

DEVELOPMENT REVIEW APPLICATION

For Office Use Only			
STAFF CONTACT Chris Myers	PROJECT NO(S). LLA-22-06	PRE-APPLICATION NO. PA-22-17	
NON-REFUNDABLE FEE(S) \$800 + \$200	REFUNDABLE DEPOSIT(S)	TOTAL	\$1,000

Type of Review (Please check all that apply):

- | | | |
|--|---|--|
| <input type="checkbox"/> Annexation (ANX) | <input type="checkbox"/> Historic Review | <input 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"/> Code Interpretation | <input checked="" type="checkbox"/> Lot Line Adjustment (LLA) | <input type="checkbox"/> Time Extension |
| <input type="checkbox"/> Conditional Use (CUP) | <input type="checkbox"/> Minor Partition (MIP) (Preliminary Plat or Plan) | <input type="checkbox"/> Variance (VAR) |
| <input type="checkbox"/> Design Review (DR) | <input type="checkbox"/> Modification of Approval | <input type="checkbox"/> Water Resource Area Protection/Single Lot (WAP) |
| <input type="checkbox"/> Tree Easement Vacation | <input type="checkbox"/> Non-Conforming Lots, Uses & Structures | <input type="checkbox"/> Water Resource Area Protection/Wetland (WAP) |
| <input type="checkbox"/> Final Plat or Plan (FP) | <input type="checkbox"/> Planned Unit Development (PUD) | <input type="checkbox"/> Willamette & Tualatin River Greenway (WRG) |
| <input type="checkbox"/> Flood Management Area | <input type="checkbox"/> Street Vacation | <input type="checkbox"/> Zone Change |

Pre-Application, Home Occupation, Sidewalk Use, Addressing, and Sign applications require different forms, available on the City website.

Site Location/Address: 1686 19th Street and adjacent vacant parcel	Assessor's Map No.: 31E03AA
	Tax Lot(s): 1600 and 1700
	Total Land Area: ±22,250 Square Feet

Brief Description of Proposal:

Property Line Adjustment between Tax Lot 1600 and Tax Lot 1700

Applicant Name: <small>(please print)</small> Michael Trusheim	Phone: Contact Applicant's Consultant
Address: 9400 SE Clackamas Road	Email:
City State Zip: Clackamas OR, 97015	

Owner Name (required): <small>(please print)</small> Same as Applicant	Phone:
Address:	Email:
City State Zip:	

Consultant Name: <small>(please print)</small> Daisy Goebel, AKS Engineering and Forestry	Phone: (503) 400-6028
Address: 3700 River Road N, Suite 1	Email: goebeld@aks-eng.com
City State Zip: Keizer, OR 97303	

1. All application fees are non-refundable (excluding deposit). **Any overruns to deposit will result in additional billing.**
2. The owner/applicant or their representative should be present at all public hearings.
3. A decision may be reversed on appeal. The permit approval will not be effective until the appeal period has expired.
4. Submit this form and supporting documents through the [Submit a Land Use Application](https://westlinnoregon.gov/planning/submit-land-use-application) web page:
<https://westlinnoregon.gov/planning/submit-land-use-application>

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.



Applicant's signature

10-25-22

Date

Owner's signature (required)

Date

1686 19th Street Property Line Adjustment

Date: October 2022

Submitted to: City of West Linn
22500 Salamo Road #1000
West Linn, OR 97068

Applicant: Michael Trusheim
9400 SE Clackamas Road
Clackamas, OR 97015

AKS Job Number: 9269



3700 River Road N, Suite 1
Keizer, OR 97303
(503) 400-6028

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Exhibits

- Exhibit A:** City Application Form
 - Exhibit B:** Preliminary Plans
 - Exhibit C:** Title Documents
 - Exhibit D:** Pre-Application Conference Summary
 - Exhibit E:** Tree Removal Application and Photos
 - Exhibit F:** Preliminary Stormwater Report
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Land Use Application for a Property Line Adjustment

Submitted to:	City of West Linn Planning Department 22500 Salamo Road #1000 West Linn, OR 97068
Applicant:	Michael Trusheim 9400 SE Clackamas Road Clackamas, OR 97015
Property Owners:	Michael Trusheim 9400 SE Clackamas Road Clackamas, OR 97015
Applicant's Consultant:	AKS Engineering & Forestry, LLC 3700 River Road N, Suite 1 Keizer, OR 97303 Contact(s): Daisy Goebel Email: goebeld@aks-eng.com Phone: (503) 400-6028
Site Location:	1686 19 th Street, West Linn
Clackamas County Assessor's Map:	Tax Lots 1600 and 1700 of Map Number 3 1 E 03AA
Site Size:	±22,248 sf
Land Use Districts:	Residential (R-10)

I. Executive Summary

AKS Engineering and Forestry (AKS) is submitting this application on behalf of Michael Trusheim (Owner/Applicant) for a property line adjustment (PLA) application in accordance with the provisions of the West Linn Community Development Code (CDC) to modify the location of the shared property line between the subject parcels for the purpose of accommodating the development of a single-family home on the westerly parcel. In addition to the PLA, this application includes a tree removal permit to allow for the removal of two on-site trees that is necessary to accommodate access to the westerly parcel and utilities in the access and utility easement created when the subject parcel was partitioned (document number 2010-6169). This application includes the City of West Linn (City) application forms, written materials, and preliminary plans necessary for staff to review and determine compliance with the applicable approval criteria. The evidence is substantial and supports the City's approval of the application.

This application involves the development of land for housing. ORS 197.307(4) states that a local government may apply only clear and objective standards, conditions, and procedures regulating the provision of housing, and that such standards, conditions, and procedures cannot have the effect, either in themselves or cumulatively, of discouraging housing through unreasonable cost or delay. In addition, this application involves a "limited land use decision" as that term is defined in ORS 197.015(12). The significance of this statutory provision is also discussed below.

Oregon Courts and the Land Use Board of Appeals (LUBA) have generally held that an approval standard is not clear and objective if it imposes on an applicant "subjective, value-laden analyses that are designed to balance or mitigate impacts of the development" (*Rogue Valley Association of Realtors v. City of Ashland*, 35 Or LUBA 139, 158 [1998] *aff'd*, 158 Or App 1 [1999]). ORS 197.831 places the burden on local governments to demonstrate that the standards and conditions placed on housing applications can be imposed only in a clear and objective manner. While this application addresses all standards and conditions, the Applicant reserves the right to object to the enforcement of standards or conditions that are not clear and objective and does not waive its right to assert that the housing statutes apply to this application. [The exceptions in ORS 197.307(5) do not apply to this application].

ORS 197.195(1) describes how certain standards can be applied as part of a limited land use application. The applicable land use regulations for this application are found in West Linn Community Development Code Chapter 85.201—Property Line Adjustments—Approval Standards. Pursuant to ORS 197.195(1) Comprehensive Plan provisions (as well as goals, policies, etc. from within the adopted elements of the Comprehensive Plan) may not be used as a basis for a decision or an appeal of a decision unless they are specifically incorporated into the land use regulations. While this application may respond to Comprehensive Plan and/or related documents, such a response does not imply or concede that said provisions are applicable approval criteria. Similarly, the Applicant does not waive its right to object to the attempted implementation of these provisions unless they are specifically listed in the applicable land use regulations, as is required by ORS 197.195(1).

Pursuant to ORS 197.522, if this application is found to be inconsistent with the applicable land use regulations, the Applicant may offer an amendment or propose conditions of approval to make the application consistent with applicable regulations. In fact, the local government is obligated to consider and impose any conditions of approval proposed by the Applicant, if such conditions would allow the local government to approve an application that would not otherwise meet applicable approval criteria.

II. Site Description/Setting

The subject site includes two lots, described as Tax Lots 1600 and 1700 of Clackamas County Assessor's Map Number 3 1 E 03AA. The site comprises ±22,248 total square feet and is located within West Linn's Residential (R-10) zoning district. A single-family residence is currently located on Tax Lot 1600 with access directly from 19th Street. Surrounding lots are also developed with single-family residential homes. Abutting homes to the west and north are accessed by a ±32-foot-wide private shared access drive that intersects with 19th Street immediately north of the subject site. Tax Lot 1700 will be accessed via an existing 15-foot-wide easement across Tax Lot 1600, which will be widened to accommodate access to the site as well as drainage and utility facilities to serve future development on Tax Lot 1700. The planned utility improvements will impact two on-site coniferous trees. These trees, shown on the Preliminary Demolition Plan, are included in this application package for removal.

III. Applicable Review Criteria

CITY OF WEST LINN COMMUNITY DEVELOPMENT CODE

CHAPTER 8—BUILDING (TREE REMOVAL)

8.610 CONTENTS OF APPLICATION FOR TREE REMOVAL

A permit shall be required to remove any tree in West Linn unless such permit is waived by the City Manager. For the purposes of this ordinance, only trees meeting the criteria set forth in the definitions section (8.510) and Street Trees section (8.720) are required to get a permit. Trees of smaller diameter than the standards stipulated in WLMC 8.510 do not require a permit to be removed.

The application shall include:

1. A completed Tree Removal Permit Application. This includes the following information:
 - a. The owner's name, address, and phone number;
 - b. The site address for the tree removal;
 - c. The number, diameter, and species of trees requested to be removed;
 - d. Reasons justifying the removal, referencing the criteria in section 8.630;
 - e. The owner's signature and date.

Response: This Tree Removal Permit Application requests approval to remove two coniferous trees, located south of the planned driveway, to accommodate access and utility facilities necessary to serve tax lot 1700. The Tree Removal Permit Application and Preliminary Plans (Exhibit B) included with this package include the required information. This criterion is met.

2. A site plan of the property upon which the tree proposed for removal is located. Applicants may use maps available through the City's GIS mapping system. The site plan should show the following:
 - a. The location of the tree(s) to be removed;
 - b. The location of any existing building footprint(s);
 - c. The location of any new or planned building expansion(s). (This applies to construction that is exempt from permitting under the Building Code.);
 - d. The location of any paved or concreted areas on the property.

Response: The Preliminary Plans (Exhibit B) include a demolition plan identifying the location of the trees to be removed, the location of existing and planned buildings, and the areas that will be paved in accordance with CDC standards. This criterion is met.

3. After clearly marking the tree(s) on the property with brightly colored tape, the applicant shall take and include with the application photograph(s) of the tree(s) to be removed and the surrounding area.

Response: Photos of the trees planned for removal are included in this package as Exhibit E. This criterion is met.

4. The applicant may, at their discretion, submit a report by an arborist on the health and structure of the tree(s) to be removed and the impact of such removal upon surrounding trees. In no way should this be construed to mean that the City requires such a report, except as noted below. Reports from other professionals (engineers, appraisers, etc.) may also be included in the application but are not required.
 - a. If the application is being made on the criteria in Section 8.630 A-2 “damaged root structure that will lead to death,” than a formal report from an arborist is required.

Response: This Tree Removal Permit Application does not include claims related to the health or structure of the affected trees. This criterion is not applicable.

8.630 TREE REMOVAL PERMIT CRITERIA

A. In making a determination whether to grant a permit, the City shall consider the criteria listed below. The decision shall include findings that cite each of these criteria. These criteria are meant to be guides, and the varying importance or weight of each in determining the appropriateness of tree removal shall be as expressed in the findings:

1. Any of the following criteria shall be considered as aspects likely to warrant approval of a tree removal permit:
 - (a) The tree is determined to be dead or dying and not recoverable.
 - (b) The tree is determined to have a significantly damaged root structure that will adversely impact the health and stability of the tree. Such a determination shall be based upon a report provided by the applicant. The report shall be reviewed and verified by the City Arborist.
 - (c) The tree is determined to exhibit a hazardous growth habit.
 - (d) The tree is interfering with utility service in such a manner that full restoration or maintenance of service requires removal of the tree.
 - (e) The tree encroaches in the public right-of-way so as to cause damage to improvements within the public right-of-way such as street pavement and sidewalks.
 - (f) The tree is causing structural damage that includes, but is not limited to, foundations, water lines and sewer lines.
 - (g) The basal flare of the tree is within 10 feet of an existing building footprint.
 - (h) An existing building footprint lies within the drip line of the tree.
 - (i) Trees that have been maintained in the applicant’s property for the purpose of growing fruit which are no longer bearing fruit or have suffered a significant reduction in fruit bearing.

-
- (j) Removal of trees is being done for thinning purposes to enhance the health of other trees.
 - (k) In the absence of denial criteria listed below, removal is for the owner's landscape improvement but does not jeopardize the aesthetics of the neighborhood.
 - (l) The removal would allow solar access for an otherwise extremely shaded property.

Response: This tree removal request is necessary to accommodate the installation and future maintenance of required stormwater and sanitary sewer facilities. This request is not warranted as a direct result of the above criteria. These criteria are not applicable.

- 2. Any of the following criteria shall be considered as aspects likely to warrant denial of a tree removal permit:
 - (a) The tree is visually prominent.
 - (b) The tree is generally healthy and of sound structure.
 - (c) The tree is of significant size.
 - (d) The tree is part of a larger grove or grouping of trees, and its removal will adversely affect the health and safety of the remaining trees within the grove or grouping.
 - (e) The tree is on land that is sloped, and removal of the tree may exacerbate erosion or soil slumping in the vicinity of the tree.
 - (f) The tree acts as a privacy barrier for adjacent properties.
 - (g) Tree removal is solely to improve a view.

Response: These criteria do not comply with the provisions of ORS 197.307(4), addressed in the executive summary of this narrative, concerning the City's responsibility to apply only clear and objective standards to applications that involve land for housing. Because the applicable language is neither clear nor objective, the City may not rely on these criteria as a basis for the denial of this Tree Removal Permit Application. These criteria are not applicable.

- B. The City shall deny a tree removal permit if any of the following criteria is met:
 - 1. The tree is designated by the City of West Linn as a heritage tree, unless one of the criteria in subsections (A)(1)(a) through (d) of this section applies and the hearing is followed, as noted in Section 8.710.
 - 2. The tree is located within an open space drainageway, drainageway transition area, wetland, wetland transition area, Willamette River Greenway area, or Tualatin River protection zone as defined by the West Linn Community Development Code, unless one of the criteria in subsections (1)(a) through (d) of this section apply.
 - 3. The tree is protected by an existing tree conservation easement, unless criteria in subsections (1)(a) through (d) of this section apply.

Response: The trees planned for removal, shown on the Preliminary Plans (Exhibit B), are not designated as heritage trees, located within an applicable resource area, or protected by an existing tree conservation easement. These criteria are not applicable.

- C. It is encouraged, but not mandated, that the property owner replace a tree that is removed.

Response: This recommendation is understood.

CHAPTER 11—Residential, R-10

11.030 PERMITTED USES

The following are uses permitted outright in this zoning district:

1. Single-family attached or detached residential unit.
 - a. Duplex residential units.
 - b. Triplex residential units.
 - c. Quadplex residential units.
2. Cottage clusters
3. Townhouse.

[...]

Response: This application requests a property line adjustment to allow for the construction of a single-family detached residential home, which is a permitted use in the R-10 zoning district.

11.070 DIMENSIONAL REQUIREMENTS, USES PERMITTED OUTRIGHT AND USES PERMITTED UNDER PERSCRIBED CONDITIONS

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

Table 1: Dimensional Requirements				
Standard	Requirement	Additional Notes [as applicable]	Adjusted Tax Lot 1700	Adjusted Tax Lot 1600
Minimum lot size	10,000 sf	For a single-family attached or detached unit	±12,106.72	±10,141.69
Minimum lot width at front lot line	35 ft		±95 ft	±95 ft.
Average minimum lot width	50 ft		±95 ft	±95 ft
Minimum front yard setback	20 ft		±24 ft.	No Change
Minimum interior side yard setback	7.5 ft		±13 ft	No Change
Street side yard setback	15 ft		±15 ft	±20 ft
Rear yard setback	20 ft		±26.5 ft	±30 ft
Maximum building height	35 ft		32 ft.	No change
Maximum lot coverage	35%	A developer may deduct up to 200 sf for an attached garage or carport.	±20% including garage	±28% including garage
Minimum accessway width to a lot which does not abut a street or flag lot	15 ft		N/A	±25 ft
Maximum floor area ratio	.45		N/A	.17

Response: As shown above and identified on the Preliminary Plans (Exhibit B), the adjusted property line will not result in any of the applicable lot dimensions being adjusted below the minimum allowable standards. Standards that pertain to the future home will be reviewed at the time of building permit approval. These criteria are met.

[...]

CHAPTER 46—OFF-STREET PARKING, LOADING, AND RESERVOIR AREAS

46.020 APPLICABILITY AND GENERAL PROVISIONS

- A. At the time a structure is erected or enlarged, or the use of a structure or unit of land is changed within any zone, parking spaces, loading areas and reservoir areas shall be provided in accordance with the requirements of this chapter unless other requirements are otherwise established as a part of the development approval process.
- B. The provision and maintenance of off-street parking and loading spaces are the continuing obligation of the property owner.
- C. No building or other permit shall be issued until plans are approved that show the property that is and will remain available for exclusive use as off-street parking and loading space as required by this chapter.
- D. Required parking spaces and loading areas shall be improved to the standards contained in this chapter and shall be available for use at the time of the final building inspection except as provided in CDC 46.150.

Response: The planned structure includes a garage compliant with these standards. These criteria can be met.

[...]

46.090 MINIMUM OFF-STREET PARKING SPACE REQUIREMENTS

- A. Residential parking space requirements
 - 1. Single-family residences (attached or detached): 1 space for each dwelling unit; may or may not be in garage or carport.

[...]

- F. Maximum parking. Parking spaces (except for single-family and two-family residential uses) shall not exceed the minimum required number of spaces by more than 10 percent.

Response: The planned residential structure includes a 574-square-foot garage designed to accommodate two vehicles. Because single-family residential uses are exempt from parking maximums, this criterion is met.

46.150 DESIGN AND STANDARDS

The following standards apply to the design and improvement of areas used for vehicle parking, storage, loading, and circulation:

- A. Design standards.

[...]

- 1. Off-street parking spaces for single- and two-family residences shall be improved with an asphalt or concrete surface, or a permeable parking surface designed to reduce surface runoff, to specifications as approved by the Building Official. Other parking facilities for two- and single-family homes that are to accommodate additional vehicles, boats, recreational vehicles, and trailers, etc., need not be paved. All parking for multi-family residential development shall be paved with

concrete or asphalt. Driveways shall measure at least 20 feet from the back of sidewalk to garage or the end of the parking pad to accommodate cars and sport utility vehicles without the vehicles blocking the public sidewalk.

Response: The planned garage and driveway associated with the future residential home on Tax Lot 1700 will be improved with concrete surfacing in accordance with City standards and specifications. The driveway accessing the garage will measure ±40 feet in length and will not block any public ways. This criterion is met.

[...]

15. The maximum driveway grade for single-family housing shall be 15 percent. The 15 percent shall be measured along the centerline of the driveway only. Grades elsewhere along the driveway shall not apply. 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 must maintain a maximum grade of 12 percent as measured along the centerline of the driveway only. Grades elsewhere along the driveway shall not apply.

Response: As shown on the Driveway Access Lane Plan and Profile included in Exhibit B, the finished grade of the planned driveway ranges from 1.5 percent to -2.3 percent, well below the maximum 15 percent grade. This criterion is met.

[...]

CHAPTER 48—ACCESS, EGRESS, AND CIRCULATION

48.020 APPLICABILITY AND GENERAL PROVISIONS

A. The provisions of this chapter do not apply where the provisions of the Transportation System Plan or land division chapter are applicable and set forth differing standards.

Response: This chapter does not conflict with any standards of the Transportation System Plan or land division chapter; this criterion is not applicable.

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

Response: Tax Lot 1700 will have direct access from 19th Street via a private driveway within an access easement over Tax Lot 1600. This criterion is met.

