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**STAFF REPORT  
FOR THE PLANNING COMMISSION**

**FILE NUMBER:** SUB-18-03, WAP-18-04, WRG-18-03

**HEARING DATE:** April 3, 2019

**REQUEST:** A Six-Lot Subdivision, Water Resource Area Permit, and Habitat Conservation Area Review at 3841/3843 Mapleton Drive.

**APPROVAL CRITERIA:** Community Development Code (CDC) Chapter 11; Chapter 28; Chapter 32; Chapter 48; Chapter 85; Chapter 92; and Chapter 99.

**STAFF REPORT PREPARED BY:** Darren Wyss, Associate Planner

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Planning Manager's Initials DB Development Review Engineer's Initials EC

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## GENERAL INFORMATION

**OWNER/APPLICANT:** Icon Construction and Development, LLC  
1980 Willamette Falls Drive, Suite 200  
West Linn, OR 97068

**CONSULTANT:** Rick Givens  
18680 Sunblaze Drive  
Oregon City, OR 97045

**SITE LOCATION:** 3841/3843 Mapleton Drive

**LEGAL DESCRIPTION:** Clackamas County Assessor's Map 2S-1E-24BC, Taxlots 400 (0.95 acres) and 500 (1.01 acres)

**SITE SIZE:** 1.96 acres

**ZONING:** R-10, Single-Family Residential Detached

**COMP PLAN DESIGNATION:** Low-Density Residential

**120-DAY PERIOD:** This application became complete on February 8, 2019. The 120-day maximum application-processing period ends on June 8, 2019.

**PUBLIC NOTICE:** Notice was mailed to property owners within 500 feet of the subject property and all neighborhood associations March 14, 2019. Notice was published in the West Linn Tidings on March 21, 2019. The property was posted with a notice sign on March 22, 2019. The notice and application were posted on the City's website March 14, 2019. Therefore, public notice requirements of CDC Chapter 99 have been met.



## EXECUTIVE SUMMARY

**Site Conditions:** The proposed development site (Lot 5 and the west 100 feet of Lot 6, Maple Grove Plat) is zoned R-10 and located in the Robinwood Neighborhood. The site is currently vacant. The site is 1.96 acres, rectangular, and bordered by Mapleton Drive on the south and single-family homes on all other sides. The site slopes to the east/southeast and 98 percent of the site contain Type III or IV lands (slope of 25 percent or less). Trillium Creek traverses the southeast corner of the site where it is currently underground in a pipe. The site contains forty significant trees with half of them clustered in the northeast corner of the site. Access to the site is provided by Mapleton Drive.

**Project Description:** The applicant is requesting approval for a six-lot subdivision. All lots will exceed 10,000 square feet, which is consistent with the R-10 zoning designation.

In addition, a Willamette and Tualatin River Protection (WRG) permit is required. The applicant is proposing a Habitat Conservation Area (HCA) map re-designation, which is regulated under the WRG chapter. The applicant's natural resource consultant, Schott and Associates, has provided findings that support the designation. The applicant is also required to "daylight" the piped stream and restore it to a natural condition with a 15 foot buffer from development. This requires a Water Resource Area (WRA) permit and the applicant's natural resource consultant, Schott and Associates, has provided findings supporting the "daylighting", design, and revegetation proposal. A geotechnical study conducted by Mia Mahedy-Sexton, a licensed engineer, found the site suitable for development.

The property contains 40 significant trees and the applicant proposes to retain 26 significant trees (65 percent). The trees proposed for removal are associated with the access drive and building pads. A small stormwater facility (275 square feet) is proposed to meet water quality and quantity requirements from most of the access drive, while a water quality soakage trench is proposed for the very northeast section of the access drive. Each home will have an individual rain garden.

**Surrounding Land Use and Zoning:** The site is zoned R-10 and located in the Robinwood Neighborhood. Adjacent land uses and zoning include:

Direction From Site	Zoning	Land Use
North/South/East/West	R-10	Single-family residences

**Applicable Community Development Code Approval Criteria:**

- Chapter 11, Single-Family Residential Detached, R-10;
- Chapter 28, Willamette and Tualatin River Protection;
- Chapter 32, Water Resource Area Protection;
- Chapter 48, Access, Egress and Circulation;
- Chapter 85, General Provisions;

- Chapter 92, Required Improvements; and
- Chapter 99, Procedures for Decision Making: Quasi-Judicial.

**Public comment:**

Public comments were submitted by Cindy Kauffman and the Robinwood Neighborhood Association (RNA). Ms. Kauffman expressed concerns about the creek, including further erosion and the quantity/velocity of flow during periods of heavy rain. The applicant has submitted a preliminary storm report that met City requirements for stormwater run-off from future impervious surfaces. The stormwater must be treated, detained, and released at pre-development levels and will not increase the quantity of flow during rain events. The applicant also submitted a Natural Resource Report prepared by Schott and Associates that states: *“Daylighting the channel will help slow water movement through the site. The proposed channel will be longer than the existing culvert, which will result in water taking longer moving through the site. In addition, water moves faster through a culvert than it does through an open channel since the culvert is smoother than an open channel... The pipe will be removed and replaced with an open channel lined with river cobble to slow water flows and improve habitat value.”*

RNA also expressed concerns regarding impacts from the development on the creek and water flow and asked the Planning Commission to require studies on the impact to downstream properties. The applicant submitted the required preliminary storm report, a geotechnical investigation report, and the aforementioned natural resource report. The RNA requested the applicant distribute “flyers” door to door about construction activities. The Community Development Code does not have any code provisions to require this activity. The RNA also requested appropriate dust control measures, a plan to minimize engine idling, “porta potties” to be located on the property, employee parking to be confined to the property or not block neighboring driveways/mailboxes/trash collection, and utilize “flaggers” to expedite neighborhood ingress/egress. All of these items will be addressed by either the Building Official or West Linn Police during the construction phase of the project and the Community Development Code does not have any code provisions related to the requests. Finally, the RNA requested no public sidewalk be installed along the frontage of Mapleton Drive as part of this proposal. City code requires half-street improvements as part of a subdivision application, but also provides the opportunity for paying a fee-in-lieu versus installation. Recommended Condition of Approval 2 provides an option for installation or fee-in-lieu.

**RECOMMENDATION**

Staff recommends approval of application SUB-18-03/WAP-18-04/WRG-18-03, based on: 1) the findings submitted by the applicant, which are incorporated by this reference, 2) supplementary staff findings included in the Addendum below, and 3) the addition of conditions of approval below. With these findings, the applicable approval criteria are met. The conditions are as follows:

1. **Site Plans.** With the exception of modifications required by these conditions, the project shall substantially conform to all Tentative Plan Sheets.
2. **Engineering Standards.** All public improvements and facilities associated with the approved site design, including but not limited to street improvements, driveway approaches, curb cuts, utilities, grading, onsite and offsite stormwater, street lighting, easements, easement locations, and connections for future extension of utilities are subject to conformance with the City Municipal Code and Community Development Code. These must be designed, constructed, and completed, or paid by fee-in-lieu, prior to final plat approval.
3. **HCA Boundary.** The HCA Boundary is revised to align with the proposed riparian setback for the “daylighted” section of Trillium Creek across the subject property as identified on the Tentative Plan (Staff Finding 6). A copy of the map change report and final findings shall be provided to Metro and the City’s GIS mapping to initiate the change.
4. **Reciprocal Access and Maintenance Agreement.** The applicant shall record a reciprocal access and maintenance agreement for the private street serving Lots 2, 3, 4, and 5. The private street shall be named and the name shown on the final plat. The agreement shall be recorded with the final plat.
5. **Private Access Drive Public Utility Easement.** The applicant shall record a public utility easement over the private street for future maintenance of the public sanitary sewer line serving Lots 2, 3, 4, and 5. The easement shall be recorded with the final plat.
6. **Reduced Water Resource Area Document.** The applicant shall record a legal document that includes a legal description and map, signed by a City representative, describing the reduced WRA prior to final plat approval. The map must be coordinated with the City’s GIS Analyst.

**ADDENDUM  
PLANNING COMMISSION STAFF REPORT  
April 3, 2019**

**STAFF EVALUATION OF THE PROPOSAL'S COMPLIANCE  
WITH APPLICABLE CODE CRITERIA**

This decision adopts the findings for approval contained within the applicant's submittal, with the following exceptions and additions:

*CHAPTER 11*

*SINGLE-FAMILY RESIDENTIAL DETACHED, R-10*

*11.030 PERMITTED USES*

*The following are uses permitted outright in this zoning district:*

1. *Single-family detached residential unit.*

*(...)*

**Staff Finding 1: The subdivision application will create six lots to accommodate one “single family detached residential unit” on each lot. Single family detached residential units are permitted uses. The criteria is met.**

*11.030 PERMITTED USES*

*The following are uses permitted outright in this zoning district:*

5. *Utilities, minor.*

**Staff Finding 2: The applicant proposes a stormwater facility to meet water quality and quantity requirements of the West Linn Public Works Standards. The facility is located near Mapleton Drive (275 square feet) and will accommodate stormwater runoff from the access drive. The facility near the northern terminus of the access drive (water quality soakage trench) will accommodate stormwater runoff from the northern portion of the access drive. Each home will have an individual rain garden that will be designed and reviewed at time of building permit application. The proposed stormwater system has been designed and sized by an Oregon licensed engineer to accommodate the projected peak storm event. The facilities are required by City regulations and will serve the proposed development of the site. The Planning Commission has discussed the issue of major versus minor utility and the applicant was informed of the interpretation at the pre-application conference.**

*11.070 DIMENSIONAL REQUIREMENTS, USES PERMITTED OUTRIGHT AND USES PERMITTED UNDER PRESCRIBED CONDITIONS*

*Except as may be otherwise provided by the provisions of this code, the following are the requirements for uses within this zone:*

1. *The minimum lot size shall be 10,000 square feet for a single-family detached unit.*

**Staff Finding 3:** The subdivision application will create six lots, with Lots 2, 3, 4, and 5 being flag lots and the flag pole not being counted towards square footage of the lot. Lot 1 will be 16,926 square feet, Lot 2 will be 10,152 square feet, Lot 3 will be 10,011 square feet, Lot 4 will be 12,189 square feet, Lot 5 will be 15,139 square feet, and Lot 6 will be 10,834 square feet. The criteria is met.

2. *The minimum front lot line length or the minimum lot width at the front lot line shall be 35 feet.*

**Staff Finding 4:** The subdivision application will create six lots, with Lots 2, 3, 4, and 5 being flag lots with eight foot wide flag poles as allowed by CDC 85.200.B(7). Lot 1 will have a front lot line width of 125 feet along Mapleton Drive and Lot 6 will have a front lot line width of 72 feet along Mapleton Drive. The criteria is met.

3. *The average minimum lot width shall be 50 feet. (...)*

**Staff Finding 5:** The subdivision application will create six lots, with Lots 2, 3, 4, and 5 being flag lots. Lot 1 will have an average width of approximately 90 feet, Lot 2 will have an average width of approximately 68 feet, Lot 3 will have an average width of approximately 75 feet, Lot 4 will have an average width of approximately 87 feet, Lot 5 will have an average width of approximately 100 feet and Lot 6 will have an average width of approximately 72 feet. The criteria is met.

5. *Except as specified in CDC 25.070(C) (1) through (4) for the Willamette Historic District, the minimum yard dimensions or minimum building setback area from the lot line shall be:*

a. *For the front yard, 20 feet; except for steeply sloped lots where the provisions of CDC 41.010 shall apply.*

b. *For an interior side yard, seven and one-half feet. (...)*

c. *For a rear yard, 20 feet.*

6. *The maximum building height shall be 35 feet, except for steeply sloped lots in which case the provisions of Chapter 41 CDC shall apply.*

7. *The maximum lot coverage shall be 35 percent. (...)*

9. *The floor area ratio shall be 0.45. (...)*

**Staff Finding 6:** At the time of building permit application to construct homes on the lots, the front, side and rear setbacks, building height, lot coverage, FAR and sidewall transition requirements will be reviewed for compliance. The criteria is met.

CHAPTER 28: WILLAMETTE AND TUALATIN RIVER PROTECTION AREA

28.070 PLANNING DIRECTOR VERIFICATION OF METRO HABITAT PROTECTION MAP BOUNDARIES

A. *The [Habitat Conservation Area] HCA Map is the basis for identifying and designating the habitat conservation areas in the City. A copy of the latest, updated HCA Map is on file at the City and is adopted by reference for use with this chapter.*

*It is inevitable, given the large area that Metro's HCA Map covers, that there may be some errors. In cases where, for example, three properties share the same contours and the same natural features but the map shows the middle lot with an HCA designation on it, it is reasonable to question the accuracy of that HCA designation. Using tree overstory as the sole basis for HCA designation will also allow a change in designation since trees are already protected in the municipal code and Chapters 55 and 85 CDC.*

B. *The Planning Director shall verify the appropriate HCA or non-HCA designation by site visits or consultations with Metro or by other means. Determination is based on whether the Metro criteria are met or whether the Metro designation was based solely on tree overstory in which case a redesignation is appropriate. In cases where the determination is that the map is incorrect, the Planning Director will make a written finding of this as well as the site conditions that led to that conclusion.*

C. *Class B public notice, per Chapter 99 CDC, shall be required prior to issuance of the redesignation decision if it involves redesignation of the HCA boundary to allow the construction of, or addition to, a house.*

D. *This determination and findings shall become part of the City record and part of the record for any associated land use application. The Planning Director shall also include in the record the revised map boundary. The Planning Director's determination and map revisions shall also be sent to Metro so that their map may be corrected as necessary.*

E. *The Planning Director determination is appealable to the City Council per Chapter 99 CDC.*

F. *Lands that are designated as an HCA only due to a forested overstory are exempt under CDC 28.040, Exemptions, since trees are already protected in the municipal code and Chapters 55 and 85 CDC. Similar exemptions apply to lands that exhibit no constraints.*

**Staff Finding 7: The applicant requested a Planning Manager verification of the Metro HCA boundary found on the subject property (see Exhibit PC-5). The Planning Manager recommends the Planning Commission accept the following findings in support of the boundary verification. The HCA implements Title 13 of the Metro Urban Growth Management Functional Plan. Title 13 identifies habitat conservation areas in two areas, those associated with riparian areas and those in upland areas. The HCA on the subject property was associated with piped section of Trillium Creek as it traverses the site. By definition, the piped section does not have a riparian area and was mapped in error. Please see findings provided by the applicant and the study by Schott and Associates (November 8, 2018). The report included the following findings:**

**"HCA on site findings"**

***The HCA maps shows the creek extending through the site with 100ft setbacks on both sides. There has been an obvious mapping error by Metro on this site. The creek was in a culvert long before Metro did its mapping of streams and wetlands. Metro, at the time of the mapping, recognized that there would be mapping errors and provided a provision for correcting the obvious errors. A culverted stream is not, by any definition, a HCA area, and since it not an HCA area, there isn't a corridor or setback.***

Schott and Associates have the professional qualifications to make these findings. The central finding of their report is that Metro erred when they classified the area as riparian per Metro Title 13 Table 3.07-13a: Method for Identifying Habitat. The other classification of habitat is upland, which does not apply to areas with high, medium, or low urban development value. The subject property is currently zoned for urban development, thus having urban development value. The applicant will “daylight” the piped stream into an open channel as part of the development. The Planning Manager recommends adjusting the HCA boundary on the subject property to align with the “daylighted” stream setbacks as identified on the Tentative Plan sheet per Condition of Approval 3. Subject to the Conditions of Approval, the criteria is met. (Condition of Approval 4 makes note of the HCA map change and obliges the City to make all necessary changes to City and Metro mapping.)

**28.110 APPROVAL CRITERIA**

**A. Development: All sites.**

1. Sites shall first be reviewed using the HCA Map to determine if the site is buildable or what portion of the site is buildable. HCAs shall be verified by the Planning Director per CDC 28.070 and site visit. Also, “tree canopy only” HCAs shall not constitute a development limitation and may be exempted per CDC 28.070(A). The municipal code protection for trees and Chapters 55 and 85 CDC tree protection shall still apply.

2. HCAs shall be avoided to the greatest degree possible and development activity shall instead be directed to the areas designated “Habitat and Impact Areas Not Designated as HCAs,” consistent with subsection (A) (3) of this section.

(...)

**B. Single-family or attached residential.**

(...)

**Staff Finding 8:** The applicant has requested a Planning Manager verification of the Metro HCA boundary per Staff Finding 7. The applicant’s consultant, Schott and Associates, determined that ***“A culverted stream is not, by any definition, a HCA area, and since it not an HCA area, there isn't a corridor or setback”***. The Planning Manager recommends adjusting the HCA boundary on the subject property to align with the “daylighted” stream setbacks as identified on the Tentative Plan sheet per Condition of Approval 3. With the re-designated HCA boundary, staff finds that no development will occur in the HCA. Subject to the Conditions of Approval, the criteria are met.

**C. Setbacks from top of bank.**

(...)

**Staff Finding 9: All development, including home construction, will occur on lands designated as “Habitat and Impact Areas Not Designated as HCAs” or non-HCA lands. Setback requirements will be reviewed at time of building permit application. The criteria is met.**

*D. Development of lands designated for industrial, commercial, office, public and other non-residential uses.*

*E. Hardship provisions and non-conforming structures.*

*F. Access and property rights.*

*G. Incentives to encourage access in industrial, multi-family, mixed use, commercial, office, public and non-single-family residential zoned areas.*

**Staff Finding 10: The subject property is zoned single-family residential, has no non-conforming structures, has legal access, and the applicant is not requesting a hardship. The criteria are not applicable.**

*H. Partitions, subdivisions and incentives.*

*1. When dividing a property into lots or lots, an applicant shall verify the boundaries of the HCA on the property.*

*2. Applicant shall partition or subdivide the site so that all lots or lots have a buildable site or envelope available for home construction located on non-HCA land or areas designated “Habitat and Impact Areas Not Designated as HCAs” per the HCA Map.*

*3. Development of HCA-dominated lands shall be undertaken as a last resort. A planned unit development (PUD) of Chapter 24 CDC may be required.*

**Staff Finding 11: The applicant has requested a Planning Manager verification of the Metro HCA boundary per Staff Finding 7. The applicant’s consultant, Schott and Associates, determined that “A culverted stream is not, by any definition, a HCA area, and since it not an HCA area, there isn’t a corridor or setback”. The Planning Manager recommends adjusting the HCA boundary (see Exhibit PC-2 for maps) on the subject property to align with the “daylighted” stream setbacks as identified on the Tentative Plan sheet per Condition of Approval 3. With the re-designated HCA boundary, staff finds that no development will occur in the HCA. Subject to the Conditions of Approval, the criteria are met.**

*4. Incentives are available to encourage provision of public access to, and/or along, the river. By these means, planned unit developments shall be able to satisfy the shared outdoor recreation area requirements of CDC 55.100(F). Specifically, for every square foot of riverfront path, the applicant will receive credit for two square feet in calculating the required shared outdoor recreation area square footage.*

*(...)*

*I. Docks and other water-dependent structures.*

*J. Joint docks.*

*K. Non-conforming docks and other water-related structures.*



**Staff Finding 12:** This application does not include any riverfront property to facilitate access to or along the river, nor does it include any docks or other water-related structures. The criteria are not applicable.

*L. Roads, driveways, utilities, or passive use recreation facilities. Roads, driveways, utilities, public paths, or passive use recreation facilities may be built in those portions of HCAs that include wetlands, riparian areas, and water resource areas when no other practical alternative exists but shall use water-permeable materials unless City engineering standards do not allow that. Construction to the minimum dimensional standards for roads is required. Full mitigation and revegetation is required, with the applicant to submit a mitigation plan pursuant to CDC [32.070](#) and a revegetation plan pursuant to CDC [32.080](#). The maximum disturbance width for utility corridors is as follows:*

*(...)*

*3. For new underground utility facilities, no greater than 25 feet wide, and disturbance of no more than 200 linear feet of water quality resource area, or 20 percent of the total linear feet of water quality resource area, whichever is greater.*

**Staff Finding 13:** The applicant has requested a Planning Manager verification of the Metro HCA boundary per Staff Finding 7. The applicant’s consultant, Schott and Associates, determined that *“A culverted stream is not, by any definition, a HCA area, and since it not an HCA area, there isn’t a corridor or setback”*. The Planning Manager recommends adjusting the HCA boundary on the subject property to align with the “daylighted” stream setbacks as identified on the Tentative Plan sheet per Condition of Approval 3. With the re-designated HCA boundary, the applicant proposes the private street to cross the “daylighted” stream as this is the only practicable access to Lots 2, 3, 4, and 5. Appropriate stormwater facilities are proposed. The maximum disturbance has a width of 26.5 feet and the applicant has submitted a mitigation and revegetation plan (see Schott and Associates report) pursuant to CDC 32.070/080. The criteria is met.

*M. Structures.*

*N. Water-permeable materials for hardscapes.*

*O. Signs and graphics.*

*P. Lighting.*

*Q. Parking.*

*R. Views.*

*S. Aggregate deposits.*

**Staff Finding 14:** This application does not include any structures, hardscapes, signs or graphics, parking, or aggregate deposits in the adjusted HCA boundary (see Staff Findings 7, 8, and 11). The site is not adjacent to the Tualatin or Willamette Rivers so no lighting is directed towards the river surfaces and no views are obstructed. The criteria are met.

*T. Changing the landscape/grading.*

*U. Protect riparian and adjacent vegetation.*

**Staff Finding 15:** The applicant has requested a Planning Manager verification of the Metro HCA boundary per Staff Finding 7. The applicant’s consultant, Schott and Associates, determined that *“A culverted stream is not, by any definition, a HCA area, and since it not an HCA area, there isn’t a corridor or setback”*. The Planning Manager recommends adjusting the HCA boundary on the subject property to align with the “daylighted” stream setbacks as identified on the Tentative Plan sheet per Condition of Approval 3. “Daylighting” the stream will require the removal of two significant trees in order to create an appropriate stream channel and riparian area. The applicant has proposed a revegetation plan to plant the newly created riparian area that meets City requirements (see Schott and Associates memorandum dated November 8, 2018). The criteria are met.

*CHAPTER 32: WATER RESOURCE AREA PROTECTION*

*32.060 APPROVAL CRITERIA (STANDARD PROCESS)*

*(...)*

*D. WRA width.*

*Formerly closed drainage channel reopened – 15 feet*

**Staff Finding 16:** Trillium Creek is currently piped underground on the southeast corner of the site. The applicant is required to “daylight” the stream and has proposed a minimum 15 foot setback for the duration of the reopened creek channel. The criteria is met.

*(...)*

*H. Daylighting Piped Streams.*

*1. As part of any application, covered or piped stream sections shown on the WRA Map are encouraged to be “daylighted” or opened. Once it is daylighted, the WRA will be limited to 15 feet on either side of the stream. Within that WRA, water quality measures are required which may include a storm water treatment system (e.g., vegetated bioswales), continuous vegetative ground cover (e.g., native grasses) at least 15 feet in width that provides year round efficacy, or a combination thereof.*

**Staff Finding 17:** Trillium Creek is currently piped underground on the southeast corner of the site. The applicant is required to “daylight” the stream and has proposed a minimum 15 foot setback for the duration of the reopened creek channel. The applicant has submitted a revegetation plan (see Schott and Associates memorandum dated October 8, 2018) that will provide continuous vegetative ground cover at least 15 feet in width. The criteria is met.

*2. The re-opened stream does not have to align with the original piped route but may take a different route on the subject property so long as it makes the appropriate upstream and downstream connections and meet the standards of subsections (H)(3) and (4) of this section.*

*3. A re-aligned stream must not create WRAs on adjacent properties not owned by the applicant unless the applicant provides a notarized letter signed by the adjacent property owner(s) stating that the encroachment of the WRA is permitted.*

4. *The evaluation of proposed alignment and design of the reopened stream shall consider the following factors:*
  - a. *The ability of the reopened stream to safely carry storm drainage through the area without causing significant erosion.*
  - b. *Continuity with natural contours on adjacent properties, slope on site and drainage patterns.*
  - c. *Continuity of adjacent vegetation and habitat values.*
  - d. *The ability of the existing and proposed vegetation to filter sediment and pollutants and enhance water quality.*
  - e. *Provision of water temperature conducive to fish habitat.*
5. *Any upstream or downstream WRAs or riparian corridors shall not apply to, or overlap, the daylighted stream channel.*

**Staff Finding 18: The applicant has proposed to reroute the “daylighted” stream with appropriate upstream and downstream connections. The realigned stream will not create a WRA on any adjacent properties. Two significant trees must be removed to create the new stream channel and riparian area. Schott and Associates has provided an evaluation of the “daylighted” stream and associated findings, including a revegetation plan, in a memorandum dated November 8, 2018. Staff incorporates applicant findings. The criteria are met.**

*6. When a stream is daylighted the applicant shall prepare and record a legal document describing the reduced WRA required by subsections (H)(1) and (5) of this section. The document will be signed by a representative of the City and recorded at the applicant’s expense to better ensure long term recognition of the reduced WRA and reduced restrictions for the daylighted stream section.*

**Staff Finding 19: The applicant shall record a legal document, signed by a City representative, describing the reduced WRA location per Condition of Approval 6. Subject to the Conditions of Approval, the criteria is met.**

CHAPTER 48: ACCESS, EGRESS AND CIRCULATION  
48.020 APPLICABILITY AND GENERAL PROVISIONS

(...)

*B. All lots shall have access from a public street or from a platted private street approved under the land division chapter.*

(...)

*E. Owners of two or more uses, structures, lots, parcels, or units of land may agree to utilize jointly the same access and egress when the combined access and egress of both uses, structures, or parcels of land satisfies the requirements as designated in this code; provided, that satisfactory legal evidence is presented to the City Attorney in the form of deeds, easements, leases, or contracts to establish joint use. Copies of said instrument shall be placed on permanent file with the City Recorder.*

**Staff Finding 20: Proposed Lots 1 and 6 will have access to Mapleton Drive, a public street. Lots 2, 3, 4, and 5 will take access from a shared private street that provides connection to Mapleton Drive per CDC 48.020(E). The shared private street will have a reciprocal access and maintenance agreement per Condition of Approval 3. The applicant shall name the private access drive and the new homes addresses will be from this name per Condition of Approval 3. Subject to the Conditions of Approval, the criteria is met.**

*48.025 ACCESS CONTROL*

*B. Access Control Standards*

*1. Traffic impact analysis requirements. The City or other agency with access jurisdiction may require a traffic study prepared by a qualified professional to determine access, circulation and other transportation requirements. (See also CDC 55.125, Traffic Impact Analysis.)*

**Staff Finding 21: No Traffic Impact Analysis (TIA) is required since none of the criteria of 85.170(B)(2) are met. For example, an Average Daily Trip count (ADT) of 250 is required before a TIA is needed. The addition of six new homes should only generate an ADT of 56.4 based on the Institute of Traffic Engineers (ITE) trip generation tables which project 9.4 ADT for each single family home. This criteria is met.**

*2. The City or other agency with access permit jurisdiction may require the closing or consolidation of existing curb cuts or other vehicle access points, recording of reciprocal access easements (i.e., for shared driveways), development of a frontage street, installation of traffic control devices, and/or other mitigation as a condition of granting an access permit, to ensure the safe and efficient operation of the street and highway system. Access to and from off-street parking areas shall not permit backing onto a public street.*

*3. Access control standards.*

*4. Subdivisions fronting onto an arterial street.*

*5. Double-frontage lots.*

*6. Access spacing.*

*7. Number of access points.*

**Staff Finding 22: Staff incorporates applicant findings. The criteria are met.**

*8. Shared driveways. The number of driveway and private street intersections with public streets shall be minimized by the use of shared driveways with adjoining lots where feasible. The City shall require shared driveways as a condition of land division or site design review, as applicable, for traffic safety and access management purposes in accordance with the following standards:*

*a. Shared driveways and frontage streets may be required to consolidate access onto a collector or arterial street. When shared driveways or frontage streets are required, they shall be stubbed to adjacent developable parcels to indicate future extension. "Stub" means that a driveway or street temporarily ends at the property line, but may be extended in the future as the adjacent lot or parcel develops. "Developable" means that a lot or parcel is either vacant or it is likely to receive additional development (i.e., due to infill or redevelopment potential).*

*b. Access easements (i.e., for the benefit of affected properties) shall be recorded for all shared driveways, including pathways, at the time of final plat approval or as a condition of site development approval.*

*(...)*

**Staff Finding 23:** The applicant proposes a shared, private street for Lots 2, 3, 4, and 5 that meets width and spacing requirements. A maximum of four lots can take access from a private street. Lots 1 and 6 must take direct access from Mapleton Drive. The applicant shall record a shared access agreement for Lots 2, 3, 4, and 5 per Condition of Approval 4. Subject to the Conditions of Approval, the criteria are met.

*C. Street connectivity and formation of blocks required.*

**Staff Finding 24:** Staff incorporates applicant findings. The criteria are met.

*48.030 MINIMUM VEHICULAR REQUIREMENTS FOR RESIDENTIAL USES*

*B. When any portion of any house is less than 150 feet from the adjacent right-of-way, access to the home is as follows:*

- 1. One single-family residence, including residences with an accessory dwelling unit as defined in CDC 02.030, shall provide 10 feet of unobstructed horizontal clearance. Dual-track or other driveway designs that minimize the total area of impervious driveway surface are encouraged.*
- 2. Two to four single-family residential homes equals a 14- to 20-foot-wide paved or all-weather surface. Width shall depend upon adequacy of line of sight and number of homes.*
- 3. Maximum driveway grade shall be 15 percent.*

*(...)*

**Staff Finding 25:** Access to Lots 1 and 6 will be by 20 foot wide individual paved driveways onto Mapleton Drive. The slope of the driveway to Lot 1 will not exceed 12.5 percent and the slope to Lot 6 will not exceed 5.0 percent. Lots 2, 3, 4, and 5 will take access from a 32 foot shared access easement with a 26.5 foot wide paved, private street with a maximum centerline grade of 7.44 percent. The criteria are met.

*C. When any portion of one or more homes is more than 150 feet from the adjacent right-of-way, the provisions of subsection B of this section shall apply in addition to the following provisions.*

- 1. A turnaround may be required as prescribed by the Fire Chief.*
- 2. Minimum vertical clearance for the driveway shall be 13 feet, six inches.*
- 3. A minimum centerline turning radius of 45 feet is required unless waived by the Fire Chief.*
- 4. There shall be sufficient horizontal clearance on either side of the driveway so that the total horizontal clearance is 20 feet.*

*(...)*

**Staff Finding 26:** Staff incorporates applicant findings. The criteria are met.

*48.060 WIDTH AND LOCATION OF CURB CUTS AND ACCESS SEPARATION REQUIREMENTS*

*A. Minimum curb cut width shall be 16 feet.*

*B. Maximum curb cut width shall be 36 feet, except along Highway 43 in which case the maximum curb cut shall be 40 feet. For emergency service providers, including fire stations, the maximum shall be 50 feet.*

**Staff Finding 27: The curb cut width for Lots 1 and 6 will be 20 feet. The curb cut width for the private street will be 36 feet. The criteria are met.**

*C. No curb cuts shall be allowed any closer to an intersecting street right-of-way line than the following:*

*(...)*

*6. On a local street when intersecting any other street, 35 feet.*

**Staff Finding 28: Mapleton Drive has a functional classification of a Local Street. The closest intersecting street to the subject property is Willamette Drive at approximately 450 feet. The criteria are met.**

*D. There shall be a minimum distance between any two adjacent curb cuts on the same side of a public street, except for one-way entrances and exits, as follows:*

*(...)*

*3. Between any two curb cuts on the same lot or parcel on a local street, 30 feet.*

**Staff Finding 29: Mapleton Drive has a functional classification of a Local Street. The applicant does not propose two curb cuts on the same lot. The criteria are met.**

*CHAPTER 55: DESIGN REVIEW*

*55.100 APPROVAL STANDARDS – CLASS II DESIGN REVIEW*

*(Design Review is only applicable to significant trees as cross referenced by CDC 85.200(J)(9))*

*B. Relationship to the natural and physical environment.*

*1. The buildings and other site elements shall be designed and located so that all heritage trees, as defined in the municipal code, shall be saved. Diseased heritage trees, as determined by the City Arborist, may be removed at his/her direction.*

*2. All heritage trees, as defined in the municipal code, all trees and clusters of trees (“cluster” is defined as three or more trees with overlapping driplines; however, native oaks need not have an overlapping dripline) that are considered significant by the City Arborist, either individually or in consultation with certified arborists or similarly qualified professionals, based on accepted arboricultural standards including consideration of their size, type, location, health, long term survivability, and/or numbers, shall be protected pursuant to the criteria of subsections (B)(2)(a) through (f) of this section. (...)*

*Non-residential and residential projects on Type I and II lands shall protect all heritage trees and all significant trees and tree clusters by limiting development in the protected area. (...)*

**Staff Finding 30:** There are no heritage trees on the subject property. There are 40 significant trees on the property as verified by the City Arborist. The applicant proposes to retain 26 significant trees (65%) with a total of 7,597 square feet of canopy coverage (9% of total site area). Whereas there is an aspirational tree protection standard of 20 percent (55.100(B)(2)(b)), the applicant will be protecting nine percent. Two of the significant trees to be removed are located in the area required to create an appropriate stream corridor for the “daylighted” stream. The criteria is met.

*CHAPTER 85: GENERAL PROVISIONS (LAND DIVISION)*

*85.200 APPROVAL CRITERIA*

*No tentative subdivision or partition plan shall be approved unless adequate public facilities will be available to provide service to the partition or subdivision area prior to final plat approval and the Planning Commission or Planning Director, as applicable, finds that the following standards have been satisfied, or can be satisfied by condition of approval.*

*A. Streets.*

*1. General. The location, width and grade of streets shall be considered in their relation to existing and planned streets (...) Internal streets are the responsibility of the developer. All streets bordering the development site are to be developed by the developer with, typically, half-street improvements or to City standards prescribed by the Public Works Director (...)*

**Staff Finding 31:** Staff incorporates applicant findings. The criteria are met.

*2. Right-of-way and roadway widths.*

*3. Street widths. Street widths shall depend upon which classification of street is proposed. The classifications and required cross sections are established in Chapter 8 of the adopted TSP. (...)*

*4. The decision-making body shall consider the Public Works Director’s recommendations on the desired right-of-way width, pavement width and street geometry of the various street types within the subdivision after consideration by the Public Works Director of the following criteria: (...)*

**Staff Finding 32:** Mapleton Drive has an existing right-of-way of 50 feet that is adequate to accommodate a 28 foot local street width. This is consistent with the local streets design per the adopted 2016 Transportation System Plan (TSP). (On street parking is permitted.) The applicant has proposed half-street improvements to meet local street standards per the Preliminary Street Plan and Profiles Sheet. The criteria is met.

*5. Additionally, when determining appropriate street width, the decision-making body shall consider the following criteria: (...)*

*6. Reserve strips.*

*7. Alignment.*

*8. Future extension of streets. Where necessary to give access to or permit a satisfactory future subdivision of adjoining land, streets shall be extended to the boundary of the subdivision and the resulting dead-end streets may be approved without turnarounds. (Temporary*

turnarounds built to Fire Department standards are required when the dead-end street is over 100 feet long.)

9. *Intersection angles.*

**Staff Finding 33: Staff incorporates applicant findings. The criteria are met.**

10. *Additional right-of-way for existing streets.*

**Staff Finding 34: Mapleton Drive has an existing right-of-way of 50 feet and is sufficient to accommodate a 28 foot local street width. This is consistent with the local streets design per the adopted 2016 Transportation System Plan (TSP). (On street parking is permitted.) No additional right-of-way is required. The criteria is met.**

11. *Cul-de-sacs.*

a. *New cul-de-sacs and other closed-end streets (not including stub streets intended to be connected) on sites containing less than five acres, or sites accommodating uses other than residential or mixed use development, are not allowed unless the applicant demonstrates that there is no feasible alternative due to:*

1) *Physical constraints (e.g., existing development, the size or shape of the site, steep topography, or a fish bearing stream or wetland protected by Chapter 32 CDC), or*

2) *Existing easements or leases.*

b. *New cul-de-sacs and other closed-end streets, consistent with subsection (A)(11)(a) of this section, shall not exceed 200 feet in length or serve more than 25 dwelling units unless the design complies with all adopted Tualatin Valley Fire and Rescue (TVFR) access standards and adequately provides for anticipated traffic, consistent with the Transportation System Plan (TSP).*

c. *New cul-de-sacs and other closed-end streets (not including stub streets intended to be connected) on sites containing five acres or more (...)*

d. *Applicants for a proposed subdivision, partition or a multifamily, commercial or industrial development accessed by an existing cul-de-sac/closed-end street shall demonstrate that the proposal is consistent with all applicable traffic standards and TVFR access standards.*

e. *All cul-de-sacs and other closed-end streets shall include direct pedestrian and bicycle accessways from the terminus of the street to an adjacent street or pedestrian and bicycle accessways unless the applicant demonstrates that such connections are precluded by physical constraints or that necessary easements cannot be obtained at a reasonable cost.*

f. *All cul-de-sacs/closed-end streets shall terminate with a turnaround built to one of the following specifications (measurements are for the traveled way and do not include planter strips or sidewalks).*

**Staff Finding 35: Staff incorporates applicant findings. The criteria are met.**

12. *Street names.*

13. *Grades and curves.*

14. *Access to local streets.*



15. *Alleys.*

**Staff Finding 36: Staff incorporates applicant findings. The criteria are met.**

16. *Sidewalks. Sidewalks shall be installed per CDC 92.010(H), Sidewalks. The residential sidewalk width is six feet plus planter strip...or to match existing sidewalks or right-of-way limitations.*

(...)

17. *Planter Strip.*

(...)

**Staff Finding 37: The applicant has proposed a six-foot sidewalk and six-foot planter strip adjacent to the subject property (Preliminary Street Plan and Profiles Sheet in Exhibit PC-1). The applicant shall either construct the improvements or pay a fee-in-lieu per Condition of Approval 2. Subject to the Conditions of Approval, the criteria are met.**

18. *Streets and roads shall be dedicated without any reservations or restrictions.*

19. *All lots in a subdivision shall have access to a public street. Lots created by partition may have access to a public street via an access easement pursuant to the standards and limitations set forth for such accessways in Chapter 48 CDC.*

**Staff Finding 38: All lots will have access to Mapleton Drive, which has a 50 foot right-of-way and feet and is sufficient to accommodate a 28 foot local street width. The applicant is not required to dedicate any additional right-of-way. The criteria are met.**

20. *Gated Streets.*

21. *Entryway treatments and street isle design.*

22. *Based upon the determination of the City Manager or the Manager's designee, the applicant shall construct or cause to be constructed, or contribute a proportionate share of the costs, for all necessary off-site improvements identified by the transportation analysis commissioned to address CDC 85.170(B)(2) that are required to mitigate impacts from the proposed subdivision.*

(...)

**Staff Finding 39: No gated streets or entryway treatments are proposed. The City Engineer has determined no off-site improvements are required based on the small number of peak hour trips associated with a six-lot subdivision. The criteria are met.**

*B. Blocks and Lots*

*1. General.*

*2. Sizes.*

*3. Lot size and shape.*

**Staff Finding 40: Staff incorporates applicant findings. The criteria are met.**

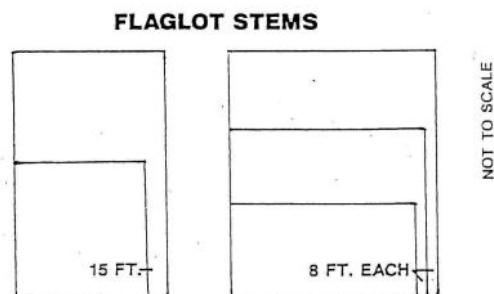
4. *Access. Access to subdivisions, partitions, and lots shall conform to the provisions of Chapter 48 CDC, Access, Egress and Circulation.*

**Staff Finding 41: Please see Staff Findings 17 to 26. The criteria are met.**

- 4. *Double frontage lots.*
- 5. *Lot and parcel side lines.*

**Staff Finding 42: Staff incorporates applicant findings. The criteria are met.**

7. *Flag lots. Flag lots can be created where it can be shown that no other reasonable street access is possible to achieve the requested land division. A single flag lot shall have a minimum street frontage of 15 feet for its accessway. Where two to four flag lots share a common accessway, the minimum street frontage and accessway shall be eight feet in width per lot. Common accessways shall have mutual maintenance agreements and reciprocal access and utility easements. The following dimensional requirements shall apply to flag lots:*



8. *Large lots or parcels.*

**Staff Finding 43: Staff incorporates applicant findings. The criteria are met.**

- C. *Pedestrian and bicycle trails.*  
(...)
- D. *Transit facilities.*

**Staff Finding 44: No pedestrian or bicycle projects are identified on or near the subject property in any of the City’s master plans. The closest transit facilities are located on Willamette Drive, approximately 450 feet to the west. The criteria is met.**

E. *Grading. Grading of building sites shall conform to the following standards unless physical conditions demonstrate the propriety of other standards:*  
(...)

6. *Per the submittals required by CDC 85.170(C)(3), the applicant must demonstrate that the proposed methods of rendering known or potential hazard sites safe for development, including proposed geotechnical remediation, are feasible and adequate to prevent landslides or other*

*damage to property and safety. The review authority may impose conditions, including limits on type or intensity of land use, which it determines are necessary to mitigate known risks of landslides or property damage.*

*(...)*

**Staff Finding 45: A “Preliminary Grading Plan” has been submitted and complies with Public Works standards and the Uniform Building Code. The subject property contains approximately 50 percent Type III Lands, requiring submittal of a geologic report. The applicant submitted a geotechnical study (dated October 2, 2018), conducted by Mia Mahedy-Sexton, an Oregon licensed engineer, that found the site suitable for development. The criteria is met.**

*F. Water.*

*1. A plan for domestic water supply lines or related water service facilities shall be prepared consistent with the adopted Comprehensive Water System Plan, plan update, March 1987, and subsequent superseding revisions or updates.*

*2. Adequate location and sizing of the water lines.*

*(...)*

**Staff Finding 46: Water is available in Mapleton Drive to serve the proposed development. A registered civil engineer prepared the water provision plan. The City’s public water system has sufficient capacity and pressure in this area. Private water system sizing will be analyzed with the building permit. The criteria are met.**

*G. Sewer.*

*1. A plan prepared by a licensed engineer shall show how the proposal is consistent with the Sanitary Sewer Master Plan (July 1989). Agreement with that plan must demonstrate how the sanitary sewer proposal will be accomplished and how it is gravity-efficient. The sewer system must be in the correct basin and should allow for full gravity service.*

*(...)*

**Staff Finding 47: The applicant has submitted a plan prepared by a registered civil engineer that will gravity flow to the existing sanitary sewer line in Mapleton Drive. The applicant proposes extending a public sanitary sewer line up the private street and recording a public utility easement for City maintenance access per Condition of Approval 5. The system will be built to appropriate standards. The City public sanitary sewer system has sufficient capacity to service the proposed use. Subject to the Conditions of Approval, the criteria are met.**

*H. Storm detention and treatment. All proposed storm detention and treatment facilities comply with the standards for the improvement of public and private drainage systems located in the West Linn Public Works Design Standards, there will be no adverse off-site impacts caused by the development (including impacts from increased intensity of runoff downstream or constrictions causing ponding upstream), and there is sufficient factual data to support the conclusions of the submitted plan.*

**Staff Finding 48:** The applicant has submitted a Preliminary Storm Report (December 2018), prepared by a licensed engineer, which complies with the West Linn Public Works Design Standards, shows no adverse off-site impacts, and provides sufficient factual data to support the conclusions of the plan. The applicant also submitted a Geotechnical Investigation (October 2018) that shows the site is suitable for development and no off-site impacts will occur. The subject property does not contain any known landslide hazards. The applicant shall comply with the requirements and install improvements to meet the West Linn Public Works Design Standards per Condition of Approval 2. Subject to the Conditions of Approval, the criteria are met.

*I. Utility easements. Subdivisions and partitions shall establish utility easements to accommodate the required service providers as determined by the City Engineer. The developer of the subdivision shall make accommodation for cable television wire in all utility trenches and easements so that cable can fully serve the subdivision.*

**Staff Finding 49:** The applicants shows an eight-foot wide public utility easement on the Tentative Plan along the site boundary with Mapleton Drive. The applicant is also required to record a public utility easement over the shared private street for future maintenance of the public sanitary sewer line serving Lots 2, 3, 4, and 5 (Condition of Approval 5). Subject to the Conditions of Approval, the criteria is met.

*J. Supplemental Provisions*

*1. Wetland and natural drainageways.*

**Staff Finding 50:** Trillium Creek traverses the southeast corner of the site underground in a pipe. The applicant has proposed to “daylight” the stream and provide appropriate setbacks. The applicant submitted a report from Schott and Associates that provides findings and details for the process, including a revegetation plan. Please see Staff Findings 14 to 16 for compliance with CDC Chapter 32. The criteria is met.

*2. Willamette and Tualatin Greenways. The Willamette and Tualatin River Greenways shall be protected as required by Chapter 28 CDC, Willamette and Tualatin River Protection.*

**Staff Finding 51:** The applicant submitted a report from Schott and Associates that provides findings and details for the process. Please see Staff Findings 7 to 13 for compliance with CDC Chapter 28. The criteria is met.

*3. Street trees.*

*4. Lighting. All subdivision street or alley lights shall meet West Linn Public Works Design Standards.*

**Staff Finding 52: Staff incorporates applicant findings. The criteria are met.**

5. *Dedications and exactions. The City may require an applicant to dedicate land and/or construct a public improvement that provides a benefit to property or persons outside the property that is the subject of the application when the exaction is roughly proportional. No exaction shall be imposed unless supported by a determination that the exaction is roughly proportional to the impact of development.*

**Staff Finding 53: The City has determined the proposal does not require any dedications or exactions either adjacent to the site or any off-site areas. The criteria is met.**

6. *Underground utilities. All utilities, such as electrical, telephone, and television cable, that may at times be above ground or overhead shall be buried underground in the case of new development. The exception would be in those cases where the area is substantially built out and adjacent properties have above-ground utilities and where the development site's frontage is under 200 feet and the site is less than one acre. (...)*

**Staff Finding 54: The subject property has site frontage of 230 feet and is 1.96 acres, thus not qualifying for the exception. The applicant shall place all overhead utilities underground or pay fee-in-lieu as part of the development. The criteria is met.**

7. *Density requirement.*

8. *Mix requirement.*

**Staff Finding 55: Staff incorporates applicant findings. The criteria are met.**

9. *Heritage trees/significant tree and tree cluster protection. All heritage trees, as defined in the Municipal Code, shall be saved. Diseased heritage trees, as determined by the City Arborist, may be removed at his/her direction. All non-heritage trees and clusters of trees (three or more trees with overlapping dripline; however, native oaks need not have an overlapping dripline) that are considered significant by virtue of their size, type, location, health, or numbers shall be saved pursuant to CDC 55.100(B)(2).*

**Staff Finding 56: Please see Staff Finding 27. The criteria is met.**

#### V. CHAPTER 92, REQUIRED IMPROVEMENTS

##### 92.010 PUBLIC IMPROVEMENTS FOR ALL DEVELOPMENT

*The following improvements shall be installed at the expense of the developer and meet all City codes and standards:*

- A. *Streets within subdivisions.*
- B. *Extension of streets to subdivisions*
- C. *Local and minor collector streets*
- D. *Monuments*

**Staff Finding 57: The applicant shall install improvements to meet the West Linn Public Works Design Standards per Condition of Approval 2. Subject to the Conditions of Approval, these criteria are met.**

*E. Storm detention and treatment. For Type I, II and III lands (refer to definitions in Chapter 02 CDC), a registered civil engineer must prepare a storm detention and treatment plan, at a scale sufficient to evaluate all aspects of the proposal, and a statement that demonstrates:*

- 1. The location and extent to which grading will take place indicating general contour lines, slope ratios, slope stabilization proposals, and location and height of retaining walls, if proposed.*
- 2. All proposed storm detention and treatment facilities comply with the standards for the improvement of public and private drainage systems located in the West Linn Public Works Design Standards.*
- 3. There will be no adverse off-site impacts, including impacts from increased intensity of runoff downstream or constrictions causing ponding upstream.*
- 4. There is sufficient factual data to support the conclusions of the plan.*
- 5. Per CDC 99.035, the Planning Director may require the information in subsections (E)(1), (2), (3) and (4) of this section for Type IV lands if the information is needed to properly evaluate the proposed site plan.*

**Staff Finding 58: The applicant has submitted a Preliminary Storm Report, prepared by a licensed engineer, which complies with the West Linn Public Works Design Standards, shows no adverse off-site impacts, and provides sufficient factual data to support the conclusions of the plan. Included is a grading plan with general contour lines and location/height of retaining walls. The applicant shall comply with the requirements and install improvements to meet the West Linn Public Works Design Standards or pay fee-in-lieu per Condition of Approval 2. Subject to the Conditions of Approval, these criteria are met.**

*F. Sanitary sewers*

*(...)*

*G. Water system*

*(...)*

*H. Sidewalks.*

*(...)*

**Staff Finding 59: The applicant has designed the sanitary sewer, water system, and sidewalks to comply with City of West Linn Public Works Design Standards. The applicant shall install all improvements or pay fee-in-lieu to meet the Standards per Condition of Approval 2. Subject to the Conditions of Approval, these criteria are met.**

*I. Bicycle routes.*

*J. Street name signs.*

- K. Dead-end street signs.*
- L. Signs indicating future use.*
- M. Street lights.*

**Staff Finding 60: The applicant shall comply with the requirements and install improvements to meet the West Linn Public Works Design Standards per Condition of Approval 2. Subject to the Conditions of Approval, these criteria are met.**

- N. Utilities.*
- O. Curb cuts and driveways.*
- P. Street trees.*
- Q. Joint mailbox facilities*

**Staff Finding 61: The applicant shall comply with the requirements and install improvements to meet the West Linn Public Works Design Standards per Condition of Approval 2. Subject to the Conditions of Approval, these criteria are met.**

#### *92.030 IMPROVEMENT PROCEDURES* (...)

**Staff Finding 62: The applicant shall comply with the requirements and install improvements to meet the West Linn Public Works Design Standards or pay fee-in-lieu per Condition of Approval 2. Subject to the Conditions of Approval, these criteria are met.**

## **PC-1 APPLICANT SUBMITTAL**



**DEVELOPMENT REVIEW APPLICATION**

STAFF CONTACT <b>Darren Wyss</b>			PROJECT NO(S) <b>SUB-18-03 / WAP-18-04 / WREG-18-03</b>		
NON-REFUNDABLE FEES <b>3,350</b>		RE <b>7,100</b> (FEE)	TOTAL <b>10,450</b>		

**Type of Review (Please check all that apply):**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Annexation (ANN)                      | <input type="checkbox"/> Historic Review                                  | <input checked="" type="checkbox"/> Subdivision (SUB)                               |
| <input type="checkbox"/> Appeal and Review (AP) *              | <input type="checkbox"/> Legislative Plan or Change                       | <input type="checkbox"/> Temporary Uses *   |
| <input type="checkbox"/> Conditional Use (CUP)                 | <input type="checkbox"/> Lot Line Adjustment (LLA) */**                   | <input type="checkbox"/> Time Extension *   |
| <input type="checkbox"/> Design Review (DR)                    | <input type="checkbox"/> Minor Partition (MIP) (Preliminary Plat or Plan) | <input type="checkbox"/> Variance (VAR)   |
| <input type="checkbox"/> Easement Vacation                     | <input type="checkbox"/> Non-Conforming Lots, Uses & Structures           | <input checked="" type="checkbox"/> Water Resource Area Protection/Single Lot (WAP) |
| <input type="checkbox"/> Extraterritorial Ext. of Utilities    | <input type="checkbox"/> Planned Unit Development (PUD)                   | <input type="checkbox"/> Water Resource Area Protection/Wetland (WAP)               |
| <input type="checkbox"/> Final Plat or Plan (FP)               | <input type="checkbox"/> Pre-Application Conference (PA) */**             | <input type="checkbox"/> Willamette & Tualatin River Greenway (WRG)                 |
| <input type="checkbox"/> Flood Management Area                 | <input type="checkbox"/> Street Vacation                                  | <input type="checkbox"/> Zone Change  |
| <input type="checkbox"/> Hillside Protection & Erosion Control |   | <input checked="" type="checkbox"/> X Habitat Conservation Area Permit              |

Home Occupation, Pre-Application, Sidewalk Use, Sign Review Permit, and Temporary Sign Permit applications require different or additional application forms, available on the City website or at City Hall.

<b>Site Location/Address:</b> 3841 & 3843 Mapleton Drive, West Linn	Assessor's Map No.: 2S 1E 24BC
	Tax Lot(s): 400 and 500
	Total Land Area: 1.96 acres.

**Brief Description of Proposal:**


Six lot subdivision for single-family detached homes. Also, Water Resource Area and HCA permits for drainageway corridor.

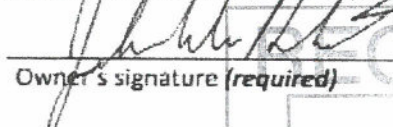
<b>Applicant Name:</b> (please print) Icon Construction & Development, LLC	Phone: (503) 657-0406
Address: 1980 Willamette Falls Drive, Suite 200	Email: mark@iconconstruction.net
City State Zip: West Linn, OR 97068	
<b>Owner Name (required):</b> (please print) John William DeCosta Profit Sharing Plan John William DeCosta, Trustee	Phone: 503-702-0856
Address: 16365 Boonos Ferry Rd	Email: john@decosta-properties.com
City State Zip: Lake Oswego, OR 97035	
<b>Consultant Name:</b> (please print) Rick Givens, Planning Consultant	Phone: 503-479-0097
Address: 18680 Sunblaze Dr.	Email: rickgivens@gmail.com
City State Zip: Oregon City, OR 97045	

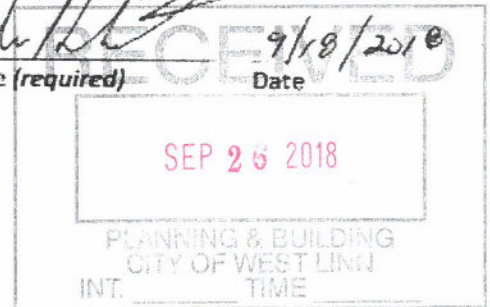
- All application fees are non-refundable (excluding deposit). Any overruns to deposit will result in additional billing.
- The owner/applicant or their representative should be present at all public hearings.
- A denial or approval may be reversed on appeal. No permit will be in effect until the appeal period has expired.
- Three (3) complete hard-copy sets (single sided) of application materials must be submitted with this application.  
 One (1) complete set of digital application materials must also be submitted on CD in PDF format.  
 If large sets of plans are required in application please submit only two sets.

