100	0.95	0.400	0.38	2270.40	0.26	1584.00	686.40

WS =	349.23	WS - INV =	1.09	(HEAD)	DESIGN DATA:		
INV =	348.14				Allow. Qa	0.26	cfs
					basin Vol	1,920	cu ft
Allowable Qa		0.26			orifice dia	3.00	in
Head		1.09			head	1.09	ft
Prop. dia Do		3.00					

Given Qa & H, Do = 3.10

Given Do & H, Qd = 0.25

DETERMINATION OF REQUIRED DETENTION STORAGE

SITE - **Basin E** ***PRESENT PROPOSED DEVELOPMENT***

C = 0.86 (DEVELOPED) Rainfall Inten. 1.29 (INCHES/HOUR, 10YR)

A = 1.10 (TOTAL SITE) C = 0.30 (UNDEVELOPED)

1 TIME (MIN)	2 C x A (ACRES)	3 RAIN INTEN. (IN/HR)	4 INFLOW RATE (CFS)	5 INFLOW VOL (CU FT)	6 OUTFLOW RATE (CFS)	7 OUTFLOW VOL (CU FT)	8 REQ. STORAGE (CU FT)
5	0.95	3.000	2.84	851.40	0.43	127.71	723.69
10	0.95	2.200	2.08	1248.72	0.43	255.42	993.30
15	0.95	1.800	1.70	1532.52	0.43	383.13	1149.39
20	0.95	1.500	1.42	1702.80	0.43	510.84	1191.96
30	0.95	1.200	1.14	2043.36	0.43	766.26	1277.10
40	0.95	1.000	0.95	2270.40	0.43	1021.68	1248.72
50	0.95	0.850	0.80	2412.30	0.43	1277.10	1135.20
70	0.95	0.700	0.66	2781.24	0.43	1787.94	993.30
100	0.95	0.550	0.52	3121.80	0.43	2554.20	567.60

DETERMINATION OF REQUIRED DETENTION STORAGE

SITE - **Basin E** ***PRESENT PROPOSED DEVELOPMENT***

C = 0.86 (DEVELOPED) Rainfall Inten. 1.52 (INCHES/HOUR, 25YR)

A = 1.10 (TOTAL SITE) C = 0.30 (UNDEVELOPED)

1 TIME (MIN)	2 C x A (ACRES)	3 RAIN INTEN. (IN/HR)	4 INFLOW RATE (CFS)	5 INFLOW VOL (CU FT)	6 OUTFLOW RATE (CFS)	7 OUTFLOW VOL (CU FT)	8 REQ. STORAGE (CU FT)
5	0.95	3.400	3.22	964.92	0.50	150.48	814.44
10	0.95	2.500	2.37	1419.00	0.50	300.96	1118.04
15	0.95	2.100	1.99	1787.94	0.50	451.44	1336.50
20	0.95	1.800	1.70	2043.36	0.50	601.92	1441.44
30	0.95	1.400	1.32	2383.92	0.50	902.88	1481.04
40	0.95	1.150	1.09	2610.96	0.50	1203.84	1407.12
50	0.95	1.000	0.95	2838.00	0.50	1504.80	1333.20
70	0.95	0.820	0.78	3258.02	0.50	2106.72	1151.30
100	0.95	0.670	0.63	3802.92	0.50	3009.60	793.32

Basin E

2 Year Event

Orifice #1

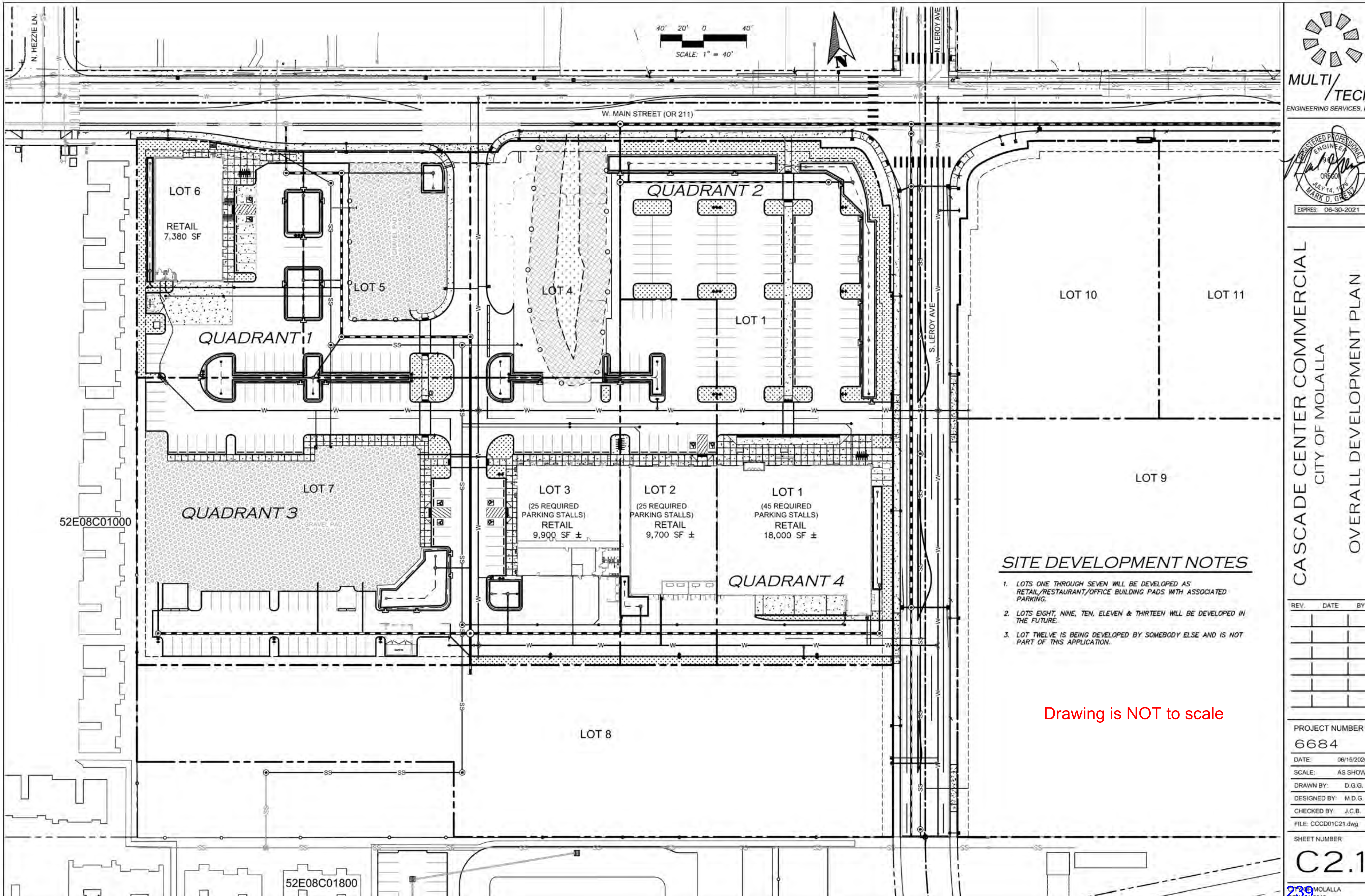
WS =	349.23	WS - INV = (H)	1.09
INV =	348.14		
Allowable Qa		0.26	
Head		1.09	
Prop. dia Do		3.00	
Given Qa & H,	Do =		3.08
Given Do & H,	Qd =		0.25
		Qd Total =	0.25

10 Year Event

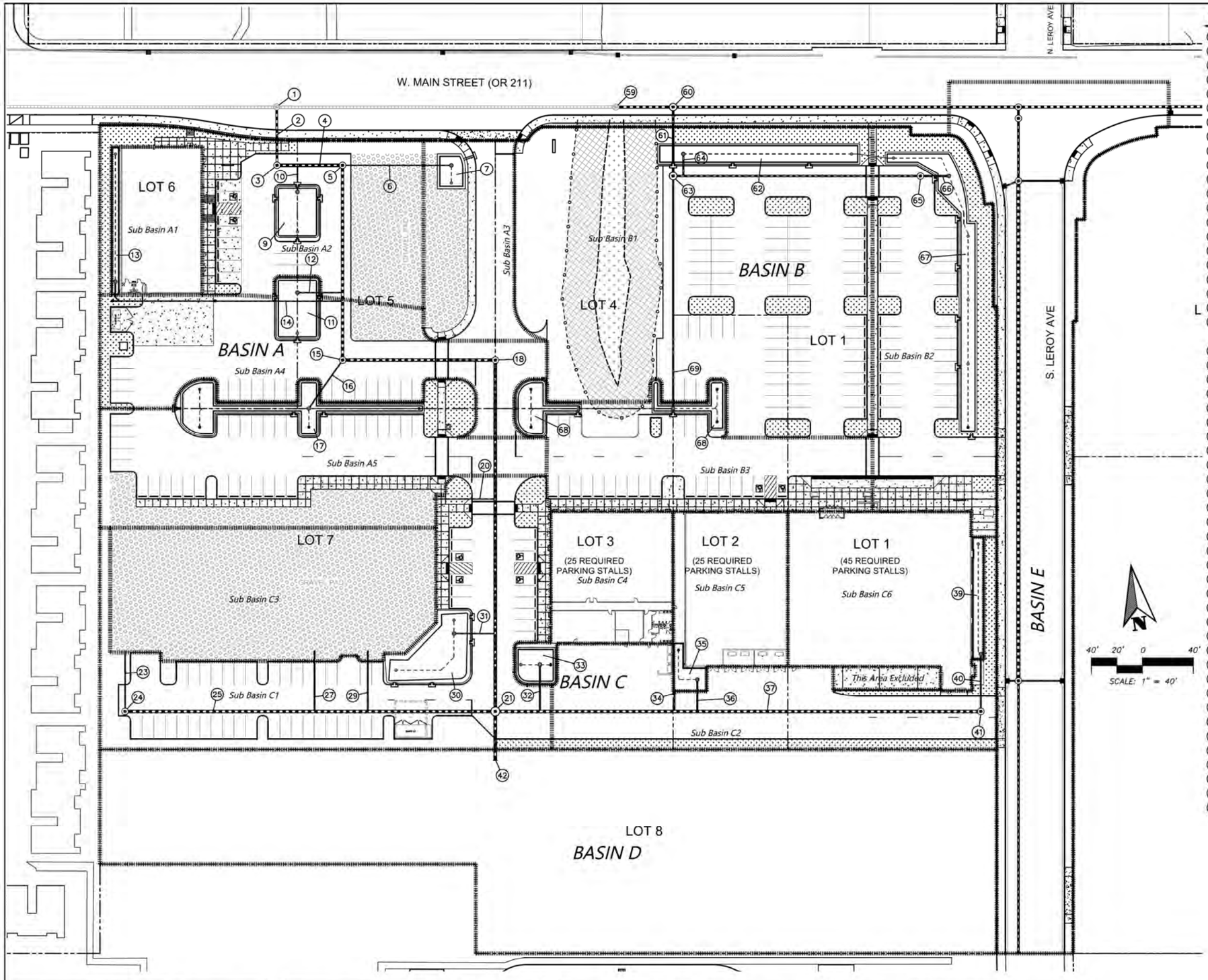
	Orifice #1			Orifice #2			
WS =	349.72	WS - INV = (H)	1.58	WS =	349.72	WS - INV = (H)	0.47
INV =	348.14			INV =	349.25		
Allowable Qa		0.26		Allowable Qa		0.17	
Head		1.58		Head		0.47	
Prop. dia Do		3.00		Prop. dia Do		2.75	
Given Qa & H,	Do =		2.80	Given Qa & H,	Do =		3.07
Given Do & H,	Qd =		0.30	Given Do & H,	Qd =		0.14
		Qd Total =	0.43				

25 Year Event

	Orifice #1			Orifice #2			
WS =	349.94	WS - INV = (H)	1.80	WS =	349.94	WS - INV = (H)	0.69
INV =	348.14			INV =	349.25		
Allowable Qa		0.26		Allowable Qa		0.24	
Head		1.80		Head		0.69	
Prop. dia Do		3.00		Prop. dia Do		2.75	
Given Qa & H,	Do =		2.71	Given Qa & H,	Do =		3.31
Given Do & H,	Qd =		0.32	Given Do & H,	Qd =		0.17
		Qd Total =	0.48				



N. HEZZIE LN.
N. LEROY AVE
40' 20' 0 40'
SCALE: 1" = 40'
N
W. MAIN STREET (OR 211)
QUADRANT 1
QUADRANT 2
QUADRANT 3
QUADRANT 4
LOT 6
RETAIL
7,380 SF
LOT 5
LOT 4
LOT 1
LOT 7
LOT 3
(25 REQUIRED PARKING STALLS)
RETAIL
9,900 SF ±
LOT 2
(25 REQUIRED PARKING STALLS)
RETAIL
9,700 SF ±
LOT 1
(45 REQUIRED PARKING STALLS)
RETAIL
18,000 SF ±
LOT 8
LOT 9
LOT 10
LOT 11
S. LEROY AVE
52E08C01000
52E08C01800
SITE DEVELOPMENT NOTES
1. LOTS ONE THROUGH SEVEN WILL BE DEVELOPED AS RETAIL/RESTAURANT/OFFICE BUILDING PADS WITH ASSOCIATED PARKING.
2. LOTS EIGHT, NINE, TEN, ELEVEN & THIRTEEN WILL BE DEVELOPED IN THE FUTURE.
3. LOT TWELVE IS BEING DEVELOPED BY SOMEBODY ELSE AND IS NOT PART OF THIS APPLICATION.
Drawing is NOT to scale
MULTI/TECH
ENGINEERING SERVICES, INC.
EXPIRES: 06-30-2021
CASCADE CENTER COMMERCIAL
CITY OF MOLALLA
OVERALL DEVELOPMENT PLAN
REV. DATE BY
PROJECT NUMBER
6684
DATE: 06/15/2020
SCALE: AS SHOWN
DRAWN BY: D.G.G.
DESIGNED BY: M.D.G.
CHECKED BY: J.C.B.
FILE: CCCD01C21.dwg
SHEET NUMBER
C2.1



CONSTRUCTION NOTES

1. SDMH SX2, SD LINE "CCA" 0+00.00
2. SD LINE "CCA"
3. SDMH CCA1, FLOW CONTROL MANHOLE, SD LINE "CCA" 0+45.47
4. DETENTION PIPE
5. SDMH CCA2, SD LINE "CCA" 0+96.90
6. OVERFLOW PIPE FOR WQF A3
7. WATER QUALITY FACILITY WQF A3
8. NOT USED
9. WATER QUALITY FACILITY / WITH DETENTION WQF/D A2
10. OVERFLOW PIPE FOR WQF/D A2
11. WATER QUALITY FACILITY / WITH DETENTION WQF/D A4
12. OVERFLOW PIPE FOR WQF/D A4
13. WATER QUALITY FLOW THROUGH PLANTER BOX WQPB A1
14. OVERFLOW PIPE FOR WQPB A1
15. SDMH CCA3, SD LINE "CCA" 2+49.45
16. OVERFLOW PIPE FOR WQF/D A5
17. WATER QUALITY FACILITY / WITH DETENTION WQF/D A5
18. SDMH CCA4, FLOW CONTROL MANHOLE, SD LINE "CCA" 3+69.29
19. NOT USED
20. OVERFLOW PIPE STUB & PLUG FOR FUTURE
21. SDMH CCA5, SD LINE "CCA" 6+45.39 = SD LINE "CCB" 0+00.00 = SD LINE "CCC" 0+00.00 =
22. NOT USED
23. OVERFLOW PIPE STUB & PLUG FOR FUTURE
24. SDMH CCB1, SD LINE "CCB" 2+90.60
25. SD LINE "CCB", DETENTION PIPE
26. NOT USED
27. OVERFLOW PIPE STUB & PLUG FOR FUTURE
28. NOT USED
29. OVERFLOW PIPE STUB & PLUG FOR FUTURE
30. WATER QUALITY FACILITY WQF C1
31. OVERFLOW PIPE FOR WQF C1
32. OVERFLOW PIPE FOR WQF C2
33. WATER QUALITY FACILITY WQF C2
34. SDCB CCC1, SD LINE "CCC" 1+40.57
35. WATER QUALITY FLOW THROUGH PLANTER BOX WQPB C5
36. OVERFLOW PIPE FOR WQPB C5
37. SD LINE "CCC", DETENTION PIPE
38. NOT USED
39. WATER QUALITY FLOW THROUGH PLANTER BOX WQPB C6
40. OVERFLOW PIPE FOR WQPB C6
41. SDMH "CCC", SD LINE "CCC" 3+81.07
42. PIPE END PLUG
43. TO (58) NOT USED
59. SDMH SX3
60. SDMH CCF1, SD LINE "CCF" STA 0+00.00
61. SD LINE "CCF"
62. WATER QUALITY FACILITY / WITH DETENTION WQF/D B1
63. SDMH CCF2, FLOW CONTROL MANHOLE, SD LINE "CCF" STA 0+54.26
64. OVERFLOW PIPE FOR WQF/D B1
65. SDMH CCF3, SD LINE "CCF" STA 2+48.32
66. OVERFLOW PIPE FOR WQF/D B2
67. WATER QUALITY FACILITY / WITH DETENTION WQF/D B2
68. WATER QUALITY FACILITY WQF B3
69. OVERFLOW PIPE FOR WQF B3

DRAINAGE BASIN DATA			
BASIN	IMPERVIOUS	PERVIOUS	TOTAL S.F.
SUB BASIN A1	7,700.04	575.83	8,275.87
SUB BASIN A2	18,500.08	5,070.58	23,570.66
SUB BASIN A3	10,784.78	592.87	11,377.65
SUB BASIN A4	22,241.11	3,065.50	25,306.61
SUB BASIN A5	25,270.17	5,630.14	30,900.31
BASIN A	84,496.19	14,934.92	99,431.11

DRAINAGE BASIN DATA			
SUB BASIN B1	47,990.86	13,809.65	61,800.51
SUB BASIN B2	18,313.71	9,941.01	28,254.72
SUB BASIN B3	17,267.55	3,024.34	20,291.89
BASIN B	83,572.13	26,775.00	110,347.13

DRAINAGE BASIN DATA			
BASIN	IMPERVIOUS	PERVIOUS	TOTAL S.F.
SUB BASIN C1	27,723.63	10,444.75	38,168.38
SUB BASIN C2	21,172.02	1,623.16	22,795.18
SUB BASIN C3	25,894.86	0.00	25,894.86
SUB BASIN C4	10,030.64	1,023.67	11,054.31
SUB BASIN C5	10,855.10	576.31	11,431.41
SUB BASIN C6	18,186.43	760.68	18,947.11
BASIN C	113,862.67	14,428.57	128,291.24

DRAINAGE BASIN DATA			
BASIN	IMPERVIOUS	PERVIOUS	TOTAL S.F.
BASIN D (FUTURE)			91,980.33
BASIN E	45,452.24	2,669.43	48,121.67

Drawing is NOT to scale

MULTI/TECH
ENGINEERING SERVICES, INC.

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 14, 1978
MARK D. GRENZ
EXPIRES: 06-30-2021

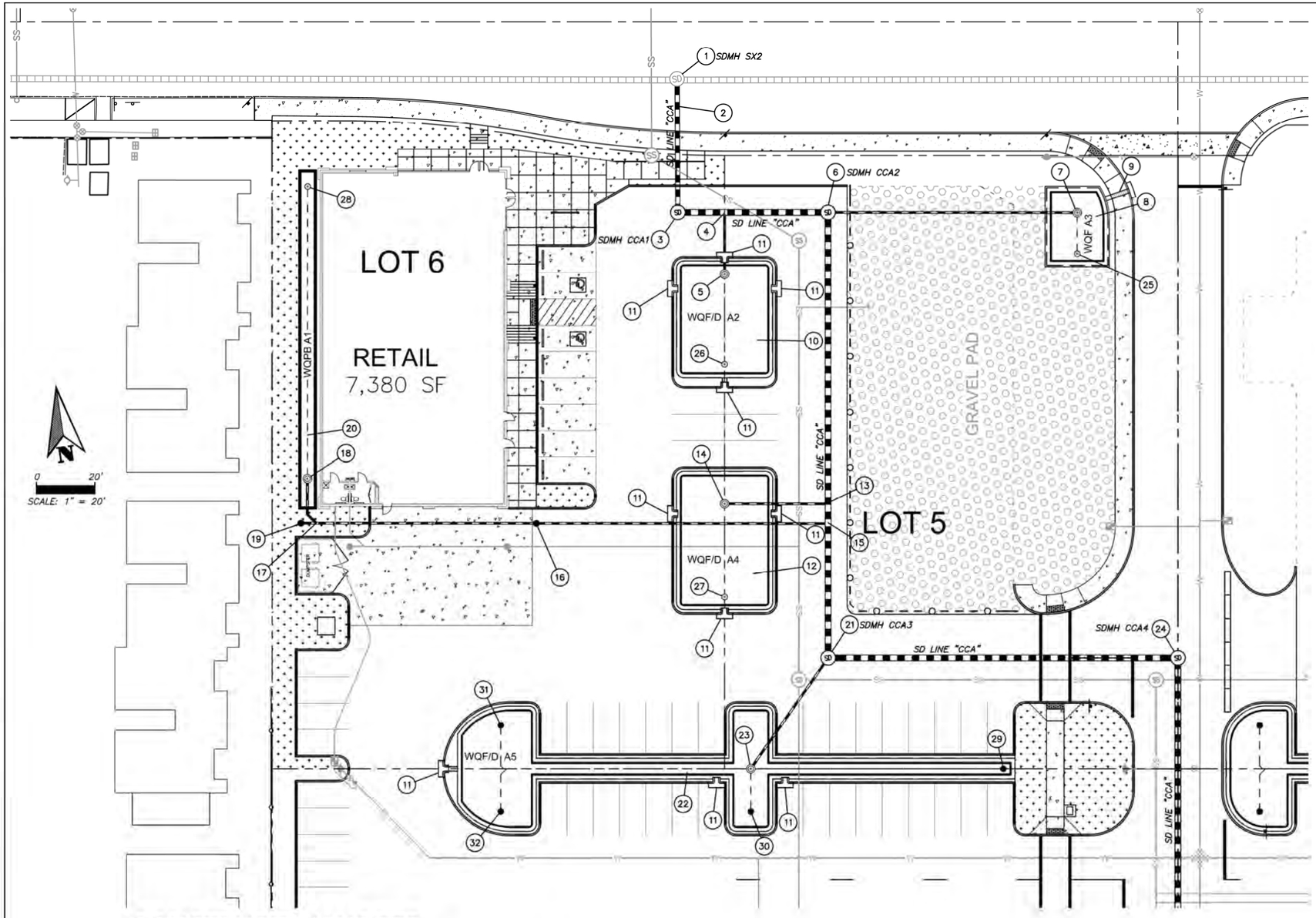
CASCADE CENTER COMMERCIAL
CITY OF MOLALLA
OVERALL SITE PLAN
STORM WATER DRAINAGE BASIN PLAN

REV.	DATE	BY

PROJECT NUMBER
6684

DATE: 06/15/2020
SCALE: AS SHOWN
DRAWN BY: D.G.G.
DESIGNED BY: M.D.G.
CHECKED BY: J.C.B.
FILE: CCCD01C41.dwg

SHEET NUMBER
C4.1



CONSTRUCTION NOTES

1. EXISTING STORM DRAIN MANHOLE SDMH SX2
   SD LINE "CCA" 0+00.00
   CONNECT TO EXISTING STORM DRAIN MANHOLE SX2
   IE IN (S) 18" = 346.12, IE IN (E) 24" = 345.64
   IE OUT (W) 24" = 345.54
   UPON REMOVAL OF 12" CONCRETE PIPE, THE SIZE OF THE HOLE IN THE MANHOLE SHOULD BE LARGE ENOUGH TO FIT IN A 18" ADS N-12 PIPE, IF NOT BORE OUT HOLE LARGE ENOUGH FOR 18" ADS N-12 PIPE.
   CONSTRUCT 45.47 LF 18" ADS N-12 (S) @ S= 0.0040
   ADJUST MANHOLE RIM TO NEW GRADES
   (VERIFY LOCATION AND ELEVATION OF EXISTING STORM DRAIN PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES)
2. EXISTING 12" CONCRETE PIPE FROM DITCH TO MANHOLE TO BE REMOVED
3. SDMH CCA1
   CONSTRUCT STORM DRAIN FLOW CONTROL MANHOLE PER DETAIL 2 SHT C8.4
   SD LINE "CCA" 0+45.47
   RIM = 350.93
   IE IN (E) 24" = 346.40
   IE OUT (N) 18" = 346.30
   CONSTRUCT 51.43 LF 24" ADS N-12 (E) @ S= 0.0010
4. SD LINE "CCA" 0+61.86
   INSTALL 24" X 24" TEE, 24" X 8" REDUCER (ADS 2472AN)
   IE 24" = 346.42, IE 8" = 346.42
   CONSTRUCT 21 LF 8" ADS N-12 FOR OVERFLOW @ S= 0.0157
5. CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4
   IN WATER QUALITY FACILITY / WITH DETENTION PER DETAIL 1, SHT C8.3
   RIM = 350.57
   IE IN (S) 6" = 346.75
   IE OUT (N) 8" = 346.75
   CONSTRUCT 31 LF 6" ADS N-12 PERFORATED PIPE (S)
6. SDMH CCA2
   CONSTRUCT STORM DRAIN MANHOLE PER DETAIL 1 SHT C8.5
   SD LINE "CCA" 0+96.90
   RIM = 351.24
   IE IN (E) 8" = 347.25
   IE IN (S) 24" = 346.45
   IE OUT (W) 24" = 346.45
   CONSTRUCT 85.40 LF 8" ADS N-12 (E) @ S= 0.0024
   CONSTRUCT 152.54 LF 24" ADS N-12 (S) @ S= 0.0010
7. CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4
   IN WATER QUALITY FACILITY PER DETAIL 1, SHT C8.3
   RIM = 350.20
   IE IN (S) 6" = 346.95
   IE OUT (W) 8" = 346.95
   CONSTRUCT 14 LF 6" ADS N-12 PERFORATED PIPE (S)
8. CONSTRUCT WATER QUALITY FACILITY WQF A3 PER DETAIL 1, SHT C8.3
9. CONSTRUCT SIDEWALK BRIDGE, CHANNEL & GRATES PER DETAIL 3, SHT C8.7
10. CONSTRUCT WATER QUALITY FACILITY / WITH DETENTION WQF/D A2 PER DETAIL 1, SHT C8.3
11. CONSTRUCT CURB CUT PER DETAIL 2, SHT C8.3

Drawing is NOT to scale

12. CONSTRUCT WATER QUALITY FACILITY / WITH DETENTION WQF/D A4 PER DETAIL 1, SHT C8.3
13. SD LINE "CCA" 1+96.69
    INSTALL 24" X 24" TEE, 24" X 8" REDUCER (ADS 2472AN)
    IE 24" =346.55, IE 8" = 346.55
    CONSTRUCT 35.48 LF 8" ADS N-12 FOR OVERFLOW @ S= 0.0127
14. CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4
    IN WATER QUALITY FACILITY / WITH DETENTION PER DETAIL 1, SHT C8.3
    RIM = 351.29
    IE IN (S) 6" = 347.00
    IE OUT (E) 8" = 347.00
    CONSTRUCT 30 LF 6" ADS N-12 PERFORATED PIPE (S)
15. SD LINE "CCA" 2+03.49 = "LAT A1" 0+00.00
    INSTALL 24" X 8" TEE
    IE 24" =346.56, IE 8" = 347.23
    CONSTRUCT 180.60 LF 8" ADS N-12 FOR OVERFLOW @ S= 0.0105
16. SD "LAT A1" 1+00.00
    CONSTRUCT CLEANOUT PER DETAIL 8 SHT C8.5
    IE 8" = 348.28
17. SD "LAT A1" 1+74.62
    INSTALL 8" X 8" WYE, IE 8" = 349.07
    CONSTRUCT 16 LF 8" PVC @ S= 0.0105
18. CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4
    IN WATER QUALITY FACILITY FLOW THROUGH PLANTER BOX WQPB A1 PER DETAIL 4, SHT C8.3
    RIM = 352.50
    IE IN (N) 6" = 349.25
    IE OUT (S) 8" = 349.25
    CONSTRUCT 100 LF 6" ADS N-12 PERFORATED PIPE (N)
19. SD "LAT A1" 1+80.60
    CONSTRUCT CLEANOUT PER DETAIL 8 SHT C8.5
    IE 8" = 349.13
20. CONSTRUCT WATER QUALITY FACILITY FLOW THROUGH PLANTER BOX WQPB A1 PER DETAIL 4, SHT C8.3
21. SDMH CCA3
    CONSTRUCT STORM DRAIN MANHOLE PER DETAIL 1 SHT C8.5
    SD LINE "CCA" 2+49.45
    RIM = 352.41
    IE IN (SW) 8" = 347.29
    IE IN (E) 24" = 346.60
    IE OUT (N) 24" = 346.60
    CONSTRUCT 46.33 LF 8" ADS N-12 (S) @ S= 0.0100
    CONSTRUCT 119.84 LF 24" ADS N-12 (E) @ S= 0.0010
22. CONSTRUCT WATER QUALITY FACILITY / WITH DETENTION WQF/D A5 PER DETAIL 1, SHT C8.3
23. CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4
    IN WATER QUALITY FACILITY / WITH DETENTION PER DETAIL 1, SHT C8.3
    RIM = 352.33
    IE IN (S, E & W) 6" = 347.75
    IE OUT (NE) 8" = 347.75
24. SDMH CCA4
    CONSTRUCT STORM DRAIN MANHOLE PER DETAIL 1 SHT C8.5
    SD LINE "CCA" 3+69.29
    RIM = 353.96
    IE IN (S) 24" = 346.72
    IE OUT (W) 24" = 346.72
    CONSTRUCT 276.10 LF 24" ADS N-12 DETENTION PIPE (S) @ S= 0.0010
25. CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE" PER DETAIL 4, SHT C8.3
    RIM = 350.03
    IE FOR PIPE = 346.95
26. CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE" PER DETAIL 4, SHT C8.3
    RIM = 350.85
    IE FOR PIPE = 346.75
27. CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE" PER DETAIL 4, SHT C8.3
    RIM = 351.63
    IE FOR PIPE = 347.00
28. CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE" PER DETAIL 4, SHT C8.3
    RIM = 350.33
    IE FOR PIPE = 349.25
29. CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
    RIM = 353.10, IE FOR PIPE = 347.75
    CONSTRUCT 96 LF 6" ADS N-12 PERFORATED PIPE (W)
30. CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
    RIM = 352.00, IE FOR PIPE = 347.75
    CONSTRUCT 15 LF 6" ADS N-12 PERFORATED PIPE (N)
31. CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
    RIM = 351.95, IE FOR PIPE = 347.75
    CONSTRUCT 100 LF 6" ADS N-12 PERFORATED PIPE (S) & (E)
32. CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
    RIM = 352.40, IE FOR PIPE = 347.75
    CONSTRUCT 16 LF 6" ADS N-12 PERFORATED PIPE (N) TO WYE

MULTI/TECH
ENGINEERING SERVICES, INC.