C. No building or other permit shall be issued until scaled plans are presented to the City and approved by the City as provided by this chapter, and show how the access, egress, and circulation requirements are to be fulfilled. Access to State or County roads may require review, approval, and permits from the appropriate authority.

Response: This application package is intended to provide the City with sufficient information to verify compliance with all applicable standards and criteria prior to applying for building permits. The plans included in Exhibit B and this narrative demonstrate how applicable access, egress, and circulation requirements are to be fulfilled. This criterion is met.

D. Should the owner or occupant of a lot, parcel or building enlarge or change the use to which the lot, parcel or building is put, resulting in increasing any of the requirements of this chapter, it shall be unlawful and a violation of this code to begin or maintain such altered use until the provisions of this chapter have been met, and, if required, until the appropriate approval authority under Chapter 99 CDC has approved the change.

Response: This criterion is understood.

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- 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.

Response: The planned driveway will serve Tax Lot 1700 via a private access and utility easement over Tax Lot 1600. The existing home will continue to utilize the existing access directly from 19th Street. This criterion is not applicable.

- F. Property owners shall not be compelled to access their homes via platted stems of flag lots if other driveways and easements are available and approved by the City Engineer.

Response: The future residential home will be served by a private driveway to be constructed within an existing access easement across Tax Lot 1600. The easement will be widened to accommodate emergency vehicle access as well as stormwater infrastructure, as shown on the Preliminary Plans (Exhibit B). As discussed during the pre-application conference on June 2, 2022, with the City of West Linn, providing access to Tax Lot 1700 via the existing shared access drive to the north is not an option due to the number of existing platted flag lot stems comprising the shared access.

48.025 ACCESS CONTROL

- A. Purpose. The following access control standards apply to public, industrial, commercial and residential developments including land divisions. Access shall be managed to maintain an adequate level of service and to maintain the functional classification of roadways as required by the West Linn Transportation System Plan.

Response: This application does not include a land division but intends to preemptively ensure compliance with applicable access control standards that will be applied to the construction of a single-family home on Tax Lot 1700.

- 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, Transportation Impact Analysis.)

Response: This application does not include a subdivision, partition, or other development review process that would create significant adverse impacts warranting a Traffic Impact Analysis. This requirement is not applicable.

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.

Response: The planned configuration was developed in consultation with City staff. The design will not compromise the safe and efficient operation of the street system and will not permit backing onto a public street. This criterion is met.

-
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” as approved by the City Engineer.
- 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.

Response: The planned home will take access from the public street via a private driveway located on an existing easement across the neighboring property in accordance with Option 2, above. This criterion is met.

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).

Response: This application does not include a land division fronting onto an arterial street. This criterion is not applicable.

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.

Response: This application does not include parcels with frontage onto two or more streets. This criterion is not applicable.

6. Access spacing.
- a. The access spacing standards found in the adopted Transportation System Plan (TSP) shall be applicable to all newly established public street intersections and non-traversable medians. Deviation from the access spacing standards may be granted by the City Engineer if conditions are met as described in the access spacing variances section in the adopted TSP.
 - b. Private drives and other access ways are subject to the requirements of CDC 48.060.

Response: This application does not include the establishment of new public street intersections or non-traversable medians. The requirements of CDC 48.060 do not apply to the planned

driveway since there are no curbs on the subject site's frontage that require new curb cuts. These criteria are met.

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.

Response: Only one access point is planned for each existing lot. This criterion is 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.
 - c. Exception. Shared driveways are not required when existing development patterns or physical constraints (e.g., topography, lot or parcel configuration, and similar conditions) prevent extending the street/driveway in the future.

Response: Several options for providing access to Tax Lot 1700 were discussed with City staff during the pre-application conference. Because there are currently four homes utilizing the adjacent flag lot access to 19th Street, staff determined that creating a fifth flag lot stem would not be advisable. As shown on the Preliminary Plans (Exhibit B), the existing 15-foot private access and utility easement across Tax Lot 1600 will be widened to accommodate access and stormwater management for Tax Lot 1700. A shared driveway is not feasible for the development of this site. Therefore, these criteria are not applicable.

[...]

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 stub outs 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.

In the event that alternate access is not available as determined by the Planning Director and City Engineer, access may be permitted after review of the following criteria:

1. Topography.
2. Traffic volume to be generated by development (i.e., trips per day).
3. Traffic volume presently carried by the street to be accessed.
4. Projected traffic volumes.
5. Safety considerations such as line of sight, number of accidents at that location, emergency vehicle access, and ability of vehicles to exit the site without backing into traffic.
6. The ability to consolidate access through the use of a joint driveway.
7. Additional review and access permits may be required by State or County agencies.

Response: This application does not include direct access onto an arterial street. This criterion is not applicable.

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.

Response: The planned single-family residence will be located partially within 150 feet of the adjacent 19th Street right-of-way. The private driveway will include 12 feet of pavement width and 4-foot gravel shoulders on each side in compliance with this provision. This criterion is met.

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.

Response: This application does not include the development of more than one single-family home. This criterion does not apply.

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.

Response: As shown on the preliminary driveway profile included in the Preliminary Plans (Exhibit B), the finished grade of the planned driveway will range from 1.5 percent to 2.3 percent, well below the maximum 15 percent grade. This criterion is met.

-
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.

Response: As shown on the Preliminary Plans (Exhibit B), the conceptual garage is located ±140 feet from the adjacent 19th Street right-of-way, perpendicular to the planned driveway. This criterion is 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.

Response: Portions of the planned residential home will be more than 150 feet from the adjacent 19th Street right-of-way. The planned layout has been developed in coordination with the Fire Department and includes sufficient vertical and horizontal clearance to allow for emergency vehicle access. These criteria are met.

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.

Response: This application does not include access to five or more single-family homes. This criterion is not applicable.

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

1. With a minimum of 24-foot width when accommodating two-way traffic; or
2. With a minimum of 15-foot width when accommodating one-way traffic. Horizontal clearance shall be two and one-half feet wide on either side of the driveway.
3. Minimum vertical clearance of 13 feet, six inches.
4. Appropriate turnaround facilities per Fire Chief's standards for emergency vehicles when the drive is over 150 feet long. Fire Department turnaround areas shall not exceed seven percent grade unless waived by the Fire Chief.
5. The grade shall not exceed 10 percent on average, with a maximum of 15 percent.
6. A minimum centerline turning radius of 45 feet for the curve.

Response: This application does not include access to multifamily dwellings. These criteria are not applicable.

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.

Response: On-site maneuvering or access drives are not necessary to accommodate the required parking on either lot. This criterion is not applicable.

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.

Response: This application does not include access onto arterial or collector streets. This criterion is not applicable.

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.

Response: This application does not include multifamily development. This criterion is not applicable.

I. Gated accessways to residential development other than a single-family home are prohibited.

Response: This application includes access only to a single-family home. This criterion is not applicable.

CHAPTER 85—GENERAL PROVISIONS

54.020 PROPERTY LINE ADJUSTMENTS—APPROVAL STANDARDS

A. The Director shall approve or deny a request for a property line adjustment based on the criteria stated below:

1. An additional lot or parcel shall not be created by the property line adjustment.

Response: The planned PLA does not create an additional lot or parcel. This criterion is met.

2. The existing property shall not be reduced in size by the adjustments below the minimum lot or parcel size established by the approved zoning for that district. The property line adjustment shall not enlarge, increase, or extend the non-conformity of a non-conforming lot or non-conforming structure.

Response: Both properties remain in compliance with the minimum lot size and dimension requirements. This criterion is met.

3. Property line adjustments shall be either:

a. A straight line

b. A line with maximum of two 45- to 90-degree turns; or

c. A maximum of three turns less than 45 degrees

Response: This PLA maintains a straight property line between the two lots planned for adjustment. This criterion is met.

4. The property line adjustment shall not create a lot or parcel that violates applicable site development regulations.

Response: As addressed previously in this narrative, all applicable site development standards will be met by both affected properties. This criterion is met.

5. The property line adjustment will not adversely affect existing easements or existing utilities unless an easement vacation is obtained, replacement easements are established, or any required utility relocations are paid for by the applicant.

Response: The property line adjustment will not result in any adverse effects to existing easements or utilities. This criterion is met.

[...]

B. The provisions of CDC 85.070 shall also apply to property line adjustments.

Response: As addressed in the June 2022 pre-application conference, sections B(1) and B(2) of CDC 85.070 do not apply to property line adjustments, and the provisions of B(3) are applicable at the time of final plat approval. The provisions of 85.070(A) are met, and ownership information is provided with this application package as Exhibit C in conformance with that section. This criterion is met.

IV. Conclusion

The required findings have been made, and this written narrative and accompanying documentation demonstrate that the application is consistent with the applicable provisions of the City of West Linn Community Development Code. The evidence in the record is substantial and supports approval of the application. Therefore, the Applicant respectfully requests that the City approve this property line adjustment application.

Exhibit A: City Application Form

Exhibit B: Preliminary Plans

Exhibit C: Title Documents

Exhibit D: Pre-Application Conference Summary

Exhibit E: Tree Removal Application and Photos

Exhibit F: Preliminary Stormwater Report

DEVELOPMENT REVIEW APPLICATION

For Office Use Only		
STAFF CONTACT	PROJECT No(s).	PRE-APPLICATION No.
NON-REFUNDABLE FEE(S)	REFUNDABLE DEPOSIT(S)	TOTAL

Type of Review (Please check all that apply):

- | | | |
|--|---|--|
| <input type="checkbox"/> Annexation (ANX) | <input type="checkbox"/> Historic Review | <input 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"/> Code Interpretation | <input checked="" type="checkbox"/> Lot Line Adjustment (LLA) | <input type="checkbox"/> Time Extension |
| <input type="checkbox"/> Conditional Use (CUP) | <input type="checkbox"/> Minor Partition (MIP) (Preliminary Plat or Plan) | <input type="checkbox"/> Variance (VAR) |
| <input type="checkbox"/> Design Review (DR) | <input type="checkbox"/> Modification of Approval | <input type="checkbox"/> Water Resource Area Protection/Single Lot (WAP) |
| <input type="checkbox"/> Tree Easement Vacation | <input type="checkbox"/> Non-Conforming Lots, Uses & Structures | <input type="checkbox"/> Water Resource Area Protection/Wetland (WAP) |
| <input type="checkbox"/> Final Plat or Plan (FP) | <input type="checkbox"/> Planned Unit Development (PUD) | <input type="checkbox"/> Willamette & Tualatin River Greenway (WRG) |
| <input type="checkbox"/> Flood Management Area | <input type="checkbox"/> Street Vacation | <input type="checkbox"/> Zone Change |

Pre-Application, Home Occupation, Sidewalk Use, Addressing, and Sign applications require different forms, available on the City website.

Site Location/Address: 1686 19th Street and adjacent vacant parcel	Assessor's Map No.: 31E03AA
	Tax Lot(s): 1600 and 1700
	Total Land Area: ±22,250 Square Feet

Brief Description of Proposal:

Property Line Adjustment between Tax Lot 1600 and Tax Lot 1700

Applicant Name: <small>(please print)</small> Michael Trusheim	Phone:
Address: 9400 SE Clackamas Road	Contact Applicant's Consultant
City State Zip: Clackamas OR, 97015	Email:

Owner Name (required): <small>(please print)</small> Same as Applicant	Phone:
Address:	Email:
City State Zip:	

Consultant Name: <small>(please print)</small> Daisy Goebel, AKS Engineering and Forestry	Phone: (503) 400-6028
Address: 3700 River Road N, Suite 1	Email: goebeld@aks-eng.com
City State Zip: Keizer, OR 97303	

1. All application fees are non-refundable (excluding deposit). **Any overruns to deposit will result in additional billing.**
2. The owner/applicant or their representative should be present at all public hearings.
3. A decision may be reversed on appeal. The permit approval will not be effective until the appeal period has expired.
4. Submit this form and supporting documents through the [Submit a Land Use Application](https://westlinnoregon.gov/planning/submit-land-use-application) web page:
<https://westlinnoregon.gov/planning/submit-land-use-application>

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.


Applicant's signature

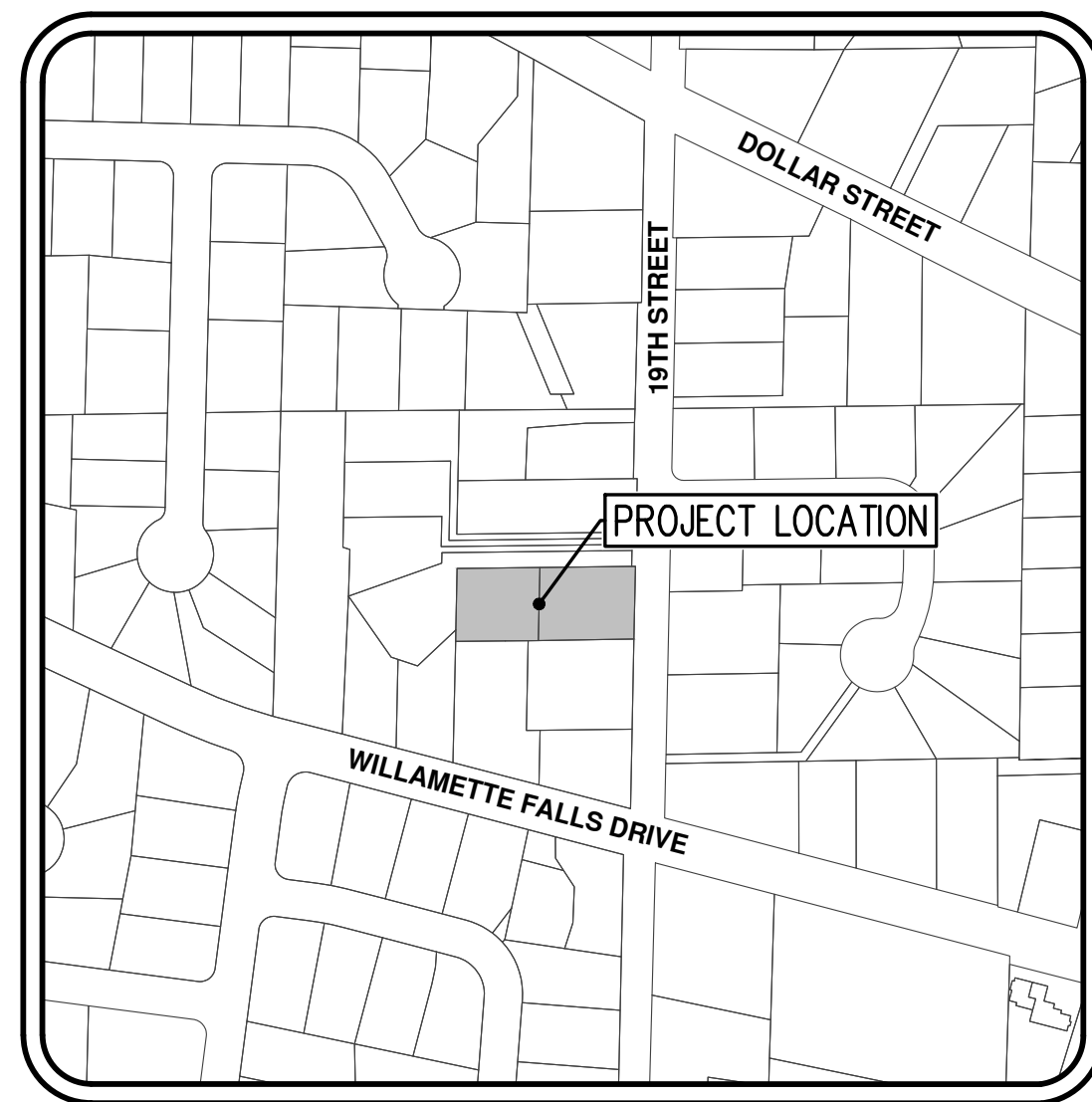
10-25-22
Date

Owner's signature (required)

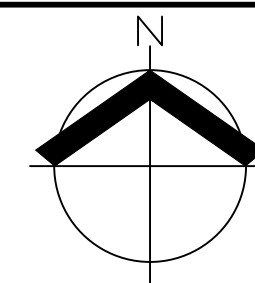
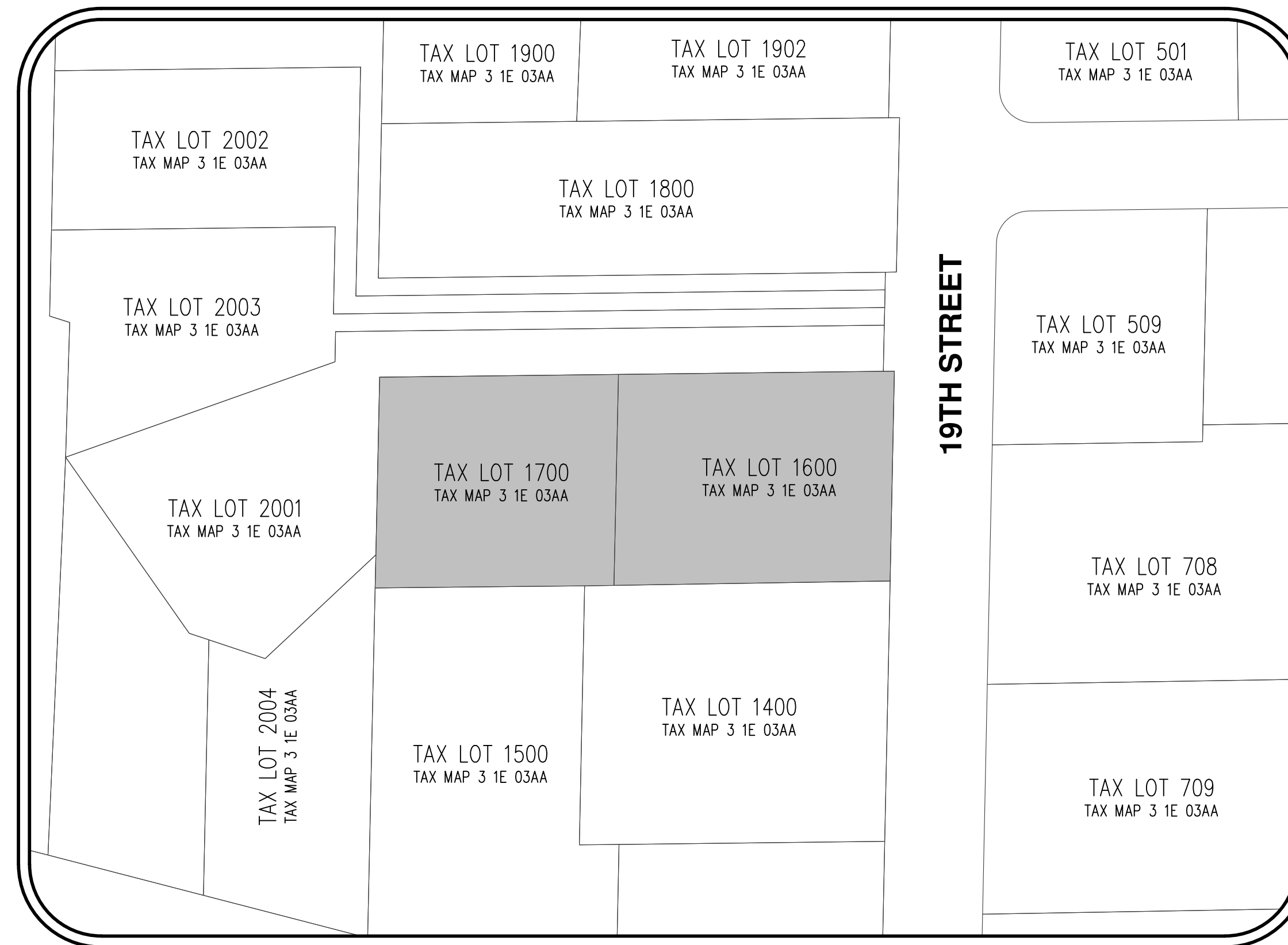
Date

19TH STREET PROPERTY LINE ADJUSTMENT

PRELIMINARY PLANS



VICINITY MAP
NOT TO SCALE



SITE MAP
SCALE: 1" = 50'

LEGEND

	EXISTING	PROPOSED		EXISTING	PROPOSED
DECIDUOUS TREE			STORM DRAIN CLEAN OUT		
CONIFEROUS TREE			STORM DRAIN CATCH BASIN		
FIRE HYDRANT			STORM DRAIN AREA DRAIN		
WATER BLOWOFF			STORM DRAIN MANHOLE		
WATER METER			GAS METER		
WATER VALVE			GAS VALVE		
DOUBLE CHECK VALVE			GUY WIRE ANCHOR		
AIR RELEASE VALVE			UTILITY POLE		
SANITARY SEWER CLEAN OUT			POWER VAULT		
SANITARY SEWER MANHOLE			POWER JUNCTION BOX		
SIGN			POWER PEDESTAL		
STREET LIGHT			COMMUNICATIONS VAULT		
MAILBOX			COMMUNICATIONS JUNCTION BOX		
			COMMUNICATIONS RISER		

	EXISTING	PROPOSED
RIGHT-OF-WAY LINE		
BOUNDARY LINE		
PROPERTY LINE		
CENTERLINE		
DITCH		
CURB		
EDGE OF PAVEMENT		
EASEMENT		
FENCE LINE		
GRAVEL EDGE		
POWER LINE		
OVERHEAD WIRE		
COMMUNICATIONS LINE		
FIBER OPTIC LINE		
GAS LINE		
STORM DRAIN LINE		
SANITARY SEWER LINE		
WATER LINE		

APPLICANT:
MIKE TRUSHEIM
9400 SE CLACKAMAS ROAD
CLACKAMAS, OR 97015

**PLANNING/CIVIL ENGINEERING/
SURVEYING/ARBORISTS (APPLICANT'S
CONSULTANT):**

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN ROAD, SUITE 100
TUALATIN, OR 97062
CONTACT: JONATHON MORSE
PHONE: (503) 563-6151
FAX: (503) 563-6152

SITE LOCATION AND ZONING:

1686 19TH STREET, WEST LINN, OREGON
CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AA TAX LOTS 1600 & 1700
WEST LINN, OR 97068
ZONING: R10

SITE DESCRIPTION:

TAX LOTS 1600 AND 1700, CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AA. LOCATED IN THE NORTHEAST 1/4 OF THE NORTHEAST 1/4 OF SECTION 3, TOWNSHIP 3 SOUTH, RANGE 1 EAST, WILLAMETTE MERIDIAN, CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON.