\* No CD required / \*\* Only one hard-copy set needed

The undersigned property owner(s) hereby authorizes the filing of this application, and authorizes on site review by authorized staff. I hereby agree to comply with all code requirements applicable to my application. Acceptance of this application does not infer a complete submittal. All amendments to the Community Development Code and to other regulations adopted after the application is approved shall be enforced where applicable. Approved applications and subsequent development is not vested under the provisions in place at the time of the initial application.

 9/18/18  
Applicant's signature Date

 9/18/2018  
Owner's signature (required) Date



# TRILLIUM CREEK

## Six-Lot Subdivision Application

### Icon Construction & Development, LLC

**Proposal:** This application requests approval of a 6-lot subdivision to be developed on property located at 3841 and 3843 Mapleton Drive in West Linn. Also requested as a part of this application are Water Resource Area and Habitat Conservation Area Permits associated with a stream corridor through the site. The stream is presently piped through the property, but will be day-lighted as a part of the proposed development.

The property is located on the north side of Mapleton Drive, east of Willamette Drive. The subject property is described as Tax Lots 400 and 500 of Clackamas County Assessor's Map 21E24BC. The site is 1.96 acres (85,367square feet) in area. It is presently vacant, the prior single-family home that had occupied the site having been removed. The subject property is zoned R-10.



Figure 1: Vicinity Map





Figure 2: Aerial Photograph

The proposed development conforms to the applicable provisions of the CDC as follows:

## DIVISION 8. LAND DIVISION

### Chapter 85 GENERAL PROVISIONS

#### 85.160 SUBMITTAL REQUIREMENTS FOR TENTATIVE PLAN

*A. A City-wide map shall identify the site. A vicinity map covering one-quarter-mile radius from the development site shall be provided in the application showing existing subdivisions, streets, and unsubdivided land ownerships adjacent to the proposed subdivision and showing how proposed streets and utilities may be extended to connect to existing streets and utilities.*

Comment: The required vicinity map is shown on the Tentative Plan.

*B. The tentative subdivision plan shall be prepared by a registered civil engineer and/or a licensed land surveyor. A stamp and signature of the engineer or surveyor shall be included on the tentative subdivision plan. A tentative minor partition plan (three lots or less) is only required to be drawn to scale and does not have to be prepared by an engineer or surveyor.*

Comment: The Tentative Plan has been stamped by Bruce Goldson, P.E.

*C. The tentative plan of a subdivision or partition shall be drawn at a scale not smaller than one inch equals 100 feet, or, for areas over 100 acres, one inch equals 200 feet.*

Comment: The Tentative Plan is drawn at a scale of 1" = 40' in conformance with this requirement.

*D. The following general information shall be shown on the tentative plan of subdivision or partition:*

*1. Proposed name of the subdivision and streets; these names shall not duplicate nor resemble the name of any other subdivision or street in the City and shall be determined by the City Manager or designee. Street names should be easily spelled, pronounced, and of limited length. All new street names must, to the greatest extent possible, respect and be representative of the surrounding geography and existing street names. Street names should consider any prominent historical City figures or neighborhood themes that exist. Subdivision street names may not reference names of the builder or developer.*

*2. Date, north arrow, scale of drawing, and graphic bar scale.*

3. *Appropriate identification clearly stating the drawing as a tentative plan.*
4. *Location of the proposed division of land, with a tie to the City coordinate system, where established, and a description sufficient to define its location and boundaries, and a legal description of the tract boundaries.*
5. *Names and addresses of the owner, developer, and engineer or surveyor.*

Comment: The proposed name of the subdivision, Trillium Creek, is shown on the Tentative Plan. There are no new streets or street names. The drawing is dated, shows a north arrow, scale notation and graphic bar scale. The plan is identified as the Tentative Plan. The coordinate tie is shown on the Existing Conditions Map. The Tentative Plan identifies the property by Township, Range, Section and Tax Lot ID. The property is comprised of Lots 5 and the west 100 feet of Lot 6 of the recorded Maple Grove subdivision plat.

*E. The following existing conditions shall be shown on the tentative plan of a subdivision or partition:*

1. *The location, widths, and names of all existing or platted streets and rights-of-way within or adjacent to the tract (within 50 feet), together with easements and other important features such as section lines, donation land claim corners, section corners, City boundary lines, and monuments.*
2. *Contour lines related to the U.S. Geological Survey datum or some other established benchmark, or other datum approved by the Planning Director and having the following minimum intervals:*
  - a. *Two-foot contour intervals for ground slopes less than 20 percent.*
  - b. *Five-foot contour intervals for ground slopes exceeding 20 percent.*
3. *The location of any control points that are the basis for the applicant's mapping.*
4. *The location, by survey, and direction of all watercourses and areas subject to periodic inundation or storm drainageway overflow or flooding, including boundaries of flood hazard areas as established by the U.S. Army Corps of Engineers or the City zoning ordinance.*
5. *Natural features such as rock outcroppings, wetlands tied by survey, wooded areas, heritage trees, and isolated trees (six-inch diameter at five feet above grade) identified by size, type, and location. All significant trees and tree clusters identified by the City Arborist using the criteria of CDC 55.100(B)(2), and all heritage trees, shall be delineated. Trees on non-Type I and II lands shall have their "dripline plus 10 feet" protected area calculated per CDC 55.100(B)(2) and expressed in square feet, and also as a percentage of total non-Type I and II area.*

6. Existing uses of the property, including location of all existing structures. Label all structures to remain on the property after platting.

7. Identify the size and location of existing sewers, water mains, culverts, drain pipes, gas, electric, and other utility lines within the site, and in the adjoining streets and property.

8. Zoning on and adjacent to the tract.

9. Existing uses to remain on the adjoining property and their scaled location.

10. The location of any existing bicycle or pedestrian ways.

11. The location of adjacent transit stops.

Comment: Street widths are shown on the Tentative Plan. Contour lines are shown on the Tentative Plan as well as the Existing Conditions Plan, Slope Analysis, and preliminary engineering plans. Trees and the location of Trillium Creek (existing culvert and proposed channel) are shown on the Tentative Plan or Existing Conditions Map and Tree Plan. There are no other significant natural features. Significant trees to be retained, together with dripline, and dripline plus 10' are shown on the Tree Plan. The site is vacant so there are no existing uses. The Existing Conditions Plan shows size and location of existing utilities. The Tentative Plan shows zoning on and adjacent to the site. Existing uses on adjacent properties are shown on the Tentative Plan. There are no bicycle or pedestrian ways in this area. There are no transit stops in this area.

F. The following proposed improvements shall be shown on the tentative plan or supplemental drawings:

1. The street - street location, proposed name, right-of-way width, and approximate radius of curves of each proposed street and street grades. Proposed street names shall comply with the street naming method explained in CDC [85.200\(A\)\(12\)](#).

Comment: Radius and right-of-way information is shown on the Tentative Plan. Grade information is shown on the Street Plan.

2. The type, method, and location of any erosion prevention and sediment control measures and/or facilities in accordance with the most current version of Clackamas County's Erosion/Sedimentation Control Plans Technical Guidance Handbook, which are necessary to prevent and control visible or measurable erosion as determined by the following criteria:

a. Deposition of soil, sand, dirt, dust, mud, rock, gravel, refuse, or any other organic or inorganic material exceeding one cubic foot in volume in a public

*right-of-way or public property, or into the City surface water management system either by direct deposit, dropping, discharge, or as a result of erosion; or*

*b. Flow of water over bare soils, turbid or sediment-laden flows, or evidence of on-site erosion such as rivulets or bare soil slopes, where the flow of water is not filtered or captured on the development site; or*

*c. Earth slides, mud flows, land slumping, slope failure, or other earth movement that is likely to leave the property of origin.*

*Additional on-site measures may later be required if original measures prove to be inadequate in meeting these attainment standards. For the purposes of this code, "one cubic foot in volume" is defined to include the volume of material, wet or dry, at the time of deposition and includes any water of a discolored or turbid nature.*

Comment: Erosion and sediment control measures addressing these concerns are shown on the Grading Plan.

*3. Any proposed infrastructure improvements that address those identified in the City Transportation System Plan.*

Comment: The street frontage on Mapleton Drive will be improved to City local street standards, consistent with the TSP.

*4. Any proposed bicycle or pedestrian paths. The location of proposed transit stops.*

Comment: None are proposed.

*5. Any easement(s) - location, width, and purpose of the easement(s).*

Comment: Proposed easements, width and their purpose are shown on the Tentative Plan and Utility Plan.

*6. The configuration including location and approximate dimensions and area of each lot or parcel, and in the case of a subdivision, the proposed lot and block number.*

Comment: The Tentative Plan shows the proposed lots, their dimensions and lot area. The lot numbers are shown. There is only a single block so block numbers are not required.

*7. A street tree planting plan and schedule approved by the Parks Department.*

Comment: A proposed preliminary street tree planting plan is shown on the Tentative Plan. Park approval will be obtained prior to final plat approval.

8. Any land area to be dedicated to the City or put in common ownership.

Comment: No dedications to the City or common ownership are proposed.

9. Phase boundaries shall be shown. (Ord. 1382, 1995; Ord. 1403, 1997; Ord. 1544, 2007; Ord. 1565, 2008; Ord. 1636 §§ 53, 54, 2014

Comment: The project is comprised of a single phase.

## 85.170 SUPPLEMENTAL SUBMITTAL REQUIREMENTS FOR TENTATIVE SUBDIVISION OR PARTITION PLAN

*The following information shall be submitted to supplement the tentative subdivision plan:*

### A. General.

1. Narrative stating how the plan meets each of the applicable approval criteria and each subsection below.

Comment: Addressed in this narrative.

2. Statement or affidavit of ownership of the tract (County Assessor's map and tax lot number).

Comment: A copy of the deed to Tax Lots 400 & 500 of Clackamas County Assessor's Map 21E24BC is attached to verify the ownership of the subject property.

3. A legal description of the tract.

Comment: The subject property is comprised of Lots 5 and the west 100 feet of Lot 6 of the recorded subdivision plat of Maple Grove.

4. If the project is intended to be phased, then such a proposal shall be submitted at this time with drawing and explanation as to when each phase will occur and which lots will be in each phase.

Comment: N/A. The proposed subdivision will not be phased.

5. Where the land to be subdivided or partitioned contains only a part of the contiguous land owned by the developer, the Commission or Planning Director, as applicable, shall require a master plan of the remaining portion illustrating how the remainder of the property may suitably be subdivided.

Comment: N/A. There is no contiguous undeveloped land owned by the developer.



6. *Where the proposed subdivision site includes hillsides, as defined in CDC 02.030 Type I and II lands, or any lands identified as a hazard site in the West Linn Comprehensive Inventory Plan Report, the requirements for erosion control as described in CDC 85.160(F)(2) shall be addressed in a narrative.*

Comment: N/A. The property does not include such lands.

7. *Table and calculations showing the allowable number of lots under the zone and how many lots are proposed.*

Comment: Provided on the Tentative Plan.

8. *Map and table showing square footage of site comprising slopes by various classifications as identified in CDC 55.110(B)(3).*

Comment: Provided on the Slope Analysis Map submitted with this application.

**B. Transportation.**

1. *Centerline profiles with extensions shall be provided beyond the limits of the proposed subdivision to the point where grades meet, showing the finished grade of streets and the nature and extent of street construction. Where street connections are not proposed within or beyond the limits of the proposed subdivision on blocks exceeding 330 feet, or for cul-de-sacs, the tentative plat or partition shall indicate the location of easements that provide connectivity for bicycle and pedestrian use to accessible public rights-of-way.*

Comment: No new streets or future connections to other properties are proposed.

2. Traffic Impact Analysis (TIA).

a. Purpose. *The purpose of this section of the code is to implement Section 660-012-0045(2)(e) of the State Transportation Planning Rule that requires the City to adopt a process to apply conditions to development proposals in order to minimize adverse impacts to and protect transportation facilities. This section establishes the standards for when a proposal must be reviewed for potential traffic impacts; when a Traffic Impact Analysis must be submitted with a development application in order to determine whether conditions are needed to minimize impacts to and protect transportation facilities; what must be in a Traffic Impact Study; and who is qualified to prepare the study.*

b. Typical average daily trips. *The latest edition of the Trip Generation manual, published by the Institute of Transportation Engineers (ITE) shall be used as the standards by which to gauge average daily vehicle trips.*

Comment: Based on ITE data, the proposed six lot subdivision would be expected to generate approximately 60 vehicle trips per day.

c. When required. A Traffic Impact Analysis may be required to be submitted to the City with a land use application, when the following conditions apply:

1) The development application involves one or more of the following actions:

(A) A change in zoning or a plan amendment designation; or

(B) Any proposed development or land use action that ODOT states may have operational or safety concerns along a State highway; and

(C) The development shall cause one or more of the following effects, which can be determined by field counts, site observation, traffic impact analysis or study, field measurements, crash history, Institute of Transportation Engineers Trip Generation manual; and information and studies provided by the local reviewing jurisdiction and/or ODOT:

(1) An increase in site traffic volume generation by 250 average daily trips (ADT) or more (or as required by the City Engineer); or

(2) An increase in use of adjacent streets by vehicles exceeding the 20,000-pound gross vehicle weights by 10 vehicles or more per day; or

(3) The location of the access driveway does not meet minimum intersection sight distance requirements, or is located where vehicles entering or leaving the property are restricted, or such vehicles queue or hesitate on the State highway, creating a safety hazard; or

(4) The location of the access driveway does not meet the access spacing standard of the roadway on which the driveway is located; or

(5) A change in internal traffic patterns that may cause safety problems, such as backup onto the highway or traffic crashes in the approach area.

Comment: The proposed development does not include any of these factors that would trigger the need for a Traffic Impact Analysis and no such requirement was listed in the Pre-application Conference notes.

d. Traffic impact analysis requirements.

Comment: Not applicable. A TIA is not required for this development.

*e. Approval criteria.*

Comment: Not applicable. A TIA is not required for this development.

*f. Conditions of approval. The City may deny, approve, or approve the proposal with appropriate conditions.*

Comment: Not applicable. A TIA is not required for this development.

*C. Grading.*

*1. If areas are to be graded, a plan showing the location of cuts, fill, and retaining walls, and information on the character of soils, shall be provided. The grading plan shall show proposed and existing contours at intervals per CDC 85.160(E)(2).*

*2. The grading plan shall demonstrate that the proposed grading to accommodate roadway standards and create appropriate building sites is the minimum amount necessary.*

*3. The grading plan must identify proposed building sites and include tables and maps identifying acreage, location and type of development constraints due to site characteristics such as slope, drainage and geologic hazards. For Type I, II, and III lands (refer to definitions in Chapter 02 CDC), the applicant must provide a geologic report, with text, figures and attachments as needed to meet the industry standard of practice, prepared by a certified engineering geologist and/or a geotechnical professional engineer, that includes:*

*a. Site characteristics, geologic descriptions and a summary of the site investigation conducted;*

*b. Assessment of engineering geological conditions and factors;*

*c. Review of the City of West Linn's Natural Hazard Mitigation Plan and applicability to the site; and*

*d. Conclusions and recommendations focused on geologic constraints for the proposed land use or development activity, limitations and potential risks of development, recommendations for mitigation approaches and additional work needed at future development stages including further testing and monitoring.*

Comment: A grading plan is included with this application and addresses these criteria.

D. Water.

1. *A plan for domestic potable water supply lines and related water service facilities, such as reservoirs, etc., shall be prepared by a licensed engineer consistent with the adopted Comprehensive Water System Plan and most recently adopted updates and amendments.*
2. *Location and sizing of the water lines within the development and off-site extensions. Show on-site water line extensions in street stubouts to the edge of the site, or as needed to complete a loop in the system.*
3. *Adequate looping system of water lines to enhance water quality.*
4. *For all non-single-family developments, calculate fire flow demand of the site and demonstrate to the Fire Chief. Demonstrate to the City Engineer how the system can meet the demand.*

Comment: The Preliminary Sanitary Sewer and Water Plan included with this application shows the proposed water system and addresses these criteria.

E. Sewer.

1. *A plan prepared by a licensed engineer shall show how the proposal is consistent with the Sanitary Sewer Master Plan and subsequent updates and amendments. Agreement with that plan must demonstrate how the sanitary sewer proposal will be accomplished and how it is efficient. The sewer system must be in the correct zone.*
2. *Sanitary sewer information will include plan view of the sanitary sewer lines, including manhole locations and depths. Show how each lot or parcel would be sewerred.*
3. *Sanitary sewer lines shall be located in the public right-of-way, particularly the street, unless the applicant can demonstrate why the alternative location is necessary and meets accepted engineering standards.*
4. *Sanitary sewer line should be at a depth that can facilitate connection with down-system properties in an efficient manner.*
5. *The sanitary sewer line should be designed to minimize the amount of lineal feet in the system.*
6. *The sanitary sewer line shall minimize disturbance of natural areas and, in those cases where that is unavoidable, disturbance shall be mitigated pursuant to the appropriate chapters (e.g., Chapter 32 CDC, Water Resource Area Protection).*

7. *Sanitary sewer shall be extended or stubbed out to the next developable subdivision or a point in the street that allows for reasonable connection with adjacent or nearby properties.*

8. *The sanitary sewer system shall be built pursuant to Department of Environmental Quality (DEQ), City, and Tri-City Service District sewer standards. This report should be prepared by a licensed engineer, and the applicant must be able to demonstrate the ability to satisfy these submittal requirements or standards at the pre-construction phase.*

Comment: The Preliminary Sanitary Sewer and Water Plan included with this application shows the proposed sewer system and addresses these criteria. Note that the sewer line shown in the private driveway easement is proposed to be a public line and that a public utility easement is included.

F. *Storm. A storm detention and treatment plan and narrative compliant with CDC 92.010(E) must be submitted for storm drainage and flood control including profiles of proposed drainageways with reference to the most recently adopted Storm Drainage Master Plan.*

Comment: The Preliminary Storm Drainage Plan and Storm Water report included with this application show the proposed storm sewer system and address these criteria.

## **85.200 APPROVAL CRITERIA**

*No tentative subdivision or partition plan shall be approved unless adequate public facilities will be available to provide service to the partition or subdivision area prior to final plat approval and the Planning Commission or Planning Director, as applicable, finds that the following standards have been satisfied, or can be satisfied by condition of approval.*

### **A. Streets.**

1. *General. The location, width and grade of streets shall be considered in their relation to existing and planned streets, to the generalized or reasonable layout of streets on adjacent undeveloped lots or parcels, to topographical conditions, to public convenience and safety, to accommodate various types of transportation (automobile, bus, pedestrian, bicycle), and to the proposed use of land to be served by the streets. The functional class of a street aids in defining the primary function and associated design standards for the facility. The hierarchy of the facilities within the network in regard to the type of traffic served (through or local trips), balance of function (providing access and/or capacity), and the level of use (generally measured in vehicles per day) are generally dictated by the functional class. The street system shall assure an adequate traffic or circulation system with intersection angles, grades, tangents, and curves appropriate for the traffic to be carried. Streets should provide for the continuation, or the appropriate*

*projection, of existing principal streets in surrounding areas and should not impede or adversely affect development of adjoining lands or access thereto.*

*To accomplish this, the emphasis should be upon a connected continuous pattern of local, collector, and arterial streets rather than discontinuous curvilinear streets and cul-de-sacs. Deviation from this pattern of connected streets should only be permitted in cases of extreme topographical challenges including excessive slopes (35 percent-plus), hazard areas, steep drainageways, wetlands, etc. In such cases, deviations may be allowed but the connected continuous pattern must be reestablished once the topographic challenge is passed. Streets should be oriented with consideration of the sun, as site conditions allow, so that over 50 percent of the front building lines of homes are oriented within 30 degrees of an east-west axis.*

*Internal streets are the responsibility of the developer. All streets bordering the development site are to be developed by the developer with, typically, half-street improvements or to City standards prescribed by the City Engineer. Additional travel lanes may be required to be consistent with adjacent road widths or to be consistent with the adopted Transportation System Plan (TSP) and any adopted updated plans.*

*An applicant may submit a written request for a waiver of abutting street improvements if the TSP prohibits the street improvement for which the waiver is requested. Those areas with numerous (particularly contiguous) under-developed or undeveloped tracts will be required to install street improvements. When an applicant requests a waiver of street improvements and the waiver is granted, the applicant shall pay an in-lieu fee equal to the estimated cost, accepted by the City Engineer, of the otherwise required street improvements. As a basis for this determination, the City Engineer shall consider the cost of similar improvements in recent development projects and may require up to three estimates from the applicant. The amount of the fee shall be established prior to the Planning Commission's decision on the associated application. The in-lieu fee shall be used for in kind or related improvements.*

*Streets shall also be laid out to avoid and protect tree clusters and significant trees, but not to the extent that it would compromise connectivity requirements per this subsection (A)(1), or bring the density below 70 percent of the maximum density for the developable net area. The developable net area is calculated by taking the total site acreage and deducting Type I and II lands; then up to 20 percent of the remaining land may be excluded as necessary for the purpose of protecting significant tree clusters or stands as defined in CDC [55.100\(B\)\(2\)](#).*

Comment: The subject property is an infill property, with properties to the north, east and west being fully developed without any street stubs provided to this site. As a result, it is not feasible to provide for greater street connectivity from this site. The proposed shared private driveway from Mapleton Drive provides for access to Lots 2 through 5. Lots 1 and 6 will take direct access from Mapleton Drive. Mapleton Drive will be improved to local street standards along the project's frontage. The grade of Mapleton Drive is less than 5 percent. The grade of the proposed shared driveway is approximately 7.5% at its steepest point, with slopes of approximately 10% at the

steepest on the Y turn-around. All street improvements will be the responsibility of the developer. The street system has been laid out to minimize tree removal, but the site is heavily treed

2. *Right-of-way widths shall depend upon which classification of street is proposed. The right-of-way widths are established in the adopted TSP.*

Comment: Mapleton Drive is listed as a local street in the West Linn TSP. The proposed right-of-way dedication is consistent with local street standards.

3. *Street widths. Street widths shall depend upon which classification of street is proposed. The classifications and required cross sections are established in the adopted TSP.*

*The following table identifies appropriate street width (curb to curb) in feet for various street classifications. The desirable width shall be required unless the applicant or his or her engineer can demonstrate that site conditions, topography, or site design require the reduced minimum width. For local streets, a 12-foot travel lane may only be used as a shared local street when the available right-of-way is too narrow to accommodate bike lanes and sidewalks.*

Comment: The site plan proposes a half-street improvement along Mapleton Drive that will provide for a travel lane plus parking, consistent with the local street improvements specified in this section's table.

4. *The decision-making body shall consider the City Engineer's recommendations on the desired right-of-way width, pavement width and street geometry of the various street types within the subdivision after consideration by the City Engineer of the following criteria:*
  - a. *The type of road as set forth in the Transportation Master Plan.*
  - b. *The anticipated traffic generation.*
  - c. *On-street parking requirements.*
  - d. *Sidewalk and bikeway requirements.*
  - e. *Requirements for placement of utilities.*
  - f. *Street lighting.*
  - g. *Drainage and slope impacts.*
  - h. *Street trees.*
  - i. *Planting and landscape areas.*
  - j. *Existing and future driveway grades.*
  - k. *Street geometry.*
  - l. *Street furniture needs, hydrants.*

Comment: The applicant will work with the City Engineer in developing final construction plans consistent with his recommendations on these improvements.

5. *Additionally, when determining appropriate street width, the decision-making body shall consider the following criteria:*

- a. *When a local street is the only street serving a residential area and is expected to carry more than the normal local street traffic load, the designs with two travel and one parking lane are appropriate.*
- b. *Streets intended to serve as signed but unstriped bike routes should have the travel lane widened by two feet.*
- c. *Collectors should have two travel lanes and may accommodate some parking. Bike routes are appropriate.*
- d. *Arterials should have two travel lanes. On-street parking is not allowed unless part of a Street Master Plan. Bike lanes are required as directed by the Parks Master Plan and Transportation Master Plan.*

Comment: Mapleton Drive carries normal local street traffic. It is not planned to have a bicycle route. Mapleton Drive is a local street, not a collector so subsections 5.c. and 5.d are not applicable.

6. *Reserve strips. Reserve strips or street plugs controlling the access to streets are not permitted unless owned by the City.*

Comment: No dead end streets are proposed so reserve strips or street plugs are not needed.

7. *Alignment. All streets other than local streets or cul-de-sacs, as far as practical, shall be in alignment with existing streets by continuations of the centerlines thereof. The staggering of street alignments resulting in "T" intersections shall, wherever practical, leave a minimum distance of 200 feet between the centerlines of streets having approximately the same direction and otherwise shall not be less than 100 feet.*

Comment: No new public streets are proposed so this subsection does not apply.

8. *Future extension of streets. Where necessary to give access to or permit a satisfactory future subdivision of adjoining land, streets shall be extended to the boundary of the subdivision and the resulting dead-end streets may be approved without turnarounds. (Temporary turnarounds built to Fire Department standards are required when the dead-end street is over 100 feet long.)*

Comment: Not applicable. Adjacent properties are fully developed and no future extensions of streets are practicable.

9. *Intersection angles. Streets shall be laid out to intersect angles as near to right angles as practical, except where topography requires lesser angles, but in no case less than 60 degrees unless a special intersection design is approved. Intersections which are not at right angles shall have minimum corner radii of 15 feet along right-of-way lines which form acute angles. Right-of-way lines at intersections with arterial streets shall have minimum curb radii of not less than 35 feet. Other street intersections shall have curb radii of not less than 25 feet. All radii shall maintain a uniform width between the roadway and the right-of-way*



*lines. The intersection of more than two streets at any one point will not be allowed unless no alternative design exists.*

Comment: No new public street intersections are proposed. The private drive serving Lots 2 through 5 intersects Mapleton Drive at a 90 degree angle.

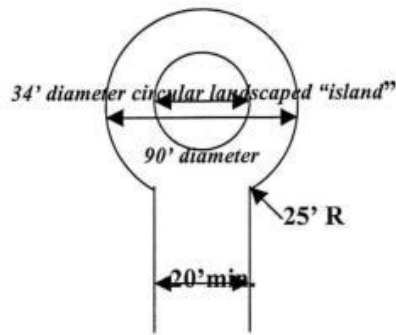
10. *Additional right-of-way for existing streets. Wherever existing street rights-of-way adjacent to or within a tract are of inadequate widths based upon the standards of this chapter, additional right-of-way shall be provided at the time of subdivision or partition.*

Comment: Additional right-of-way consistent with local street standards is provided on the Tentative Plan.

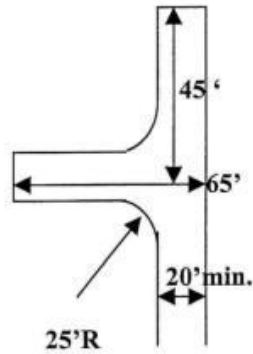
11. *Cul-de-sacs.*

- a. *New cul-de-sacs and other closed-end streets (not including stub streets intended to be connected) on sites containing less than five acres, or sites accommodating uses other than residential or mixed use development, are not allowed unless the applicant demonstrates that there is no feasible alternative due to:*
  - 1) *Physical constraints (e.g., existing development, the size or shape of the site, steep topography, or a fish bearing stream or wetland protected by Chapter 32 CDC), or*
  - 2) *Existing easements or leases.*
- b. *New cul-de-sacs and other closed-end streets, consistent with subsection (A)(11)(a) of this section, shall not exceed 200 feet in length or serve more than 25 dwelling units unless the design complies with all adopted Tualatin Valley Fire and Rescue (TVFR) access standards and adequately provides for anticipated traffic, consistent with the Transportation System Plan (TSP).*
- c. *New cul-de-sacs and other closed-end streets (not including stub streets intended to be connected) on sites containing five acres or more that are proposed to accommodate residential or mixed use development are prohibited unless barriers (e.g., existing development, steep topography, or a fish bearing stream or wetland protected by Chapter 32 CDC, or easements, leases or covenants established prior to May 1, 1995) prevent street extensions. In that case, the street shall not exceed 200 feet in length or serve more than 25 dwelling units, and its design shall comply with all adopted TVFR access standards and adequately provide for anticipated traffic, consistent with the TSP.*
- d. *Applicants for a proposed subdivision, partition or a multifamily, commercial or industrial development accessed by an existing cul-de-sac/closed-end street shall demonstrate that the proposal is consistent with all applicable traffic standards and TVFR access standards.*

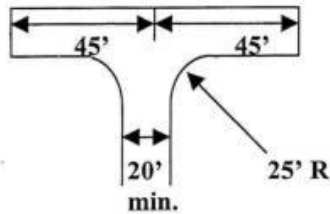
- e. All cul-de-sacs and other closed-end streets shall include direct pedestrian and bicycle accessways from the terminus of the street to an adjacent street or pedestrian and bicycle accessways unless the applicant demonstrates that such connections are precluded by physical constraints or that necessary easements cannot be obtained at a reasonable cost.
- f. All cul-de-sacs/closed-end streets shall terminate with a turnaround built to one of the following specifications (measurements are for the traveled way and do not include planter strips or sidewalks).



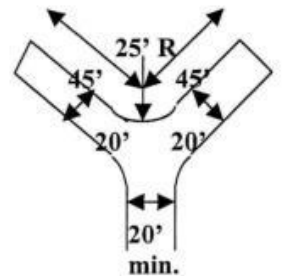
**Cul-de-Sac Turnaround**



**Hammer Head Turnaround**



**"T" Turnaround**



**"Y" Turnaround**

Comment: No new public cul-de-sac streets are proposed. The private drive serving lots 2 through 5 terminates in a Y turnaround consistent with this section and TVF&R standards. Because all surrounding properties are fully developed, it is not feasible to extend a street stub to adjacent parcels for future extension.

12. *Street names. No street names shall be used which will duplicate or be confused with the names of existing streets within the City. Street names that involve difficult or unusual spellings are discouraged. Street names shall be subject to the approval of the Planning Commission or Planning Director, as applicable. Continuations of existing streets shall have the name of the existing street. Streets, drives, avenues, ways, boulevards, and lanes shall describe through streets. Place and court shall describe cul-de-sacs. Crescent, terrace, and circle shall describe loop or arcing roads.*

Comment: Not applicable. No new streets are proposed.

13. *Grades and curves. Grades and horizontal/vertical curves shall meet the West Linn Public Works Design Standards.*

Comment: As shown on the Street Plan submitted with this application, the street grades and curves for Mapleton Drive and the private drive meet City standards.

14. *Access to local streets. Intersection of a local residential street with an arterial street may be prohibited by the decision-making authority if suitable alternatives exist for providing interconnection of proposed local residential streets with other local streets. Where a subdivision or partition abuts or contains an existing or proposed major arterial street, the decision-making authority may require marginal access streets, reverse-frontage lots with suitable depth, visual barriers, noise barriers, berms, no-access reservations along side and rear property lines, and/or other measures necessary for adequate protection of residential properties from incompatible land uses, and to ensure separation of through traffic and local traffic.*

Comment: Not applicable. The subdivision does not abut or contain an existing or proposed arterial street.

15. *Alleys. Alleys shall be provided in commercial and industrial districts unless other permanent provisions for access to off-street parking and loading facilities are made as approved by the decision-making authority. While alley intersections and sharp changes in alignment should be avoided, the corners of necessary alley intersections shall have radii of not less than 10 feet. Alleys may be provided in residential subdivisions or multi-family projects. The decision to locate alleys shall consider the relationship and impact of the alley to adjacent land uses. In determining whether it is appropriate to require alleys in a subdivision or partition, the following factors and design criteria should be considered:*

- a. *The alley shall be self-contained within the subdivision. The alley shall not abut undeveloped lots or parcels which are not part of the project proposal. The alley will not stub out to abutting undeveloped parcels which are not part of the project proposal.*
- b. *The alley will be designed to allow unobstructed and easy surveillance by residents and police.*
- c. *The alley should be illuminated. Lighting shall meet the West Linn Public Works Design Standards.*
- d. *The alley should be a semi-private space where strangers are tacitly discouraged.*
- e. *Speed bumps may be installed in sufficient number to provide a safer environment for children at play and to discourage through or speeding traffic.*
- f. *Alleys should be a minimum of 14 feet wide, paved with no curbs.*

Comment: Not applicable. The proposed land use is single-family residential and no alleys are proposed.

*16. Sidewalks. Sidewalks shall be installed per CDC 92.010(H), Sidewalks. The residential sidewalk width is six feet plus planter strip as specified below. Sidewalks in commercial zones shall be constructed per subsection (A)(3) of this section. See also subsection C of this section. Sidewalk width may be reduced with City Engineer approval to the minimum amount (e.g., four feet wide) necessary to respond to site constraints such as grades, mature trees, rock outcroppings, etc., or to match existing sidewalks or right-of-way limitations.*

Comment: At the neighborhood meeting on this project, there was strong neighborhood objection expressed about having standard concrete sidewalks along Mapleton Drive that will not connect to other sidewalks. A preference was expressed by the neighbors for a wider paved section with a striped pedestrian lane. The applicant will comply with City standards for sidewalks unless the Planning Commission approves a modified street section.

*17. Planter strip. The planter strip is between the curb and sidewalk providing space for a grassed or landscaped area and street trees. The planter strip shall be at least 6 feet wide to accommodate a fully matured tree without the boughs interfering with pedestrians on the sidewalk or vehicles along the curbline. Planter strip width may be reduced or eliminated, with City Engineer approval, when it cannot be corrected by site plan, to the minimum amount necessary to respond to site constraints such as grades, mature trees, rock outcroppings, etc., or in response to right-of-way limitations.*

Comment: A planter strip will be provided along Mapleton Drive.

*18. Streets and roads shall be dedicated without any reservations or restrictions.*

Comment: The public street right-of-way to be dedicated will not have any reservations or restrictions.

*19. All lots in a subdivision shall have access to a public street. Lots created by partition may have access to a public street via an access easement pursuant to the standards and limitations set forth for such accessways in Chapter 48 CDC.*

Comment: All lots in the development will have access to Mapleton Drive, a public street. Lots 2 through 5 all have the specified 8' minimum street frontage.

*20. Gated streets. Gated streets are prohibited in all residential areas on both public and private streets. A driveway to an individual home may be gated.*

Comment: No gated streets are proposed.

*21. Entryway treatments and street isle design. When the applicant desires to construct certain walls, planters, and other architectural entryway treatments within a subdivision, the following standards shall apply:*

- a. *All entryway treatments except islands shall be located on private property and not in the public right-of-way.*
- b. *Planter islands may be allowed provided there is no structure (i.e., brick, signs, etc.) above the curblin, except for landscaping. Landscaped islands shall be set back a minimum of 24 feet from the curblin of the street to which they are perpendicular.*
- c. *All islands shall be in public ownership. The minimum aisle width between the curb and center island curbs shall be 14 feet. Additional width may be required as determined by the City Engineer.*
- d. *Brick or special material treatments are acceptable at intersections with the understanding that the City will not maintain these sections except with asphalt overlay, and that they must meet the Americans with Disabilities Act (ADA) standards. They shall be laid out to tie into existing sidewalks at intersections.*
- e. *Maintenance for any common areas and entryway treatments (including islands) shall be guaranteed through homeowners association agreements, CC&Rs, etc.*
- f. *Under Chapter 52 CDC, subdivision monument signs shall not exceed 32 square feet in area.*

Comment: Not applicable. No special entry treatments are proposed.

22. *Based upon the determination of the City Manager or the Manager's designee, the applicant shall construct or cause to be constructed, or contribute a proportionate share of the costs, for all necessary off-site improvements identified by the transportation analysis commissioned to address CDC 85.170(B)(2) that are required to mitigate impacts from the proposed subdivision. The proportionate share of the costs shall be determined by the City Manager or Manager's designee, who shall assume that the proposed subdivision provides improvements in rough proportion to identified impacts of the subdivision. Off-site transportation improvements will include bicycle and pedestrian improvements as identified in the adopted City of West Linn TSP.*

Comment: Not applicable. No off-site improvements are anticipated.

**B. Blocks and lots.**

1. *General. The length, width, and shape of blocks shall be designed with due regard for the provision of adequate building sites for the use contemplated; consideration of the need for traffic safety, convenience, access, circulation, and control; and recognition of limitations and opportunities of topography and solar access.*

Comment: The surrounding properties are fully developed and there is no possibility of extending streets so as to form new blocks.

2. *Sizes. The recommended block size is 400 feet in length to encourage greater connectivity within the subdivision. Blocks shall not exceed 800 feet in length between street lines, except for blocks adjacent to arterial streets or unless topographical conditions or the layout of adjacent streets justifies a variation. Designs of proposed intersections shall demonstrate adequate sight distances to the City Engineer's specifications. Block sizes and proposed accesses must be consistent with the adopted TSP. Subdivisions of five or more acres that involve construction of a new street shall have block lengths of no more than 530 feet. If block lengths are greater than 530 feet, accessways on public easements or right-of-way for pedestrians and cyclists shall be provided not more than 330 feet apart. Exceptions can be granted when prevented by barriers such as topography, rail lines, freeways, pre-existing development, leases, easements or covenants that existed prior to May 1, 1995, or by requirements of Titles 3 and 13 of the UGMFP. If streets must cross water features protected pursuant to Title 3 UGMFP, provide a crossing every 800 to 1,200 feet unless habitat quality or the length of the crossing prevents a full street connection.*

Comment: As discussed above, the existing development pattern precludes extending streets so as to form new blocks. For this reason, an exception to the block length standards is warranted.

3. *Lot size and shape. Lot or parcel size, width, shape, and orientation shall be appropriate for the location of the subdivision or partition, for the type of use contemplated, for potential utilization of solar access, and for the protection of drainageways, trees, and other natural features. No lot or parcel shall be dimensioned to contain part of an existing or proposed street. All lots or parcels shall be buildable. "Buildable" describes lots that are free of constraints such as wetlands, drainageways, etc., that would make home construction impossible. Lot or parcel sizes shall not be less than the size required by the zoning code unless as allowed by planned unit development (PUD).*

*Depth and width of properties reserved or laid out for commercial and industrial purposes shall be adequate to provide for the off-street parking and service facilities required by the type of use proposed.*

Comment: The proposed lots are designed and oriented to provide building envelopes consistent with the planned single-family residential use of the property. All lots can be developed with homes that will conform to required setbacks. The lots are generally oriented with their long axis on a north-south orientation so that solar access will be available. Given tree cover on the site, this may or may not be practicable, however.

4. *Access. Access to subdivisions, partitions, and lots shall conform to the provisions of Chapter 48 CDC, Access, Egress and Circulation.*

Comment: The proposed lots conform to the access requirements of Chapter 48 of the CDC. Please see the discussion on that chapter in this narrative.

5. *Double frontage lots and parcels. Double frontage lots and parcels have frontage on a street at the front and rear property lines. Double frontage lots and parcels*

*shall be avoided except where they are essential to provide separation of residential development from arterial streets or adjacent non-residential activities, or to overcome specific disadvantages of topography and orientation. A planting screen or impact mitigation easement at least 10 feet wide, and across which there shall be no right of access, may be required along the line of building sites abutting such a traffic artery or other incompatible use.*

Comment: No double frontage lots are proposed.

6. *Lot and parcel side lines. The lines of lots and parcels, as far as is practicable, should run at right angles to the street upon which they face, except that on curved streets they should be radial to the curve.*

Comment: As far as practicable, the side lines of the lots and parcels are at right angles to Mapleton Drive.

7. *Flag lots. Flag lots can be created where it can be shown that no other reasonable street access is possible to achieve the requested land division. A single flag lot shall have a minimum street frontage of 15 feet for its accessway. Where two to four flag lots share a common accessway, the minimum street frontage and accessway shall be eight feet in width per lot. Common accessways shall have mutual maintenance agreements and reciprocal access and utility easements. The following dimensional requirements shall apply to flag lots:*

- a. *Setbacks applicable to the underlying zone shall apply to the flag lot.*
- b. *Front yard setbacks may be based on the rear property line of the lot or parcel which substantially separates the flag lot from the street from which the flag lot gains access. Alternately, the house and its front yard may be oriented in other directions so long as some measure of privacy is ensured, or it is part of a pattern of development, or it better fits the topography of the site.*
- c. *The lot size shall be calculated exclusive of the accessway; the access strip may not be counted towards the area requirements.*
- d. *The lot depth requirement contained elsewhere in this code shall be measured from the rear property line of the lot or parcel which substantially separates the flag lot from the street from which the flag lot gains access.*
- e. *As per CDC 48.030, the accessway shall have a minimum paved width of 12 feet.*
- f. *If the use of a flag lot stem to access a lot is infeasible because of a lack of adequate existing road frontage, or location of existing structures, the proposed lot(s) may be accessed from the public street by an access easement of a minimum 15-foot width across intervening property.*

Comment: Lots 2 through 5 of the proposed subdivision are designed as flag lots and will share the use of a common private driveway. Each lot has the specified minimum

8' frontage onto Mapleton Drive. Because the adjacent properties are fully developed without any street stubs to the subject property, it is not practicable to extend a public street through this site. The applicant did look at designs for a public cul-de-sac street, but this design was abandoned due to the impacts that would result from the required 56' cul-de-sac radius on the trees and stream corridor. The proposed private accessway is much more conducive to reducing these impacts and serves to provide adequate access to the lots.

As required by this subsection, the standard setback requirements of the R-10 zone will apply to the proposed flag lots. Lots 2 through 4 will be oriented with their rear yard as the north property line. The specific orientation of front and rear yard for Lot 5, which is irregular in shape, will be determined when a house plan has been chosen and will be reviewed by staff at the time of building permit application. The Tentative Plan shows the lot areas of Lots 2 through 5 exclusive of the accessway strip. All of these lots meet the minimum lot depth standard. A pavement width of 26.5 feet is proposed, which exceeds the 12' minimum of Chapter 48.030. Subsection 7.f. does not apply as the site has sufficient frontage for the proposed accessway to meet the standards of this section.

8. *Large lots or parcels. In dividing tracts into large lots or parcels which, at some future time, are likely to be redivided, the approval authority may:*
  - a. *Require that the blocks be of such size and shape, and be so divided into building sites, and contain such easements and site restrictions as will provide for extension and opening of streets at intervals which will permit a subsequent division of any tract into lots or parcels of smaller size; or*
  - b. *Alternately, in order to prevent further subdivision or partition of oversized and constrained lots or parcels, restrictions may be imposed on the subdivision or partition plat.*

Comment: Not applicable. No lots are proposed that are large enough to be redivided.

C. *Pedestrian and bicycle trails.*

1. *Trails or multi-use pathways shall be installed, consistent and compatible with federal ADA requirements and with the Oregon Transportation Planning Rule, between subdivisions, cul-de-sacs, and streets that would otherwise not be connected by streets due to excessive grades, significant tree(s), and other constraints natural or manmade. Trails shall also accommodate bicycle or pedestrian traffic between neighborhoods and activity areas such as schools, libraries, parks, or commercial districts. Trails shall also be required where designated by the Parks Master Plan.*

Comment: Not applicable. No trails or multi-use pathways are planned for this area. Subsections 2. through 6., below, also do not apply.

2. *The all-weather surface (asphalt, etc.) trail should be eight feet wide at minimum for bicycle use and six feet wide at minimum for pedestrian use. Trails within 10 feet of a wetland or natural drainageway shall not have an all-weather surface,*



*but shall have a soft surface as approved by the Parks Director. These trails shall be contained within a corridor dedicated to the City that is wide enough to provide trail users with a sense of defensible space. Corridors that are too narrow, confined, or with vegetative cover may be threatening and discourage use. Consequently, the minimum corridor width shall be 20 feet. Sharp curves, twists, and blind corners on the trail are to be avoided as much as possible to enhance defensible space. Deviations from the corridor and trail width are permitted only where topographic and ownership constraints require it.*

- 3. Defensible space shall also be enhanced by the provision of a three- to four-foot-high matte black chain link fence or acceptable alternative along the edge of the corridor. The fence shall help delineate the public and private spaces.*
- 4. The bicycle or pedestrian trails that traverse multi-family and commercial sites should follow the same defensible space standards but do not need to be defined by a fence unless required by the decision-making authority.*
- 5. Except for trails within 10 feet of a wetland or natural drainageway, soft surface or gravel trails may only be used in place of a paved, all-weather surface where it can be shown to the Planning Director that the principal users of the path will be recreational, non-destination-oriented foot traffic, and that alternate paved routes are nearby and accessible.*
- 6. The trail grade shall not exceed 12 percent except in areas of unavoidable topography, where the trail may be up to a 15 percent grade for short sections no longer than 50 feet. In any location where topography requires steeper trail grades than permitted by this section, the trail shall incorporate a short stair section to traverse the area of steep grades.*

Comment: 2 through 6 do not apply as no trails or bike paths are proposed.

*D. Transit facilities.*

- 1. The applicant shall consult with Tri-Met and the City Engineer to determine the appropriate location of transit stops, bus pullouts, future bus routes, etc., contiguous to or within the development site. If transit service is planned to be provided within the next two years, then facilities such as pullouts shall be constructed per Tri-Met standards at the time of development. More elaborate facilities, like shelters, need only be built when service is existing or imminent. Additional rights-of-way may be required of developers to accommodate buses.*
- 2. The applicant shall make all transit-related improvements in the right-of-way or in easements abutting the development site as deemed appropriate by the City Engineer.*
- 3. Transit stops shall be served by striped and signed pedestrian crossings of the street within 150 feet of the transit stop where feasible. Illumination of the transit stop and crossing is required to enhance defensible space and safety. ODOT approval may be required.*

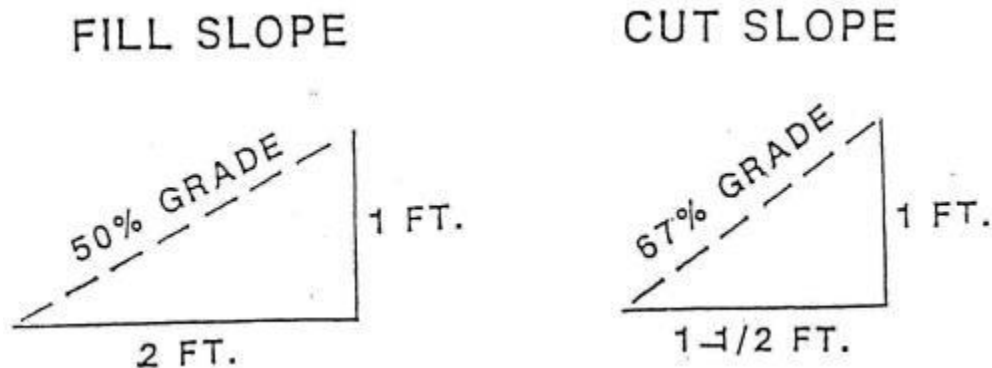
4. *Transit stops should include a shelter structure bench plus eight feet of sidewalk to accommodate transit users, non-transit-related pedestrian use, and wheelchair users. Tri-Met must approve the final configuration.*

Comment: No Tri-Met routes exist or are planned for Mapleton Drive so this section does not apply.

- E. Grading. *Grading of building sites shall conform to the following standards unless physical conditions demonstrate the propriety of other standards:*

Comment: Building site grading plans will be provided with the building permit application and will be reviewed for conformance with the standards of 1. to 8., below, at that time. An engineering geologist's report is included with this application submittal. No lands over 50% slope will be graded.

1. *All cuts and fills shall comply with the excavation and grading provisions of the Uniform Building Code and the following:*
  - a. *Cut slopes shall not exceed one and one-half feet horizontally to one foot vertically (i.e., 67 percent grade).*
  - b. *Fill slopes shall not exceed two feet horizontally to one foot vertically (i.e., 50 percent grade). Please see the following illustration.*



2. *The character of soil for fill and the characteristics of lot and parcels made usable by fill shall be suitable for the purpose intended.*
3. *If areas are to be graded (more than any four-foot cut or fill), compliance with CDC 85.170(C) is required.*
4. *The proposed grading shall be the minimum grading necessary to meet roadway standards, and to create appropriate building sites, considering maximum allowed driveway grades.*
5. *Type I lands shall require a report submitted by an engineering geologist, and Type I and Type II lands shall require a geologic hazard report.*

6. *Per the submittals required by CDC 85.170(C)(3), the applicant must demonstrate that the proposed methods of rendering known or potential hazard sites safe for development, including proposed geotechnical remediation, are feasible and adequate to prevent landslides or other damage to property and safety. The review authority may impose conditions, including limits on type or intensity of land use, which it determines are necessary to mitigate known risks of landslides or property damage.*
7. *On land with slopes in excess of 12 percent, cuts and fills shall be regulated as follows:*
  - a. *Toes of cuts and fills shall be set back from the boundaries of separate private ownerships at least three feet, plus one-fifth of the vertical height of the cut or fill. Where an exception is required from that requirement, slope easements shall be provided.*
  - b. *Cuts shall not remove the toe of any slope where a severe landslide or erosion hazard exists.*
  - c. *Any structural fill shall be designed by a registered engineer in a manner consistent with the intent of this code and standard engineering practices, and certified by that engineer that the fill was constructed as designed.*
  - d. *Retaining walls shall be constructed pursuant to Section 2308(b) of the Oregon State Structural Specialty Code.*
  - e. *Roads shall be the minimum width necessary to provide safe vehicle access, minimize cut and fill, and provide positive drainage control.*
8. *Land over 50 percent slope shall be developed only where density transfer is not feasible. The development will provide that:*
  - a. *At least 70 percent of the site will remain free of structures or impervious surfaces.*
  - b. *Emergency access can be provided.*
  - c. *Design and construction of the project will not cause erosion or land slippage.*
  - d. *Grading, stripping of vegetation, and changes in terrain are the minimum necessary to construct the development in accordance with subsection J of this section.*

*F. Water.*

1. *A plan for domestic water supply lines or related water service facilities shall be prepared consistent with the adopted Comprehensive Water System Plan, plan update, March 1987, and subsequent superseding revisions or updates.*
2. *Adequate location and sizing of the water lines.*

3. *Adequate looping system of water lines to enhance water quality.*
4. *For all non-single-family developments, there shall be a demonstration of adequate fire flow to serve the site.*
5. *A written statement, signed by the City Engineer, that water service can be made available to the site by the construction of on-site and off-site improvements and that such water service has sufficient volume and pressure to serve the proposed development's domestic, commercial, industrial, and fire flows.*

Comment: A preliminary utility plan has been prepared for the proposed development and is submitted with this application. The water system in this area is looped and has adequate sizing to serve the proposed development. All lots will be served from the existing water line in Mapleton Drive. Lots 2 through 5 will have water meters in the Mapleton Drive right-of-way and will extend individual service lines from that point.

G. Sewer.

1. *A plan prepared by a licensed engineer shall show how the proposal is consistent with the Sanitary Sewer Master Plan (July 1989). Agreement with that plan must demonstrate how the sanitary sewer proposal will be accomplished and how it is gravity-efficient. The sewer system must be in the correct basin and should allow for full gravity service.*

Comment: A preliminary design for the sewer system has been prepared by Bruce Goldson, P.E. and is included in the submittal package for this application. The plan calls for a new service line to be extended in the private accessway to serve Lots 2 through 5. Lots 1 and 6 will be served directly from the line in Mapleton Drive. This system is consistent with the Sanitary Sewer Mater Plan as the system in this area of the City is already developed and there are no requirements for major improvements.

2. *Sanitary sewer information will include plan view of the sanitary sewer lines, including manhole locations and depth or invert elevations.*

Comment: The plan shows both plan view and profile view of the sewer line, together with invert elevations.

3. *Sanitary sewer lines shall be located in the public right-of-way, particularly the street, unless the applicant can demonstrate why the alternative location is necessary and meets accepted engineering standards.*

Comment: A new public sewer line is needed in the private accessway in order to provide for service to Lots 2 through 5. As previously discussed, existing development patterns as well as trees and the stream corridor through the site preclude the use of a public street. The proposed sewer line will be designed to City standards and maintenance access will be ensured via an easement.

4. *Sanitary sewer line should be at a depth that can facilitate connection with down-system properties in an efficient manner.*

Comment: Not applicable. No down system properties are in need of sewer access via the proposed development. Access is already provided via the existing sewer in Mapleton Drive.

5. *The sanitary sewer line should be designed to minimize the amount of lineal feet in the system.*

Comment: The sewer line is the minimum length necessary to provide service to Lots 2 through 5, as shown on the preliminary sewer plan.

6. *The sanitary sewer line shall avoid disturbance of wetland and drainageways. In those cases where that is unavoidable, disturbance shall be mitigated pursuant to Chapter 32 CDC, Water Resource Area Protection, all trees replaced, and proper permits obtained. Dual sewer lines may be required so the drainageway is not disturbed.*

Comment: There are no wetlands on the site and the drainageway is in a pipe at this time. The sewer line will be installed to serve Lots 2 through 5 and the drainageway will be restored to an above-ground condition with appropriate mitigation measures.

7. *Sanitary sewer shall be extended or stubbed out to the next developable subdivision or a point in the street that allows for reasonable connection with adjacent or nearby properties.*

Comment: All abutting properties are fully developed and there is no need for the line to be stubbed from the site.