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 14, 1995
MARK D. GRENZ
EXPIRES: 06-30-2021

CASCADE CENTER COMMERCIAL
CITY OF MOLALLA
STORM WATER MANAGEMENT PLAN
QUADRANT 1

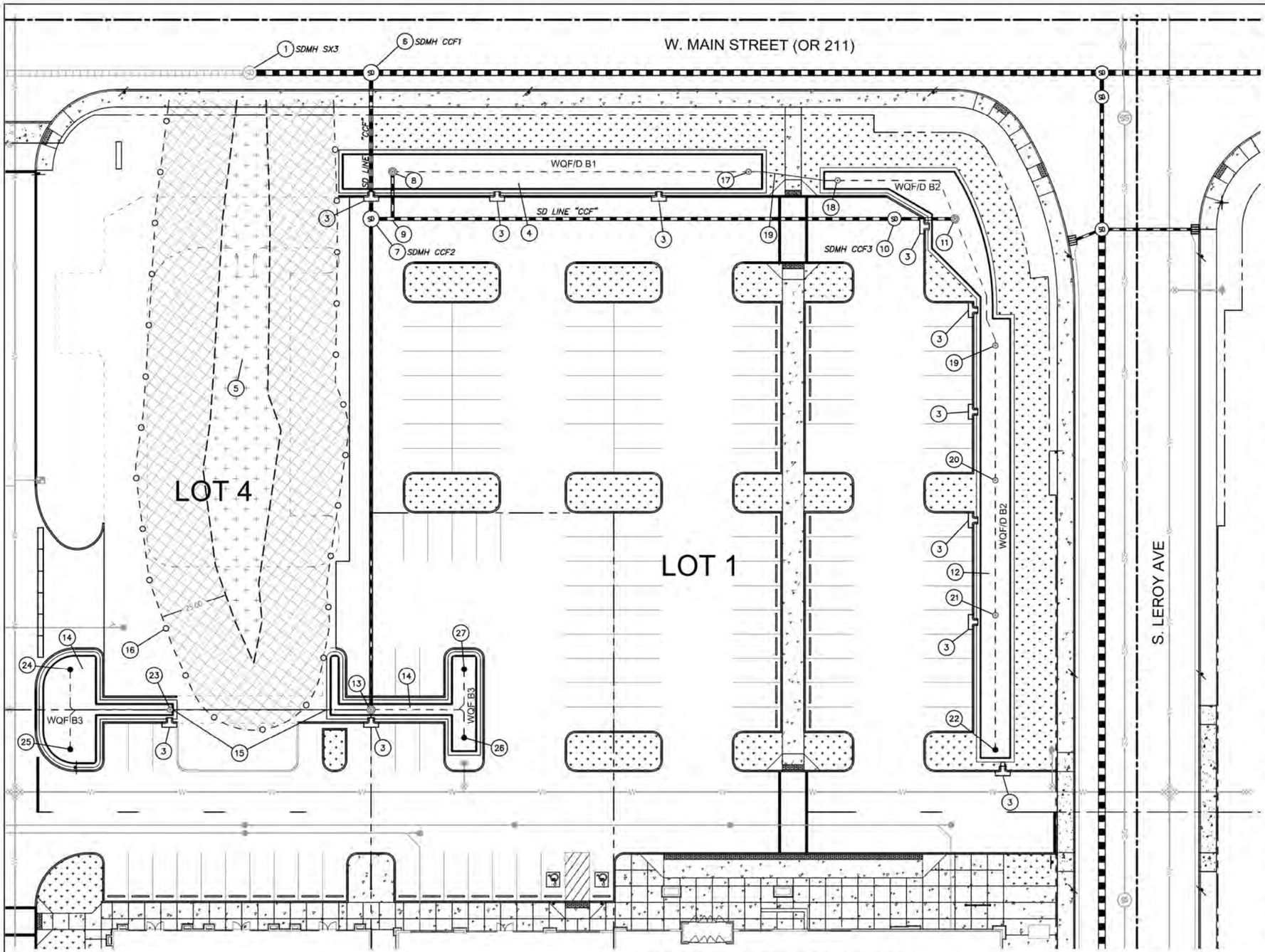
REV.	DATE	BY

PROJECT NUMBER 6684

DATE:	06/15/2020
SCALE:	AS SHOWN
DRAWN BY:	D.G.G.
DESIGNED BY:	M.D.G.
CHECKED BY	J.C.B.
FILE:	CCCD01C42.dwg

SHEET NUMBER C4.2

CITY OF MOLALLA
DRW-01-2019



Drawing is NOT to scale

CONSTRUCTION NOTES

1. EXISTING STORM DRAIN MANHOLE SDMH SX3
2. NOT USED
3. CONSTRUCT CURB CUT PER DETAIL 2, SHT 8.3
4. CONSTRUCT WATER QUALITY FACILITY / WITH DETENTION WQF/D B1 PER DETAIL 1, SHT C8.3
5. POTENTIAL WETLAND SITE. AREA IS TO BE FENCED OFF AND CONSTRUCTION IS PROHIBITED UNTIL A DETERMINATION HAS BEEN MADE AND APPROVED AND ALL NECESSARY PERMITS OBTAINED TO WORK IN THIS AREA IF REQUIRED. FUTURE BUILDING PAD SITE
6. SDMH CCF1
   PROPOSED STORM DRAIN MANHOLE
   PER DETAIL 1 SHT C8.5
   SD LINE "CCF" STA 0+00.00
   RIM = 350.59
   IE IN (S) 15" = 347.26
   IE IN (E) 24" = 346.62
   IE OUT (W) 24" = 346.62
   CONSTRUCT 54.26 LF 15" ADS N-12 (S) @ S= 0.0160
7. SDMH CCF2
   CONSTRUCT STORM DRAIN FLOW CONTROL MANHOLE
   PER DETAIL 2 SHT C8.4
   SD LINE "CCF" STA 0+54.26
   RIM = 352.06
   IE IN (E) 15" = 347.86
   IE IN (S) 8" = 348.32
   IE OUT (N) 15" = 347.66
   CONSTRUCT 194.07 LF 15" ADS N-12 (E) @ S= 0.0020
   CONSTRUCT 182.00 LF 8" ADS N-12 (S) @ S= 0.0106
8. CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4 IN WATER QUALITY FACILITY / WITH DETENTION PER DETAIL 1, SHT C8.3
   RIM = 351.98
   IE IN (E) 8" = 348.25
   IE OUT (S) 12" = 348.25
   CONSTRUCT 132 LF 8" ADS N-12 PERFORATED PIPE (E)
9. SD LINE "CCF" STA 0+84.26
   INSTALL 15" X 10" TEE
   IE 15" =347.88
   IE 10" = 348.09
   CONSTRUCT 17.5 LF 10" ADS N-12 CONNECTION FOR OVERFLOW @ S= 0.0091
10. SDMH CCF3
    CONSTRUCT STORM DRAIN MANHOLE
    PER DETAIL 1 SHT C8.5
    SD LINE "CCF" STA 2+48.32
    RIM = 353.26
    IE IN (E) 12" = 348.50
    IE OUT (W) 15" = 348.25
    CONSTRUCT 22.43 LF 12" ADS N-12 (S) @ S= 0.0000
11. CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4 IN WATER QUALITY FACILITY / WITH DETENTION PER DETAIL 1, SHT C8.3
    RIM = 353.16
    IE IN (NW) & (SE) 8" = 348.50
    IE OUT (W) 12" = 348.50
    CONSTRUCT 50 LF 8" ADS N-12 PERFORATED PIPE (SE)
12. CONSTRUCT WATER QUALITY FACILITY / WITH DETENTION WQF/D B2 PER DETAIL 1, SHT C8.3
13. CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4 IN WATER QUALITY FACILITY PER DETAIL 1, SHT C8.3
    RIM = 353.88
    IE IN (E) & (W) 6" = 350.25
    IE OUT (N) 8" = 350.25
    CONSTRUCT 16.5 LF 6" ADS N-12 PERFORATED PIPE (W)
14. CONSTRUCT WATER QUALITY FACILITY WQF B3 PER DETAIL 1, SHT C8.3
15. CONSTRUCT 58 LF 6" ADS N-12 PIPE BETWEEN THESE WATER QUALITY FACILITIES (REPLACE WITH PERFORATED PIPE WITH DEVELOPMENT OF LOT 4)
16. INSTALL ORANGE CONSTRUCTION FENCE
17. CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE" PER DETAIL 4, SHT C8.3
    RIM = 352.87, IE FOR PIPE = 348.25
    CONSTRUCT 33 LF 8" ADS N-12 (E) @ S= 0.0076
18. CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE" PER DETAIL 4, SHT C8.3
    RIM = 352.97, IE FOR PIPE = 348.50
    CONSTRUCT 53 LF 8" ADS N-12 PERFORATED PIPE (E & SE)
19. CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE" PER DETAIL 4, SHT C8.3
    RIM = 353.26, IE FOR PIPE = 348.50
    CONST. 50 LF 8" ADS N-12 PERFORATED PIPE (S)
20. CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE" PER DETAIL 4, SHT C8.3
    RIM = 353.76, IE FOR PIPE = 348.50
    CONST. 50 LF 8" ADS N-12 PERFORATED PIPE (S)
21. CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE" PER DETAIL 4, SHT C8.3
    RIM = 354.26, IE FOR PIPE = 348.50
    CONST. 50 LF 8" ADS N-12 PERFORATED PIPE (S)
22. CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
    RIM = 354.38, IE FOR PIPE = 348.50
23. CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE" PER DETAIL 4, SHT C8.3
    RIM = 354.43, IE FOR PIPE = 351.35
    CONST. 58 LF 6" ADS N-12 (E)
24. CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
    RIM = 353.63, IE FOR PIPE = 350.88
    CONSTRUCT 51 LF 6" ADS N-12 PERFORATED PIPE (S) & (E)
25. CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
    RIM = 353.44, IE FOR PIPE = 350.69
    CONSTRUCT 15 LF 6" ADS N-12 PERFORATED PIPE (N) TO WYE
26. CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
    RIM = 353.77, IE FOR PIPE = 351.02
    CONSTRUCT 44 LF 6" ADS N-12 PERFORATED PIPE (N) & (W)
27. CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
    RIM = 353.25, IE FOR PIPE = 350.50
    CONSTRUCT 16 LF 6" ADS N-12 PERFORATED PIPE (S) TO WYE

MULTI/TECH
ENGINEERING SERVICES, INC.

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 14, 1978
MARK D. GRENZ
EXPIRES: 06-30-2021

CASCADE CENTER COMMERCIAL
CITY OF MOLALLA
STORM WATER MANAGEMENT PLAN
QUADRANT 2

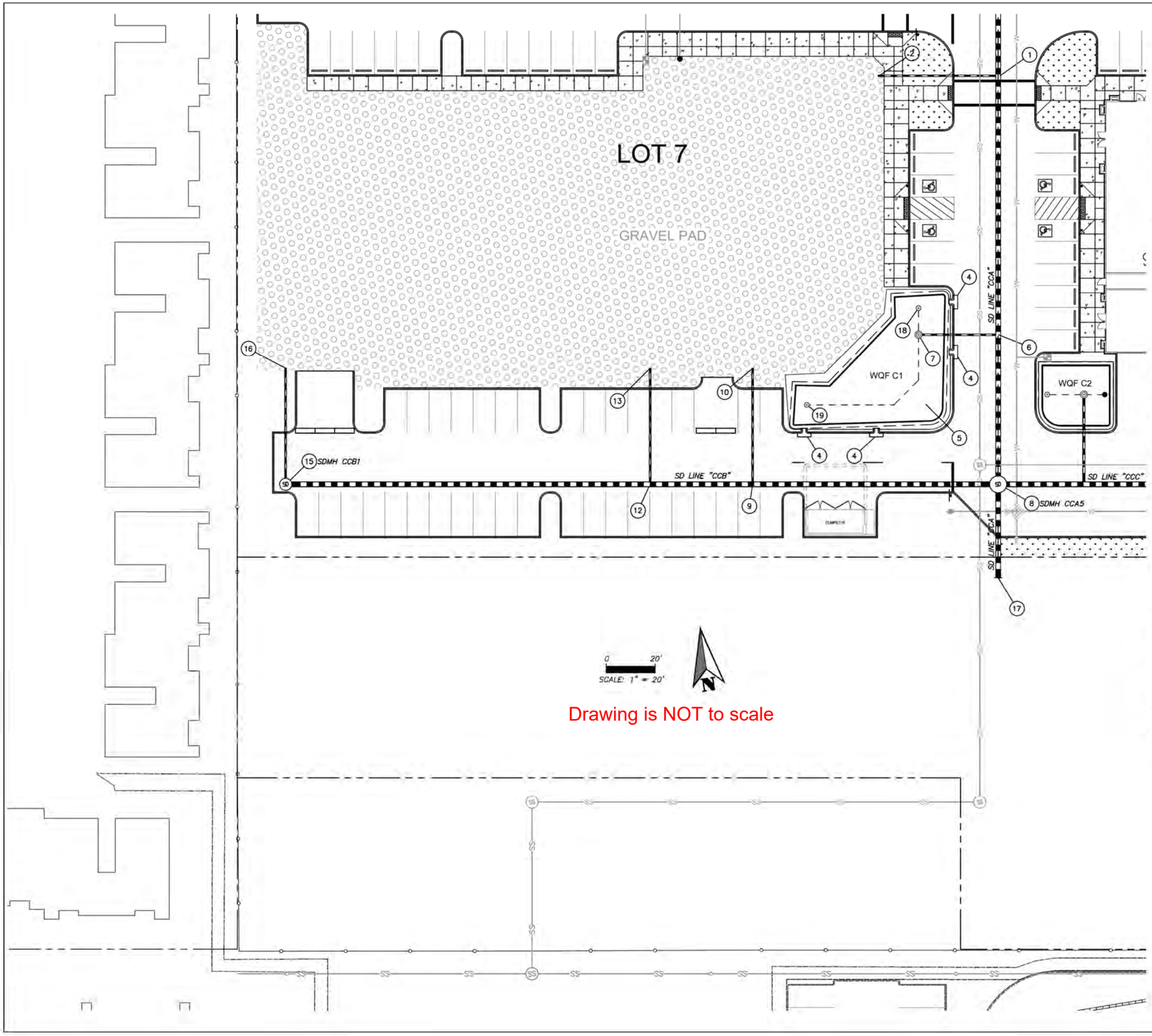
REV.	DATE	BY

PROJECT NUMBER 6684

DATE:	06/15/2020
SCALE:	AS SHOWN
DRAWN BY:	D.G.G.
DESIGNED BY:	M.D.G.
CHECKED BY:	J.C.B.
FILE:	CCCD01C43.dwg

SHEET NUMBER
C4.3

CITY OF MOLALLA
DRW 01-2019



Drawing is NOT to scale

CONSTRUCTION NOTES

1. SD LINE "CCA" 4+78.67
   INSTALL 24" X 8" TEE, ROTATE TEE 45 DEGREES ABOVE HORIZONTAL
   IE 24" = 346.83, IE 8" AT BEND AT 0+02.00 = 348.36
   CONSTRUCT 46 LF 8" ADS N-12 FOR OVERFLOW @ S= 0.0715
2. CONSTRUCT WATER QUALITY FACILITY OVERFLOW PIPE CAP
   IE FOR PIPE = 351.65
3. NOT USED
4. CONSTRUCT CURB CUT
   PER DETAIL 2, SHT C8.3
5. CONSTRUCT WATER QUALITY FACILITY WQF C1 PER DETAIL 1, SHT 8.3
6. SD LINE "CCA" 5+84.28
   INSTALL 24" X 8" TEE, ROTATE TEE 45 DEGREES ABOVE HORIZONTAL
   IE 24" = 346.94, IE 8" AT BEND AT 0+2.00 = 348.47
   CONSTRUCT 32 LF 8" ADS N-12 FOR OVERFLOW @ S= 0.0606
7. CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4
   IN WATER QUALITY FACILITY PER DETAIL 1, SHT C8.3
   RIM = 353.66
   IE IN (N & S) 6" = 350.41
   IE OUT (NE) 8" = 350.41
8. SDMH CCA5
   CONSTRUCT STORM SEWER MANHOLE PER DETAIL 1 SHT C8.5
   SD LINE "CCA" 6+45.39 =
   SD LINE "CCB" 0+00.00 =
   SD LINE "CCC" 0+00.00
   RIM = 355.03
   IE IN (E, W & S) 24" = 347.00
   IE OUT (N) 24" = 347.00
   CONSTRUCT 38.00 LF 24" ADS N-12 (S) @ S= 0.0010
   CONSTRUCT 290.60 LF 24" ADS N-12 (W) @ S= 0.0010
   CONSTRUCT 381.07 LF 24" ADS N-12 (E) @ S= 0.0010
9. SD LINE "CCB" 1+00.00
   INSTALL 24" X 8" TEE, ROTATE TEE 45 DEGREES ABOVE HORIZONTAL
   IE 24" = 347.01, IE 8" AT BEND AT 0+2.00 = 348.54
   CONSTRUCT 45 LF 8" ADS N-12 FOR OVERFLOW @ S= 0.0796
10. CONSTRUCT WATER QUALITY FACILITY OVERFLOW PIPE CAP
    IE FOR PIPE = 352.12
11. NOT USED
12. SD LINE "CCB" 1+41.95
    INSTALL 24" X 8" TEE, ROTATE TEE 45 DEGREES ABOVE HORIZONTAL
    IE 24" = 347.14, IE 8" AT BEND AT 0+2.00 = 348.67
    CONSTRUCT 45 LF 8" ADS N-12 FOR OVERFLOW @ S= 0.0767
13. CONSTRUCT WATER QUALITY FACILITY OVERFLOW PIPE CAP
    IE FOR PIPE = 352.12
14. NOT USED
15. SDMH CCB1
    CONSTRUCT STORM SEWER MANHOLE PER DETAIL 1 SHT C8.5
    SD LINE "CCB" 2+90.60
    RIM = 355.17
    IE IN (N) 8" = 349.29
    IE OUT (E) 24" = 347.29
    CONSTRUCT 47.00 LF 8" ADS N-12 (N) @ S= 0.0602
16. CONSTRUCT WATER QUALITY FACILITY OVERFLOW PIPE CAP
    IE FOR PIPE = 352.12
17. SD LINE "CCA" 6+83.39
    INSTALL 24" PLUG
    IE (N) 24" = 347.04
18. CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
    RIM = 353.58, IE FOR PIPE = 350.59
    CONSTRUCT 11 LF 6" ADS N-12 PERFORATED PIPE (S)
19. CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
    RIM = 353.55, IE FOR PIPE = 350.47
    CONSTRUCT 65 LF 6" ADS N-12 PERFORATED PIPE (E & N)

MULTI/TECH
ENGINEERING SERVICES, INC.

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 14, 1995
MARK D. GRENZ
EXPIRES: 06-30-2021

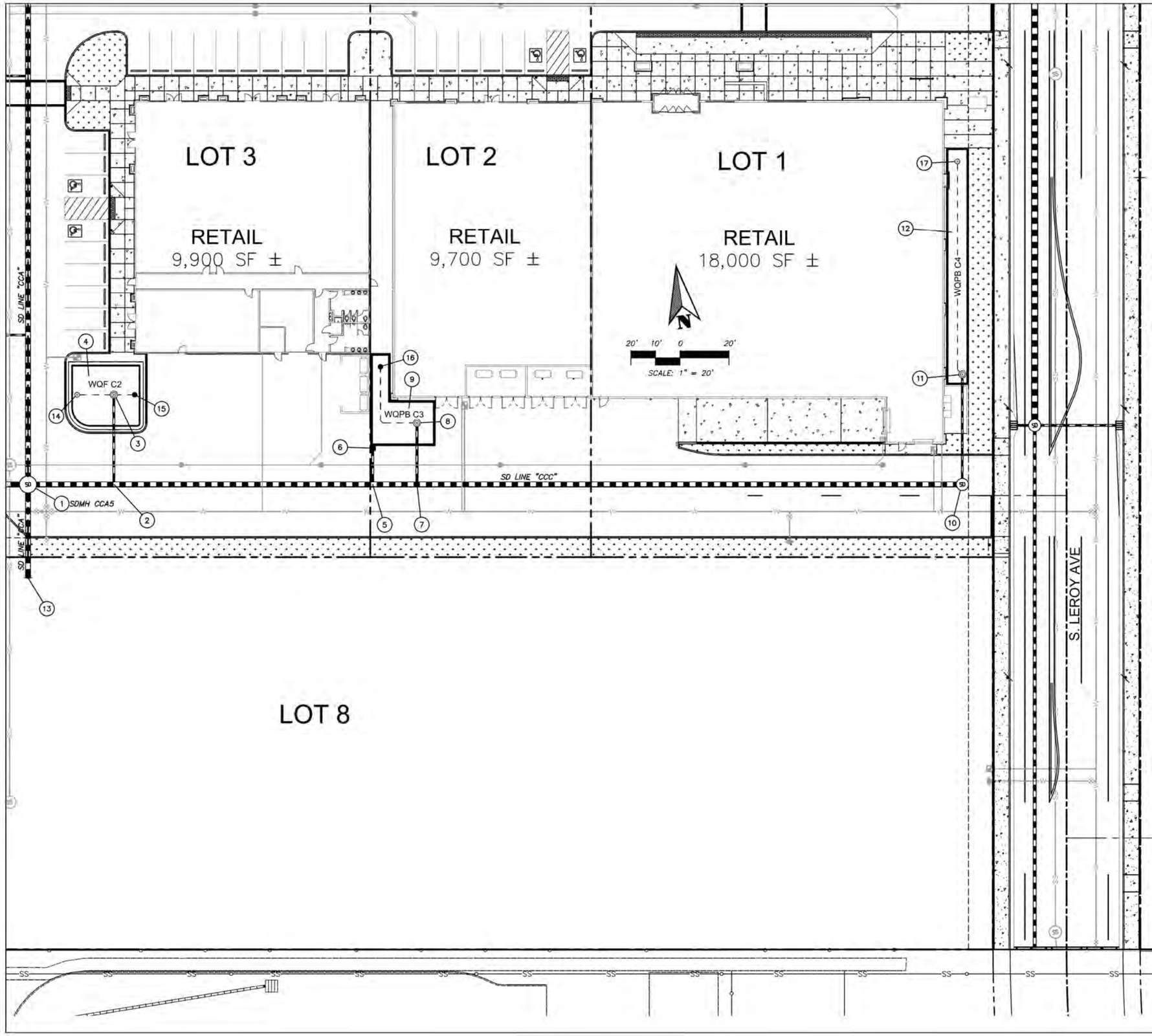
CASCADE CENTER COMMERCIAL
CITY OF MOLALLA
STORM WATER MANAGEMENT PLAN
QUADRANT 3

REV	DATE	BY

PROJECT NUMBER 6684

DATE:	06/15/2020
SCALE:	AS SHOWN
DRAWN BY:	D.G.G.
DESIGNED BY:	M.D.G.
CHECKED BY:	J.C.B.
FILE:	CCCD01C44.dwg

SHEET NUMBER C4.4



CONSTRUCTION NOTES

1. SDMH CCA5
   CONSTRUCT STORM SEWER MANHOLE PER DETAIL 1 SHT C8.5
   SD LINE "CCA" 6+45.39 =
   SD LINE "CCB" 0+00.00 =
   SD LINE "CCC" 0+00.00
   RIM = 355.03
   IE IN (E, W & S) 24" = 347.00
   IE OUT (N) 24" = 347.00
   CONSTRUCT 38.00 LF 24" ADS N-12 (S) @ S= 0.0010
   CONSTRUCT 290.60 LF 24" ADS N-12 (W) @ S= 0.0010
   CONSTRUCT 381.07 LF 24" ADS N-12 (E) @ S= 0.0010
2. SD LINE "CCC" 0+35.00
   INSTALL 24" X 8" TEE, ROTATE TEE 45 DEGREES ABOVE HORIZONTAL
   IE 24" =347.04, IE 8" AT BEND AT 0+2.00= 348.57
   CONSTRUCT 34 LF 8" ADS N-12 FOR OVERFLOW @ S= 0.0774
3. CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4
   IN WATER QUALITY FACILITY DETAIL 1, SHT C8.3
   RIM = 354.55
   IE IN (W & E) 6" = 351.20
   IE OUT (S) 8" = 351.20
4. CONSTRUCT WATER QUALITY FACILITY WQF C2
   PER DETAIL 1, SHT C8.3
   THIS FACILITY IS FOR THE OF THE STORM WATER RUNOFF
   FROM THE ROOF OF THE BUILDING ON LOT 3
5. SD LINE "CCC" 1+40.57
   INSTALL 24" X 8" TEE, ROTATE TEE 45 DEGREES ABOVE HORIZONTAL
   IE 24" =347.14, IE 8" AT BEND AT 0+2.00= 348.67
   CONSTRUCT 12.9 LF 8" ADS N-12 FOR AREA DRAIN @ S= 0.1217
6. SDCB "CCC1"
   CONSTRUCT AREA DRAIN PER DETAIL 1 SHT C8.4
   RIM = 354.24, IE 8" = 350.24
7. SD LINE "CCC" 1+58.62
   INSTALL 24" X 8" TEE, ROTATE TEE 45 DEGREES ABOVE HORIZONTAL
   IE 24" =347.16, IE 8" AT BEND AT 0+2.00= 348.69
   CONSTRUCT 23 LF 8" ADS N-12 FOR OVERFLOW @ S= 0.1017
8. CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4 IN
   WATER QUALITY FLOW THROUGH PLANTER BOX DETAIL 1, SHT C8.3
   RIM = 354.28
   IE IN (W) 6" = 351.03
   IE OUT (S) 8" = 351.03
9. CONSTRUCT WATER QUALITY FLOW THROUGH PLANTER BOX WQPB C3
   BOX PER DETAIL 4, SHT C8.3
10. SDMH CCC1
    CONSTRUCT STORM SEWER MANHOLE PER DETAIL 1 SHT C5.6
    SD LINE "CCC" 3+81.07
    RIM = 356.64
    IE IN (N) 8" = 349.38
    IE OUT (W) 24" = 347.38
    CONSTRUCT 45.00 LF 8" ADS N-12 (N) @ S= 0.0893
11. CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4 IN
    WATER QUALITY FLOW THROUGH PLANTER BOX DETAIL 1, SHT C8.3
    RIM = 356.65
    IE IN (NW) 6" = 353.40
    IE OUT (S) 8" = 353.40
12. CONSTRUCT WATER QUALITY FLOW THROUGH PLANTER BOX WQPB C4
    PER DETAIL4, SHT C8.3
13. SD LINE "CCA" 6+83.39
    INSTALL 24" PLUG
    IE (N) 24" = 347.04
14. CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE"
    PER DETAIL 4, SHT C8.3
    RIM = 354.38, IE FOR PIPE = 351.30
    CONST. 15 LF 6" ADS N-12 PERFORATED PIPE (E)
15. CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
    RIM = 354.92, IE FOR PIPE = 351.67
    CONSTRUCT 8.5 LF 6" ADS N-12 PERFORATED PIPE (W)
16. CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
    RIM = 354.15, IE FOR PIPE = 351.03
    CONSTRUCT 37 LF 6" ADS N-12 PERFORATED PIPE (S)
17. CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE"
    PER DETAIL 4, SHT C8.3
    RIM = 356.48, IE FOR PIPE = 353.40
    CONST. 88 LF 6" ADS N-12 PERFORATED PIPE (E)

Drawing is NOT to scale

MULTI/TECH
ENGINEERING SERVICES, INC.