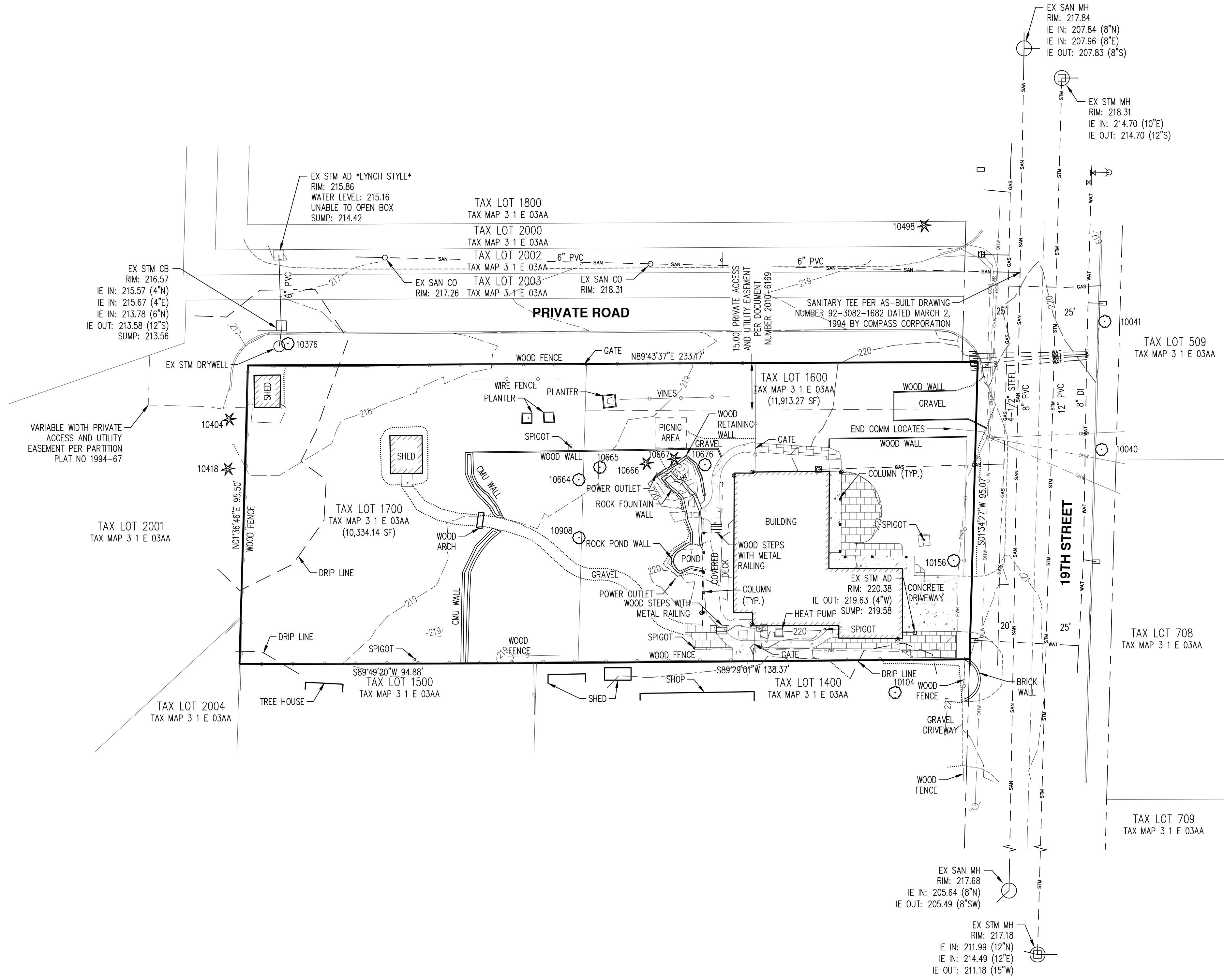
PROJECT PURPOSE:
PROPERTY LINE ADJUSTMENT AND SITE DEVELOPMENT

BENCHMARK:
VERTICAL DATUM: ELEVATIONS WERE DERIVED FROM THE TRIMBLE NOW VRS NETWORK (NAVD 88).

SHEET INDEX

- P01 COVER SHEET WITH VICINITY MAP, SITE MAP, AND LEGEND
- P02 EXISTING CONDITIONS
- P03 PRELIMINARY PLA PLAN WITH BUILDING SETBACKS
- P04 PRELIMINARY DEMOLITION PLAN
- P05 PRELIMINARY CONSTRUCTION MANAGEMENT PLAN
- P06 PRELIMINARY GRADING PLAN
- P07 PRELIMINARY COMPOSITE UTILITY & SITE PLAN
- P08 PRELIMINARY PRIVATE DRIVEWAY PLAN & PROFILE
- P09 PRELIMINARY AERIAL PHOTOGRAPH PLAN





NOTES:

- UTILITIES SHOWN ARE BASED ON UNDERGROUND UTILITY LOCATE MARKINGS AS PROVIDED BY OTHERS, PROVIDED PER UTILITY LOCATE TICKET NUMBER 22061703. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND LOCATES REPRESENT THE ONLY UTILITIES IN THE AREA. CONTRACTORS ARE RESPONSIBLE FOR VERIFYING ALL EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION.
- FIELD WORK WAS CONDUCTED MARCH 3, 4, AND 10, 2022.
- VERTICAL DATUM: ELEVATIONS WERE DERIVED FROM THE TRIMBLE VRS NOW NETWORK (NAVD 88).
- HORIZONTAL DATUM: A LOCAL DATUM PLANE DERIVED FROM STATE PLANE OREGON NORTH 3601, INTERNATIONAL FOOT, NAD83(2011)EPOCH:2010.0000, BY MULTIPLYING BY A PROJECT MEAN COMBINED GROUND SCALE FACTOR OF 1.0001076429 AT A CENTRAL PROJECT POINT WITH STATE PLANE GRID COORDINATES OF N:619091.174 E:7645911.381 WITH A MERIDIAN CONVERGENCE ANGLE OF -1'32"03". STATE PLANE COORDINATES WERE DERIVED FROM THE TRIMBLE VRS NOW NETWORK.
- THIS IS NOT A PROPERTY BOUNDARY SURVEY TO BE RECORDED WITH THE COUNTY SURVEYOR. BOUNDARIES MAY BE PRELIMINARY AND SHOULD BE CONFIRMED WITH THE STAMPING SURVEYOR PRIOR TO RELYING ON FOR DETAILED DESIGN OR CONSTRUCTION.
- BUILDING FOOTPRINTS ARE MEASURED TO SIDING UNLESS NOTED OTHERWISE. CONTACT SURVEYOR WITH QUESTIONS REGARDING BUILDING TIES.
- CONTOUR INTERVAL IS 1 FOOT.
- TREES WITH DIAMETER OF 6" AND GREATER ARE SHOWN. TREE DIAMETERS WERE MEASURED UTILIZING A DIAMETER TAPE AT BREAST HEIGHT. TREE INFORMATION IS SUBJECT TO CHANGE UPON ARBORIST INSPECTION.

TREE TABLE		
TREE NUMBER	TYPE	DBH (IN.)
10040	DECIDUOUS	12
10041	DECIDUOUS	18
10104	DECIDUOUS	6,6,10
10156	DECIDUOUS	6,6,6,7
10376	DECIDUOUS	20
10404	CONIFEROUS	40
10418	CONIFEROUS	33
10498	CONIFEROUS	36
10664	DECIDUOUS	6
10665	DECIDUOUS	6
10666	CONIFEROUS	26
10667	CONIFEROUS	26
10676	DECIDUOUS	6
10908	DECIDUOUS	7,8

LEGEND

<p>EXISTING</p> <ul style="list-style-type: none"> DECIDUOUS TREE CONIFEROUS TREE FIRE HYDRANT WATER METER WATER VALVE SANITARY SEWER CLEAN OUT SANITARY SEWER MANHOLE SIGN STREET LIGHT MAILBOX 	<p>EXISTING</p> <ul style="list-style-type: none"> STORM DRAIN DOWNSPOUT STORM DRAIN CATCH BASIN STORM DRAIN AREA DRAIN STORM DRAIN MANHOLE GAS METER GAS VALVE GUY WIRE ANCHOR UTILITY POLE POWER JUNCTION BOX COMMUNICATIONS JUNCTION BOX COMMUNICATIONS RISER 	<p>EXISTING</p> <ul style="list-style-type: none"> RIGHT-OF-WAY LINE BOUNDARY LINE PROPERTY LINE CENTERLINE DITCH CURB EDGE OF PAVEMENT EASEMENT FENCE LINE GRAVEL EDGE POWER LINE OVERHEAD WIRE COMMUNICATIONS LINE FIBER OPTIC LINE GAS LINE STORM DRAIN LINE SANITARY SEWER LINE WATER LINE
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SCALE: 1" = 20 FEET

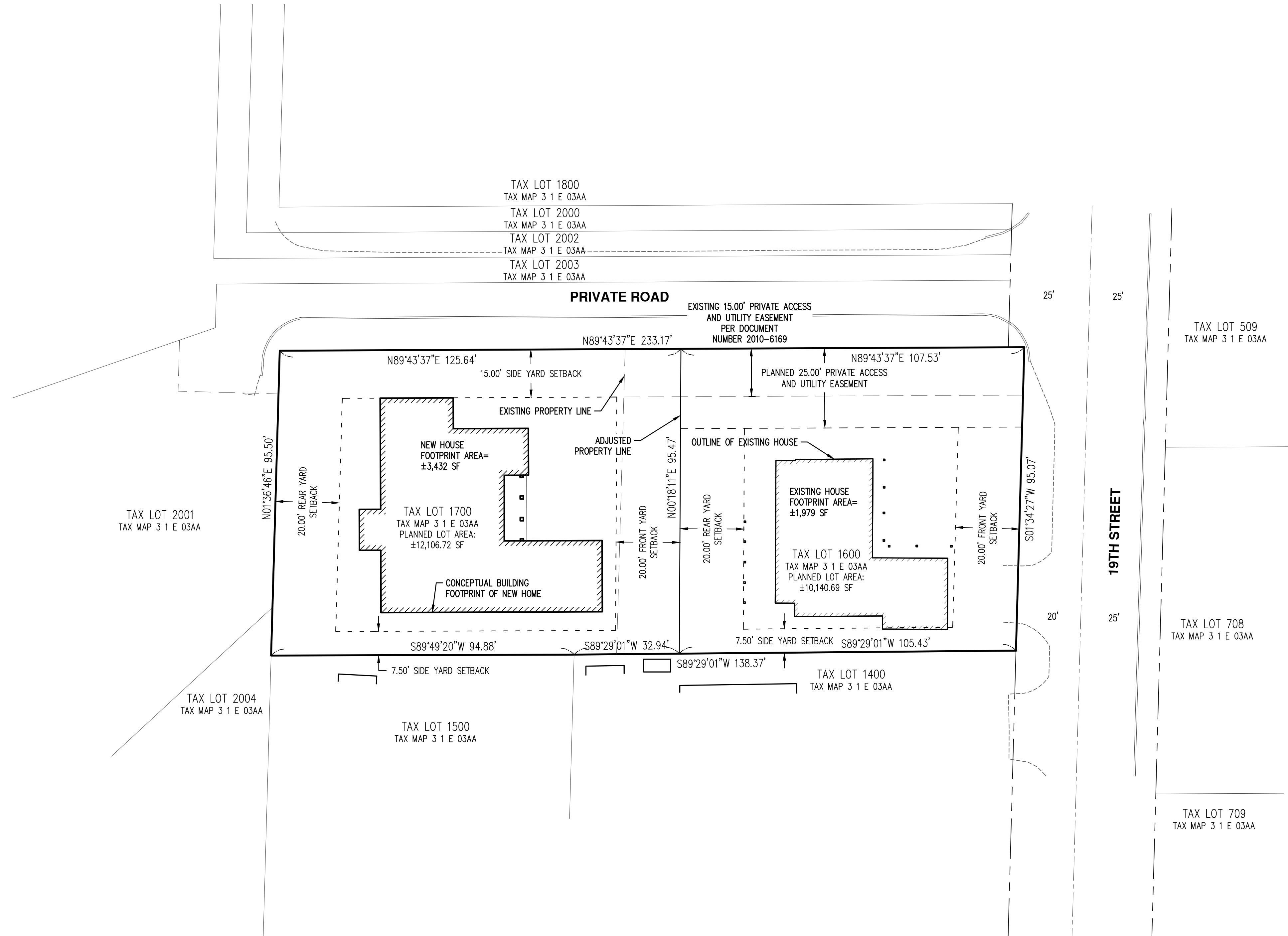
**EXISTING CONDITIONS
 1686 19TH STREET
 PROPERTY LINE ADJUSTMENT
 WEST LINN, OREGON**

REGISTERED PROFESSIONAL LAND SURVEYOR

 PRELIMINARY FOR CONSTRUCTION
 JANUARY 9, 2007
 MARK WHITE
 70652LS
 RENEWS: 6/30/24

JOB NUMBER: 9269
 DATE: 3/17/2022
 DESIGNED BY:
 DRAWN BY: CP/MSD
 CHECKED BY: MSD

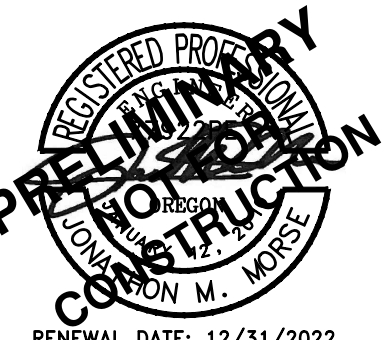
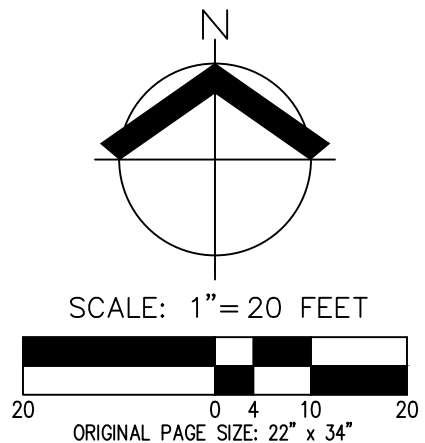
PRELIMINARY PLA PLAN WITH BUILDING SETBACKS
1686 19TH STREET
PROPERTY LINE ADJUSTMENT
WEST LINN, OREGON



AREA SUMMARY:
 *TAX LOT 1600
 EXISTING AREA: ±11,913.27 SF
 PLANNED AREA: ±10,140.69 SF
 TAX LOT 1700
 EXISTING AREA: ±10,334.14 SF
 PLANNED AREA: ±12,106.72 SF
 TRANSFER AREA: ±1,772.58 SF
 PLANNED 25.00' ACCESS AND UTILITY EASEMENT AREA:
 ±2,681.31 SF

*EXISTING AND PLANNED AREA INCLUDES ACCESS AND UTILITY EASEMENT AREA

NOTES:
 1. DISTANCE FROM ROW TO FARTHEST POINT OF HOUSE = ±206.78 FT.