8. *The sanitary sewer system shall be built pursuant to DEQ, City, and Tri-City Service District sewer standards. The design of the sewer system should be prepared by a licensed engineer, and the applicant must be able to demonstrate the ability to satisfy these submittal requirements or standards at the pre-construction phase.*

Comment: The sewer system will be designed and built to DEQ, City, and Tri-City Service District sewer standards and will be designed by a registered professional engineer. The ability to meet standards will be demonstrated at the preconstruction phase.

9. *A written statement, signed by the City Engineer, that sanitary sewers with sufficient capacity to serve the proposed development and that adequate sewage treatment plant capacity is available to the City to serve the proposed development.*

Comment: Pre-application conference notes indicate that there is adequate capacity in the existing sewer system in Mapleton Drive to service the proposed development. The City Engineer will respond with more detailed comments as a part of the staff report for this project.

- H. *Storm detention and treatment. All proposed storm detention and treatment facilities comply with the standards for the improvement of public and private drainage*

*systems located in the West Linn Public Works Design Standards, there will be no adverse off-site impacts caused by the development (including impacts from increased intensity of runoff downstream or constrictions causing ponding upstream), and there is sufficient factual data to support the conclusions of the submitted plan.*

Comment: The applicant's engineer has prepared a storm water report and a preliminary storm water design plan that address these issues. Please refer to those documents.

A storm water detention facility is proposed to be provided underground within the private drive easement. This facility is small, underground, and handles only the private drive serving Lots 2 through 5. For this reason, it is a minor utility. Rain gardens will be provided on each lot to handle roof runoff from the new homes.

- I. Utility easements. *Subdivisions and partitions shall establish utility easements to accommodate the required service providers as determined by the City Engineer. The developer of the subdivision shall make accommodation for cable television wire in all utility trenches and easements so that cable can fully serve the subdivision.*

Comment: Utility easements are indicated on the preliminary utility plan and Tentative Plan.

- J. Supplemental provisions.

1. *Wetland and natural drainageways. Wetlands and natural drainageways shall be protected as required by Chapter 32 CDC, Water Resource Area Protection. Utilities may be routed through the protected corridor as a last resort, but impact mitigation is required.*

Comment: No wetlands exist on the site. The provisions of Chapter 32 are addressed in the memorandum prepared by Schott & Associates dated 11/8/2018 and included with this application. Please refer to that document.

2. *Willamette and Tualatin Greenways. The Willamette and Tualatin River Greenways shall be protected as required by Chapter 28 CDC, Willamette and Tualatin River Protection.*

Comment: Chapter 28 is addressed in this report, below. The fact that the creek was placed in a storm pipe through the property, combined with grading for the driveway and old home site, have severely degraded the original riparian habitat area that was associated with Trillium Creek to the point that it provides no significant functional value for riparian habitat purposes. Please refer to the Schott & Associates memorandum dated 11/8/2018 attached to this application.

3. *Street trees. Street trees are required as identified in the appropriate section of the municipal code and Chapter 54 CDC.*

Comment: Street trees are proposed for the development, as shown on the Tentative Plan.

4. *Lighting. All subdivision street or alley lights shall meet West Linn Public Works Design Standards.*

Comment: Street lighting will be provided to City standards.

5. *Dedications and exactions. The City may require an applicant to dedicate land and/or construct a public improvement that provides a benefit to property or persons outside the property that is the subject of the application when the exaction is roughly proportional. No exaction shall be imposed unless supported by a determination that the exaction is roughly proportional to the impact of development.*

Comment: The existing right-of-way for Mapleton Drive meets West Linn local street standards. No dedication is required.

6. *Underground utilities. All utilities, such as electrical, telephone, and television cable, that may at times be above ground or overhead shall be buried underground in the case of new development. The exception would be in those cases where the area is substantially built out and adjacent properties have above-ground utilities and where the development site's frontage is under 200 feet and the site is less than one acre. High voltage transmission lines, as classified by Portland General Electric or electric service provider, would also be exempted. Where adjacent future development is expected or imminent, conduits may be required at the direction of the City Engineer. All services shall be underground with the exception of standard above-grade equipment such as some meters, etc.*

Comment: Underground utilities will be provided, as shown on the Preliminary Utility Plan.

7. *Density requirement. Density shall occur at 70 percent or more of the maximum density allowed by the underlying zoning. These provisions would not apply when density is transferred from Type I and II lands as defined in CDC 02.030. Development of Type I or II lands are exempt from these provisions. Land divisions of three lots or less would also be exempt.*

Comment: As shown in the density calculations on the Tentative Plan, the proposed density of six lots will comply with these provisions.

8. *Mix requirement. The "mix" rule means that developers shall have no more than 15 percent of the R-2.1 and R-3 development as single-family residential. The intent is that the majority of the site shall be developed as medium high density multi-family housing.*

Comment: Not applicable. The site is not zoned R-2.1 or R-3.

9. *Heritage trees/significant tree and tree cluster protection. All heritage trees, as defined in the municipal code, shall be saved. Diseased heritage trees, as determined by the City Arborist, may be removed at his/her direction. All non-heritage trees and clusters of trees (three or more trees with overlapping dripline;*

*however, native oaks need not have an overlapping dripline) that are considered significant by virtue of their size, type, location, health, or numbers shall be saved pursuant to CDC 55.100(B)(2). Trees are defined per the municipal code as having a trunk six inches in diameter or 19 inches in circumference at a point five feet above the mean ground level at the base of the trunk. (Ord. 1377, 1995; Ord. 1382, 1995; Ord. 1401, 1997; Ord. 1403, 1997; Ord. 1408, 1998; Ord. 1425, 1998; Ord. 1442, 1999; Ord. 1463, 2000; Ord. 1526,*

Comment: No heritage trees exist on the site. Preservation of significant trees conforms to the provisions of Chapter 55. See discussion below.

## **Chapter 48 - ACCESS, EGRESS AND CIRCULATION**

### **48.025 ACCESS CONTROL**

#### *B. Access control standards.*

*1. Traffic impact analysis requirements. The City or other agency with access jurisdiction may require a traffic study prepared by a qualified professional to determine access, circulation and other transportation requirements. (See also CDC 55.125, Traffic Impact Analysis.)*

Comment: The trip generation rate for single-family homes is approximately 10 vehicle trips per day according to Institute of Transportation Engineers data. One of these trips will occur in the am peak hour and one will occur in the pm peak hour. The proposed subdivision will add six new dwellings. A total of 60 new trips per day would be expected from this development, with 6 occurring in the am peak hour and 6 occurring in the pm peak hour. Because of the small size and limited amount of traffic to be generated by this development, a Traffic Impact Analysis is not required for this project.

*2. The City or other agency with access permit jurisdiction may require the closing or consolidation of existing curb cuts or other vehicle access points, recording of reciprocal access easements (i.e., for shared driveways), development of a frontage street, installation of traffic control devices, and/or other mitigation as a condition of granting an access permit, to ensure the safe and efficient operation of the street and highway system. Access to and from off-street parking areas shall not permit backing onto a public street.*

Comment: Two individual curb cuts (Lots 1 and 6) and one curb cut for a shared private drive (Lots 2 through 5) are proposed. The proposed curb cut location meet the minimum 30 foot separation standard for local streets.

*3. Access options. When vehicle access is required for development (i.e., for off-street parking, delivery, service, drive-through facilities, etc.), access shall be provided by one of the following methods (planned access shall be consistent with adopted public works standards and TSP). These methods are "options" to the developer/subdivider.*



a) Option 1. Access is from an existing or proposed alley or mid-block lane. If a property has access to an alley or lane, direct access to a public street is not permitted.

b) Option 2. Access is from a private street or driveway connected to an adjoining property that has direct access to a public street (i.e., "shared driveway"). A public access easement covering the driveway shall be recorded in this case to assure access to the closest public street for all users of the private street/drive.

c) Option 3. Access is from a public street adjacent to the development lot or parcel. If practicable, the owner/developer may be required to close or consolidate an existing access point as a condition of approving a new access. Street accesses shall comply with the access spacing standards in subsection (B)(6) of this section.

Comment: All lots will take access from either Mapleton Drive or the new private street within the subdivision. The private street has direct access to Mapleton Drive, a local public street, therefore b) is satisfied.

4. Subdivisions fronting onto an arterial street. New residential land divisions fronting onto an arterial street shall be required to provide alleys or secondary (local or collector) streets for access to individual lots. When alleys or secondary streets cannot be constructed due to topographic or other physical constraints, access may be provided by consolidating driveways for clusters of two or more lots (e.g., includes flag lots and mid-block lanes).

Comment: The site plan provides local street access for all lots. The site does not abut an arterial street.

5. Double-frontage lots. When a lot or parcel has frontage onto two or more streets, access shall be provided first from the street with the lowest classification. For example, access shall be provided from a local street before a collector or arterial street. When a lot or parcel has frontage opposite that of the adjacent lots or parcels, access shall be provided from the street with the lowest classification.

Comment: No double-frontage lots are proposed.

6. Access spacing.

a. The access spacing standards found in Chapter 8 of the adopted Transportation System Plan (TSP) shall be applicable to all newly established public street intersections and non-traversable medians.

b. Private drives and other access ways are subject to the requirements of CDC 48.060.

Comment: The minimum 30 foot access spacing for private driveways onto a local street will be met, as shown on the site plan.

7. Number of access points. For single-family (detached and attached), two-family, and duplex housing types, one street access point is permitted per lot or parcel, when alley access cannot otherwise be provided; except that two access points may be permitted corner lots (i.e., no more than one access per street), subject to the access spacing standards in subsection (B)(6) of this section. The number of street access points for multiple family, commercial, industrial, and public/institutional developments shall be minimized to protect the function, safety and operation of the street(s) and sidewalk(s) for all users. Shared access may be required, in conformance with subsection (B)(8) of this section, in order to maintain the required access spacing, and minimize the number of access points.

Comment: Each proposed lot will have one access point, as specified in this section.

8. Shared driveways. The number of driveway and private street intersections with public streets shall be minimized by the use of shared driveways with adjoining lots where feasible. The City shall require shared driveways as a condition of land division or site design review, as applicable, for traffic safety and access management purposes in accordance with the following standards:

Comment: Lots 2 through 5 will share access via the proposed private street, consistent with this standard. The private street will serve four lots, the maximum permitted. Lots 1 and 6 will take direct access to Mapleton Drive.

C. Street connectivity and formation of blocks required. In order to promote efficient vehicular and pedestrian circulation throughout the City, land divisions and large site developments shall produce complete blocks bounded by a connecting network of public and/or private streets, in accordance with the following standards:

1. Block length and perimeter. The maximum block length shall not exceed 800 feet or 1,800 feet along an arterial.

2. Street standards. Public and private streets shall also conform to Chapter 92 CDC, Required Improvements, and to any other applicable sections of the West Linn Community Development Code and approved TSP.

3. Exception. Exceptions to the above standards may be granted when blocks are divided by one or more pathway(s), in conformance with the provisions of CDC 85.200(C), Pedestrian and Bicycle Trails, or cases where extreme topographic (e.g., slope, creek, wetlands, etc.) conditions or compelling functional limitations preclude implementation, not just inconveniences or design challenges. (Ord. 1635 § 25, 2014; Ord. 1636 § 33, 2014)

Comment: The existing development pattern has set the block length in this area. All adjoining parcels to the west, north and south are fully developed so no new street connections are possible. Required improvement standards of Chapter 92 will be met, as shown on the Street Plan submitted with this application.

**48.030 MINIMUM VEHICULAR REQUIREMENTS FOR RESIDENTIAL USES**

A. *Direct individual access from single-family dwellings and duplex lots to an arterial street, as designated in the transportation element of the Comprehensive Plan, is prohibited for lots or parcels created after the effective date of this code where an alternate access is either available or is expected to be available by imminent development application. Evidence of alternate or future access may include temporary cul-de-sacs, dedications or stubouts on adjacent lots or parcels, or tentative street layout plans submitted at one time by adjacent property owner/developer or by the owner/developer, or previous owner/developer, of the property in question.*

Comment: All lots will take access from the internal local street system. No arterial streets are located in this area.

B. *When any portion of any house is less than 150 feet from the adjacent right-of-way, access to the home is as follows:*

1. *One single-family residence, including residences with an accessory dwelling unit as defined in CDC 02.030, shall provide 10 feet of unobstructed horizontal clearance. Dual-track or other driveway designs that minimize the total area of impervious driveway surface are encouraged.*

Comment: Not applicable. The proposed plan provides for four lots to share an accessway that will result in them being more than 150 feet from the Mapleton Dr. right-of-way.

2. *Two to four single-family residential homes equals a 14- to 20-foot-wide paved or all-weather surface. Width shall depend upon adequacy of line of sight and number of homes.*

Comment: The proposed Tentative Plan provides for four lots (Lots 2 through 5) to share a private accessway from Mapleton Drive. These lots will be more than 150 feet from the right-of-way of Mapleton Drive so the provisions of subsection C also apply. The accessway easement measures 32' in width (4 x 8' per lot) and the proposed paved width is 26.5'. The proposed width is wider than the minimum requirements of this standard to better meet fire code requirements.

3. *Maximum driveway grade shall be 15 percent. The 15 percent shall be measured along the centerline of the driveway only. Variations require approval of a Class II variance by the Planning Commission pursuant to Chapter 75 CDC. Regardless, the last 18 feet in front of the garage shall be under 12 percent grade as measured along the centerline of the driveway only. Grades elsewhere along the driveway shall not apply.*

Comment: As shown on the preliminary street plan submitted with this application, no point of the proposed shared driveway will exceed the 15 percent maximum grade standard. The maximum centerline grade is 7.44% and the maximum grade on the turn-around is 10.01%

4. *The driveway shall include a minimum of 20 feet in length between the garage door and the back of sidewalk, or, if no sidewalk is proposed, to the paved portion of the right-of-way.*

Comment: All lots will have individual driveways that conform to these standards. Driveways will be reviewed at the time of building permit application.

C. *When any portion of one or more homes is more than 150 feet from the adjacent right-of-way, the provisions of subsection B of this section shall apply in addition to the following provisions.*

1. *A turnaround may be required as prescribed by the Fire Chief.*

Comment: The proposed design incorporates a “Y” turnaround consistent with TVF&R requirements.

2. *Minimum vertical clearance for the driveway shall be 13 feet, six inches.*

Comment: The required vertical clearance will be maintained.

3. *A minimum centerline turning radius of 45 feet is required unless waived by the Fire Chief.*

Comment: The proposed private access drive has centerline turning radii of 75’, as shown on the Tentative Plan.

4. *There shall be sufficient horizontal clearance on either side of the driveway so that the total horizontal clearance is 20 feet.*

Comment: The easement width of 32 feet will be maintained clear of all obstructions and the paved width of 26.5’ by itself would meet this standard.

D. *Access to five or more single-family homes shall be by a street built to full construction code standards. All streets shall be public. This full street provision may only be waived by variance.*

Comment: The proposed private accessway will serve four lots.

E. *Access and/or service drives for multi-family dwellings shall be fully improved with hard surface pavement:*

Comment: Not applicable. No multi-family dwellings are proposed.

F. *Where on-site maneuvering and/or access drives are necessary to accommodate required parking, in no case shall said maneuvering and/or access drives be less than that required in Chapters 46 and 48 CDC.*

Comment: Not applicable. All lots are for single-family homes and all parking will be provided on the home’s driveway.

G. *The number of driveways or curb cuts shall be minimized on arterials or collectors. Consolidation or joint use of existing driveways shall be required when feasible.*

Comment: No driveways onto arterial or collector streets are proposed.

H. *In order to facilitate through traffic and improve neighborhood connections, it may be necessary to construct a public street through a multi-family site.*

Comment: Not applicable. No multi-family development is proposed.

I. *Gated accessways to residential development other than a single-family home are prohibited. (Ord. 1408, 1998; Ord. 1463, 2000; Ord. 1513, 2005; Ord. 1584, 2008; Ord. 1590 § 1, 2009; Ord. 1636 § 34, 2014)*

Comment: Not applicable. No gated accesses are proposed.

#### **48.060 WIDTH AND LOCATION OF CURB CUTS AND ACCESS SEPARATION REQUIREMENTS**

A. *Minimum curb cut width shall be 16 feet.*

Comment: All curb cuts will be at least 16 feet in width, as shown on the preliminary street plan.

B. *Maximum curb cut width shall be 36 feet, except along Highway 43 in which case the maximum curb cut shall be 40 feet. For emergency service providers, including fire stations, the maximum shall be 50 feet.*

Comment: No curb cuts are proposed that will exceed 36 feet in width.

C. *No curb cuts shall be allowed any closer to an intersecting street right-of-way line than the following:*

1. *On an arterial when intersected by another arterial, 150 feet.*
2. *On an arterial when intersected by a collector, 100 feet.*
3. *On an arterial when intersected by a local street, 100 feet.*
4. *On a collector when intersecting an arterial street, 100 feet.*
5. *On a collector when intersected by another collector or local street, 35 feet.*
6. *On a local street when intersecting any other street, 35 feet.*

Comment: There are no intersecting streets in this vicinity of Mapleton Drive.

D. *There shall be a minimum distance between any two adjacent curb cuts on the same side of a public street, except for one-way entrances and exits, as follows:*

1. *On an arterial street, 150 feet.*

2. *On a collector street, 75 feet.*
3. *Between any two curb cuts on the same lot or parcel on a local street, 30 feet.*

Comment: Mapleton Drive is designated as a local street by the West Linn Transportation Systems Plan. As shown on the Preliminary Street Plan, the driveways onto Mapleton Drive from Lots 1 and 6, as well as the shared private accessway, will maintain the required minimum separation distance of 30 feet.

*E. A rolled curb may be installed in lieu of curb cuts and access separation requirements.*

Comment: A standard curb and curb cuts are proposed.

*F. Curb cuts shall be kept to the minimum, particularly on Highway 43. Consolidation of driveways is preferred. The standard on Highway 43 is one curb cut per business if consolidation of driveways is not possible.*

Comment: The shared accessway combines the access to four homes into a single curb cut. This is the maximum number allowed pursuant to the standards of CDC 85.200 and 48.030B2

*G. Adequate line of sight pursuant to engineering standards should be afforded at each driveway or accessway.*

Comment: There is ample sight distance at all proposed curb cuts to comply with sight distance requirements.

## **Chapter 55 - DESIGN REVIEW**

As required by this chapter, the applicant retained the services of an arborist (Multnomah Tree Experts) to identify the size, species, and condition of existing trees on the subject property. The trees were surveyed and mapped by Centerline Concepts, Inc., as shown on the Existing Conditions Map submitted with this application. Subsequently, the City Arborist visited the site and determined that 38 of these trees are significant trees. These trees are shown on the Tree Preservation Plan submitted with this application. The following provisions of Chapter 55 relating to tree preservation are applicable to this proposal:

### ***B. Relationship to the natural and physical environment.***

1. *The buildings and other site elements shall be designed and located so that all heritage trees, as defined in the municipal code, shall be saved. Diseased heritage trees, as determined by the City Arborist, may be removed at his/her direction.*

Comment: No heritage trees are located on the subject property.

2. *All heritage trees, as defined in the municipal code, all trees and clusters of trees ("cluster" is defined as three or more trees with overlapping driplines;*

*however, native oaks need not have an overlapping dripline) that are considered significant by the City Arborist, either individually or in consultation with certified arborists or similarly qualified professionals, based on accepted arboricultural standards including consideration of their size, type, location, health, long term survivability, and/or numbers, shall be protected pursuant to the criteria of subsections (B)(2)(a) through (f) of this section. In cases where there is a difference of opinion on the significance of a tree or tree cluster, the City Arborist's findings shall prevail. It is important to acknowledge that all trees are not significant and, further, that this code section will not necessarily protect all trees deemed significant.*

- a. *Non-residential and residential projects on Type I and II lands shall protect all heritage trees and all significant trees and tree clusters by either the dedication of these areas or establishing tree conservation easements. Development of Type I and II lands shall require the careful layout of streets, driveways, building pads, lots, and utilities to avoid heritage trees and significant trees and tree clusters, and other natural resources pursuant to this code. The method for delineating the protected trees or tree clusters ("dripline + 10 feet") is explained in subsection (B)(2)(b) of this section. Exemptions of subsections (B)(2)(c), (e), and (f) of this section shall apply.*

Comment: None of the significant trees identified by the City Arborist are located on slopes that are consistent with Type I or II lands.

- b. *Non-residential and residential projects on non-Type I and II lands shall set aside up to 20 percent of the area to protect trees and tree clusters that are determined to be significant, plus any heritage trees. Therefore, in the event that the City Arborist determines that a significant tree cluster exists at a development site, then up to 20 percent of the non-Type I and II lands shall be devoted to the protection of those trees, either by dedication or easement. The exact percentage is determined by establishing the driplines of the trees or tree clusters that are to be protected. In order to protect the roots which typically extend further, an additional 10-foot measurement beyond the dripline shall be added. The square footage of the area inside this "dripline plus 10 feet" measurement shall be the basis for calculating the percentage (see figure below). The City Arborist will identify which tree(s) are to be protected. Development of non-Type I and II lands shall also require the careful layout of streets, driveways, building pads, lots, and utilities to avoid significant trees, tree clusters, heritage trees, and other natural resources pursuant to this code. Exemptions of subsections (B)(2)(c), (e), and (f) of this section shall apply. Please note that in the event that more than 20 percent of the non-Type I and II lands comprise significant trees or tree clusters, the developer shall not be required to save the excess trees, but is encouraged to do so.*

Comment: Much of the site is wooded and, as shown on the Tree Plan submitted with this application, Significant Trees impact every lot in the subdivision (with the exception of Lot 6), as well as the proposed street. This

makes full compliance with the 20 percent aspirational standard impracticable while maintaining reasonable building sites. A total of 7,597 sq. ft. of the site is proposed to be placed in tree preservation easement, as shown on the tree plan. This amounts to approximately 9% of site area. This does not mean that all of the Significant Trees located outside of these tree protection areas will be removed; rather it means that it will be necessary to build closer to some of these trees than the dripline-plus-10 standard. Where Significant Trees are located on lot lines or rear yard areas and it is practicable to save the trees, they will be retained.

- c. *Where stubouts of streets occur on abutting properties, and the extension of those streets will mean the loss of significant trees, tree clusters, or heritage trees, it is understood that tree loss may be inevitable. In these cases, the objective shall be to minimize tree loss. These provisions shall also apply in those cases where access, per construction code standards, to a lot or parcel is blocked by a row or screen of significant trees or tree clusters.*

Comment: Not applicable. Because surrounding properties are fully developed, there is no need for street stubs.

- d. *For both non-residential and residential development, the layout shall achieve at least 70 percent of maximum density for the developable net area. The developable net area excludes all Type I and II lands and up to 20 percent of the remainder of the site for the purpose of protection of stands or clusters of trees as defined in subsection (B)(2) of this section.*

Comment: The density calculations submitted with this application demonstrate that the maximum density for this site would be seven lots. In order to meet the minimum density standard of 70%, a total of five lots must be provided. The proposed density is six lots, which meets both the maximum and minimum density standards.

- e. *For arterial and collector street projects, including Oregon Department of Transportation street improvements, the roads and graded areas shall avoid tree clusters where possible. Significant trees, tree clusters, and heritage tree loss may occur, however, but shall be minimized.*

Comment: Not applicable. The site does not abut an arterial or collector street.

- f. *If the protection of significant tree(s) or tree clusters is to occur in an area of grading that is necessary for the development of street grades, per City construction codes, which will result in an adjustment in the grade of over or under two feet, which will then threaten the health of the tree(s), the applicant will submit evidence to the Planning Director that all reasonable alternative grading plans have been considered and cannot work. The applicant will then submit a mitigation plan to the City Arborist to compensate for the removal of the tree(s) on an "inch by inch" basis (e.g., a 48-inch Douglas fir could be replaced by 12 trees, each four-inch). The mix of tree sizes and types shall be approved by the City Arborist.*



Comment: Trees located in the protected portions of the site will not be impacted by site grading.

## Chapter 92: REQUIRED IMPROVEMENTS

### 92.010 PUBLIC IMPROVEMENTS FOR ALL DEVELOPMENT

*The following improvements shall be installed at the expense of the developer and meet all City codes and standards:*

A. Streets within subdivisions.

1. *All streets within a subdivision, including alleys, shall be graded for the full right-of-way width and improved to the City's permanent improvement standards and specifications which include sidewalks and bicycle lanes, unless the decision-making authority makes the following findings:*

Comment: Mapleton Drive will be improved to City local street standards.

2. *When the decision-making authority makes these findings, the decision-making authority may impose any of the following conditions of approval:*

Comment: Not applicable. This subsection applies only when an applicant is proposing to construct less than full standard streets.

B. Extension of streets to subdivisions. *The extension of subdivision streets to the intercepting paving line of existing streets with which subdivision streets intersect shall be graded for the full right-of-way width and improved to a minimum street structural section and width of 24 feet.*

Comment: As shown on the Grading Plan submitted with this requirement will be met.

C. Local and minor collector streets *within the rights-of-way abutting a subdivision shall be graded for the full right-of-way width and approved to the City's permanent improvement standards and specifications. The City Engineer shall review the need for street improvements and shall specify whether full street or partial street improvements shall be required. The City Engineer shall also specify the extent of storm drainage improvements required. The City Engineer shall be guided by the purpose of the City's systems development charge program in determining the extent of improvements which are the responsibility of the subdivider.*

Comment: As shown on the Grading Plan submitted with this application, the proposed streets will be graded for the full right-of-way and improved to City standards.

D. Monuments. *Upon completion of the first pavement lift of all street improvements, monuments shall be installed and/or reestablished at every street intersection and all points of curvature and points of tangency of street centerlines with an iron survey control rod. Elevation benchmarks shall be established at each street intersection monument with a cap (in a monument box) with elevations to a U.S. Geological Survey datum that exceeds a distance of 800 feet from an existing benchmark.*

Comment: Monumentation will be installed and/or reestablished at street intersections in accordance with this subsection.

*E. Surface drainage and storm sewer system. A registered civil engineer shall prepare a plan and statement which shall be supported by factual data that clearly shows that there will be no adverse impacts from increased intensity of runoff off site of a 100-year storm, or the plan and statement shall identify all off-site impacts and measures to mitigate those impacts commensurate to the particular land use application. Mitigation measures shall maintain pre-existing levels and meet buildout volumes, and meet planning and engineering requirements.*

Comment: The project engineer has prepared a storm drainage plan, as shown on the Utility Plan, and a storm report for this project. Please refer to those documents.

*F. Sanitary sewers. Sanitary sewers shall be installed to City standards to serve the subdivision and to connect the subdivision to existing mains.*

- 1. If the area outside the subdivision to be directly served by the sewer line has reached a state of development to justify sewer installation at the time, the Planning Commission may recommend to the City Council construction as an assessment project with such arrangement with the subdivider as is desirable to assure financing his share of the construction.*
- 2. If the installation is not made as an assessment project, the City may reimburse the subdivider an amount estimated to be a proportionate share of the cost for each connection made to the sewer by property owners outside of the subdivision for a period of 10 years from the time of installation of the sewers. The actual amount shall be determined by the City Administrator considering current construction costs.*

Comment: Sanitary sewers are available to this project from an existing line in an easement that crosses the subject property. This sewer will be extended to service all lots within the development, as required by this subsection.

*G. Water system. Water lines with valves and fire hydrants providing service to each building site in the subdivision and connecting the subdivision to City mains shall be installed. Prior to starting building construction, the design shall take into account provisions for extension beyond the subdivision and to adequately grid the City system. Hydrant spacing is to be based on accessible area served according to the City Engineer's recommendations and City standards. If required water mains will directly serve property outside the subdivision, the City may reimburse the developer an amount estimated to be the proportionate share of the cost for each connection made to the water mains by property owners outside the subdivision for a period of 10 years from the time of installation of the mains. If oversizing of water mains is required to areas outside the subdivision as a general improvement, but to which no new connections can be identified, the City may reimburse the developer that proportionate share of the cost for oversizing. The actual amount and reimbursement method shall be as determined by the City Administrator considering current or actual construction costs.*

Comment: No new city water lines are proposed. Individual water meters and private laterals will be provided to all lots from the existing water line in Mapleton Drive.

H. Sidewalks.

1. *Sidewalks shall be installed on both sides of a public street and in any special pedestrian way within the subdivision, except that in the case of primary or secondary arterials, or special type industrial districts, or special site conditions, the Planning Commission may approve a subdivision without sidewalks if alternate pedestrian routes are available. In the case of the double-frontage lots, provision of sidewalks along the frontage not used for access shall be the responsibility of the developer. Providing front and side yard sidewalks shall be the responsibility of the land owner at the time a request for a building permit is received. Additionally, deed restrictions and CC&Rs shall reflect that sidewalks are to be installed prior to occupancy and it is the responsibility of the lot or homeowner to provide the sidewalk, except as required above for double-frontage lots.*

Comment: The applicant will comply with City standards. However, it should be noted that there was strong sentiment expressed at the neighborhood meeting for an alternate design of simply widening the asphalt section of Mapleton Drive to provide for pedestrian circulation. The applicant is willing to consider this option if the Planning Commission should approve this modification.

2. *On local streets serving only single-family dwellings, sidewalks may be constructed during home construction, but a letter of credit shall be required from the developer to ensure construction of all missing sidewalk segments within four years of final plat approval pursuant to CDC 91.010(A)(2).*

Comment: The applicant will both develop the site and build the homes. Sidewalk construction will be coordinated with the Public Works Department.

3. *The sidewalks shall measure at least six feet in width and be separated from the curb by a six-foot minimum width planter strip. Reductions in widths to preserve trees or other topographic features, inadequate right-of-way, or constraints, may be permitted if approved by the City Engineer in consultation with the Planning Director.*

Comment: Sidewalks will be installed to City specifications unless an alternate design is approved by the Planning Commission to allow for a wider paved street section to accommodate pedestrian traffic.

4. *Sidewalks should be buffered from the roadway on high volume arterials or collectors by landscape strip or berm of three and one-half-foot minimum width.*

Comment: Not applicable. The site does not abut an arterial or collector street.

5. *The City Engineer may allow the installation of sidewalks on one side of any street only if the City Engineer finds that the presence of any of the factors listed below justifies such waiver:*
  - a. *The street has, or is projected to have, very low volume traffic density;*
  - b. *The street is a dead-end street;*
  - c. *The housing along the street is very low density; or*

- d. *The street contains exceptional topographic conditions such as steep slopes, unstable soils, or other similar conditions making the location of a sidewalk undesirable.*

Comment: Sidewalks would only be required along the project's frontage on Mapleton Drive.

- I. *Bicycle routes. If appropriate to the extension of a system of bicycle routes, existing or planned, the Planning Commission may require the installation of separate bicycle lanes within streets and separate bicycle paths.*

Comment: No bicycle routes are called for on the local streets within this subdivision.

- J. *Street name signs. All street name signs and traffic control devices for the initial signing of the new development shall be installed by the City with sign and installation costs paid by the developer.*

Comment: The developer will provide all required signs, consistent with City standards.

- K. *Dead-end street signs. Signs indicating "future roadway" shall be installed at the end of all discontinued streets. Signs shall be installed by the City per City standards, with sign and installation costs paid by the developer.*

Comment: Not applicable. No street stubs are proposed.

- L. *Signs indicating future use shall be installed on land dedicated for public facilities (e.g., parks, water reservoir, fire halls, etc.). Sign and installation costs shall be paid by the developer.*

Comment: Not applicable. No public dedications are proposed.

- M. *Street lights. Street lights shall be installed and shall be served from an underground source of supply. The street lighting shall meet IES lighting standards. The street lights shall be the shoe-box style light (flat lens) with a 30-foot bronze pole in residential (non-intersection) areas. The street light shall be the cobra head style (drop lens) with an approximate 50-foot (sized for intersection width) bronze pole. The developer shall submit to the City Engineer for approval of any alternate residential, commercial, and industrial lighting, and alternate lighting fixture design. The developer and/or homeowners association is required to pay for all expenses related to street light energy and maintenance costs until annexed into the City.*

Comment: Street lights will be installed by the developer, consistent with the requirements of this subsection.

- N. *Utilities. The developer shall make necessary arrangements with utility companies or other persons or corporations affected for the installation of underground lines and facilities. Electrical lines and other wires, including but not limited to communication, street lighting, and cable television, shall be placed underground.*

Comment: The developer will coordinate with utility companies for the installation of underground facilities for electrical, cable, natural gas, telephone, and street lighting. As required by this section.

O. Curb cuts and driveways. *Curb cuts and driveway installations are not required of the subdivider at the time of street construction, but, if installed, shall be according to City standards. Proper curb cuts and hard-surfaced driveways shall be required at the time buildings are constructed.*

Comment: Curb cuts will be installed at the time of home construction and will be installed to City standards.

P. Street trees. *Street trees shall be provided by the City Parks and Recreation Department in accordance with standards as adopted by the City in the Municipal Code. The fee charged the subdivider for providing and maintaining these trees shall be set by resolution of the City Council.*

Comment: The developer will coordinate with the City Parks and Recreation Department regarding installation of street trees and will be responsible for paying the appropriate fee.

Q. Joint mailbox facilities *shall be provided in all residential subdivisions, with each joint mailbox serving at least two, but no more than eight, dwelling units. Joint mailbox structures shall be placed in the street right-of-way adjacent to roadway curbs. Proposed locations of joint mailboxes shall be designated on a copy of the tentative plan of the subdivision, and shall be approved as part of the tentative plan approval. In addition, sketch plans for the joint mailbox structures to be used shall be submitted and approved by the City Engineer prior to final plat approval.*

Comment: The developer will coordinate with the US Postal Service and the City Engineer regarding the location of joint mailbox clusters and will install them in accordance with this section.

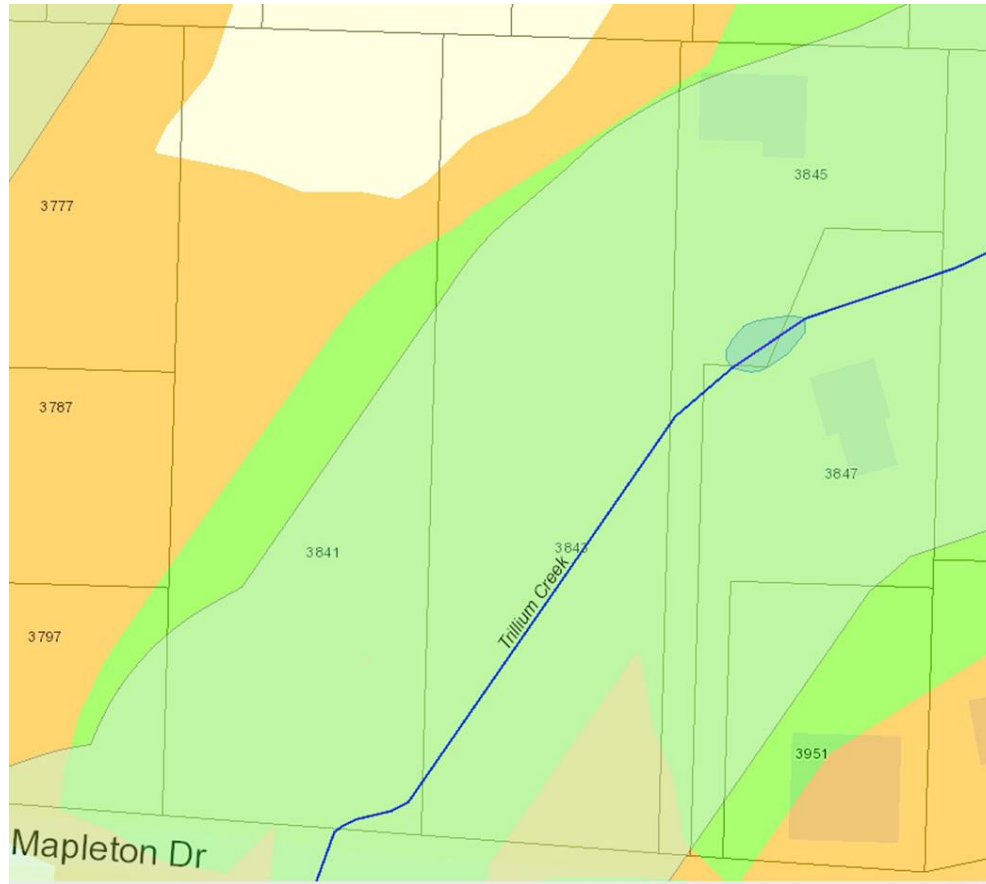
## **CHAPTER 28 - WILLAMETTE AND TUALATIN RIVER PROTECTION**

### **28.030 APPLICABILITY**

A. *The Willamette and Tualatin River Protection Area is an overlay zone. The zone boundaries are identified on the City's zoning map, and include:*

- 1. All land within the City of West Linn's Willamette River Greenway Area.*
- 2. All land within 200 feet of the ordinary low water mark of the Tualatin River, and all land within the 100-year floodplain of the Tualatin River.*
- 3. In addition to the Willamette Greenway and Tualatin River Protection Area boundaries, this chapter also relies on the HCA Map to delineate where development should or should not occur. Specifically, the intent is to keep out of, or minimize disturbance of, the habitat conservation areas (HCAs). Therefore, if all, or any part, of a lot or parcel is in the Willamette Greenway and Tualatin River Protection Area boundaries, and there are HCAs on the lot or parcel, a Willamette and Tualatin River Protection Area permit shall be required unless the development proposal is exempt per CDC 28.040.*

Comment: The subject property is not within the Willamette River or Tualatin River Greenway. As shown on the map below, City and Metro mapping assumed that the Trillium Creek stream corridor was an open channel through the subject property and, as a result, mapped it as HCA. Additionally, the wooded areas of the property are noted as HCA.



### **28.040 EXEMPTIONS/USES PERMITTED OUTRIGHT**

The use of Habitat Conservation Areas for residential purposes is not listed as a use that is exempt or permitted outright. However CDC 28.040AA does apply to this proposal:

*AA. Lands that are designated as an HCA only due to a forested canopy shall be exempt since trees are already protected in the municipal code and Chapters 55 and 85 CDC. Development of lands that are designated as HCA due to other variables such as wetlands, flood areas and steep slopes shall still be regulated by the provisions of this chapter and not exempted.*

Comment: The areas that are designated HCA due strictly to forested tree canopy are shown in tan on the HCA map. As noted in section 28.070(F) "Lands that are designated as an HCA only due to a forested overstory are exempt under CDC 28.040, Exemptions, since trees are already protected in the municipal code and Chapters 55 and 85 CDC." Therefore, the areas mapped in

tan are not subject to the provisions of Chapter 28. Please see discussion of this provision under section 28.070, below, relative to the stream corridor.

### **28.050 PROHIBITED USES**

*The following are prohibited:*

1. Residential floating structures, also known as floating homes or houseboats.
2. Permanent ski jumps.
3. More than one dock with or without a boat house per riverfront lot of record, except City-owned tax lots 100, 200, 300, 400, and 500 of Assessor's Map 21 East 24.
4. The location of any dock under any water condition that prevents what would otherwise be historic, safe, uninterrupted water passage.
5. Any new lawn area or garden area consisting primarily of non-native vegetation within HCA lands. A lawn area in the "Allowed Development" area is permitted.
6. Planting of any species identified as nuisance or prohibited plants on the Metro Native Plant List.
7. Non-permitted storage of hazardous materials as defined by the Oregon Department of Environmental Quality and dumping of any materials of any kind.
8. Excessive trimming or removal of existing native vegetation within the HCA unless it is to reestablish native vegetation in place of non-native or invasive vegetation. (Ord. 1576, 2008)

Comment: None of the uses listed in this section are proposed within the Habitat Conservation Area.

### **28.060 ADMINISTRATION AND APPROVAL PROCESS**

*An application for a protection area permit shall be processed pursuant to the provisions of Chapter 99 CDC, Procedures for Decision-Making: Quasi-Judicial.*

Comment: The application is being processed quasi-judicially, in accordance with the provisions of Chapter 99 of the CDC.

### **28.070 PLANNING DIRECTOR VERIFICATION OF METRO HABITAT PROTECTION MAP BOUNDARIES**

A. *The HCA Map is the basis for identifying and designating the habitat conservation areas in the City. A copy of the latest, updated HCA Map is on file at the City and is adopted by reference for use with this chapter.*

*It is inevitable, given the large area that Metro's HCA Map covers, that there may be some errors. In cases where, for example, three properties share the same contours and the same natural features but the map shows the middle lot with an HCA designation on it, it is reasonable to question the accuracy of that HCA designation. Using tree overstory as the sole basis for HCA designation will also allow a change in designation since trees are already protected in the municipal code and Chapters 55 and 85 CDC.*

The HCA map shown above in this report shows the location of the HCA per the City of West Linn GIS mapping system. The tan areas are only associated with areas of the site having tree canopy. This area is protected via the City's tree preservation criteria of Chapter 55.

The green shaded area identifies the riparian buffer associated with Trillium Creek. The map depicts the standard 100 foot buffer deemed to be needed to protect riparian habitat along such creeks as well as to minimize erosion and sedimentation from development of adjacent lands. As discussed in the attached memorandum from Schott & Associates, the drainage corridor does not exist in its natural state, having been piped years ago prior to the existence of stream corridor protections. Because of this, the HCA depicted in green does not provide any of the functional values typically associated with riparian areas and, therefore, the mapping of that area is incorrect and should be deleted. Please refer to the Schott and Associates memorandum submitted with this application for more details.

*B. The Planning Director shall verify the appropriate HCA or non-HCA designation by site visits or consultations with Metro or by other means. Determination is based on whether the Metro criteria are met or whether the Metro designation was based solely on tree overstory in which case a redesignation is appropriate. In cases where the determination is that the map is incorrect, the Planning Director will make a written finding of this as well as the site conditions that led to that conclusion.*

Comment: As discussed in the Schott letter, there are no water-related HCA resources on the subject property and, therefore, the stream corridor designation should not be applied to this property.

*C. Class B public notice, per Chapter 99 CDC, shall be required prior to issuance of the redesignation decision if it involves redesignation of the HCA boundary to allow the construction of, or addition to, a house.*

Comment: The required notice will be provided.

*D. This determination and findings shall become part of the City record and part of the record for any associated land use application. The Planning Director shall also include in the record the revised map boundary. The Planning Director's determination and map revisions shall also be sent to Metro so that their map may be corrected as necessary.*

Comment: If approved, this requirement will be met by the City.

*E. The Planning Director determination is appealable to the City Council per Chapter 99 CDC.*

Comment: The applicant recognizes that the determination is appealable.

*F. Lands that are designated as an HCA only due to a forested overstory are exempt under CDC 28.040, Exemptions, since trees are already protected in the municipal code and Chapters 55 and 85 CDC. Similar exemptions apply to lands that exhibit no constraints. (Ord. 1576, 2008; Ord. 1604 §§ 25 – 28, 2011)*



Comment: The areas shown in tan are exempt due to this provision as there are no habitat resources in those areas other than forested overstory.

**28.110 APPROVAL CRITERIA**

*No application for development on property within the protection area shall be approved unless the decision-making authority finds that the following standards have been met or can be met by conditions of approval. The development shall comply with the following criteria as applicable:*

Comment: Upon approval of a change in designation, these provisions will no longer apply.

**Chapter 32  
WATER RESOURCE AREA PROTECTION**

Comment: As discussed above, Trillium Creek drainage is presently underground in a culvert from Mapleton Drive to the east border of the subject property. The applicant proposes to regrade the site to reestablish an on-grade channel for the creek, as shown on the Grading Plan submitted with this application. The provisions of CDC 32.070 allow the use of lesser setbacks than would normally be required in instances such as this where drainageways are reestablished. Please see the analysis by Schott & Associates addressing this section of Code.



**SCHOTT & ASSOCIATES**  
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11.8.18

**MEMO**

With reference to October 25, 2018 letter of incompleteness for SUB18-03/WAP-18-04/WRG-18-03 please find the following information responding to items 2-5 of that letter.

**2. CDC Chapter 28.070(B) Please identify the application Metro criteria and provide findings to address the criteria and the proposed removal of all HCA areas from the property.**

**32.070B.** *If a WRA is already significantly degraded (e.g., native forest and ground cover have been removed or the site dominated by invasive plants, debris, or development), the approval authority may allow a reduced WRA in exchange for mitigation, if:*

*1. The proposed reduction in WRA width, coupled with the proposed mitigation, would result in better performance of functions than the standard WRA without such mitigation. The approval authority shall make this determination based on the applicant's proposed mitigation plan and a comparative analysis of ecological functions under existing and enhanced conditions (see Table 32-4).*

The WRA is already significantly degraded and the proposed reduction in WRA width, coupled with the proposed mitigation, will result in better performance of functions than the standard WRA without such mitigation as shown below.

**Undisturbed WRA Conditions**

The site has been disturbed historically. The driveway, as well as where the house used to be located was graded and flattened. In addition, the area where the culvert is located is not natural topography. This area appears to have been filled, probably when the culvert was first installed. In addition, the lot to the east is significantly lower than this site, again suggesting the historical filling.

The WRA for the short section of waterway at the south property boundary was mostly existing gravel driveway with no vegetation. The adjacent undeveloped area was composed of non-native grasses and Himalayan blackberry. The condition of the WRA was degraded and performs minimal vegetated corridor functions at this location.

The WRA in the east portion of the property was dominated by Himalayan blackberry which extended into the forested area. Low canopy cover was present from a couple of big leaf maple trees. This WRA was in degraded condition. Existing functions of the resource are low and will remain low without the proposed mitigation as described below.

### **Proposed WRA Conditions**

The WRA area to remain shall be enhanced through removal of invasive species and planting with a mix of native trees, shrubs and understory species. Proposed enhancement will increase diversity of species and structure, providing greater habitat functions including nesting, escape and forage as well as a contiguous habitat corridor along an open channel through the entire site.

Creating an open channel will improve ecological and water quality functions onsite as described below and in Table 1 which compares Ecological Functions per Table 32-4 of Existing and proposed WRA functions.

The applicant proposes mitigating for the WRA width reduction amount of 1,868sf through daylighting the onsite piped drainage and enhancement of 8,438sf of adjacent Riparian Corridor (Table 1). The pipe will be removed and replaced with an open channel lined with river cobble to slow water flows and improve habitat value. The daylighted channel will have a 15' planted WRA adjacent to both sides. Adjacent riparian enhancement will include the removal of Himalayan blackberry and other non-native species within the existing and proposed WRA followed by planting with native plant material greatly enhancing otherwise low quality functions than the existing WRA now has.

Proposed WRA will be planted with native trees, shrubs and groundcover consistent with CDC 32.100, and exceeding the standards of CDC 32.090(C) as described in the Mitigation/Enhancement Plan (Table 1) to extend the total area of native forested/scrub-shrub community and provide a diverse community adjacent to the onsite water resource. This criterion is clearly met.

**Table 1. Ecological Functions per Table 32-4**

<i>Ecological Functions</i>	<i>WRA existing conditions</i>	<i>WRA enhanced conditions</i>
<i>Stream flow moderation and/or water storage</i>	<i>Stream flow moderation low, creek primarily piped with two sections of open channel with no complexity.</i>	<i>Stream flow functions will be increased by removal of pipe, increased in open stream length, addition cobble substrate in channel and denser and more diverse vegetation adjacent increase in roughness/complexity in WRA to further slow flow for better storage capacity.</i>
<i>Sediment or pollution control</i>	<i>Vegetation minimal within 100' of south open channel (gravel drive). To the east adjacent vegetation is predominantly blackberry. Only forested canopy mainly to the north of WRA.</i>	<i>Increased vegetation and tree canopy adjacent to created stream channel as well as within existing WRA will increase functions by providing more filtration and surface runoff.</i>
<i>Bank stabilization</i>	<i>Some large trees along stream bank but there is minimal bank</i>	<i>Increased native vegetation will help bank stabilization.</i>
<i>Large wood recruitment for a fish bearing section of stream</i>	<i>Stream is likely not fish bearing. Few large trees along stream.</i>	<i>Additional trees will increase tree canopy cover and diversity providing greater quantity of woody debris within stream and adjacent upland habitat.</i>
<i>Organic material sources</i>	<i>Minimal as most of channel is piped and open section has little adjacent tree canopy.</i>	<i>Increased vegetation and tree canopy will provide greater organic material.</i>
<i>Shade (water temperature moderation) and microclimate</i>	<i>Minimal as most of channel is piped and open section has little adjacent tree canopy.</i>	<i>Increased vegetation and tree canopy will provide greater shade and thermoregulation.</i>

2. *The mitigation project shall include all of the following components as applicable. It may also include other forms of enhancement (mitigation) deemed appropriate by the approval authority.*

a. *Removal of invasive vegetation.*

Included as described above and in Mitigation Plan.

b. *Planting native, non-invasive plants (at minimum, consistent with CDC [32.100](#)) that provide improved filtration of sediment, excess nutrients, and pollutants. The amount of enhancement (mitigation) shall meet or exceed the standards of CDC [32.090\(C\)](#).*

Proposed WRA will be planted with native trees, shrubs and groundcover consistent with CDC 32.100, and exceeding the standards of CDC 32.090(C) as described in the Mitigation/Enhancement Plan (Table 2) to extend the total area of native forested/scrub-shrub community and provide a diverse community adjacent to the onsite water resource. This criteria is clearly met.

c. *Providing permanent improvements to the site hydrology that would improve water resource functions.*

Daylighting the channel will help slow water movement through the site. The proposed channel will be longer than the existing culvert, which will result in water taking longer moving through the site. In addition, water moves faster through a culvert than it does through an open channel since the culvert is smoother than an open channel. An open channel will also help improve water quality. Most urban streams tend to have excess nutrients and other pollutants. The plants growing in and adjacent to the stream will help remove some of these pollutants.

d. *Substantial improvements to the aquatic and/or terrestrial habitat of the WRA.*

An open channel will provide habitat for amphibians and other wildlife species that is not currently accessible via the culvert. Additionally, plantings adjacent to the new and existing open channel will increase organic material within the stream, provide shade and structure within the channel and increase nesting, food and escape functions within the adjacent terrestrial habitat.

**3. CDC Chapter 32.060(H). Daylighting Piped Streams.**  
***Please list the approval criteria and submit findings for each.***

**32.060(H) 1.** *As part of any application, covered or piped stream sections shown on the WRA Map are encouraged to be “daylighted” or opened. Once it is daylighted, the WRA will be limited to 15 feet on either side of the stream. Within that WRA, water quality measures are required which may include a storm water treatment system (e.g., vegetated bioswales), continuous vegetative ground cover (e.g., native grasses) at least 15 feet in width that provides year round efficacy, or a combination thereof.*

2. *The re-opened stream does not have to align with the original piped route but may take a different route on the subject property so long as it makes the appropriate upstream and downstream connections and meet the standards of subsections (H)(3) and (4) of this section.*

The re-opened stream will angle through the site providing some natural curve to the channel and creating additional length. The opened channel will connect to existing upstream and downstream connections. Standards of subsections (H)(3) and (4) will be met as shown below.

3. *A re-aligned stream must not create WRAs on adjacent properties not owned by the applicant unless the applicant provides a notarized letter signed by the adjacent property owner(s) stating that the encroachment of the WRA is permitted.*

No WRA shall be created on adjacent property.

4. *The evaluation of proposed alignment and design of the reopened stream shall consider the following factors:*

a. *The ability of the reopened stream to safely carry storm drainage through the area without causing significant erosion.*

Stream channel has been designed to safely carry storm drainage through the area without causing significant erosion. Cobble will be placed on the bottom of the channel and channel will be curved to allow maximum roughness to slow water through the site.

b. *Continuity with natural contours on adjacent properties, slope on site and drainage patterns.*

Channel has been aligned to follow natural contours and connected to existing open channel at both ends.

c. *Continuity of adjacent vegetation and habitat values.*

Existing vegetation along the piped section of the stream is disturbed. Vegetation will be planted to provide a continuous corridor of native vegetation along the stream through the site.

d. *The ability of the existing and proposed vegetation to filter sediment and pollutants and enhance water quality.*

Existing vegetation does not filter sediment and pollutants as it is growing on top of the piped channel. Proposed plantings adjacent to both sides of the opened channel will filter sediment and pollutants and enhance water quality.

e. *Provision of water temperature conducive to fish habitat.*

The onsite waterway does not provide fish habitat. The riparian corridor adjacent to both sides of the opened channel will be planted with native trees and shrubs to provide canopy over the stream, regulating water temperature for downstream fish habitat.

5. *Any upstream or downstream WRAs or riparian corridors shall not apply to, or overlap, the daylighted stream channel.*

The adjacent 65' WRA will not apply to the new stream channel. The channel will be bordered by a 15' riparian corridor along both sides.

6. *When a stream is daylighted the applicant shall prepare and record a legal document describing the reduced WRA required by subsections (H)(1) and (5) of this section. The document will be signed by a representative of the City and recorded at the applicant's expense to better ensure long term recognition of the reduced WRA and reduced restrictions for the daylighted stream section.*

Required document shall be prepared.

**4. CDC Chapter 32.080 – Approval Criteria (Alternate Review Process)**  
***Please list the approval criteria and submit findings for each.***

**32.080.** *Applications reviewed under the alternate review process shall meet the following approval criteria:*

A. *The proposed WRA shall be, at minimum, qualitatively equal, in terms of maintaining the level of functions allowed by the WRA standards of CDC [32.060\(D\)](#).*

The proposed WRA shall extend from 15' along the newly created channel up to 65' feet in width at the north end of the existing channel. The proposed WRA shall be equal to or exceed the existing level of functions allowed by the WRA standards. At the south edge of the site the existing functions are negligible as the existing WRA is gravel driveway and invasive grass species. A 15' native riparian corridor will be planted, significantly improving the function in this area. To the north the width of the WRA will be minimally reduced and will continue to provide existing and enhanced native cover to equal the level of function allowed by the WRA standards.