REGISTERED PROFESSIONAL ENGINEER
OREGON
MARK D. GRENZ
EXPIRES: 06-30-2021

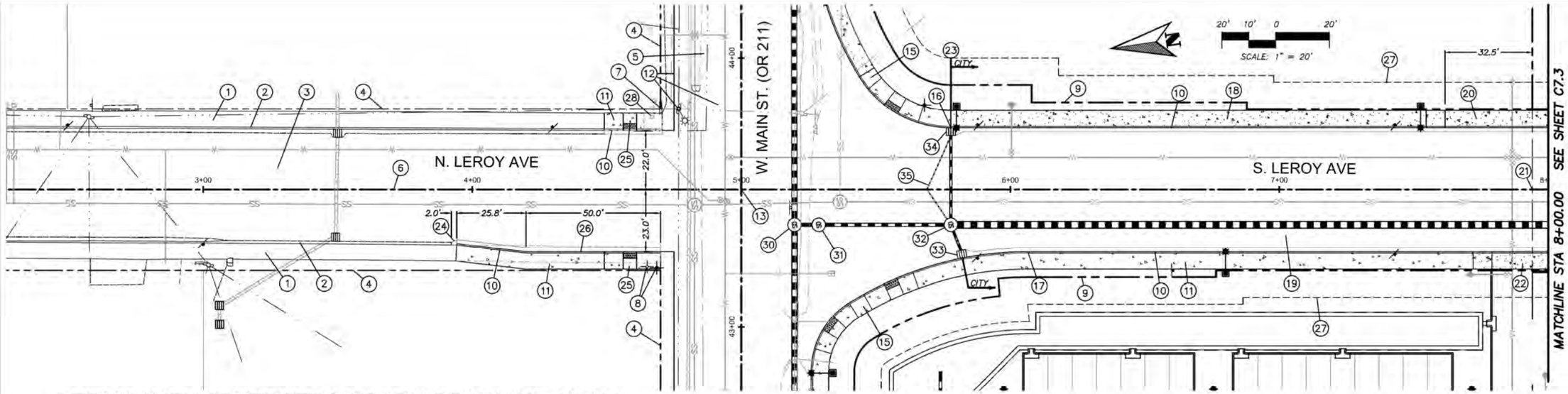
CASCADE CENTER COMMERCIAL
CITY OF MOLALLA
STORM WATER MANAGEMENT PLAN
QUADRANT 4

REV.	DATE	BY

PROJECT NUMBER 6684

DATE:	06/15/2020
SCALE:	AS SHOWN
DRAWN BY:	D.G.G.
DESIGNED BY:	M.D.G.
CHECKED BY:	J.C.B.
FILE:	CCCD01C45.dwg

SHEET NUMBER C4.5



LEROY AVENUE STREET & STORM DRAINAGE PLAN

SCALE: HOR. 1" = 20'

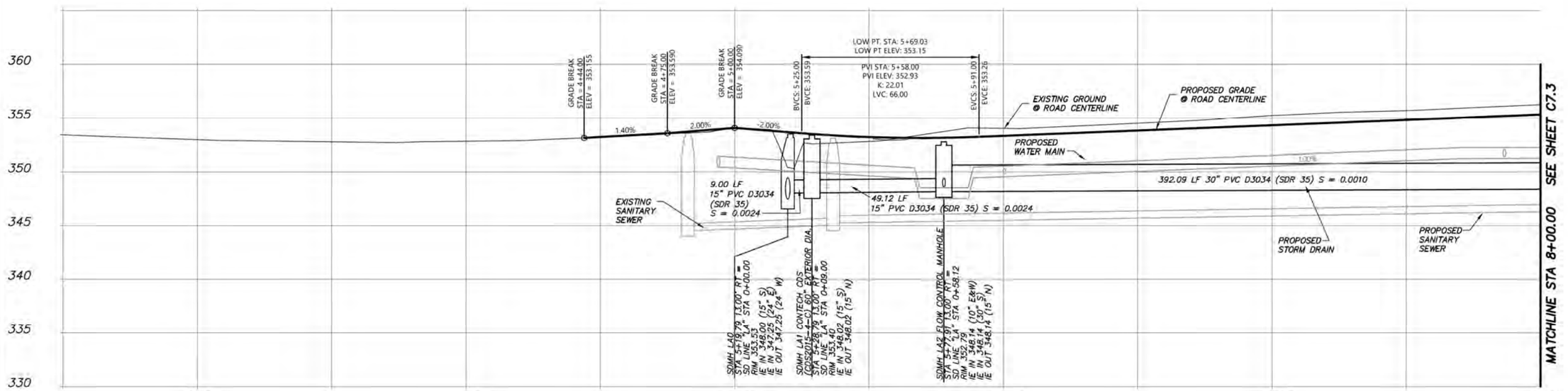
STREET IMPROVEMENT NOTES

1. EXISTING SIDEWALK
2. EXISTING CURB
3. EXISTING ROADWAY PAVEMENT
4. EXISTING RIGHT OF WAY LINE
5. EXISTING EDGE OF PAVEMENT (TYP.)
6. CL ALIGNMENT
7. EXISTING SIGN TO BE PROTECTED
8. SEE SHEET C7.4 & C7.6
9. PROPOSED RIGHT OF WAY LINE
10. STANDARD CURB AND GUTTER TO BE CONSTRUCTED PER DETAIL 3 SHT. C8.2
11. CURB TIGHT SIDEWALK TO BE CONSTRUCTED PER DETAIL 4 SHT. C8.2
12. SEE KITTELSON & ASSOCIATES PLANS FOR IMPROVEMENTS WITHIN ODOT RIGHT-OF-WAY
13. LEROY AVENUE 5+00.00 = OR 211 43+51.00
14. NOT USED
15. SEE SHEET C7.3 FOR CURB RETURN AND INTERSECTION DETAILS
16. LEROY AVENUE 5+77.91 23.00' LT BEGIN CURB RETURN
17. LEROY AVENUE 6+06.50 23.00' RT END CURB RETURN
18. SIDEWALK ON EAST SIDE OF LEROY AVENUE TO BE BUILT WITH FUTURE DEVELOPMENT
19. ROADWAY CONSTRUCTED PER DETAIL 1 SHT. C8.2
20. CONSTRUCT 47.5' COMMERCIAL DRIVEWAY PER DETAIL 5 SHT. C8.2
21. LEROY AVENUE 7+94.04 CL OF DRIVEWAY APPROACH
22. CONSTRUCT 33' COMMERCIAL DRIVEWAY PER DETAIL 5 SHT. C8.2
23. CITY/ODOT JURISDICTIONAL LINE. CITY INSPECTION OF ROAD IMPROVEMENTS FROM LINE TO SOUTH END OF PROJECT. INTERSECTION AND OR 211 IMPROVEMENTS INSPECTION BY ODOT. CITY STORM SYSTEM SYSTEM ENDS AT CONNECTIONS TO SDMH LA1. MANHOLE AND STORM SYSTEM ON OR 211 INSPECTION BY ODOT.
24. TRANSITION FROM EXISTING MOUNTABLE CURB TO CURB & GUTTER PER DETAIL 3 SHT. C8.2
25. SEE RAMP DETAIL SHT. C7.3
26. TOP & FACE OF CURB TO BE PAINTED YELLOW
27. 10' PUBLIC UTILITY EASEMENT
28. EXITING UTILITY COMPANY BOX TO BE ADJUSTED TO NEW FINISHED GRADE
29. NOT USED

STORM DRAINAGE NOTES

30. SDMH LA0 PROPOSED NEW MANHOLE PER DETAIL 1 SHT C8.5 SD LINE LA 0+00.00
31. SDMH LA1 CONSTRUCT NEW CONTECH INLINE CDS (CDS2015-4-C) PER DETAIL 4 SHT C8.4 SD LINE LA 0+09.00
32. SDMH LA2 CONSTRUCT NEW FLOW CONTROL MANHOLE PER DETAIL 2 SHT C8.4 SD LINE LA 0+58.12
33. SDCB LA5 PER DETAIL 5, SHT. C8.5 LEROY AVENUE 5+82.23 25.36' RT. TFC = 353.16 IE OUT = 348.66 (E) 11.66 LF 10" PVC D3034 S=0.0446
34. SDCB LA6 PER DETAIL 5, SHT. C8.5 LEROY AVENUE 5+77.91 23.00' LT. TFC = 353.04 IE OUT = 349.33 (W) 34.5 LF 10" PVC D3034 S=0.0345
35. CONSTRUCT LOW POINT DRAIN PER DETAIL 4 SHT C8.7

Drawing is NOT to scale



LEROY AVENUE STREET & STORM DRAINAGE PROFILE

SCALE: 1" = 20' (Horiz.) / 1" = 5' (Vert.)

MULTI/TECH ENGINEERING SERVICES, INC.

LEROY AVENUE EXTENSION
CITY OF MOLALLA
STREET AND STORM DRAINAGE
PLAN & PROFILE 2+50 TO 8+00

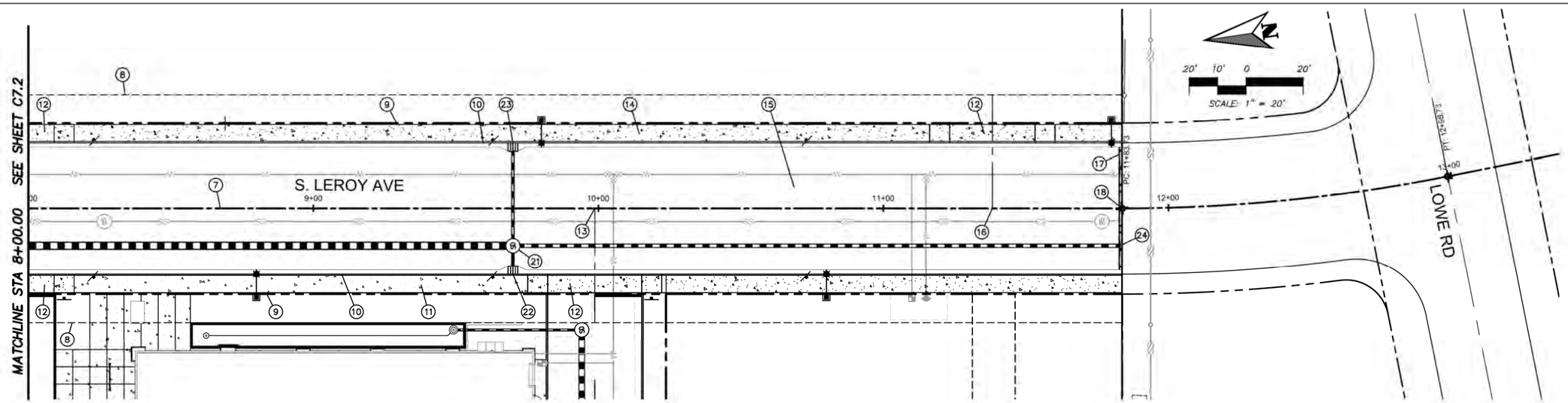
REV.	DATE	BY

PROJECT NUMBER 6684

DATE:	06/15/2020
SCALE:	AS SHOWN
DRAWN BY:	D.G.G.
DESIGNED BY:	M.D.G.
CHECKED BY:	J.C.B.
FILE:	CCCD01C71.dwg

SHEET NUMBER: C7.1

CITY OF MOLALLA
DWG. 2019



LEROY AVENUE STREET & STORM DRAINAGE IMPROVEMENT PLAN

SCALE: HOR. 1" = 20'

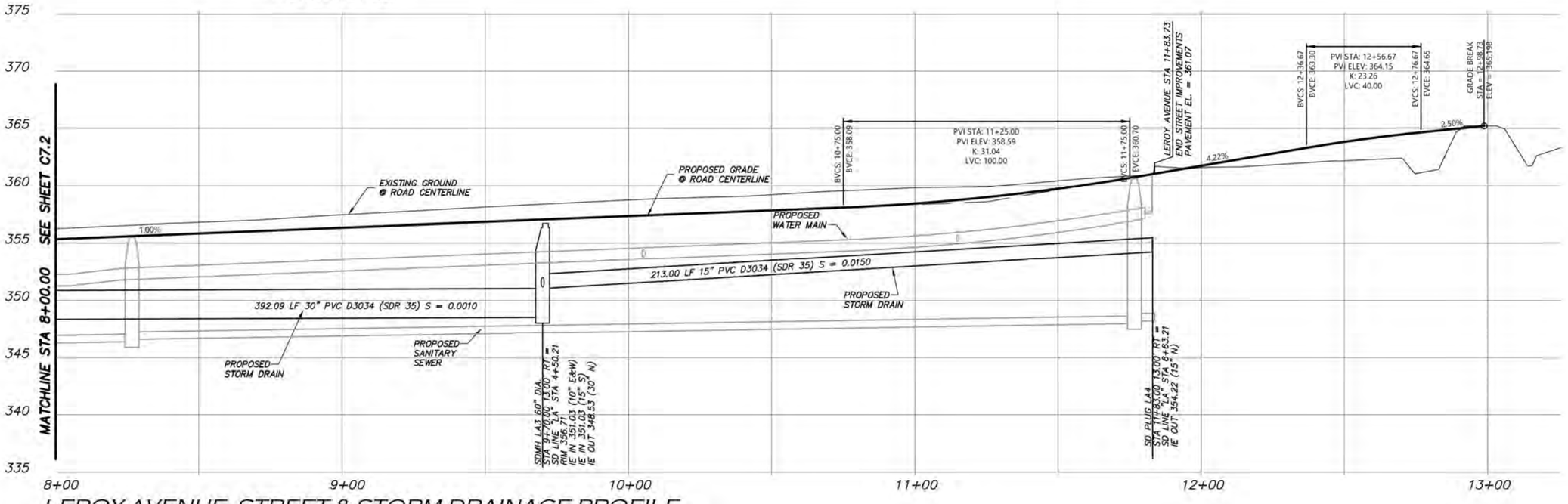
STREET IMPROVEMENT NOTES

1. (1) TO (6) NOT USED
2. (7) CL ALIGNMENT
3. (8) 10' PUBLIC UTILITY EASEMENT
4. (9) PROPOSED RIGHT OF WAY LINE
5. (10) STANDARD CURB AND GUTTER TO BE CONSTRUCTED PER DETAIL 3 SHT C8.2
6. (11) CURB TIGHT SIDEWALK TO BE CONSTRUCTED PER DETAIL 4 SHT C8.2
7. (12) CONSTRUCT COMMERCIAL DRIVEWAY PER DETAIL 5 SHT C8.2
8. (13) LEROY AVENUE 9+98.71 CL OF 33' WIDE DRIVEWAY APPROACH
9. (14) SIDEWALK ON EAST SIDE OF LEROY AVENUE TO BE BUILT WITH FUTURE DEVELOPMENT
10. (15) ROADWAY CONSTRUCTED PER DETAIL 1 SHT C8.2
11. (16) LEROY AVENUE 11+37.21 CL OF 30' WIDE DRIVEWAY APPROACH
12. (17) CONSTRUCT STREET BARRICADES PER DETAIL 6 SHEET C8.2
13. (18) LEROY AVENUE STA. 11+83.71 END STREET IMPROVEMENTS PER DETAIL 2 SHT C8.2
14. (19) TO (20) NOT USED

STORM DRAINAGE NOTES

15. (21) SDMH LA3 CONSTRUCT NEW 60" DIA. MANHOLE PER DETAIL 1 SHT C8.5 SD LINE LA 4+50.21
16. (22) SDCB LA7 PER DETAIL 5, SHT. C8.5 LEROY AVENUE 9+70.00 23.00' RT. TFC = 356.91 IE OUT = 352.91 (E) 8.55 LF 10"PVC D3034 S=0.1614
17. (23) SDCB LA8 PER DETAIL 5, SHT. C8.5 LEROY AVENUE 9+70.00 23.00' LT. TFC = 356.91 IE OUT = 351.38 (W) 34.55 LF 10"PVC D3034 S=0.0100
18. (24) SD PLUG LA4 LEROY AVENUE 11+83.00 23.00' RT. IE OUT = 354.22 (N)

Drawing is NOT to scale



LEROY AVENUE STREET & STORM DRAINAGE PROFILE

SCALE: 1" = 20' (Horiz.) / 1" = 5' (Vert.)

MULTI/TECH
ENGINEERING SERVICES, INC.

LEROY AVENUE EXTENSION
CITY OF MOLALLA
STREET AND STORM DRAINAGE
PLAN & PROFILE 8+00 TO 13+25

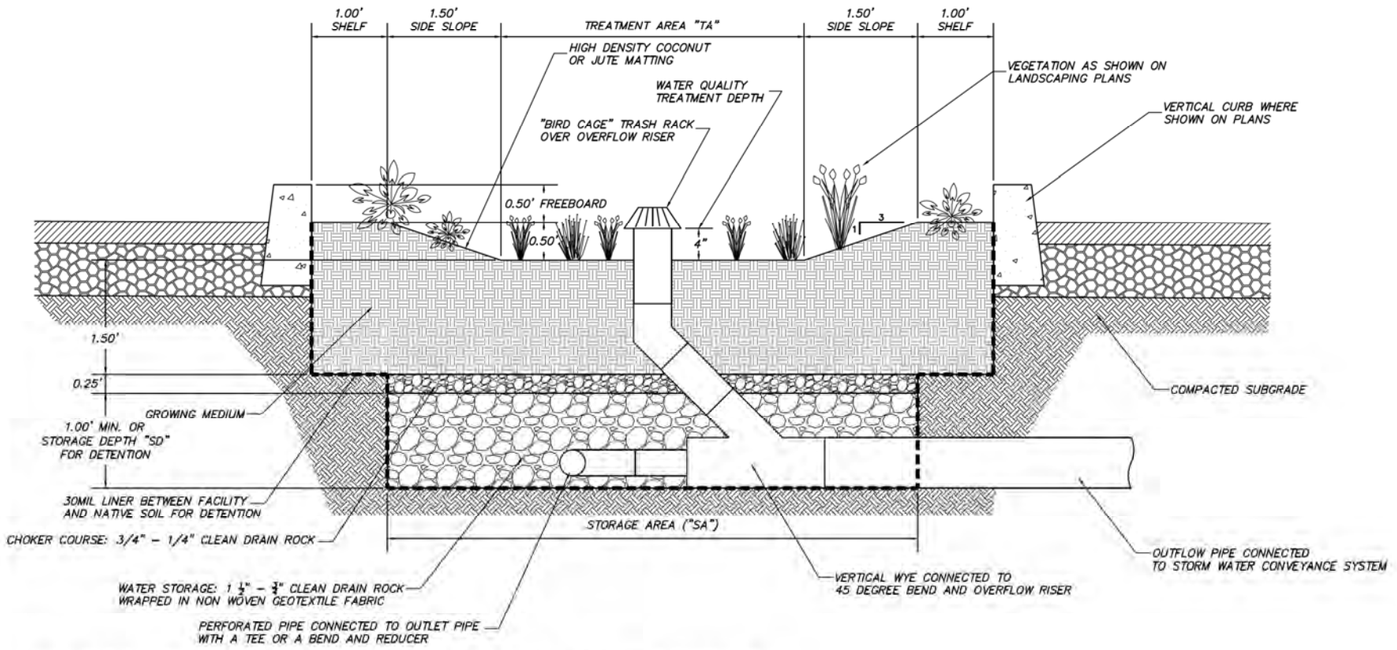
REV.	DATE	BY

PROJECT NUMBER 6684

DATE:	08/15/2020
SCALE:	AS SHOWN
DRAWN BY:	D.G.G.
DESIGNED BY:	M.D.G.
CHECKED BY:	J.C.B.
FILE:	CCCD01C72.dwg

SHEET NUMBER C7.2

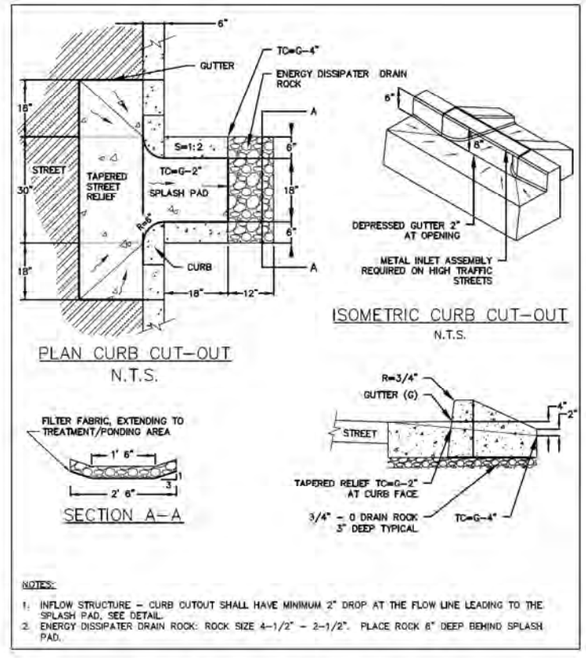
CITY OF MOLALLA
APPROVED 2019



1 C8.3 WATER QUALITY FACILITY / WITH DETENTION

WATER QUALITY FACILITY						
Facility	Water Quality Treatment Area	Water Quantity Detention Area		Perforated Pipe		
	"TA" S.F.	"SA" S.F.	Depth "SD"	Pipe Size	Pipe Slope	Pipe Length
WQPB A1	575.50			6"	0.00%	100'
WQF/D A2	1,109.00	1,314.50	1.0'	6"	0.00%	31'
WQF A3	415.50			6"	0.00%	14'
WQF/D A4	1,335.00	1,563.00	1.0'	6"	0.00%	30'
WQF/D A5	1,961.00	2,737.00	1.0'	6"	0.00%	217'
WQF/D B1	2,021.50	2,536.00	1.0'	8"	0.00%	132'
WQF/D B2	2,818.00	3,642.00	1.0'	8"	0.00%	253'
WQF B3	1,620.50			6"	VARIES	202'
WQF C1	2,012.50			6"	0.10%	76'
WQF C2	666.00			6"	0.67%	23.5'
WQPB C3	576.50			6"	0.00%	37'
WQPB C4	764.00			6"	0.00%	88'

WQF = WATER QUALITY FACILITY
WQF/D = WATER QUALITY FACILITY WITH DETENTION
WQPB = WATER QUALITY FACILITY FLOW THROUGH PLANTER BOX



NOTES:
1. INFLOW STRUCTURE - CURB CUTOUT SHALL HAVE MINIMUM 2" DROP AT THE FLOW LINE LEADING TO THE SPLASH PAD, SEE DETAIL.
2. ENERGY DISSIPATER DRAIN ROCK: ROCK SIZE 4-1/2" - 2-1/2". PLACE ROCK 8" DEEP BEHIND SPLASH PAD.

2 C8.3 CURB CUT-OUT

STORMWATER FACILITY BLENDED SOIL
FURNISH IMPORTED BLENDED SOIL FOR ALL VEGETATED LIDA FACILITIES CONFORMING TO THE FOLLOWING:
- GENERAL COMPOSITION - USE MATERIAL THAT IS ANY BLEND OF LOAMY SOIL, SAND, AND COMPOST THAT IS 30-40% COMPOST (BY VOLUME) AND MEETS THE OTHER CRITERIA IN THIS SPECIFICATION.
- ANALYSIS REQUIREMENTS FOR THE BLENDED MATERIAL: PARTICLE GRADATION - A SIEVE ANALYSIS OF THE BLENDED MATERIAL, INCLUDING COMPOST, SHALL BE CONDUCTED IN CONFORMANCE WITH ASTM C117/C136, AASHTO T11/T27, ASTM D422/D1140, OR ASTM D6913. THE ANALYSIS SHALL INCLUDE THE FOLLOWING SIEVE SIZES: 1 INCH, 3/8 INCH, #4, #10, #20, #40, #60, #100, #200. THE GRADATION OF THE BLEND SHALL MEET THE FOLLOWING GRADATION CRITERIA.

SIEVE SIZE	PERCENT PASSING
1 INCH	100
# 4	75 -100
# 10	40-100
# 40	15-50
# 100	5-25
# 200	5-15

- THE MATERIAL SHALL BE LOOSE AND EASILY BROKEN INTO SMALL PIECES
- IT SHALL BE WELL MIXED AND HOMOGENOUS.
- IT SHALL BE FREE OF WOOD PIECES, PLASTIC, AND OTHER FOREIGN MATTER.
- IT SHALL HAVE NO VISIBLE FREE WATER.

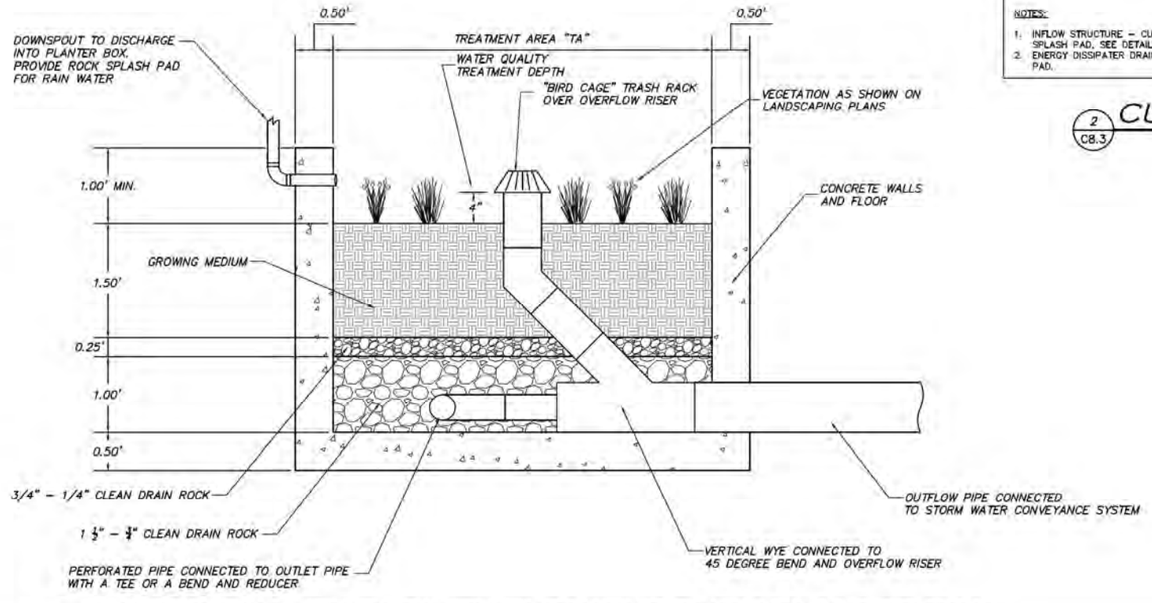
COMPOST
THE COMPOST SHALL BE DERIVED FROM PLANT MATERIAL AND PROVIDED BY A MEMBER OF THE US COMPOSTING COUNCIL SEAL OF TESTING ASSURANCE (STA) PROGRAM. SEE WWW.COMPOSTINGCOUNCIL.ORG FOR A LIST OF LOCAL PROVIDERS.

THE COMPOST SHALL BE THE RESULT OF THE BIOLOGICAL DEGRADATION AND TRANSFORMATION OF PLANT-DERIVED MATERIALS UNDER CONDITIONS DESIGNED TO PROMOTE AEROBIC DECOMPOSITION. THE MATERIAL SHALL BE WELL COMPOSTED, FREE OF VIABLE WEED SEEDS, AND STABLE WITH REGARD TO OXYGEN CONSUMPTION AND CARBON DIOXIDE GENERATION. THE COMPOST SHALL HAVE NO VISIBLE FREE WATER AND PRODUCE NO DUST WHEN HANDLED. IT SHALL MEET THE FOLLOWING CRITERIA, AS REPORTED BY THE US COMPOSTING COUNCIL STA COMPOST TECHNICAL DATA SHEET PROVIDED BY THE VENDOR.