RENEWAL DATE: 12/31/2022
 JOB NUMBER: 9269
 DATE: 10/24/2022
 DESIGNED BY: JDS
 DRAWN BY: JDS
 CHECKED BY: JMM

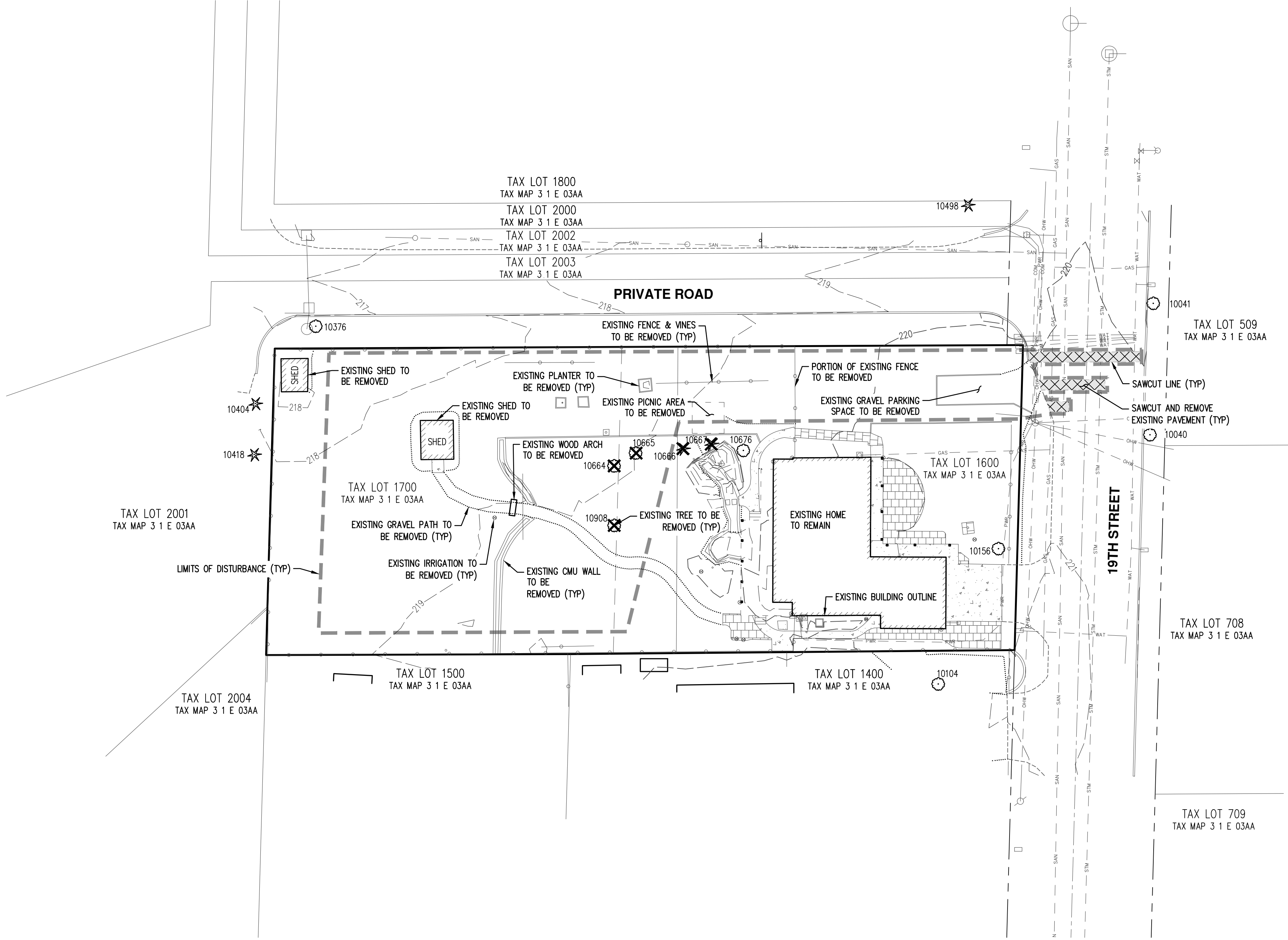
**PRELIMINARY DEMOLITION PLAN
 1686 19TH STREET
 PROPERTY LINE ADJUSTMENT
 WEST LINN, OREGON**



RENEWAL DATE: 12/31/2022
 JOB NUMBER: 9269
 DATE: 10/24/2022
 DESIGNED BY: JDS
 DRAWN BY: JDS
 CHECKED BY: JMM

LEGEND

- EXISTING GROUND CONTOUR (1 FT) --- ·349---
- EXISTING GROUND CONTOUR (5 FT) --- ·350---
- LIMITS OF DISTURBANCE [Dashed Line]
- AC PAVEMENT TO BE REMOVED [Cross-hatched Area]
- EXISTING TREE TO BE REMOVED [X]



SCALE: 1" = 20 FEET
 ORIGINAL PAGE SIZE: 22" x 34"

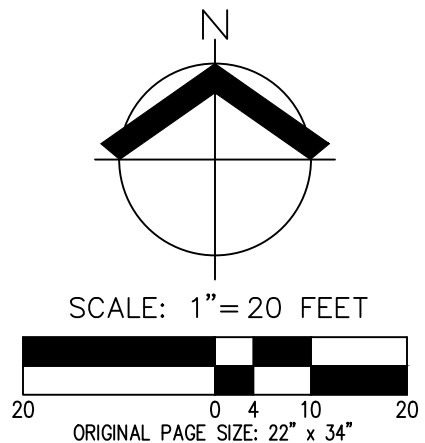
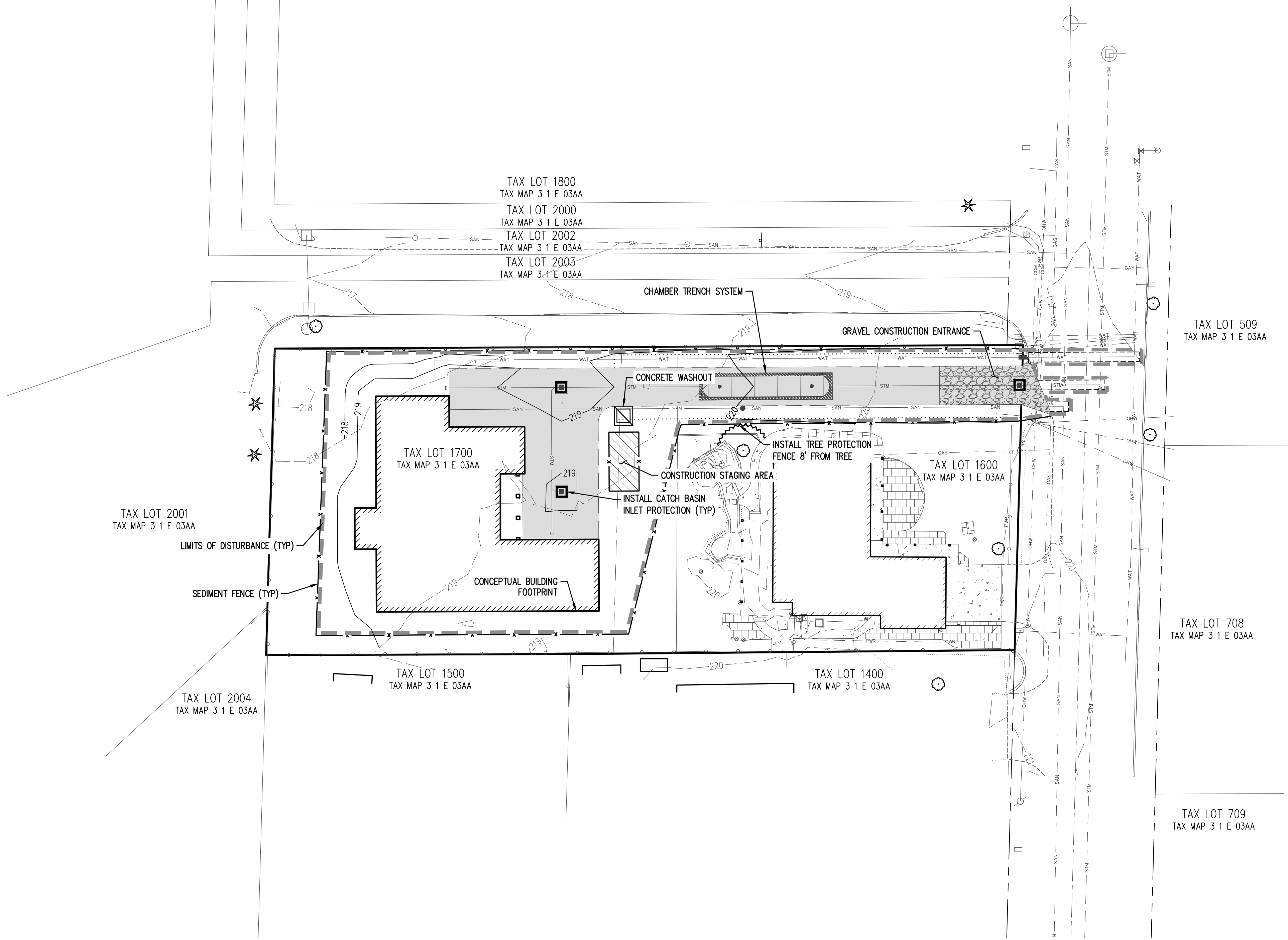
**PRELIMINARY CONSTRUCTION MANAGEMENT PLAN
 1686 19TH STREET
 PROPERTY LINE ADJUSTMENT
 WEST LINN, OREGON**



RENEWAL DATE: 12/31/2022
 JOB NUMBER: 9269
 DATE: 10/24/2022
 DESIGNED BY: JDS
 DRAWN BY: JDS
 CHECKED BY: JMM

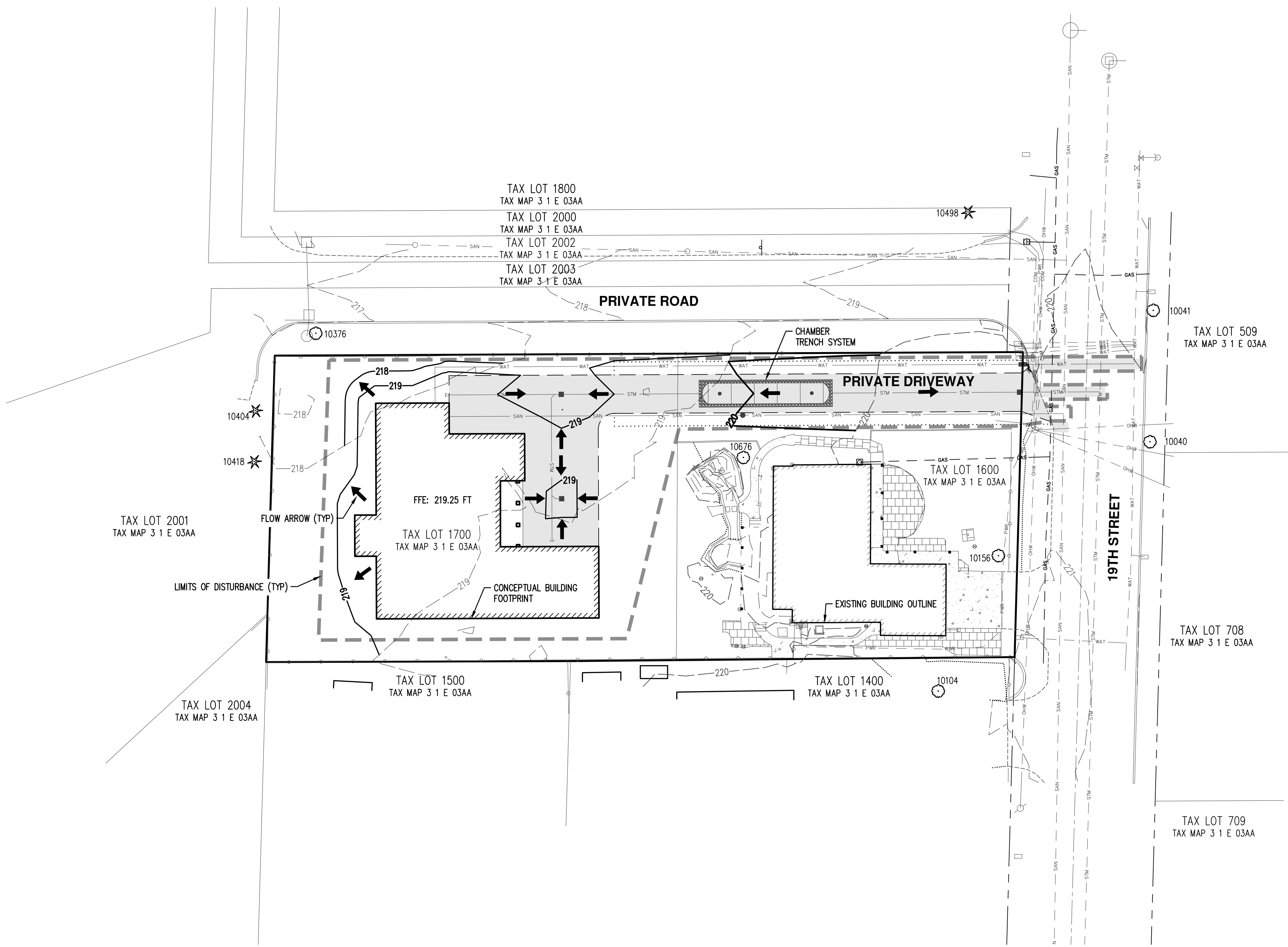
LEGEND

EXISTING GROUND CONTOUR (1 FT)	---
EXISTING GROUND CONTOUR (5 FT)	---350---
FINISHED GRADE CONTOUR (1 FT)	---
FINISHED GRADE CONTOUR (5 FT)	---345---
SEDIMENT FENCE (TO BE INSTALLED PRIOR TO GRADING)	- x - x -
AREA DRAIN PROTECTION (TYP) PER CATCH BASIN INSERT BAG DETAIL	□
CONCRETE WASHOUT AREA	▣
GRAVEL CONSTRUCTION ENTRANCE	
GRADING LIMITS	---
TREE PROTECTION/CONSTRUCTION FENCE	~~~~~



LEGEND

EXISTING GROUND CONTOUR (1 FT)	--- 349 ---
EXISTING GROUND CONTOUR (5 FT)	--- 350 ---
FINISHED GRADE CONTOUR (1 FT)	--- 344 ---
FINISHED GRADE CONTOUR (5 FT)	--- 345 ---
LIMITS OF DISTURBANCE	--- ---
FINISHED GRADE DRAINAGE FLOW DIRECTION	➔



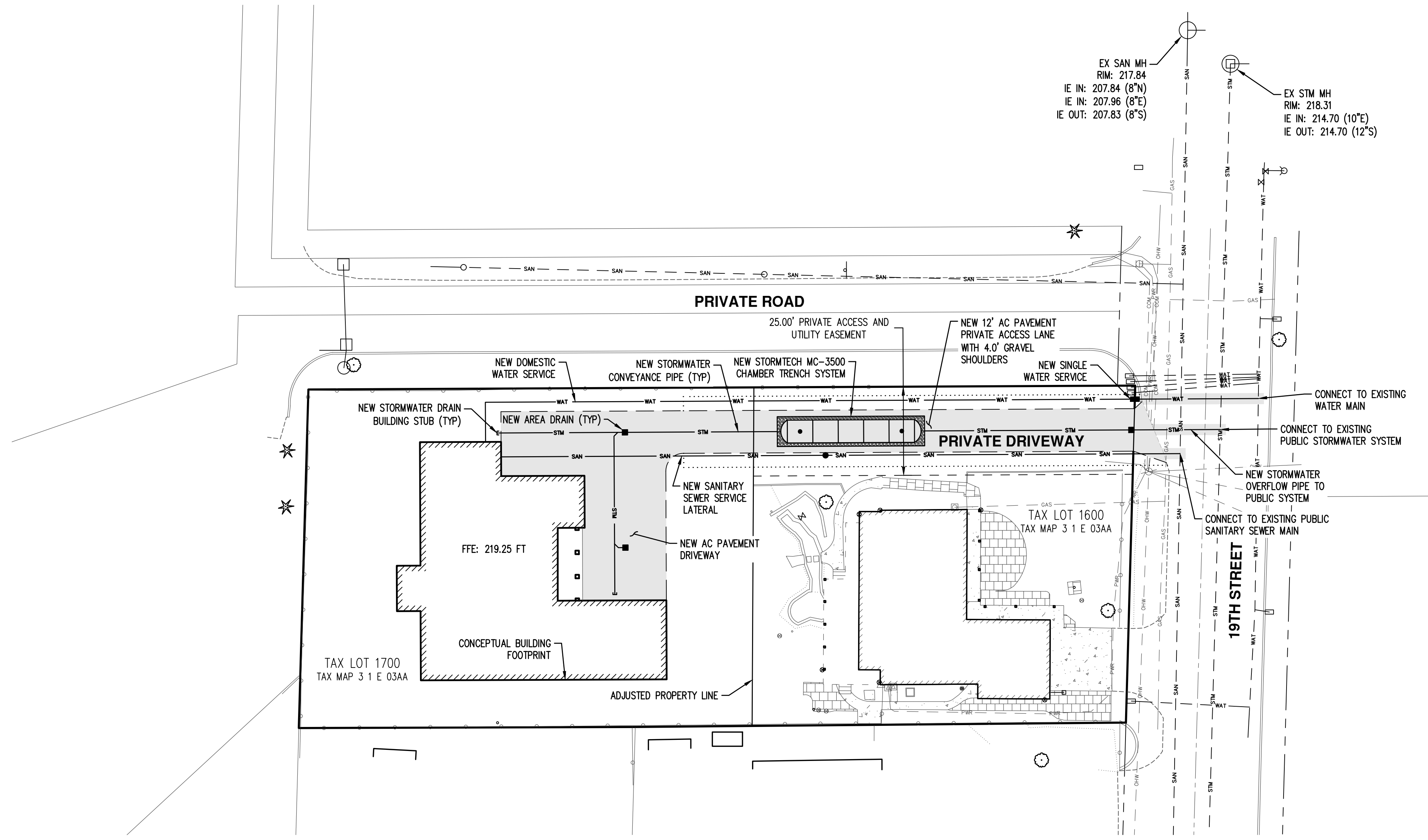
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SCALE: 1" = 20 FEET
 ORIGINAL PAGE SIZE: 22" x 34"

**PRELIMINARY GRADING PLAN
 1686 19TH STREET
 PROPERTY LINE ADJUSTMENT
 WEST LINN, OREGON**

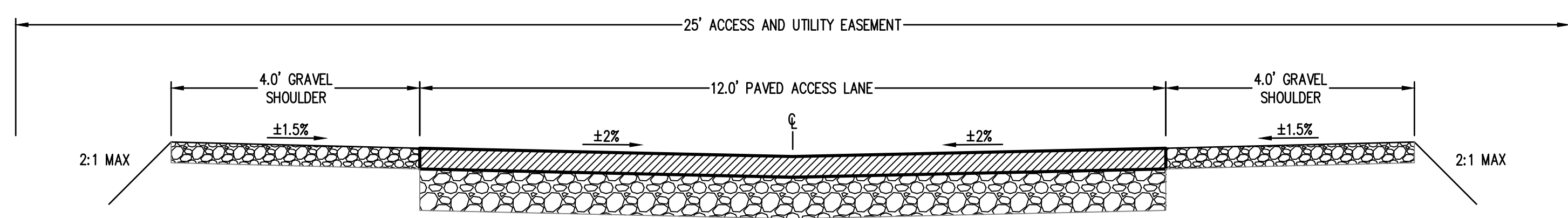


JOB NUMBER:	9269
DATE:	10/24/2022
DESIGNED BY:	JDS
DRAWN BY:	JDS
CHECKED BY:	JMM



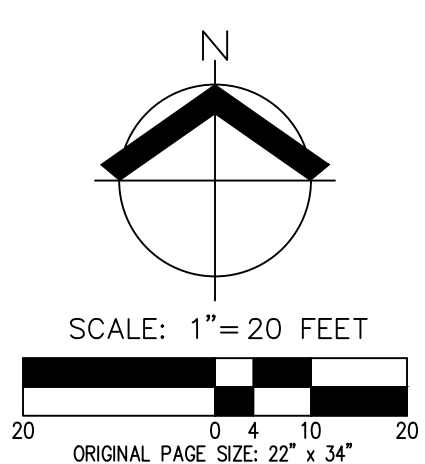
EX SAN MH
 RIM: 217.84
 IE IN: 207.84 (8°N)
 IE IN: 207.96 (8°E)
 IE OUT: 207.83 (8°S)

EX STM MH
 RIM: 218.31
 IE IN: 214.70 (10°E)
 IE OUT: 214.70 (12°S)