B. *If a WRA is already significantly degraded (e.g., native forest and ground cover have been removed or the site dominated by invasive plants, debris, or development), the approval authority may allow a reduced WRA in exchange for mitigation, if:*

1. *The proposed reduction in WRA width, coupled with the proposed mitigation, would result in better performance of functions than the standard WRA without such mitigation. The approval authority shall make this determination based on the applicant's proposed mitigation plan and a comparative analysis of ecological functions under existing and enhanced conditions (see Table 32-4).*

Addressed above under 32.070(B) and in the Table 1.

2. *The mitigation project shall include all of the following components as applicable. It may also include other forms of enhancement (mitigation) deemed appropriate by the approval authority.*

a. *Removal of invasive vegetation.*

b. *Planting native, non-invasive plants (at minimum, consistent with CDC [32.100](#)) that provide improved filtration of sediment, excess nutrients, and pollutants. The amount of enhancement (mitigation) shall meet or exceed the standards of CDC [32.090](#)(C).*

c. *Providing permanent improvements to the site hydrology that would improve water resource functions.*

d. *Substantial improvements to the aquatic and/or terrestrial habitat of the WRA.*

Items a-d have been addressed above in 32.070(B).

C. *Identify and discuss site design and methods of development as they relate to WRA functions.*

Site has been designed to avoid impact to the WRA to the extent possible with impacts proposed for the yard and deck for a single lot. Impacts are in already degraded WRA and will not significantly degrade WRA functions. The restoration of the onsite channel will provide significant improvements in WRA functions including hydrologic function, water quality function and wildlife habitat value as described above.

D. *Address the approval criteria of CDC [32.060](#), with the exception of CDC [32.060](#)(D).*

See below under CDC 32.060

CDC 32.060

A. *WRA protection/minimizing impacts.*

1. *Development shall be conducted in a manner that will avoid or, if avoidance is not possible, minimize adverse impact on WRAs.*

Development has been designed to minimize impact to WRA and to avoid adverse impact to the function of the WRA. The development will avoid the existing WRA with the exception of the proposed impacts for lawn and deck for Lot 5.



2. *Mitigation and re-vegetation of disturbed WRAs shall be completed per CDC [32.090](#) and [32.100](#), respectively.*

Mitigation and re-vegetation shall be completed as required.

*B. Storm water and storm water facilities.*

*1. Proposed developments shall be designed to maintain the existing WRAs and utilize them as the primary method of storm water conveyance through the project site unless:*

The proposed development shall maintain the existing WRA and expand the onsite WRA by daylighting the piped portion of the onsite drainage and allowing it to function as a natural stormwater conveyance.

*a. The surface water management plan calls for alternate configurations (culverts, piping, etc.); or*

N/A

*b. Under CDC [32.070](#), the applicant demonstrates that the relocation of the water resource will not adversely impact the function of the WRA including, but not limited to, circumstances where the WRA is poorly defined or not clearly channelized.*

N/A

*Re-vegetation, enhancement and/or mitigation of the re-aligned water resource shall be required as applicable.*

N/A

*2. Public and private storm water detention, storm water treatment facilities and storm water outfall or energy dissipaters (e.g., rip rap) may encroach into the WRA if:*

*a. Accepted engineering practice requires it;*

*b. Encroachment on significant trees shall be avoided when possible, and any tree loss shall be consistent with the City's Tree Technical Manual and mitigated per CDC [32.090](#);*

*c. There shall be no direct outfall into the water resource, and any resulting outfall shall not have an erosive effect on the WRA or diminish the stability of slopes; and*

*d. There are no reasonable alternatives available.*

N/A. Underground detention under the private drive is proposed, with filter catch basins or a rain garden for water quality.

*A geotechnical report may be required to make the determination regarding slope stability.*

*3. Roadside storm water conveyance swales and ditches may be extended within rights-of-way located in a WRA. When possible, they shall be located along the side of the road furthest from the water resource. If the conveyance facility must be located along the side of the road closest to the water resource, it shall be located as close to the road/sidewalk as possible and include habitat friendly design features (treatment train, rain gardens, etc.).*

N/A

*4. Storm water detention and/or treatment facilities in the WRA shall be designed without permanent perimeter fencing and shall be landscaped with native vegetation.*

N/A

*5. Access to public storm water detention and/or treatment facilities shall be provided for maintenance purposes. Maintenance driveways shall be constructed to minimum width and use water permeable paving materials. Significant trees, including roots, shall not be disturbed to the degree possible. The encroachment and any tree loss shall be mitigated per CDC [32.090](#). There shall also be no adverse impacts upon the hydrologic conditions of the site.*

N/A.

*6. Storm detention and treatment and geologic hazards. Per the submittals required by CDC [32.050\(F\)\(3\)](#) and [92.010\(E\)](#), all proposed storm detention and treatment facilities must comply with the standards for the improvement of public and private drainage systems located in the West Linn Public Works Design Standards, there will be no adverse off-site impacts caused by the development (including impacts from increased intensity of runoff downstream or constrictions causing ponding upstream), and the applicant must provide sufficient factual data to support the conclusions of the submitted plan.*

No adverse offsite impacts are anticipated from the proposed development. Stormwater treatment and detention is to be via underground detention under the private drive with filter catch basins or rain garden for water quality. Daylighting of the onsite channel will slow water and reduce intensity of downstream runoff. Additional details can be obtained from the Stormwater Plan provided by the engineer.

*C. Repealed by Ord. 1647.*

*E. Per the submittals required by CDC [32.050\(F\)\(4\)](#), the applicant must demonstrate that the proposed methods of rendering known or potential hazard sites safe for development, including proposed geotechnical remediation, are feasible and adequate to prevent landslides or other damage to property and safety. The review authority may impose conditions, including limits on type or*

*intensity of land use, which it determines are necessary to mitigate known risks of landslides or property damage.*

N/A. No known or potential hazard sites.

*F. Roads, driveways and utilities.*

*1. New roads, driveways, or utilities shall avoid WRAs unless the applicant demonstrates that no other practical alternative exists. In that case, road design and construction techniques shall minimize impacts and disturbance to the WRA by the following methods:*

Proposed driveway shall avoid existing WRA. Driveway shall be constructed concurrently with removal of existing pipe and creation of open channel. New WRA shall be provided adjacent to the new channel on both sides of the driveway.

*a. New roads and utilities crossing riparian habitat areas or streams shall be aligned as close to perpendicular to the channel as possible.*

N/A. New road/driveway shall cross the newly created open channel. No existing channel.

*b. Roads and driveways traversing WRAs shall be of the minimum width possible to comply with applicable road standards and protect public safety. The footprint of grading and site clearing to accommodate the road shall be minimized.*

N/A. No existing WRA at proposed driveway crossing.

*c. Road and utility crossings shall avoid, where possible:*

- 1) Salmonid spawning or rearing areas;*
- 2) Stands of mature conifer trees in riparian areas;*
- 3) Highly erodible soils;*
- 4) Landslide prone areas;*
- 5) Damage to, and fragmentation of, habitat; and*
- 6) Wetlands identified on the WRA Map.*

Proposed crossing is throughout an open grass field containing a piped portion of Trillium Creek. None of the above will be impacted by the proposed driveway.

2. *Crossing of fish bearing streams and riparian corridors shall use bridges or arch-bottomless culverts or the equivalent that provides comparable fish protection, to allow passage of wildlife and fish and to retain the natural stream bed.*

N/A. No crossing of fish bearing stream or riparian corridors.

3. *New utilities spanning fish bearing stream sections, riparian corridors, and wetlands shall be located on existing roads/bridges, elevated walkways, conduit, or other existing structures or installed underground via tunneling or boring at a depth that avoids tree roots and does not alter the hydrology sustaining the water resource, unless the applicant demonstrates that it is not physically possible or it is cost prohibitive. Bore pits associated with the crossings shall be restored upon project completion. Dry, intermittent streams may be crossed with open cuts during a time period approved by the City and any agency with jurisdiction.*

N/A

4. *No fill or excavation is allowed within the ordinary high water mark of a water resource, unless all necessary permits are obtained from the City, U.S. Army Corps of Engineers and Oregon Department of State Lands (DSL).*

No existing water resource will be affected. A GA will be provided to DSL for removal of the culvert.

5. *Crossings of fish bearing streams shall be aligned, whenever possible, to serve multiple properties and be designed to accommodate conduit for utility lines. The applicant shall, to the extent legally permissible, work with the City to provide for a street layout and crossing location that will minimize the need for additional stream crossings in the future to serve surrounding properties.*

N/A. No fish bearing stream.

G. *Passive recreation. Low impact or passive outdoor recreation facilities for public use including, but not limited to, multi-use paths and trails, not exempted per CDC [32.040\(B\)\(2\)](#), viewing platforms, historical or natural interpretive markers, and benches in the WRA, are subject to the following standards:*

1. *Trails shall be constructed using non-hazardous, water permeable materials with a maximum width of four feet or the recommended width under the applicable American Association of State Highway and Transportation Officials (AASHTO) standards for the expected type and use, whichever is greater.*

2. *Paved trails are limited to the area within 20 feet of the outer boundary of the WRA, and such trails must comply with the storm water provisions of this chapter.*

3. *All trails in the WRA shall be set back from the water resource at least 30 feet except at stream crossing points or at points where the topography forces the trail closer to the water resource.*

4. *Trails shall be designed to minimize disturbance to existing vegetation, work with natural contours, avoid the fall line on slopes where possible, avoid areas with evidence of slope failure and ensure that trail runoff does not create channels in the WRA.*

5. *Foot bridge crossings shall be kept to a minimum. When the stream bank adjacent to the foot bridge is accessible (e.g., due to limited vegetation or topography), where possible, fences or railings shall be installed from the foot bridge and extend 15 feet beyond the terminus of the foot bridge to discourage trail users and pets from accessing the stream bank, disturbing wildlife and habitat areas, and causing vegetation loss, stream bank erosion and stream turbidity. Bridges shall not be made of continuous impervious materials or be treated with toxic substances that could leach into the WRA.*

6. *Interpretive facilities (including viewpoints) shall be at least 10 feet from the top of the water resource's bankfull flow/OHW or delineated wetland edge and constructed with a fence between users and the resource. Interpretive signs may be installed on footbridges.*

N/A. None Proposed.

1. *The following habitat friendly development practices shall be incorporated into the design of any improvements or projects in the WRA to the degree possible:*

Proposed practices to be incorporated indicated below.

1. *Restore disturbed soils to original or higher level of porosity to gain infiltration and storm water storage capacity.*

2. *Apply a treatment train or series of storm water treatment measures to provide multiple opportunities for storm water treatment and reduce the possibility of system failure.*

3. *Incorporate storm water management in road rights-of-way.*

Stormwater management shall be incorporated in road right of way.

4. *Landscape with rain gardens to provide on-lot detention, filtering of rainwater, and groundwater recharge.*

Filtering shall be provided with rain gardens.

5. *Use multi-functional open drainage systems in lieu of conventional curb-and-gutter systems.*

6. *Use green roofs for runoff reduction, energy savings, improved air quality, and enhanced aesthetics.*

7. *Retain rooftop runoff in a rain barrel for later on-lot use in lawn and garden watering.*

8. *Disconnect downspouts from roofs and direct the flow to vegetated infiltration/filtration areas such as rain gardens.*
9. *Use pervious paving materials for driveways, parking lots, sidewalks, patios, and walkways.*
10. *Reduce sidewalk width to a minimum four feet. Grade the sidewalk so it drains to the front yard of a residential lot or retention area instead of towards the street.*

No sidewalks proposed.

11. *Use shared driveways.*

Common driveway provided to serve all lots.

12. *Reduce width of residential streets and driveways, especially at WRA crossings.*

No crossing within in existing WRA. Hammerhead to be constructed at minimum width to meet emergency requirements.

13. *Reduce street length, primarily in residential areas, by encouraging clustering.*

14. *Reduce cul-de-sac radii and use pervious and/or vegetated islands in center to minimize impervious surfaces.*

Use of a hammerhead turnaround is proposed to minimize impervious area.

15. *Use previously developed areas (PDAs) when given an option of developing PDA versus non-PDA land.*

16. *Minimize the building, hardscape and disturbance footprint.*

17. *Consider multi-story construction over a bigger footprint. (Ord. 1623 § 1, 2014; Ord. 1635 § 19, 2014; Ord. 1647 § 5, 2016; Ord. 1662 § 7, 2017)*

5. **CDC Chapter 32.090(E).** *A mitigation plan shall contain the following information:*

2. *A map showing where the specific adverse impacts will occur and where the mitigation activities will occur.*

Appendix A of this response provides a development plan showing proposed impact areas and proposed mitigation area to consist of daylighted channel and adjacent 15' buffer. Appendix B provides a typical planting detail for the mitigation area.

3. *A re-vegetation plan for the area(s) to be mitigated that meets the standards of CDC [32.100](#).*

Re-vegetation of the WRA will be planted with native trees, shrubs and groundcover consistent with CDC 32.100 and exceeding the standards of CDC 32.090(C) as described below and in the Mitigation/Enhancement Plan. Total area of native forested/scrub-shrub community shall extend along the new and existing WRA and provide a diverse community through the entire site adjacent to the onsite water resource.

**32.100A Re-Vegetation Plan Requirements**

1. All trees and shrubs shall be native species selected from the Portland Plant List
2. Trees will be an averaged minimum of ½ inch caliper and shrubs shall be a minimum of 12" in height and 1 gallon or equivalent.
3. a. Number of trees and shrubs to be planted are based on the requirement of 5 trees and 25 shrubs per 500sf of disturbance. Any remaining bare ground will be seeded with native grass seed.  
b. Trees shall be planted 12' on center and shrubs shall be planted between 4 and 5' on center or in clusters of no more than four plants with each cluster between 8 and 10' on center.
4. Shrubs must consist of at least two different species. Five different shrubs species are proposed. More than 10 trees are proposed to be planted. Three different genres are proposed with the number of each to be less than 50%.
5. All invasive non-native or noxious vegetation shall be removed prior to planting mitigation area.
6. A minimum survival rate of 80% planted trees and shrubs shall be ensured.
7. Monitoring, maintenance and reporting shall be provided.
8. The following practices shall be implemented to enhance survival of planted species.
  - a. *Mulching.* New plantings shall be mulched a minimum of three inches in depth and 18 inches in diameter to retain moisture and discourage weed growth.
  - b. *Irrigation.* New plantings shall be watered one inch per week between the dates of June 15th to October 15th, for the three years following planting.
  - c. *Weed control.* Non-native or noxious vegetation shall be removed, or throughout maintenance period.
  - d. *Planting season.* Bare root trees shall be planted between December 1st and February 28th, and potted plants between October 15th and April 30th.
  - e. *Wildlife protection.* Plant sleeves or fencing shall be used to protect trees and shrubs against wildlife browsing and resulting damage to plants.

As required by code,

*32.100B. When weather or other conditions prohibit planting according to schedule, the applicant shall ensure that disturbed areas are correctly protected with erosion control measures and shall provide the City with funds in the amount of 125 percent of a bid from a recognized landscaper or nursery which will cover the cost of the plant materials, installation and any follow up maintenance. Once the planting conditions are favorable the applicant shall proceed with the plantings and receive the funds back from the City upon completion, or the City will complete the plantings using those funds. (Ord. 1623 § 1, 2014)*

The mitigation area boundaries are shown in Appendix A. A typical planting plan following the above requirements is provided in Appendix B. The planting table is provided in Table 1.

*4. An implementation schedule, including timeline for construction, mitigation, mitigation maintenance, monitoring, and reporting. All in-stream work in fish bearing streams shall be done in accordance with the Oregon Department of Fish and Wildlife.*

The proposed mitigation shall be constructed concurrently with the rest of the proposed development with construction activities anticipated to commence in spring/summer of 2019. Channel construction shall be completed first, during the dry season with cobble substrate to be placed along the bottom. Adjacent slopes shall be graded and seeded immediately after grading is complete with a native grass seed mix. Trees and shrubs shall be planted in the following winter after the rainy season has commenced as per 32.100(8)d.

As per City of West Linn WRA protection requirements 32.100 (6) A minimum survival rate of 80% of the trees and shrubs planted is expected by the third anniversary of the date that the mitigation planting is completed. Plants that die must be replaced in kind (32.100(7)). The mitigation site will be monitored and maintained for three years. Monitoring of planted trees and shrubs shall be conducted annually during the middle of the growing season (July) for three years following the initial planting. New plantings shall be watered weekly between June 15<sup>th</sup> to October 15<sup>th</sup> for the duration for the 3 year monitoring period.

Mortality will be assessed each year. If, after each year monitoring period, 80% survival has not been met, dead plants will be replaced up to the 100% success required. Additional maintenance shall be conducted as needed including invasive species removal and irrigation for the initial growing season.

*5. Assurances shall be established to rectify any mitigation actions that are not successful within the first three years. This may include bonding or other surety. (Ord. 1623 § 1, 2014)*

Required assurance shall be provided.

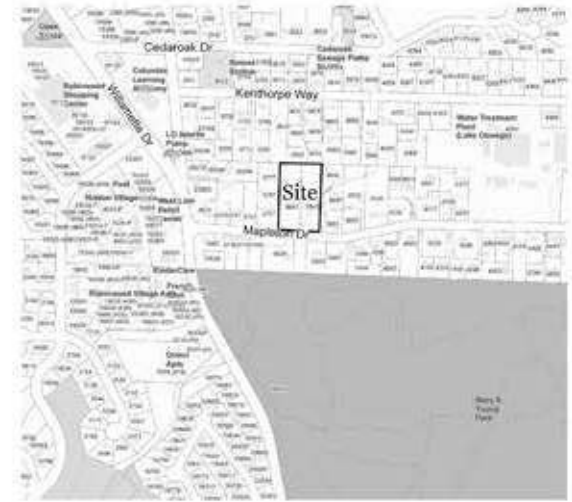
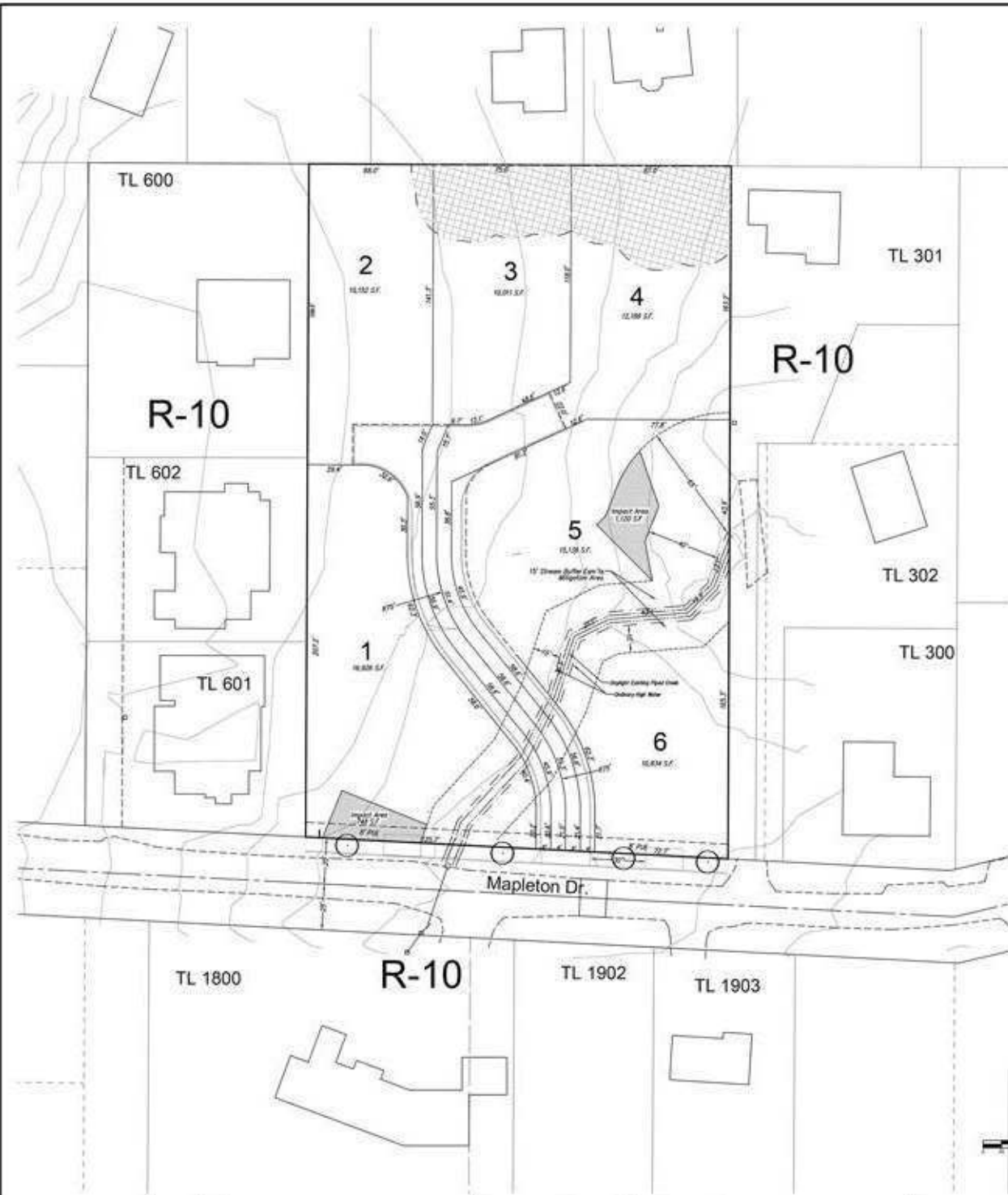


**TABLE 1. WRA ENHANCEMENT PLANTING PLAN (8,438SF)**

	Plant Type	Water Requirements	Light Requirements	Min. Size	Min. Height	Spacing	Qty
Douglas fir ( <i>Pseudotsuga menziesii</i> )	Tree	Dry	Sun	2 gal	3'	Single	15
Big leaf maple ( <i>Acer macrophyllum</i> )	Tree	Dry	Sun	2 gal	3'	Single	23
Red alder ( <i>Alnus Rubra</i> )	Tree	Moist	Sun	2 gal	3'		20
Red flowering currant ( <i>Ribes sanguineum</i> )	Shrub	Dry	Sun	1 gal.	1.5'	Cluster	50
Tall Oregon grape ( <i>Mahonia aquifolium</i> )	Shrub	Dry	Sun	1 gal.	12"	Single	50
Cascade Oregon grape ( <i>Mahonia nervosa</i> )	Shrub	Moist	Shade	1 gal.	12"	Cluster	50
Snowberry ( <i>Symphoricarpos albus</i> )	Shrub	Dry	Part	1 gal.	1.5'	Cluster	100
Serviceberry ( <i>Amelanchier alnifolia</i> )	Shrub	Dry	Part	1 gal.	1.5'	Single	25
Sword fern ( <i>Polystichum munitum</i> )	Forb	Moist	Shade	2 gal.	n/a	Cluster	25
Native California brome ( <i>Bromus carinatus</i> )	Grass	Dry	Part	Seed	n/a	10lbs. pls	
Blue Wildrye ( <i>Elymus glaucus</i> )	Grass	Dry	Part	Seed	n/a	10lbs. pls	

- Grass seed to be planted in any bare areas.

APPENDIX A. Proposed Development Plan with Mitigation Location



Owner:  
 John William DeCosta Profit Sharing Plan  
 John William DeCosta, Trustee  
 16365 Boones Ferry Rd  
 Lake Oswego, OR 97035  
 PH: 503-702-0856

Engineer:  
 Theta Engineering  
 PO Box 1345  
 Lake Oswego, OR 97035  
 PH: (503) 481-8822

Legal: 2S 1E 24BC TL 400 & 500

Zoning: R-10

Water: City of West Linn

Sewer: City of West Linn

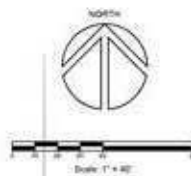
Contours: CESNW

Site Area: 85,367 S.F.

Street Tree:  
 Red Sunset Maple

**DENSITY CALCULATIONS:**

Gross Site Area: 85,367 square feet  
 Type I & II Lands: 1,946 square feet  
 Access Easement: 10,094 sq. ft.  
 Net Site Type III & IV Area: 73,327 sq. ft.  
 Maximum Density @ 1 Unit Per 10,000 sq. ft. = 7 lots  
 Minimum Density @ 75%: 5 Units. 6 Lots are proposed.



DESIGNED: RSG	12-5-18	1	Revised layout to provide better building envelope on Lot 5
DRAWN: RSG			
SCALE: 1" = 40'			
DATE: September 2018			
FILE: 16-024-003	DATE: MO	REVISION:	

Richard E. Givens, Planning Consultant  
 18680 Sunblaze Dr.  
 Oregon City, OR 97045  
 PH: (503) 479-0097

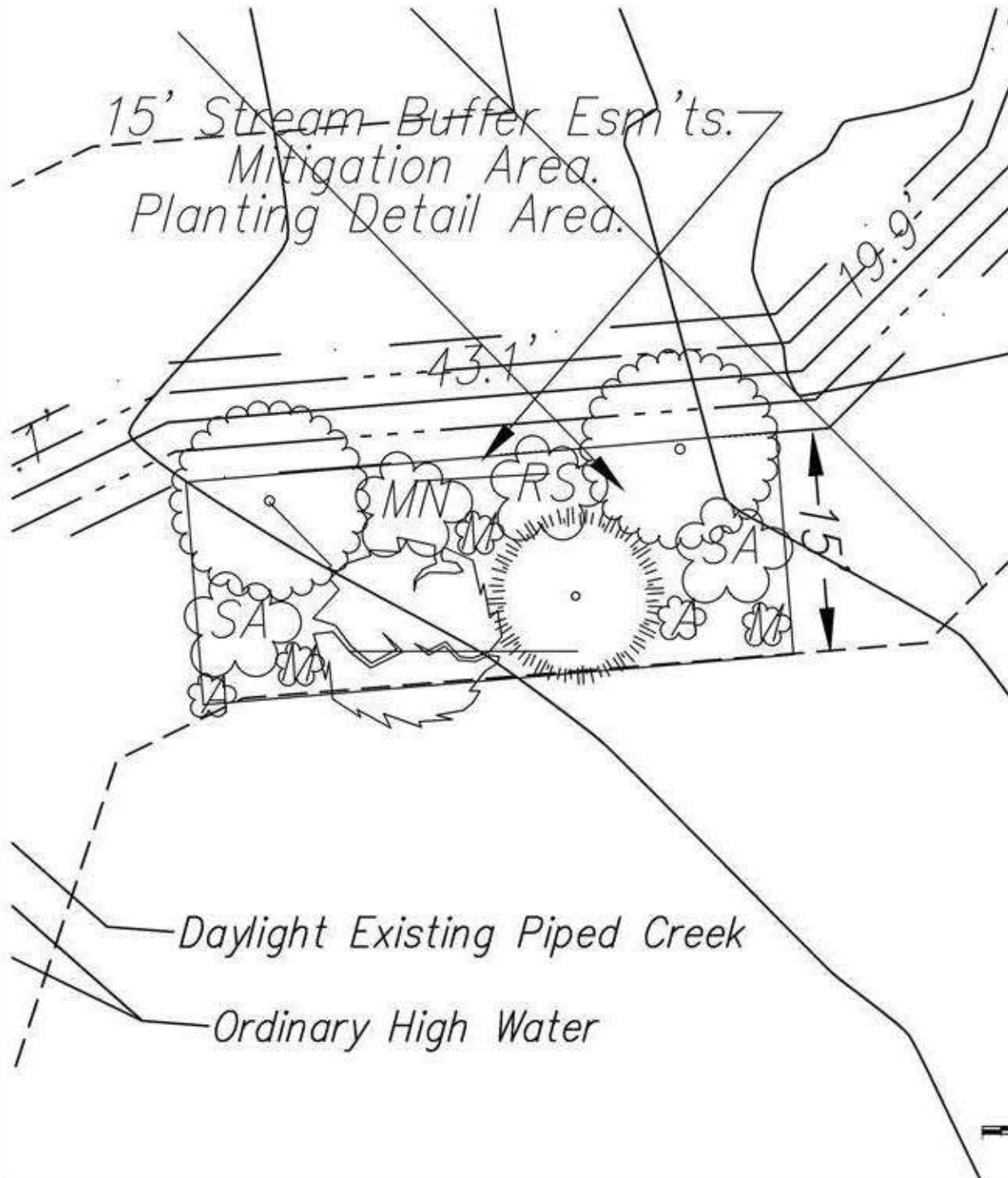
4/3/19 PC Meeting

APPLICANT: Ison Construction & Development, LLC  
 1980 Willamette Falls Drive, Suite 200  
 West Linn, OR 97068  
 PH: (503) 657-0406









**Trillium Creek  
 Tentative Plan**

SHEET: 1/3

APPENDIX B. Typical Planting Plan



**LEGEND**

-  Red Alder (*Alnus rubra*)
-  Big leaf maple (*Acer Macrophyllum*)
-  Douglas fir (*Pseudotsuga menziesii*)
-  Serviceberry (*Amalanchier alnifolia*) - single
-  Tall Oregon grape (*Mahonia aquifolium*) - single
-  Snowberry (*Symphoricarpos albus*) - cluster of 4
-  Red flowering currant (*Ribes sanguineum*) - cluster of 4
-  Dwarf Oregon grape (*Mahonia nervosa*)
- Sword fern (*Polystichum munitum*) to be planted in open spaces throughout.
- Native grass seed to be scattered in any remaining bare areas



DESIGNED: REG	10.5.18	1	Revised layout to provide better planting envelope on Lot 4
DRAWN: REG			
SCALE: 1" = 40'			
DATE: September 2018			
FILE: 18-02p-103	DATE	NO.	REVISION

Richard E. Givens, Planning Consultant  
18680 Sunblaze Dr.  
Oregon City, OR 97045  
PH: (503) 479-0097

4/3/19 PC Meeting

APPLICANT: Ioon Construction & Development, LLC  
1980 Willamette Falls Drive, Suite 200  
West Linn, OR 97068  
PH: (503) 857-0900

**Trillium Creek**  
Mitigation Plan - Typical Planting Detail



## SCHOTT & ASSOCIATES Ecologists & Wetlands Specialists

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21018 NE Hwy 99E • P.O. Box 589 • Aurora, OR 97002 • (503) 678-6007 • FAX: (503) 678-6011

September 26<sup>th</sup>, 2018

Rick Givens  
18680 Sunblaze Drive  
Oregon City, OR 97045

Re: Trillium Creek – HCA

Dear Rick;

Schott & Associates was requested to complete a site visit to the property located at 3841 Mapleton Drive in West Linn, Oregon. Several years ago I worked on this site. At the time it was being used as a staging area for what I believe was a new water line. There used to be a house on the site, which was torn down some time after 2016. I completed an additional site visit September 26<sup>th</sup>, 2018 to verify onsite conditions.

The driveway to the old house still exists extending north from Mapleton Drive. A creek extending from the south under Mapleton Drive enters a culvert just north of the southeaster property line. The culvert heads in a northeasterly direction. The creek daylights approximately 45 feet before it flows offsite along the eastern site boundary. The creek is perennial as it was flowing during the September site visit.

The front portion of the site is an open field dominated by colonial bentgrass (*Agrostis capillaris*). It appears that the field used to be the lawn for the house that was present on the property. There is a line of maples and spruce trees along the front half of the western property line. Some, if not all, of these trees were planted. The spruce trees are not native to the valley. There is a band of big-leaf maples (*Acer macrophyllum*), Douglas firs (*Pseudotsuga menziesii*) and grand fir (*Abies grandis*) just to the north of the middle of the property. The understory consists of English ivy (*Hedera helix*) and vinca minor. There are little to no shrubs in the understory.

It is apparent that when the house was occupied the forested area was kept in a park like condition and was part of the yard area for the house. The presence of both ivy and vinca, which are non-native, help support the contention that the forested area was part the yard. In addition, there is a large locust tree mixed in with the native trees. North of this forested area is another grass dominated area. Historical aerial photographs show this area was kept mowed. Finally, there is a band of big leaf maple and Douglas firs along the north property line.

The topography of the site slopes to the east. It is obvious that there has been some site grading years ago. The area where the house used to be located was flattened, as was the driveway. In addition, the area with the culvert is not natural topography. This area appears to have been filled, probably when

the culvert was first installed. A quick review of aerial photograph available on Google Earth revealed that the culvert has been in place prior to 1994. In addition, the lot to the east is significantly lower than this site, again suggesting the historical filling.

The HCA maps shows the creek extending through the site with 100ft setbacks on both sides. There has been an obvious mapping error by Metro on this site. The creek was in a culvert long before Metro did its mapping of streams and wetlands. Metro, at the time of the mapping, recognized that there would be mapping errors and provided a provision for correcting the obvious errors. A culverted stream is not, by any definition, a HCA area, and since it not an HCA area, there isn't a corridor or setback. The proposed development proposes on day-lighting the stream and providing a 15ft buffer on each side of the stream. The road into the proposed development will cross the stream.

Creating an open channel will be a benefit to the stream. First it will help slow water movement through the site. The proposed channel will be longer than the existing culvert, which will result in water taking longer moving through the site. In addition, water moves faster through a culvert than it does through an open channel since the culvert is smoother than an open channel. Second, an open channel will provide habitat for amphibians and other wildlife species that is not currently accessible via the culvert. Finally, an open channel will help improve water quality. Most urban streams tend to have excess nutrients and other pollutants. The plants growing in and adjacent to the stream will help remove some of these pollutants.

Sincerely,



Martin R. Schott, Ph.D.

**NATURAL RESOURCE ASSESSMENT**  
**Within**  
**Water Resource Area**

**FOR**

**3841 Mapleton Drive**  
**West Linn, OR**

Prepared for:  
**Icon Construction and Development**  
**1980 Willamette Falls Drive, Suite 200**  
**West Linn, Oregon 97068**

Prepared by:  
**Juniper Tagliabue**  
**Schott and Associates**

October 2018  
Project #: 2647



## INTRODUCTION

### Site Location

Schott and Associates was contracted by Icon Construction & Development to conduct a natural resource assessment on the property located at 3841 Mapleton Drive in West Linn, Oregon. The property consists of 2 separate tax lots (T2S R1E Sec.24BC TL#500 and 400).

### Site Description

The subject property is a residential lot which previously contained a house. The house has since been removed. At the time of the site visit a small shed was present in the central part of the site. The southern portion of the site is an open field dominated by colonial bentgrass (*Agrostis capillaris*). It appears that the field was the old lawn area for the house that used to be present near the middle of the property. There is a line of maple and spruce trees along the front half of the western property line. Some, if not all, of these trees were planted. The spruce trees are not native to the valley. There is a band of big-leaf maples (*Acer macrophyllum*), Douglas firs (*Pseudotsuga menziesii*) and grand fir (*Abies grandis*) just to the north of the middle of the property. The understory consists of English ivy (*Hedera helix*) and *Vinca minor*. There are little to no shrubs in the understory.

It is apparent that when the house was occupied the forested area was kept in a park like condition and was part of the yard area for the house. The presence of both ivy and vinca, which are non-native, help support the contention that the forested area was part of the yard. In addition, there is a large locust (*Pseudoacacia robinia*) tree mixed in with the native trees. North of this forested area is another grass dominated area. Historical aerial photographs show this area was kept mowed. Finally, there is a band of big leaf maples and Douglas firs along the north property line.

The driveway to the old house still exists extending north from Mapleton Drive. A creek extending from the south under Mapleton Drive enters a culvert just north of the southeastern property line. The culvert heads in a northeasterly direction. The creek daylights approximately 45 feet before it flows offsite along the eastern site boundary. The creek is perennial as it was flowing during the September site visit.

The topography of the site slopes to the east. On site observations and aerial photographs show evidence of site grading from years ago. The area where the house used to be located as well as the driveway were graded and flattened. In addition, the area where the culvert is located is not natural topography. This area appears to have been filled, probably when the culvert was first installed. A review of aerial photographs available on Google Earth revealed that the culvert has been in place since prior to 1994. In addition, the lot to the east is significantly lower than this site, suggesting historical filling.

## **Project Objectives**

The applicant proposes a 6 lot residential subdivision with access from Mapleton Drive to the south. As part of the proposal the applicant proposes to daylight the piped portion of the onsite drainage Trillium Creek.

As shown on the WRA Map, the site contains protected water resources. The resource is primarily piped but contains approximately 45' of open channel onsite. The WRA map shows Significant Riparian Corridor along the entire channel, including the piped section. As per 32.120 *the WRA map is ... not intended to delineate the exact WRA boundaries or water feature alignment. Amendments to the WRA Maps may be made in accordance with the provisions of Chapters 98 and 99 CDC.*

This report will outline the actual extent of the onsite features and provide water resource map amendment, alternative buffer conditions and a proposal for Trillium Creek channel restoration.

## **METHODS**

A natural resource assessment was conducted by S&A on September 26, 2018. 32.020 Chapter 32 of the CDC applies to all development, activity or uses within WRAs identified on the WRA map. The limits of the onsite undisturbed waterway and riparian corridor boundary were determined based on field verified conditions and documented in this report.

## **SENSITIVE AREA CONDITIONS**

### **Waterway**

Trillium Creek flows north-northeast through the property. It extends from under Mapleton Drive to enter a culvert just north of the southeastern property line. The culvert heads in a northeasterly direction. The creek daylights approximately 45 feet before it flows offsite along the eastern site boundary.

The LWI, as well as the WRA map, showed a drainage entering the property from the south and exiting a culvert near the the eastern edge of the property. According to both maps the drainage is an open channel just at the south property boundary and does not re-emerge onsite. Onsite observations found the culvert ending with a second section of open channel extending through the eastern portion of the site and then offsite.

Field investigation identified a short section of open channel at the southern property boundary with the adjacent WRA consisting of a grassy area adjacent to the old gravel driveway. The approximately 45' section of open channel on the east side of the site is dominated by Himalayan blackberry. The remainder of the channel has been culverted and no Riparian Corridor or WRA is present.

## **WRA**

As defined by Table 32-2. Required Width of WRA shall extend 65' from the edge of the defined water resource. By this determination a 65' WRA should be present on each side of the section of open waterway that is currently flowing through the site. The mapped Riparian Corridor is located within the required WRA area. The WRA at the south end of the site was mostly located within the old gravel driveway transitioning to non-native grasses such as tall fescue and bentgrass. To the north of the creek, within the 65' WRA, vegetation mainly consisted of Himalayan blackberry. Total area of existing WRA is approximately 5,900sf.

## **WRA REQUIREMENTS**

As per Chapter 32/Table 32-2 Required Width of WRA; the required width on each side of the water resource is 65' from the OHW therefore the WRA extends 65' north and west of the existing channel. Southeast of the channel it extends to the property boundary. As per 32.040.F.2 Exempt areas include *existing enclosed or piped sections of streams, including any development at right angles to the enclosed or piped sections*. Therefore the Riparian Corridor is incorrectly mapped adjacent to the piped section of the drainage.

Within the required 65' wide WRA boundary adjacent to the existing open channel the application proposes development of a deck and lawn for Lot 5 within the WRA. Proposed impact area is 1,120sf within primarily non-native and invasive vegetation, performing limited functions or protection of functions of the water resource. The WRA is degraded and it is proposed that the width be reduced to allow for creation of the deck/lawn while still providing greater ecological and water quality function than currently. The proposed WRA width will be variable, ranging from 40' to 65' and there will be no significant ecological impacts caused by the development.

Per 32.070 Alternate Review Process *if there is reason to believe that the width of the WRA prescribed under the standard process (CDC 32.060(D) is larger than necessary to protect the functions of the water resource at a particular site a reduction in width can be requested if per 32.080(B) it can be shown that the WRA is already significantly degraded (e.g., native forest and ground cover have been removed or the site dominated by invasive plants, debris or development) and the approval authority may allow a reduced WRA in exchange for mitigation.*

*The proposed WRA shall be, at minimum qualitatively equal in terms of maintaining the level of functions allowed by the WRA standards of CDC32.060(D).*

## **Undisturbed WRA Conditions**

The site has been disturbed historically. The driveway, as well as where the house used to be located was graded and flattened. In addition, the area where the culvert is located is not natural topography. This area appears to have been filled, probably when the culvert was first installed. In addition, the lot to the east is significantly lower than this site, again

suggesting the historical filling. As per Section 32.050 (F8) plant communities within the undisturbed WRA were identified and characterized.

The WRA for the short section of waterway at the south property boundary was mostly existing gravel driveway with no vegetation. The adjacent undeveloped area was composed of non-native grasses and Himalayan blackberry. The condition of the WRA was degraded and performs minimal vegetated corridor functions at this location.

**Table 1. Southern WRA**

Scientific Name	Common Name	Layer	% Cover
<i>Schedonorus arundinaceus</i>	Tall fescue	Grass	5
<i>Agrostis capillaris</i>	Colonial bentgrass	Grass	90
<i>Rubus armeniacus</i>	Himalayan blackberry	Shrub	5
% cover by natives			0
% tree canopy			0
% invasive/noxious			5
Condition			Degraded

The WRA in the east portion of the property was dominated by Himalayan blackberry which extended into the forested area. Low canopy cover was present from a couple of big leaf maple trees. This WRA was in degraded condition.

**Table 2. Northern Community within WRA**

Scientific Name	Common Name	Layer	% Cover
<i>Acer macrophyllum</i>	Big leaf maple	Tree	10
<i>Rubus armeniacus</i>	Himalayan blackberry	Shrub	80
<i>Agrostis capillaries</i>	Colonial bentgrass	Grass	10
% cover by natives			10
% tree canopy			0
% invasive/noxious			80
Condition			Degraded

## IMPACTS

### Impacts to Wetlands/Waters

No impacts to wetlands or waters are proposed.

### Impacts to the WRA (Riparian Corridor)

With the required 65' WRA boundary adjacent to the southern waterway boundary modification is proposed reducing the WRA to 15' which will be consistent along the entirety of the proposed channel to be daylighted. Reduction of 748sf of WRA is

proposed in this area. The majority of this area is within gravel roadway and provides no vegetated buffer functions.

Within the required 65' wide WRA boundary at the very eastern edge, farthest away from the waterway and wetland edge, WRA boundary modification is proposed to reduce a portion of the existing WRA to 40' wide. Reduction in this area is 1,120sf. As the impact area is within predominantly non-native and invasive vegetation and the WRA is almost entirely degraded, it is proposed that the width of the WRA be reduced to 40 feet for a small section in order to allow for the lawn and deck area for Lot 5.

Per 32.070 Alternate Review Process *if there is reason to believe that the width of the WRA prescribed under the standard process (CDC 32.060(D) is larger than necessary to protect the functions of the water resource at a particular site a reduction in width can be requested if per 32.080(B) it can be shown that the WRA is already significantly degraded (e.g., native forest and ground cover have been removed or the site dominated by invasive plants, debris or development) and the approval authority may allow a reduced WRA in exchange for mitigation.* As has been shown in this report, the WRA onsite has been significantly disturbed through grading, removal of native cover and dominated by invasive species, especially Himalayan blackberry and non-native field grasses.

## **MITIGATION AND ENHANCEMENT**

The goal of the mitigation is to restore a portion of the onsite water quality sensitive area and improve the ecological benefit and water quality benefit of WRA while maximizing developable area. Proposed reduction to existing degraded WRA shall be mitigated by daylighting the entire onsite section of piped stream and enhancing the adjacent 15' wide buffer with a native riparian vegetation community. This will result in increased length of open channel surrounded by a more diverse and higher functioning buffer than is currently present. Total adjacent Riparian Corridor area shall increase to 8,438sf and extend from 15' to 65' in width along the entire onsite channel.

As per 32.060.G Approval Criteria Daylighting Piped Streams *As part of any application, covered or piped stream sections shown on the WRA maps are encouraged to be daylighted or opened. Once it is daylighted, the WRA will be limited to 15 feet on either side of the stream.*

Creating an open channel will improve ecological and water quality functions onsite as described below and in Table 2 which compares Ecological Functions per Table 32-4 of Existing and proposed WRA functions. Daylighting the channel will help slow water movement through the site. The proposed channel will be longer than the existing culvert, which will result in water taking longer moving through the site. In addition, water moves faster through a culvert than it does through an open channel since the culvert is smoother than an open channel. Second, an open channel will provide habitat for amphibians and other wildlife species that is not currently accessible via the culvert. Finally, an open channel will help improve water quality. Most urban streams tend to have excess

nutrients and other pollutants. The plants growing in and adjacent to the stream will help remove some of these pollutants.

Additionally, the remaining WRA area shall be enhanced through removal of invasive species and planting with a mix of native trees, shrubs and understory species. Proposed enhancement will increase diversity of species and structure, providing greater habitat functions including nesting, escape and forage as well as a contiguous habitat corridor along an open channel through the entire site.

As described for reduction in WRA width, accompanied with Mitigation, the applicant proposes mitigating for the WRA width reduction amount of 1,868sf through daylighting the onsite piped drainage and enhancement of 8,438sf of adjacent Riparian Corridor (Table 1). The pipe will be removed and replaced with an open channel lined with river cobble to slow water flows and improve habitat value. The daylighted channel will have a 15' planted WRA adjacent to both sides. Adjacent riparian enhancement will include the removal of Himalayan blackberry and other non-native species within the existing and proposed WRA followed by planting with native plant material greatly enhancing otherwise low quality functions than the existing WRA now has.

Proposed WRA will be planted with native trees, shrubs and groundcover consistent with CDC 32.100, and exceeding the standards of CDC 32.090(C) as described in the Mitigation/Enhancement Plan (Table 1) to extend the total area of native forested/scrub-shrub community and provide a diverse community adjacent to the onsite water resource.

Proposed mitigation will further preserve and significantly enhance the essential functions of the remaining WRA by increasing area and diversity of native vegetation adjacent to the sensitive area (Table 1). Tree and shrub species will provide shade, large woody debris, habitat and food sources. In addition it will increase filtration and remove non-native vegetation. Species will be based on the existing native Portland plant list and will include upland species as referenced in Table 1 such as Douglas fir, red alder, big leaf maple, Oregon grape, snowberry, Indian plum and sword fern.

Planting will be done per 32.100 RE-Vegetation Plan Requirements. Trees and shrubs shall be planted in accordance to 32.100 (3a,b) with trees planted 12' on center and shrubs planted between 4 and 5 feet on center. Plant diversity shall be in accordance with 32.100 (4)

Per 32.100 (6) A minimum survival rate of 80% of the trees and shrubs planted is expected by the third anniversary of the date that the mitigation planting is completed. Plants that die must be replaced in kind (32.100(7)).

As per City of West Linn WRA protection requirements, 80% success is required for the replanted areas. The mitigation site will be monitored and maintained for three years. If, after each year monitoring period, 80% survival has not been met, dead plants will be replaced up to the 100% success required.

**TABLE 1. WRA ENHANCEMENT PLANTING PLAN (8,438SF)**

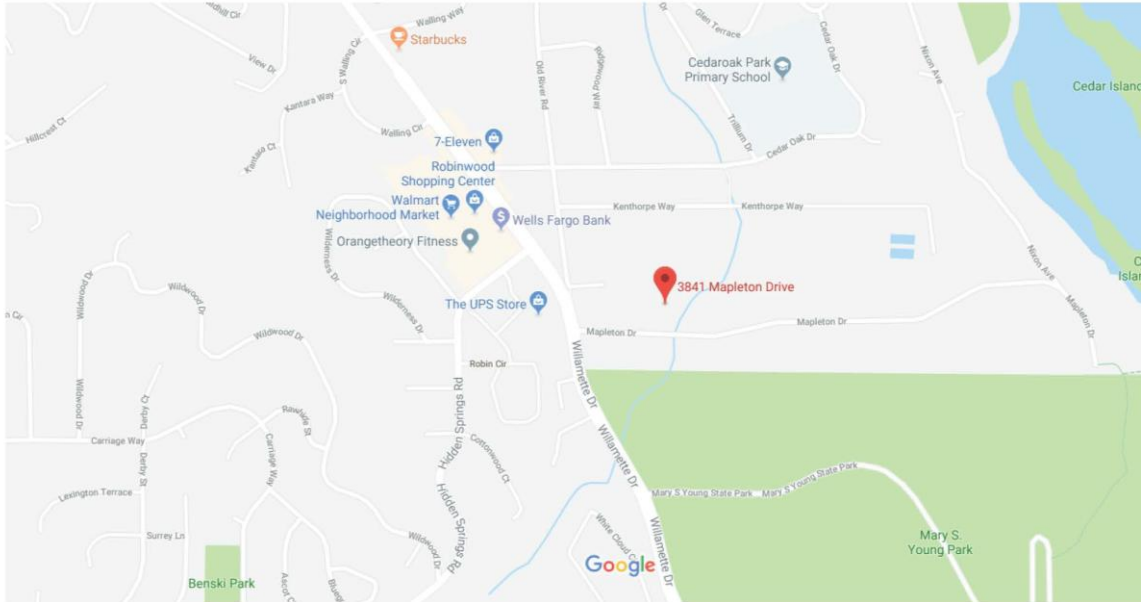
	Plant Type	Water Requirements	Light Requirements	Min. Size	Min. Height	Spacing	Qty
Douglas fir ( <i>Pseudotsuga menziesii</i> )	Tree	Dry	Sun	2 gal	3'	Single	15
Big leaf maple ( <i>Acer macrophyllum</i> )	Tree	Dry	Sun	2 gal	3'	Single	23
Red alder ( <i>Alnus Rubra</i> )	Tree	Moist	Sun	2 gal	3'		20
Red flowering currant ( <i>Ribes sanguineum</i> )	Shrub	Dry	Sun	1 gal.	1.5'	Cluster	50
Tall Oregon grape ( <i>Mahonia aquifolium</i> )	Shrub	Dry	Sun	1 gal.	12"	Single	50
Cascade Oregon grape ( <i>Mahonia nervosa</i> )	Shrub	Moist	Shade	1 gal.	4"	Cluster	50
Snowberry ( <i>Symphoricarpos albus</i> )	Shrub	Dry	Part	1 gal.	1.5'	Cluster	100
Serviceberry ( <i>Amelanchier alnifolia</i> )	Shrub	Dry	Part	1 gal.	1.5'	Single	25
Sword fern ( <i>Polystichum munitum</i> )	Forb	Moist	Shade	2 gal.	n/a	Cluster	25
Native California brome ( <i>Bromus carinatus</i> )	Grass	Dry	Part	Seed	n/a	10lbs. pls	
Blue Wildrye ( <i>Elymus glaucus</i> )	Grass	Dry	Part	Seed	n/a	10lbs. pls	

<b>Table 2. Ecological Functions per Table 32-4</b>		
<b>Ecological Functions</b>	<b>WRA existing conditions</b>	<b>WRA enhanced conditions</b>
Stream flow moderation and/or water storage	Stream flow moderation low, creek primarily piped with two sections of open channel with no complexity.	Stream flow functions will be increased by removal of pipe, increased in open stream length, addition cobble substrate in channel and denser and more diverse vegetation adjacent increase in roughness/complexity in WRA to further slow flow for better storage capacity.
Sediment or pollution control	Vegetation minimal within 100' of south open channel (gravel drive). To the east adjacent vegetation is predominantly blackberry. Only forested canopy mainly to the north of WRA.	Increased vegetation and tree canopy adjacent to created stream channel as well as within existing WRA will increase functions by providing more filtration and surface runoff.
Bank stabilization	Some large trees along stream bank but there is minimal bank	Increased native vegetation will help bank stabilization.
Large wood recruitment for a fish bearing section of stream	Stream is likely not fish bearing. Few large trees along stream.	Additional trees will increase tree canopy cover and diversity providing greater quantity of woody debris within stream and adjacent upland habitat.
Organic material sources	Minimal as most of channel is piped and open section has little adjacent tree canopy.	Increased vegetation and tree canopy will provide greater organic material.
Shade (water temperature moderation) and microclimate	Minimal as most of channel is piped and open section has little adjacent tree canopy.	Increased vegetation and tree canopy will provide greater shade and thermoregulation.