- 100% OF THE MATERIAL MUST PASS THROUGH A 1/2-INCH SCREEN.
- THE PH OF THE MATERIAL SHALL BE BETWEEN 6 MIN. AND 8.5 MAX.
- MANUFACTURED INERT MATERIAL (PLASTIC, CONCRETE, CERAMICS, METAL, ETC.) SHALL BE LESS THAN 1.0% BY WEIGHT.
- THE ORGANIC MATTER CONTENT SHALL BE BETWEEN 30 AND 70% (DRY WEIGHT BASIS).
- SOLUBLE SALT CONTENT SHALL BE LESS THAN 6.0 MMHOS/CM.
- MATURITY INDICATOR SHALL BE GREATER THAN 80% FOR GERMINATION AND VIGOR.
- STABILITY SHALL BE "STABLE TO VERY STABLE".
- CARBON/NITROGEN (C/N) RATIO SHALL BE LESS THAN 25:1.
- TRACE METALS TEST RESULT = "PASS."

CONSTRUCTION
STORMWATER FACILITY BLENDED SOIL
- PROTECTION OF THE SOIL - THE MATERIAL SHALL BE PROTECTED FROM ALL SOURCES OF CONTAMINATION, INCLUDING WEED SEEDS, WHILE AT THE SUPPLIER, IN CONVEYANCE, AND AT THE PROJECT SITE.
- WET AND WINTER CONDITIONS - HAULING AND PLACEMENT OF THE MATERIAL WILL NOT BE ALLOWED WHEN THE WEATHER IS TOO WET OR THE GROUND IS FROZEN OR SATURATED AS DETERMINED BY THE OWNERS REPRESENTATIVE.
- PLACEMENT OF THE SOIL - PLACE THE MATERIAL IN LOOSE LIFTS, NOT TO EXCEED 8 INCHES EACH AND EACH LIFT SHALL BE COMPACTED WITH A WATER-FILLED LANDSCAPE ROLLER. DO NOT OTHERWISE MECHANICALLY COMPACT THE MATERIAL.
- TIMING OF PLANT INSTALLATION - WEATHER PERMITTING AND AS APPROVED, INSTALL PLANTS AS SOON AS POSSIBLE AFTER PLACING AND GRADING THE SOIL IN ORDER TO MINIMIZE EROSION AND FURTHER COMPACTION.
- EROSION CONTROL - TEMPORARY EROSION CONTROL MEASURES ARE REQUIRED UNTIL PERMANENT STABILIZATION MEASURES ARE FUNCTIONAL.
- PROTECTION OF THE INSTALLED SOIL - IN ALL CASES, THE PROTECT INSTALLED MATERIAL FROM FOOT OR EQUIPMENT TRAFFIC AND SURFACE WATER RUNOFF. INSTALL TEMPORARY FENCING OR WALKWAYS AS NEEDED TO KEEP WORKERS, PEDESTRIANS, AND EQUIPMENT OUT OF THE AREA. UNDER NO CIRCUMSTANCES SHOULD MATERIALS AND EQUIPMENT BE STORED ON TOP OF THE INSTALLATION AREA.

3 C8.3 BLENDED SOIL SPECIFICATIONS



4 C8.3 WATER QUALITY FACILITY FLOW THROUGH PLANTER BOX

MULTI/TECH
ENGINEERING SERVICES, INC.

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 17, 1978
MARK V. GRENZ
EXPIRES: 06-30-2021

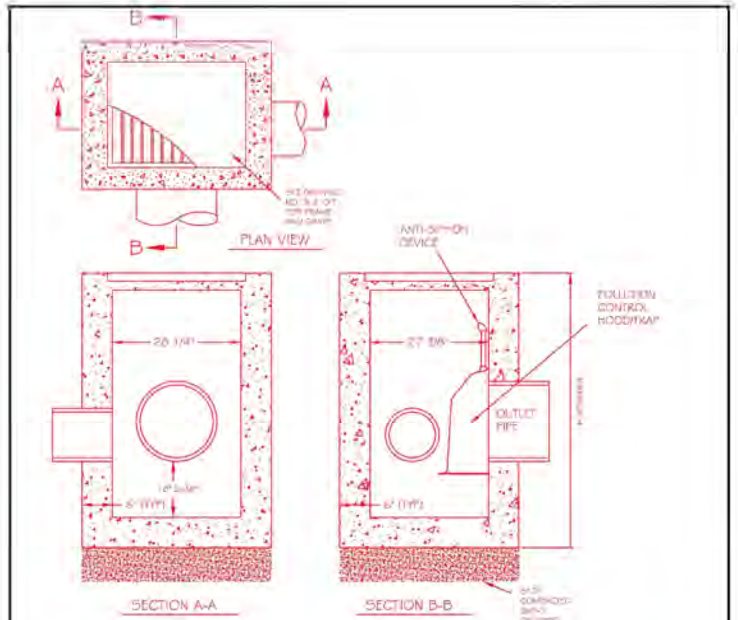
CASCADE CENTER COMMERCIAL
CITY OF MOLALLA
DETAILS SHEET

REV	DATE	BY

PROJECT NUMBER
6684

DATE:	08/15/2020
SCALE:	AS SHOWN
DRAWN BY:	D.G.G.
DESIGNED BY:	M.D.G.
CHECKED BY:	J.C.B.
FILE:	CCCD01C83.dwg

SHEET NUMBER
C8.3



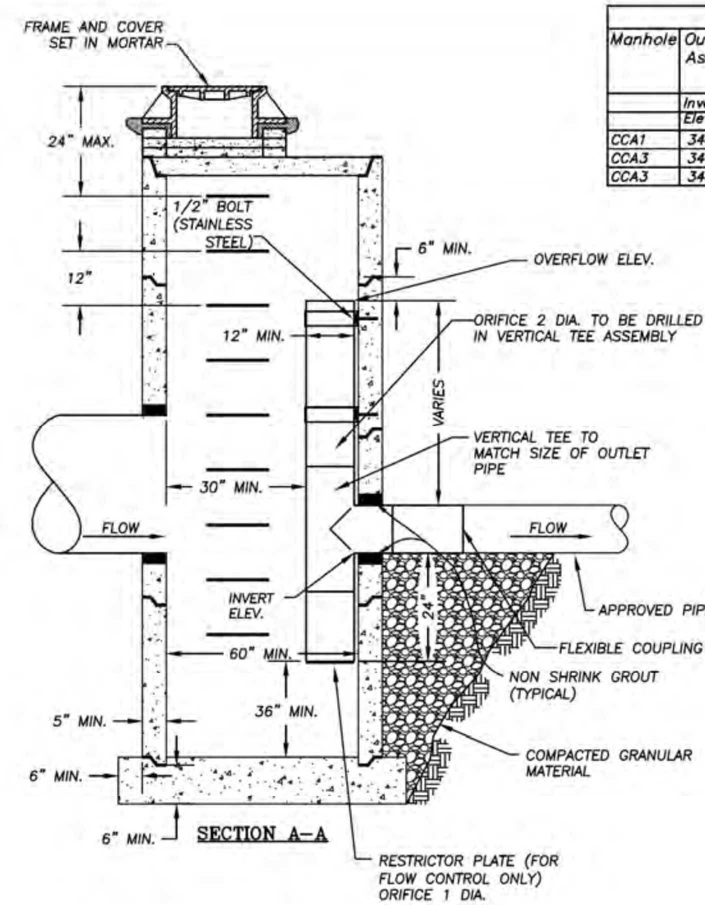
NOTES:
1. AREA DRAIN CONSTRUCTION IN ACCORDANCE WITH ASTM C-478 AND CONCRETE SHALL HAVE A MINIMUM BREAKING STRENGTH OF 3000 PSI. AFTER 28 DAYS.
2. PRECAST SHALL HAVE A MINIMUM WALL THICKNESS OF 5", REINFORCEMENT TO BE REBAR MEETING ASTM A615 GRADE 60 OR WELDED WIRE MEETING ASTM A497.
3. ALL HOODS/TRAPS FOR CATCH BASINS SHALL BE BEST MANAGEMENT PRODUCTS, INC OR APPROVED EQUAL.
4. ALL HOODS/TRAPS SHALL BE EQUIPPED WITH A WATERTIGHT ACCESS PORT, MOUNTING FLANGE, AND ANTI-SIPHON VENT. HOOD SIZE SHALL BE DETERMINED BY THE OUTLET PIPE DIAMETER.
5. SURFACE OF THE STRUCTURE WHERE HOOD IS MOUNTED SHALL BE SMOOTH AND FREE OF LOOSE MATERIAL. HOOD SHALL BE SECURELY ATTACHED TO STRUCTURE WITH STAINLESS STEEL BOLTS AND MANUFACTURER SUPPLIED OIL-RESISTANT GASKET.

Detail Drawing may not be altered or changed in any manner except by the Public Works Director. It is the responsibility of the user to acquire the most current version.

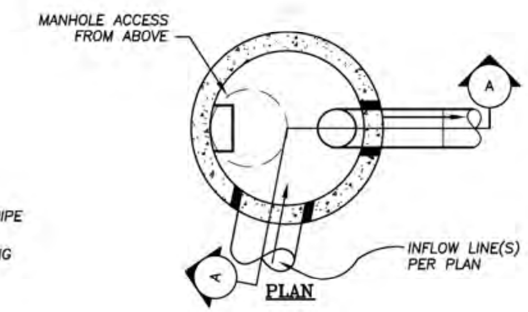
CITY OF MOLALLA
DEPARTMENT OF PUBLIC WORKS
AREA DRAIN - TYPE 2
DRAWN BY GP 01/2018
CHECKED BY GP 01/2018
S-2110

1 / C8.4

PRIVATE AREA DRAIN

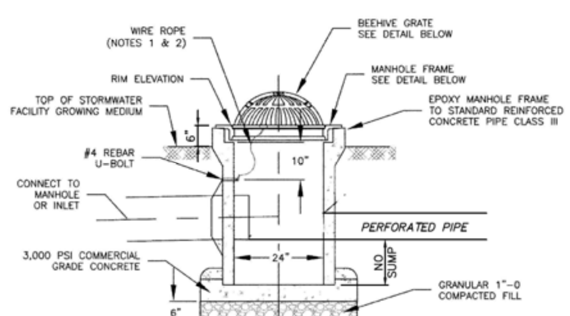


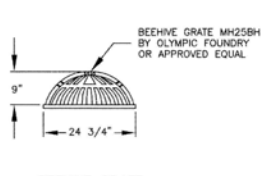
FLOW CONTROL MANHOLE							
Manhole	Outlet Pipe Assembly			Orifice 1 Water Quality Flow	Orifice 2 25 Year Storm Event		Overflow Elev.
	Invert Elevation	Pipe Dia.	Tee Size	Orifice Size	Orifice Size	Orifice Elevation	Overflow Elevation
CCA1	346.40	18.00"	18" x 18"	6.50"	5.50"	347.65	349.00
CCA3	347.86	15.00"	15" x 15"	4.50"	4.00"	349.00	350.00
CCA3	348.14	15.00"	15" x 15"	3.00"	2.75"	349.25	350.75

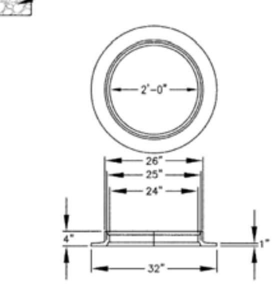


2 / C8.4

FLOW CONTROL MANHOLE





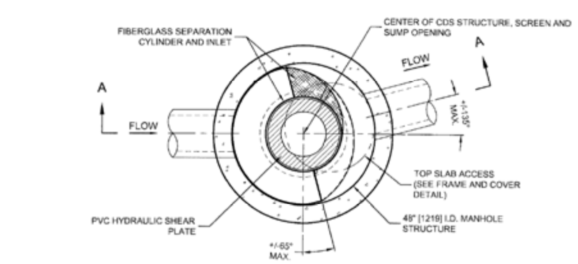


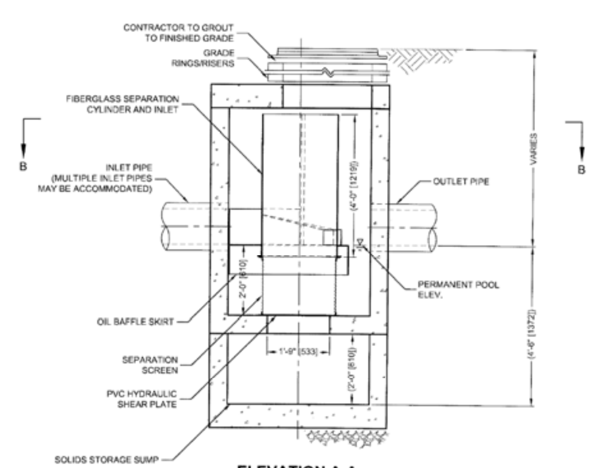
NOTES:

1. SECURE GRATE IN PLACE WITH 54 INCHES OF WIRE ROPE. LOOP ENDS OF WIRE ROPE AROUND U-BOLT AND GRATE. CRIMP EACH END OF WIRE ROPE WITH 3" OVERLAP. WIRE ROPE TO BE 1/8" - 3/16" STAINLESS STEEL, 7 STRANDS OF 19 WIRES
2. DRILL 2" DEEP HOLES INTO PIPE AND EPOXY #4 REBAR U-BOLT (2" X 4") IN HOLES
3. GRATE TO BE CAST IRON, ASTM A48 CL30

3 / C8.4

BEEHIVE AREA DRAIN

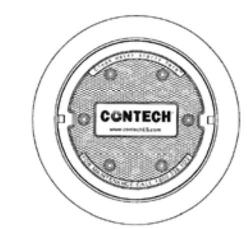




CDS2015-4-C DESIGN NOTES

THE STANDARD CDS2015-4-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS OR L/s)			*
PEAK FLOW RATE (CFS OR L/s)			*
RETURN PERIOD OF PEAK FLOW (YRS)			*
SCREEN APERTURE (2400 OR 4700)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*
NOTES/SPECIAL REQUIREMENTS:			

* PER ENGINEER OF RECORD

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

4 / C8.4

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS2015-4-C
INLINE CDS
STANDARD DETAIL

MULTI/TECH
ENGINEERING SERVICES, INC.

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 14, 1978
MARK D. GRENZ
EXPIRES: 06-30-2021

CASCADE CENTER COMMERCIAL
CITY OF MOLALLA
DETAILS SHEET

REV.	DATE	BY

PROJECT NUMBER
6684

DATE: 06/15/2020
SCALE: AS SHOWN
DRAWN BY: D.G.G.
DESIGNED BY: M.D.G.
CHECKED BY: J.C.B.
FILE: CCCD01C84.dwg

SHEET NUMBER
C8.4

CITY OF MOLALLA
DRW-07-2019

Appendix E

3.3.4 Water Quality Volume and Flow

The water quality storm is the storm required by regulations to be treated. The storm defines both the volume and rate of runoff.

a. Water Quality Storm**:** Total precipitation of 0.36 inches falling in four hours, with a storm return period of 96 hours.

b. Water Quality Volume (WQV**)** is the volume of water that is produced by the water quality storm. WQV is equal to 0.36 inches of rainfall over 100% of the new impervious area:

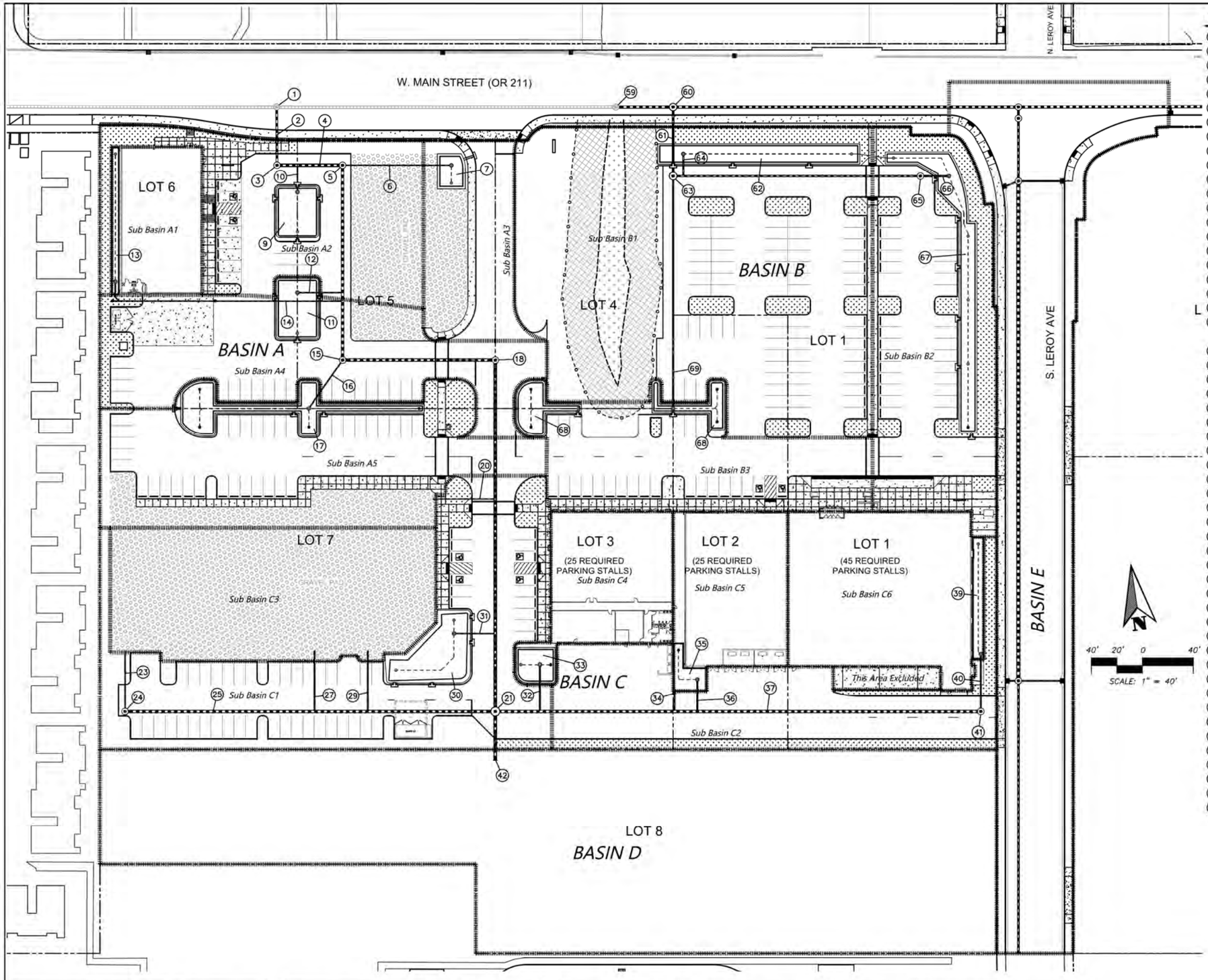
$$\text{Water quality volume (cf)} = \frac{0.36(\text{in}) \times \text{area (sf)}}{12 \text{ (in./ft.)}}$$

c. Water Quality Flow (WQF**)** is the average design flow anticipated from the water quality storm:

$$\text{Water quality flow (cfs)} = \frac{\text{Water quality volume (cf)}}{14{,}400 \text{ sec}}$$

or

$$\text{Water quality flow (cfs)} = \frac{0.36(\text{in}) \times \text{area (sf)}}{12(\text{in/ft.})(4 \text{ hr.})(60 \text{ min/hr.})(60 \text{ sec/min})}$$



CONSTRUCTION NOTES

1. SDMH SX2, SD LINE "CCA" 0+00.00
2. SD LINE "CCA"
3. SDMH CCA1, FLOW CONTROL MANHOLE, SD LINE "CCA" 0+45.47
4. DETENTION PIPE
5. SDMH CCA2, SD LINE "CCA" 0+96.90
6. OVERFLOW PIPE FOR WQF A3
7. WATER QUALITY FACILITY WQF A3
8. NOT USED
9. WATER QUALITY FACILITY / WITH DETENTION WQF/D A2
10. OVERFLOW PIPE FOR WQF/D A2
11. WATER QUALITY FACILITY / WITH DETENTION WQF/D A4
12. OVERFLOW PIPE FOR WQF/D A4
13. WATER QUALITY FLOW THROUGH PLANTER BOX WQPB A1
14. OVERFLOW PIPE FOR WQPB A1
15. SDMH CCA3, SD LINE "CCA" 2+49.45
16. OVERFLOW PIPE FOR WQF/D A5
17. WATER QUALITY FACILITY / WITH DETENTION WQF/D A5
18. SDMH CCA4, FLOW CONTROL MANHOLE, SD LINE "CCA" 3+69.29
19. NOT USED
20. OVERFLOW PIPE STUB & PLUG FOR FUTURE
21. SDMH CCA5, SD LINE "CCA" 6+45.39 = SD LINE "CCB" 0+00.00 = SD LINE "CCC" 0+00.00 =
22. NOT USED
23. OVERFLOW PIPE STUB & PLUG FOR FUTURE
24. SDMH CCB1, SD LINE "CCB" 2+90.60
25. SD LINE "CCB", DETENTION PIPE
26. NOT USED
27. OVERFLOW PIPE STUB & PLUG FOR FUTURE
28. NOT USED
29. OVERFLOW PIPE STUB & PLUG FOR FUTURE
30. WATER QUALITY FACILITY WQF C1
31. OVERFLOW PIPE FOR WQF C1
32. OVERFLOW PIPE FOR WQF C2
33. WATER QUALITY FACILITY WQF C2
34. SDCB CCC1, SD LINE "CCC" 1+40.57
35. WATER QUALITY FLOW THROUGH PLANTER BOX WQPB C5
36. OVERFLOW PIPE FOR WQPB C5
37. SD LINE "CCC", DETENTION PIPE
38. NOT USED
39. WATER QUALITY FLOW THROUGH PLANTER BOX WQPB C6
40. OVERFLOW PIPE FOR WQPB C6
41. SDMH "CCC", SD LINE "CCC" 3+81.07
42. PIPE END PLUG
43. TO (58) NOT USED
59. SDMH SX3
60. SDMH CCF1, SD LINE "CCF" STA 0+00.00
61. SD LINE "CCF"
62. WATER QUALITY FACILITY / WITH DETENTION WQF/D B1
63. SDMH CCF2, FLOW CONTROL MANHOLE, SD LINE "CCF" STA 0+54.26
64. OVERFLOW PIPE FOR WQF/D B1
65. SDMH CCF3, SD LINE "CCF" STA 2+48.32
66. OVERFLOW PIPE FOR WQF/D B2
67. WATER QUALITY FACILITY / WITH DETENTION WQF/D B2
68. WATER QUALITY FACILITY WQF B3
69. OVERFLOW PIPE FOR WQF B3

DRAINAGE BASIN DATA			
BASIN	IMPERVIOUS	PERVIOUS	TOTAL S.F.
SUB BASIN A1	7,700.04	575.83	8,275.87
SUB BASIN A2	18,500.08	5,070.58	23,570.66
SUB BASIN A3	10,784.78	592.87	11,377.65
SUB BASIN A4	22,241.11	3,065.50	25,306.61
SUB BASIN A5	25,270.17	5,630.14	30,900.31
BASIN A	84,496.19	14,934.92	99,431.11

DRAINAGE BASIN DATA			
SUB BASIN B1	47,990.86	13,809.65	61,800.51
SUB BASIN B2	18,313.71	9,941.01	28,254.72
SUB BASIN B3	17,267.55	3,024.34	20,291.89
BASIN B	83,572.13	26,775.00	110,347.13

DRAINAGE BASIN DATA			
BASIN	IMPERVIOUS	PERVIOUS	TOTAL S.F.
SUB BASIN C1	27,723.63	10,444.75	38,168.38
SUB BASIN C2	21,172.02	1,623.16	22,795.18
SUB BASIN C3	25,894.86	0.00	25,894.86
SUB BASIN C4	10,030.64	1,023.67	11,054.31
SUB BASIN C5	10,855.10	576.31	11,431.41
SUB BASIN C6	18,186.43	760.68	18,947.11
BASIN C	113,862.67	14,428.57	128,291.24

DRAINAGE BASIN DATA			
BASIN	IMPERVIOUS	PERVIOUS	TOTAL S.F.
BASIN D (FUTURE)			91,980.33
BASIN E	45,452.24	2,669.43	48,121.67

Drawing is NOT to scale

MULTI/TECH
ENGINEERING SERVICES, INC.

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 14, 1978
MARK D. GRENZ
EXPIRES: 06-30-2021

CASCADE CENTER COMMERCIAL
CITY OF MOLALLA
OVERALL SITE PLAN
STORM WATER DRAINAGE BASIN PLAN

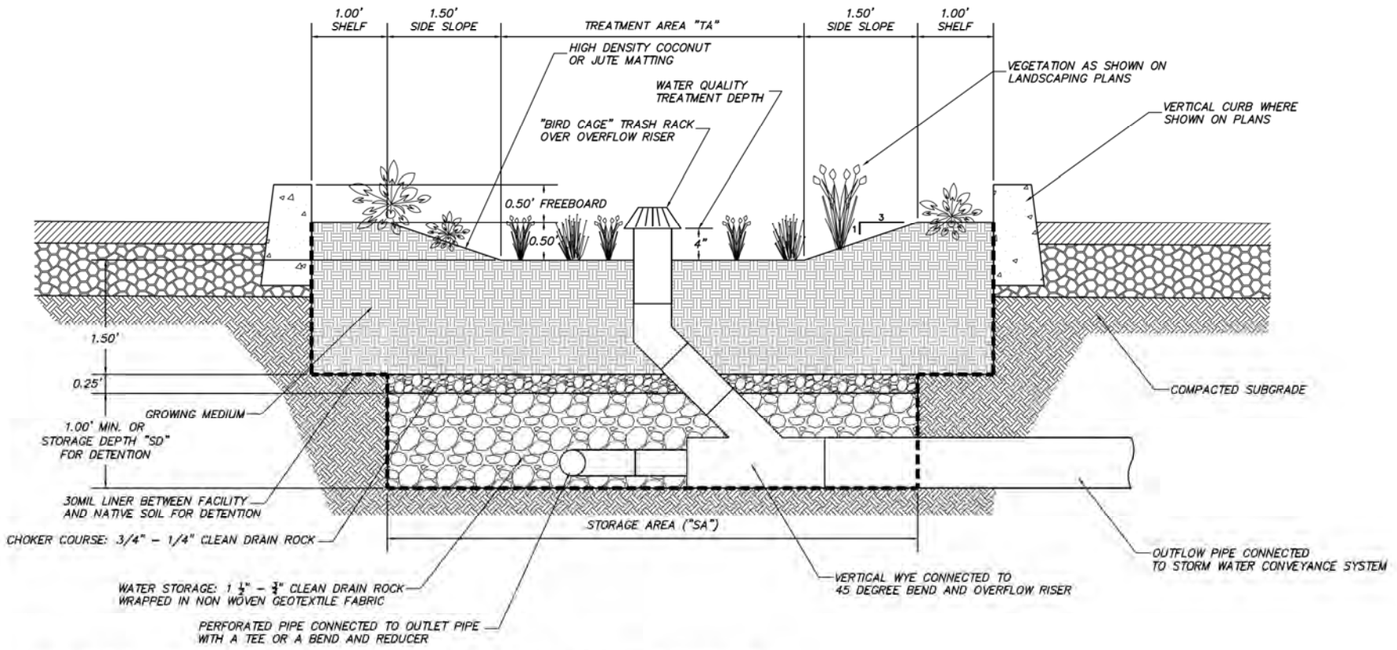
REV.	DATE	BY

PROJECT NUMBER
6684

DATE: 06/15/2020
SCALE: AS SHOWN
DRAWN BY: D.G.G.
DESIGNED BY: M.D.G.
CHECKED BY: J.C.B.
FILE: CCCD01C41.dwg

SHEET NUMBER
C4.1

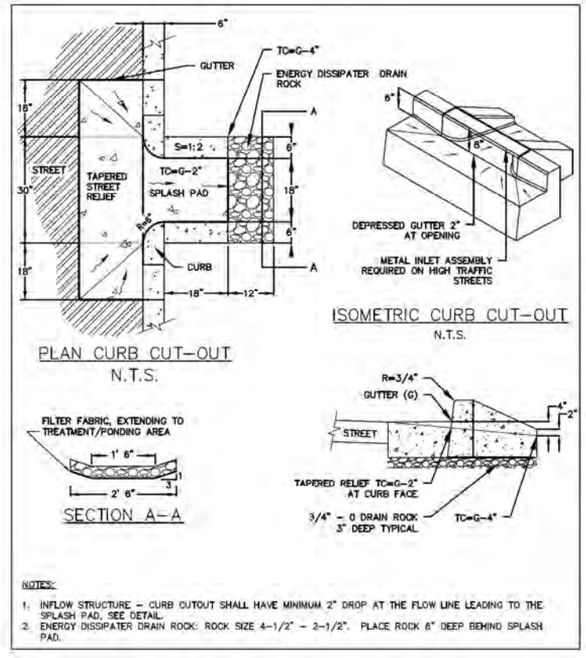
CITY OF MOLALLA
DRW-01-2019



1 C8.3 WATER QUALITY FACILITY / WITH DETENTION

WATER QUALITY FACILITY						
Facility	Water Quality Treatment Area	Water Quantity Detention Area		Perforated Pipe		
	"TA" S.F.	"SA" S.F.	Depth "SD"	Pipe Size	Pipe Slope	Pipe Length
WQPB A1	575.50			6"	0.00%	100'
WQF/D A2	1,109.00	1,314.50	1.0'	6"	0.00%	31'
WQF A3	415.50			6"	0.00%	14'
WQF/D A4	1,335.00	1,563.00	1.0'	6"	0.00%	30'
WQF/D A5	1,961.00	2,737.00	1.0'	6"	0.00%	217'
WQF/D B1	2,021.50	2,536.00	1.0'	8"	0.00%	132'
WQF/D B2	2,818.00	3,642.00	1.0'	8"	0.00%	253'
WQF B3	1,620.50			6"	VARIES	202'
WQF C1	2,012.50			6"	0.10%	76'
WQF C2	666.00			6"	0.67%	23.5'
WQPB C3	576.50			6"	0.00%	37'
WQPB C4	764.00			6"	0.00%	88'

WQF = WATER QUALITY FACILITY
WQF/D = WATER QUALITY FACILITY WITH DETENTION
WQPB = WATER QUALITY FACILITY FLOW THROUGH PLANTER BOX



NOTES:
1. INFLOW STRUCTURE - CURB CUTOUT SHALL HAVE MINIMUM 2" DROP AT THE FLOW LINE LEADING TO THE SPLASH PAD, SEE DETAIL.
2. ENERGY DISSIPATER DRAIN ROCK: ROCK SIZE 4-1/2" - 2-1/2". PLACE ROCK 6" DEEP BEHIND SPLASH PAD.