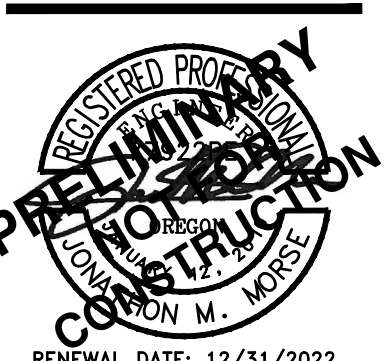


PRIVATE DRIVEWAY TYPICAL SECTION
 STA. 10+24.35 - STA. 11+51.42
 NOT TO SCALE

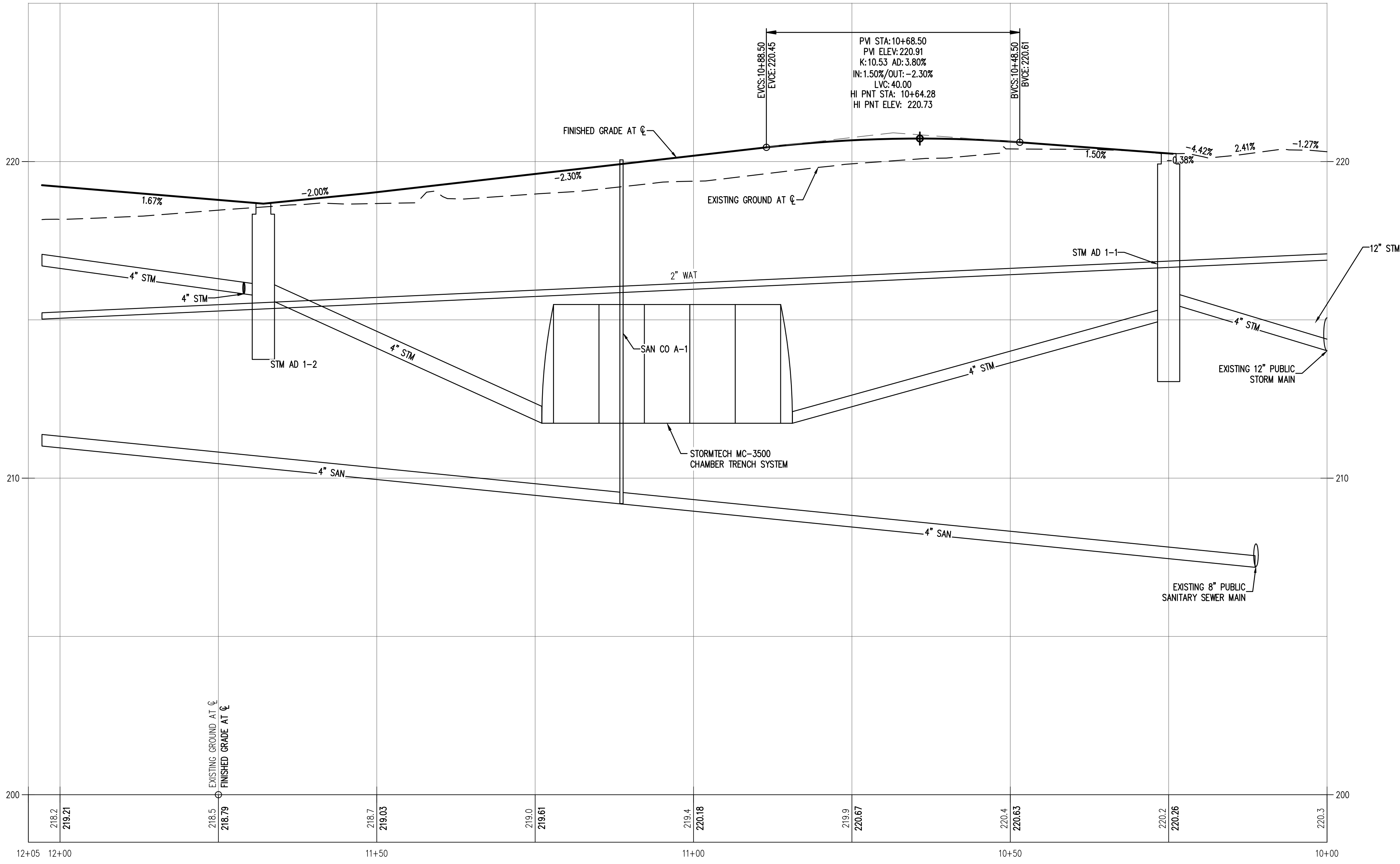
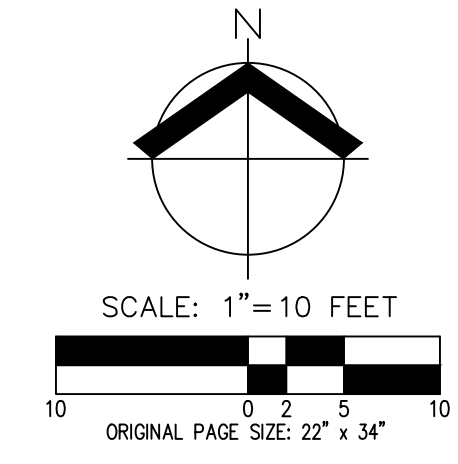
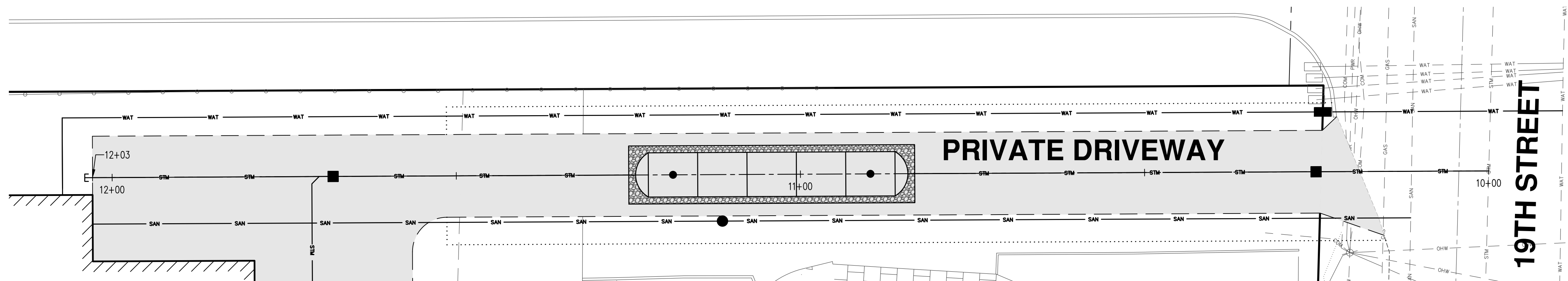
- NOTE:**
- UTILITIES SHOWN ARE CONCEPTUAL AND FOR PLANNING PURPOSES ONLY
 - DRIVEWAY AND PRIVATE ACCESS LANE LOCATIONS ARE CONCEPTUAL AND FOR PLANNING PURPOSES ONLY
 - NEW BUILDING FOOTPRINT IS CONCEPTUAL AND BASED ON DRAWINGS PROVIDED BY OTHERS



PRELIMINARY COMPOSITE UTILITY & SITE PLAN
1686 19TH STREET
PROPERTY LINE ADJUSTMENT
WEST LINN, OREGON



RENEWAL DATE:	12/31/2022
JOB NUMBER:	9269
DATE:	10/24/2022
DESIGNED BY:	JDS
DRAWN BY:	JDS
CHECKED BY:	JMM



PRIVATE DRIVEWAY
 HORZ. SCALE: 1" = 10'
 VERT. SCALE: 1" = 2'

PRELIMINARY PRIVATE DRIVEWAY PLAN & PROFILE
1686 19TH STREET
PROPERTY LINE ADJUSTMENT
WEST LINN, OREGON



RENEWAL DATE:	12/31/2022
JOB NUMBER:	9269
DATE:	10/24/2022
DESIGNED BY:	JDS
DRAWN BY:	JDS
CHECKED BY:	JMM



AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD., STE 100
TUALALIN, OR 97062
503.563.6151
WWW.AKS-ENG.COM

ENGINEERING · SURVEYING · NATURAL RESOURCES
FORESTRY · PLANNING · LANDSCAPE ARCHITECTURE



**PRELIMINARY AERIAL PHOTOGRAPH PLAN
1686 19TH STREET
PROPERTY LINE ADJUSTMENT
WEST LINN, OREGON**



RENEWAL DATE: 12/31/2022
JOB NUMBER: 9269
DATE: 10/24/2022
DESIGNED BY: JDS
DRAWN BY: JDS
CHECKED BY: JMM



SCALE: 1" = 40 FEET
ORIGINAL PAGE SIZE: 22" x 34"

Property Profile Report

1686 19TH ST WEST LINN, OR 97068-4430

Ownership Information

Owner Name: MICHAEL J TRUSHEIM
 DEBRA L TRUSHEIM
 Mailing Address: 22607 SW ULSKY RD WEST LINN, OR 97068-9133

Property Description

County: Clackamas Map / Tax Lot: 31E03AA/01600
 Account Num: 00752000 Owner Occ.: No
 Land Use: Single Family Residential Census: 0207.00
 Subdivision: WILLAMETTE FALLS ACREAGE TRACTS
 Legal Description: 138 WILLAMETTE FALLS AC TR PT LT 2 BLK F

Property Characteristics

Property Type: SINGLE FAMILY	Building SF: 1,716	Heat: FORCED AIR UNIT
House Style: 1 STORY	Living Area SF: 1,716	Cooling:
Year Built: 1946	Square Feet: 1,716	Foundation: Concrete
Bedrooms: 4	1st Floor SF: 1,716	Exterior: OTHER
Bathrooms: 2.00	2nd Floor SF:	Roof Style:
Lot Size: 0	3rd Floor SF:	Roof Cover: WOOD SHAKE/ SHINGLES
Acres: 0	Attic SF:	Fireplaces: Y
Garage Type: GARAGE	Bsmnt SF:	Bsmnt Type:
Garage SF:	Fin Bsmnt SF:	

Assessment Information

Real Market Value: \$ 434,025	Land Value: \$ 187,375	Imp. Value: \$ 246,650
Total Assessed Value: \$ 234,978	Levy Code: 003-002	M-5 Rate: 19.3989
Taxes: \$ 4,558.32	Tax Year: 2020	Assessed Year: 2020

Previous Sale Information

Sale Amount: \$ 355,770 Sale Date: 05/26/2010 Document Num: 2010-032067

Transaction History

Sale Date	Sale Amount	HPI Sale Amount	Document Type	Reception Num	Book/Page
2/17/2017	\$ 0		It	2017-013089	/
5/26/2010	\$ 355,770	\$ 719,500	Wd	2010-032067	/

3 1 E 03AA
WEST LINN

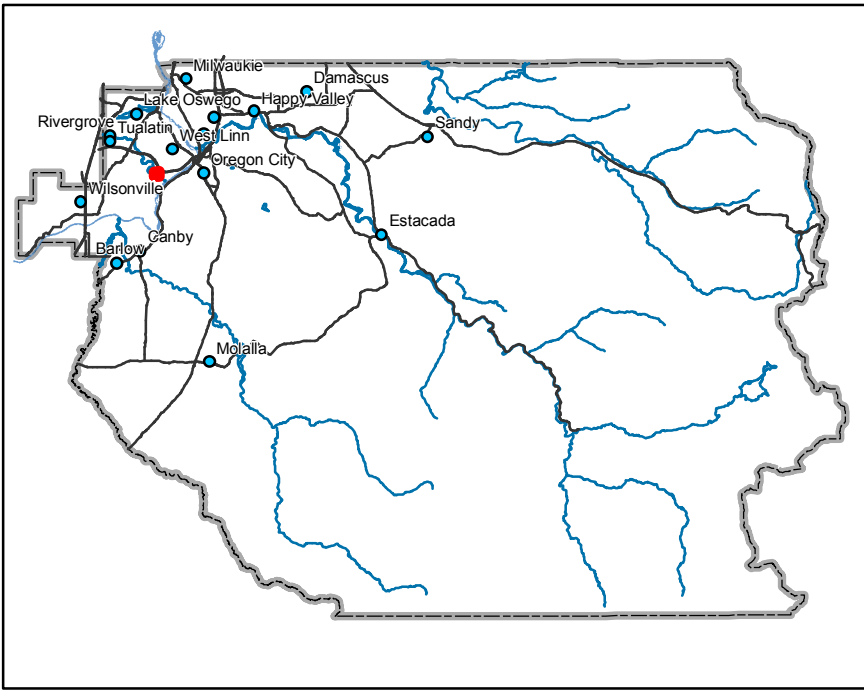
N.E. 1/4 N.E. 1/4 SEC. 3 T.3S. R.1E. W.M.
CLACKAMAS COUNTY
1" = 100'

D.L.C
AMBROSE FIELDS NO. 52
JOSEPH FIELDS NO. 51 & 67

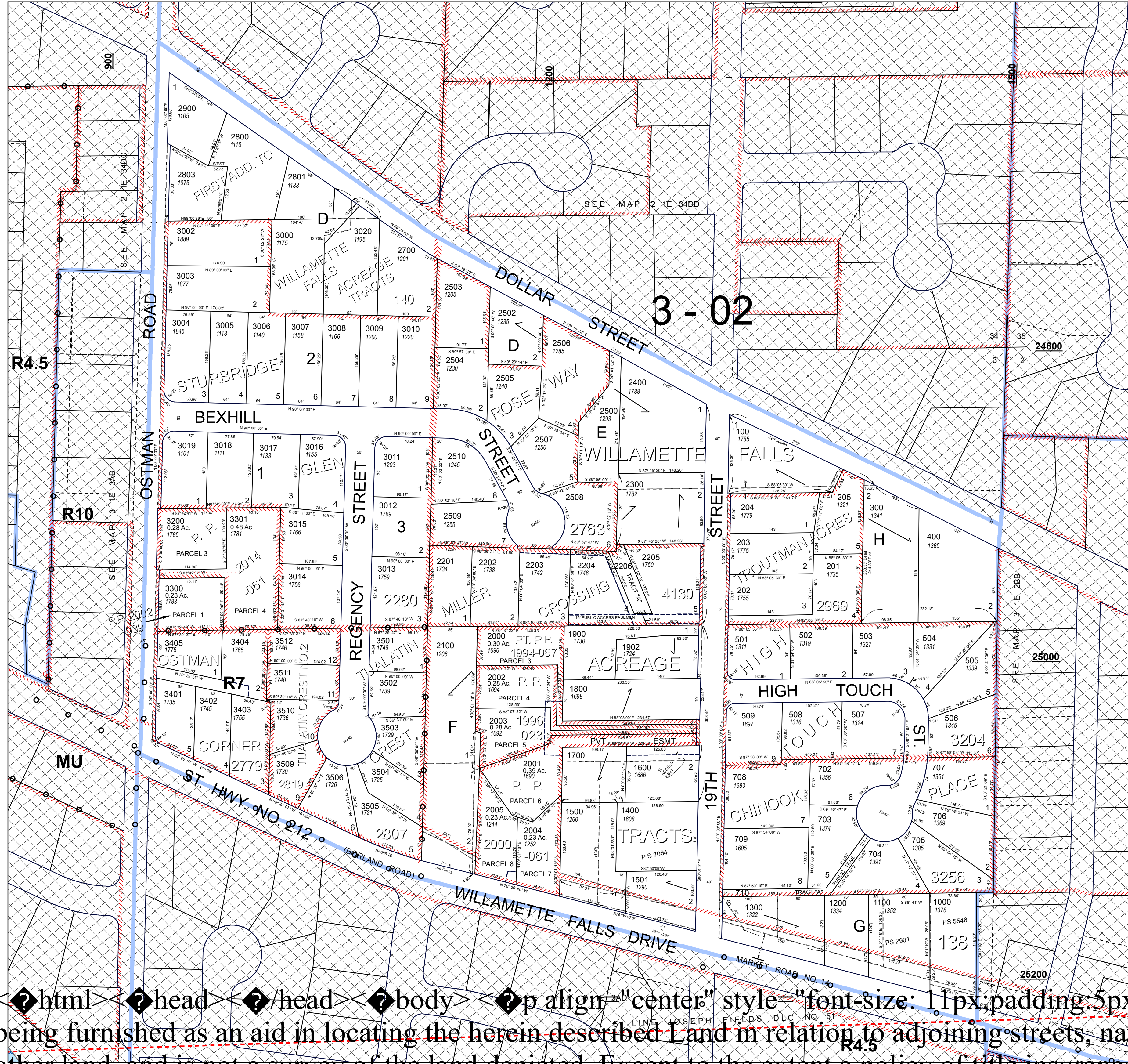
Cancelled Taxlots

- 3391
- 900
- 3100
- 3001
- 301
- 2802
- 1901
- 2501
- 2600
- 2601
- 601
- 3400
- 3507
- 3508
- 200
- 101
- 500
- 600
- 701
- 801
- 700
- 800
- 1301
- 2200
- 3301D1

- Parcel Boundary
- Private Road ROW
- Historical Boundary
- Railroad Centerline
- TaxCodeLines
- Map Index
- WaterLines
- Land Use Zoning
- Plats
- Water
- Corner
- Section Corner
- 1/16th Line
- Govt Lot Line
- DLC Line
- Meander Line
- PLSS Section Line
- Historic Corridor 40'
- Historic Corridor 20'

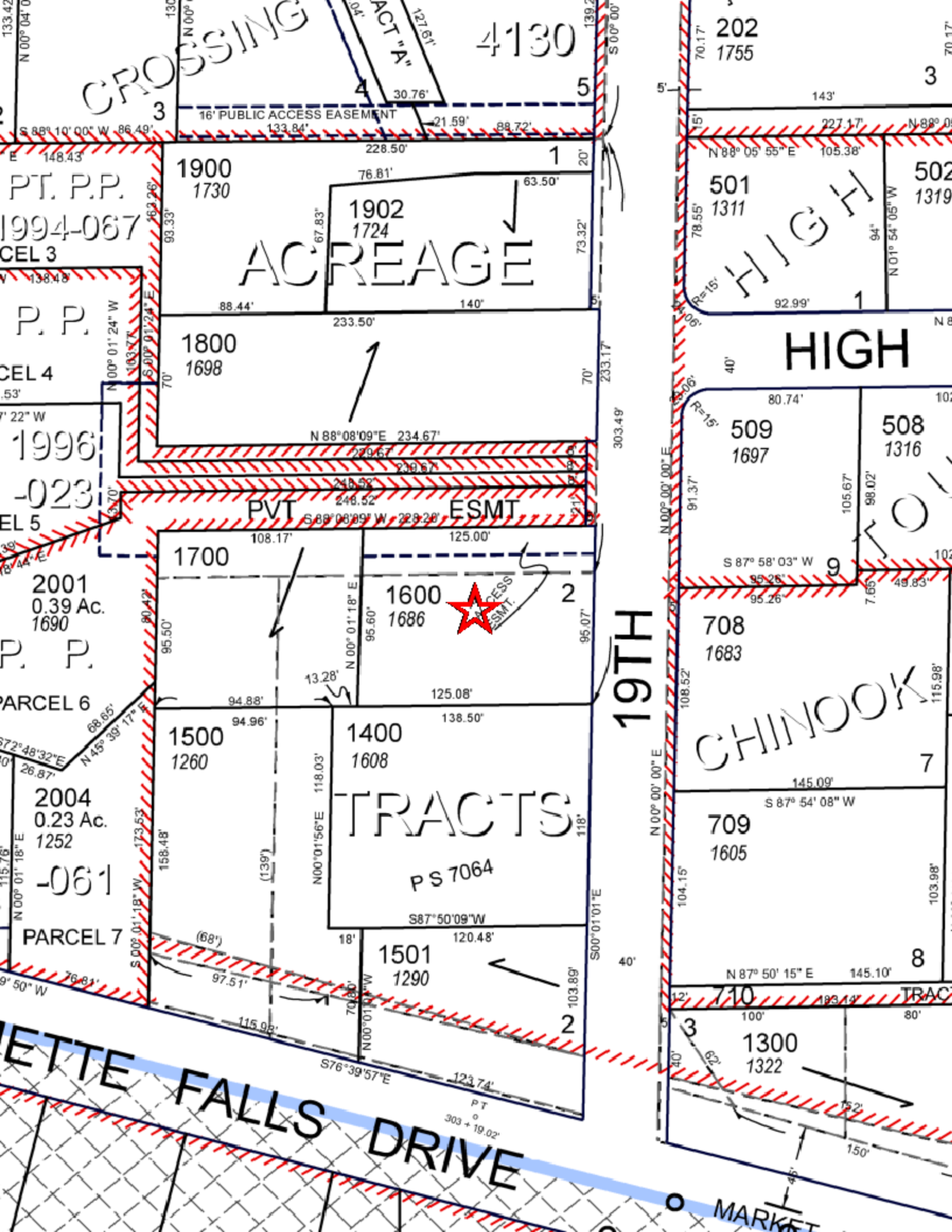


THIS MAP IS FOR ASSESSMENT PURPOSES ONLY



being furnished as an aid in locating the herein described Land in relation to adjoining streets, natural boundaries and other land, and is not a survey of the land depicted. Except to the extent a policy of title insurance is expressly modified