**APPENDIX A. Site Vicinity Map**

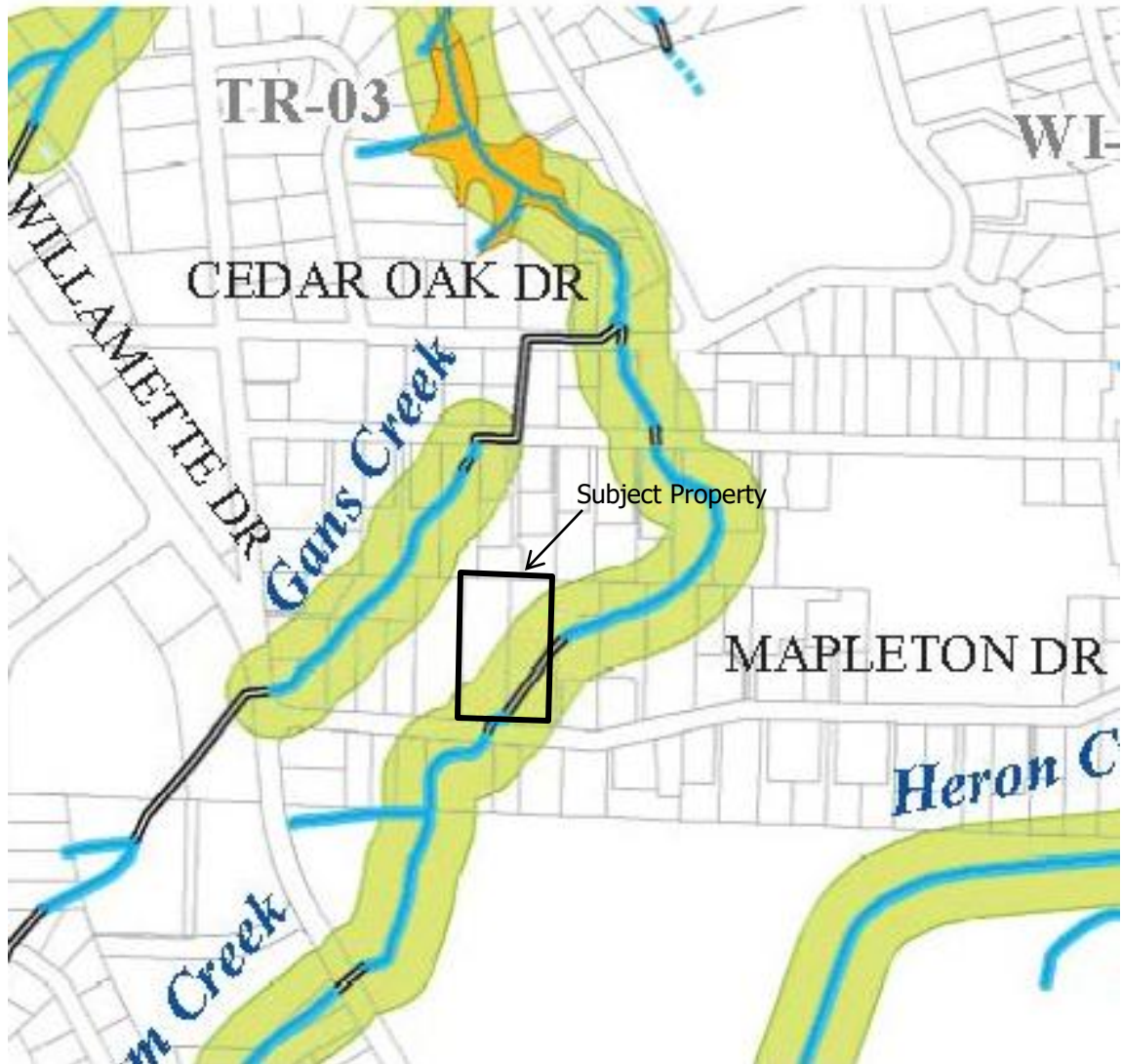
Google Maps 3841 Mapleton Dr








Appendix A. Site Vicinity Map – Google Maps  
3841 Mapleton Drive  
S&A#2647

Schott & Associates  
P.O. Box 589  
Aurora, OR. 97002  
503.678.6007







**APPENDIX B. WRA Map**



**Goal 5 Significant Riparian Corridors\***

-  Significant Riparian Corridors
-  Streams
-  Ephemeral Stream
-  Piped Segments
-  Upper Stream Reach of Fish Inventory 2003/2004 Survey

**Goal 5 Wetland Inventory\*\***

-  Locally Significant Wetlands, DSL 2005
-  Other Wetlands, DSL 2005
-  TA-05 Specific Wetland Identifier
-  Rivers & Ponds
-  West Linn City Limits
-  Taxlot Base Map\*\*\*

Appendix B. WRA Map  
 3841 Mapleton Drive  
 S&A#2647

Schott & Associates  
 P.O. Box 589  
 Aurora, OR. 97002  
 503.678.6007

**APPENDIX C. Existing Conditions Map**

13190 SW 68th Parkway, Suite 150  
 Tigard, Oregon 97223  
 503.968.6655 www.cesnw.com  
 CESNW PROJ: 2869  
 DATE: 7-22-2013

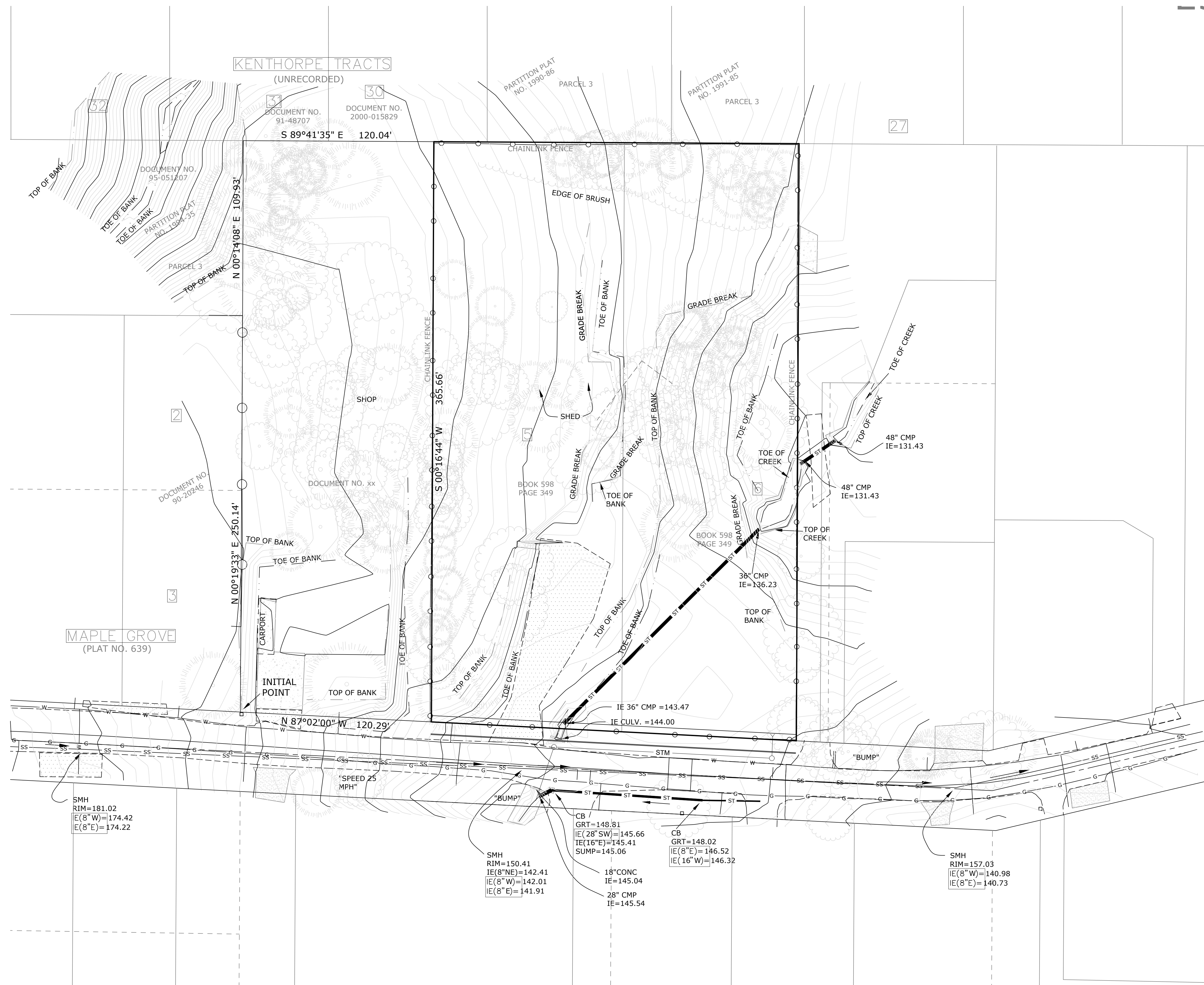
REGISTERED  
 PROFESSIONAL  
 LAND SURVEYOR  
**PRELIMINARY**  
 OREGON  
 DECEMBER 13, 2007  
 RYAN H. GODSEY  
 65604  
 RENEWS: 6/30/17

**LEGEND**

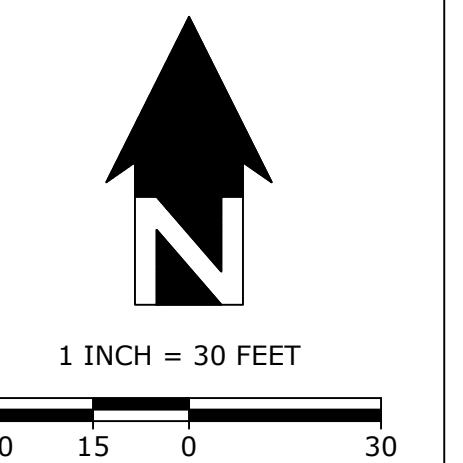
- CATCH BASIN
  - WATER VALVE
  - WATER METER
  - SANITARY SEWER MANHOLE
  - STORM DRAIN MANHOLE
  - CLEAN OUT
  - IRRIGATION CONTROL VALVE
  - GAS VALVE
  - GAS METER
  - MAIL BOX
  - LUMINAIRE
  - TV RISER
  - TELEPHONE RISER
  - SIGNAL JUNCTION BOX
  - ELECTRIC METER
  - ELECTRIC JUNCTION BOX
  - UTILITY POLE
  - GUY ANCHOR
  - FIRE HYDRANT
  - SIGN
  - LINE CONTINUES TO UNKNOWN LOCATION
  - UNDERGROUND ELECTRIC LINE
  - UNDERGROUND STORM DRAIN LINE
  - UNDERGROUND SANITARY SEWER LINE
  - UNDERGROUND TELEPHONE LINE
  - UNDERGROUND CABLE TV LINE
  - UNDERGROUND WATER LINE
  - UNDERGROUND NATURAL GAS LINE
  - OVERHEAD UTILITY LINE
  - FENCE LINE
  - SANITARY SEWER MANHOLE
  - STORM DRAIN MANHOLE
  - CATCH BASIN
  - FIELD INLET
  - CONCRETE
  - ASPHALT
  - DECIDUOUS TREE (DTR)
  - EVERGREEN TREE (ETR)
- EXAMPLE  
 12" DTR 5  
 DIAMETER      TYPE      NO. OF TREES FROM ONE BASE

**NOTES**

1. THIS SURVEY MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN ARE ALL THE UTILITIES IN THE AREA. THE UNDERGROUND UTILITIES SHOWN ARE BASED ON LOCATE PAINT MARKINGS IN THE FIELD AND AS-BUILT MAPPING. UTILITIES SHOWN MAY NOT BE IN THE EXACT LOCATION AS NOTED ON THIS SURVEY, BUT ARE LOCATED AS ACCURATELY AS POSSIBLE FROM PAINT MARKINGS ON THE GROUND.
2. STORM DRAIN AND SANITARY SEWER LINES SHOWN ARE APPROXIMATE AND BASED ON VISIBLE ABOVE GROUND EVIDENCE AND AS-BUILT MAPS.



**TOPOGRAPHIC SURVEY**



**APPENDIX D. Development Plan**





Owner:  
 John William DeCosta Profit Sharing Plan  
 John William DeCosta, Trustee  
 16365 Boones Ferry Rd  
 Lake Oswego, OR 97035  
 PH: 503-702-0856

Engineer:  
 Theta Engineering  
 PO Box 1345  
 Lake Oswego, OR 97035  
 PH: (503) 481-8822

Legal: 2S 1E 24BC TL 400 & 500

Zoning: R-10

Water: City of West Linn

Sewer: City of West Linn

Contours: CESNW

Site Area: 85,367 S.F.

Street Tree:  
 Red Sunset Maple

**DENSITY CALCULATIONS:**

Gross Site Area: 85,367 square feet.

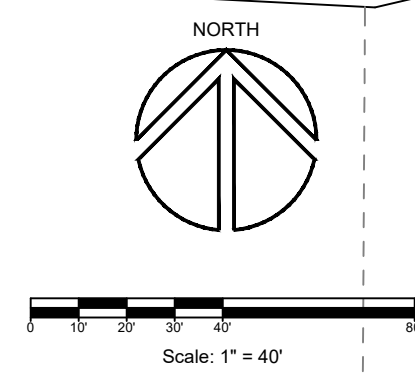
Type I & II Lands: 1,946 square feet.

ROW Dedication & Flag Strip 10,626 sq. ft.

Net Site Type III & IV Area: 72,796 sq. ft.

Maximum Density @ 1 Unit Per 10,000 sq. ft. = 7 lots.

Minimum Density @ 80%: 6 Units. 6 Lots are proposed.



DESIGNED: REG			
DRAWN: REG			
SCALE: 1" = 40'			
DATE: September 2018			
FILE: 16-ICN-103	DATE	NO.	REVISION

Richard E. Givens, Planning Consultant  
 18680 Sunblaze Dr.  
 Oregon City, OR 97045  
 PH: (503) 479-0097

APPLICANT: Icon Construction & Development, LLC  
 1980 Willamette Falls Drive, Suite 200  
 West Linn, OR 97068  
 PH: (503) 657-0406

**Trillium Creek  
 Tentative Plan**

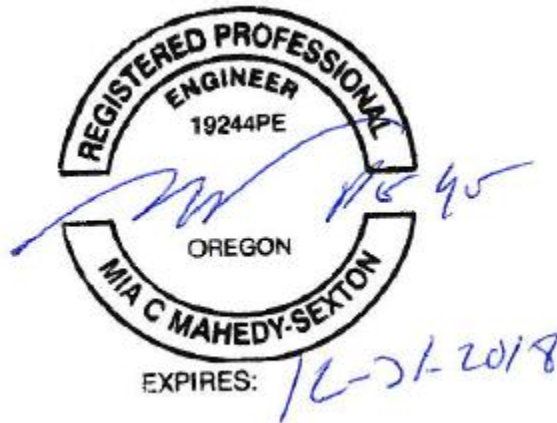
SHEET:  
**1/3**



# Geotechnical Investigation

3841/3843 Mapleton Dr.  
West Linn, Oregon

Prepared for:  
Darren Gustdorf  
2 October 2018



3915 SW Plum Street  
Portland, OR 97219  
503-816-3689

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### SUPPORTING DATA

- Figure 1      Location Plan
- Figure 2      Site Plan
- Soil logs and Laboratory data

## 1.0 PROJECT AND SITE DESCRIPTIONS

Rapid Soil Solutions (RSS) has prepared this geotechnical report, as requested, for the proposed new six lot partition to be located in West Linn, Oregon. The subject property is located at 3841 Mapleton Dr. (State ID: 21E24BC-00500) and 3843 Mapleton Dr. (State ID: 21E24BC-00400). The site is located on the north side of Mapleton Drive approximately 600 feet east of Pacific Highway 43. The site is a rectangular shaped lot that spans approximately 230 feet along Mapleton Drive and reaches approximated 375 feet north. RSS understand that the proposed development includes the construction of six single-family residences, with associated roadways/driveways and landscaping improvements. The subject site is tucked between several lots with the street addresses of 3820-3876 Kenthorpe Way (north), 3845 Mapleton Dr. (east) and 3777-3797 Mapleton Dr. (west). The subject site is about 0.18 miles north of Mary S Young State Park, 0.11 miles east of Pacific Highway 43, 0.13 miles south of Cedar Oak Dr., 0.41 miles west of Nixon Ave., and 2.43 miles north of Interstate-205. The site can be found in the northwest quarter of Section 24, Township 2-South and Range 1-East W.M. in Clackamas County. The latitude and longitude of the site are 45.384871 and -122.636855 (45°23'05.5"N, 122°38'12.6"W). See Appendix A, Figure 1 for site location. Subsequent figures include additional site location information.

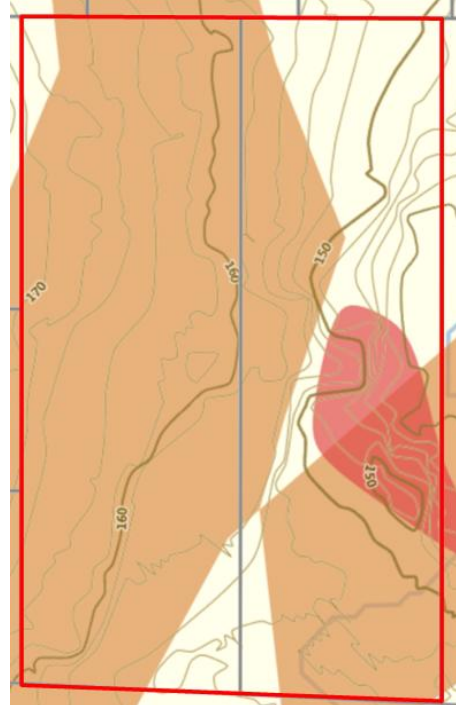
## 2.0 SITE CONDITIONS

### 2.1 Surface Conditions

This 1.95-acre (84,942 square foot) subject site is situated in the Robinwood neighborhood of West Linn in incorporated Clackamas County. The site and surrounding tax lots are all zoned R-10, urban low density residential. All of the surrounding tax lots contain single-family residences. Mapleton Drive bounds the subject site to the south, with developed lots surrounding the site on the north, east, and west.

The subject site is currently vacant. The site previously contained a single-family residence within the southwestern corner of the lot (3841 Mapleton Dr.). The residence was demolished in 2017. The gravel driveway leading to the previous residence is still visible on site. Vegetation around the property includes clusters of trees, some low growing bushes and blackberry bushes. The ground surface is covered mostly by blackberry bushes and large trees on the north half of the site and grass with smaller trees on the south half of the site. During the original development of the property, it appears as though some grading work was conducted. An existing culvert runs SW-NE along the southeastern corner of the subject site.

The slopes on site gradually descend eastwards towards the Willamette River. The tax lot extends



from about 170 feet in elevation along the western property line of the lot to about 140 feet in elevation along the eastern property line. The nearby Willamette River is at an approximate elevation of 10 feet above mean sea level. The project vicinity has a gentle downward slope towards the east. While on site, RSS observed that the previous building envelope was rather smooth with very gradual slope towards the eastern half of the tax lot. Any undocumented fill or debris from the demolition of the previous residence must be removed from the site prior to construction. Overall the slopes observed on site were consistent with those mapped.

## 2.2 Regional Geology

Current geologic literature<sup>1,2,3</sup> classifies the slopes underlying the subject site as Pleistocene aged Missoula floods deposits. These deposits were transported into the Portland Basin by dozens of gigantic floods that intermittently inundated the basin at the end of the last ice age. These floods deposits form a thick blanket of unconsolidated materials that covers much of the lowlands in the Portland Basin, and obscures most of the older sedimentary deposits left behind by ancient rivers that meandered across the basin as it formed.

### *Geologic History*

The subject site is situated generally in a central area within the Portland Basin, along the course of the Columbia River. The Portland Basin is part of the series of topographic and structural depressions that constitute the Puget-Willamette forearc trough of the Cascadia subduction system. It is a relatively low-relief valley, characterized by broad, flat, lowlands surrounded by prominent uplands controlled primarily by structural features (faulting and folding) in the underlying bedrock. The tectonic compressional stress that is associated with the subduction zone, and associated mountain building to both the east and west of the forearc trough, both initiated basin development and produced a prolonged enlargement of the structural feature. This basin contains a thick accumulation of material that preserves a complex record of deposition and erosion (aggradation and incision) produced by the lakes and rivers that that flowed through the basin concurrent with its development.

Between about 21,000 to 12,000 years ago, dozens of gigantic floods periodically burst through the ice dam that retained Glacial Lake Missoula, bringing sediment-laden floodwaters into the Portland Basin. These floodwaters emerged from the Gorge at Crown Point Gap at velocities up to 60 miles per hour and plunged down into the broad lowlands. During each flooding event, the wall of water 400-500 feet high descended on the basin, scouring many areas down to bedrock and burying others beneath a thick layer of gravels, sand and silt. Dramatic scour features and giant bars can be seen within the Portland Basin,

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1 Ma, L., Madin, I.P., Duplantis, S., and Williams, K.J., 2012, Lidar-based surficial geologic map and database of the greater Portland, Oregon, area, Clackamas, Columbia, Marion, Multnomah, Washington, and Yamhill Counties, Oregon, and Clark County, Washington: Oregon Department of Geology and Mineral Industries, Open-File Report 0-2012-02, scale 1:8,000.

2 <http://www.oregongeology.org/sub/ogdc/index.htm>

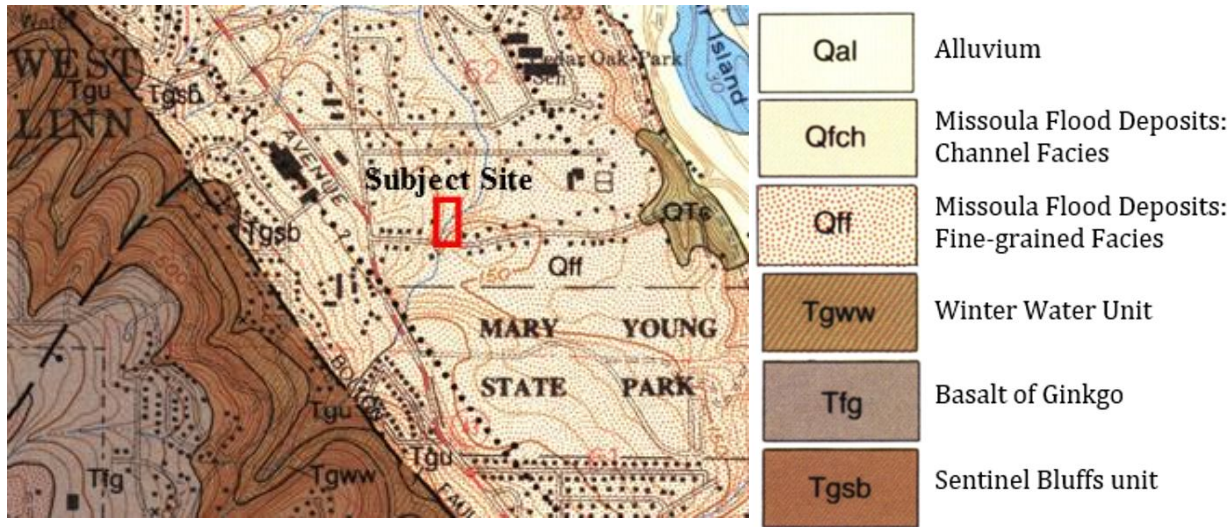
3 Beeson, M.H., Tolan, T.L., and Madin, I.P., 1989, *Geologic map of the Lake Oswego quadrangle, Clackamas, Multnomah, and Washington counties, Oregon*: Oregon Department of Geology and Mineral Industries, Geological Map Series 59, scale 1:24,000.

and demonstrate the great influence the floodwaters had on shaping the Quaternary geomorphology of the region. As the floodwaters hit the hydraulically restrictive Kalama Gap along the Columbia North of Portland, only two thirds of the floodwaters escaped the basin, the rest of the waters ponded in the Portland basin as well as the Tualatin and Willamette basins. The ponded waters dropped a large amount of fine-grained sediments across all of these basins.

*Site Geology*

Mapping conducted in the local region has divided the unconsolidated Missoula Flood Deposits into categories based on grain size. The subject site is classified as containing surficial deposits that fall within the fine-grained fraction of the Missoula Flood deposits, but the mapped contact with the course grained fraction is merely a third of a mile north of the subject site. The contact between the two grain-size defined facies can be gradational and/or interfingering.

The fine-grained deposits of the Missoula Floods are described as an unconsolidated light-brown to light-gray silt, clay and fine to medium sand. The sediments are deposited in a series of distinct layers, a few inches to a few feet thick, each of which represents a single flood. The finer sediments are predominantly quartz and feldspar and also contain white mica. The coarser sediments can be comprised of Columbia River Basalt fragments. Poorly defined beds of 1- to 3-feet thickness are observed in outcrops, and complex layering has been recorded in boreholes. These deposited have been interested as slack-water sediments settling form the slowing floodwaters. In some areas of this unit, it can include sediments compositionally similar to loess. Soil development commonly introduces significant clay and iron oxides into the upper 6-10 feet of the deposit.



## 2.3 Field Exploration and Subsurface Conditions

### 2.3.1 Field Explorations

Four (4) test pits were excavated. The location of the test pits are shown on Figure 3 in Appendix A. An EIT, engineer-in-training, observed the excavation of the test pits and logged the subsurface materials. A registered professional engineer reviewed the results. Logs detailing materials encountered are in the appendix. The logs were created using the Unified Soil Classification and Visual Manual Procedure (ASTM-D 2488). Samples were transported to the laboratory for further classification in sealed bags. Please see the appendix for further laboratory results.

The USDA National Resource Conservation Service Web Soil Survey<sup>4</sup> classifies the soils on site as Aloha silt loam (3-6% slopes). This unit forms on terraces from stratified glaciolacustrine deposits. The Aloha silt loam is classified as somewhat poorly drained and generally has a water table depth of about 18 to 24 inches. The typical profile of Aloha silt loam is silt loam (H1: 0"-8", H2: 8"-51", H3: 51"-80").

### 2.3.2 Subsurface Conditions

The soil conditions were medium stiff at about 6 inches and then stiff SILT to a depth of 8 feet. Moisture contents ranged from 13.2% to 31.0%.

### 2.3.3 Groundwater

Groundwater was encountered in TP#1 at 7 feet. Groundwater was not encountered in TP#2 thru TP#4. It is likely that during the winter months, static water levels rise to within a few feet of the ground surface.

## 3.0 GEOTECHNICAL DESIGN RECOMMENDATIONS

### 3.1 Foundation Design

The building foundations may be installed on either engineered fill or firm native subgrade that is found at a depth of about 6-12 inches. This depth may be locally variable and should be confirmed by a geotechnical engineer or their representative at the time of construction. The debris resulting from the demolition of the previous residence and any abandoned utilities must be removed from the site and may not be used as backfill. All tree stumps and roots greater than 1/2 inch in diameter must be removed from any building, slab or pavement subgrade areas. ***Please allow 24hours notice to call for foundation inspections.***

Continuous wall and isolated spread footings should be at least 16 and 24 inches wide, respectively. The bottom of exterior footings should be at least 16 inches below the lowest adjacent exterior grade. The bottom of interior footings should be at least 12 inches below the base of the floor slab.

---

4 <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

Footings placed on engineered fill or firm native sub-grade should be designed for an allowable bearing capacity of *2,000 pounds per square foot (psf)*. The recommended allowable bearing pressure can be doubled for short-term loads such as those resulting from wind or seismic forces.

Based on our analysis the total post-construction settlement is calculated to be less than 1 inch, with differential settlement of less than 0.5 inch over a 50-foot span for maximum column, perimeter footing loads of less than 100 kips and 6.0 kips per linear foot.

Lateral loads on footings can be resisted by passive earth pressure on the sides of the structures and by friction at the base of the footings. An allowable lateral bearing pressure of *150 pounds per cubic foot (psf/f)* below grade may be used. Adjacent floor slabs, pavements or the upper 12-inch depth of adjacent, unpaved areas should not be considered when calculating passive resistance.

If construction is undertaken during wet weather, we recommend a thin layer of compacted, crushed rock be placed over the footing sub-grades to help protect them from disturbance due to the elements and foot traffic.

If construction is undertaken during periods of rain, then I recommend a 2-inch (or greater) layer of compacted, crushed rock be placed over the native soil. The clayey soil is moisture sensitive. Meaning when dry it is firm and non-yielding but exposed to season rains it will lose its strength and need to be excavated and replaced with rock. See section 4.1.2 for wet weather conditions.

### **3.2 Retaining Walls and Embedded Walls**

Default lateral soil load for the design of basement and retaining walls supporting level backfill shall be 35 psf/ft for laterally unrestrained retaining walls and 60 psf/ft for laterally restrained retaining walls.

For embedded building walls, a superimposed seismic lateral force should be calculated based on a dynamic force of  $5H^2$  pounds per lineal foot of wall, where H is the height of the wall in feet and applied at  $1/3 H$  from the base of the wall. The wall footings should be designed in accordance with the guidelines provided in the “Foundation Design” section of this report. These design parameters have been provided assuming that back-of-wall drains will be installed to prevent buildup of hydrostatic pressures behind all walls.

The backfill material placed behind the walls and extending a horizontal distance equal to at least half of the height of the retaining wall should consist of granular retaining wall backfill as specified in the “Structural Fill” section of this report. The wall backfill should be compacted to a minimum of 95 percent of the maximum dry density, as determined by ASTM D698. However, backfill located within a horizontal distance of 3 feet from the retaining walls should only be compacted to approximately 92 percent of the maximum dry density, as determined by ASTM D698. Backfill placed within 3 feet of the wall should be

compacted in lifts less than 6 inches thick using hand-operated tamping equipment (e.g., jumping jack or vibratory plate compactors). If flat work (e.g., sidewalks or pavements) will be placed atop the wall backfill, we recommend that the upper 2 feet of material be compacted to 95 percent of the maximum dry density, as determined by ASTM D698.

A minimum 12-inch-wide zone of drain rock, extending from the base of the wall to within 6 inches of finished grade, should be placed against the back of all retaining walls. Perforated collector pipes should be embedded at the base of the drain rock. The drain rock should meet the requirements provided in the “Structural Fill” section of this report. The perforated collector pipes should discharge at an appropriate location away from the base of the wall. The discharge pipe(s) should not be tied directly into storm water drain systems, unless measures are taken to prevent backflow into the wall’s drainage system. Settlements of up to 1 percent of the wall height commonly occur immediately adjacent to the wall as the wall rotates and develops active lateral earth pressures.

Engineering values summary

Bearing capacity soil	2,000psf
Bearing capacity rock	2,500psf
Coefficient of friction soil	0.30
Coefficient of friction rock	0.45
Active pressure	40pcf
Passive pressure	300pcf

A safety factor of 1.5 is included in the above values.

**3.3 Seismic Design Criteria**

We understand that the seismic design criteria for this project is based on the 2012/15 IBC, Section 1615 and the USGS web site using a Lat of 45.384871 and a Long of -122.636855, soil site class D.

	<b>Short Period</b>	<b>1 Second</b>
Maximum Credible Earthquake Spectral Acceleration	$S_s = 0.962 \text{ g}$	$S_1 = 0.412 \text{ g}$
Adjusted Spectral Acceleration	$S_{MS} = 1.073 \text{ g}$	$S_{M1} = 0.655 \text{ g}$
Design Spectral Response Acceleration Perimeters	$S_{DS} = 0.715 \text{ g}$	$S_{D1} = 0.436 \text{ g}$

**3.4 Geohazard Review**

The Oregon HazVu: Statewide Geohazard Viewer<sup>5</sup> and Metromap<sup>6</sup> were reviewed on 20 September 2018 to investigate mapped geological hazards. This review indicates that the subject site is situated outside the preliminary 100-year floodplain, as mapped by FEMA. The expected earthquake-shaking hazard is classified as ‘severe’. The site contains a mapped liquefaction hazard classification of ‘high’. The nearest mapped fault classified

5 <http://www.oregongeology.org/hazvu/>

6 <http://gis.oregonmetro.gov/metromap/>



as active by DOGAMI is the NW-SE oriented Lake Oswego Fault passing roughly 0.26-miles southwest of the subject site. There are no landslides mapped on or adjacent to the subject site. The nearest mapped landslide is located about 0.2 miles southwest of the subject site along the descending slopes of Hidden Springs Road. The landslide hazard at the subject site is classified as ‘moderate’ landslide susceptibility.

## **4.0 CONSTRUCTION RECOMMENDATIONS**

### **4.1 Site Preparation**

On this site only disturb the area in which can be covered with rock during the day. The moisture sensitive clay soil when exposed to wet weather becomes soft and yielding. See wet weather conditions below.

#### **4.1.1 Proof Rolling**

Following stripping and prior to placing aggregate base course, the exposed sub-grade should be evaluated by proof rolling. The sub-grade should be proof rolled to identify soft, loose, or unsuitable areas. Please give 24-hour notice to observe the proof rolling. Soft or loose zones identified during the field evaluation should be compacted to an unyielding condition or be excavated and replaced with structural fill, as discussed in the *Structural Fill* section of this report.

#### **4.1.2 Wet Weather Conditions**

The near-surface soils will be difficult during or after extended wet periods or when the moisture content of the surface soil is more than a few percentage points above optimum. Soils that have been disturbed during site preparation activities, or soft or loose zones identified during probing or proof rolling, should be removed and replaced with compacted structural fill. Track-mounted excavating equipment will be required during wet weather. The imported granular material should be placed in one lift over the prepared, undisturbed sub-grade and compacted using a smooth drum, non-vibratory roller. Additionally, a geo-textile fabric should be placed as a barrier between the sub-grade and imported granular material in areas of repeated traffic.

### **4.2 Excavation**

Subsurface conditions of accessible cleared areas of the project site show predominately SILT to the depth explored (8.0 feet). Excavations in the upper soils may be readily accomplished with conventional earthwork equipment with smooth faced bucket.

### **4.3 Structural Fills**

Fills should be placed over sub-grade prepared in compliance with Section 4.1 of this report. Material used, as structural fill should be free of organic matter or other unsuitable materials and should meet specifications provided in OSSC, depending upon the application. A discussion of these materials is in the following sections.

#### **4.3.1 Native Soils**

Laboratory testing indicates that the moisture content of the near-surface is greater than the optimum moisture content of the soil required for satisfactory compaction. This is depending on the weather conditions at the time of excavation. See section 4.3.2 for imported granular fill.

#### **4.3.2 Imported Granular Fill**

The imported granular material must be reasonably well graded to between coarse and fine material and have less than 5% by weight passing the US Standard No.200 Sieve. Imported granular material should be placed in lifts 8 to 12 inches and be compacted to at least 95% of the maximum dry density, as determined by ASTM D 698. Where imported granular material is placed over wet or soft soil sub-grades, we recommend that a geo-textile serve as a barrier between the sub-grade and imported granular material.

#### **4.4 Drainage Considerations**

The Contractor shall be made responsible for temporary drainage of surface water and groundwater as necessary to prevent standing water and/or erosion at the working surface. We recommend removing only the foliage necessary for construction to help minimize erosion. Slope the ground surface around the structures to create a minimum gradient of 2% away from the building foundations for a distance of at least 5 feet. Surface water should be directed away from all buildings into drainage swales or into a storm drainage system. Foundation house drains are required.

### **5.0 CONSTRUCTION OBSERVATIONS**

Satisfactory pavement and earthwork performance depends on the quality of construction. Sufficient monitoring of the activities of the contractor is a key part of determining that the work is completed in accordance with the construction drawings and specifications. I recommend that a geotechnical engineer observe general excavation, stripping, fill placement, and sub-grades in addition to base. Subsurface conditions observed during construction should be compared with those encountered during the subsurface explorations. Recognition of changed conditions requires experience. Therefore, qualified personnel should visit the site with sufficient frequency to detect whether subsurface conditions change significantly from those anticipated.

### **6.0 LIMITATIONS**

This report has been prepared for the exclusive use of the addressee, and their architects and engineers for aiding in the design and construction of the proposed development. It is the addressee's responsibility to provide this report to the appropriate design professionals, building officials, and contractors to ensure correct implementation of the recommendations.

The opinions, comments and conclusions presented in this report were based upon information derived from our literature review, field investigation, and laboratory testing. Conditions between, or beyond, our exploratory borings may vary from those encountered. Unanticipated

soil conditions and seasonal soil moisture variations are commonly encountered and cannot be fully determined by merely taking soil samples or soil borings. Such variations may result in changes to our recommendations and may require that additional expenditures be made to attain a properly constructed project. Therefore, some contingency fund is recommended to accommodate such potential extra costs.

If there is a substantial lapse of time between the submission of this report and the start of work at the site; if conditions have changed due to natural causes or construction operations at, or adjacent to, the site; or, if the basic project scheme is significantly modified from that assumed, it is recommended this report be reviewed to determine the applicability of the conclusions and recommendations.

The work has been conducted in general conformance with the standard of care in the field of geotechnical engineering currently in practice in the Pacific Northwest for projects of this nature and magnitude. No warranty, express or implied, exists on the information presented in this report. By utilizing the design recommendations within this report, the addressee acknowledges and accepts the risks and limitations of development at the site, as outlined within the report.

## **APPENDIX**

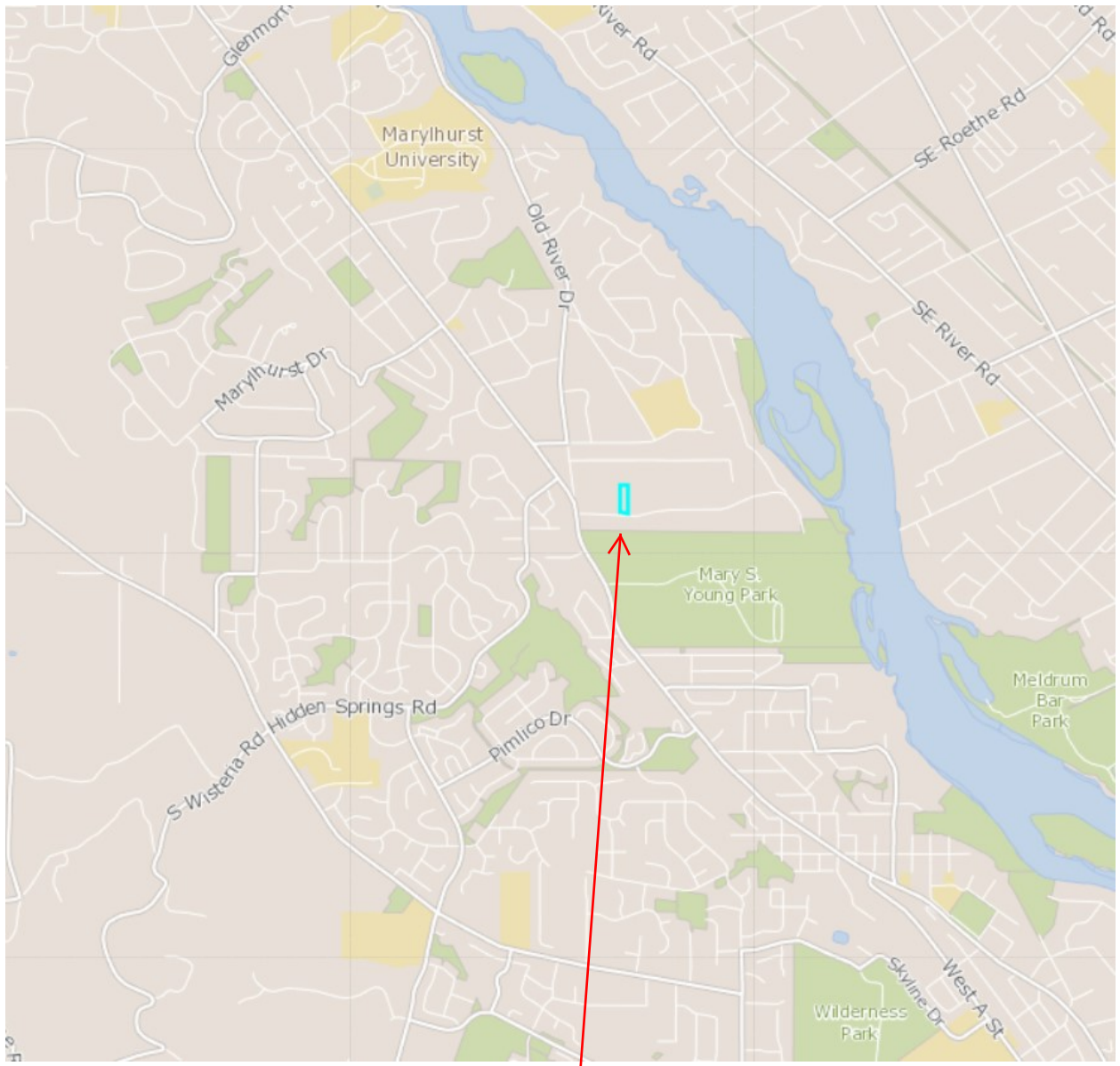


Figure 1 –Site Location

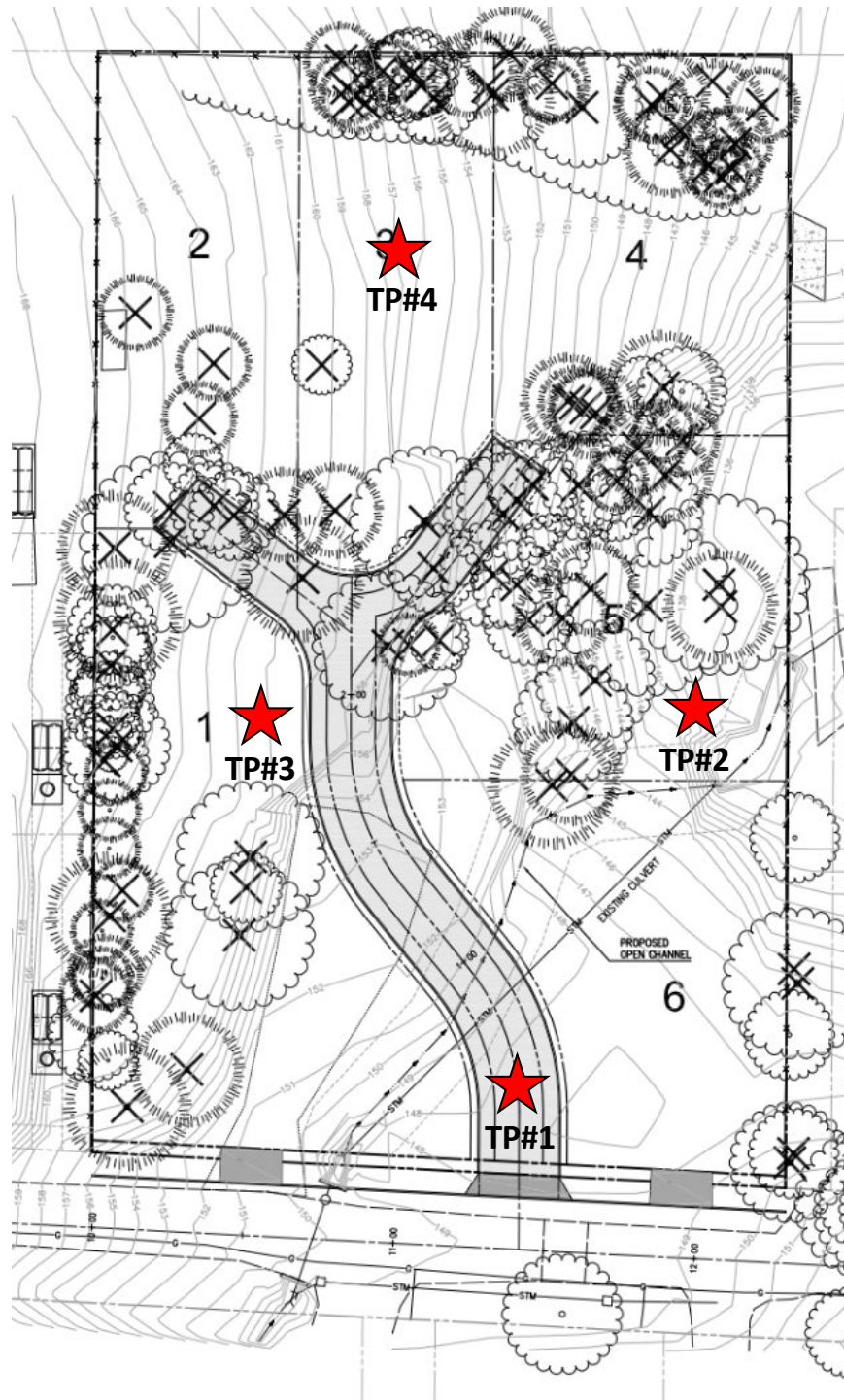
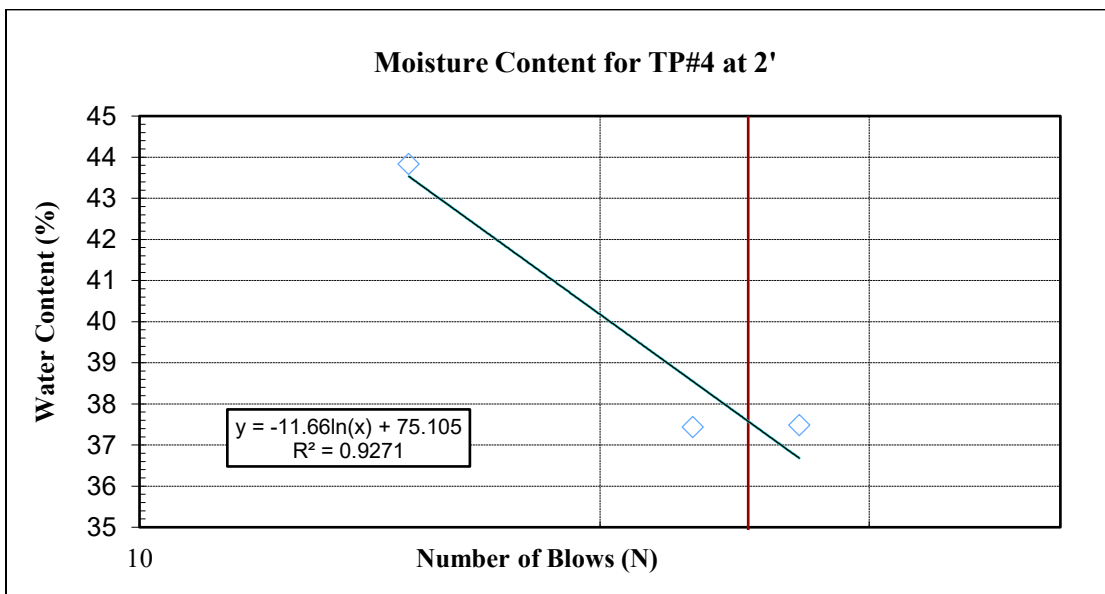
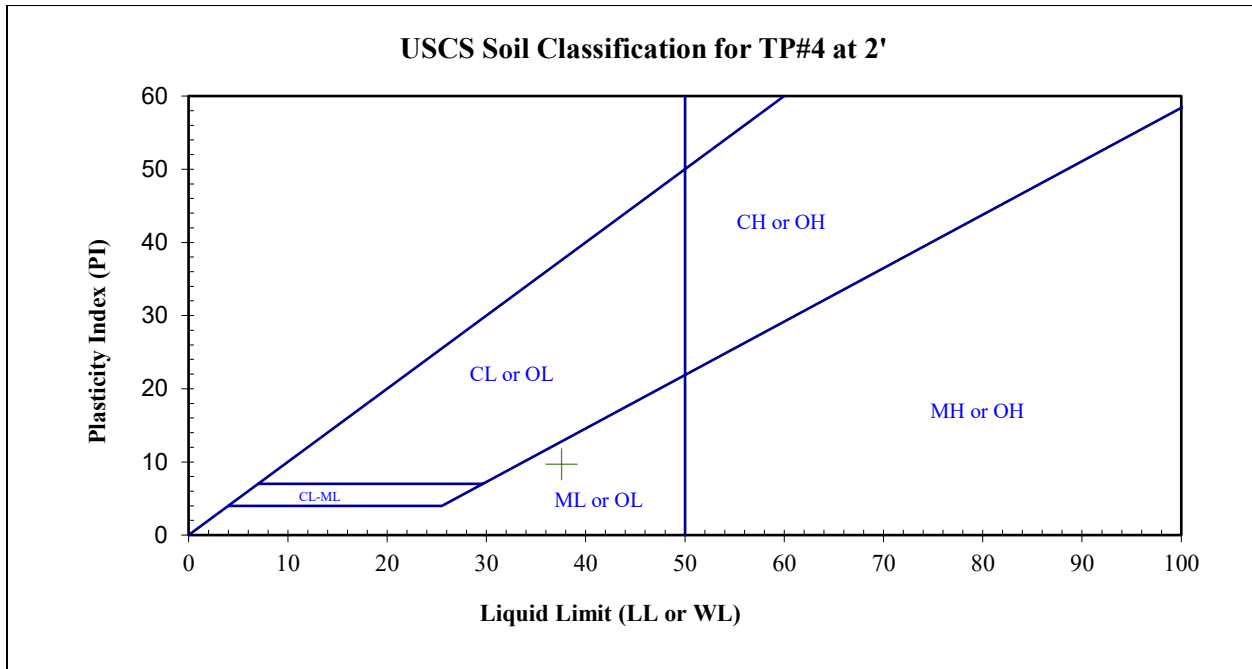


Figure 2 – Testing Locations

Rapid Soil Solution Lab Results							
Project Name:	Trillium Creek		Sample Date:	9/19/2018			
Moisture Content Test							
Sample number	TP#1	TP#1	TP#1	TP#2	TP#3	TP#4	TP#4
Date & Time in oven	9/19/18 2:00 PM	9/19/18 2:00 PM	9/19/18 2:00 PM	9/19/18 2:00 PM	9/19/18 2:00 PM	9/19/18 2:00 PM	9/19/18 2:00 PM
Date & Time out of oven	9/20/18 2:00 PM	9/20/18 2:00 PM	9/20/18 2:00 PM	9/20/18 2:00 PM	9/20/18 2:00 PM	9/20/18 2:00 PM	9/20/18 2:00 PM
Depth (ft)	2	4	8	4	6	2	6
Tare No.	6	7	8	9	10	11	12
Tare Mass	232	230	232	230	230	230	231
Tare plus sample moist	1386	1125	1360	1323	932	709	1208
Tare plus sample dry	1251	913	1104	1098	789	618	999
Mass of water (g)	135	212	256	225	143	91	209
Mass of soil (g)	1019	683	872	868	559	388	768
Water Content (%)	13.2	31.0	29.4	25.9	25.6	23.5	27.2

Atterburg Limit Test						
Sample Number:	TP#4	Depth (feet):			2	
	Liquid Limit			Plastic Limit		
Tare No.	D#2.1	D#2.2	D#2.3	R#2.1	R#2.2	
Tare Mass (g)	39.73	39.58	39.49	39.86	38.97	
Tare Plus Wet Soil (g)	91.7	90.21	98.96	50.69	50.18	
Tare Plus Dry Soil (g)	77.53	74.78	82.76	48.33	47.73	
Mass of Water (g)	14.17	15.43	16.2	2.36	2.45	
Mass of Soil (g)	37.8	35.2	43.27	8.47	8.76	
Water Content (g)	37.49	43.84	37.44	27.86	27.97	
No. Blows	27	15	23	N/A	N/A	





Atterburg Results for TP#4 at 2'	
Liquid Limit (%)	37.6
Plastic Limit (%)	27.9
Plasticity Index (%)	9.7
USCS Classification	ML; Low Plasticity Silt



# TP#1

**Surface Elevation: 152**  
**Boring Date: 9/19/18**  
**Boring Location: West Linn, OR**  
**Drilling Method: Excavator**

Depth	Remarks	Moisture (%)	Dry Density	BlowCounts	Sample Type	Water Table	Description
0							TP Top Soil with grass roots
2	pocket pen = 3tsf	13.2					CL-ML Dry, Tan to medium brown, fine grained, very stiff, clayey-SILT, trace gravels
4		31.0					ML-CL Damp/moist, medium brown, medium stiff, silty CLAY, debris and organics present
							ML-CL Damp/moist, blue/grey, fine grained, medium stiff, silty CLAY
							ML-CL Blue/grey, damp/moist, fine grained, medium stiff, silty CLAY
							ML-CL Water table
8		29.4					CL-ML Dark brown, fine grained, medium stiff, clayey-SILT, sand and gravels present, trace cobbles
							Test pit completed at depth of 8 feet

SuperLog CivilTech Software, USA www.civiltech.com  
 File: C:\Users\kira\Work\Documents\CivilTech Software\TP1 - Trillium Creek.log  
 Date: 9/27/2018

## LOG OF BORING

<b>CIVILTECH SOFTWARE</b>	Trillium Creek Darren Gustdorf	Plate 1
---------------------------	-----------------------------------	---------

# TP #2

**Surface Elevation: 144**  
**Boring Date: 9/19/2018**  
**Boring Location: West Linn**  
**Drilling Method: Excavator**

Depth	Remarks	Moisture (%)	Dry Density	BlowCounts	Sample Type	Water Table	Description
0							TP Topsoil with grass roots
0.5							ML Dry, light brown/tan, fine coarse grain, sandy-SILT, trace gravels/cobbles
1.5							ML Dry, medium brown, redox features, fine coarse grain sandy-SILT, trace gravels/cobbles
2.5	Pocket pen = 4.5 tsf						
3.5							
4.0	Pocket pen = 4.5 tsf	25.9					ML Damp/moist, medium-dark brown, sandy-SILT, pockets of grey mottling, some carbonized organics present
4.0							ML Test pit completed at depth of 4 feet
5.0							
6.0							
7.0							

SuperLog CivilTech Software, USA www.civiltech.com  
 File: C:\Users\Kira\Work\Documents\CivilTech Software\TP1 - Trillium Creek.log Date: 9/27/2018

## LOG OF BORING

<b>CIVILTECH SOFTWARE</b>	Trillium Creek Darren Gustdorf	Plate 2
---------------------------	-----------------------------------	---------

# TP #3

**Surface Elevation: 162**  
**Boring Date: 9/19/18**  
**Boring Location: West Linn**  
**Drilling Method: Excavator**

Depth	Remarks	Moisture (%)	Dry Density	BlowCounts	Sample Type	Water Table		
0							TP	Topsoil with tree roots
1							ML	Dry, grey/brown, fine coarse grain SILT, with roots present
2	Pocket pen = 3.5 tsf						ML	Dry, tan/medium brown, fine coarse grain clayey SILT, debris and organics present
3							ML	Damp/moist, medium brown/tan, clayey-SILT
4	Pocket pen = 3 tsf						ML	Damp/moist, medium brown, fine grain sandy SILT
5								
6		25.6						Test pit completed at depth of 6 feet
7								

SuperLog CivilTech Software, USA www.civiltech.com  
 File: C:\Users\ktra\Work\Documents\CivilTech Software\TP1 - Trillium Creek.log Date: 9/27/2018

## LOG OF BORING

<b>CIVILTECH SOFTWARE</b>	Trillium Creek Darren Gustdorf	Plate 3
---------------------------	-----------------------------------	---------

# TP #4

**Surface Elevation: 154**  
**Boring Date: 9/19/18**  
**Boring Location: West Linn**  
**Drilling Method: Excavator**

Depth	Remarks	Moisture (%)	Dry Density	BlowCounts	Sample Type	Water Table	Soil Description
0							TP Topsoil
1							ML Dry, grey-brown, redox features, fine grained SILT
2	Pocket Pen = 3.5 tsf, Liquid Limit = 37.6, Plastic Limit = 27.9, Plasticity Index = 9.7	23.5					ML Dry, medium-brown, fine grained sandy SILT
3							ML Dry, medium-brown, fine grained sandy SILT
4							ML Damp/moist, dense, medium-brown, fine grained sandy SILT
5							
6		27.2					Test pit completed at depth of 6 feet
7							

SuperLog CivilTech Software, USA www.civiltech.com  
 File: C:\Users\kora\Work\Documents\CivilTech Software\TP1 - Trillium Creek.log Date: 9/27/2018

## LOG OF BORING

<b>CIVILTECH SOFTWARE</b>	Trillium Creek Darren Gustdorf	Plate 4
---------------------------	-----------------------------------	---------



## SUPPLEMENTAL STORM ANALYSIS TRILLIUM CREEK NOVEMBER 2018

### Narrative:

This is a preliminary investigation to size the new culvert at the road crossing for the Trillium Creek subdivision. Based on Website data Trillium Creek has a basin of approximately 138 acres. More than 36 acres is in a riparian corridor with the basin extending from the subject site to Rosemont road.