2 C8.3 CURB CUT-OUT

STORMWATER FACILITY BLENDED SOIL
FURNISH IMPORTED BLENDED SOIL FOR ALL VEGETATED LIDA FACILITIES CONFORMING TO THE FOLLOWING:
- GENERAL COMPOSITION - USE MATERIAL THAT IS ANY BLEND OF LOAMY SOIL, SAND, AND COMPOST THAT IS 30-40% COMPOST (BY VOLUME) AND MEETS THE OTHER CRITERIA IN THIS SPECIFICATION.
- ANALYSIS REQUIREMENTS FOR THE BLENDED MATERIAL:
  PARTICLE GRADATION - A SIEVE ANALYSIS OF THE BLENDED MATERIAL, INCLUDING COMPOST, SHALL BE CONDUCTED IN CONFORMANCE WITH ASTM C117/C136, AASHTO T11/T27, ASTM D422/D1140, OR ASTM D6913. THE ANALYSIS SHALL INCLUDE THE FOLLOWING SIEVE SIZES: 1 INCH, 3/8 INCH, #4, #10, #20, #40, #60, #100, #200. THE GRADATION OF THE BLEND SHALL MEET THE FOLLOWING GRADATION CRITERIA.

SIEVE SIZE	PERCENT PASSING
1 INCH	100
# 4	75 -100
# 10	40-100
# 40	15-50
# 100	5-25
# 200	5-15

- THE MATERIAL SHALL BE LOOSE AND EASILY BROKEN INTO SMALL PIECES
- IT SHALL BE WELL MIXED AND HOMOGENOUS.
- IT SHALL BE FREE OF WOOD PIECES, PLASTIC, AND OTHER FOREIGN MATTER.
- IT SHALL HAVE NO VISIBLE FREE WATER.

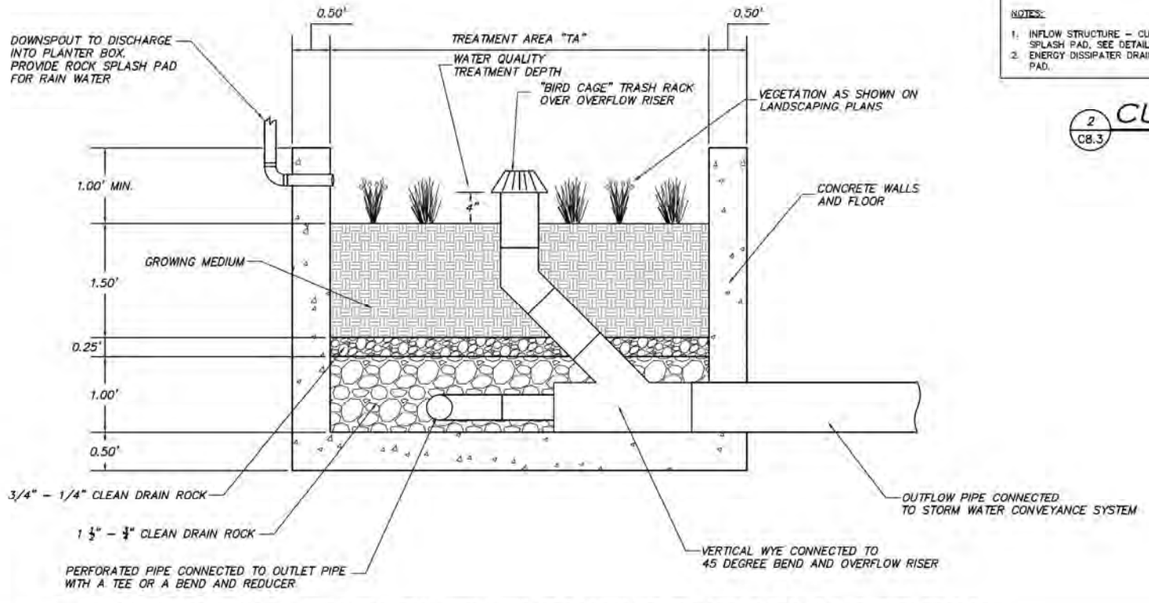
COMPOST
THE COMPOST SHALL BE DERIVED FROM PLANT MATERIAL AND PROVIDED BY A MEMBER OF THE US COMPOSTING COUNCIL SEAL OF TESTING ASSURANCE (STA) PROGRAM. SEE WWW.COMPOSTINGCOUNCIL.ORG FOR A LIST OF LOCAL PROVIDERS.

THE COMPOST SHALL BE THE RESULT OF THE BIOLOGICAL DEGRADATION AND TRANSFORMATION OF PLANT-DERIVED MATERIALS UNDER CONDITIONS DESIGNED TO PROMOTE AEROBIC DECOMPOSITION. THE MATERIAL SHALL BE WELL COMPOSTED, FREE OF VIABLE WEED SEEDS, AND STABLE WITH REGARD TO OXYGEN CONSUMPTION AND CARBON DIOXIDE GENERATION. THE COMPOST SHALL HAVE NO VISIBLE FREE WATER AND PRODUCE NO DUST WHEN HANDLED. IT SHALL MEET THE FOLLOWING CRITERIA, AS REPORTED BY THE US COMPOSTING COUNCIL STA COMPOST TECHNICAL DATA SHEET PROVIDED BY THE VENDOR.

- 100% OF THE MATERIAL MUST PASS THROUGH A 1/2-INCH SCREEN.
- THE PH OF THE MATERIAL SHALL BE BETWEEN 6 MIN. AND 8.5 MAX.
- MANUFACTURED INERT MATERIAL (PLASTIC, CONCRETE, CERAMICS, METAL, ETC.) SHALL BE LESS THAN 1.0% BY WEIGHT.
- THE ORGANIC MATTER CONTENT SHALL BE BETWEEN 30 AND 70% (DRY WEIGHT BASIS).
- SOLUBLE SALT CONTENT SHALL BE LESS THAN 6.0 MMHOS/CM.
- MATURITY INDICATOR SHALL BE GREATER THAN 80% FOR GERMINATION AND VIGOR.
- STABILITY SHALL BE "STABLE TO VERY STABLE".
- CARBON/NITROGEN (C/N) RATIO SHALL BE LESS THAN 25:1.
- TRACE METALS TEST RESULT = "PASS."

CONSTRUCTION
STORMWATER FACILITY BLENDED SOIL
- PROTECTION OF THE SOIL - THE MATERIAL SHALL BE PROTECTED FROM ALL SOURCES OF CONTAMINATION, INCLUDING WEED SEEDS, WHILE AT THE SUPPLIER, IN CONVEYANCE, AND AT THE PROJECT SITE.
- WET AND WINTER CONDITIONS - HAULING AND PLACEMENT OF THE MATERIAL WILL NOT BE ALLOWED WHEN THE WEATHER IS TOO WET OR THE GROUND IS FROZEN OR SATURATED AS DETERMINED BY THE OWNERS REPRESENTATIVE.
- PLACEMENT OF THE SOIL - PLACE THE MATERIAL IN LOOSE LIFTS, NOT TO EXCEED 8 INCHES EACH AND EACH LIFT SHALL BE COMPACTED WITH A WATER-FILLED LANDSCAPE ROLLER. DO NOT OTHERWISE MECHANICALLY COMPACT THE MATERIAL.
- TIMING OF PLANT INSTALLATION - WEATHER PERMITTING AND AS APPROVED, INSTALL PLANTS AS SOON AS POSSIBLE AFTER PLACING AND GRADING THE SOIL IN ORDER TO MINIMIZE EROSION AND FURTHER COMPACTION.
- EROSION CONTROL - TEMPORARY EROSION CONTROL MEASURES ARE REQUIRED UNTIL PERMANENT STABILIZATION MEASURES ARE FUNCTIONAL.
- PROTECTION OF THE INSTALLED SOIL - IN ALL CASES, THE PROTECT INSTALLED MATERIAL FROM FOOT OR EQUIPMENT TRAFFIC AND SURFACE WATER RUNOFF. INSTALL TEMPORARY FENCING OR WALKWAYS AS NEEDED TO KEEP WORKERS, PEDESTRIANS, AND EQUIPMENT OUT OF THE AREA. UNDER NO CIRCUMSTANCES SHOULD MATERIALS AND EQUIPMENT BE STORED ON TOP OF THE INSTALLATION AREA.

3 C8.3 BLENDED SOIL SPECIFICATIONS



4 C8.3 WATER QUALITY FACILITY FLOW THROUGH PLANTER BOX

MULTI/TECH
ENGINEERING SERVICES, INC.

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 13, 1978
MARK D. GRENZ
EXPIRES: 06-30-2021

CASCADE CENTER COMMERCIAL
CITY OF MOLALLA
DETAILS SHEET

REV	DATE	BY

PROJECT NUMBER
6684

DATE:	08/15/2020
SCALE:	AS SHOWN
DRAWN BY:	D.G.G.
DESIGNED BY:	M.D.G.
CHECKED BY:	J.C.B.
FILE:	CCCD01C83.dwg

SHEET NUMBER
C8.3

CASCADE CENTER
COMMERCIAL DEVELOPMENT
MOLALLA, OREGON

PROJECT INFORMATION

PROPERTY INFORMATION

Address: 121 S Hezzie Lane, Molalla, OR
Tax Maps: 52E08C00800, 52E08C00801, 52E08C00900, 52E08C00700, 52E08C00400
Development Site Area: 19 Acres
Current Zone: General Commercial
Location: South Side of State Highway 211 Between N Hezzie Lane and Ridings Avenue.

APPLICANT/OWNER

I & E CONSTRUCTION
9550 SE Clackamas Road
Clackamas, OR. 97015
503-655-7933
CONTACT: Karl Ivanov

PROJECT SURVEYOR

MULTI/TECH ENGINEERING SERVICES INC.
1151 13th Street S.E.
Salem, OR. 97302
503-363-9227
CONTACT: Robert Hamman, P.L.S.

PROJECT CIVIL ENGINEER

MARK D. GRENZ, P.E.
1151 13th Street S.E.
Salem, OR. 97302
503-363-9227

PROJECT TRAFFIC ENGINEER

KITTELSON & ASSOCIATES, INC
851 SW 6th Avenue, Suite 600
Portland, OR. 97204
503-228-5230
CONTACT: Chris Brehmer P.E.

PROJECT ENVIRONMENTAL CONSULTANT

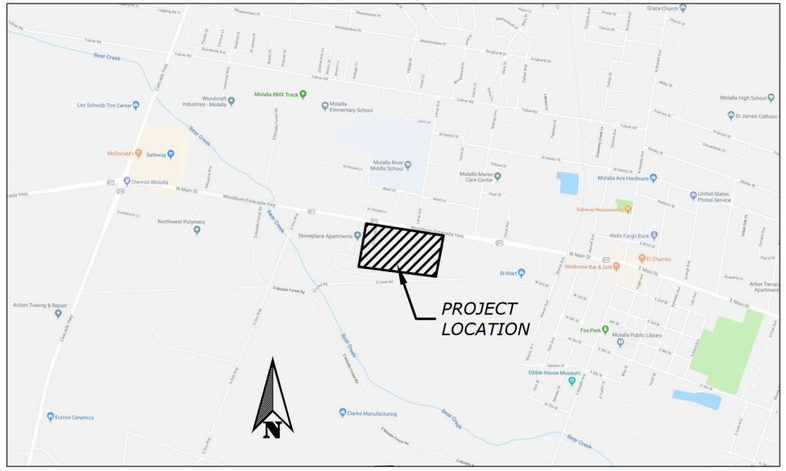
REDMOND GEOTECHNICAL SERVICES, LLC
PO Box 20547
Portland, OR. 97294
503-285-0598
CONTACT: Daniel M. Redmond P.E., G.E.

BENCHMARK

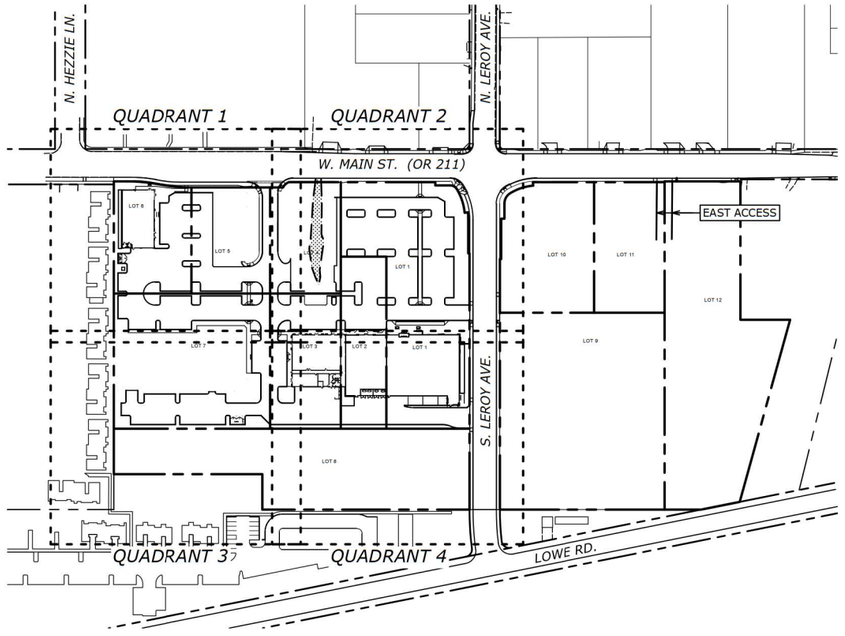
CLACKAMAS COUNTY BENCHMARK.
3-1/4" BRONZE DISK LOCATED AT THE INTERSECTION OF STATE HIGHWAY 211 AND ONA WAY. BENCHMARK ELEVATION = 340.16 NAVD 88

UTILITIES / SERVICES

WATER: CITY OF MOLALLA 503-829-6855
SEWER: CITY OF MOLALLA 503-829-6855
POWER: PORTLAND GENERAL ELECTRIC (PGE) 503-323-6700
GAS: N.W. NATURAL GAS 503-422-4012 ext. 2427
PHONE: MOLALLA COMMUNICATIONS 503-829-1100
CABLE: WAVE BROADBAND 503-899-3267



VICINITY MAP



SITE MAP

SHEET INDEX

MULTI/TECH
ENGINEERING SERVICES, INC.
1155 13th ST. S.E. SALEM, OR. 97302
PH. (503) 363 - 9227 FAX (503) 364-1260
www.mtengineering.net office@mtengineering.net

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 14, 1978
MARK D. GRENZ
EXPIRES: 06-30-2021

CASCADE CENTER COMMERCIAL DEVELOPMENT
CITY OF MOLALLA
COVER SHEET

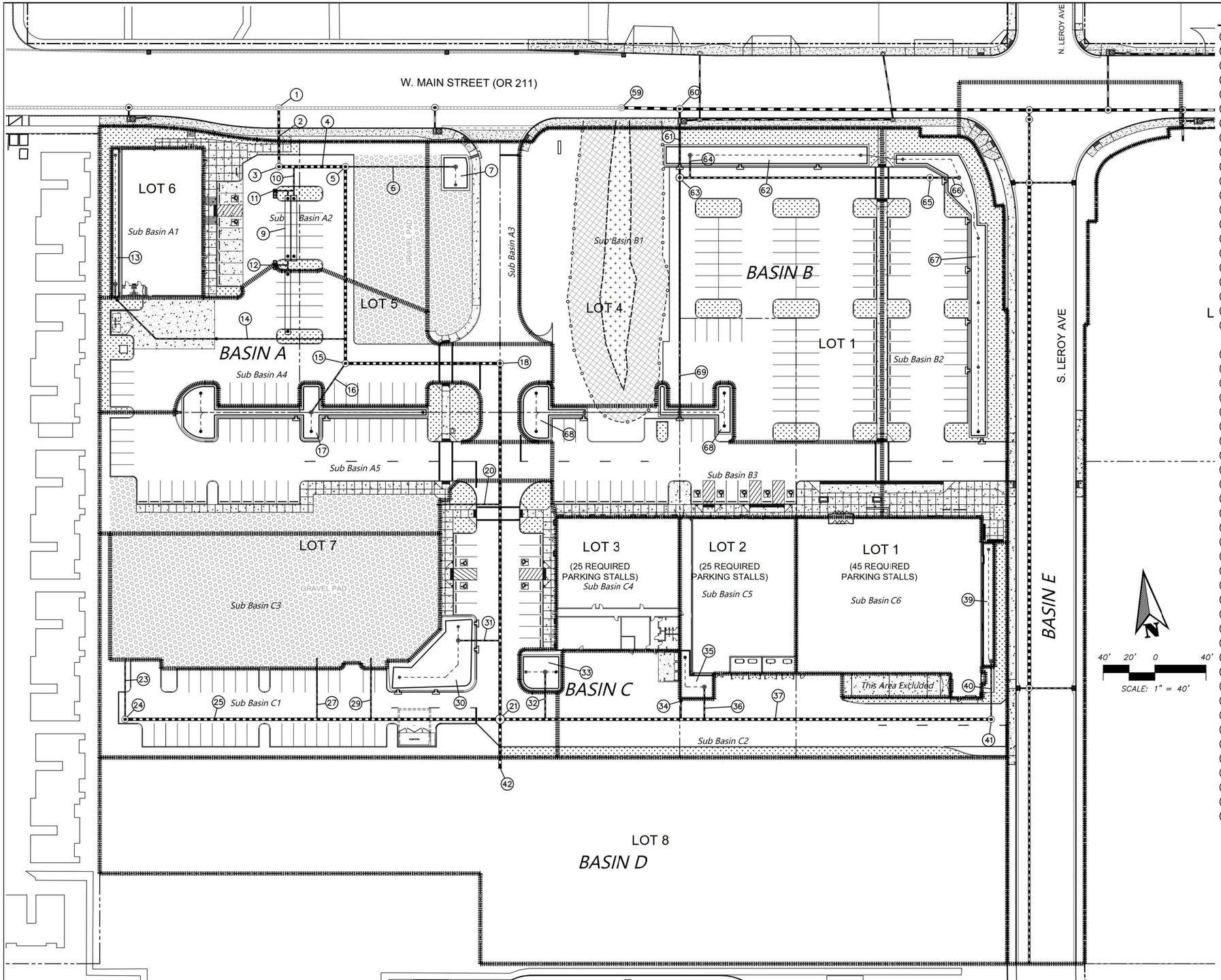
REV.	DATE	BY
1	2020-08-13	D.G.G.
2	2020-09-01	D.G.G.
3	2020-09-28	T.N.S.
4	2020-10-28	D.G.G.
5	2020-12-09	P.H.S.
6	2020-12-16	D.G.G.
7	2021-01-04	D.G.G.

PROJECT NUMBER
6684

DATE: 06/15/2020
SCALE: AS SHOWN
DRAWN BY: D.G.G.
DESIGNED BY: M.D.G.
CHECKED BY: J.C.B.
FILE: CCCD01C00.dwg

SHEET NUMBER
C0.0

CITY OF MOLALLA
DRW. 01-2019



CONSTRUCTION NOTES

1. SDMH SX2, SD LINE "CCA" 0+00.00
2. SD LINE "CCA"
3. SDMH CCA1, FLOW CONTROL MANHOLE, SD LINE "CCA" 0+45.47
4. DETENTION PIPE
5. SDMH CCA2, SD LINE "CCA" 0+96.90
6. OVERFLOW PIPE FOR WQF A3
7. WATER QUALITY FACILITY WQF A3
8. NOT USED
9. DETENTION WQD A2 & A4
10. PIPE FOR WQD A2 & A4
11. WATER QUALITY FACILITY WQF A2
12. WATER QUALITY FACILITY WQF A4
13. WATER QUALITY FLOW THROUGH PLANTER BOX WQPB A1
14. OVERFLOW PIPE FOR WQPB A1
15. SDMH CCA3, SD LINE "CCA" 2+49.45
16. OVERFLOW PIPE FOR WQF/D A5
17. WATER QUALITY FACILITY / WITH DETENTION WQF/D A5
18. SDMH CCA4, FLOW CONTROL MANHOLE, SD LINE "CCA" 3+69.29
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26. NOT USED
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30. WATER QUALITY FACILITY WQF C1
31. OVERFLOW PIPE FOR WQF C1
32. OVERFLOW PIPE FOR WQF C2
33. WATER QUALITY FACILITY WQF C2
34. SDCB CCC1, SD LINE "CCC" 1+40.57
35. WATER QUALITY FLOW THROUGH PLANTER BOX WQPB C5
36. OVERFLOW PIPE FOR WQPB C5
37. SD LINE "CCC", DETENTION PIPE
38. NOT USED
39. WATER QUALITY FLOW THROUGH PLANTER BOX WQPB C6
40. OVERFLOW PIPE FOR WQPB C6
41. SDMH "CCC", SD LINE "CCC" 3+81.07
42. PIPE END PLUG
43. TO (58) NOT USED
59. SDMH SX3
60. SDMH CCF1, SD LINE "CCF" STA 0+00.00
61. SD LINE "CCF"
62. WATER QUALITY FACILITY / WITH DETENTION WQF/D B1
63. SDMH CCF2, FLOW CONTROL MANHOLE, SD LINE "CCF" STA 0+54.26
64. OVERFLOW PIPE FOR WQF/D B1
65. SDMH CCF3, SD LINE "CCF" STA 2+48.32
66. OVERFLOW PIPE FOR WQF/D B2
67. WATER QUALITY FACILITY / WITH DETENTION WQF/D B2
68. WATER QUALITY FACILITY WQF B3
69. OVERFLOW PIPE FOR WQF B3

DRAINAGE BASIN DATA			
BASIN	IMPERVIOUS	PERVIOUS	TOTAL S.F.
SUB BASIN A1	7,700.04	575.83	8,275.87
SUB BASIN A2	16,836.30	5,070.58	21,906.88
SUB BASIN A3	10,787.78	592.87	11,380.65
SUB BASIN A4	23,905.05	3,065.50	26,970.55
SUB BASIN A5	25,270.17	5,630.14	30,900.31
BASIN A	84,499.35	14,934.92	99,434.27

DRAINAGE BASIN DATA			
SUB BASIN B1	47,987.86	13,809.65	61,797.51
SUB BASIN B2	18,313.71	9,941.01	28,254.72
SUB BASIN B3	17,267.55	3,024.34	20,291.89
BASIN B	83,569.13	26,775.00	110,344.13

DRAINAGE BASIN DATA			
BASIN	IMPERVIOUS	PERVIOUS	TOTAL S.F.
SUB BASIN C1	27,885.63	10,282.75	38,168.38
SUB BASIN C2	21,172.02	1,623.16	22,795.18
SUB BASIN C3	25,894.86	0.00	25,894.86
SUB BASIN C4	10,030.64	1,023.67	11,054.31
SUB BASIN C5	10,855.10	576.31	11,431.41
SUB BASIN C6	18,186.43	760.68	18,947.11
BASIN C	114,024.67	14,266.57	128,291.24

DRAINAGE BASIN DATA			
BASIN	IMPERVIOUS	PERVIOUS	TOTAL S.F.
BASIN D (FUTURE)			91,980.33
BASIN E	45,452.24	2,669.43	48,121.67

MULTI/TECH
ENGINEERING SERVICES, INC.

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 14, 1978
MARK D. GRENZ
EXPIRES: 06-30-2021

CASCADE CENTER COMMERCIAL
CITY OF MOLALLA
OVERALL SITE PLAN
STORM WATER DRAINAGE BASIN PLAN

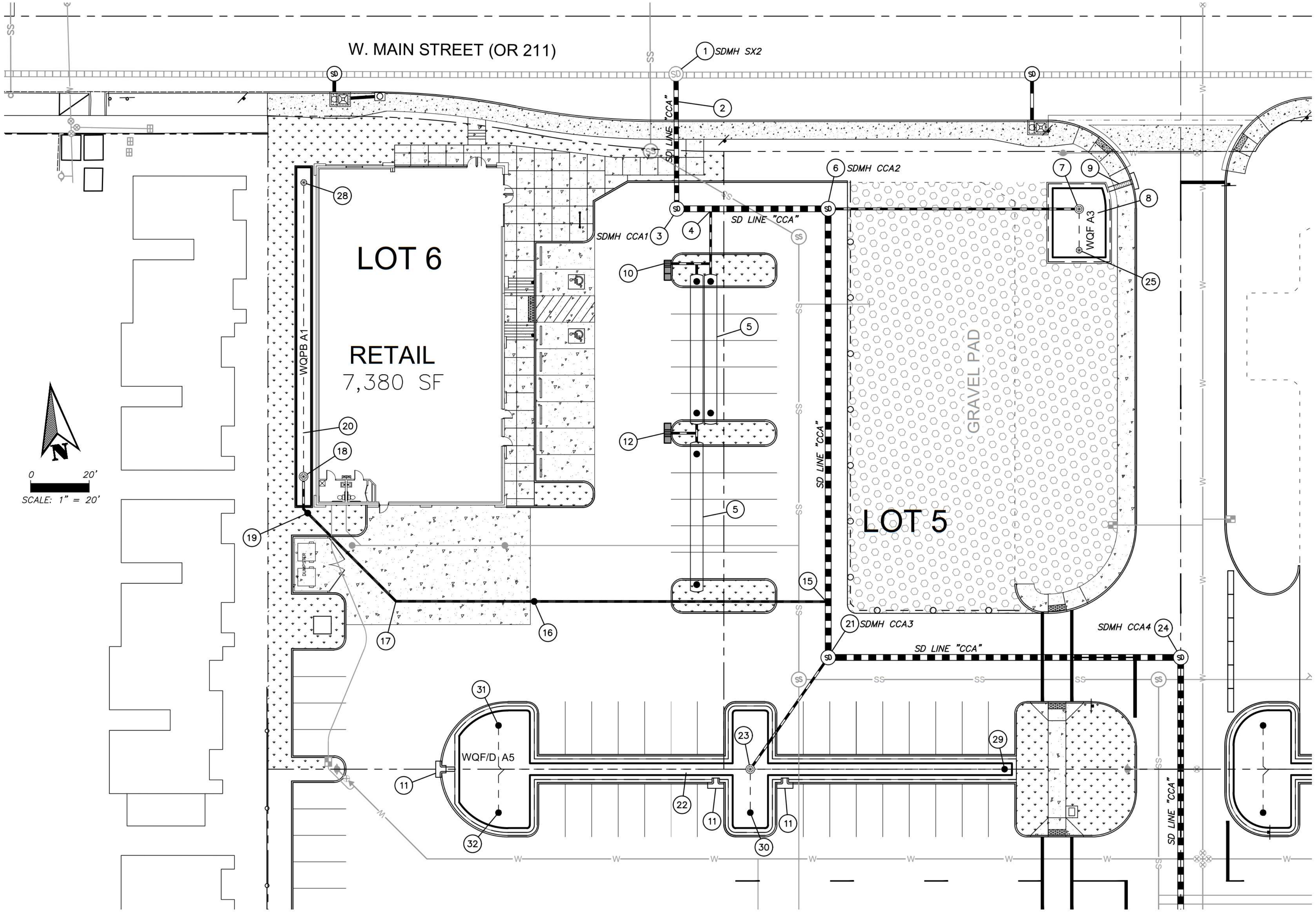
REV.	DATE	BY
1	2020-08-13	D.G.G.