3 1 E 03AA
WEST LINN



CROSSING

4130

202
1755

1900
1730

1902
1724

501
1311

502
1319

ACREAGE

HIGH

HIGH

1800
1698

N 88° 08' 09" E 234.67'

509
1697

508
1316

PVT ESMT

1700

1600
1686

708
1683

2001
0.39 Ac.
1690

13.28'

125.08'

CHINOOK

1500
1260

1400
1608

TRACTS

709
1605

2004
0.23 Ac.
1252

PS 7064

PARCEL 7

1501
1290

710

1300
1322

LETTE FALLS DRIVE

MARKET



150 Beavercreek Rd
 Oregon City, OR 97045
 503-655-8671

Property Account Summary

1/6/2022

Account Number	00752000	Property Address	1686 19TH ST , WEST LINN, OR 97068
----------------	----------	------------------	------------------------------------

General Information

Alternate Property #	31E03AA01600
Property Description	138 WILLAMETTE FALLS AC TR PT LT 2 BLK F
Last Sale Price	\$0.00
Last Sale Date	03/01/2017
Last Sale Excise Number	312195
Property Category	Land &/or Buildings
Status	Active, Locally Assessed
Tax Code Area	003-002
Remarks	

Property Characteristics

Neighborhood	15851: Willamette newer 100, 101
Land Class Category	101: Residential land improved
Building Class Category	14: Single family res, class 4
Year Built	1946
Acreage	0.00
Change property ratio	1XX

Property Details

Living Area Sq Ft	Manf Struct Size	Year Built	Improvement Grade	Stories	Bedrooms	Full Baths	Half Baths
1716	0 X 0	1946	45	1.0	4	2	0

Parties

Role	Percent	Name	Address
Taxpayer	100	TRUSHEIM MICHAEL J TRUSTEE	22607 SW ULSKY RD, WEST LINN, OR 97068
Owner	100	TRUSHEIM MICHAEL J TRUSTEE	22607 SW ULSKY RD, WEST LINN, OR 97068
Owner	100	TRUSHEIM DEBRA L TRUSTEE	22607 SW ULSKY RD, WEST LINN, OR 97068

Property Values

Value Type	Tax Year 2021	Tax Year 2020	Tax Year 2019	Tax Year 2018	Tax Year 2017
AVR Total	\$242,027	\$234,978	\$228,134	\$221,489	\$215,038
Exempt					

TVR Total	\$242,027	\$234,978	\$228,134	\$221,489	\$215,038
Real Mkt Land	\$198,317	\$187,375	\$178,485	\$165,492	\$150,447
Real Mkt Bldg	\$257,810	\$246,650	\$234,790	\$218,080	\$202,420
Real Mkt Total	\$456,127	\$434,025	\$413,275	\$383,572	\$352,867
M5 Mkt Land	\$198,317	\$187,375	\$178,485	\$165,492	\$150,447
M5 Mkt Bldg	\$257,810	\$246,650	\$234,790	\$218,080	\$202,420
M5 SAV					
SAVL (MAV Use Portion)					
MAV (Market Portion)	\$242,027	\$234,978	\$228,134	\$221,489	\$215,038
Mkt Exception					
AV Exception					

Tax Rate

Description	Rate
Total Rate	18.7068

Tax Balance

No Charges are currently due. If you believe this is incorrect, please contact the Assessor's Office.

Parents

Parcel No.	Seg/Merge No.	Status	From Date	To Date	Continued	Document Number
No Parents Found						

Children

Parcel No.	Seg/Merge No.	Status	From Date	To Date	Document Number
No Children Found					

Related Properties

No Related Properties Found

Active Exemptions

No Exemptions Found

Events

Effective Date	Entry Date-Time	Type	Remarks
02/27/2017	03/01/2017 15:07:00	Taxpayer Changed	Property Transfer Filing No.: 312195 02/27/2017 by CINDYSIM
02/27/2017	03/01/2017 15:07:00	Recording Processed	Property Transfer Filing No.: 312195, Special Warranty Deed, Recording No.: 2017-013089 02/27/2017 by CINDYSIM
05/27/2010	06/02/2010 08:19:00	Taxpayer Changed	Property Transfer Filing No.: 203448 05/27/2010 by CINDYSIM
05/27/2010	06/02/2010 08:19:00	Recording Processed	Property Transfer Filing No.: 203448, Warranty Deed, Recording No.: 2010-032067 05/27/2010 by CINDYSIM
02/11/2010	02/11/2010 10:55:00	Seg/Merge Initiated	SM100216 EFFECTIVE 2010-2011: PT FROM 31E03AA01700 BY 2010-006169; AFTER 01/01/2010 by LAURIEB
02/11/2010	02/11/2010 10:55:00	Seg/Merge Completed	Parent in Seg/Merge SM100216, Effective: 01/02/2009 by LAURIEB
08/17/2006	08/22/2006 09:33:00	Taxpayer Changed	Property Transfer Filing No.: 146594 08/17/2006 by CINDYSIM
08/17/2006	08/22/2006 09:33:00	Recording Processed	Property Transfer Filing No.: 146594, Letter, Recording No.: 00752000-08-17-2006 08/17/2006 by CINDYSIM

04/05/2004	04/05/2004 10:05:00	Annexation Completed For Property	Annex to TVFR, Ord 03-13 for 2004-Revise TCA Membership by JENMAYO
07/01/1999	07/01/1999 12:00:00	Ownership at Conversion	Conversion deed: 508-598 , , \$ 0

Receipts

Date	Receipt No.	Amount Applied	Amount Due	Tendered	Change
11/02/2021 00:00:00	5030425	\$4,527.55	\$4,527.55	\$4,391.72	\$0.00
11/02/2020 00:00:00	4833254	\$4,558.32	\$4,558.32	\$4,421.57	\$0.00
10/30/2019 00:00:00	4636608	\$4,346.91	\$4,346.91	\$4,216.50	\$0.00
11/13/2018 00:00:00	4489607	\$4,152.74	\$4,152.74	\$4,028.16	\$0.00
11/06/2017 00:00:00	4262523	\$3,991.66	\$3,991.66	\$3,871.91	\$0.00

Sales History

Sale Date	Entry Date	Recording Date	Recording Number	Sale Amount	Excise Number	Deed Type	Transfer Type	Grantor(Seller)	Grantee(Buyer)	Other Parcels
02/17/2017	03/01/2017	02/27/2017	2017-013089	\$0.00	312195		M	TRUSHEIM DEBRA	TRUSHEIM MICHAEL J TRUSTEE	No
05/26/2010	06/02/2010	05/27/2010	2010-032067	\$355,770.00	203448		M	PERDUE GEORGE W	TRUSHEIM MICHAEL	No
08/17/2006	08/22/2006	08/17/2006	00752000-08-17-	\$0.00	146594		M	PERDUE GEORGE W & JOYCE M	PERDUE GEORGE W	No



150 Beavercreek Rd
 Oregon City, OR 97045
 503-655-8671

Detailed Statement

Parcel Number	00752000	Property Address	1686 19TH ST , WEST LINN, OR 97068
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Click on the Recalculate button in order to change the interest date then click calculate for the results.

As Of
 Date: 1/6/2022

Recalculate

Tax Year	Category	TCA/District	Charged	Minimum	Balance Due	Due Date
1993	Property Tax Principal	003-002	\$1,667.57	\$0.00	\$0.00	11/15/1993
1994	Property Tax Principal	003-002	\$1,613.62	\$0.00	\$0.00	11/15/1994
1995	Property Tax Principal	003-002	\$1,395.43	\$0.00	\$0.00	11/15/1995
1996	Property Tax Principal	003-002	\$1,537.07	\$0.00	\$0.00	11/15/1996
1997	Property Tax Principal	003-002	\$1,533.18	\$0.00	\$0.00	11/15/1997
1998	Property Tax Principal	003-002	\$1,715.56	\$0.00	\$0.00	11/15/1998
1999	Property Tax Principal	003-002	\$1,610.63	\$0.00	\$0.00	11/15/1999
2000	Property Tax Principal	003-002	\$1,831.86	\$0.00	\$0.00	11/15/2000
2001	Property Tax Principal	003-002	\$1,840.68	\$0.00	\$0.00	11/15/2001
2002	Property Tax Principal	003-002	\$1,942.62	\$0.00	\$0.00	11/15/2002
2003	Property Tax Principal	003-002	\$1,984.98	\$0.00	\$0.00	11/15/2003
2004	Property Tax Principal	003-002	\$2,149.85	\$0.00	\$0.00	11/15/2004
2005	Property Tax Principal	003-002	\$2,237.38	\$0.00	\$0.00	11/15/2005
2006	Property Tax Principal	003-002	\$2,330.14	\$0.00	\$0.00	11/15/2006
2007	Property Tax Principal	003-002	\$2,343.79	\$0.00	\$0.00	11/15/2007
2008	Property Tax Principal	003-002	\$2,391.59	\$0.00	\$0.00	11/15/2008
2009	Property Tax Principal	003-002	\$2,552.16	\$0.00	\$0.00	11/15/2009
2010	Property Tax Principal	003-002	\$2,633.75	\$0.00	\$0.00	11/15/2010
2011	Property Tax Principal	003-002	\$2,624.16	\$0.00	\$0.00	11/15/2011
2012	Property Tax Principal	003-002	\$3,286.46	\$0.00	\$0.00	11/15/2012
2013	Property Tax Principal	003-002	\$3,337.81	\$0.00	\$0.00	11/15/2013
2014	Property Tax Principal	003-002	\$3,556.08	\$0.00	\$0.00	11/15/2014
2015	Property Tax Principal	003-002	\$3,723.27	\$0.00	\$0.00	11/15/2015
2016	Property Tax Principal	003-002	\$3,888.52	\$0.00	\$0.00	11/15/2016
2017	Property Tax Principal	003-002	\$3,991.66	\$0.00	\$0.00	11/15/2017
2018	Property Tax Principal	003-002	\$4,152.74	\$0.00	\$0.00	11/15/2018
2019	Property Tax Principal	003-002	\$4,346.91	\$0.00	\$0.00	11/15/2019
2020	Property Tax Principal	003-002	\$4,558.32	\$0.00	\$0.00	11/15/2020
2021	Property Tax Principal	003-002	\$4,527.55	\$0.00	\$0.00	11/15/2021
TOTAL Due as of 01/06/2022					\$0.00	

30
Michael Trusheim and Debra Trusheim
22607 SW Ulsky
West Linn, OR 97068
"GRANTOR"

Clackamas County Official Records
Sherry Hall, County Clerk

2017-013089



02028412201700130890030034

\$63.00

02/27/2017 11:18:12 AM

D-D Cnt=1 Stn=6 KARLYN
\$15.00 \$16.00 \$22.00 \$10.00

**Michael J. Trusheim and
Debra L. Trusheim, Trustees of the
Michael J. Trusheim and Debra L. Trusheim
Revocable Trust u/a/d 2/17/17**
22607 SW Ulsky
West Linn, OR 97068
"GRANTEE"

**RECORDATION REQUESTED BY AND
AFTER RECORDATION MAIL TO:**

Elizabeth A. Munns
Abbott & Munns, LLC
4891 Willamette Falls Dr., Suite 1
West Linn, OR 97068

MAIL TAX STATEMENTS TO:

Michael J. and Debra L. Trusheim, Trustees
22607 SW Ulsky
West Linn, OR 97068

STATUTORY SPECIAL WARRANTY DEED

The Grantor, **Michael Trusheim and Debra Trusheim**, husband and wife conveys and specially warrants to **Michael J. Trusheim and Debra L. Trusheim, Trustees** or his/her successor Trustee of the **Michael J. Trusheim and Debra L. Trusheim Revocable Trust u/a/d February 17, 2017** Grantee, the following described real property free of encumbrances created or suffered by the grantor except as specifically set forth herein in the County of Clackamas, State of Oregon, described as follows:

SEE ATTACHED EXHIBIT A.

More commonly known as: 1686 19th St., West Linn, OR 97068
Subject to all encumbrances of record.

To Have and to Hold the same unto Grantee and Grantee's heirs, successors and assigns forever.

The true and actual consideration for this conveyance is \$-0-. However, the actual consideration consists of or includes other property or value given or promised which is the whole consideration.

In construing this deed, where the context so requires, the singular includes the plural, and all grammatical changes shall be made so that this deed shall apply equally to corporations and individuals.

IN WITNESS WHEREOF, the Grantor has executed this instrument this 17th day of February, 2017.

GRANTOR:

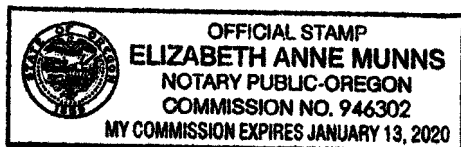
Michael Trusheim
Michael Trusheim

Debra L. Trusheim
Debra Trusheim

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.

STATE OF OREGON)
)ss.
COUNTY OF CLACKAMAS)

This instrument was acknowledged before me on this 17th day of February, 2017 by **Michael Trusheim and Debra Trusheim** as his and her own free act and deed.



Elizabeth Anne Munns
Notary Public for Oregon

EXHIBIT A

LEGAL DESCRIPTION: Real property in the County of Clackamas, State of Oregon, described as follows:

PARCEL 1:

A TRACT OF LAND IN THE NORTHEAST QUARTER OF SECTION 3, TOWNSHIP 3 SOUTH, RANGE 1 EAST, WILLAMETTE MERIDIAN, IN THE CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON, BEING A PORTION OF TRACT "F", WILLAMETTE FALLS ACREAGE TRACTS DESCRIBED AS FOLLOWS:

COMMENCING AT A 5/8 INCH DIAMETER IRON ROD AT THE SOUTHEAST CORNER OF THAT TRACT OF LAND DESCRIBED IN BOOK 508, PAGE 598, CLACKAMAS COUNTY DEED RECORDS TO PERDUE, ON THE EASTERLY RIGHT-OF-WAY LINE OF 19TH STREET 20 FEET AT RIGHT ANGLES FROM THE CENTER LINE THEREOF; THENCE, S87°53'33"W ALONG THE SOUTH LINE THEREOF A DISTANCE OF 125.08 FEET TO THE POINT OF BEGINNING OF THE TRACT OF LAND HEREIN DESCRIBED; THENCE CONTINUING ALONG SAID SOUTH LINE ON SAID BEARING DISTANCE OF 13.28 FEET TO A 5/8 INCH DIAMETER IRON ROD IN SAID LINE AS SHOWN ON MAP PS 26820, CLACKAMAS COUNTY SURVEY RECORDS; THENCE, S88°13'52"W CONTINUING ALONG SAID SOUTH LINE AND THE SOUTH LINE OF THAT TRACT OF LAND DESCRIBED IN BOOK 518, PAGE 615 CLACKAMAS COUNTY DEED RECORDS TO PERDUE, A DISTANCE OF 94.88 FEET TO A 5/8 INCH DIAMETER IRON ROD AT THE SOUTHWEST CORNER THEREOF; THENCE, N00°01'18"E ALONG THE WEST LINE THEREOF AND THE EAST BOUNDARY OF PARCEL 6 OF PARTITION PLAT NO. 2000-061 A DISTANCE OF 95.50 FEET TO AN ANGLE POINT IN THE BOUNDARY OF SAID PARCEL 6; THENCE, N88°08'09"E ALONG THE BOUNDARY OF SAID PARCEL 6 A DISTANCE OF 108.17 FEET; THENCE, S00°01'18"W PARALLEL WITH THE HEREIN DESCRIBED WEST BOUNDARY LINE A DISTANCE OF 95.60 FEET TO THE POINT OF BEGINNING.

PARCEL 2:

BEGINNING AT A 5/8 INCH DIAMETER IRON ROD AT THE SOUTHEAST CORNER OF THAT TRACT OF LAND DESCRIBED IN BOOK 508, PAGE 598, CLACKAMAS COUNTY DEED RECORDS TO PERDUE, ON THE EASTERLY RIGHT-OF-WAY LINE OF 19TH STREET 20 FEET AT RIGHT ANGLES FROM THE CENTER LINE THEREOF; THENCE, S87°53'33"W ALONG THE SOUTH LINE THEREOF A DISTANCE OF 125.08 FEET TO THE POINT OF BEGINNING OF THE TRACT OF LAND DESCRIBED ABOVE; THENCE, NORTHERLY ALONG THE EAST LINE OF THE OF THE ABOVE DESCRIBED PROPERTY TO THE NORTHEAST CORNER THEREOF ON THE BOUNDARY OF PARCEL 6, PARTITION PLAT NO. 2000-061, THENCE, N88°08'09"E ALONG THE SAID BOUNDARY AND THE EASTERLY EXTENSION THEREOF A DISTANCE OF 125 FEET TO THE WEST RIGHT-OF-WAY LINE OF 19TH STREET, 20 FEET AT RIGHT ANGLES FROM THE CENTER LINE THEREOF; THENCE, S00°01'01"W ALONG SAID LINE A DISTANCE OF 95.06 FEET TO THE POINT OF BEGINNING.

SUBJECT TO A PRIVATE NON-EXCLUSIVE EASEMENT FOR ACCESS AND UTILITIES OVER THE NORTH 15 FEET THEREOF FOR THE BENEFIT OF THE ADJOINING PROPERTY.

NOTE: This legal description was created prior to January 1, 2008.



CITY OF
**West
Linn**

Pre-app Comments

Project Number: PA-22-17
1686 19th Street

Engineering Contact:

Casey Thompson, EIT
cthompson@westlinnoregon.gov
Telephone: (503) 722-3435

Project Description: Property Line Adjustment Between Tax Lots 1600 and 1700

Pre-application meeting date: June 2, 2022

The comments provided below are based upon material provided as part of the pre-application packet and are intended to identify potential design challenges associated with the development. Comments are not intended to be exhaustive and do not preclude the engineering department from making additional comments as part of the formal land use application process.

TRANSPORTATION

Minimum Required Improvement:

- 19th Street Improvements:
 - Existing right-of-way width: 45 feet.
 - Classification: Neighborhood Route
 - No street improvements required for lot line adjustment.

SANITARY SEWER

Minimum Required Improvement:

- Each lot shall have its own sanitary sewer service line.
- An existing sanitary sewer main line exists in 19th St and has capacity to receive additional flow.

DOMESTIC WATER

Minimum Required Improvement:

- Each lot shall have its own water service and meter.
- An existing 8" water main line exists in 19th St.
- Any connection to the public water main line shall be made by City crews, who will install the service line to the edge of right-of-way.

SURFACE WATER (STORM SEWER)

Minimum Required Improvement:

- Onsite run-off generated from new impervious areas of greater than 5,000 square feet must be captured, treated, detained and conveyed to the nearest public stormwater system in accordance with the *Portland Stormwater Management Manual*, the Uniform Plumbing Code, and *City of West Linn Public Works Standards*.
- Onsite run-off generated from new impervious area of greater than 1,000 square feet must be captured, treated, and conveyed to nearest public stormwater system.



CITY OF
**West
Linn**

Pre-app Comments

Project Number: PA-22-17
1686 19th Street

Engineering Contact:

Casey Thompson, EIT
cthompson@westlinnoregon.gov
Telephone: (503) 722-3435

- Stormwater facilities installed to capture, treat, detain and convey stormwater from the private improvements shall be privately owned and maintained.