At highway 43 there is a 24-inch concrete culvert that appears would limit the flow downstream to the site if that culvert were undersized.

Using the Rational Method:

$$Q = CIA$$

C= the runoff coefficient

$$C = \frac{(36ac)(0.45) + (102ac)(0.70)}{138ac} = 0.63$$

$I_{25}$  = 25year intensity using time of concentration of 32 minutes = 1.0 using ODOT Zone 7 rainfall intensity curves.

A= Area = 138 acres

$$Q = (0.63)(1.0)(138) = 87 \text{ cfs}$$

The culvert at Highway is upstream from the proposed development with approximately 10 less acres on basin upstream. At this time it is not known what the slope of this culvert is and if during large events the highway acts as a dike. Without additional data it would have a capacity of approximately 50cfs.

The arch culvert at Mapleton was only visually reviewed. It has a large section and appears to have a natural bottom. There isn't any evidence that Trillium Creek has overtopped Mapleton.

The proposed culvert for the Trillium Creek project has a tentative size of 36-inch and a slope of 4.99%. Using the Civil Tools program this culvert has a capacity of 161cfs and is more than adequate.

Downstream of the project an older unmaintained 48-inch CMP with a partial concrete and rock bottom reducing the height to approximately 27-inches. The surveyors find NO slope for this culvert. Using a modest 1% slope and effective diameter of 30-inches the capacity is approximately 44cfs. Based on the calculations above this culvert is undersized. Neighbors report that this driveway has experienced flooding in the recent past.

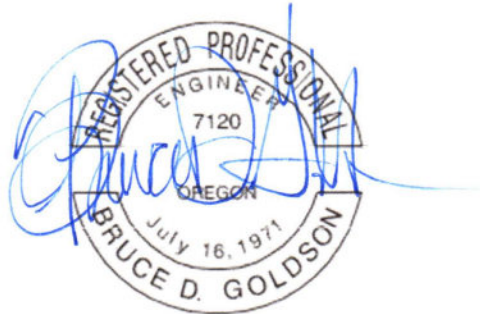
Conclusion:

The existing CMP culvert running through the Trillium Creek project is defective with portions of the bottom rusted out. Removing this old culvert and restoring Trillium Creek to a natural stream corridor, except for the driveway crossing for this project will reduce the concentration of flow at the westerly boundary of the project.

Detention with release at the pre-developed flows for the access drive has been addressed in the preliminary storm report.

Prepared by:

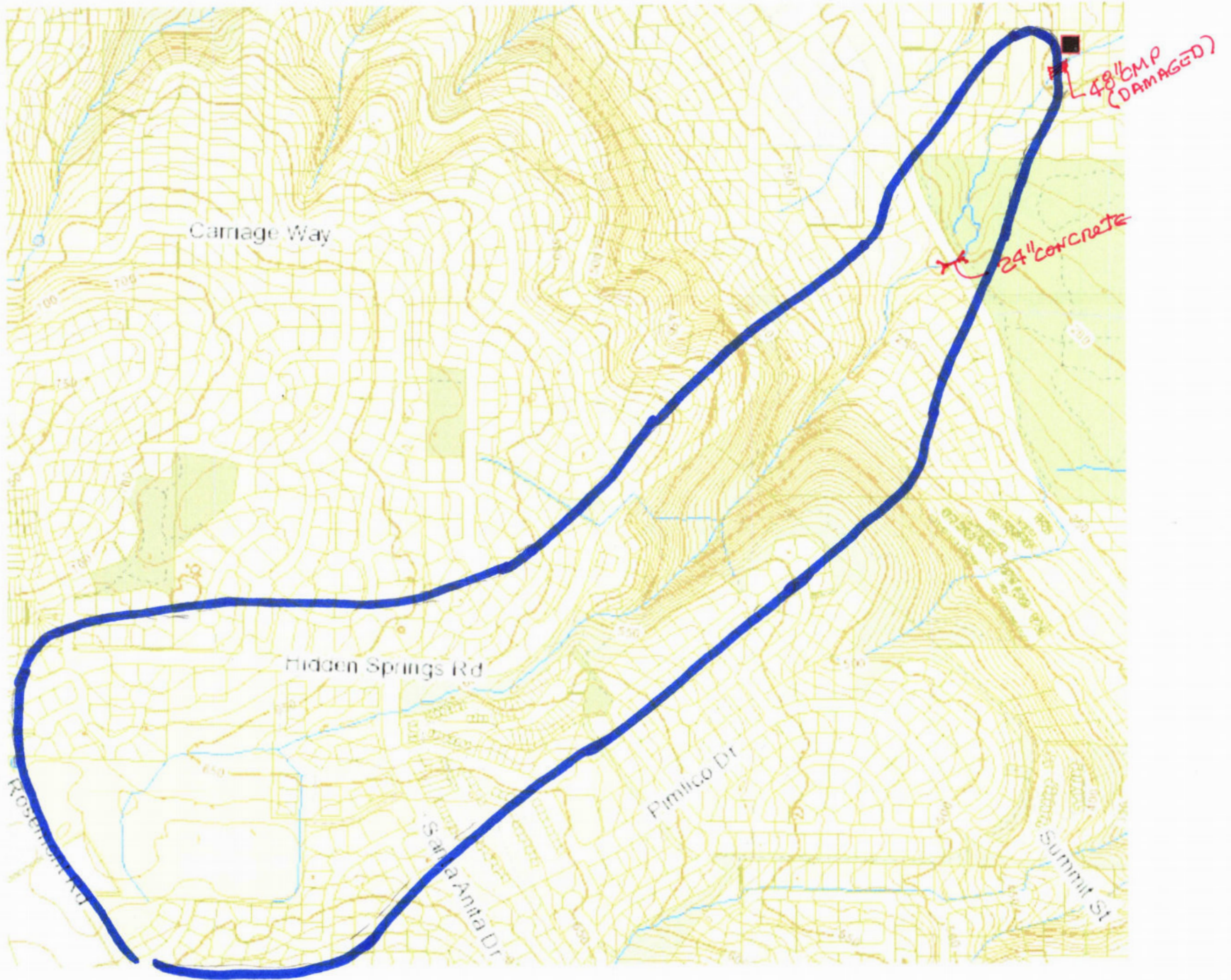
Bruce D. Goldson, PE  
Theta  
November 20, 2018



EXPIRES: 06/30/2019  
SIGNATURE DATE: 11/20/18

2014-129T



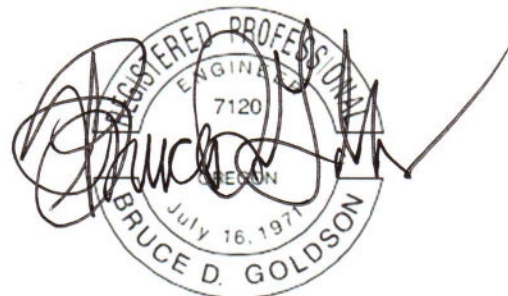


Preliminary Storm Report  
Trillium Subdivision  
West Linn, Oregon



DRAINAGE REPORT  
December 2018

Prepared By:  
Bruce D. Goldson, PE  
Theta, llc  
PO Box 1345, Lake Oswego, Oregon 97035  
# 2014-129T



EXPIRES: 06/30/2019  
SIGNATURE DATE: 1/3/19



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 Regulatory pg 2  
 Design Parameters pg 3  
 Hydrographic Results pg 4-9  
 Summary pg 9  
 Appendix pg 10+



**NARRATIVE ASSUMPTIONS**

**Existing Conditions:**

The subject property is currently vacant with a culvert conveying a drainage basin through the center of the property. Infiltration tests were conducted @ 3797, 3787, & 3777Mapleton Drive for the three new parcels this year. This property is adjacent to the subject property with similar soils. There is no indication of a high water table and the USDA finds the soil to be 1B Aloha silt loam with a hydrological soil group C/D. The soils on the adjacent property were found to be a light brown stiff clay silt/loam with no with rocks. The infiltration rates were found be between 1-2 inches per hour.

**Developed Conditions:**

Six residential lots accessed by a private drive is proposed. The existing culvert would be removed and the drainage way reestablished except for a culvert crossing for the new access drive. Storm water from the access drive would be collected at the low point in cartage catch basins for water quality and collected in an oversized pipe for detention and discharged in the drainage corridor. The individual lot would have individual infiltration facilities for the impervious areas.

**Summary of storm water flow**

	2-YEAR	5-YEAR	10-YEAR	25-YEAR
PRE-DEVELOP	0.07CFS	0.09 CFS	0.10 CFS	0.13 CFS
POST-DEVELOP	0.14 CFS	0.16 CFS	0.19 CFS	0.21CFS

**REGULATORY DESIGN CRITERIA**

The storm water quantity management requirements of the City of West Linn.

## References

1. King County Department of Public Works, Surface Water Management Division, Hydrographic Programs, Version 4.21B

## Water Quality Facility

### Design Parameters

The design storm is a 24 hour standard SCS Type 1A

- 2-year.....2.5 inches
- 5-year.....3.0 inches
- 10-year.....3.4 inches
- 25-year..... 3.9 inches
- 100-year.....4.5 inches

### SOIL TYPES

Willamette Silt Loam – type C soil

### FOR PRIVATE DRIVE

### Time of Concentration

$$T = (0.42)[(nL)^8 / (p_2)^5 (s_0)^4]$$

Pre-development:  $T = (0.42)[(0.24)(140)]^8 / (2.5)^5 (.11)^4 = 10.0 \text{ min (pre)}$

Assume 5-minutes developed

### HYDROGRAPH RESULTS

KING COUNTY DEPARTMENT OF PUBLIC WORKS  
Surface Water Management Division  
HYDROGRAPH PROGRAMS  
Version 4.21B  
1 - INFO ON THIS PROGRAM  
2 - SBUHYD  
3 - MODIFIELD SBUHYD  
4 - ROUTE  
5 - ROUTE2  
6 - ADDHYD  
7 - BASEFLOW  
8 - PLOTHYD  
9 - DTATA  
10 - REFAC  
11 - RETURN TO DOS

ENTER OPTION:

2

SBUH/SCS METHOD FOR COMPUTING RUNOFF HYDROGRAPH

STORM OPTIONS:

1 - S.C.S. TYPE-1A

2 - 7-DAY DESIGN STORM  
3 - STORM DATA FILE  
SPECIFY STORM OPTION:

1  
S.C.S. TYPE - 1A RAINFALL DISTRIBUTION  
ENTER; FREQ(YEAR), DURATION(HOUR), PRECIP(INCHES)  
2,24,2.6

XXXXXXXXXXXXXXXXXXXXXXXXX S.C.S.TYPE-1A DISTRIBUTION XX  
XXXXXXXXXXXXX 2-YEAR 24-HOUR STORM xxxxx 2.50" TOTAL PRECIP XX/  
-----

ENTER: A(PERV),CN(PERV),A(IMPERV),CN(IMPERV),TC FOR BASIN NO. 1  
0.21,86,0.0,98,10.0

DATA PRINT OUT:

AREA(ACRES)	PERVIOUS		IMPERVIOUS		TC(MINUTES)
	A	CN	A	CN	
.2	.2	86	.0	98	10.0
PEAK-Q(CFS)	T-PEAK(HRS)		VOL(CU-FT)		
.07	7.83		1009		

ENTER [d:][path]filename[.ext] FOR STORAGE OF COMPUTED HYDROGRAPH:

C:t2P  
SPECIFY: C - CONTINUE, N - NEWSTORM, P - PRINT, S - STOP  
C

ENTER: A(PERV),CN(PERV),A(IMPERV),CN(IMPERV),TC FOR BASIN NO. 1  
0.00,86,0.21,98,5

DATA PRINT OUT:

AREA(ACRES)	PERVIOUS		IMPERVIOUS		TC(MINUTES)
	A	CN	A	CN	
.2	.0	86	.2	98	5.0
PEAK-Q(CFS)	T-PEAK(HRS)		VOL(CU-FT)		
.14	7.67		1806		

ENTER [d:][path]filename[.ext] FOR STORAGE OF COMPUTED HYDROGRAPH:

C:T2D  
SPECIFY: C - CONTINUE, N - NEWSTORM, P - PRINT, S - STOP  
n

STORM OPTIONS:

1 - S.C.S. TYPE-1A  
2 - 7-DAY DESIGN STORM  
3 - STORM DATA FILE  
SPECIFY STORM OPTION:  
1  
ENTER; FREQ(YEAR), DURATION(HOUR), PRECIP(INCHES)  
5,24,3.0

XXXXXXXXXXXXXXXXXXXXXXXXX S.C.S.TYPE-1A DISTRIBUTION XX  
XXXXXXXXXXXXX 5-YEAR 24-HOUR STORM xxxxx 3.00" TOTAL PRECIP XX  
-----

ENTER: A(PERV),CN(PERV),A(IMPERV),CN(IMPERV),TC FOR BASIN NO. 1



0.21,86,0.00,98,10.0

DATA PRINT OUT:

AREA(ACRES)	PERVIOUS		IMPERVIOUS		TC(MINUTES)
	A	CN	A	CN	
.2	.2	86	.0	98	10.0
PEAK-Q(CFS)	T-PEAK(HRS)		VOL(CU-FT)		
.09	7.83		1266		

ENTER [d:][path]filename[.ext] FOR STORAGE OF COMPUTED HYDROGRAPH:

C:t5p

SPECIFY: C - CONTINUE, N - NEWSTORM, P - PRINT, S - STOP

c

0.0,86,0.21,98,5

DATA PRINT OUT:

AREA(ACRES)	PERVIOUS		IMPERVIOUS		TC(MINUTES)
	A	CN	A	CN	
.2	.0	86	.2	98	5.0
PEAK-Q(CFS)	T-PEAK(HRS)		VOL(CU-FT)		
.16	7.67		2110		

ENTER [d:][path]filename[.ext] FOR STORAGE OF COMPUTED HYDROGRAPH:

C:t5D

SPECIFY: C - CONTINUE, N - NEWSTORM, P - PRINT, S - STOP

n

STORM OPTIONS:

- 1 - S.C.S. TYPE-1A
- 2 - 7-DAY DESIGN STORM
- 3 - STORM DATA FILE

SPECIFY STORM OPTION:

1

ENTER; FREQ(YEAR), DURATION(HOUR), PRECIP(INCHES)

10,24,3.4

XXXXXXXXXXXXXXXXXXXXXXXXX S.C.S. TYPE-1A DISTRIBUTION XXX  
 XXXXXXXXXXXXX 10-YEAR 24-HOUR STORM xxxx 3.40" TOTAL PRECIP XXX

ENTER: A(PERV),CN(PERV),A(IMPERV),CN(IMPERV),TC FOR BASIN NO. 1

0.28,86,06,98,7.0

DATA PRINT OUT:

AREA(ACRES)	PERVIOUS		IMPERVIOUS		TC(MINUTES)
	A	CN	A	CN	
.2	.2	86	.0	98	10.0
PEAK-Q(CFS)	T-PEAK(HRS)		VOL(CU-FT)		
.10	7.83		1531		

ENTER [d:][path]filename[.ext] FOR STORAGE OF COMPUTED HYDROGRAPH:

C:t10P

SPECIFY: C - CONTINUE, N - NEWSTORM, P - DATA PRINT OUT:

C

ENTER: A(PERV),CN(PERV),A(IMPERV),CN(IMPERV),TC FOR BASIN NO. 1

0.00,86,0.21,98,5

AREA(ACRES)	PERVIOUS	IMPERVIOUS	TC(MINUTES)
0.00			

	A	CN	A	CN	
.2	.0	86	.2	98	5.0
PEAK-Q(CFS)	T-PEAK(HRS)		VOL(CU-FT)		
.19	7.67		2414		

ENTER [d:][path]filename[.ext] FOR STORAGE OF COMPUTED HYDROGRAPH:

C:t10D

SPECIFY: C - CONTINUE, N - NEWSTORM, P - PRINT, S - STOP

n

STORM OPTIONS:

- 1 - S.C.S. TYPE-1A
- 2 - 7-DAY DESIGN STORM
- 3 - STORM DATA FILE

SPECIFY STORM OPTION:

1

ENTER; FREQ(YEAR), DURATION(HOUR), PRECIP(INCHES)

25,24,3.9

XXXXXXXXXXXXXXXXXXXXXXXXXX S.C.S.TYPE-1A DISTRIBUTION XXX

XXXXXXXXXXXX 25-YEAR 24-HOUR STORM xxxx 3.90" TOTAL PRECIP XXX

ENTER: A(PERV),CN(PERV),A(IMPERV),CN(IMPERV),TC FOR BASIN NO. 1

0.21,86,00,98,10.0

DATA PRINT OUT:

AREA(ACRES)	PERVIOUS		IMPERVIOUS		TC(MINUTES)
	A	CN	A	CN	
.2	.2	86	.0	98	10.0
PEAK-Q(CFS)	T-PEAK(HRS)		VOL(CU-FT)		
.13	7.83		1870		

ENTER [d:][path]filename[.ext] FOR STORAGE OF COMPUTED HYDROGRAPH:

C:t25P

SPECIFY: C - CONTINUE, N - NEWSTORM, P - DATA PRINT OUT:

C

ENTER: A(PERV),CN(PERV),A(IMPERV),CN(IMPERV),TC FOR BASIN NO. 1

0.00,86,0.21,98,5

AREA(ACRES)	PERVIOUS		IMPERVIOUS		TC(MINUTES)
	A	CN	A	CN	
.2	.0	86	.2	98	5.0
PEAK-Q(CFS)	T-PEAK(HRS)		VOL(CU-FT)		
.21	7.67		2794		

ENTER [d:][path]filename[.ext] FOR STORAGE OF COMPUTED HYDROGRAPH:

C:t25D

j

DETENTION SIZING

ENTER OPTION

10

R/D FACILITY DESIGN ROUTINE

SPECIFY TYPE OF R/D FACILITY

1 - POND            4 - INFILTRATION POND  
2 - TANK            5 - INFILTRATION TANK  
3 -VAULT            6 - GRAVEL TRENCH/BED

4

ENTER: POND SIDE SLOPE (HORIZ. COMPONENT)

3

ENTER: EFFECTIVE STORAGE DEPTH(ft) BEFORE OVERFLOW

2.0

ENTER: VERT-PERM(min/in)< PERM-SURFACE (0 = SIDES ONLY, 1 = SIDES AND BOTTOM)

60,1

ENTER [d:][path]filename[.ext] OF PRIMARY DESIGN INFLOW HYDROGRAPH:

C:t25D

PRIMARY DESIGN INFLOW PEAK = .21 CFS

ENTER PRIMARY DESIGN RELEASE RATE(cfs):

0.13

ENTER NUMBER OF INFLOW HYDROGRAPHS TO BE TESTED FOR PERFORMANCE (5 MAXIMUM)

3

ENTER [d:][path]filename[.ext] OF HYDROGRAPH 1:

C:T10D

ENTER TARGET RELEASE RATE (cfs)

0.10

ENTER [d:][path]filename[.ext] OF HYDROGRAPH 2:

C:T5D

ENTER TARGET RELEASE RATE (cfs)

0.09

0. ENTER [d:][path]filename[.ext] OF HYDROGRAPH 3:

C:T2D

ENTER TARGET RELEASE RATE (cfs)

0.07

ENTER: NUMBER OF ORIFICES, RISER-HEAD (ft), RISER-DIAMETER(in)

2.4.10

RISER OVERFLOW DEPTH FOR PRIMARY PEAK INFLOW= 0.09FT

SPECIFY ITERATION DISPLAY: Y -YES, N - NO

N

SPECIFY: R - REVIEW/REVISE INPUT, C - CONTINUE

C

INITIAL STORAGE VALUE FOR ITERATION PURPOSES: 1170 CU-FT

BOTTOM ORIFICE: ENTER Q-MAX(cfs)

0.075

DIA. = 1.40 INCHES

TOP ORIFICE: ENTER HEIGHT(ft)

1.84

DIA. = 2.25 INCHES

PERFORMANCE: INFLOW TARGET-OUTFLOW ACTUAL-OUTFLOW PK-STAGE STORAGE

DESIGN HYD:	.21	.13	.13	2.00	251
TEST HYD 1:	.19	.10	.09	3.25	220
TEST HYD 2:	.16	.09	.07	2.76	180
TEST HYD 3:	.14	.07	.07	2.14	130

SPECIFY: D - DOCUMENT, R -REVISE, A - ADJUST ORIF, E -ENLARGE, S -STOP

251 CF required, and 275.5 CF provided per the current layout

**For the individual lots:**

Roof = 5072 SF = 0.116acres

**PROPOSED:**

2- StormTech SC-740-infiltration units - & 15 LF 48" drywell.

Footprint = ( 17.56 X 6 ) + ( 10 X 8 ) = 185.4 Square feet

XXXXXXXXXXXXXXXXXXXXXXXXX S.C.S.TYPE-1A DISTRIBUTION XXX  
 XXXXXXXXXXXXXXX 10-YEAR 24-HOUR STORM xxxx 3.20" TOTAL PRECIP. XXX

ENTER: A(PERV),CN(PERV),A(IMPERV),CN(IMPERV),TC FOR BASIN NO. 1

0.0,86,0.116,98,5

DATA PRINT OUT:

AREA(ACRES)	PERVIOUS		IMPERVIOUS		TC(MINUTES)
	A	CN	A	CN	
.1	.0	86.0	.1	98.0	5.0
PEAK-Q(CFS)	T-PEAK(HRS)		VOL(CU-FT)		
.10	7.67		1249		

ENTER [d:][path]filename[.ext] FOR STORAGE OF COMPUTED HYDROGRAPH:

C:1maple

SPECIFY: C - CONTINUE, N - NEWSTORM, P - PRINT, S - STOP

S

ENTER OPTION

RESERVOIR ROUTING INFLOW/OUTFLOW ROUTINE

SPECIFY [d:][path]filename[.ext] OF ROUTINE DATA)

C:m1data

DISPLAY ROUTING DATA (Y or N)

Y

ROUTING DATA:

STAGE (FT)	DISCHARGE (CFS)	STORAGE (CU-FT)	PERN-AREA(SQ-FT)
.00	.00	.0	.0
11.50	.00	520.7	276.0
12.00	.00	575.8	276.0
12.50	.00	662.2	276.0
13.00	.00	746.1	276.0
13.50	.00	826.2	276.0



14.00	.00	900.2	276.0
14.50	.00	962.4	276.0
15.00	.00	1017.6	276.0

AVERAGE PERM-RATE: 56.4 MINUTES/INCH  
 SATURATED PERM-RATE: 56.4 MINUTES/INCH  
 GROUND STORAGE BEFORE SATURATION: .00 CU-FT/SQ-FT  
 ENTER [d:][path]filename[.ext] OF COMPUTED HYDROGRAPH:

C:\maple

INFLOW/OUTFLOW ANALYSIS:

PEAK-INFLOW(CFS)	PEAK-OUTFLOW(CFS)	OUTFLOW-VOL (CU-FT)
.10	.00	0
INITIAL-STAGE (FT)	TIME-OF-PEAK(HRS)	PEAK-STAGE-ELEV(FT)
.00	23.83	13.58
PEAK STORAGE:	830 CU-FT	
INFILTRATED VOLUME:	889 CU-FT	

ENTER [d] [path] filename [.ext] FOR STORAGE OF COMPUTED HYDROGRAPH:

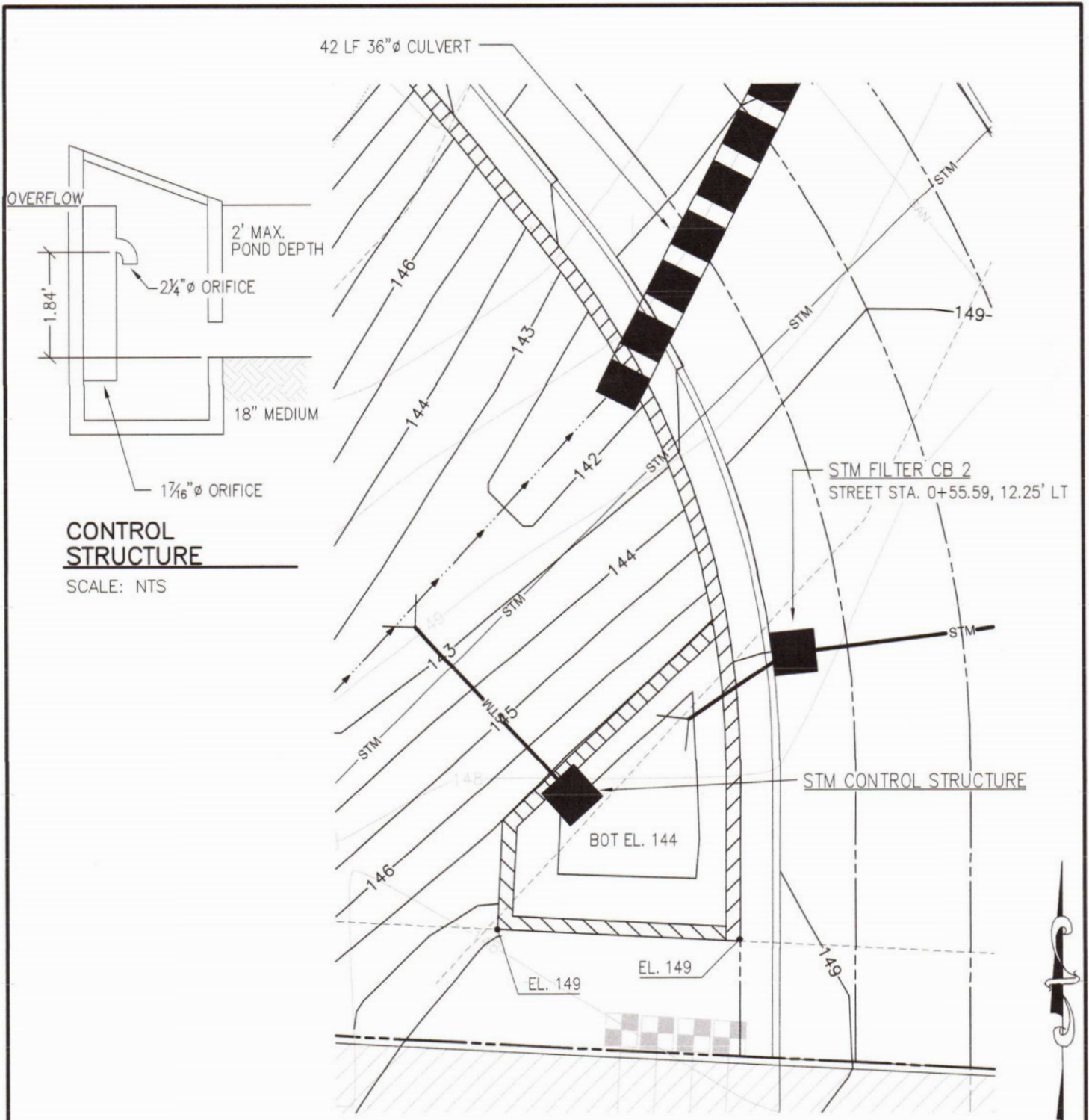
**DESIGN SUMMARY:**

For the preliminary design a water quality/detention facility will receive the storm flow from the impervious private driveway and meter it out at the pre-developed rates. The Pond will be 2' deep and have a volume of 275 CF. with the required volume of 251CF thus meeting the storage requirements. Two orifices are proposed to discharge at the pre-developed rate for the 2, 5 10 & 25 year events. Water quality for the drive would be provided with the 18-inches of medium in the pond.

The individual lots would have infiltration facilities sized to the impervious area.



# Appendix



**CONTROL STRUCTURE**

SCALE: NTS

**STORM WATER FACILITY**

SCALE: 1" = 10'

2014-129T

**STORM DRAINAGE REPORT**

**Theta, llc**

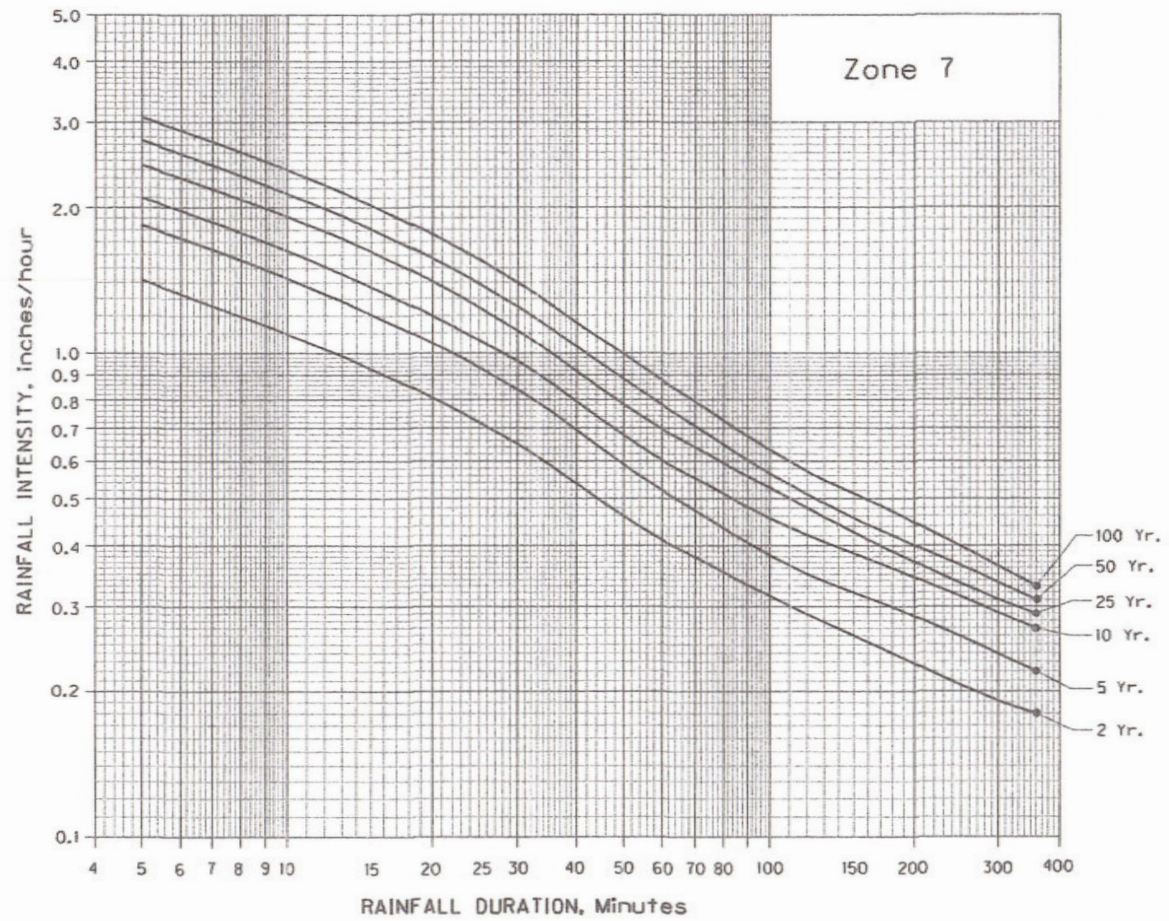
ENGINEERING - SURVEYING - PLANNING

PO Box 1345  
Lake Oswego, Oregon 97035

503-481-8822  
email: thetaeng@comcast.net

Trillium Creek

# RAINFALL INTENSITY - DURATION - RECURRENCE INTERVAL CURVES



Field Memo

Project: Trillium Creek  
Location: West Linn, OR

Date: 1/17/19  
Developer: Darren Gustdorf

---

Rapid Soil Solutions (RSS) has reviewed out geotechnical report dated 10/2/18. If the nearby creek is rerouted then there is the potential that the proposed pond location will not have ground water in it.

If you have any questions with this field report please contact me at the below numbers.







# Trillium Creek

## Addendum to Storm Analysis

### February 2019

#### Narrative:

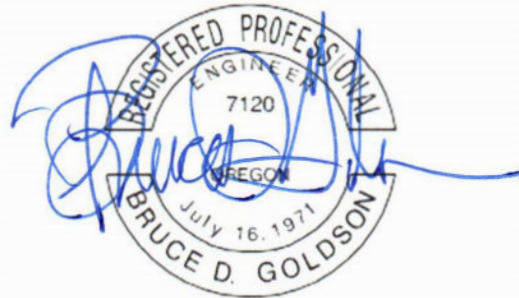
The proposed 6-lots have been reviewed for the appropriate storm water disposal by conducting two infiltration tests on the site. The two test sites were prepared on January 27<sup>th</sup> 2019 with test pits dug to 44 ½" (#1) and 47" (#2) and presoaked at that time. The soil in both was found to be damp but without seeps or standing ground water. The lower depths of both were found to be a clay/silt brown material. As previously reported the USDA finds the soil to be (1B) Aloha silt loam with a hydrological soil group C/D. The observed rates of infiltration on January 28<sup>th</sup>, 2019 were 0.56 inches/ hour for #1 and 0.27 inches/hour for # 2.

With these low observed rates it is not practical to provide total on-site storm water disposal. Water quality can be provided with an underdrain system and control orifice with discharge to the drainage way. Open bottom facilities will allow for the infiltration to the extent possible. The attached drawing illustrates conceptually how this can be accomplished for each lot. The final sizing of the individual systems will be determined when the impervious areas are known.

At this time infiltrators are proposed with an underdrain system as the best management option for the site. This will provide both water quality and quantity for the individual lots.

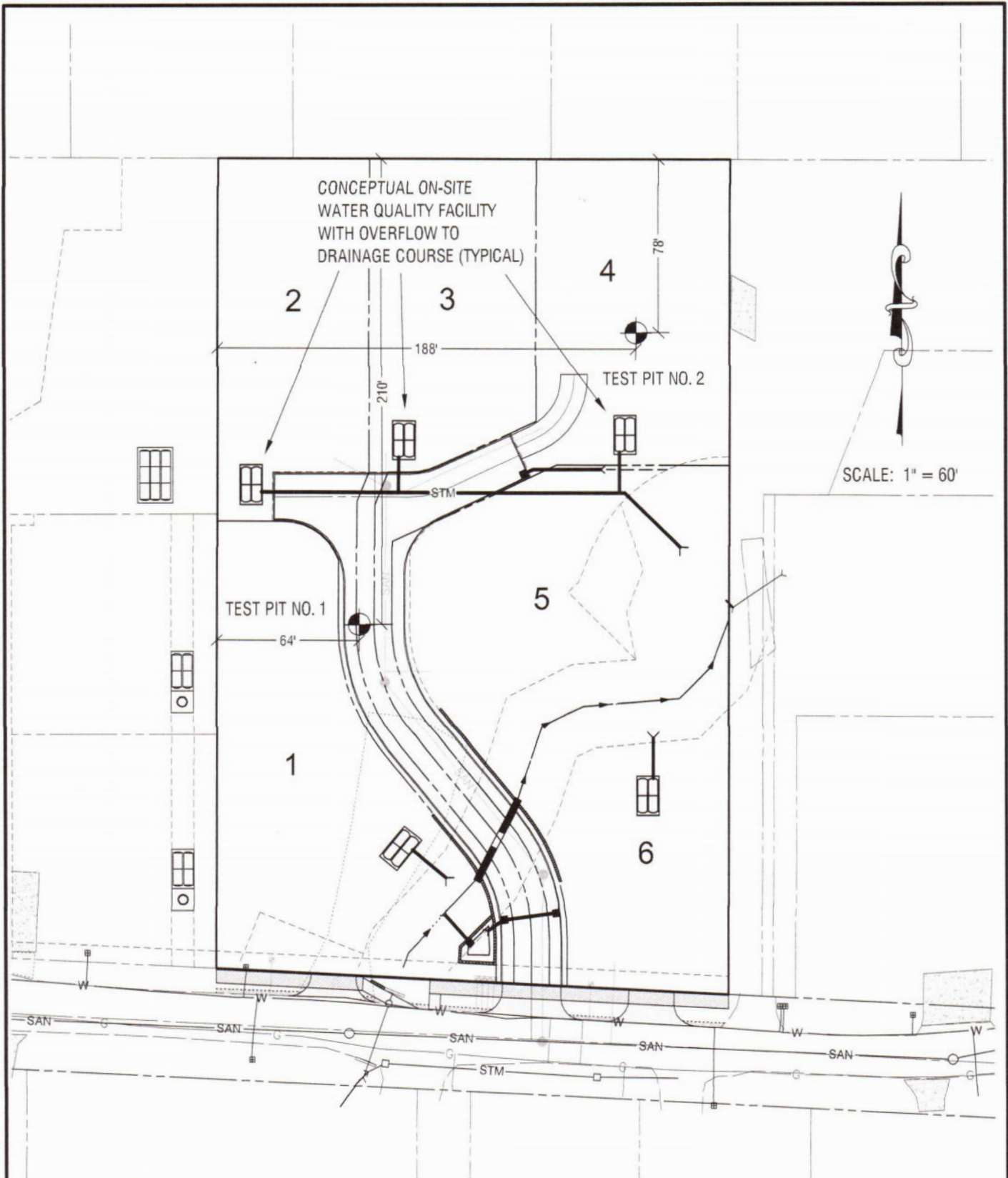
Prepared by:

Bruce D. Goldson, PE  
Theta  
February 5, 2019



2014-129T

EXPIRES: 06/30/2019  
SIGNATURE DATE: 2/5/19



2014-129T

DRAINAGE REPORT

**Theta, llc**

ENGINEERING - SURVEYING - PLANNING

PO Box 1345  
Lake Oswego, Oregon 97035

503/481-8822  
email: thetaeng@comcast.net

Trillium Creek

1  
1



# West Linn

## Expedited Land Division Acknowledgement Form

All applicants for partitions and subdivisions must acknowledge, by completing this form, that they were notified about the ELD process and must indicate whether they intend to apply for an ELD or a standard subdivision or partition using the procedures set forth in the City of West Linn's Community Development Code. Applicants who do not sign this form (page 1) and subsequently submit a land division application will have the land division processed under the ELD procedures per ORS 197.365. This completed form must accompany the separate ELD or standard subdivision or partition application form.

**Are you intending to apply for an Expedited Land Division?**

Yes  No

If "Yes", your application must include a written description of how the proposal satisfies ORS 197.360(1).

If "No", it indicates your intention to use the procedure set forth in the City of West Linn Community Development Code Land Division regulations.

Applicant Name: ICON CONSTRUCTION

Applicant Signature: [Signature] Date: 2/8/19

Applicant Mailing Address: 1980 WILLAMETTE FALLS DR #200

Owner's Name: MARK HANDELUS

Owner's Signature: [Signature] Date: 2/8/19

Owner's Mailing Address: 1980 WILLAMETTE FALLS DR #200

Site Address: 3841 & 3843 MARLTON DR WEST LINN  
OR 97068

Clackamas County Official Records Sherry Hall, County Clerk	<b>2017-015532</b>
	03/07/2017 02:19:00 PM
D-D                      Cnt=1    Stn=0    KARLYN	
\$22.00 \$25.00 \$10.00 \$16.00	<b>\$73.00</b>

**RECORDING COVER SHEET**  
**ALL TRANSACTIONS, PER ORS 205.234**

*THIS COVER SHEET HAS BEEN PREPARED BY THE PERSON PRESENTING THE ATTACHED INSTRUMENT FOR RECORDING ANY ERRORS IN THIS COVER SHEET DO NOT AFFECT THE TRANSACTION(S) CONTAINED IN THE INSTRUMENT ITSELF.*

This Space For County recording Use Only

**AFTER RECORDING RETURN TO**  
*(Name and address of the person authorized to receive the Instrument after recording, as required by ORS 205.180(4) and ORS 205.238)*

John William DeCosta, Profit Sharing Plan  
120 Cabana Pointe  
Lake Oswego, OR 97034

- 1. NAME(S) OF THE TRANSACTION(S), described in the attached instrument and required by ORS 205.234(a). (i.e Warranty Deed)**  
*Note: Transaction as defined by ORS 205.010 " means any action required or permitted by state law or rule or federal law or regulation to be recorded including, but not limited to, any transfer, encumbrance or release affecting title to or an interest in real property."*

Personal Representative's Deed

- 2. DIRECT PARTY, name(s) of the person(s) described in ORS 205.125(1)(b) or GRANTOR, as described in ORS 205.160.**

Rebecca Bell Macom, personal representative of the estate of Amy Elizabeth Cox, Deceased

- 3. INDIRECT PARTY, name(s) of the person(s) described in ORS 205.125(1)(a) or GRANTEE, as described in ORS 205.160.**

John William DeCosta, Trustee of the John William DeCosta Profit Sharing Plan

- 4. TRUE AND ACTUAL CONSIDERATION PAID for instruments conveying or contracting to convey fee title to any real-estate and all memoranda of such instruments, reference ORS 93.030.**

\$0.00

- 5. UNTIL A CHANGE IS REQUESTED, ALL TAX STATEMENTS SHALL BE SENT TO THE FOLLOWING ADDRESS for instruments conveying or contracting to convey fee title to any real estate, reference ORS 93.260.**

Same as above

- 6. RERECORDED AT THE REQUEST OF Lawyers Title TO CORRECT Personal Representative's Deed PREVIOUSLY RECORDED IN BOOK            AND PAGE            OR FEE NUMBER 2016-014247, to correct scrivener's error in legal description as shown on attached Exhibit B.**

LAWYERS 871700353



RECORDING REQUESTED BY:  
**Fidelity National Title**  
Company of Oregon

12809 SE 93rd Avenue  
Clackamas, OR 97015

Clackamas County Official Records **2016-014247**  
Sherry Hall, County Clerk 03/01/2016 11:58:49 AM  
D-D Cnt=1 Stn=2 LESLIE \$58.00  
\$10.00 \$16.00 \$10.00 \$22.00

**GRANTOR'S NAME:**  
Estate of Amy Elizabeth Cox

**GRANTEE'S NAME:**  
John William DeCosta, Profit Sharing Plan

**AFTER RECORDING RETURN TO:**  
John William DeCosta, Profit Sharing Plan  
120 Cabana Pointe  
Lake Oswego, OR 97034

**SEND TAX STATEMENTS TO:**  
John William DeCosta, Profit Sharing Plan  
120 Cabana Pointe  
Lake Oswego, OR 97034

3841 Mapleton Drive, West Linn, OR 97068

SPACE ABOVE THIS LINE FOR RECORDER'S USE

**PERSONAL REPRESENTATIVE'S DEED**

**Rebecca Bell Macom,** the duly appointed, qualified and acting personal representative of the estate of Amy Elizabeth Cox, deceased, pursuant to proceedings filed in Circuit Court for Clackamas County, Oregon, Case No. P1507071, Grantor, conveys to John William DeCosta, Trustee of the John William DeCosta Profit Sharing Plan, Grantee, all the estate, right and interest of the above named deceased at the time of the deceased's death, and all the right, title and interest that the above named estate of the deceased by operation of law or otherwise may have acquired afterwards, in and to the following described real property:

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

The true consideration for this conveyance is No Dollars And No/100 Dollars (\$0.00).

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010.

IN WITNESS WHEREOF, the undersigned have executed this document on the date(s) set forth below.

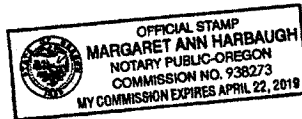
Estate of Amy Elizabeth Cox

BY: Rebecca Bell Macom P.R.  
Rebecca Bell Macom, Personal Representative

State of OREGON  
County of CLACKAMAS

This instrument was acknowledged before me on Feb. 29, 2016 by Rebecca Bell Macom as Personal Representative for the Estate of Amy Elizabeth Cox.

M Harbaugh  
Notary Public - State of Oregon  
My Commission Expires: 4/28/19



Fidelity National Title of Oregon 45141603750-07

**EXHIBIT "A"**  
Legal Description

Lot 5 and the West 100 of Lot 6, divided by a line parallel with the West line of said Lot 6, MAPLE GROVE, in the City of West Linn, County of Clakamas and State of Oregon

STATE OF OREGON }  
COUNTY OF CLACKAMAS } ss.

I, SHERRY HALL, County Clerk of the State of Oregon for the County of Clackamas, do hereby certify that the foregoing copy of

Deed Record

2016-014247 2 pgs

has been by me compared with the original, and that it is a correct transcript therefrom, and the whole of such original, as the name appears on file and of record in my office and in my care and custody.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal

this 1 day of

March, 20 17.

SHERRY HALL, Clerk

By: [Signature]  
Deputy





August 23, 2018

**Rick Givens**  
**Planning Consultant**  
18680 Sunblaze Dr.  
Oregon City, Oregon 97045

Mr. James O'Toole, President  
Robinwood Neighborhood Association  
2612 Robinwood Way  
West Linn, OR 97068

Dear Mr. O'Toole:

I'd like to thank you for your assistance in arranging a neighborhood meeting date for a proposed six-lot subdivision on property located at 3841 and 3843 Mapleton Drive in West Linn. This letter is being sent to you to fulfill the technical requirements of Section 99.038C of the West Linn Community Development Code (CDC) that we contact you via certified mail to arrange the date for the meeting. As we have discussed in our telephone conversation, it is too late to meet the 20 day notice requirements of the CDC for your regularly scheduled meeting on the 11<sup>th</sup> of September, and the agenda for your regular meeting in October is full. For this reason, you have agreed to help with arranging a date for a special meeting in September and will get back to me with the details of the date and time so that we can send out the required notice at least 20 days in advance of the meeting.

We appreciate your willingness to assist us with scheduling the meeting. Thanks again,

Rick Givens

cc: Kazi Ahmed, Vice President Robinwood Neighborhood Association  
Mark Handris, Icon Construction & Development, LLC

Notice of Neighborhood Meeting Regarding  
A Proposed 6-Lot Subdivision  
Located at 3841 & 3843 Mapleton Drive

Hello,

You are invited to attend a neighborhood meeting to discuss a proposed development in your area. Icon Construction & Development, LLC is proposing to construct a 6-Lot subdivision on property located at 3841 & 3843 Mapleton Drive in West Linn.

As required by the West Linn Community Development Code, prior to the submittal of an application to the City of West Linn for preliminary approval of this project, a meeting with neighbors will be held to present the conceptual plan for the project, to answer questions and for the developers to receive feedback from those in attendance. This notice of the meeting is being mailed to owners of property located within 500 feet of the boundaries of the subject property. The notice is also being mailed to officers of the Robinwood Neighborhood Association as the property is located within the Robinwood Neighborhood Association boundary.

The proposed development is scheduled to be presented at a special meeting of the Robinwood Neighborhood Association on September 25, 2018. There may be other items on the agenda in addition to this project. Meeting time and place are:

7:00 pm on Tuesday, September 25, 2018  
Robinwood Station  
3706 Cedaroak Drive  
West Linn, Oregon 97068.

We look forward to meeting with you. If you cannot attend in person, but have questions regarding the project, please feel free to contact the project planning consultant, Rick Givens. You may phone him at (503) 479-0097 or contact him via email at [rickgivens@gmail.com](mailto:rickgivens@gmail.com).

**AFFIDAVIT OF NOTICE**

STATE OF OREGON            )  
  )  
County of Clackamas        )        SS

I, Richard Givens, Planning Consultant for Icon Construction & Development, LLC, declare that on August 23, 2018 notice of a neighborhood meeting was provided, in the case of the Trillium Creek Subdivision, pursuant to Chapter 99.083 of the West Linn Community Development Code. Notice was mailed to property owners within 500 feet of the project site, and to the officers of the Robinwood Neighborhood Association. This notice was for a 6-lot subdivision.

*Richard Givens*  
RICHARD GIVENS  
PLANNING CONSULTANT

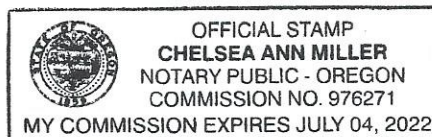
9/26/2018  
DATE

SUBSCRIBED AND SWORN TO before me this 26 day of September, 2018, by

*Chelsea Ann Miller*

NOTARY PUBLIC FOR OREGON

My Commission Expires: July 4, 2022



# AFFIDAVIT OF POSTING

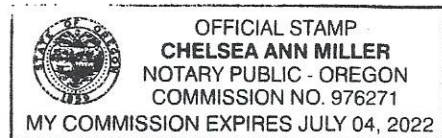
STATE OF OREGON        )  
                                      )        SS  
County of Clackamas    )

I, Richard Givens, Planning Consultant for Icon Construction & Development, LLC, in the case of the Trillium Creek Subdivision, declare that on August 23, 2018, pursuant to Chapter 99.083 of the West Linn Community Development Code, a sign providing notice of a neighborhood meeting to discuss the proposed 6-lot project. The sign exceeded the required 11" x 17" standard and was posted on the subject property's frontage on Mapleton Drive.

*Richard Givens*                      9/26/2018  
RICHARD GIVENS                      DATE  
PLANNING CONSULTANT

SUBSCRIBED AND SWORN TO before me this 26 day of September, 2018, by

*Chelsea Ann Miller*  
NOTARY PUBLIC FOR OREGON  
My Commission Expires: July 4, 2022





**U.S. Postal Service™  
CERTIFIED MAIL® RECEIPT**  
Domestic Mail Only

For delivery information, visit our website at [www.usps.com](http://www.usps.com)

WEST LINN, OR 97068

**OFFICIAL USE**

Certified Mail Fee \$3.45

Extra Services & Fees (check box, add fee as appropriate)

- Return Receipt (hardcopy) \$0.00
- Return Receipt (electronic) \$0.00
- Certified Mail Restricted Delivery \$0.00
- Adult Signature Required \$0.00
- Adult Signature Restricted Delivery \$0.00

Postage \$0.50

Total Postage and Fees \$6.70

Sent To Kazi Ahmed

Street and Apt. No., or PO Box No. 18649 Midhill Circle

City, State, ZIP+4® West Linn, OR 97068

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions



5446 4455 0000 0722 9702

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WEST LINN, OR 97068

**OFFICIAL USE**

Certified Mail Fee \$3.45

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- Return Receipt (hardcopy) \$0.00
- Return Receipt (electronic) \$0.00
- Certified Mail Restricted Delivery \$0.00
- Adult Signature Required \$0.00
- Adult Signature Restricted Delivery \$0.00

Postage \$0.50

Total Postage and Fees \$6.70

Sent To James O'Toole

Street and Apt. No., or PO Box No. 2612 Robinwood Way

City, State, ZIP+4® West Linn, OR 97068

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions



6946 4455 0000 0722 9702

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:  
Kazi Ahmed  
18649 midhill Circle  
West Linn, OR 97068



9590 9402 2409 6249 9332 83

2. Article Number (Transfer from service label)  
7016 2710 0000 5544 9445

PS Form 3811, July 2015 PSN 7530-02-000-9053

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature [Signature]  Agent  Addressee

B. Received by (Printed Name) KAZI I. AHMED

C. Date of Delivery AUG 28 2018

D. Is delivery address different from item 1?  Yes  No  
If YES, enter delivery address below:

3. Service Type
- Adult Signature
  - Adult Signature Restricted Delivery
  - Certified Mail®
  - Certified Mail Restricted Delivery
  - Collect on Delivery
  - Collect on Delivery Restricted Delivery
  - Insured Mail
  - Priority Mail Express®
  - Registered Mail™
  - Registered Mail Restricted Delivery
  - Return Receipt for Merchandise
  - Signature Confirmation™
  - Signature Confirmation Restricted Delivery



Domestic Return Receipt

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:  
James O'Toole  
2612 Robinwood Way  
West Linn, OR 97068



9590 9402 2409 6249 9332 76

2. Article Number (Transfer from service label)  
7016 2710 0000 5544 9469

PS Form 3811, July 2015 PSN 7530-02-000-9053

**COMPLETE THIS SECTION ON DELIVERY**

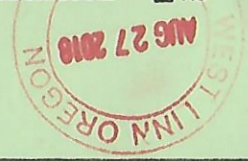
A. Signature [Signature]  Agent  Addressee

B. Received by (Printed Name) [Signature]

C. Date of Delivery AUG 27 2018

D. Is delivery address different from item 1?  Yes  No  
If YES, enter delivery address below:

3. Service Type
- Adult Signature
  - Adult Signature Restricted Delivery
  - Certified Mail®
  - Certified Mail Restricted Delivery
  - Collect on Delivery
  - Collect on Delivery Restricted Delivery
  - Insured Mail
  - Priority Mail Express®
  - Registered Mail™
  - Registered Mail Restricted Delivery
  - Return Receipt for Merchandise
  - Signature Confirmation™
  - Signature Confirmation Restricted Delivery



Domestic Return Receipt



# Notice of Neighborhood Meeting

## Regarding A Proposed 6-Lot Subdivision Located at 3841 & 3843 Mapleton Drive

You are invited to attend a neighborhood meeting to discuss a proposed 6-Lot subdivision on property located at 3841 & 3843 Mapleton Drive in West Linn. As required by the West Linn Community Development Code, prior to the submittal of an application to the City of West Linn for preliminary approval of this project, a meeting with neighbors will be held to present the conceptual plan for the project, to answer questions and for the developers to receive feedback from those in attendance.

The proposed development is scheduled to be presented on September 25, 2018 at a special meeting of the Robinwood Neighborhood Association. There may be other items on the agenda in addition to this project. Meeting time and place are:

7:00 pm on Tuesday, September 25, 2018  
Robinwood Station  
3706 Cedaroak Drive  
West Linn, Oregon 97068

If you cannot attend, but would like further information, please contact the project's planning consultant:

Rick Givens  
(503) 479-0097

# Neighborhood Meeting Minutes

## Trillium Creek Subdivision

September 25, 2018

Location: Robinwood Community Center

Developer: Icon Construction & Development, LLC.