PROJECT NUMBER 6684

DATE: 06/15/2020
SCALE: AS SHOWN
DRAWN BY: D.G.G.
DESIGNED BY: M.D.G.
CHECKED BY: J.C.B.
FILE: CCCD01C41.dwg

SHEET NUMBER C4.1

CITY OF MOLALLA
DRW-01-2019



CONSTRUCTION NOTES

(1) EXISTING STORM DRAIN MANHOLE SDMH SX2
SD LINE "CCA" 0+00.00
CONNECT TO EXISTING STORM DRAIN MANHOLE SX2
IE IN (S) 18" = 346.12, IE IN (E) 24" = 345.64
IE OUT (W) 24" = 345.54
UPON REMOVAL OF 12" CONCRETE PIPE, THE SIZE OF THE HOLE IN THE MANHOLE SHOULD BE LARGE ENOUGH TO FIT IN A 18" ADS N-12 PIPE, IF NOT BORE OUT HOLE LARGE ENOUGH FOR 18" ADS N-12 PIPE.
CONSTRUCT 45.47 LF 18" ADS N-12 (S) @ S= 0.0040
ADJUST MANHOLE RIM TO NEW GRADES
(VERIFY LOCATION AND ELEVATION OF EXISTING STORM DRAIN PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES)

(2) EXISTING 12" CONCRETE PIPE FROM DITCH TO MANHOLE TO BE REMOVED

(3) SDMH CCA1
CONSTRUCT STORM DRAIN FLOW CONTROL MANHOLE PER DETAIL 2 SHT C8.4
SD LINE "CCA" 0+45.47
RIM = 350.93
IE IN (E) 24" = 346.40
IE OUT (N) 18" = 346.30
CONSTRUCT 51.43 LF 24" ADS N-12 (E) @ S= 0.0010

(4) SD LINE "CCA" 0+57.01
INSTALL 24" X 24" TEE, 24" X 15" REDUCER (ADS 2475AN)
IE 24" = 346.41, IE 15" = 346.41
CONSTRUCT 22 LF 8" ADS N-12 TO CHAMBERMAXX @ S= 0.0000

(5) CONSTRUCT WQD A2 & A4
CONTECH CHAMBERMAXX SYSTEM, DETAILS 1-4, SHT C8.8
IE OUT (N) 15" = 346.41

(6) SDMH CCA2
CONSTRUCT STORM DRAIN MANHOLE PER DETAIL 1 SHT C8.5
SD LINE "CCA" 0+96.90
RIM = 351.24
IE IN (E) 8" = 347.25
IE IN (S) 24" = 346.45
IE OUT (W) 24" = 346.45
CONSTRUCT 85.40 LF 8" ADS N-12 (E) @ S= 0.0024
CONSTRUCT 152.54 LF 24" ADS N-12 (S) @ S= 0.0010

(7) CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4
IN WATER QUALITY FACILITY PER DETAIL 1, SHT C8.3
RIM = 350.20
IE IN (S) 6" = 346.95
IE OUT (W) 8" = 346.95
CONSTRUCT 14 LF 6" ADS N-12 PERFORATED PIPE (S)

(8) CONSTRUCT WATER QUALITY FACILITY WQF A3 PER DETAIL 1, SHT C8.3

(9) CONSTRUCT SIDEWALK BRIDGE, CHANNEL & GRATES
PER DETAIL 3, SHT C8.7

(10) CONSTRUCT WATER QUALITY FACILITY WQF A2
CONTECH CARTRIDGE CATCHBASIN STORMFILTER
WITH 18" CARTRIDGE PER DETAIL 1, SHT C8.9
RIM = 350.90
IE OUT (E) 10" = 348.60
CONSTRUCT 10" 45° BEND (VERTICAL) AT OUTLET
CONSTRUCT 10" 45° BEND (VERTICAL) IE = 346.62
& 10" X 15" INCREASER IE = 346.41
CONSTRUCT 10" ADS N-12 TO 15" TEE AT CHAMBERMAXX S= 0.0000

(11) CONSTRUCT CURB CUT
PER DETAIL 2, SHT C8.3

(12) CONSTRUCT WATER QUALITY FACILITY WQF A4
CONTECH CARTRIDGE CATCHBASIN STORMFILTER
WITH 18" CARTRIDGE PER DETAIL 1, SHT C8.9
RIM = 351.20
IE OUT (E) 10" = 348.90
CONSTRUCT 9 LF 10" ADS N-12 TO 15" X 15" X 10" TEE
AT CHAMBERMAXX @ S= 0.2767

(15) SD LINE "CCA" 2+03.49 = "LAT A1" 0+00.00
INSTALL 24" X 8" TEE
IE 24" =346.55, IE 8" = 347.22
CONSTRUCT 202.40 LF 8" ADS N-12 FOR OVERFLOW @ S= 0.0100

(16) SD "LAT A1" 1+00.00
CONSTRUCT CLEANOUT PER DETAIL 8 SHT C8.5
IE 8" = 348.22

(17) SD "LAT A1" 1+47.00
INSTALL 8" X 8" 45° BEND, IE 8" = 348.69

(18) CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4
IN WATER QUALITY FACILITY FLOW THROUGH PLANTER BOX
WQPB A1 PER DETAIL 4, SHT C8.3
RIM = 352.50
IE IN (N) 6" = 349.25
IE OUT (S) 8" = 349.25
CONSTRUCT 100 LF 6" ADS N-12 PERFORATED PIPE (N)

(19) SD "LAT A1" 1+89.40
CONSTRUCT CLEANOUT PER DETAIL 8 SHT C8.5
IE 8" = 349.11

(20) CONSTRUCT WATER QUALITY FACILITY FLOW THROUGH
PLANTER BOX WQPB A1 PER DETAIL 4, SHT C8.3

(21) SDMH CCA3
CONSTRUCT STORM DRAIN MANHOLE PER DETAIL 1 SHT C8.5
SD LINE "CCA" 2+49.45
RIM = 352.41
IE IN (SW) 8" = 347.29
IE IN (E) 24" = 346.60
IE OUT (N) 24" = 346.60
CONSTRUCT 46.33 LF 8" ADS N-12 (S) @ S= 0.0100
CONSTRUCT 119.84 LF 24" ADS N-12 (E) @ S= 0.0010

(22) CONSTRUCT WATER QUALITY FACILITY / WITH DETENTION WQF/D A5
PER DETAIL 1, SHT C8.3

(23) CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4
IN WATER QUALITY FACILITY / WITH DETENTION PER
DETAIL 1, SHT C8.3
RIM = 352.33
IE IN (S, E & W) 6" = 347.75
IE OUT (NE) 8" = 347.75

(24) SDMH CCA4
CONSTRUCT STORM DRAIN MANHOLE PER DETAIL 1 SHT C8.5
SD LINE "CCA" 3+69.29
RIM = 353.96
IE IN (S) 24" = 346.72
IE OUT (W) 24" = 346.72
CONSTRUCT 276.10 LF 24" ADS N-12 DETENTION PIPE (S) @ S= 0.0010

(25) CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE"
PER DETAIL 4, SHT C8.3
RIM = 350.03
IE FOR PIPE = 346.95

(26) CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE"
PER DETAIL 4, SHT C8.3
RIM = 350.85
IE FOR PIPE = 346.75

(27) CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE"
PER DETAIL 4, SHT C8.3
RIM = 351.63
IE FOR PIPE = 347.00

(28) CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE"
PER DETAIL 4, SHT C8.3
RIM = 350.33
IE FOR PIPE = 349.25

(29) CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
RIM = 353.10, IE FOR PIPE = 347.75
CONSTRUCT 96 LF 6" ADS N-12 PERFORATED PIPE (W)

(30) CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
RIM = 352.00, IE FOR PIPE = 347.75
CONSTRUCT 15 LF 6" ADS N-12 PERFORATED PIPE (N)

(31) CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
RIM = 351.95, IE FOR PIPE = 347.75
CONSTRUCT 100 LF 6" ADS N-12 PERFORATED PIPE (S) & (E)

(32) CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
RIM = 352.40, IE FOR PIPE = 347.75
CONSTRUCT 16 LF 6" ADS N-12 PERFORATED PIPE (N)
TO WYE

MULTI/TECH
ENGINEERING SERVICES, INC.

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 14, 1979
MARK D. GRENZ
EXPIRES: 06-30-2021

CASCADE CENTER COMMERCIAL
CITY OF MOLALLA
STORM WATER MANAGEMENT PLAN
QUADRANT 1

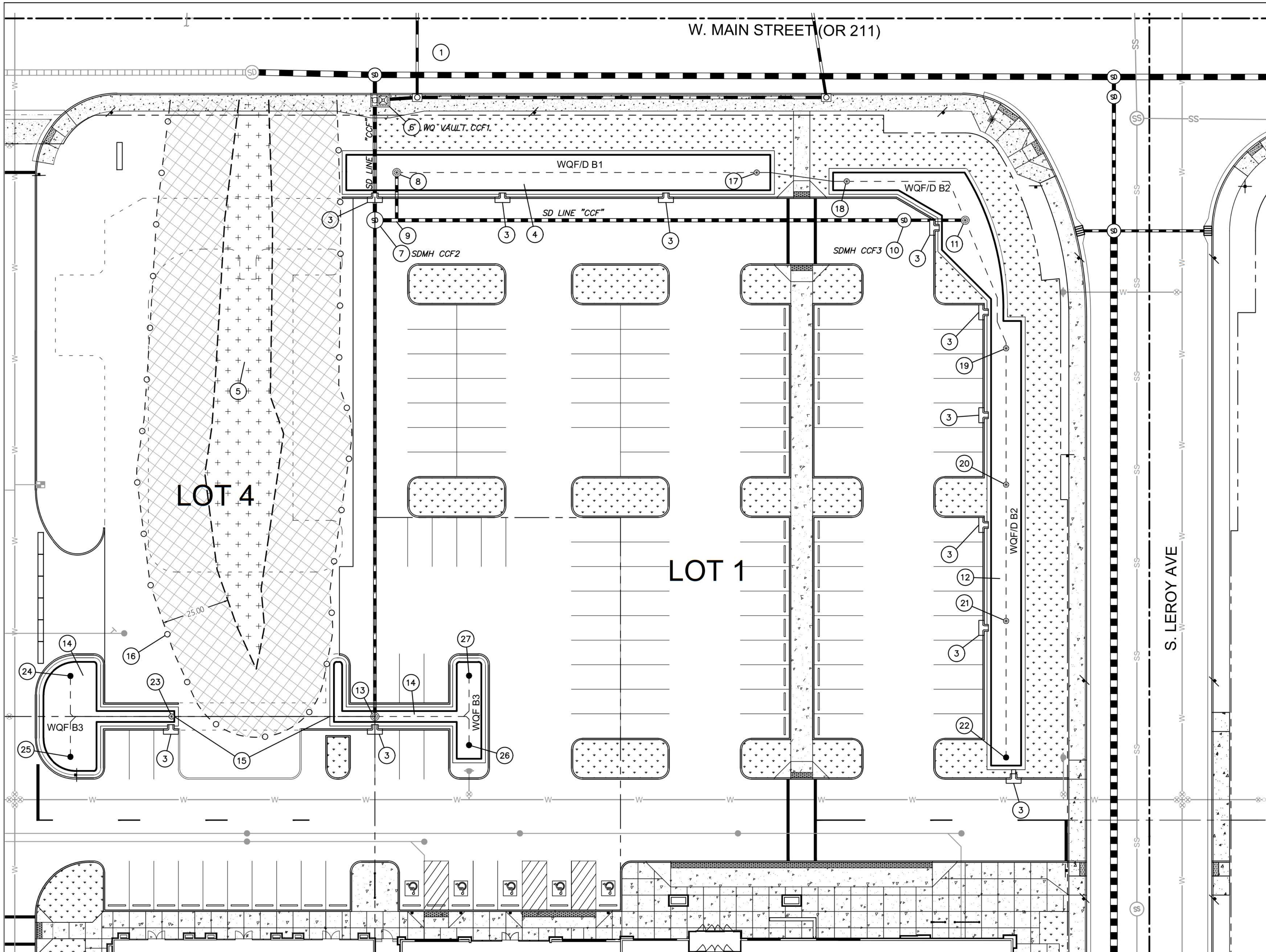
REV.	DATE	BY
1	2020-08-13	D.G.G.
6	2020-12-16	D.G.G.

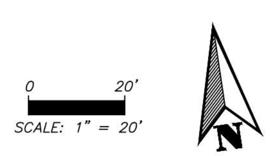
PROJECT NUMBER
6684

DATE:	06/15/2020
SCALE:	AS SHOWN
DRAWN BY:	D.G.G.
DESIGNED BY:	M.D.G.
CHECKED BY:	J.C.B.
FILE: CCCD01C42.dwg	

SHEET NUMBER
C4.2

CITY OF MOLALLA
DRW 01-2019





CONSTRUCTION NOTES

(1) SEE KITTELSON & ASSOCIATES PLANS FOR CASCADE CENTER OR 211 IMPROVEMENTS.

(2) NOT USED

(3) CONSTRUCT CURB CUT PER DETAIL 2, SHT 8.3

(4) CONSTRUCT WATER QUALITY FACILITY / WITH DETENTION WQF/D B1 PER DETAIL 1, SHT C8.3

(5) POTENTIAL WETLAND SITE. AREA IS TO BE FENCED OFF AND CONSTRUCTION IS PROHIBITED UNTIL A DETERMINATION HAS BEEN MADE AND APPROVED AND ALL NECESSARY PERMITS OBTAINED TO WORK IN THIS AREA IF REQUIRED. FUTURE BUILDING PAD SITE

(6) WQ VAULT CCF1
CONNECT TO PROPOSED WATER QUALITY VAULT
SEE KITTELSON & ASSOCIATES PLANS FOR CASCADE CENTER OR 211 IMPROVEMENTS.
SD LINE "CCF" STA 0+10.20
RIM = 351.31
IE IN (E) 12" = 349.30
IE IN (S) 15" = 347.00
IE OUT (N) 15" = 346.80
CONSTRUCT 44.06 LF 15" ADS N-12 (S) @ S= 0.0195

(7) SDMH CCF2
CONSTRUCT STORM DRAIN FLOW CONTROL MANHOLE PER DETAIL 2 SHT C8.4
SD LINE "CCF" STA 0+54.26
RIM = 351.56
IE IN (E) 15" = 347.86
IE IN (S) 8" = 348.32
IE OUT (N) 15" = 347.66
CONSTRUCT 194.07 LF 15" ADS N-12 (E) @ S= 0.0020
CONSTRUCT 182.00 LF 8" ADS N-12 (S) @ S= 0.0106

(8) CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4 IN WATER QUALITY FACILITY / WITH DETENTION PER DETAIL 1, SHT C8.3
RIM = 351.50
IE IN (E) 8" = 348.25
IE OUT (S) 12" = 348.25
CONSTRUCT 132 LF 8" ADS N-12 PERFORATED PIPE (E)

(9) SD LINE "CCF" STA 0+84.26
INSTALL 15" X 12" TEE
IE 15" =347.88
IE 12" = 348.01
CONSTRUCT 17.5 LF 12" ADS N-12 CONNECTION FOR OVERFLOW @ S= 0.0137

(10) SDMH CCF3
CONSTRUCT STORM DRAIN MANHOLE PER DETAIL 1 SHT C8.5
SD LINE "CCF" STA 2+48.32
RIM = 353.26
IE IN (E) 12" = 348.50
IE OUT (W) 15" = 348.25
CONSTRUCT 22.43 LF 12" ADS N-12 (S) @ S= 0.0000

(11) CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4 IN WATER QUALITY FACILITY / WITH DETENTION PER DETAIL 1, SHT C8.3
RIM = 351.75
IE IN (NW) & (SE) 8" = 348.50
IE OUT (W) 12" = 348.50
CONSTRUCT 50 LF 8" ADS N-12 PERFORATED PIPE (SE)

(12) CONSTRUCT WATER QUALITY FACILITY / WITH DETENTION WQF/D B2 PER DETAIL 1, SHT C8.3

(13) CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4 IN WATER QUALITY FACILITY PER DETAIL 1, SHT C8.3
RIM = 353.00
IE IN (E) & (W) 6" = 350.25
IE OUT (N) 8" = 350.25
CONSTRUCT 16.5 LF 6" ADS N-12 PERFORATED PIPE (W)

(14) CONSTRUCT WATER QUALITY FACILITY WQF B3 PER DETAIL 1, SHT C8.3

(15) CONSTRUCT 58 LF 6" ADS N-12 PIPE BETWEEN THESE WATER QUALITY FACILITIES (REPLACE WITH PERFORATED PIPE WITH DEVELOPMENT OF LOT 4) SEE KEYNOTE 5

(16) INSTALL ORANGE CONSTRUCTION FENCE

(17) CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE" PER DETAIL 4, SHT C8.3
RIM = 352.65, IE FOR PIPE = 348.25
CONSTRUCT 33 LF 8" ADS N-12 (E) @ S= 0.0076

(18) CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE" PER DETAIL 4, SHT C8.3
RIM = 352.66, IE FOR PIPE = 348.50
CONSTRUCT 53 LF 8" ADS N-12 PERFORATED PIPE (E & SE)

(19) CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE" PER DETAIL 4, SHT C8.3
RIM = 351.99, IE FOR PIPE = 348.50
CONST. 50 LF 8" ADS N-12 PERFORATED PIPE (S)

(20) CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE" PER DETAIL 4, SHT C8.3
RIM = 352.26, IE FOR PIPE = 348.50
CONST. 50 LF 8" ADS N-12 PERFORATED PIPE (S)

(21) CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE" PER DETAIL 4, SHT C8.3
RIM = 353.36, IE FOR PIPE = 348.50
CONST. 50 LF 8" ADS N-12 PERFORATED PIPE (S)

(22) CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
RIM = 353.52, IE FOR PIPE = 348.50

(23) CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE" PER DETAIL 4, SHT C8.3
RIM = 353.33, IE FOR PIPE = 351.35
CONST. 58 LF 6" ADS N-12 (E)

(24) CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
RIM = 352.93, IE FOR PIPE = 350.88
CONSTRUCT 51 LF 6" ADS N-12 PERFORATED PIPE (S) & (E)

(25) CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
RIM = 353.04, IE FOR PIPE = 350.69
CONSTRUCT 15 LF 6" ADS N-12 PERFORATED PIPE (N) TO WYE

(26) CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
RIM = 353.07, IE FOR PIPE = 351.02
CONSTRUCT 44 LF 6" ADS N-12 PERFORATED PIPE (N) & (W)

(27) CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
RIM = 352.35, IE FOR PIPE = 350.50
CONSTRUCT 16 LF 6" ADS N-12 PERFORATED PIPE (S) TO WYE

MULTI/TECH
ENGINEERING SERVICES, INC.

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 14, 1978
MARK D. GRENZ
EXPIRES: 06-30-2021

CASCADE CENTER COMMERCIAL
CITY OF MOLALLA

STORM WATER MANAGEMENT PLAN QUADRANT 2

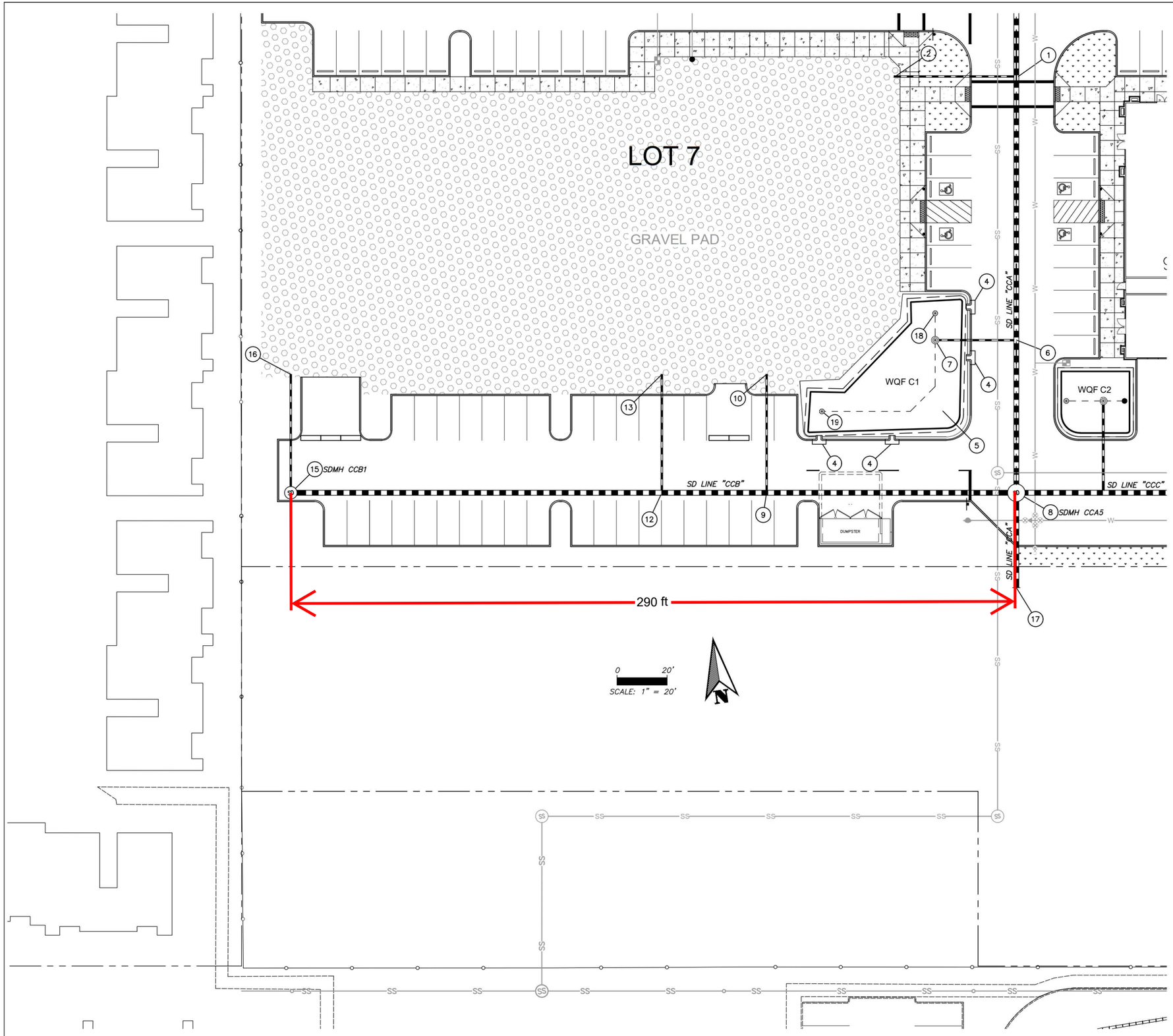
REV.	DATE	BY
1	2020-08-13	D.G.G.
3	2020-09-28	T.N.S.

PROJECT NUMBER
6684

DATE:	06/15/2020
SCALE:	AS SHOWN
DRAWN BY:	D.G.G.
DESIGNED BY:	M.D.G.
CHECKED BY:	J.C.B.
FILE: CCCD01C43.dwg	

SHEET NUMBER
C4.3

MOLALLA
DRW-07-2019



CONSTRUCTION NOTES

1. SD LINE "CCA" 4+78.67
   INSTALL 24" X 8" TEE, ROTATE TEE 45 DEGREES ABOVE HORIZONTAL
   IE 24" = 346.83, IE 8" AT BEND AT 0+02.00 = 348.36
   CONSTRUCT 46 LF 8" ADS N-12 FOR OVERFLOW @ S= 0.0715
2. CONSTRUCT WATER QUALITY FACILITY OVERFLOW PIPE CAP
   IE FOR PIPE = 351.65
3. NOT USED
4. CONSTRUCT CURB CUT
   PER DETAIL 2, SHT C8.3
5. CONSTRUCT WATER QUALITY FACILITY WQF C1 PER DETAIL 1, SHT 8.3
6. SD LINE "CCA" 5+84.28
   INSTALL 24" X 8" TEE, ROTATE TEE 45 DEGREES ABOVE HORIZONTAL
   IE 24" = 346.94, IE 8" AT BEND AT 0+2.00 = 348.47
   CONSTRUCT 32 LF 8" ADS N-12 FOR OVERFLOW @ S= 0.0606
7. CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4
   IN WATER QUALITY FACILITY PER DETAIL 1, SHT C8.3
   RIM = 353.00
   IE IN (N & S) 6" = 350.41
   IE OUT (NE) 8" = 350.41
8. SDMH CCA5
   CONSTRUCT STORM SEWER MANHOLE PER DETAIL 1 SHT C8.5
   SD LINE "CCA" 6+45.39 =
   SD LINE "CCB" 0+00.00 =
   SD LINE "CCC" 0+00.00
   RIM = 354.33
   IE IN (E, W & S) 24" = 347.00
   IE OUT (N) 24" = 347.00
   CONSTRUCT 38.00 LF 24" ADS N-12 (S) @ S= 0.0010
   CONSTRUCT 290.60 LF 24" ADS N-12 (W) @ S= 0.0010
   CONSTRUCT 381.07 LF 24" ADS N-12 (E) @ S= 0.0010
9. SD LINE "CCB" 1+00.00
   INSTALL 24" X 8" TEE, ROTATE TEE 45 DEGREES ABOVE HORIZONTAL
   IE 24" = 347.01, IE 8" AT BEND AT 0+2.00 = 348.54
   CONSTRUCT 45 LF 8" ADS N-12 FOR OVERFLOW @ S= 0.0796
10. CONSTRUCT WATER QUALITY FACILITY OVERFLOW PIPE CAP
    IE FOR PIPE = 352.12
11. NOT USED
12. SD LINE "CCB" 1+41.95
    INSTALL 24" X 8" TEE, ROTATE TEE 45 DEGREES ABOVE HORIZONTAL
    IE 24" = 347.14, IE 8" AT BEND AT 0+2.00 = 348.67
    CONSTRUCT 45 LF 8" ADS N-12 FOR OVERFLOW @ S= 0.0767
13. CONSTRUCT WATER QUALITY FACILITY OVERFLOW PIPE CAP
    IE FOR PIPE = 352.12
14. NOT USED
15. SDMH CCB1
    CONSTRUCT STORM SEWER MANHOLE PER DETAIL 1 SHT C8.5
    SD LINE "CCB" 2+90.60
    RIM = 354.47
    IE IN (N) 8" = 349.29
    IE OUT (E) 24" = 347.29
    CONSTRUCT 47.00 LF 8" ADS N-12 (N) @ S= 0.0602
16. CONSTRUCT WATER QUALITY FACILITY OVERFLOW PIPE CAP
    IE FOR PIPE = 352.12
17. SD LINE "CCA" 6+83.39
    INSTALL 24" PLUG
    IE (N) 24" = 347.04
18. CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
    RIM = 352.88, IE FOR PIPE = 350.59
    CONSTRUCT 11 LF 6" ADS N-12 PERFORATED PIPE (S)
19. CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
    RIM = 352.83, IE FOR PIPE = 350.47
    CONSTRUCT 65 LF 6" ADS N-12 PERFORATED PIPE (E & N)

MULTI/TECH
ENGINEERING SERVICES, INC.

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 14, 2006
MARK D. GRENZ
EXPIRES: 06-30-2021

CASCADE CENTER COMMERCIAL
CITY OF MOLALLA
STORM WATER MANAGEMENT PLAN
QUADRANT 3

REV.	DATE	BY
1	2020-08-13	D.G.G.
3	2020-09-28	T.N.S.