OTHER

- Development shall pay all applicable System Development Charges (SDC) fees at the time of home construction.
- Future development of the site will disturb more than 1 acre, therefore a 1200-CN Erosion Control Permit Application, as outlined in Section 2.0066 of the *City of West Linn Public Works Standards*, will be required prior to the commencement of construction.

CITY OF WEST LINN
PRE-APPLICATION CONFERENCE MEETING
SUMMARY NOTES
June 2, 2022

SUBJECT: Lot Line Adjustment
FILE: PA-22-17
ATTENDEES: Applicant: Michael Trusheim, Daisy Goebel (AKS), Zach Pelz (AKS)
Staff: Chris Myers (Planning), Lynn Schroder (Planning)
Public: Kathy Halicki (WNA President)

The following is a summary of the meeting discussion provided to you from staff meeting notes. Additional information may be provided to address any "follow-up" items identified during the meeting. These comments are PRELIMINARY in nature. Please contact the Planning Department with any questions regarding approval criteria, submittal requirements, or any other planning-related items. Please note disclaimer statement below.

Site Information

Site Address: 1686 19th Street
Tax Lot No.: 31E03AA01700, 31E03AA01600
Site Area: 10,314 square feet and 11,823 square feet +/-
Neighborhood: Willamette Neighborhood Association
Comp. Plan: Low-density residential
Zoning: Single-Family Residential Attached, R-10
Zoning Overlays: N/A
Applicable CDC Chapters: Chapter 11: Single-Family Residential Attached, R-10
Chapter 85: Land Division

Project Details

Proposed lot line adjustment between two legal lots of record.

Pertinent Factors:

The applicant is proposing a lot line adjustment that would increase the size of the property at 1688 19th street and decrease the property size at 1686 19th street. Both properties would meet the minimum 10,000 square foot lot requirement.

A lot line adjustment does not require a pre-application conference however, the complexity of this property and the access to it, indicated that a pre-application conference would be the most efficient way to ensure future development of the site has been adequately discussed and prepared for.

Discussion was centered around the access to 1688. The partition decision from 2008 has a condition of approval that required an access easement across the north side of 1686 that would allow access to 1688. At this time, it is unclear if that access easement was recorded since the partition was finalized. The applicant or applicant's agent will send proof of easement record.

The potential for the property at 1688 to take access from the existing shared access drive was discussed. However, the Community Development Code allows for only 4 single-family homes to take access from a shared access drive. Currently four single-family homes utilize the shared access drive. Therefore, this is not an option for access to 1688.

The applicable Community Development Code chapters for a lot line adjustment are listed above. Criteria for those chapters must be addressed in the lot line adjustment application. Access to the property at 1688 does not have to be addressed for the lot line adjustment but will need to be addressed at time of development.

Building: For building code and ADA questions, please contact Adam Bernert at abernert@westlinnoregon.gov or 503-742-6054.

Engineering: For work in the right of way and utility questions, please contact Erich Lais at elais@westlinnoregon.gov or 503-722-3434.

Tualatin Valley Fire & Rescue: Please contact Jason Arn at jason.arn@tvfr.com or 503-259-1510 with any questions.

Process: For the proposal, address the submittal requirements and standards for decision making in the Community Development Code (CDC) chapters:

- Chapter 11: Single-Family Residential Attached, R-10
- Chapter 85: Land Division

N/A is not an acceptable response to the approval criteria. The submittal requirements may be waived, but the applicant must first identify the specific submittal requirement and request, in letter form, that it be waived by the Planning Manager and must identify the specific grounds for that waiver.

Once the application and deposit/fee are submitted, the City has 30 days to determine if the application is complete or not. If the application is not complete, the applicant has 180 days to make it complete or provide written notice to staff that no other information will be provided. Once complete, the City has 120 days from the date of completeness to make a final decision on the application.

Typical land use applications can take 6-10 months from beginning to end.

DISCLAIMER: This summary discussion covers issues identified to date. It does not imply that these are the only issues. The burden of proof is on the applicant to demonstrate that all approval criteria have been met. These notes do not constitute an endorsement of the proposed application **or provide any assurance of potential outcomes**. Staff responses are based on limited material presented at this pre-application meeting. New issues, requirements, etc. could emerge as the application is developed. Pre-application notes are void after 18 months. After 18 months with no application approved or in process, a new pre-application conference is required. Any changes to the CDC standards may require a different design or submittal.



CITY OF West Linn

Tree Removal Permit

Please submit **pictures** of trees and **site map** with trees clearly identified to complete application.

Please mark trees on site with ribbon, flagging tape or other marker.

Email submissions are acceptable. Please do not fax pictures or site map.

Property Owner

Tree Site Address (if different)

Name _____

Address _____

Phone # _____

Email _____

AKS Engineering and Forestry, kocsisb@aks-eng.com , (503) 563-6151

Number, Diameter, and Species of Trees:

1. _____

4. _____

2. _____

5. _____

3. _____

6. _____

Reasons for Removal (code section 8.630)

Owners Signature

Date

Staff Only Below this Line

Approved _____ Not Approved _____

Signature

Date

Reasons for Approval/Denial:

Conditions of Approval

After a decision is made, there is a 10 day appeal period. If you do not hear from the City within this period then the **tree may be removed on or after** _____.

This permit expires after one year.

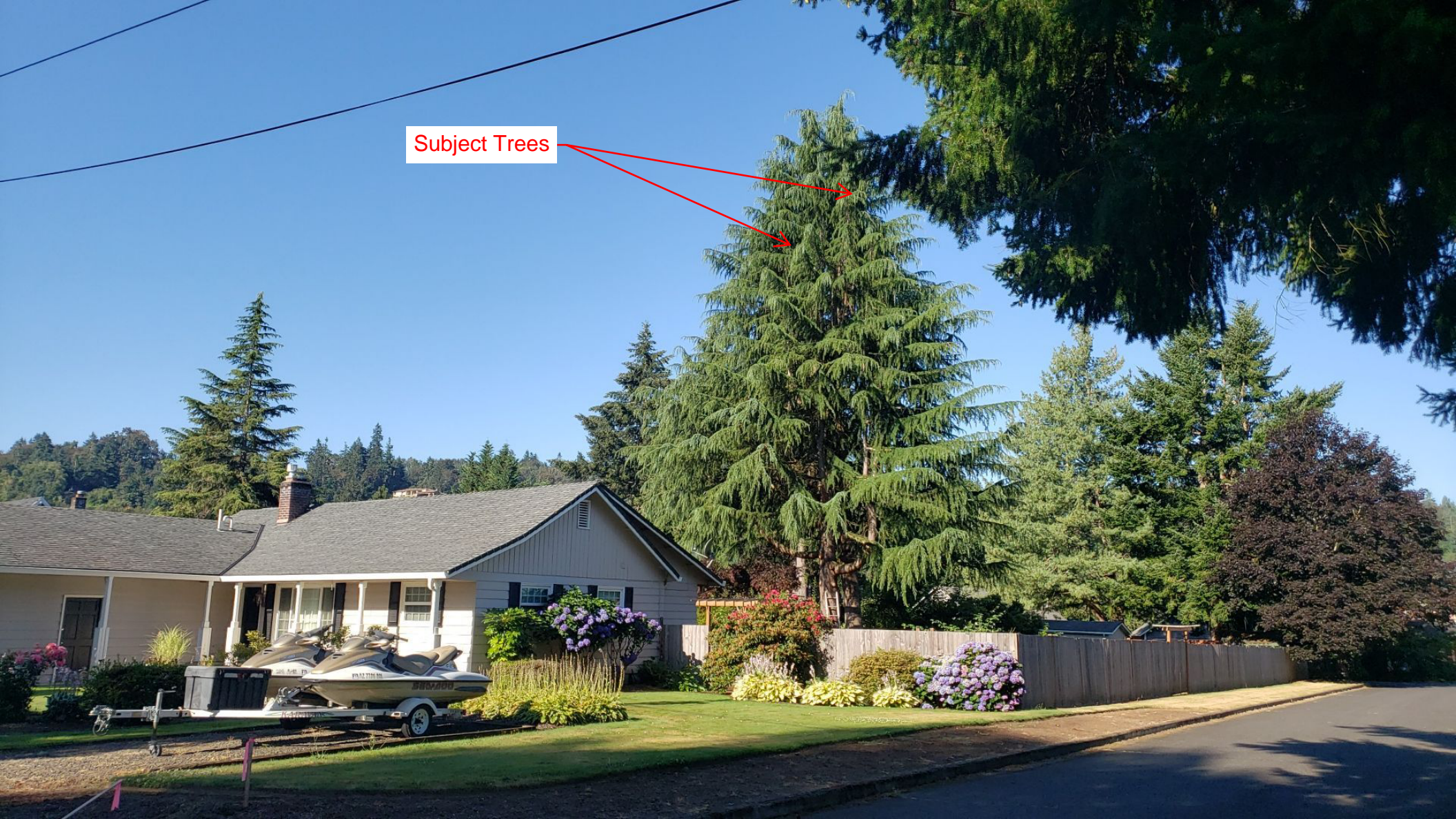
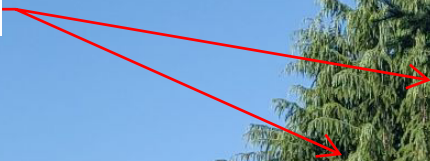
The approved permit must be clearly posted on site when tree removal is occurring.

**City of West Linn Parks and Recreation Department
22500 Salamo Rd., West Linn, OR 97068
Ph. 503-557-4700 Fax 503-656-4106
treepermits@westlinnoregon.gov**

Subject Trees



Subject Trees



**1686 19th Street
West Linn, Oregon**

Preliminary Stormwater Report

Date: October 2022

Client: Michael Trusheim
9400 SE Clackamas Road
Clackamas, OR 97015

Engineering Contact: Jonathon Morse, PE
503-563-6151 | jonm@aks-eng.com

Prepared By: Jadon Smith, EI

Engineering Firm: AKS Engineering & Forestry, LLC
12965 SW Herman Road
Suite 100
Tualatin, OR 97062

AKS Job Number: 9269



RENEWAL DATE: 12/31/22



www.aks-eng.com

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Appendices

- Appendix A:** Vicinity Map
- Appendix B:** Pre-Developed and Post Developed Basin Map
- Appendix C:** Pre-Developed Hydrographs and Flow Information
- Appendix D:** Post-Developed Hydrographs and Flow Information
- Appendix E:** Soil Information from the USDA Soil Survey of Clackamas County
- Appendix F:** Geotechnical Engineering Report from GeoPacific Engineering, Inc.

Preliminary Stormwater Report

1686 19TH STREET
WEST LINN, OREGON

1.0 Purpose of Report

The purpose of this report is to:

- Show compliance with all City of West Linn stormwater drainage requirements and design criteria.
- Provide site data, calculations, maps, drawings, cross-sections, analysis, and other information needed to support and verify the findings and conclusions of the drainage report.
- Prepare a conceptual stormwater drainage plan to mitigate the stormwater drainage impacts of the development.
- Provide evidence (plans) that the planned drainage system and facilities will meet required design criteria, will fit on the site, and will, to the greatest extent possible, avoid or minimize destruction or loss of natural resources.
- Provide design criteria needed to prepare construction plans and specifications.

2.0 Project Overview

2.1. Location

The subject site is located on tax lots 1600 & 1700 of Clackamas County Assessor's Map 3 1E 03AA, ±300 feet north of the intersection of Willamette Falls Drive and 19th Street in West Linn, Oregon.

2.2. Soil Classification

The Natural Resources Conservation Service (NRCS) Soil Survey of Clackamas County, Oregon (Appendix E) classifies the on-site soil as Willamette silt loam, 0 to 3 percent slopes (HSG C).

On September 6th, 2022, the project geotechnical engineer, GeoPacific Engineering Inc., conducted a site evaluation (Appendix F). On-site soil infiltration testing was performed at various depths on the subject site. Based on the finding of the infiltration testing, the project geotechnical engineer recommended an infiltration rate of 1.4 inches per hour be used between depths of 7 and 17 feet, and a rate of 0.0 inches per hour be used between depths of 0 and 7 feet, as well as below a depth 17 feet. A factor of safety of two was applied and a design infiltration rate of 0.7 inches per hour was used between depths of 7 and 17 feet.

2.3. Existing Site

Tax lot 1600 of the subject site is currently developed with a single-family residence, associated concrete driveway, and landscaped yard. Tax lot 1700 is currently only developed with a landscaped back yard that is associated with the residence on tax lot 1600.

2.4. Project Overview

Planned improvements include the construction of a new single-family residence on tax lot 1700 with associated on-site improvements (e.g., paved driveway, utilities, etc.). A paved private driveway will be constructed within an easement on tax lot 1600 as well as the construction of a private stormwater management facility.

2.5. Design Criteria

New impervious areas created with this project will be greater than 1,000 square feet. Per the City of West Linn *Public Works Design Standards* (2019) Section 2, Storm Drain Requirements, stormwater quality and detention will be required as follows:

- Stormwater discharge from the subject site for the 2-, 10-, and 25-year storm events shall not exceed that of the pre-developed condition.
- Removal of 70 percent of total suspended solids (TSS) from 90 percent of the average annual runoff is required per the City of Portland *Stormwater Management Manual* (2020) Chapter 1, Requirements and Policies, Stormwater Management and Conveyance Requirements.

2.6. Impervious Area Calculations

This project will add approximately 6,934 square feet of new impervious area, including 3,745 square feet of impervious roof area and 3,189 square feet of impervious driveway (see Appendix B).

Post-Developed Condition	Area (square feet)
New Roof Area (Home and Garage)	3,745
New Driveway	3,189
Total New	6,934

3.0 Existing drainage Characteristics

3.1. On-site Drainage Characteristics

Based on the site topographic survey, onsite slopes range between 0 and 3 percent, with the site generally draining toward the northwest corner of the property.

3.2. Uphill Drainage Characteristics

The area uphill of the subject site consists of single-family residential homes on developed lots with landscaped yards. There are no observed drainage channels entering the site from the uphill drainage area.

3.3. Downhill Drainage Characteristics

There is no observed drainage exiting the site.

4.0 Proposed Drainage Conveyance Systems

4.1. On-site Conveyance

Stormwater runoff generated by the newly created impervious areas will be managed on site via a private chamber trench infiltration system.

Stormwater runoff from the roof of the new home will be captured by the gutter system and routed via closed conduit storm pipe into the chamber trench system for detention. Stormwater runoff generated by the impervious driveway will be captured by area drains and routed via closed-conduit pipe to the chamber trench system for detention and infiltration.

The Unit Hydrograph Method in conjunction with Manning’s Equation for pipe flow were used size the closed conduit conveyance pipe. HydroCAD software was also used to assist in the calculations. The sizing of the conveyance pipe is preliminary and will be finalized with the building permit application.

4.2. Uphill Conveyance

The site topographic survey indicates there are no defined drainage channels entering the site and there does not appear to be any significant sheet, shallow concentrated, or channelized flow entering the subject site.

4.3. Downstream Conveyance

Excess runoff generated from storm events will be conveyed through the private chamber trench overflow pipe to the existing 12-inch public storm main in the 19th Street Right-of-Way.

5.0 Surface Water Quality and Detention Facilities

5.1. Private Stormwater Management Facility

The stormwater management facility will consist of a private chamber trench infiltration system located on-site. The Unit Hydrograph Method was used to size the chamber trench system and HydroCAD software aided in the analysis. The chamber trench infiltration system reduces the discharge rate from 2, 10, and 25-year events to less than the pre-development discharge rate. The chamber trench system design is preliminary and will be finalized with the building permit application.

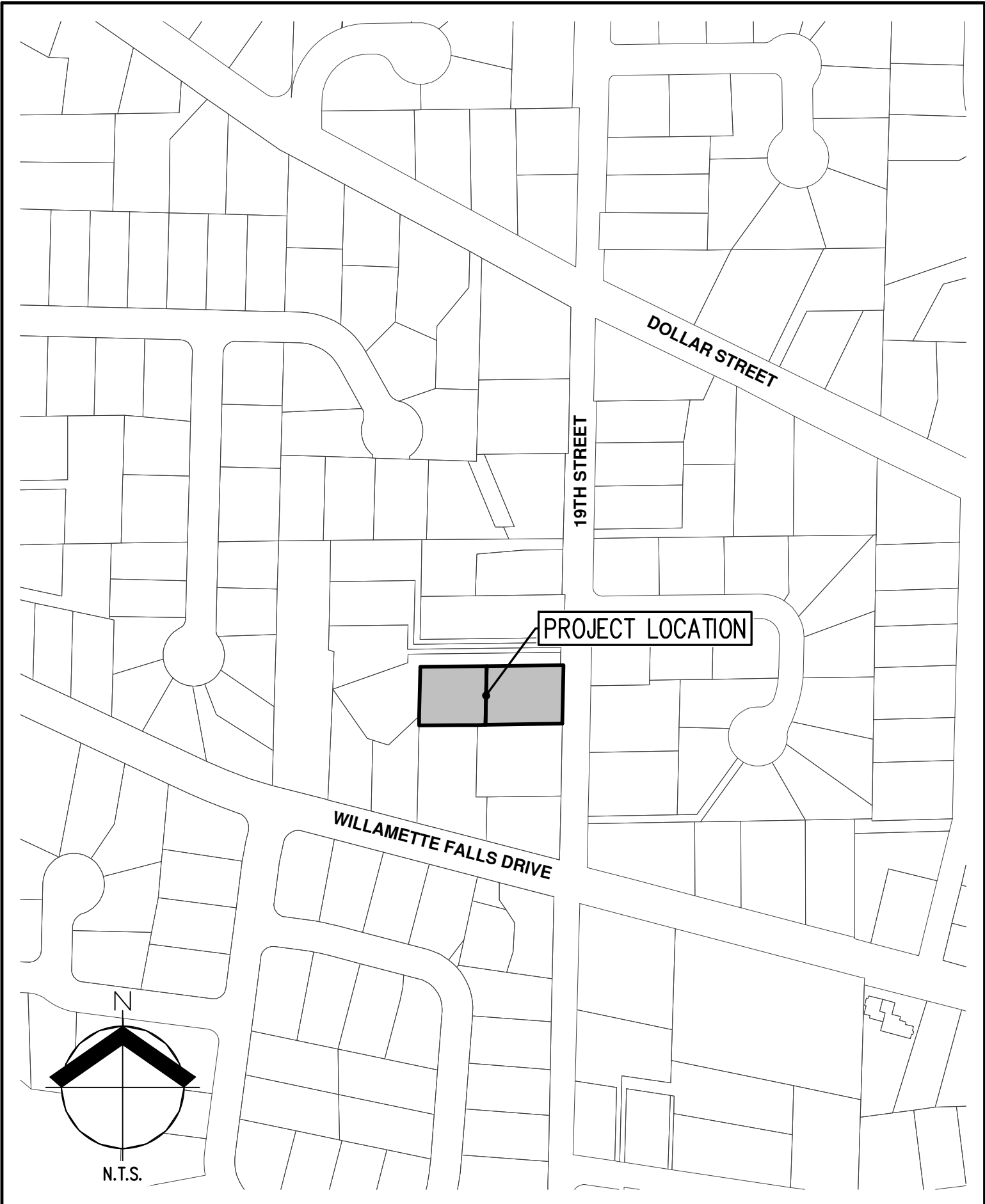
Runoff from the paved driveway will be pretreated with lynch-style catch basins before being conveyed to the chamber trench system to meet water quality requirements per The City of Portland *Stormwater Management Manual*.

Table 5-1 provides a comparison between the pre-developed and post-developed runoff for the 2, 10, and 25-year storm events showing onsite detention.

Table 5-1: Pre-Developed vs. Post-Developed Runoff Comparison		
Storm Event	Pre-Developed Runoff (cubic feet per second)	Post-Developed Runoff (cubic feet per second)
2-Year Storm Event	0.01	0.00
10-Year Storm Event	0.04	0.02
25-Year Storm Event	0.05	0.03

As designed, stormwater runoff generated by the new impervious areas will be detained on site and outflow will be reduced to less than the pre-developed rate for 2, 10, and 25-year storm events.