The plan to divide property located at 3841 Mapleton Drive into a 6-lot subdivision was shared with attendees. Rick Givens, planning consultant for the project, and Darren GUSDORF of Icon Construction and Development, LLC, made the presentation.

A preliminary plat showing the proposed subdivision and the placement of the street and lots was presented. Mr. Givens noted that the existing piped creek would be day-lighted during the development of the property and that a 15 foot stream corridor easement would be provided on both sides of the creek to protect the drainageway. He explained that while the site contained enough area for there to be seven lots on the site, six lots are proposed. The lots all exceed 10,000 sq. ft. and some are significantly larger. He also explained that trees, particularly along the northern boundary of the site as well as isolated trees on the east and west borders would be preserved responsibly. Mr. Givens also explained the process for the review of the project by the City of West Linn and noted that notice of the public hearing before the West Linn Planning Commission would be provided to the owners of properties within 500 feet of the site.

Topics discussed included:

1. Construction period length and construction management to minimize impact on traffic on Mapleton Dr.
2. Setbacks from the day-lighted stream corridor and why it's allowed to be 15' instead of typical 50' to 100' setbacks from existing creeks.
3. Size of homes and home placement. Neighbors don't want houses too close to creek.
4. Concerns about impacts on downstream properties from opening up the creek. Neighbors say that they have problems with seasonal flooding and cedar trees dying due to wet conditions. Icon will have its engineer look at this issue and talk with neighbors.
5. Sidewalks – Many neighbors don't want standard concrete "sidewalks to nowhere". Others noted that they would like a paved surface because of needs for wheelchair and stroller access. Some suggested extending the asphalt on Mapleton to provide for pedestrian needs rather than having standard sidewalks. Mr. Givens explained that the City's CDC calls for sidewalks, but noted that community preferences should be commented on in testimony to the Planning Commission.
6. Tree preservation. Neighbors seemed primarily interested in trees on periphery for screening purposes.

7. It was requested that an email from Mr. Hopkins and our responses to that email be included in the minutes of that meeting. That email is attached below.

RE: "Proposed" 6-lot subdivision, Mapleton Drive

From: [Rickgivens@gmail.com](mailto:Rickgivens@gmail.com)

To: [sfhopkins9@aol.com](mailto:sfhopkins9@aol.com)

Hello, Mr. Hopkins:

Sorry for the delay in getting back to you, but the end of last week was a final push on another project. I'm sorry that you won't be able to attend tomorrow night's meeting, but I've tried to answer your questions as best I can:

- 1) Will the culverted stream that flows diagonally through the property be "sun-lighted"? If so, how much setback will be required for the houses? **Not yet final, but our plan is to open up the culverted creek. The City requires a 15' setback easement from the bank of the creek.**
- 2) Three houses are already in place and equipment is already tearing up the rest of the property. What is the estimate for completion of the "proposed" subdivision? **The three lot partition is on property that is not a part of the subdivision application. A previous land division was approved for that property. My client, Icon Construction and Development, has 3 houses constructed on the existing 3-lot partition. This property has had no construction equipment on it aside from recent test pits for a geological report. Development construction will take 3 months once final engineering is approved and permits are issued. Home construction takes 6 months per home. Likely going to build all homes within a few months of one another.**
- 3) It was not clear to us from the map enclosed with your notice how the entry/exit for six of the houses will line up with driveways across the street. Will it be directly across the street from our driveway at 3910 Mapleton? **- We need to investigate this.**
- 4) Will there be room to park at least two cars in garages at each house? We have had a problem with people parking across the street from our driveway and all along the street next to the "proposed" subdivision. **Yes, every garage will have a minimum of 2 spaces + at least 2 spaces on each driveway, the same as the 3 homes Icon built next door.**
- 5) Will construction workers' cars and trucks continue to be parked on the street throughout the construction? Parking on both sides, they have often been reducing the street to one lane, limiting sightlines and creating dangerous conditions. **Not continual, but when working in the street to complete off site street improvements, this is unavoidable.**
- 6) Will construction trucks leaving the site be allowed to turn left on highway 43? This would be a major inconvenience for Mapleton residents. **Trucks will be allowed to access 43 in accordance to legal traffic ingress/egress.**
- 7) Will our utilities be affected when the subdivision's utilities are under development? If so, how will you prepare us for the inconvenience? **There should be no neighbor utility cross-over aside from the two neighbors directly across the street IF the city requires the power and com lines be disconnected and**

placed underground. This is not yet determined at this time and likely the city will allow us to leave the poles/lines aerial, which would mean no reconnection to our neighbors of any kind. If this is required, the impact is minimal and down time is completed during the work day (not left disconnected for long durations of time). We convert power and com lines all the time, and the impact to our neighbors is minimal if at all.

8 Will the developer make an effort to avoid wires across the street to existing homes and repair damages caused by high rigs? We had a wire ripped out twice during the water plant construction. **Yes, of course.**

9) Will there ALWAYS be access for emergency and service vehicles the length of the street during the construction? **Yes, flaggers may be needed during street connections/improvements which would always leave one lane open for ingress/egress and emergency. There should be no need at anytime to close the street entirely.**

10) How much house "vibration" and noise can we expect during the construction? The noise from the digging operation across the street is already very distracting. **Development and home construction will be the same as what was experienced during the development and home construction as completed on Icon's 3-home project next door.**

11) What will be the days and hours of construction? **Per city code, which is 7 – 7 M-F, 9-5 on Saturday. No work on Sunday. Icon's crews are generally working between the hours of 8-5, M-F.**

9-25-18

**"Special"**  
ROBINWOOD NEIGHBORHOOD ASSOCIATION

Name (Please Print)	Address	E-Mail Address
Jim Elaine Oros	Robinwood way	
Lisa Clifton		
Monty Merrill	3701 Mapleton DR.	
Judi Embler	43 yrs on the street 4080 Mapleton Dr	
Lisa Clifton	Ridgewood Way	
Randall Vastabend	[REDACTED]	
Sharon & Dennis Pollmann	3879 Kenthorpe Way, West Linn	Sharonpollmann @ comcast.net
Christine Steel		
Cindy Kauffman	3993 Mapleton Dr West Linn.	Cindy@Cascadefoodbankres.com
Don Kauffman	"	
Mary Robinson	3960 Mapleton Dr West Linn OR	drcanes4@gmail.com
Dane Robinson	"	"
Val Sabo	4110 Mapleton	on record

9-25-18

# "Special"

ROBINWOOD NEIGHBORHOOD ASSOCIATION

Name (Please Print)	Address	E-Mail Address
JASON FABER	4025 Mapleton Dr West Linn OR 97068	
RICK SYRON DANA RAYAL	3820 Mapleton DR. West Linn OR 97068	RickerDunn@yaho.com
Jodi Brush	3760 Mapleton Dr. West Linn, OR	jodinjava@hotmail.com
Mary Hei	19050 Nixon WL	
Sam Murphy	3847 Mapleton Dr. West Linn, OR 97068	
DARRAL GUSPORN	1742 19 <sup>th</sup> St. West Linn OR	DARRAL@ICONCONSTRUCTION.NET
Rick Givens	18680 Sunblaze Dr. Oregon City, OR	rickgivens@gmail.com
Mark & Joey Schnackenberg	3787 Mapleton Dr. West Linn 97068	fishmojo21@hotmail.com
Jerry Nemer	3876 Kuntzpe Wy west Linn 97068	<del>jnemer@comcast.net</del> jnemer@comcast.net
John & Jen SNOODGRASS	3777 MAPLETON OR WL 97068	SNOODGRASSJOHN@GMAIL.COM
Steve McClure	3845 Mapleton Dr WL 97068	smcclure11@msn.com
Lisa Ledson	4000 mapleton Dr.	lisaledson@icloud.com
Lora Hecht	18340 Nixon	lorajean44@gmail.com

21E24 00600  
Oregon Parks & Recreation Dept  
725 Summer St NE #C  
Salem, OR 97301

21E24BB02800  
City Of West Linn  
22500 Salamo Rd #600  
West Linn, OR 97068

21E24BB02900  
Carol & Kevin Bryck  
Po Box 603  
West Linn, OR 97068

21E24BB03100  
Steven Robert Geidl  
3791 Kenthorpe Way  
West Linn, OR 97068

21E24BB03200  
Joseph Leatherberry  
3815 Kenthorpe Way  
West Linn, OR 97068

21E24BB03201  
Paul Hansen  
3810 Cedaroak Dr  
West Linn, OR 97068

21E24BB03300  
Samuel Humphrey  
3850 Cedaroak Dr  
West Linn, OR 97068

21E24BB03301  
Kenneth David & Leilani Chitwood  
3851 Kenthorpe Way  
West Linn, OR 97068

21E24BB03400  
Dennis & Sharon Pollmann  
3879 Kenthorpe Way  
West Linn, OR 97068

21E24BB03501  
Neal Ely  
13183 SE Spring Mountain Dr  
Happy Valley, OR 97086

21E24BB03600  
Clinton & Katrin Arp  
3979 Kenthorpe Way  
West Linn, OR 97068

21E24BB03701  
Lawrence Olsen  
3993 Kenthorpe Way  
West Linn, OR 97068

21E24BB03800  
James Hackett  
Po Box 193  
Lake Oswego, OR 97034

21E24BB03900  
Eric & Jennifer Predeek  
3880 Kenthorpe Way  
West Linn, OR 97068

21E24BB03901  
Carmen & Jennifer McDonald  
3882 Kenthorpe Way  
West Linn, OR 97068

21E24BB04000  
Jerry Nemer  
3876 Kenthorpe Way  
West Linn, OR 97068

21E24BB04100  
Annette Barnes  
3840 Kenthorpe Way  
West Linn, OR 97068

21E24BB04200  
Toby & Lauren Espinosa  
3820 Kenthorpe Way  
West Linn, OR 97068

21E24BB04300  
Amy Hajihashemi  
3780 Kenthorpe Way  
West Linn, OR 97068

21E24BB04301  
David Bucholz  
3774 Kenthorpe Way  
West Linn, OR 97068

21E24BB04302  
Steven & Heidi Smith  
3750 Kenthorpe Way  
West Linn, OR 97068

21E24BB04303  
Stephen & Darla Esnard  
3786 Kenthorpe Way  
West Linn, OR 97068

21E24BB04400  
Shane Hu  
3852 Fairhaven Dr  
West Linn, OR 97068

21E24BB04401  
Melissa S J & Robert Poyser  
3700 Kenthorpe Way  
West Linn, OR 97068

21E24BB04501  
Jason Souza  
3630 Kenthorpe Way  
West Linn, OR 97068

21E24BB04600  
Byron Brady  
20182 Old River Dr  
West Linn, OR 97068

21E24BB04700  
Tracy Taylor  
20240 Old River Dr  
West Linn, OR 97068

21E24BC00100  
Jason & Kimlyne Faber  
4025 Mapleton Dr  
West Linn, OR 97068

21E24BC00200  
Donald Jr & Cindy Kauffman  
3993 Mapleton Dr  
West Linn, OR 97068

21E24BC00201  
Derek Tippner  
3963 Mapleton Dr  
West Linn, OR 97068

21E24BC00300  
Clothilde Bakari  
3951 Mapleton Dr  
West Linn, OR 97068

21E24BC00301  
Stephen Michael & Erica McClure  
3845 Mapleton Dr  
West Linn, OR 97068

21E24BC00302  
Samuel & Margaret Murphy  
3847 Mapleton Dr  
West Linn, OR 97068

21E24BC00400  
John William Decosta  
333 S State St #V-335  
Lake Oswego, OR 97034

21E24BC00500  
John William Decosta  
333 S State St #V-335  
Lake Oswego, OR 97034

21E24BC00600  
Icon Construction & Development LLC  
1980 Willamette Falls Dr #200  
West Linn, OR 97068

21E24BC00700  
Norman Jay & Gay Levee  
Po Box 450  
Clackamas, OR 97015

21E24BC00800  
Brian Wilson  
3757 Mapleton Dr  
West Linn, OR 97068

21E24BC00900  
Ujahn Davisson  
1715 Buck St  
West Linn, OR 97068

21E24BC01000  
Monty Bill Merritt  
3701 Mapleton Dr  
West Linn, OR 97068

21E24BC01100  
Hang Dinh  
21892 NE Mason St  
Fairview, OR 97024

21E24BC01200  
William Shreve  
10180 SE Cresthill Rd  
Happy Valley, OR 97086

21E24BC01300  
Carl Edwards  
Po Box 571  
West Linn, OR 97068

21E24BC01400  
Daniel Singeorzan  
19556 Willamette Dr  
West Linn, OR 97068

21E24BC01500  
Raymond & Viki Nodurft  
3708 Mapleton Dr  
West Linn, OR 97068

21E24BC01600  
Siu Christian  
3718 Mapleton Dr  
West Linn, OR 97068

21E24BC01700  
Keith & Jodi Brush  
3760 Mapleton Dr  
West Linn, OR 97068

21E24BC01800  
Dana Ryan  
15975 SW Springtooth Ln  
Sherwood, OR 97140

21E24BC01900  
David & Mary Robinson  
3960 Mapleton Dr  
West Linn, OR 97068

21E24BC01902  
Dana Ryan  
15975 SW Springtooth Ln  
Sherwood, OR 97140

21E24BC01903  
Stephen & Nancy Hopkins  
3910 Mapleton Dr  
West Linn, OR 97068

21E24BC02000  
Robin Ledson  
4000 Mapleton Dr  
West Linn, OR 97068

21E24BD00400  
Thomas & Lorie Griffith  
4068 Kenthorpe Way  
West Linn, OR 97068

21E24BD00600  
John Clifford Norby  
4040 Kenthorpe Way  
West Linn, OR 97068

21E24BD00700  
Wayne Allen Whitbey  
2104 18th St  
West Linn, OR 97068

21E24BD00800  
Charles Landskroner  
4059 Mapleton Dr  
West Linn, OR 97068

21E24BD02300  
Gary & Judi Emblen  
4080 Mapleton Dr  
West Linn, OR 97068

21E24BD02400  
Matthew Millard  
4020 Mapleton Dr  
West Linn, OR 97068

21E24BB04101  
Robert Meyer  
3820 Kenthorpe Way  
West Linn, OR 97068

21E24BB04102  
Peter Guarisco  
3850 Kenthorpe Way  
West Linn, OR 97068



21E24BB04001  
Cmr Properties LLC  
6115 Royal Crest Dr  
Dallas, TX 75230

21E24BB04002  
Donald & Virginia Henry  
3870 Kenthorpe Way  
West Linn, OR 97068

21E24BC00701  
Seth & Tyra Murray  
805 NW Alder St  
Mcminnville, OR 97128

21E24BC00702  
Traci Lea Varela  
20286 Old River Dr  
West Linn, OR 97068

21E24BC02001  
Michael & Natalie Cooper  
3970 Mapleton Dr  
West Linn, OR 97068

21E24BC02002  
Samuel Stephens  
3990 Mapleton Dr  
West Linn, OR 97068

21E24BB03801  
David Bullen  
3888 Kenthorpe Way  
West Linn, OR 97068

21E24BD02401  
Gayle Scheer  
4040 Mapleton Dr  
West Linn, OR 97068

21E24BB03802  
Ross & Cj Willson  
3940 Kenthorpe Way  
West Linn, OR 97068

21E24BB03803  
Joshua Goldschmidt  
3960 Kenthorpe Way  
West Linn, OR 97068

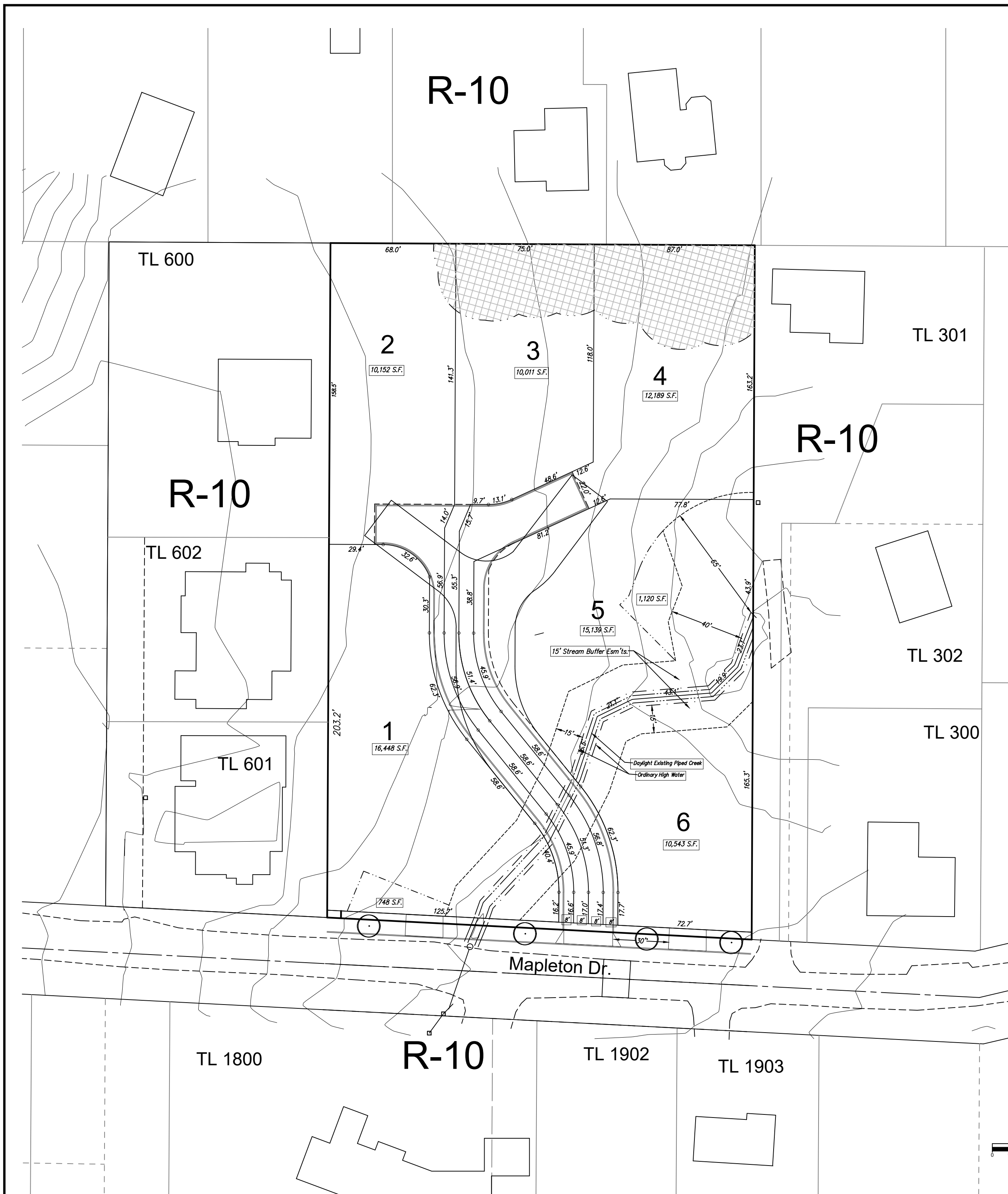
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John & Karlene Norby  
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West Linn, OR 97068

21E24BD00801  
Jeremy Andrew  
4069 Mapleton Dr  
West Linn, OR 97068

21E24BD00802  
Brandon Lerner  
4079 Mapleton Dr  
West Linn, OR 97068

21E24BC00601  
Icon Construction & Development LLC  
1980 Willamette Falls Dr #200  
West Linn, OR 97068

21E24BC00602  
Icon Construction & Development LLC  
1980 Willamette Falls Dr #200  
West Linn, OR 97068



Owner:  
 John William DeCosta Profit Sharing Plan  
 John William DeCosta, Trustee  
 16365 Boones Ferry Rd  
 Lake Oswego, OR 97035  
 PH: 503-702-0856

Engineer:  
 Theta Engineering  
 PO Box 1345  
 Lake Oswego, OR 97035  
 PH: (503) 481-8822

Legal: 2S 1E 24BC TL 400 & 500

Zoning: R-10

Water: City of West Linn

Sewer: City of West Linn

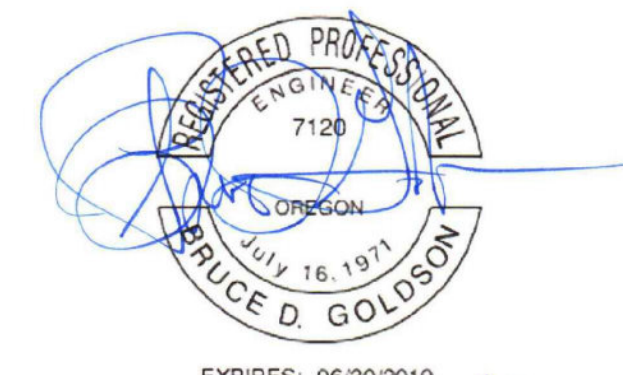
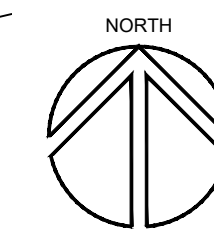
Contours: CESNW

Site Area: 85,367 S.F.

Street Tree:  
 Red Sunset Maple

**DENSITY CALCULATIONS:**

Gross Site Area: 85,367 square feet.  
 Type I & II Lands: 1,946 square feet.  
 ROW Dedication & Flag Strip 9,592 sq. ft.  
 Net Site Type III & IV Area: 73,829 sq. ft.  
 Maximum Density @ 1 Unit Per 10,000 sq. ft. = 7 lots.  
 Minimum Density @ 75%: 5 Units. 6 Lots are proposed.



EXPIRES: 06/30/2019  
 SIGNATURE DATE: 9/8/18

DESIGNED: REG	10-5-18	1	Revised layout to provide better building envelope on Lot 4.
DRAWN: REG			
SCALE: 1" = 40'			
DATE: September 2018			
FILE: 16-ICN-103	DATE	NO.	REVISION

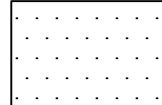
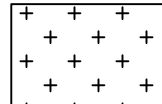
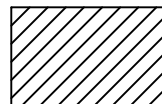
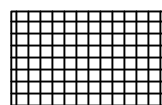
Richard E. Givens, Planning Consultant  
 18680 Sunblaze Dr.  
 Oregon City, OR 97045  
 PH: (503) 479-0097

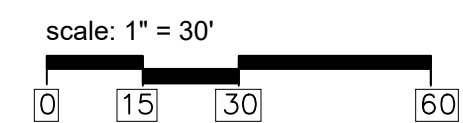
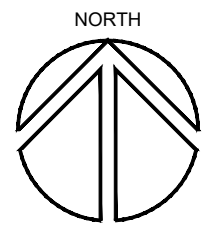
APPLICANT: Icon Construction & Development, LLC  
 1980 Willamette Falls Drive, Suite 200  
 West Linn, OR 97068  
 PH: (503) 657-0406

**Trillium Creek  
 Tentative Plan**

SHEET:  
 1/3



-  Slopes 0-10% (Type IV Land)  
 40,701 sq. ft. (47.7% of site)  
 - sq. ft. of this is within street.
-  Slopes 10-25% (Type III Land)  
 42,715 sq. ft. (50% of site)  
 - sq. ft. of this is within street.
-  Slopes 25-35% (Type II Land)  
 1,436 sq. ft. (1.7% of site)  
 0 sq. ft. of this is within street.
-  Slopes 35% Plus (Type I Land)  
 510 sq. ft. (0.6% of site)  
 0 sq. ft. of this is within street.



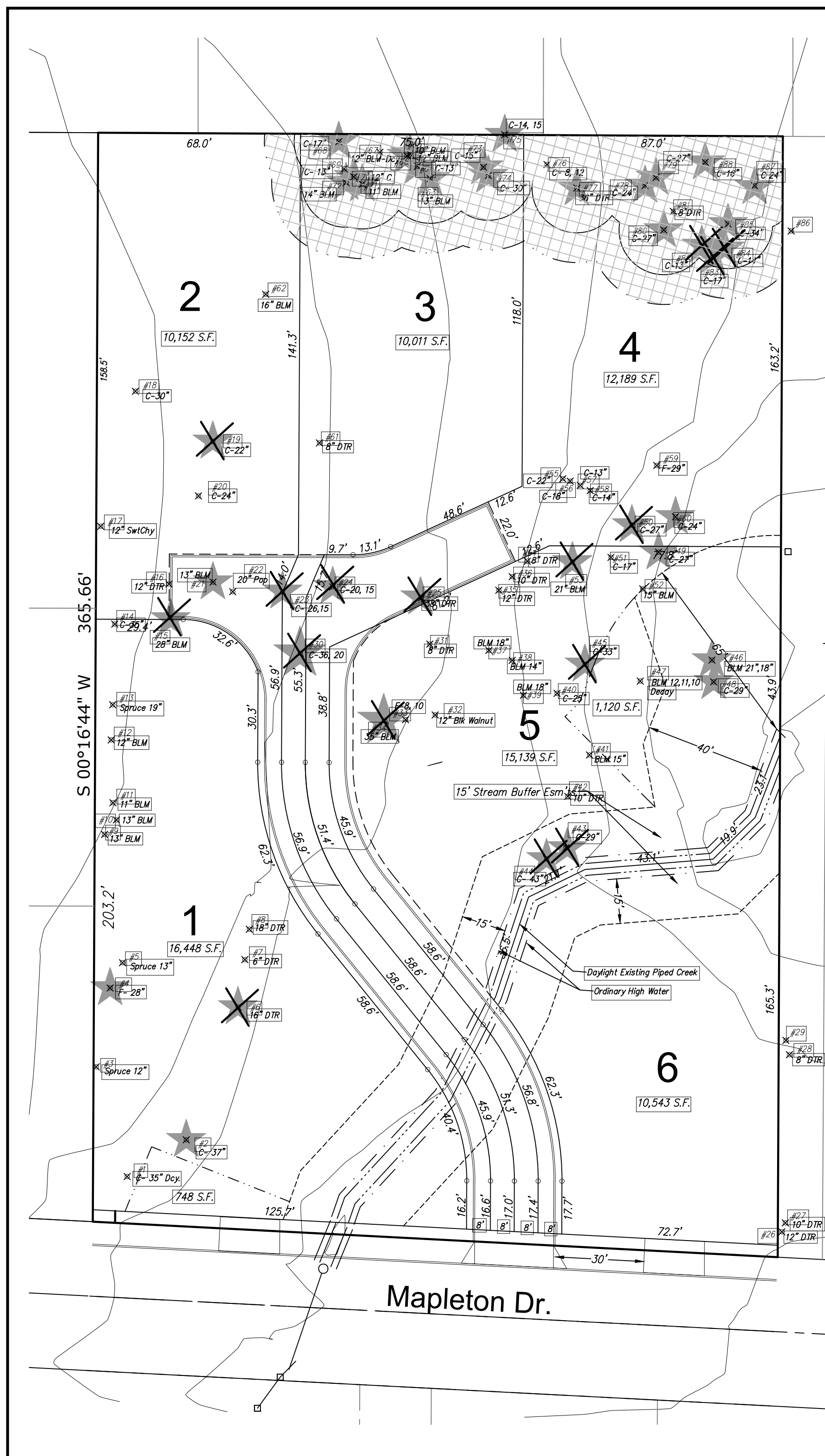
DESIGNED: REG	10-5-18	1	Revised layout to provide better building envelope on Lot 4.
DRAWN: REG			
SCALE: 1" = 30'			
DATE: September 2018			
FILE: 16-ICN-103	DATE	NO.	REVISION

Richard E. Givens, Planning Consultant  
 18680 Sunblaze Dr.  
 Oregon City, OR 97045  
 PH: (503) 479-0097

APPLICANT: Icon Construction & Development, LLC  
 1980 Willamette Falls Drive, Suite 200  
 West Linn, OR 97068  
 PH: (503) 657-0406

# Trillium Creek Slope Analysis





3843 Mapleton, West Linn      West Linn      Trees are 12-inch diameter.      3843 Mapleton, West Linn      West Linn      Trees are 12-inch diameter.  
 Pac. Dog, madrone, Garry oak are 6-inch diameter.      Pac. Dog, madrone, Garry oak are 6-inch diameter.

Tag	Species	Diameter	Rating	Condition
1	western redcedar	35	1	low trunk and base is hollow; nestin activity in trunk; chlorotic; Biltmore stick
2	western redcedar	37	2	viable; dead branches; Biltmore stick
3	Sitka spruce	12	2	viable; dead branches
4	Douglas fir	28	2	viable; dead branches
5	Sitka spruce	13	2	viable; dead branches
6	bigleaf maple	22	2	viable; dead branches; Biltmore stick
7	English hawthorn	12	2	nuisance species; Biltmore stick
8	bigleaf maple	24	1	chlorotic; low vigor; wound on trunk; trunk decay; Biltmore stick
9	bigleaf maple	13	1	terminal decline
10	bigleaf maple	13	1	chlorotic; low vigor
11	bigleaf maple	12	1	chlorotic; low vigor
12	bigleaf maple	12	1	chlorotic; low vigor
13	Sitka spruce	19	2	viable; dead branches
14	western redcedar	35	2	viable; ivy
15	bigleaf maple	28	2	viable; ivy
16	sweet cherry	15	2	nuisance species
17	sweet cherry	14	1	nuisance species; terminal decline
18	western redcedar	30	2	viable; 100% live crown ration
19	western redcedar	22	2	viable; 100% live crown ration; Biltmore stick
20	western redcedar	24	2	codominant stems at 4'
21	bigleaf maple	13	1	shedding bark on main stem; ivy; Biltmore stick
22	tulip poplar	20	2	codominant stems at 3; Biltmore stick
23	western redcedar	32	2	mechanical damage to buttress roots
24	western redcedar	32	2	mechanical damage to buttress roots
25	dead	43	2	dead

52	bigleaf maple	15	1	grew from fallen tree after soil failure; Biltmore stick
53	bigleaf maple	21	2	viable; dead branches; broken cedar hung up in crown; Biltmore stick
54	bigleaf maple	10,10	2	viable; codominant from base; Biltmore stick
55	western redcedar	22	2	viable; hedgerow; Biltmore stick
56	western redcedar	18	2	viable; hedgerow; Biltmore stick
57	western redcedar	13	2	viable; hedgerow; Biltmore stick
58	western redcedar	14	2	viable; hedgerow; Biltmore stick
59	grand fir	29	2	viable
60	western redcedar	24	2	viable
61	black cottonwood	20	2	viable; Biltmore stick
62	bigleaf maple	16	2	viable; Biltmore stick; added
63	bigleaf maple	13	2	viable; Biltmore stick; ivy
64	western redcedar	13	2	viable
65	bigleaf maple	13	2	viable
66	bigleaf maple	12	2	viable
67	bigleaf maple	13	0	advanced trunk decay
68	western redcedar	17	2	viable
69	western redcedar	13	0	dead
70	western redcedar	12	2	viable; added
71	bigleaf maple	11	2	viable; added
72	bigleaf maple	14	2	viable; added
73	western redcedar	15	2	viable; added
74	western redcedar	30	2	viable; Biltmore stick
75	western redcedar	29	2	viable; on property line on neighbor's side of fence; Biltmore stick
76	western redcedar	11	2	undersize
77	bigleaf maple	36	1	ivy infestation

Field work done on 7/26/2018 and 7/27/2018 by Ryan Neumann-PN-5539A, TRAQ certified      0/dead or hazard 1/decline 2/average 3/excellent  
 3843 Mapleton, West Linn      West Linn      Trees are 12-inch diameter.  
 Pac. Dog, madrone, Garry oak are 6-inch diameter.

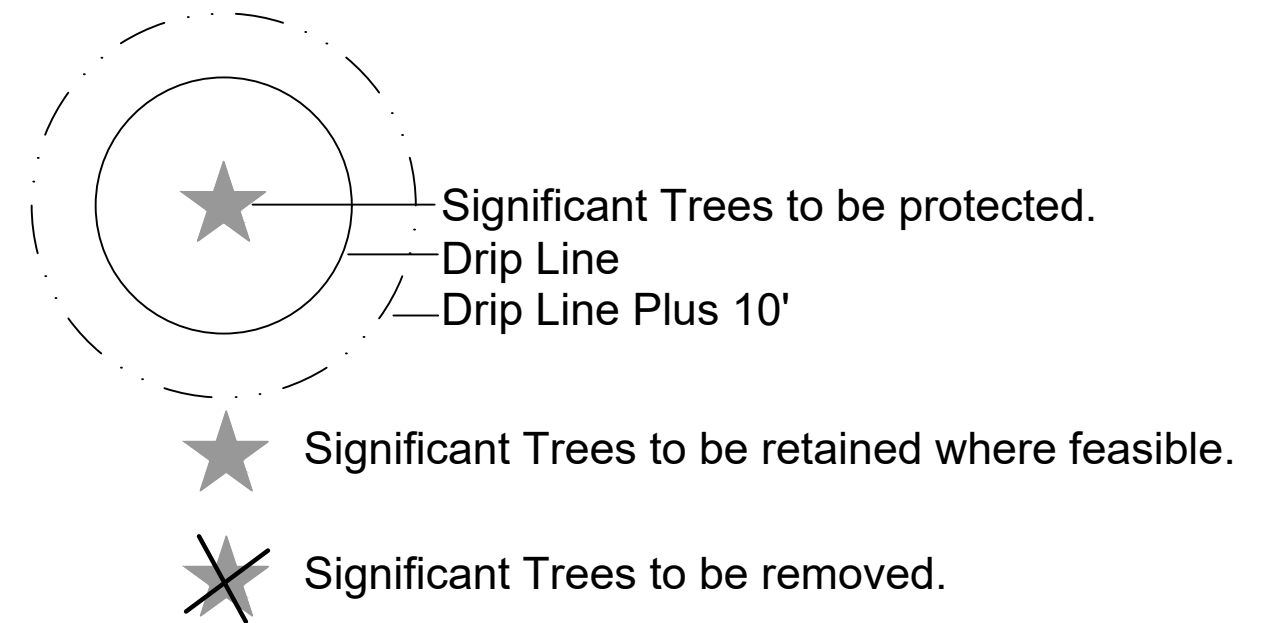
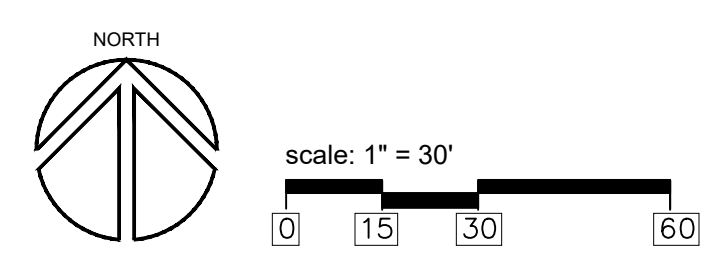
26	bigleaf maple	19	2	offsite; pruned for high-voltage
27	bigleaf maple	15	2	offsite
28	red alder	8	1	undersize; offsite; decline
29	red alder	8	1	undersize; offsite; decline
30	western redcedar	41	2	mechanical damage to one root flare
31	bigleaf maple	13	2	viable; minor wound on trunk
32	black walnut	12	2	viable
33	grand fir	16	2	viable
34	bigleaf maple	35	2	viable; ivy
35	bigleaf maple	17	1	top of tree is dying
36	bigleaf maple	13	1	cavity; trunk decay; excessive lean
37	bigleaf maple	18	2	viable
38	bigleaf maple	14	2	viable
39	bigleaf maple	18	2	viable
40	western redcedar	25	1	codominant 15" stem broke; tree is compromised
41	bigleaf maple	15	2	viable
42	bigleaf maple	15,13	2	clump; multiple stems from base
43	western redcedar	29	2	viable; phototropism; leans to south
44	western redcedar	43	2	viable; phototropism; leans to south; grows out of slope; Biltmore stick
45	western redcedar	33	2	viable
46	bigleaf maple	21,18	2	viable; ivy
47	bigleaf maple	12,11,10	1	basal decay
48	western redcedar	29	2	viable
49	western redcedar	27	1	fell over due to soil failure; corrected and still alive; vertical trunk is 16' from base; Biltmore stick
50	western redcedar	27	2	viable; ivy; Biltmore stick
51	western redcedar	17	2	viable; Biltmore stick

Field work done on 7/26/2018 and 7/27/2018 by Ryan Neumann-PN-5539A, TRAQ certified      0/dead or hazard 1/decline 2/average 3/excellent  
 3843 Mapleton, West Linn      West Linn      Trees are 12-inch diameter.  
 Pac. Dog, madrone, Garry oak are 6-inch diameter.

78	western redcedar	24	2	viable
79	western redcedar	27	2	viable
80	western redcedar	27	2	viable
81	bigleaf maple	13	0	advanced stem decay
82	western redcedar	13	2	viable
83	western redcedar	17	2	viable
84	western redcedar	14	2	viable
85	western redcedar	34	2	viable; ivy
86	grand fir	38	2	viable; approximately 3' offsite in neighbor's yard; added
87	western redcedar	24	2	viable; ivy
88	western redcedar	16	2	viable; ivy; added

Species	English hawthorn- Crataegus laevigata
bigleaf maple- Acer macrophyllum	grand fir- Abies grandis
black cottonwood- Populus trichocarpa	red alder- Alnus rubra
black walnut- Juglans nigra	Sitka spruce- Picea sitchensis
Douglas fir- Pseudotsuga menziesii	sweet cherry- Prunus avium
western redcedar- Thuja plicata	tulip poplar- Liriodendron tulipifera

Field work done on 7/26/2018 and 7/27/2018 by Ryan Neumann-PN-5539A, TRAQ certified      0/dead or hazard 1/decline 2/average 3/excellent      Field work done on 7/26/2018 and 7/27/2018 by Ryan Neumann-PN-5539A, TRAQ certified      0/dead or hazard 1/decline 2/average 3/excellent

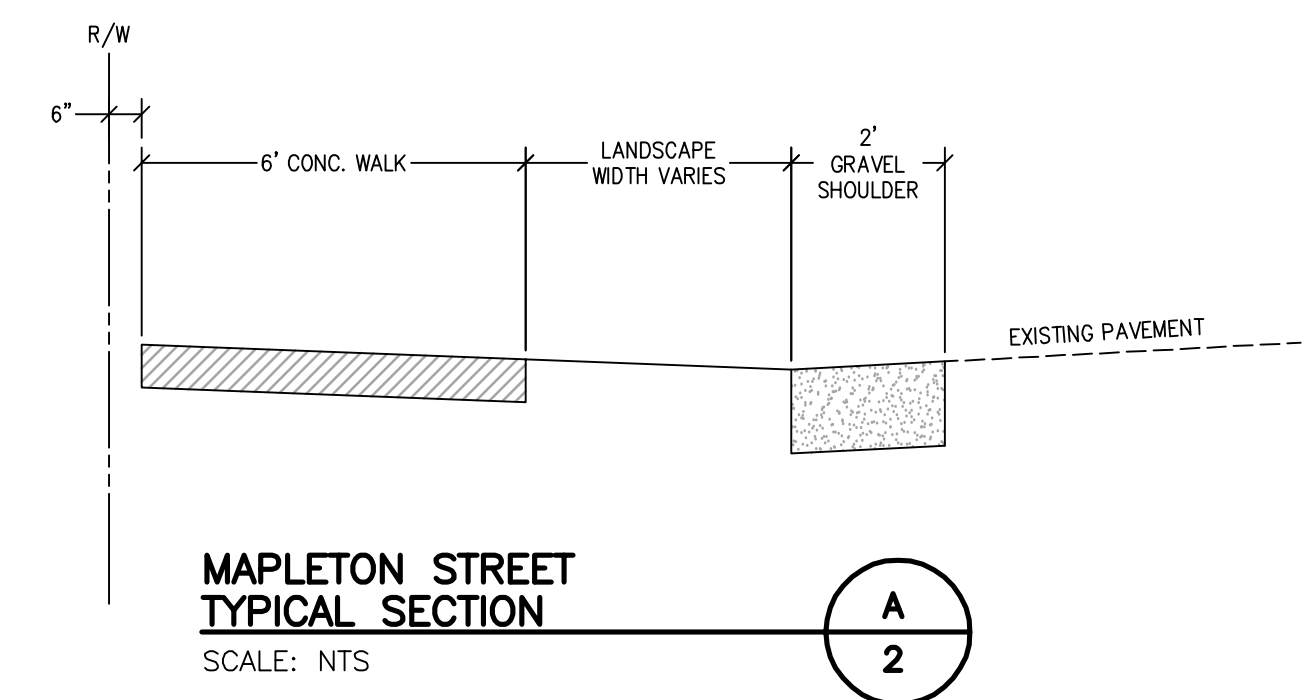
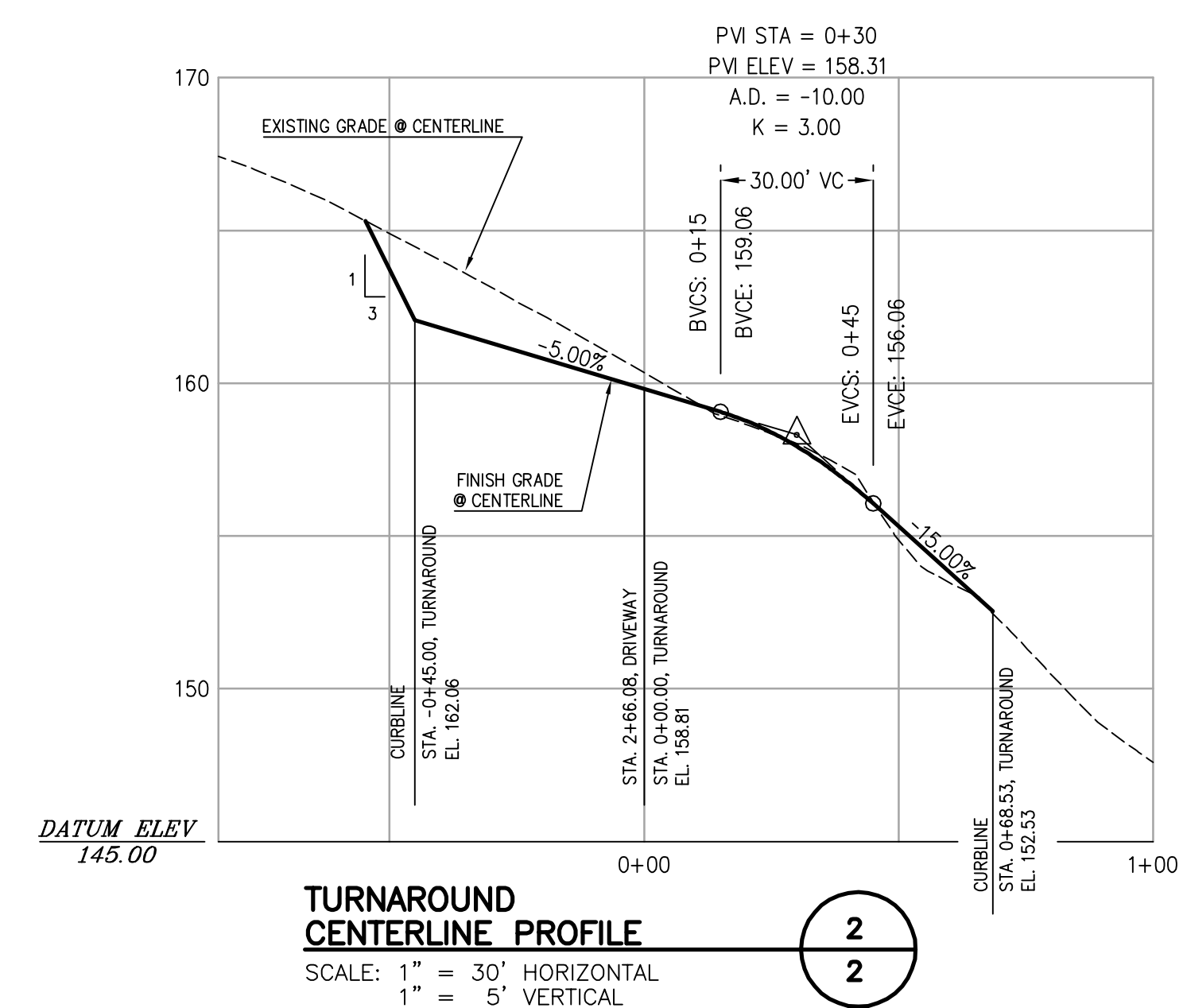
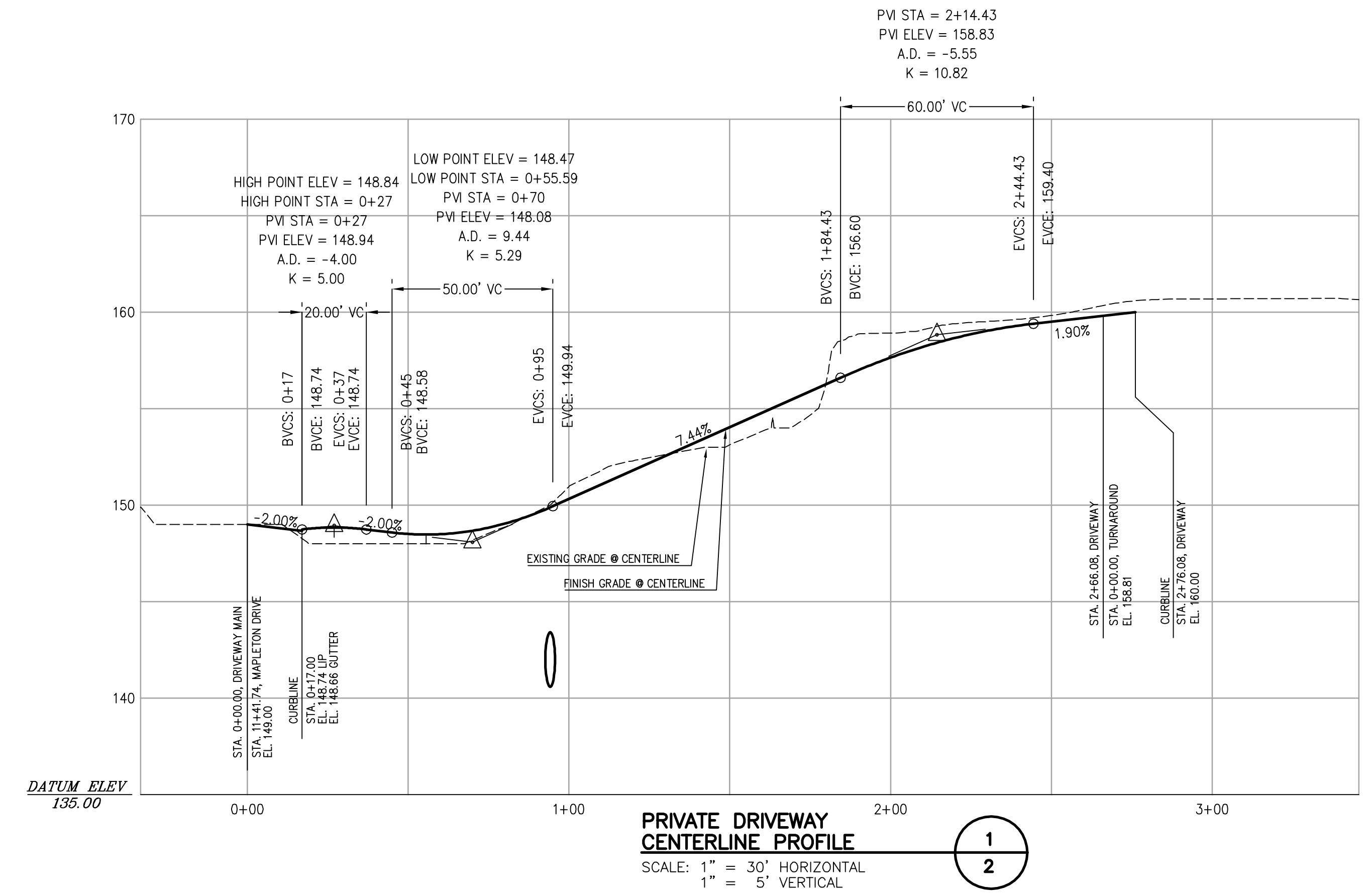
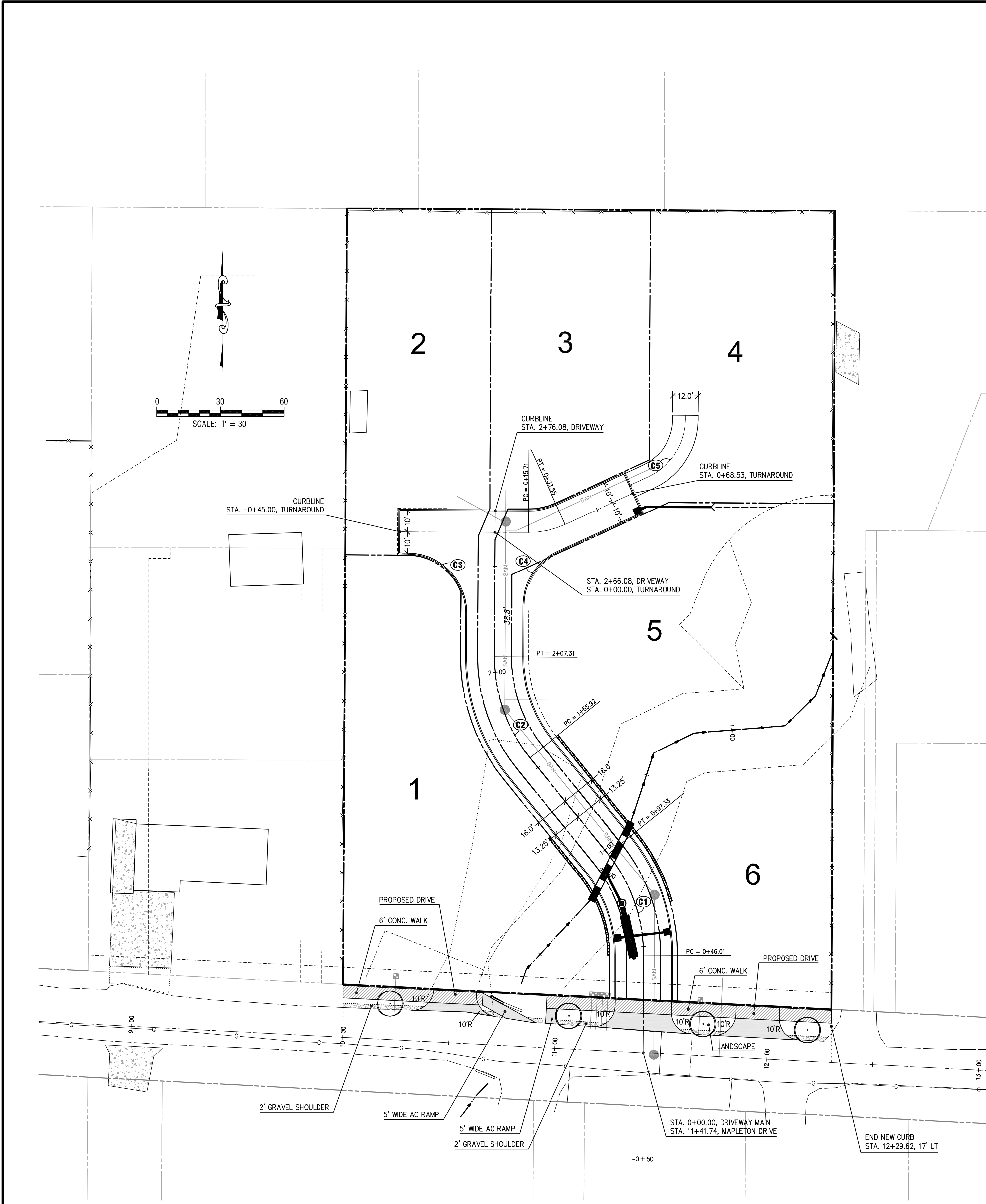


DESIGNED: REG	10-5-18	1	Revised layout to provide better building envelope on Lot 4.
DRAWN: REG			
SCALE: 1" = 30'			
DATE: September 2018			
FILE: 16-ICN-103	DATE	NO.	REVISION

Richard E. Givens, Planning Consultant  
 18680 Sunblaze Dr.  
 Oregon City, OR 97045  
 PH: (503) 479-0097

APPLICANT: Icon Construction & Development, LLC  
 1980 Willamette Falls Drive, Suite 200  
 West Linn, OR 97068  
 PH: (503) 657-0406

**Trillium Creek**  
**Tree Plan**  
 SHEET: **3/3**



CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	75.00	51.33	26.71	50.33	N19°22'09"W	39°12'34"
C2	75.00	51.38	26.75	50.38	S19°20'52"E	39°15'10"
C3	28.00	43.99	28.01	39.60	N44°43'47"W	90°01'02"
C4	28.00	31.79	17.85	30.11	S32°47'59"W	65°02'31"
C5	30.00	34.06	19.13	32.26	N32°47'59"E	65°02'31"