PROJECT NUMBER
6684

DATE:	06/15/2020
SCALE:	AS SHOWN
DRAWN BY:	D.G.G.
DESIGNED BY:	M.D.G.
CHECKED BY:	J.C.B.
FILE:	CCCD01C44.dwg

SHEET NUMBER
C4.4

CITY OF MOLALLA
DRW-01-2019

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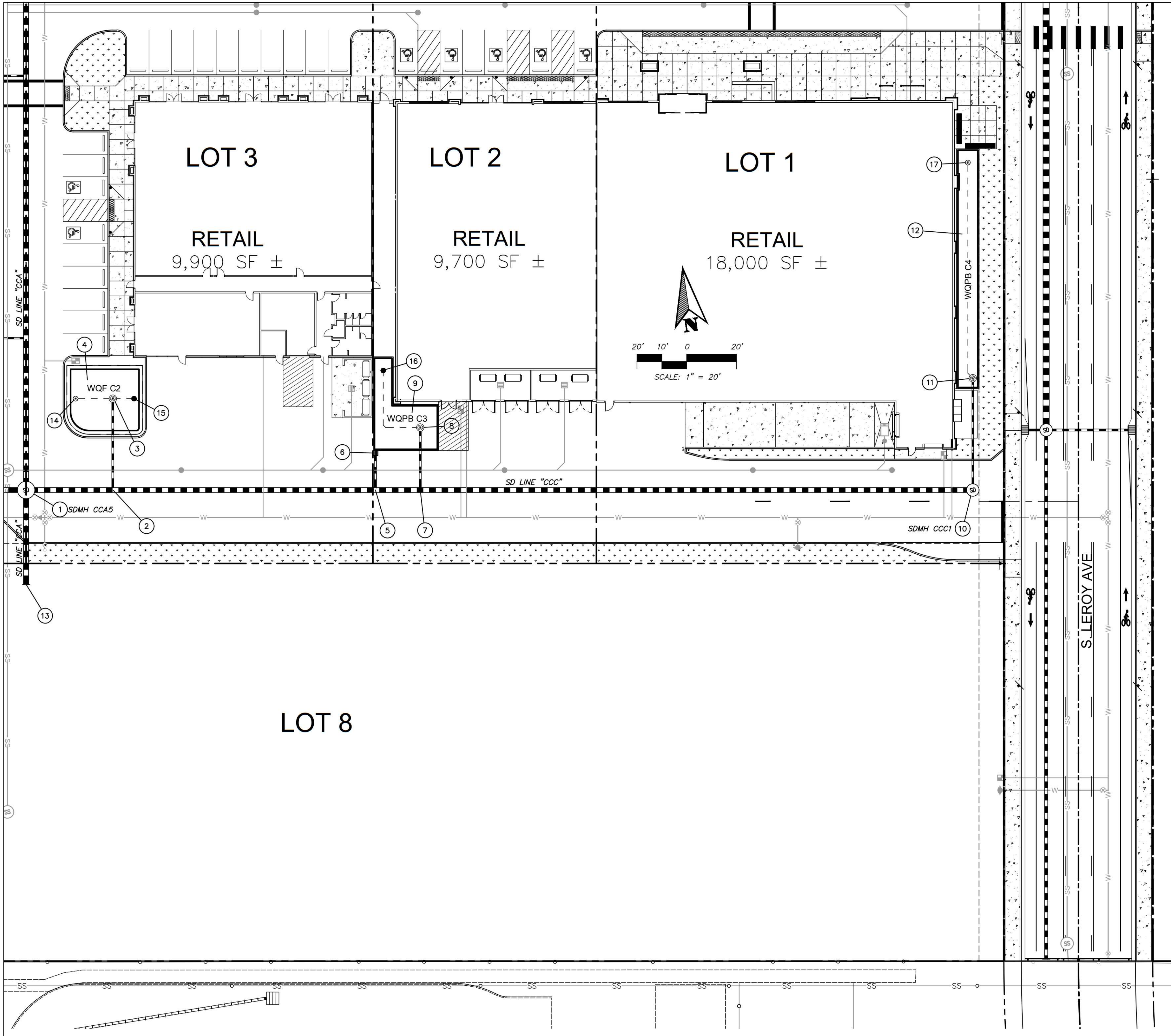


CONSTRUCTION NOTES

1. SDMH CCA5
   CONSTRUCT STORM DRAIN MANHOLE PER DETAIL 1 SHT C8.5
   SD LINE "CCA" 6+45.39 =
   SD LINE "CCB" 0+00.00 =
   SD LINE "CCC" 0+00.00
   RIM = 354.33
   IE IN (E, W & S) 24" = 347.00
   IE OUT (N) 24" = 347.00
   CONSTRUCT 38.00 LF 24" ADS N-12 (S) @ S= 0.0010
   CONSTRUCT 290.60 LF 24" ADS N-12 (W) @ S= 0.0010
   CONSTRUCT 381.07 LF 24" ADS N-12 (E) @ S= 0.0010
2. SD LINE "CCC" 0+35.00
   INSTALL 24" X 8" TEE, ROTATE TEE 45 DEGREES ABOVE HORIZONTAL
   IE 24" =347.04, IE 8" AT BEND AT 0+2.00= 348.57
   CONSTRUCT 34 LF 8" ADS N-12 FOR OVERFLOW @ S= 0.0774
3. CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4
   IN WATER QUALITY FACILITY DETAIL 1, SHT C8.3
   RIM = 353.95
   IE IN (W & E) 6" = 351.20
   IE OUT (S) 8" = 351.20
4. CONSTRUCT WATER QUALITY FACILITY WQF C2
   PER DETAIL 1, SHT C8.3
   THIS FACILITY IS FOR THE OF THE STORM WATER RUNOFF
   FROM THE ROOF OF THE BUILDING ON LOT 3
5. SD LINE "CCC" 1+40.57
   INSTALL 24" X 8" TEE, ROTATE TEE 45 DEGREES ABOVE HORIZONTAL
   IE 24" =347.14, IE 8" AT BEND AT 0+2.00= 348.67
   CONSTRUCT 12.9 LF 8" ADS N-12 FOR AREA DRAIN @ S= 0.1217
6. SDCB "CCC1"
   CONSTRUCT AREA DRAIN PER DETAIL 1 SHT C8.4
   RIM = 353.59, IE 8" = 350.24
7. SD LINE "CCC" 1+58.62
   INSTALL 24" X 8" TEE, ROTATE TEE 45 DEGREES ABOVE HORIZONTAL
   IE 24" =347.16, IE 8" AT BEND AT 0+2.00= 348.69
   CONSTRUCT 23 LF 8" ADS N-12 FOR OVERFLOW @ S= 0.1017
8. CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4 IN
   WATER QUALITY FLOW THROUGH PLANTER BOX DETAIL 1, SHT C8.3
   RIM = 353.63
   IE IN (W) 6" = 351.03
   IE OUT (S) 8" = 351.03
9. CONSTRUCT WATER QUALITY FLOW THROUGH PLANTER BOX WQPB C3
   BOX PER DETAIL 4, SHT C8.3
10. SDMH CCC1
    CONSTRUCT STORM DRAIN MANHOLE PER DETAIL 1 SHT C5.6
    SD LINE "CCC" 3+81.07
    RIM = 356.64
    IE IN (N) 8" = 349.38
    IE OUT (W) 24" = 347.38
    CONSTRUCT 45.00 LF 8" ADS N-12 (N) @ S= 0.0893
11. CONSTRUCT BEEHIVE AREA DRAIN PER DETAIL 3, SHT C8.4 IN
    WATER QUALITY FLOW THROUGH PLANTER BOX DETAIL 1, SHT C8.3
    RIM = 356.00
    IE IN (NW) 6" = 353.40
    IE OUT (S) 8" = 353.40
12. CONSTRUCT WATER QUALITY FLOW THROUGH PLANTER BOX WQPB C4
    PER DETAIL4, SHT C8.3
13. SD LINE "CCA" 6+83.39
    INSTALL 24" PLUG
    IE (N) 24" = 347.04
14. CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE"
    PER DETAIL 4, SHT C8.3
    RIM = 353.68, IE FOR PIPE = 351.30
    CONST. 15 LF 6" ADS N-12 PERFORATED PIPE (E)
15. CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
    RIM = 354.32, IE FOR PIPE = 351.67
    CONSTRUCT 8.5 LF 6" ADS N-12 PERFORATED PIPE (W)
16. CONSTRUCT CLEANOUT PER DETAIL 8, SHT C8.5
    RIM = 353.50, IE FOR PIPE = 351.03
    CONSTRUCT 37 LF 6" ADS N-12 PERFORATED PIPE (S)
17. CONSTRUCT OVERFLOW RISER WITH "BIRD CAGE"
    PER DETAIL 4, SHT C8.3
    RIM = 355.83, IE FOR PIPE = 353.40
    CONST. 88 LF 6" ADS N-12 PERFORATED PIPE (E)

MULTI/TECH
ENGINEERING SERVICES, INC.

EXPIRES: 06-30-2021

CASCADE CENTER COMMERCIAL
CITY OF MOLALLA
STORM WATER MANAGEMENT PLAN
QUADRANT 4

REV.	DATE	BY
1	2020-08-13	D.G.G.
3	2020-09-28	T.N.S.

PROJECT NUMBER
6684

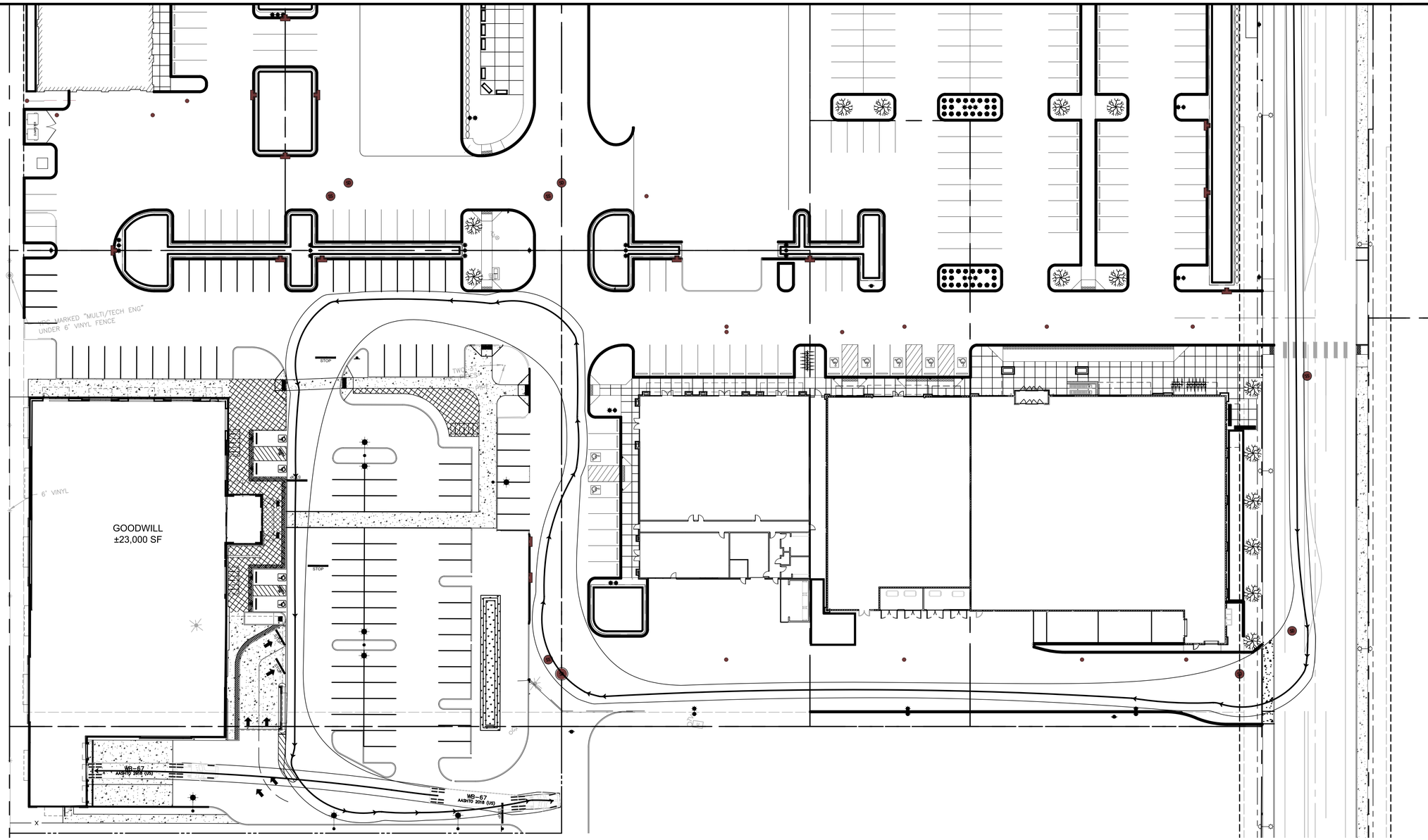
DATE:	06/15/2020
SCALE:	AS SHOWN
DRAWN BY:	D.G.G.
DESIGNED BY:	M.D.G.
CHECKED BY:	J.C.B.
FILE: CCCD01C45.dwg	

SHEET NUMBER
C4.5

CITY OF MOLALLA
DRW-01-2019

EXHIBIT G

Truck Turning



N

30 0 30 60

SCALE IN FEET

OREGON UTILITY
NOTIFICATION CENTER
1-800-332-2344

CALL BEFORE YOU DIG

REVISIONS

REV.	DATE	DESCRIPTION	BY

REGISTERED PROFESSIONAL ENGINEER
OREGON
FOR REFERENCE ONLY
EXPIRATION DATE: 06/30/22

GOODWILL INDUSTRIES
OF THE COLUMBIA WILLAMETTE
Donate. Shop. Make a difference.

DOWL
720 SW Washington St.
Suite #750
Portland, Oregon 97205
971-280-8641

GOODWILL MOLALLA
MOLALLA, OR

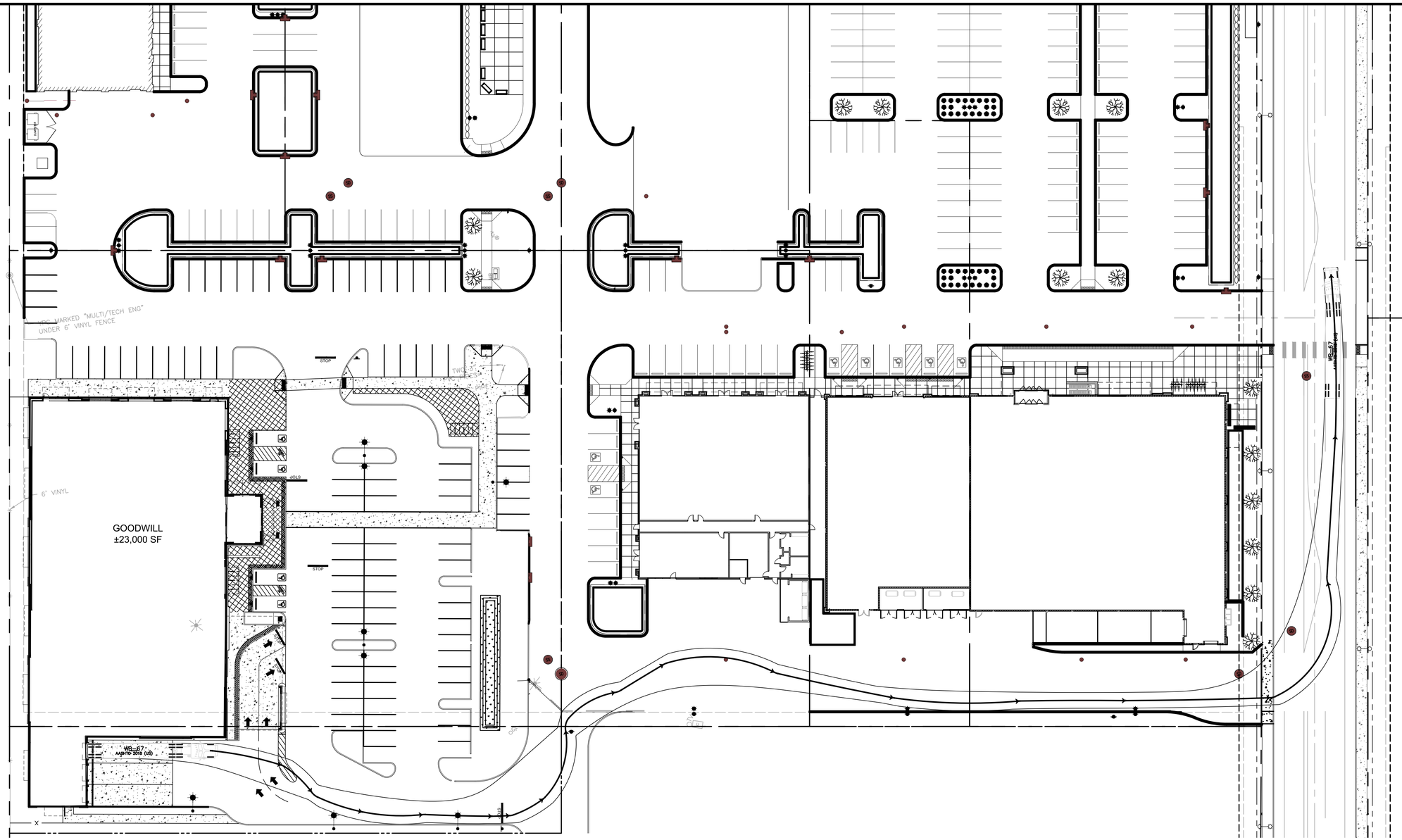
TRUCK TURNING WB 67 INGRESS

LOCATED IN THE SOUTHEAST 1/4 OF SECTION 8
TOWNSHIP 05 SOUTH RANGE 02 EAST OF THE WILLAMETTE MERIDIAN
CITY OF MOLALLA, CLACKAMAS COUNTY, OREGON

PROJECT	14818.01
DATE	01/19/2022

SHEET

C:\dowl_pw\d0394098\SC-CS-SI-14818-TruckTurning.dwg PLOT DATE 2022-2-1 15:50 SAVED DATE 2022-02-01 15:48 USER: jglueck



30 0 30 60
SCALE IN FEET

OREGON UTILITY
NOTIFICATION CENTER
1-800-332-2344

CALL BEFORE YOU DIG

REVISIONS		
REV.	DATE	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER
OREGON
JAMES T. TOWLE
FOR REFERENCE ONLY
EXPIRATION DATE: 06/30/22

GOODWILL INDUSTRIES
OF THE COLUMBIA WILLAMETTE
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720 SW Washington St.
Suite #750
Portland, Oregon 97205
971-280-8641

TRUCK TURNING WB 67 EGRESS

GOODWILL MOLALLA
MOLALLA, OR

LOCATED IN THE SOUTHEAST 1/4 OF SECTION 8
TOWNSHIP 05 SOUTH RANGE 02 EAST OF THE WILLAMETTE MERIDIAN
CITY OF MOLALLA, CLACKAMAS COUNTY, OREGON

PROJECT	14818.01
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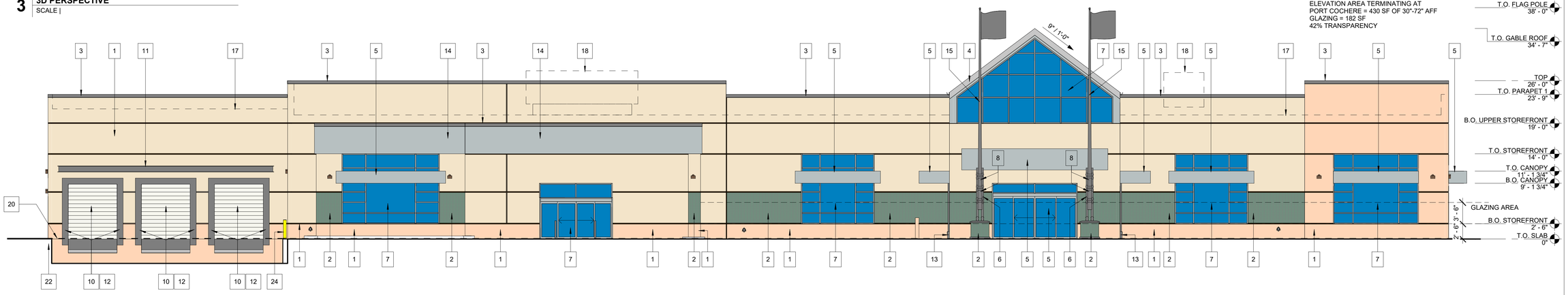
SHEET

C:\dowl_pw\d0394098\SC-CS-SI-14818-TruckTurning.dwg PLOT DATE 2022-2-1 15:50 SAVED DATE 2022-02-01 15:48 USER: jglueck

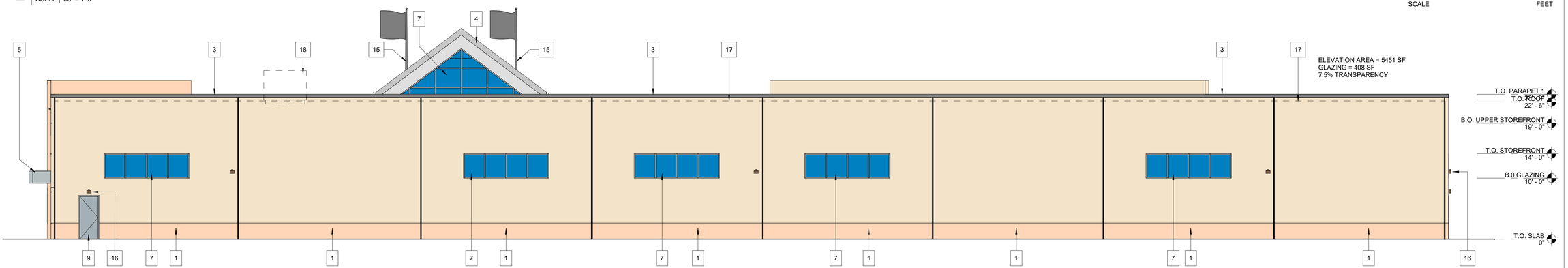
EXHIBIT H

Exterior Elevations

3 **3D PERSPECTIVE**
SCALE |



2 **EAST ELEVATION**
SCALE | 1/8" = 1'-0"



1 **WEST ELEVATION**
SCALE | 1/8" = 1'-0"

1/8" = 1'-0" SCALE 5 0 5 10 15 20 FEET

ELEVATION KEYNOTES

1. PAINTED PRE-CAST TILT-UP CONCRETE WALL PANEL W/ REVEALS. USE ZINSSER WATERTITE PRIMER W ACRI-LITE TOPCOATS NOTED BELOW
   - WP-1 MILLER PAINT: CUSTOM ACRILITE SATIN: MELLON BALL MIX NO: 09123
   - WP-2 MILLER PAINT: PRODUCT 7486 W/896 ACRILITE SATIN: WARM SUN MIX NO: 08M1702
   - WP-3 MILLER PAINT: PRODUCT 7400 W/896 ACRILITE SATIN: TITAN CREAM MIX NO: 08M1700
   - WP-3 MILLER PAINT: PRODUCT 7400 ACRILITE SATIN: TOMBSTONE MIX NO: M90745

   BASE COLOR: WP-1
   REVEAL COLOR: WP-2
   TYPICAL BODY COLOR: WP-3
   OFFSET PANEL COLOR: WP-1
   ACCENT COLOR: WP-4
2. EXTERIOR CERAMIC TILE WAINSCOT
   - CT-1 3"x6" 'PACIFIC' QH61
   - CT-2 3"x6" 'JADE' QH55
   - CT-3 6"x6" 'GOODWILL YELLOW' RHR 24-20
   - CT-4 3"x6" 'BLUEBERRY' QH46
   - TILE GROUT: CUSTOM BUILDING PRODUCTS #122 LINEN
3. PREFINISHED PARAPET CAP
   COLOR: COOL METALLIC SILVER
4. PREFINISHED METAL SEAM ROOF
   COLOR: COOL METALLIC SILVER
5. STEEL CANOPY W/ PREFINISHED 'OMEGA-LITE' ALUMINUM COMPOSITE WALL PANEL FASCIA
   COLOR: KYNAR 500 BRIGHT SILVER
6. PAINTED STEEL CANOPY SUPPORT COLUMNS
   WP-4 TOMBSTONE - MILLER PAINT, MIX NO: M90745
7. ALUMINUM AND GLASS STOREFRONT
   COLOR: CLEAR ANODIZED ALUMINUM W/ ATLANTICA GREEN TINTED GLASS
8. PROVIDE (2) STAINLESS STEEL EYE HOOKS AT EACH ALUMINUM SPIRE LOCATED 4'-0" APART COORDINATE WITH OWNER ON MOUNTING HEIGHT.
9. PAINTED HM DOOR AND FRAME
   WP-4 TOMBSTONE - MILLER PAINT, MIX NO: M90745
10. OVERHEAD DOOR & DOCK SEALS
    DOOR COLOR: PREFINISHED GRAY
    SEAL COLOR: BLACK
11. GALVANIZED STEEL CANOPY
12. DOCK LEVELER AND BUMPERS
13. PREFINISHED SHEET METAL DOWNSPOUT
    COLOR: COOL METALLIC SILVER
14. PREFINISHED 'OMEGA-LITE' ALUMINUM COMPOSITE WALL PANEL
    COLOR: KYNAR 500 BRIGHT SILVER
15. ALUMINUM FLAG POLE
    LENGTH: 31'-0"
    COLOR: MILL FINISH
    FLAG: 8'x5' US & STATE FLAG
16. EXTERIOR LIGHT FIXTURE.
17. TOP OF ROOF SHEATHING (SHOWN DASHED)
18. ROOF MOUNTED HVAC UNIT.
19. MINIMUM 6" HIGH ADDRESS SIGN W/ 1/2" STROKE WIDTH. SIGN TO BE OF CONTRASTING COLOR. GC TO COORDINATE W/ FIRE MARSHAL AND OWNER ON FINAL LOCATION
20. FINISH FLOOR ELEVATION (SHOWN DASHED)
21. SEE CIVIL DRAWINGS FOR GRADING INFORMATION
22. RETAINING WALL W/ 42" BLACK VINYL COATED CHAIN-LINK FENCE GUARDRAIL
23. CONCRETE RAMP W/ 36" TALL GAVANIZED STEEL PIPE HANDRAILS
24. STEEL PIPE BOLLARD W/ YELLOW PLASTIC SLEEVE

WOODBLOCK ARCHITECTURE, INC.
827 SW SECOND AVENUE, SUITE 300
PORTLAND, OR | 97204 | P 503.889.0604

NOT FOR CONSTRUCTION

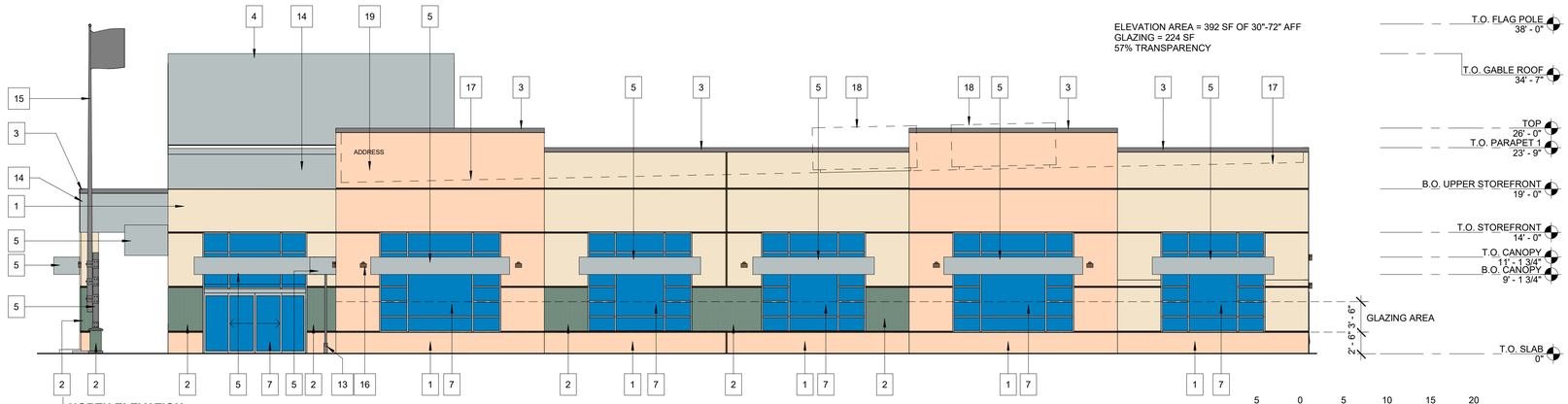
GOODWILL - MOLALLA

MICHAEL PARSHALL

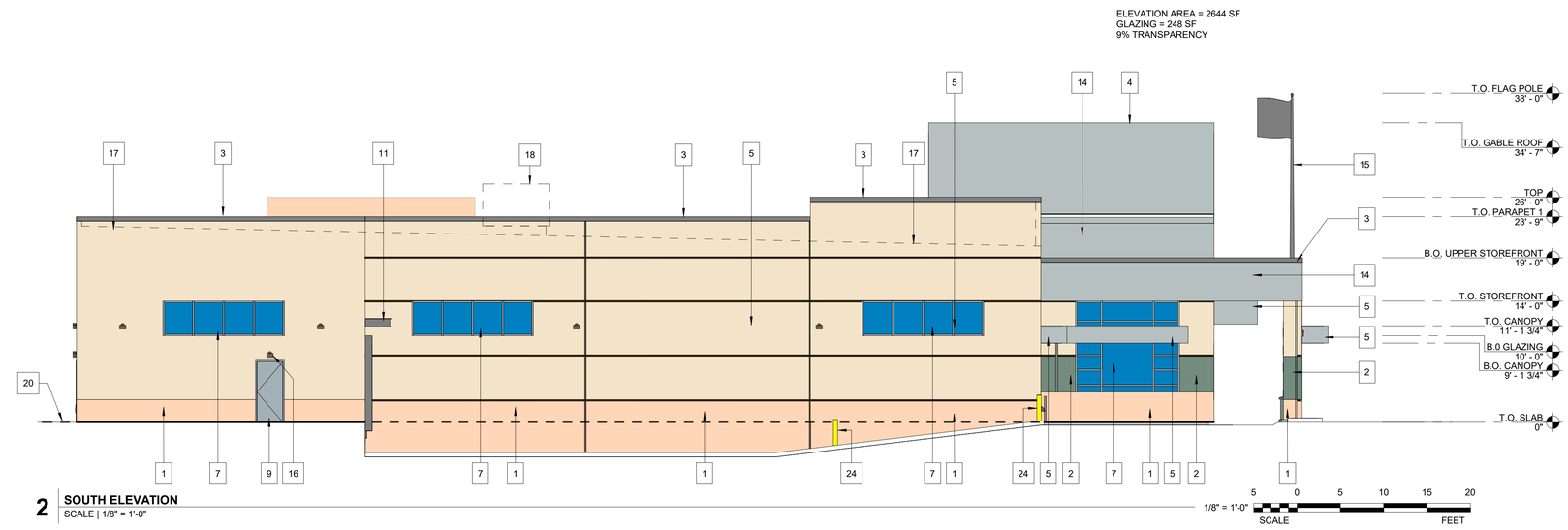
LU
11.197.2021
Project #21-082

△ DESCRIPTION DATE

EXTERIOR ELEVATIONS
A200



1 NORTH ELEVATION
SCALE | 1/8" = 1'-0"



2 SOUTH ELEVATION
SCALE | 1/8" = 1'-0"

ELEVATION KEYNOTES

1. PAINTED PRE-CAST TILT-UP CONCRETE WALL PANEL W/ REVEALS. USE ZINSSER WATERTITE PRIMER W ACRI-LITE TOPCOATS NOTED BELOW
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   - WP-2 MILLER PAINT: PRODUCT 7486 W/896 ACRILITE SATIN: WARM SUN MIX NO: 08M1702
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   - WP-3 MILLER PAINT: PRODUCT 7400 ACRILITE SATIN: TOMBSTONE MIX NO: M90745