REGISTERED PROFESSIONAL ENGINEER  
 BRUCE D. GOLDSON  
 July 16, 1971  
 OREGON

EXPIRES: 06/30/2019  
 SIGNATURE DATE: 11/17/2018

**PRELIMINARY STREET PLAN AND PROFILES**

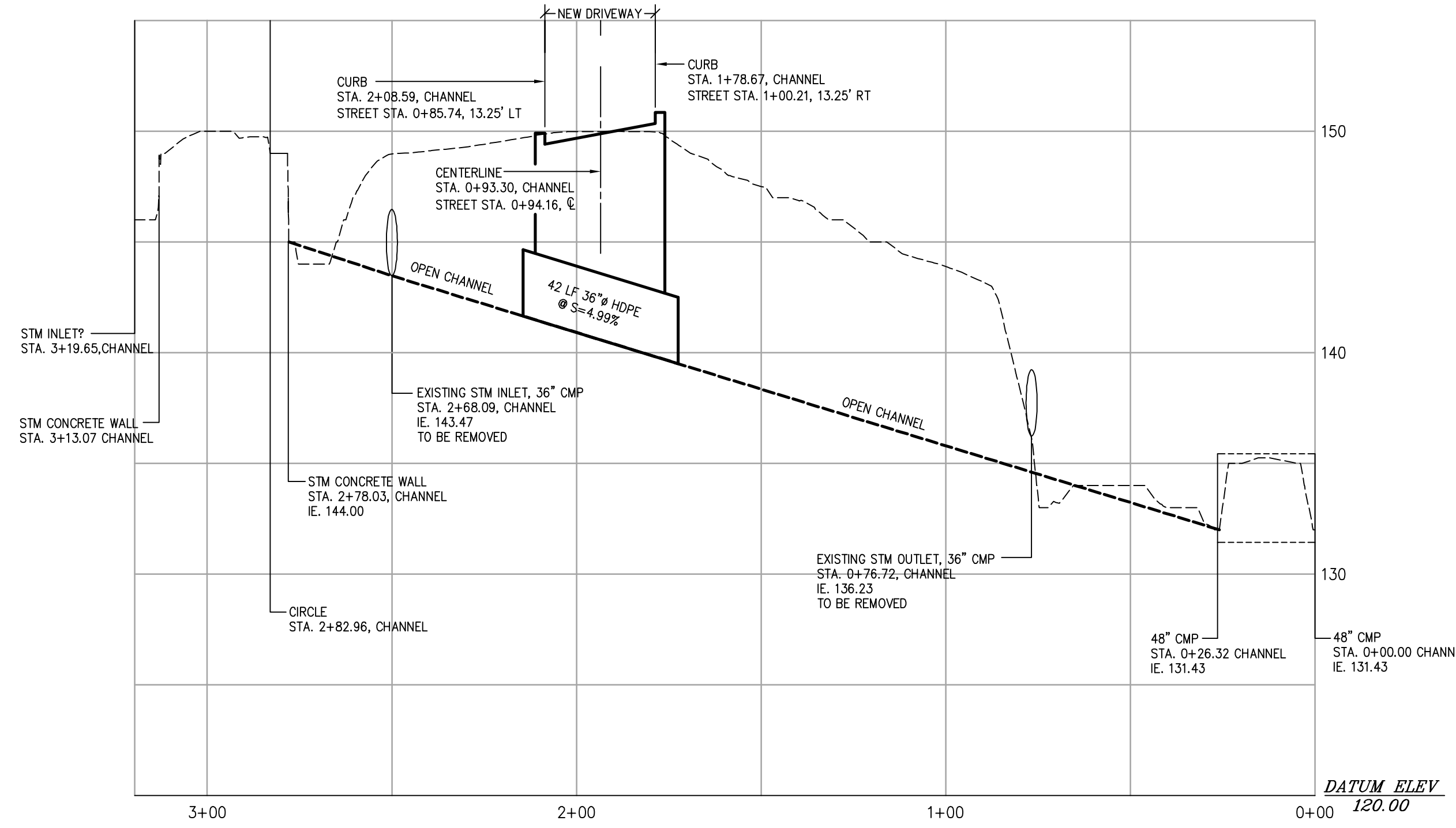
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DATE: August, 2018			
FILE: Trillium Creek Prelim5	DATE	NO.	REVISION

**Theta, llc**  
 ENGINEERING - SURVEYING - PLANNING  
 PO Box 1345  
 Lake Oswego, Oregon 97035  
 503/481-8822  
 email: thetaeng@comcast.net

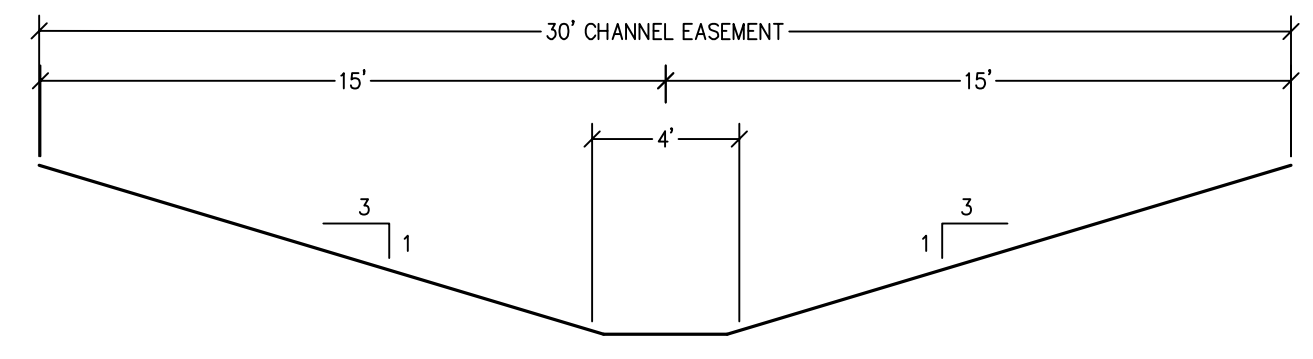
Icon Construction and Development  
 1380 Willamette Falls Drive, No. 200  
 West Linn, Oregon 97068

Trillium Creek

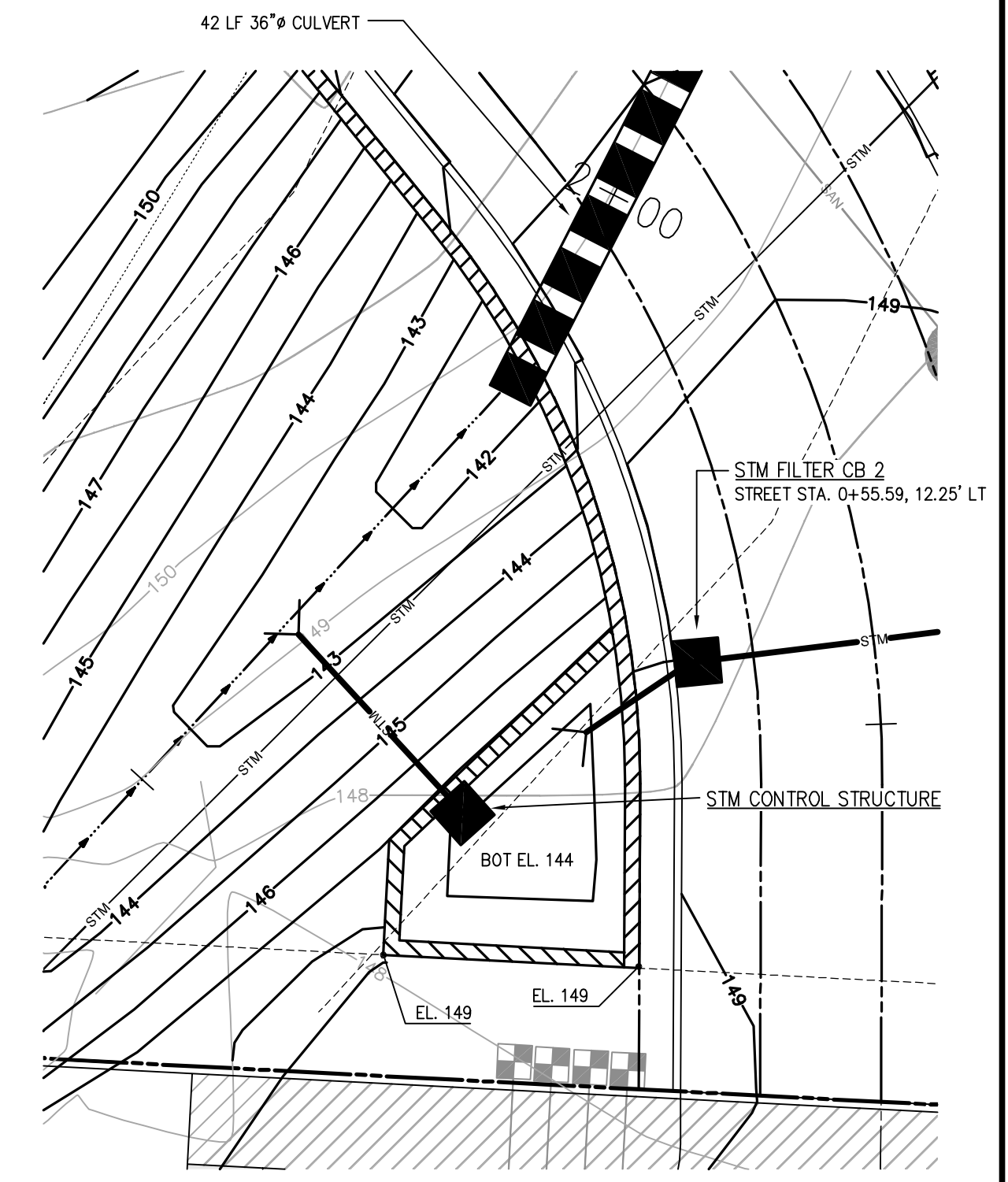
SHEET:  
 1/4



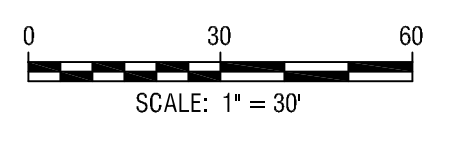
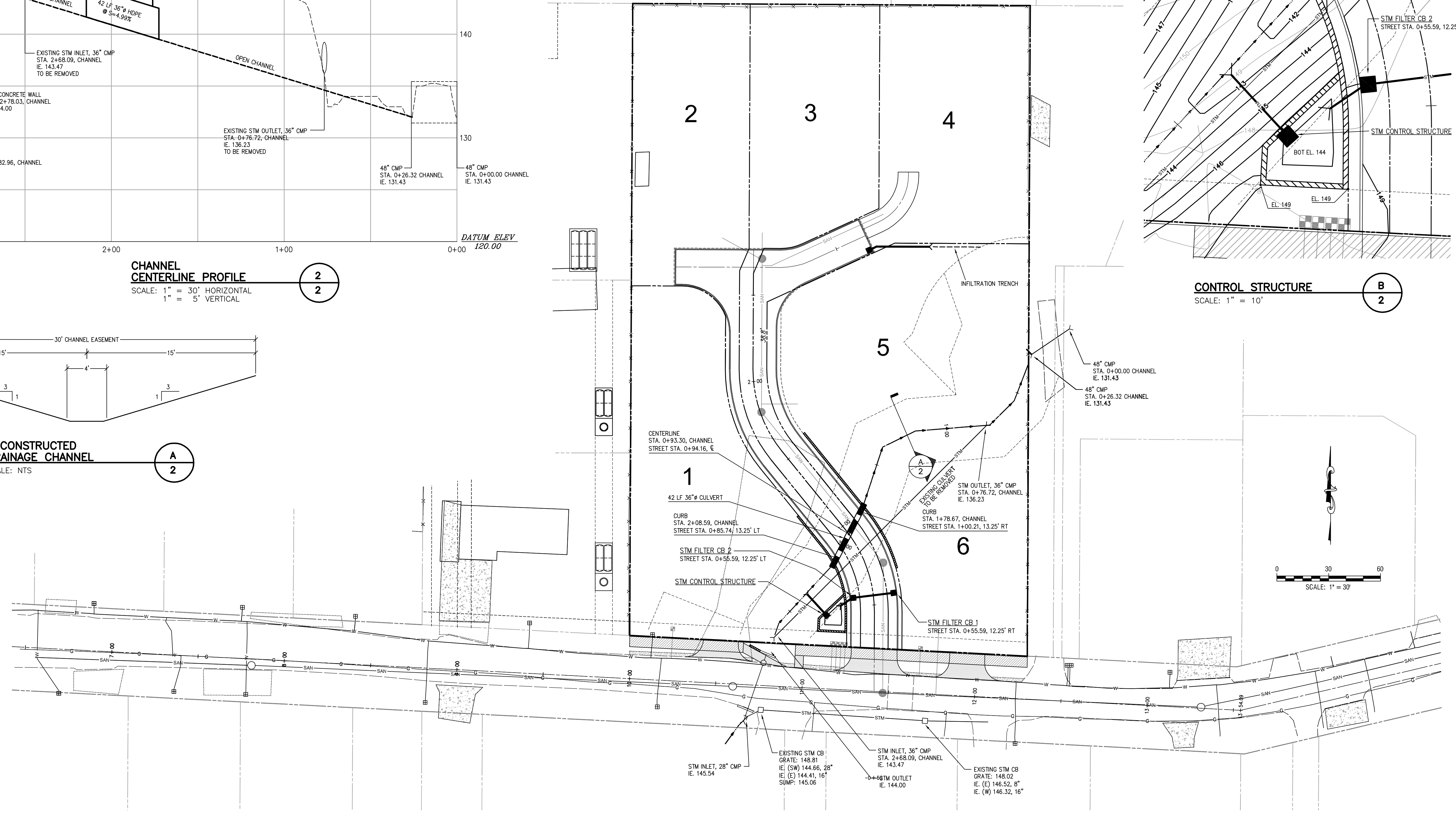
**CHANNEL CENTERLINE PROFILE**  
 SCALE: 1" = 30' HORIZONTAL  
 1" = 5' VERTICAL



**RECONSTRUCTED DRAINAGE CHANNEL**  
 SCALE: NTS



**CONTROL STRUCTURE**  
 SCALE: 1" = 10'



REGISTERED PROFESSIONAL ENGINEER  
 BRUCE D. GOLOSON  
 JULY 16, 1971  
 EXPIRES: 06/30/2019  
 SIGNATURE DATE: 12/27/2018

DESIGNED:	BDG			
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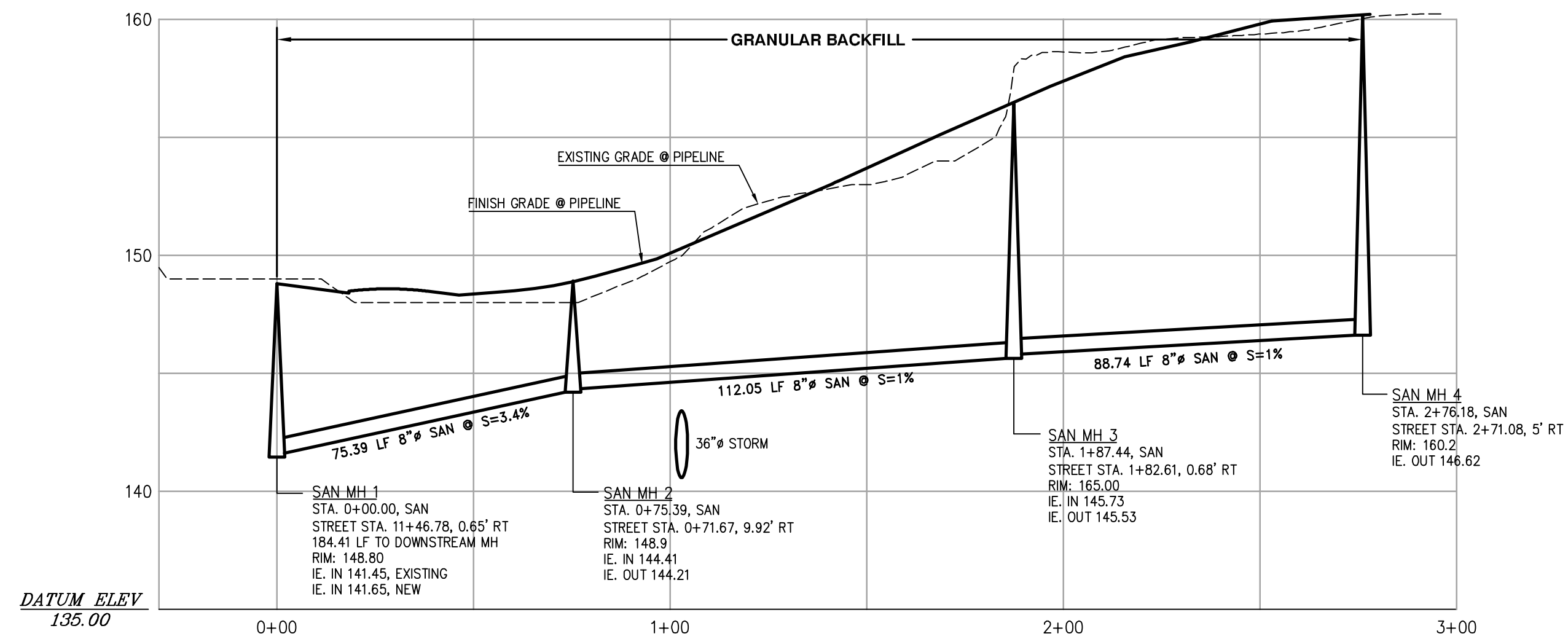
**Theta, llc**  
 ENGINEERING - SURVEYING - PLANNING  
 PO Box 1345 Lake Oswego, Oregon 97035 503/481-8822 email: thetaeng@comcast.net

Icon Construction and Development  
 1380 Willamette Falls Drive, No. 200  
 West Linn, Oregon 97068

**PRELIMINARY STORM DRAINAGE PLAN**  
 Trillium Creek  
 SHEET: 2/4

4/3/19 PC Meeting 176





**SANITARY SEWER PROFILE**  
 SCALE: 1" = 30' HORIZONTAL  
 1" = 5' VERTICAL



REGISTERED PROFESSIONAL ENGINEER  
 BRUCE D. GOLDSOHN  
 JULY 16, 1971  
 EXPIRES: 06/30/2019  
 SIGNATURE DATE: 11/17/2018

DESIGNED: BGD			
DRAWN: BJS			
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DATE: August, 2018			
FILE: Trillium Creek Prelim5	DATE	NO.	REVISION

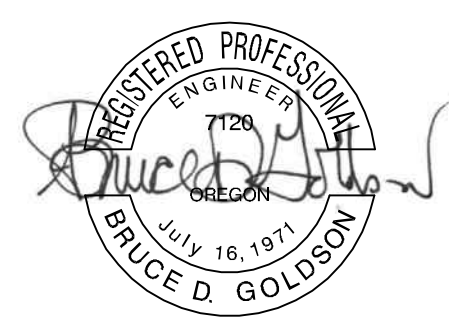
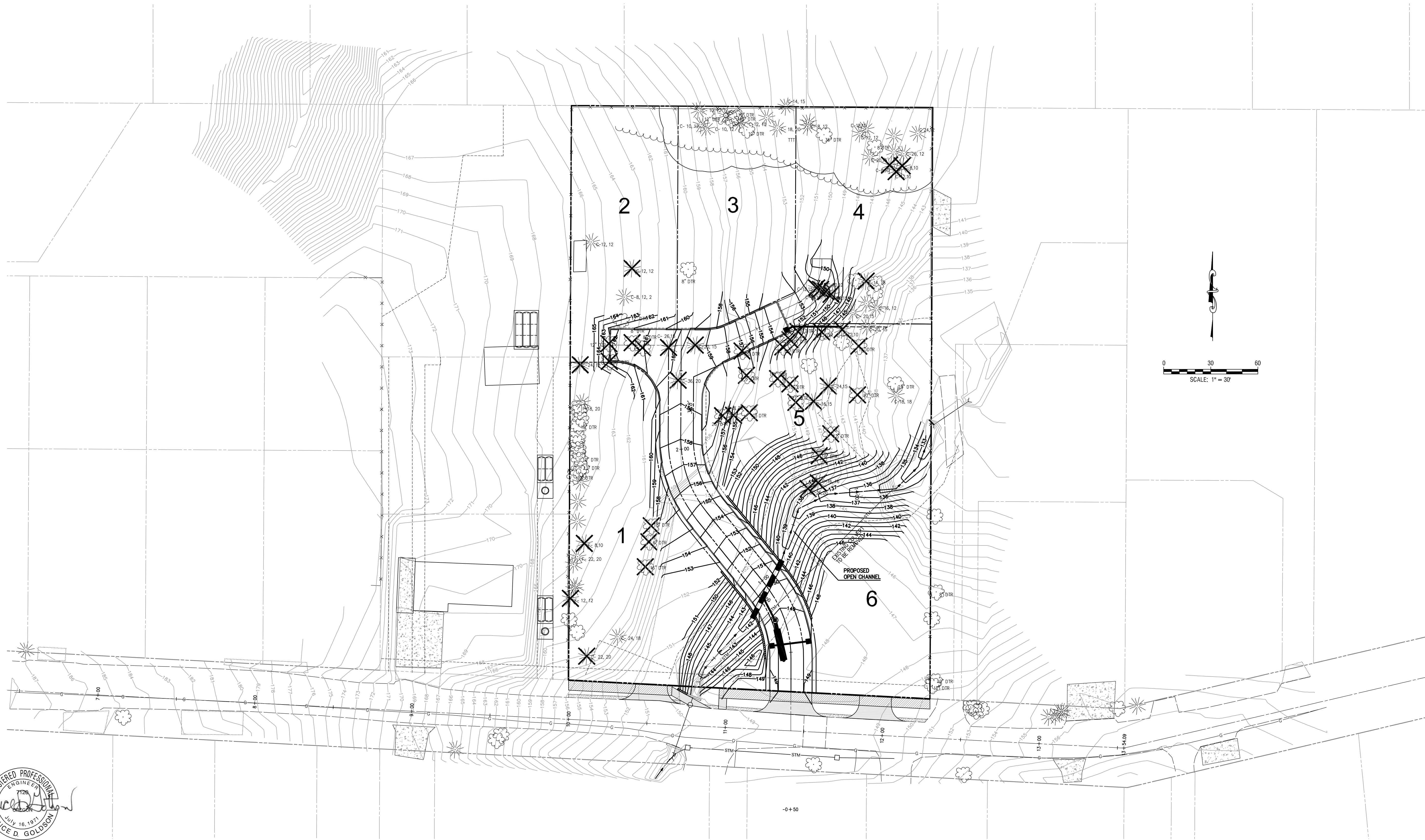
**Theta, llc**  
 ENGINEERING - SURVEYING - PLANNING  
 PO Box 1345 Lake Oswego, Oregon 97035  
 503/481-8822 email: thetaeng@comcast.net

Icon Construction and Development  
 1380 Willamette Falls Drive, No. 200  
 West Linn, Oregon 97068

**PRELIMINARY SANITARY SEWER AND WATER PLAN**

Trillium Creek

4/3/19 PC Meeting  
 177



EXPIRES: 06/30/2019  
SIGNATURE DATE: 11/17/2018

2014-129T			
DESIGNED: BDG			
DRAWN: BJS			
SCALE: 1" = 30'			
DATE: August, 2018			
FILE: Trillium Creek Prelim5	DATE	NO.	REVISION

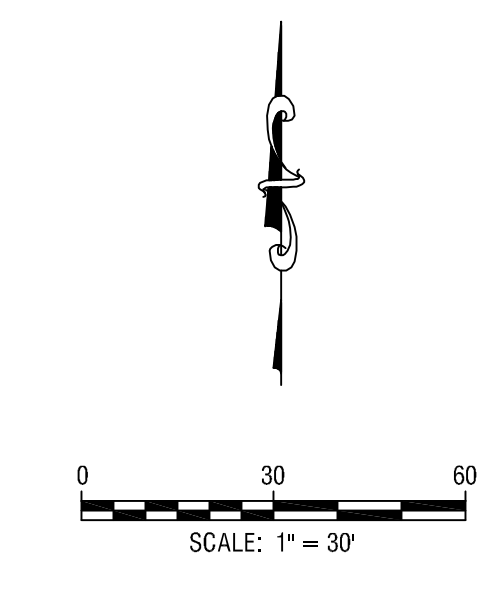
**Theta, llc**  
ENGINEERING - SURVEYING - PLANNING  
PO Box 1345      503/481-8822  
Lake Oswego, Oregon 97035      email: thetaeng@comcast.net

Icon Construction and Development  
1380 Willamette Falls Drive, No. 200  
West Linn, Oregon 97068

**Trillium Creek**

SHEET:  
**4/4**






  
 EXPIRES: 06/30/2019  
 SIGNATURE DATE: 11/17/2018

2014-129T

DESIGNED: BDG			
DRAWN: BJS			
SCALE: 1" = 30'			
DATE: August, 2018			
FILE: Trillium Creek Prelim5	DATE	NO.	REVISION

**Theta, llc**

ENGINEERING - SURVEYING - PLANNING

PO Box 1345      503/481-8822  
 Lake Oswego, Oregon 97035      email: thetaeng@comcast.net

Icon Construction and Development  
 1380 Willamette Falls Drive, No. 200  
 West Linn, Oregon 97068

**Trillium Creek**

**TREE REMOVAL PLAN**

SHEET:  
**5/5**

13190 SW 68th Parkway, Suite 150  
 Tigard, Oregon 97223  
 503.968.6655 www.cesnw.com  
 CESNW PROJ: 2869  
 DATE: 7-22-2013

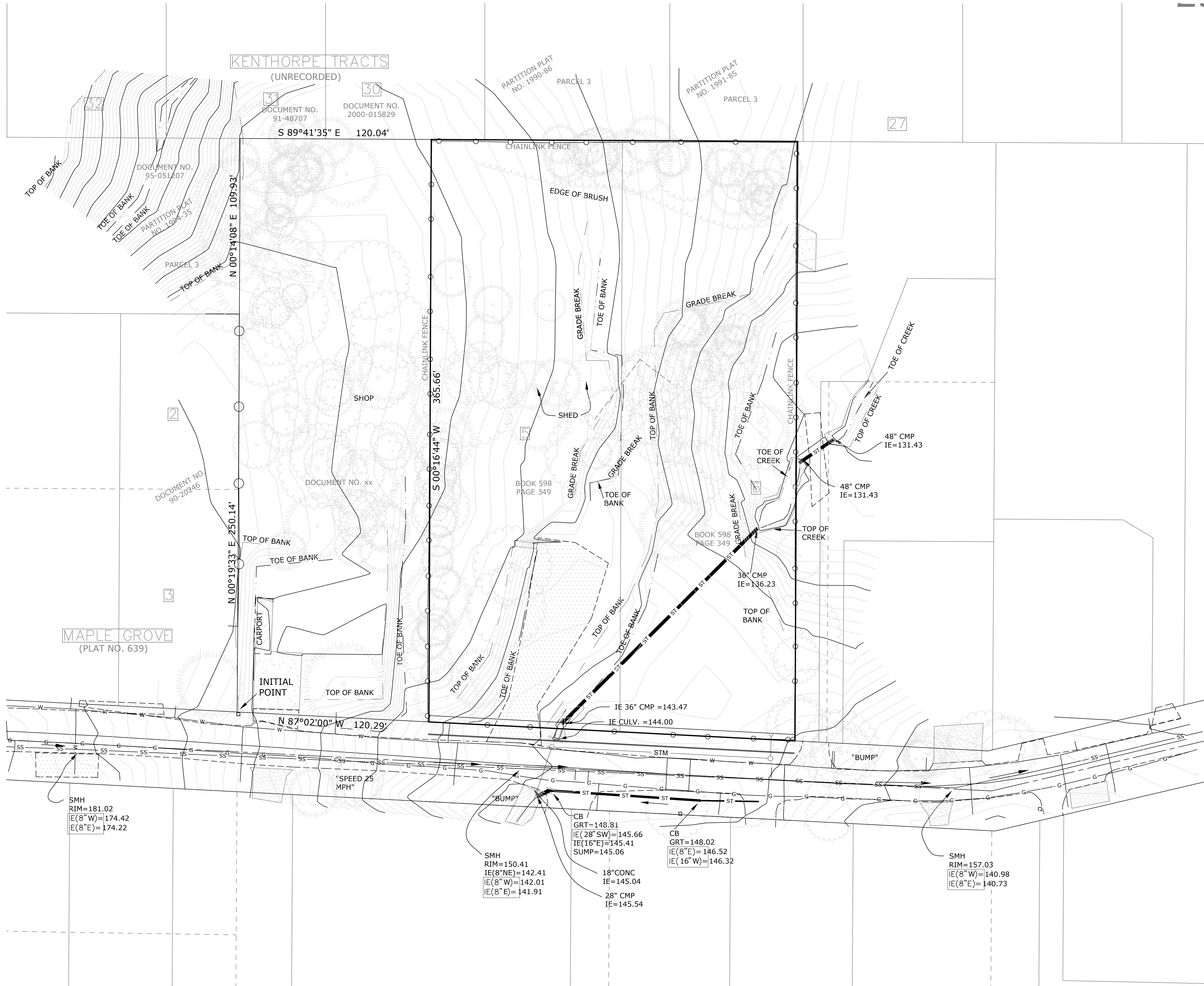
REGISTERED  
 PROFESSIONAL  
 LAND SURVEYOR  
**PRELIMINARY**  
 OREGON  
 DECEMBER 13, 2007  
 RYAN H. GODSEY  
 65604  
 RENEWS: 6/30/17

- LEGEND**
- CATCH BASIN
  - WATER VALVE
  - WATER METER
  - SANITARY SEWER MANHOLE
  - STORM DRAIN MANHOLE
  - CLEAN OUT
  - IRRIGATION CONTROL VALVE
  - GAS VALVE
  - GAS METER
  - MAIL BOX
  - LUMINAIRE
  - TV RISER
  - TELEPHONE RISER
  - SIGNAL JUNCTION BOX
  - ELECTRIC METER
  - ELECTRIC JUNCTION BOX
  - UTILITY POLE
  - GUY ANCHOR
  - FIRE HYDRANT
  - SIGN
  - LINE CONTINUES TO UNKNOWN LOCATION
  - UNDERGROUND ELECTRIC LINE
  - UNDERGROUND STORM DRAIN LINE
  - UNDERGROUND SANITARY SEWER LINE
  - UNDERGROUND TELEPHONE LINE
  - UNDERGROUND CABLE TV LINE
  - UNDERGROUND WATER LINE
  - UNDERGROUND NATURAL GAS LINE
  - OVERHEAD UTILITY LINE
  - FENCE LINE
  - SANITARY SEWER MANHOLE
  - STORM DRAIN MANHOLE
  - CATCH BASIN
  - FIELD INLET
  - CONCRETE
  - ASPHALT
  - DECIDUOUS TREE (DTR)
  - EVERGREEN TREE (ETR)
- EXAMPLE  
 12" DTR 5  
 DIAMETER      TYPE      NO. OF TREES FROM ONE BASE

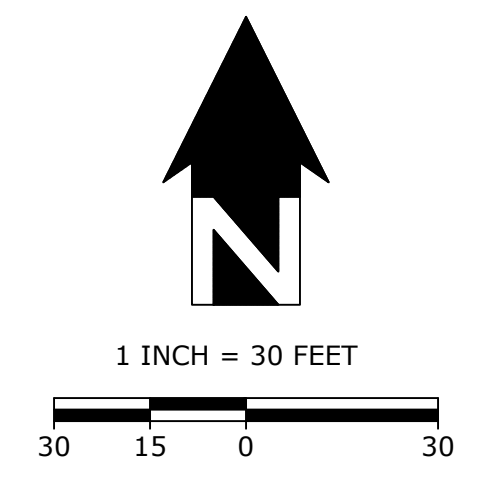
**NOTES**

1. THIS SURVEY MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN ARE ALL THE UTILITIES IN THE AREA. THE UNDERGROUND UTILITIES SHOWN ARE BASED ON LOCATE PAINT MARKINGS IN THE FIELD AND AS-BUILT MAPPING. UTILITIES SHOWN MAY NOT BE IN THE EXACT LOCATION AS NOTED ON THIS SURVEY, BUT ARE LOCATED AS ACCURATELY AS POSSIBLE FROM PAINT MARKINGS ON THE GROUND.

2. STORM DRAIN AND SANITARY SEWER LINES SHOWN ARE APPROXIMATE AND BASED ON VISIBLE ABOVE GROUND EVIDENCE AND AS-BUILT MAPS.



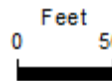
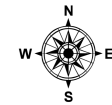
**TOPOGRAPHIC SURVEY**



## PC-2 PROPERTY MAPS



# 3841/3843 Mapleton Aerial



Scale 1:1,200 - 1 in = 100 ft  
Scale is based on 8-1/2 x 11 paper size



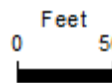
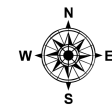
Map created by: DWYSS  
Date Created: 20-Mar-19 04:37 PM

**WEST LINN GIS**

DISCLAIMER: This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information. Map scale is approximate. Source: West Linn GIS (Geographic Information System) MapOptix.



# 3841/3843 Mapleton Zoning



Scale 1:1,200 - 1 in = 100 ft  
Scale is based on 8-1/2 x 11 paper size



Map created by: DWYSS  
Date Created: 20-Mar-19 04:38 PM

**WEST LINN GIS**

DISCLAIMER: This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information. Map scale is approximate. Source: West Linn GIS (Geographic Information System) MapOptix.



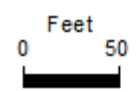
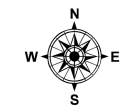
# 3841/3843 Mapleton Existing HCA



### Legend

Metro Habitat Protection  
Published October 2005

- Habitat Conservation Area
- Allow Development



Scale 1:1,200 - 1 in = 100 ft  
Scale is based on 8-1/2 x 11 paper size

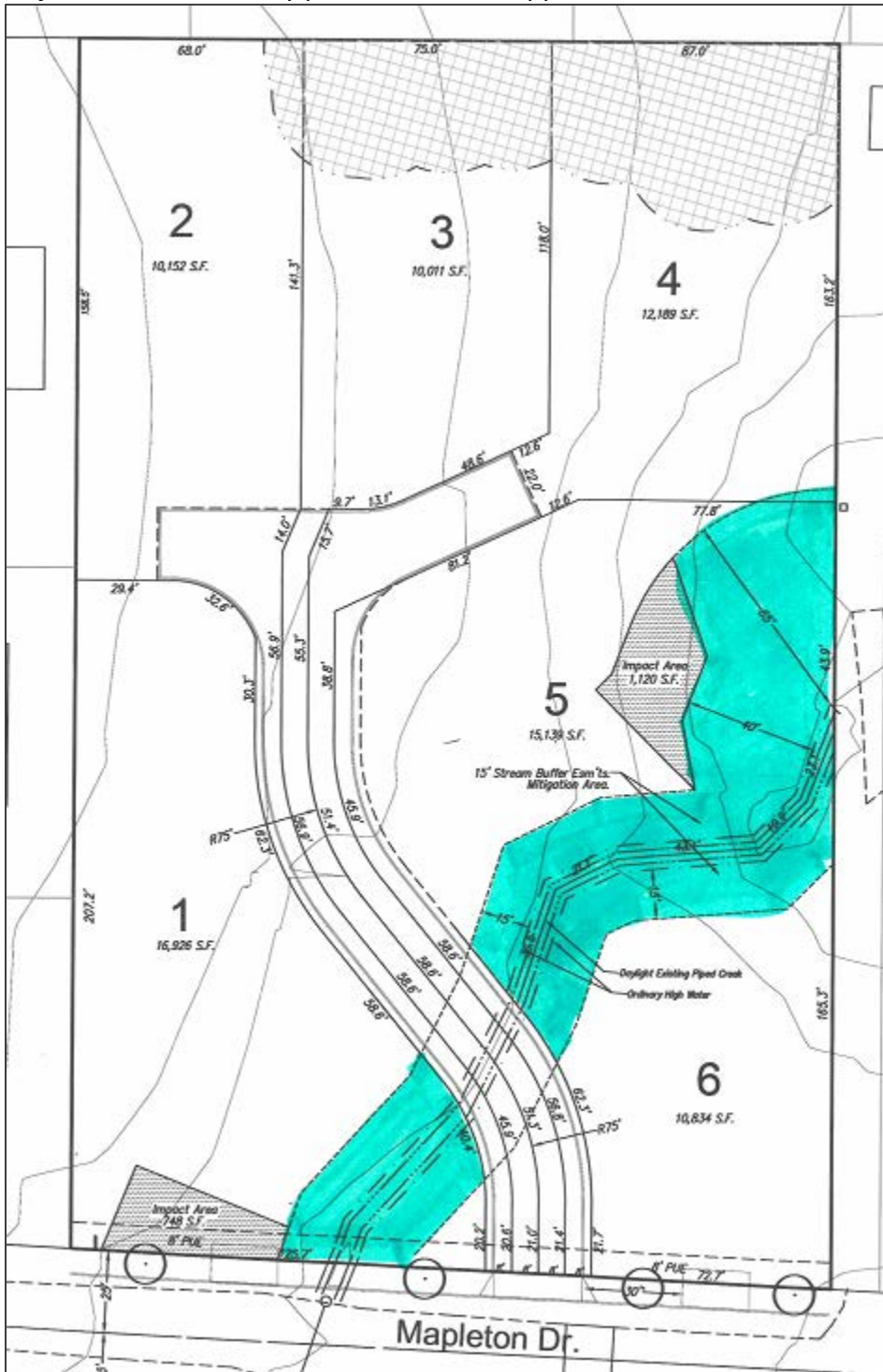


Map created by: DWYSS  
Date Created: 20-Mar-19 04:40 PM

**WEST LINN GIS**

DISCLAIMER: This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information. Map scale is approximate. Source: West Linn GIS (Geographic Information System) MapOptix.

Adjusted HCA Boundary per Condition of Approval 3





## PC-3 COMPLETENESS LETTER



CITY OF  
**West Linn**

February 8, 2019

Icon Construction & Development, LLC  
1980 Willamette Falls Drive, Suite 200  
West Linn, OR 97068

SUBJECT: SUB-18-03/WAP-18-04/WRG-18-03 application for six-lot Subdivision, Water Resource Area Permit, and Habitat Conservation Area Review at 3841/3843 Mapleton Drive

Greetings:

You submitted this application on September 26, 2018. The Planning and Engineering Departments found the application incomplete on October 25, 2018. All required information was subsequently provided on November 19/27, 2018; December 27, 2018; January 3/23/, 2019; and February 5/8, 2019. The application has now been deemed **complete**. The city has 120 days to exhaust all local review; that period ends June 8, 2019.

Please be aware that determination of a complete application does not guarantee a recommendation of approval from staff for your proposal as submitted – it signals that staff believes you have provided the necessary information for the Planning Commission to render a decision on your proposal.

A 20-day public notice will be prepared and mailed. This notice will identify the Planning Commission hearing date.

Please contact me at 503-742-6064, or by email at [dwyss@westlinnoregon.gov](mailto:dwyss@westlinnoregon.gov) if you have any questions or comments.

Sincerely,

Darren Wyss  
Associate Planner

## **PC-4 AFFADAVIT AND NOTICE PACKET**

**AFFIDAVIT OF NOTICE**

We, the undersigned do hereby certify that, in the interest of the party (parties) initiating a proposed land use, the following took place on the dates indicated below:

**GENERAL**

File No. SVB-18-03/WAP-18-04/WRG-18-03 Applicant's Name Icon Construction  
Development Name \_\_\_\_\_  
Scheduled Meeting/Decision Date 4-3-19

**NOTICE:** Notices were sent at least 20 days prior to the scheduled hearing, meeting, or decision date per Section 99.080 of the Community Development Code. (check below)

**TYPE A**

- A. The applicant (date) 3-14-19 (signed) S. Skroyer
- B. Affected property owners (date) 3-14-19 (signed) S. Skroyer
- C. School District/ Board (date) \_\_\_\_\_ (signed) \_\_\_\_\_
- D. Other affected gov't. agencies (date) 3-14-19 (signed) S. Skroyer
- E. Affected neighborhood assns. (date) 3-14-19 (all) (signed) S. Skroyer
- F. All parties to an appeal or review (date) \_\_\_\_\_ (signed) \_\_\_\_\_

At least 10 days prior to the scheduled hearing or meeting, notice was published/posted:

Tidings (published date) 3-21-19 (signed) S. Skroyer  
City's website (posted date) 3-14-19 (signed) S. Skroyer

**SIGN**

At least 10 days prior to the scheduled hearing, meeting or decision date, a sign was posted on the property per Section 99.080 of the Community Development Code.

(date) 3-22-2019 (signed) [Signature]

**NOTICE:** Notices were sent at least 14 days prior to the scheduled hearing, meeting, or decision date per Section 99.080 of the Community Development Code. (check below)

**TYPE B** \_\_\_\_\_

- A. The applicant (date) \_\_\_\_\_ (signed) \_\_\_\_\_
- B. Affected property owners (date) \_\_\_\_\_ (signed) \_\_\_\_\_
- C. School District/ Board (date) \_\_\_\_\_ (signed) \_\_\_\_\_
- D. Other affected gov't. agencies (date) \_\_\_\_\_ (signed) \_\_\_\_\_
- E. Affected neighborhood assns. (date) \_\_\_\_\_ (signed) \_\_\_\_\_

Notice was posted on the City's website at least 10 days prior to the scheduled hearing or meeting.  
Date: \_\_\_\_\_ (signed) \_\_\_\_\_

**STAFF REPORT** mailed to applicant, City Council/Planning Commission and any other applicable parties 10 days prior to the scheduled hearing.

(date) 3-22-2019 (signed) [Signature]

**FINAL DECISION** notice mailed to applicant, all other parties with standing, and, if zone change, the County surveyor's office.

(date) \_\_\_\_\_ (signed) \_\_\_\_\_

**CITY OF WEST LINN PLANNING COMMISSION  
PUBLIC HEARING NOTICE  
FILE NO. SUB-18-03/WAP-18-04/WRG-18-03**

The West Linn Planning Commission will hold a public hearing, on **Wednesday, April 3, 2019, starting at 6:30 p.m.** in the Council Chambers of City Hall, 22500 Salamo Road, West Linn, to consider a request for a Six-Lot Subdivision, Water Resource Area Permit, and Habitat Conservation Area Review at 3841/3843 Mapleton Drive.

The decision by the Planning Commission to approve or deny this request will be based upon the applicable criteria found in Chapters 11, 28, 32, 48, 85, 92, and 99 of the West Linn Community Development Code. At the hearing, it is important that comments relate specifically to the applicable criteria.

You have been notified of this proposal because County records indicate that you own property within 500 feet of the subject property (Clackamas County Assessor's Map 2S-1E-24BC, Tax Lots 400 and 500), or as otherwise required by Chapter 99 of the CDC.

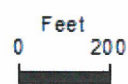
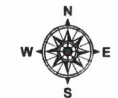
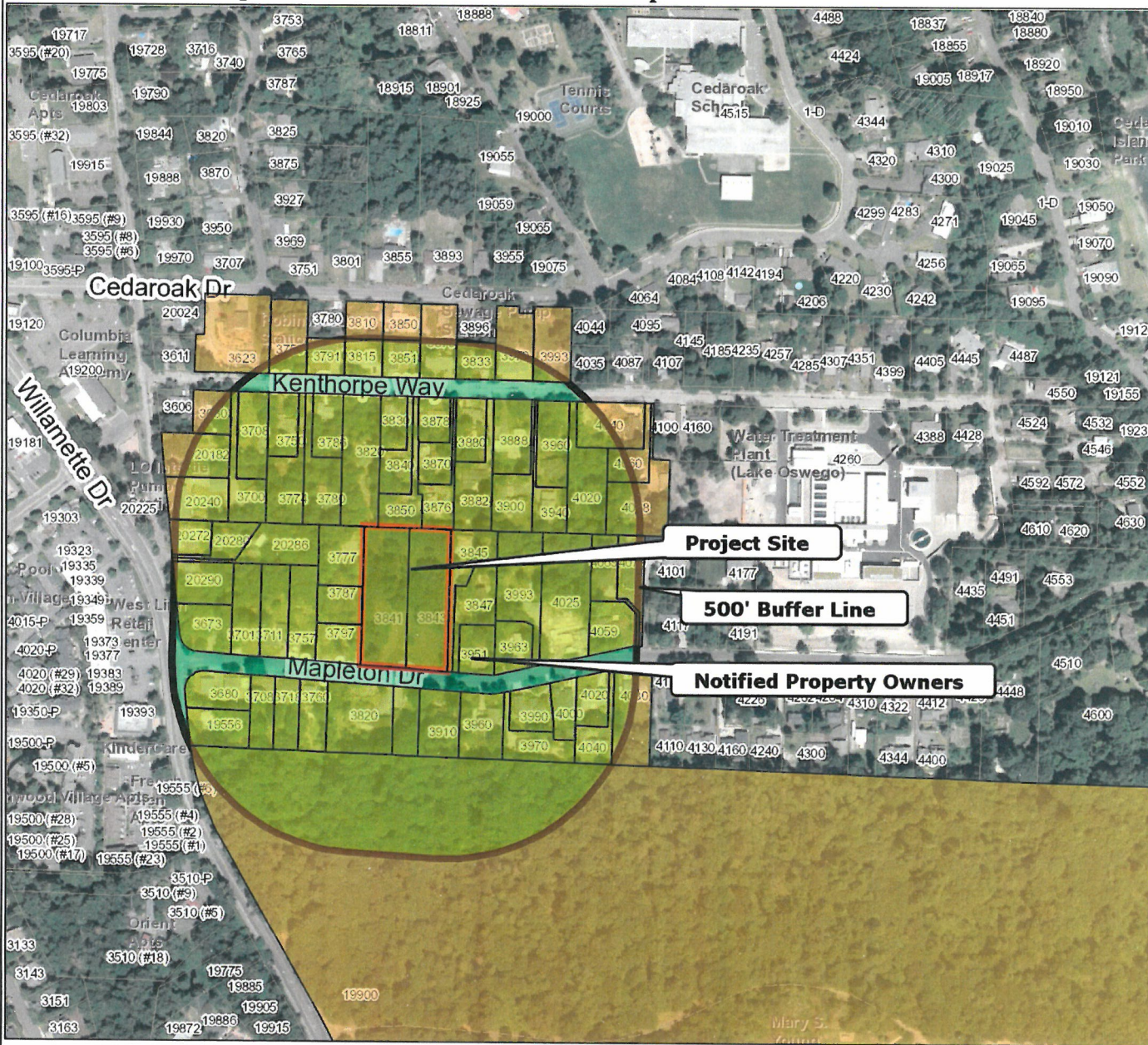
The complete application in the above noted file is available for inspection at no cost at City Hall or via the web site at <https://westlinnoregon.gov/planning/3841-3843-mapleton-drive-6-lot-subdivision-0> or copies can be obtained for a minimal charge per page. At least ten days prior to the hearing, a copy of the staff report will be available for inspection. For further information, please contact Associate Planner Darren Wyss at [dwyss@westlinnoregon.gov](mailto:dwyss@westlinnoregon.gov) or 503-742-6064. Alternately, visit City Hall, 22500 Salamo Road, West Linn, OR 97068.

The hearing will be conducted in accordance with the rules of Section 99.170 of the CDC. Anyone wishing to present written testimony on this proposed action may do so in writing prior to, or at the public hearing. Oral testimony may be presented at the public hearing. At the public hearing, the Planning Commission will receive a staff presentation, and invite both oral and written testimony. The Planning Commission may continue the public hearing to another meeting to obtain additional information, leave the record open for additional evidence, arguments, or testimony, or close the public hearing and take action on the application as provided by state law. **In the event that the Planning Commission decision is appealed, City Council review of the appeal will be de novo.** Failure to raise an issue in person or by letter at some point prior to the close of the hearing, or failure to provide sufficient specificity to afford the decision maker an opportunity to respond to the issue, precludes an appeal to the Land Use Board of Appeals (LUBA) based on that issue.

Publish: West Linn Tidings, March 21, 2019



# 3841-3843 Mapleton Drive Notification Map



Scale 1:4,800 - 1 in = 400 ft  
Scale is based on 8-1/2 x 11 paper size



Map created by: SSHROYER  
Date Created: 07-Mar-19 04:54 PM

**WEST LINN GIS**

**DISCLAIMER:** This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information. Map scale is approximate. Source: West Linn GIS (Geographic Information System) MapOptix.

4/3/19 PC Meeting  
191





# CITY OF West Linn

## **CITY OF WEST LINN NOTICE OF UPCOMING PLANNING COMMISSION HEARING**

**PROJECT # SUB-18-03/WAP-18-04/WRG-18-03  
MAIL: 3/14/19 TIDINGS: 3/21/19**

### **CITIZEN CONTACT INFORMATION**

To lessen the bulk of agenda packets, land use application notice, and to address the worries of some City residents about testimony contact information and online application packets containing their names and addresses as a reflection of the mailing notice area, this sheet substitutes for the photocopy of the testimony forms and/or mailing labels. A copy is available upon request.

## PC-5 PUBLIC COMMENT

**From:** [Arnold, Jennifer](#)  
**To:** [Wyss, Darren](#)  
**Subject:** FW: proposed 6-lot subdivision (Trillium Creek)  
**Date:** Thursday, October 11, 2018 8:40:34 AM

---

**From:** Rick Givens [mailto:rickgivens@gmail.com]  
**Sent:** Thursday, October 11, 2018 8:35 AM  
**To:** Cindy Kauffman <cindy@cascadefoodbrokers.com>  
**Cc:** Darren Gusdorf <darren@iconconstruction.net>; Arnold, Jennifer <jarnold@westlinnoregon.gov>; Bruce Goldson <thetaeng@comcast.net>  
**Subject:** RE: proposed 6-lot subdivision (Trillium Creek)

Hi Cindy,

Thanks for your email. I am copying Jennifer Arnold of the West Linn Planning Department on this email. As the applicant, we don't have any control over when City or other public agency staff visit the site for their review of the project. Perhaps Ms. Arnold can be of some help in that regard.

We understand the concerns expressed by you and your neighbors at the Neighborhood Meeting. We will discuss this with our engineering consultants will get back to you with more information that, hopefully, will ease some of your concerns.

Rick

---

**From:** [Cindy Kauffman](#)  
**Sent:** Tuesday, October 9, 2018 8:02 AM  
**To:** [rickgivens@gmail.com](mailto:rickgivens@gmail.com)  
**Subject:** proposed 6-lot subdivision

Rick,

I was at the meeting at the Robinwood station and I have major concerns about the creek. I would like to be informed of any site visits from the city, metro and any environmental agency that might look at the creek in the future. There are 4 or 5 neighbors on the creek that will be affected by the project. My property at 3993 Mapleton has a major bend in the creek that is eroding and I'm not sure what the effect of your project will have on the water flow and speed during the heavy rain months.

Thank you,

*Cindy Kauffman*

Cell: 503-481-5852

ROBINWOOD NEIGHBORHOOD ASSOCIATION

October 9, 2018

Mr. John Williams  
Community Development Director  
City of West Linn  
22500 Salamo Road  
West Linn, Oregon 97068

RE: "Proposed" 6-lot Subdivision, 3841 and 3843 Mapleton Drive

Dear Mr. Williams,

On September 25, 2018, the preliminary proposal for the Mapleton Drive 6-lot Subdivision project was presented to the members attending a "special" meeting of the Robinwood Neighborhood Association.

Mr. Richard E. Givens, Planning Consultant, ICON Construction and Development and Mr. Darren Gusdorf, General Manager, Commercial & Residential Division for ICON Construction provided details of the proposal and other pertinent information relative to the planning and permit process, potential time lines for the permit, preliminary start and completion dates for the project.

There was much discussion surrounding the opening of the creek "to daylight". There was positive agreement on the restoration of the water course through the property. Given the past history of flooding in the area, there were major concerns expressed on the effect and impact, by the water flow, to the adjacent properties and those down stream of the project site.

The ICON Representatives reassurances that their activities and/or completed project would not make the "...existing run-off conditions any worse...", on the adjacent property owners was found to be disconcerting by a number of residents.

The Robinwood Neighborhood Association has no expertise in the areas of hydrology or flood control abatement programs. We only ask, and would appreciate, the Planning Commission require the necessary study to examine the existing conditions and potential adverse effects by the stream restoration, and the construction of the 6-lot subdivision, on the downstream properties; and, the feasible implementation of remedial actions which might be available to afford protection of those properties, prior to the issuance of a permit.

In addition to the above request, we believe you will find the suggestions listed below to be reasonable and that they fall within the parameters of good development practices:

1) The Developer should distribute a “flyer” door to door to the neighbor’s houses adjacent to the Mapleton Drive Site, and to those neighbor’s house he feels, the occupants of which, will be impacted by the construction and development activities.

The “flyer” should contain information pertaining to start and potential ending dates of the project, days and hours of operation, a brief description of activities planned for the site, a description of the boundaries of the site, the name and telephone number of a resource/question line, and any other information the Developer feels relevant to homeowners residing in the impacted area;

2) the Developer should implement dust control/dust abatement procedure and/or plans;

3) a plan to minimize, to the extent practical, the constant idling of engines and subsequent spread of exhaust fumes into the neighborhood;

4) no construction equipment including “porta potties” should be located outside of the exterior boundaries of the construction site;

5) employee parking should, to the extent practical, be confined within the exterior boundaries of the project site. Any off-site employee street parking should not block driveways, mailboxes, and/or collection day trash receptacles; and,

6) given the limited width of the Mapleton Drive roadway construction vehicles occupying the roadway should be minimized to the extent necessary, and “flaggers” utilized to expedite the normal ingress and egress of residential traffic.

Finally, The Neighborhood Association is about to embark on an initiative, in conjunction with the City, to revise those portions of the Robinwood Neighborhood Plan dealing with the installation of curbs and sidewalks. While this process will take some time, it is our hope to maintain the current rural fabric currently enjoyed by the neighborhood.

In the interim, and in this case, we would ask that consideration be given to a connection to the Mapleton Drive street, from the newly installed road within the project, be designed, minus the sidewalks.

Please know, the Developer, as a land owner, is more than welcome to join and participate in the Robinwood Neighborhood Association monthly meetings and provide his insight and suggestions to other developers as they materialize



The members of the Robinwood Neighborhood appreciate the opportunity to review the proposal by ICON Construction, and we wish them success in their endeavor.

Thank you for your consideration of our comments.

Sincerely yours,

/s/ James T. O'Toole

James T. O'Toole  
President

**Robinwood Neighborhood Association Board Members**

Jim O'Toole, President      Kazi Ahmed, Vice-president  
Jenne Henderson, Secretary      Christine Steel, Treasurer  
Sharon Pollmann, Ambassador