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   REVEAL COLOR: WP-2
   TYPICAL BODY COLOR: WP-3
   OFFSET PANEL COLOR: WP-1
   ACCENT COLOR: WP-4
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   - CT-3 6"x6" 'GOODWILL YELLOW' RHR 24-20
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827 SW SECOND AVENUE, SUITE 300
PORTLAND, OR | 97204 | P 503.889.0604

NOT FOR CONSTRUCTION

GOODWILL - MOLALLA

MICHAEL PARSHALL

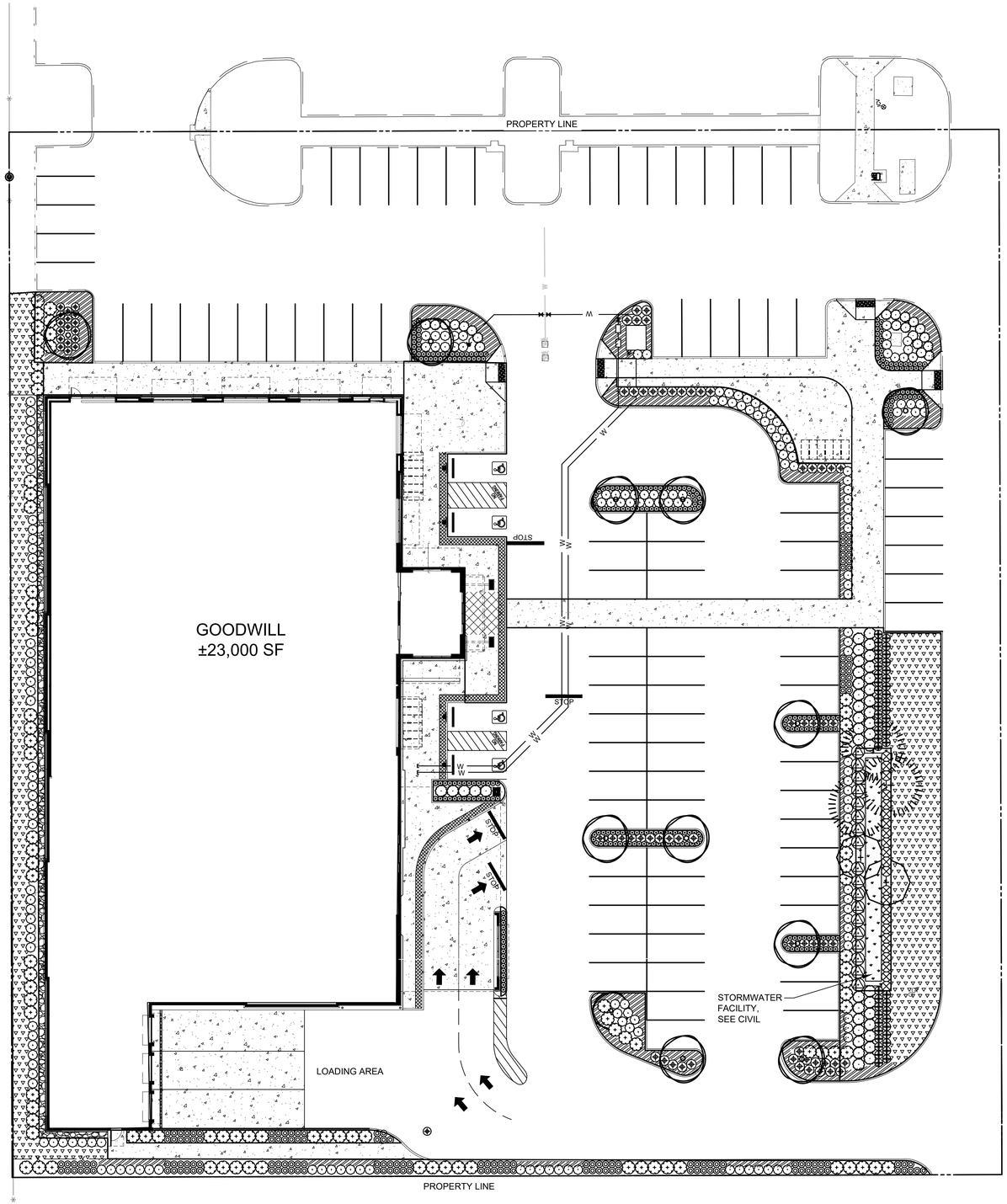
LU
11.197.2021
Project #21-082

△ DESCRIPTION DATE

EXTERIOR ELEVATIONS
A201

EXHIBIT I

Landscape Planting Plan



LANDSCAPE PLANT MATERIAL LEGEND

TREES

ITEM	SIZE	QTY.	MATURE SIZE (H X W) / COMMENTS
PRUNUS EMARGINATA BITTERNUT CHERRY	1.5" CAL. / B&B AS SHOWN	2	30' H X 20' W / FLOWERING
ZELKOVA SERRATA 'MUSASHINO' MUSASHINO ZELKOVA	1.5" CAL. / B&B AS SHOWN	12	45' H X 15' W / UPRIGHT COLUMNAR
PSEUDOTSUGA MENZIESII DOUGLAS FIR	MIN. 6' HT. / B&B AS SHOWN	3	40' H X 15' W / EVERGREEN

SHRUBS & GRASSES

ITEM	SIZE	QTY.	MATURE SIZE (H X W) / COMMENTS
CALAMAGROSTIS x A. 'KARL FOERSTER' KARL FOERSTER REED GRASS	#1 CONT. 2'-0" O.C.	157	5' H X 24" W / ORNAMENTAL GRASS
ESCALLONIA 'COMPACTA' COMPACT ESCALLONIA	#5 CONTAINER 3'-0" O.C.	184	2' H X 4' W / EVERGREEN
PENNISETUM ALOPECUROIDES 'LITTLE BUNNY' LITTLE BUNNY DWARF FOUNTAIN GRASS	#1 CONT. 1'-6" O.C.	303	18" H X 18"' W / ORNAMENTAL GRASS
ROSA 'RADRAZZ' KNOCKOUT ROSE	#2 CONTAINER 3'-6" O.C.	61	3' H X 4' W / DECIDUOUS DROUGHT TOLERANT
SPIREA JAPONICA 'GOLDMOUND' GOLDMOUND SPIRAEA	#5 CONTAINER 3'-0"O.C.	75	3' H X 3' W / DECIDUOUS DROUGHT TOLERANT
SPIREA JAPONICA 'WALBUMA' MAGIC CARPET SPIRAEA	#2 CONTAINER 2'-6" O.C.	48	2' H X 2' W / DECIDUOUS DROUGHT TOLERANT
VACCINIUM OVATUM EVERGREEN HUCKLEBERRY	#5 CONTAINER 4'-0" O.C.	96	5' H X 5' W / EVERGREEN DROUGHT TOLERANT

GROUNDCOVERS

ITEM	SIZE	QTY.	MATURE SIZE (H X W) / COMMENTS
RUBUS PENTALOBUS 'EMERALD CARPET' CREEPING RASPBERRY	#1 CONT. 1'-6" O.C.	1,315 SF 675 PLANTS	8" H X 2' W / EVERGREEN
ARCTOSTAPHYLOS UVA-URSI 'MASS.' KINNIKINICK	#1 CONT. 1'-6" O.C.	3,625 SF 1,859 PLANTS	9" H X 2' W / EVERGREEN NATIVE / DROUGHT TOLERANT

STORMWATER FACILITY

ITEM	SIZE	QTY.	MATURE SIZE (H X W) / COMMENTS
CORNUS SERICEA ARCTIC FIRE' KELSEY'S DOGWOOD	#3 CONTAINER 3'-0" O.C.	23	3' H X 3' W / DECIDUOUS
MAHONIA AQUIFOLIUM 'COMPACTA' DWARF OREGON GRAPE	#3 CONTAINER 3'-0" O.C.	18	2' X 3' W / EVERGREEN
RUSH SEDGE MIX 50% JUNCUS PATENS 50% CAREX OBNUPTA	4" POT 12"O.C.	350 SF 402 PLANTS	ARRANGE IN ALTERNATING ROWS
2" DIA. WASHED ROUND ROCK 12" WIDE AT BUILDING WALL	6" DEPTH		

STORMWATER FACILITY SUMMARY:

REQUIRED PLANTINGS PER 1000SF OF FACILITY AREA:

- *3 EVERGREEN TREES*
- *2 DECIDUOUS TREES*
- *30 SHRUBS*

WETLAND PLANTS
- *1 PER 2SF OF POND EMERGENT ZONE*

STORMWATER FACILITY :

TOTAL AREA = 835SF
WET AREA = 350SF

PLANT REQUIREMENT: 2.5 EVERGREEN TREES
1.7 DECIDUOUS TREES
25.05 SHRUBS

PROPOSED: 3 EVERGREEN TREES

GENERAL NOTES:

ALL PLANTING AREAS TO BE IRRIGATED WITH BURIED AUTOMATIC IRRIGATION SYSTEM

N

20 0 20 40
SCALE IN FEET

REVISIONS
DESCRIPTION | DATE | BY

REGISTERED
802
PRELIMINARY
NOT FOR CONSTRUCTION
Andrea L. Kuns
OREGON
LANDSCAPE ARCHITECT

Q:\22\14565-012\Reference\GICW Logo.jpg

DOWL
720 SW Washington St.
Suite #750
Portland, Oregon 97205
971-280-8641

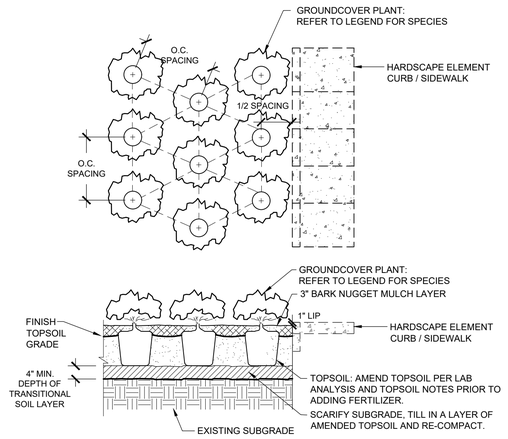
GOODWILL MOLALLA
MOLALLA, OR

LANDSCAPE PLANTING PLAN

LOCATED IN THE SOUTHEAST 1/4 OF SECTION 8
TOWNSHIP 05 SOUTH RANGE 02 EAST OF THE WILLAMETTE MERIDIAN
CITY OF MOLALLA, CLACKAMAS COUNTY, OREGON

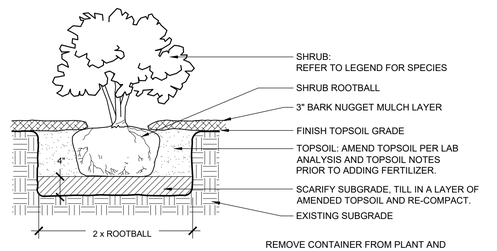
PROJECT 14818.01
DATE 09/20/2021

SHEET
L1.0



1 GROUNDCOVER SPACING / PLANTING

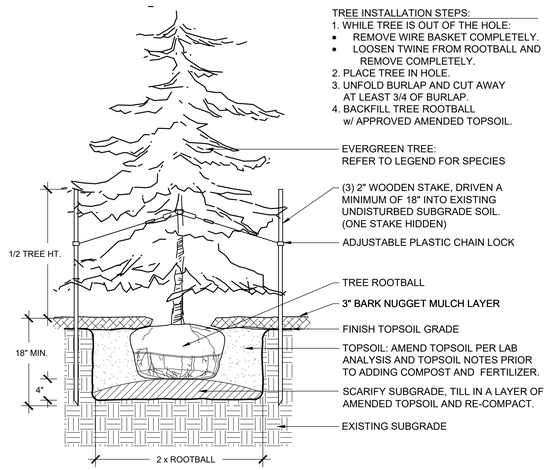
NOT TO SCALE



REMOVE CONTAINER FROM PLANT AND SCORE ROOTBALLS TO LOOSEN ANY ROOT BOUND MATERIAL PRIOR TO INSTALLATION.

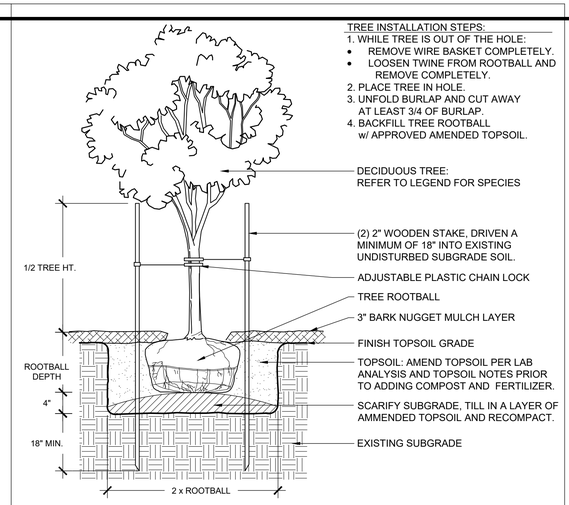
2 SHRUB PLANTING

NOT TO SCALE



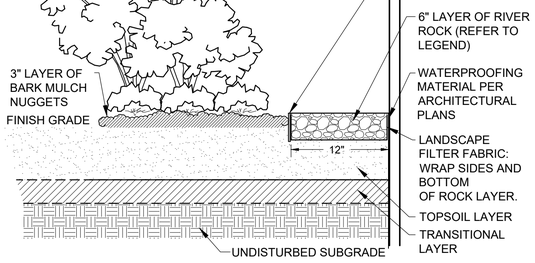
3 EVERGREEN TREE PLANTING

NOT TO SCALE



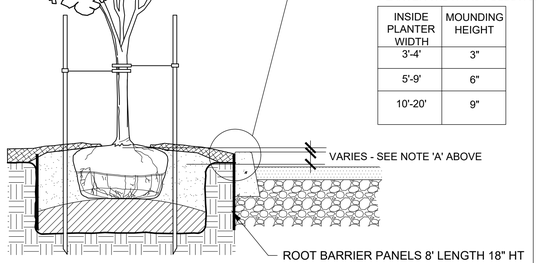
4 DECIDUOUS TREE PLANTING

NOT TO SCALE



5 ROCK BORDER AT BUILDING

NOT TO SCALE



NOTE "A":
LANDSCAPE MOUNDING HEIGHT VARIES BASED ON PLANTER WIDTH AS FOLLOWS:

INSIDE PLANTER WIDTH	MOUNDING HEIGHT
3'-4'	3"
5'-9'	6"
10'-20'	9"

6 SOIL MOUNDING: ISLANDS AND PERIMETER

NOT TO SCALE

REVISIONS

BY	DESCRIPTION	DATE	TR V

REGISTERED
802
PRELIMINARY
NOT FOR CONSTRUCTION
Andrea L. Kuns
OREGON
LANDSCAPE ARCHITECT

Q:\22\14565-01\20\Reference\GICW Logo.jpg

DOWL
720 SW Washington St.
Suite #750
Portland, Oregon 97205
971-280-8641

GOODWILL MOLALLA
MOLALLA, OR

LANDSCAPE DETAILS

LOCATED IN THE SOUTHEAST 1/4 OF SECTION 8
TOWNSHIP 05 SOUTH RANGE 02 EAST OF THE WILLAMETTE MERIDIAN
CITY OF MOLALLA, CLACKAMAS COUNTY, OREGON

PROJECT	14818.01
DATE	09/20/2021

SHEET
L1.1

Exhibit C:

Molalla Public Works Comments

Public Works Department
117 N Molalla Avenue
PO Box 248
Molalla, Oregon 97038
Phone: (503) 829-6855
Fax: (503) 829-3676

Apirl 20, 2022

TO: Mac Corthell, Community Development Director
Dan Zinder, Planning Director

FROM: Sam Miller, Sr. Engineer Tech.

RE: Goodwill – Cascade Center Lot 7 (SDR09-2021)

Based on a review of the materials submitted, Staff has prepared the following comments. These comments are applicable to the subject application; any subsequent modifications may require amendments and/or additions. These conditions do not include requirements already set forth in the municipal code.

CONDITIONS

1. Specific Requirements To This Site:
   A. Transportation – in accordance with MMC 17-3.6.020 Transportation Standards:
      1. A Traffic Impact Analysis analyzing all warrants for the OR-211 and Leroy Ave Intersection is required. Applicant has prepared and submitted a Traffic Impact Analysis for the proposed development which has been analyzed and accepted by the City and ODOT. The Proposed development does not meet signal threshold at the OR 211/Leroy intersection and therefor no signal improvements will be required.

      2. This project is within the Cascade Center development. Applicant is not proposing new connection to the public street system and the proposed development complies with the Cascade Center Development plan. All access to and from the proposed site shall be taken from the existing, approved Cascade Center access locations. No Additional access will be permitted.

      3. Transportation SDC's – In accordance with MMC 13.14 this design review does increase the impacts to the public improvement facility and is therefore not exempt from transportation SDC charges. SDC's shall be calculated and payable in accordance with the SDC methodology at the time of building permit authorization.

   B. Storm - in Accordance with MMC 17-3.6.050 Storm Drainage and Surface Water Management:

      1. This project is within the Cascade Center development. Applicant will be required to connect to storm system provided under Cascade Center development.

      2. Stormwater SDC's – In accordance with MMC 13.14 this design review does increase the impacts to the public improvement facility and is therefore not exempt from

stormwater SDC charges. SDC's shall be calculated and payable in accordance with the SDC methodology at the time of building permit authorization.

C. Sanitary - in accordance with MMC 17-3.6.040 Sanitary Sewer Service Improvements:

1. This project is within the Cascade Center development. Applicant will be required to connect to sanitary system provided under Cascade Center development.

2. Sanitary SDC's – In accordance with MMC 13.14 this design review does increase the impacts to the public improvement facility and is therefore not exempt from sanitary SDC charges. SDC's shall be calculated and payable in accordance with the SDC methodology at the time of building permit authorization.

D. Water - in accordance with MMC 17-3.6.040 Water Service Improvements:

1. This project is within the Cascade Center development. Applicant will be required to connect to water system provided under Cascade Center development.

2. Should Fire Department regulations require additional fire flow that results in looping the water line through the site, applicants engineer shall coordinate with Public Works for the extension of a public water line, and dedication of easements.

3. Water SDC's – In accordance with MMC 13.14 this design review does increase the impacts to the public improvement facility and is therefore not exempt from water SDC charges. SDC's shall be calculated and payable in accordance with the SDC methodology at the time of building permit authorization.

E. Parks:

1. Parks SDC's – In accordance with SMC 13.70.110 this commercial design review is exempt from parks SDC charges.

F. Franchise Utility Services:

1. All utilities to the project shall be served underground services. No overhead crossings of public right of way shall be approved by the city.

DESIGN REQUIREMENTS & POLICIES

1. General Requirements:

A. All public improvements shall be completed and accepted by the Public Works Department prior to issuance of building permits. No connection to City services shall be allowed until public improvements are completed.

B. From the materials submitted, it appears that the storm drain, domestic water, and sanitary sewer facilities will be obtained from main line connections and/or extensions. Separate engineering drawings reflecting the installation of these public utilities will be required.

C. No construction of, or connection to, any existing or proposed public utility/improvements will be permitted until all plans are approved by Staff, all fees have been paid, all necessary permits,

bonding, right-of-way, and easements have been obtained and approved by staff, and Staff is notified a minimum of 24 hours in advance.

D. Staff reserves the right to require revisions/modifications to the public improvement construction plans and completed street improvements, if additional modifications or expansion of the sight distance onto adjacent streets is required.

E. All public utility/improvement plans submitted for review shall be based upon a 22"x 34" format and shall be prepared in accordance with the City of Molalla Public Work's Standards.

F. All survey monuments on the subject site or that may be subject to disturbance within the construction area, or the construction of any off-site improvements shall be adequately referenced and protected prior to commencement of any construction activity. If the survey monuments are disturbed, moved, relocated, or destroyed as a result of any construction, the project shall, at its cost, retain the services of a registered professional land surveyor in the State of Oregon to restore the monument to its original condition and file the necessary surveys as required by Oregon State law. A copy of any recorded survey shall be submitted to Staff.

G. Plans submitted for review shall meet the requirements described in Section 1 of the Molalla Standard Specifications for Public Works Construction.

H. All public improvement designs shall meet the requirements of the Molalla Standard Specifications for Public Works Construction as amended by the Public Works Director.

I. General Erosion Control – The applicant shall install, operate, and maintain adequate erosion control measures in conformance with the standards adopted by the City of Molalla and DEQ during the construction of any public/private utility and building improvements until such time as approved permanent vegetative materials have been installed. Applicant or Applicant's Contractor shall be responsible for all erosion control requirements under the 1200-C permit and shall coordinate directly with DEQ for questions related to 1200-C permit compliance.

Exhibit D:

Molalla Fire Department Comments

Molalla Rural Fire Protection District #73

P.O. Box 655 • Molalla, OR 97038
320 N Molalla Ave. Molalla, OR 97038

Telephone: 503-829-2200
Fax: 503-829-5794

Comments for the Goodwill at Cascade Center April 4, 2022

Hydrants and FDC's shall be on the same side as the roadway. FDC's shall be remote and placed not more than 50 feet from a hydrant. Please add these items to the plans and submit for approval.

Hydrant shall have a 4-inch stortz quick connect fitting. The most common mistake is to install 5-inch.

No plants, trees or land scaping shall be planted within 3 feet on any hydrant as measured from the cap of the hydrant. Line voltage electrical shall be a minimum of 4 feet from the hydrant using the same measurements.

The address shall numbers shall be clearly visible from the road way and shall contrast with the background on which they sit. The numbers shall be placed as high as practical on the building.

Please submit construction type of the building (Type II, IIIB, V) as this building was not part of the complex when it was the plan was initially developed. It appears possibly Type 5 but I want to be sure for fire flow.

This building will need to meet the performance standard as outlined in section 510 for emergency responder radio signal strength. Please red this section carefully. If you choose performance testing after the building is constructed, and the test does not meet the requirements of Section 510 of the 2019 Oregon Fire Code, you will be required to install the system outlined in section 510, or an equivalent approved by Molalla Fire District, prior to Molalla Fire Signing off on the C of O.

I have attached our fire apparatus specifications as well as mutual aid fire apparatus. Please check turning radii around the site to assure fire proper apparatus flow.

Please submit a striping plan of areas of no parking for evaluation.

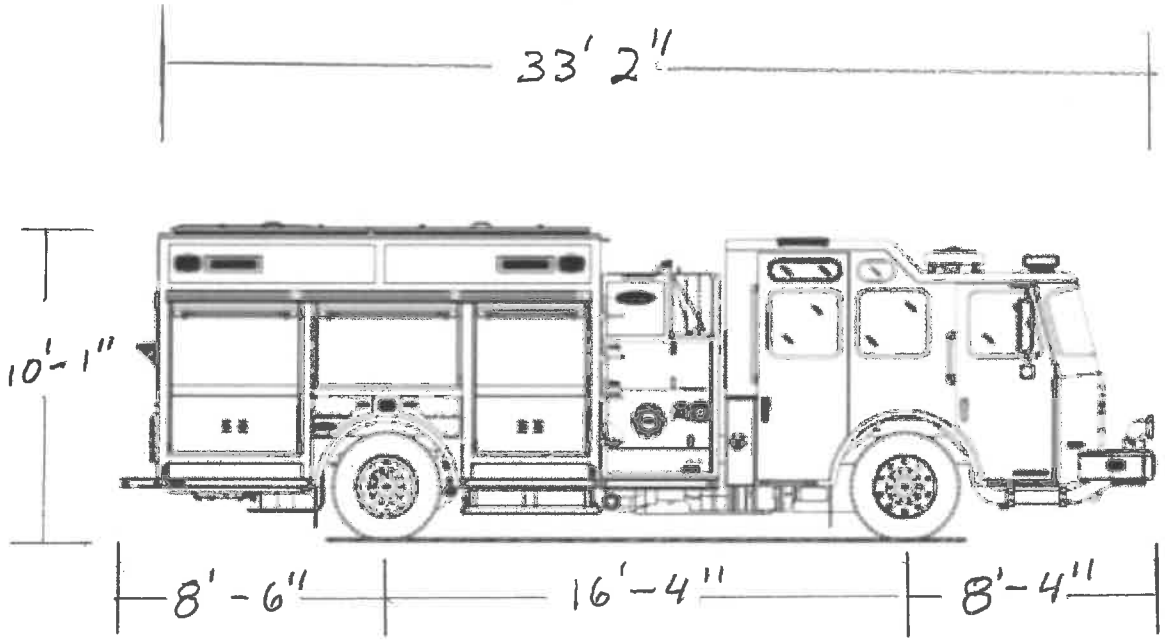
A Knox box will be required for this building. The Knox box shall be mounted on the front of the store by the main access door. The Knox box shall be mounted between 80 to 84 inches to the top of the box as measured from grade.

The above comments are based solely on the site plan provided. Molalla Fire reserves the right to review and comment on the plans that are to be submitted for full review or revisions to plans that have already been reviewed.

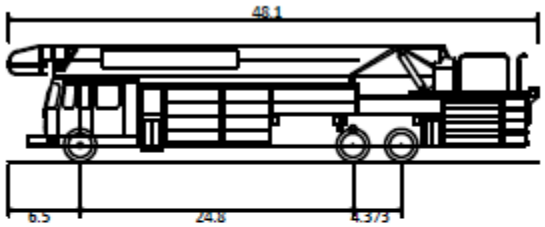
Review of submitted plans is not an approval of omissions, oversights or authorization of non-compliance with any regulations of this agency or of the regulations of any other agency. This decision should not be considered a precedent setting recommendation, as we will review each project on a case-by-case basis.

Michael C. Penunuri
April 4, 2022

E382/E384 Measurements



Cramp angle is 48 degrees left and 44 degrees right. Turning radius for 20-foot-wide driving surface is 28/48. Less than 20-foot driving surface is 44/56.



Portland Fire Truck T-1	
Overall Length	48.100ft
Overall Width	9.500ft
Overall Body Height	10.489ft
Min Body Ground Clearance	0.920ft
Track Width	8.330ft
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	49.200ft