Appendix A: Vicinity Map



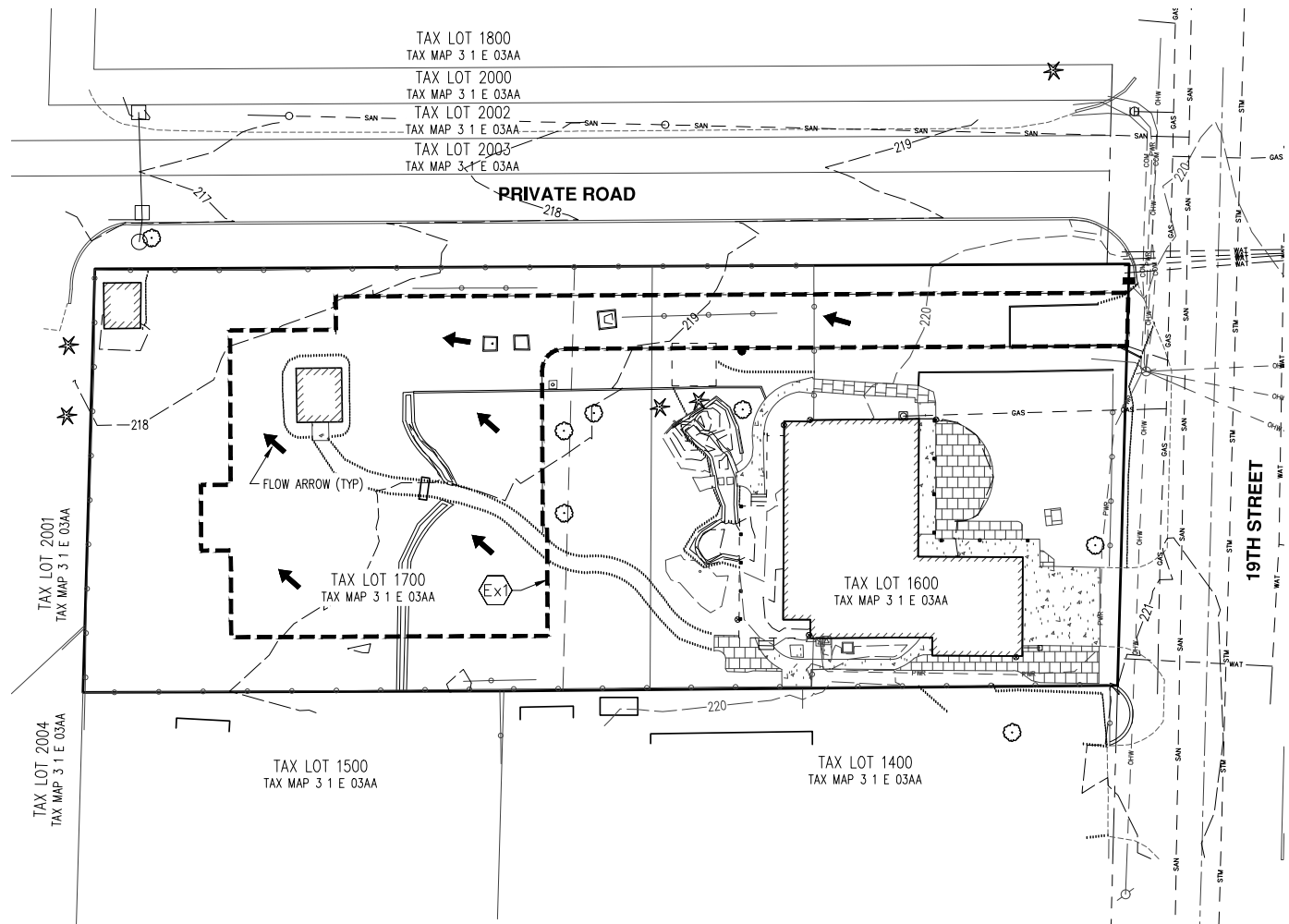
AKS ENGINEERING & FORESTRY, LLC
 12965 SW HERMAN RD, STE 100
 TUALATIN, OR 97062
 503.563.6151 WWW.AKS-ENG.COM



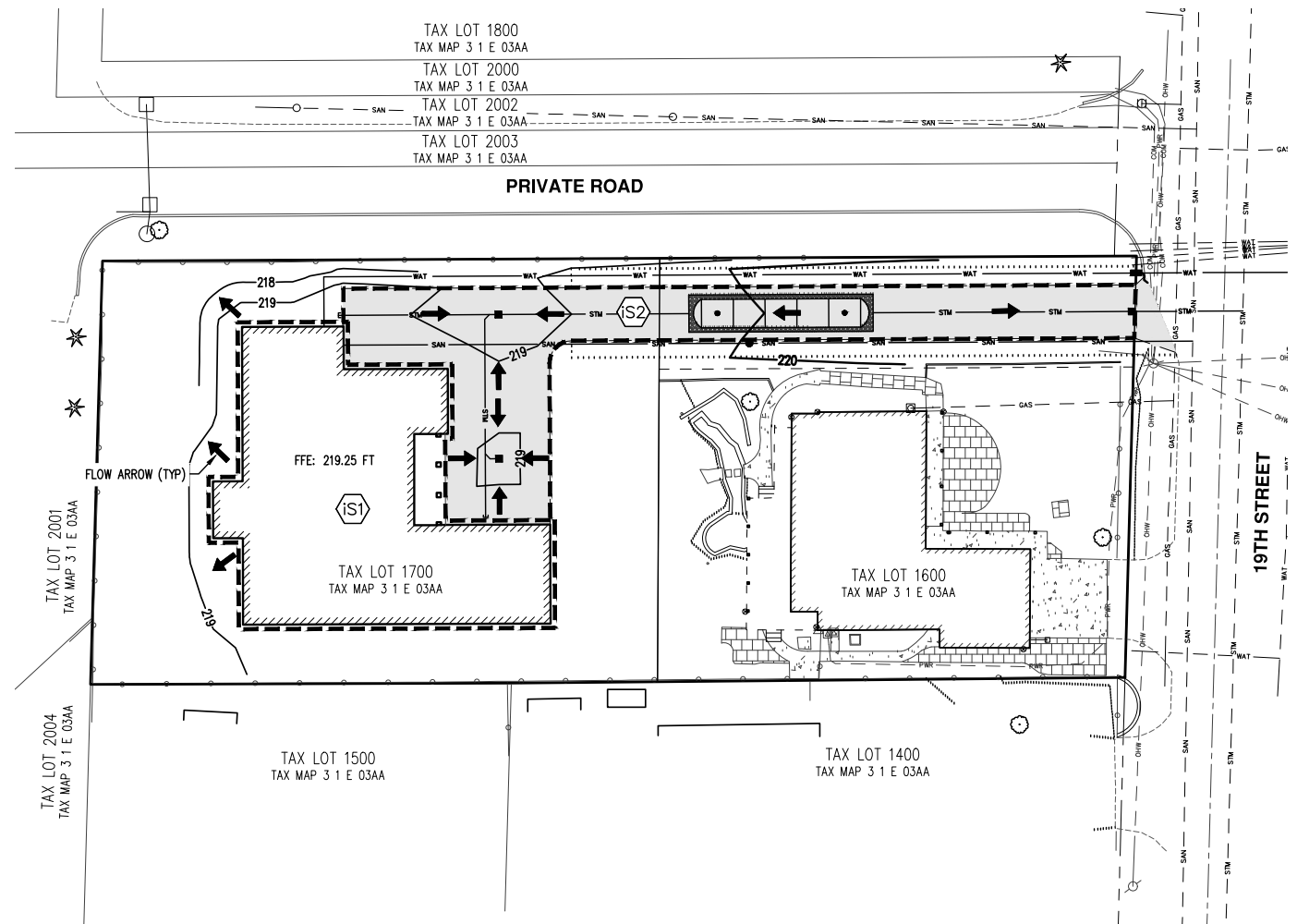
SITE VICINITY MAP
1686 19th STREET, WEST LINN

DATE: 10/12/2022	
DRWN: JDS	CHKD: JMM
AKS JOB: 9269	EXHIBIT A

Appendix B: Pre-Developed and Post Developed Basin Map

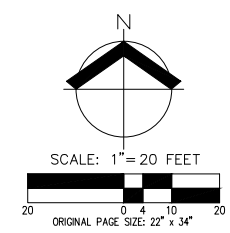


PRE-DEVELOPED BASIN MAP
 SCALE: 1" = 20'



POST-DEVELOPED BASIN MAP
 SCALE: 1" = 20'

SITE IMPERVIOUS AREA SUMMARY	
TOTAL NEW IMPERVIOUS AREA -	± 6,934 SF
ROOF -	± 3,745 SF
DRIVEWAY -	± 3,189 SF



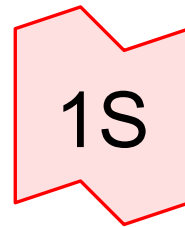
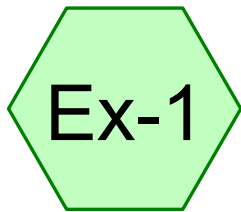
PRE-DEVELOPED & POST-DEVELOPED BASIN MAPS
1686 19TH STREET
PROPERTY LINE ADJUSTMENT
WEST LINN, OREGON



RENEWAL DATE: 12/31/2022
 JOB NUMBER: 9269
 DATE: 10/12/2022
 DESIGNED BY: JDS
 DRAWN BY: JDS
 CHECKED BY: JMM

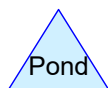
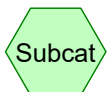
BASINS

Appendix C: Pre-Developed Hydrographs and Flow Information



Pre-Developed

Summary



Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
6,934	70	>75% Grass cover, Good, HSG C (Ex-1)
6,934	70	TOTAL AREA

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
6,934	HSG C	Ex-1
0	HSG D	
0	Other	
6,934		TOTAL AREA

Summary for Subcatchment Ex-1: Pre-Developed

Runoff = 0.00 cfs @ 8.01 hrs, Volume= 236 cf, Depth= 0.41"

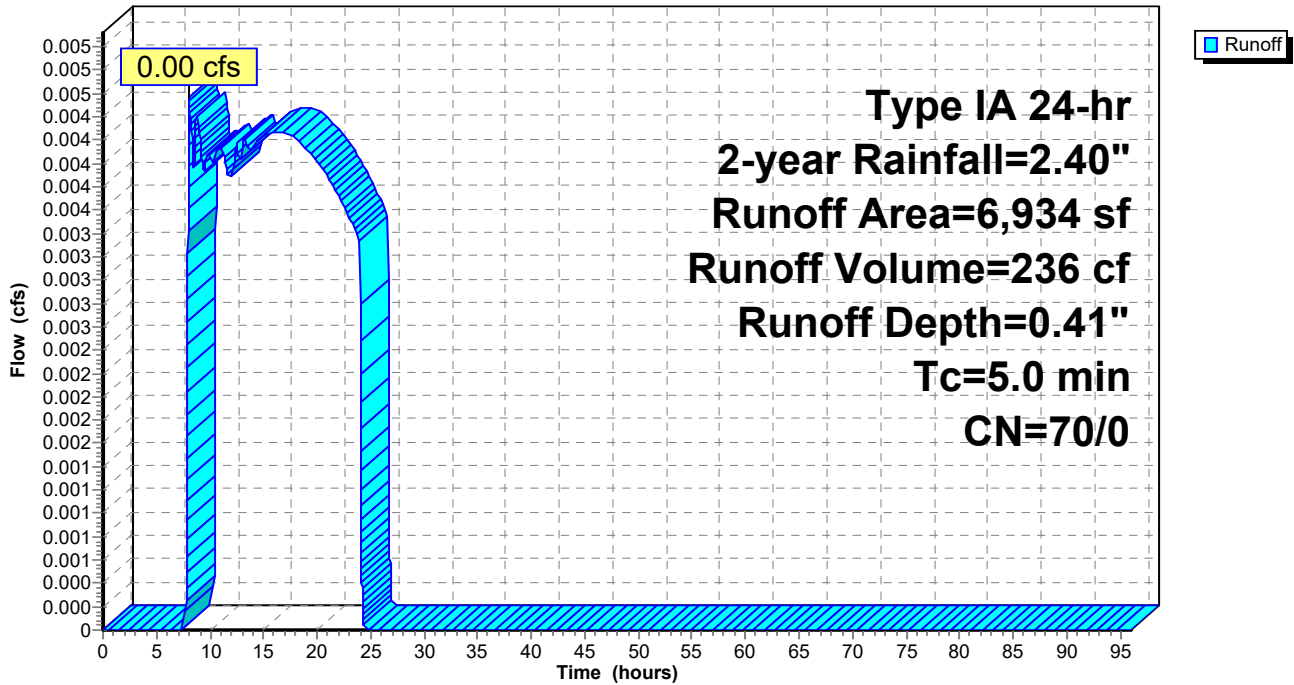
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2-year Rainfall=2.40"

	Area (sf)	CN	Description
*	3,745	70	>75% Grass cover, Good, HSG C
*	3,189	70	>75% Grass cover, Good, HSG C
	6,934	70	Weighted Average
	6,934	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Time of Concentration

Subcatchment Ex-1: Pre-Developed

Hydrograph



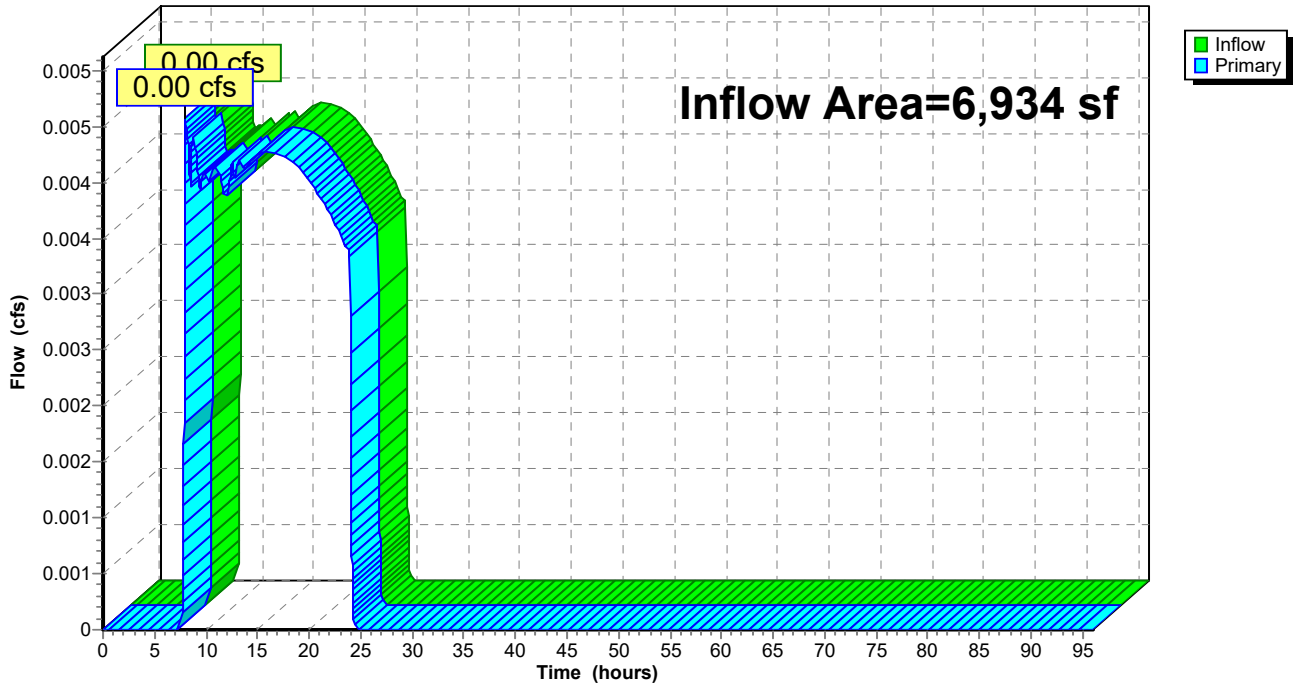
Summary for Link 1S: Summary

Inflow Area = 6,934 sf, 0.00% Impervious, Inflow Depth = 0.41" for 2-year event
Inflow = 0.00 cfs @ 8.01 hrs, Volume= 236 cf
Primary = 0.00 cfs @ 8.01 hrs, Volume= 236 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 1S: Summary

Hydrograph



Summary for Subcatchment Ex-1: Pre-Developed

Runoff = 0.03 cfs @ 8.00 hrs, Volume= 547 cf, Depth= 0.95"

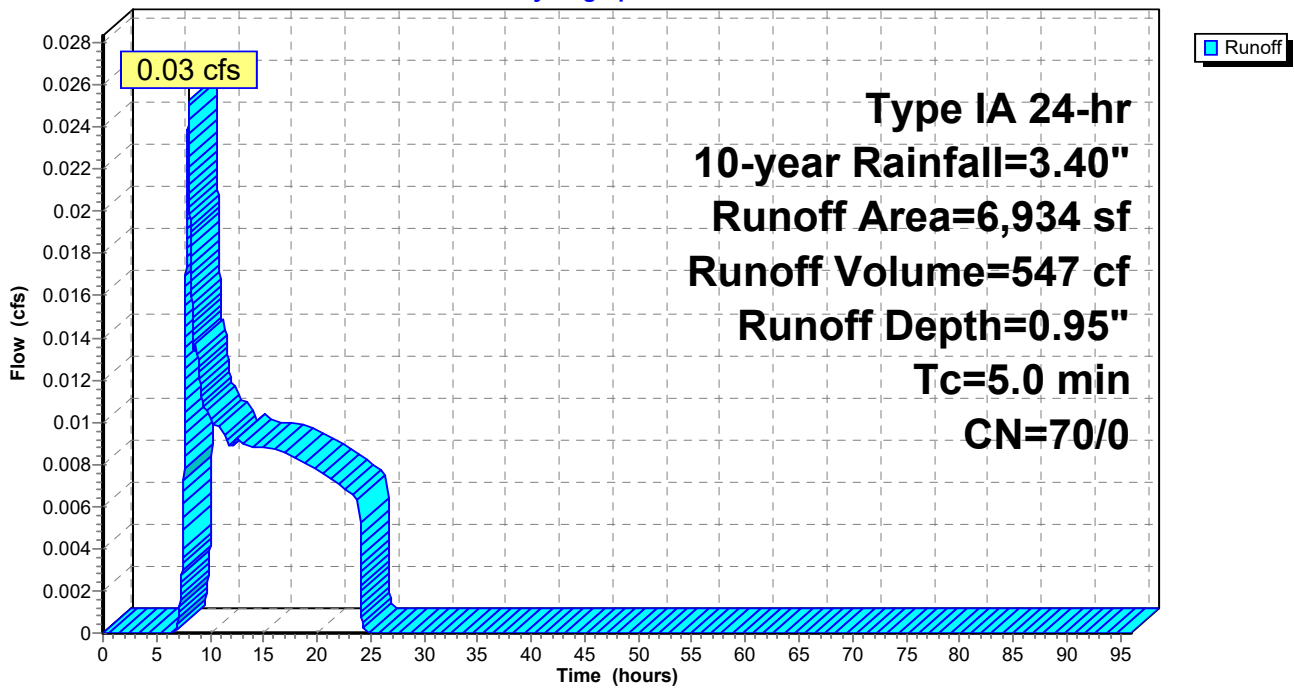
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10-year Rainfall=3.40"

	Area (sf)	CN	Description
*	3,745	70	>75% Grass cover, Good, HSG C
*	3,189	70	>75% Grass cover, Good, HSG C
	6,934	70	Weighted Average
	6,934	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Time of Concentration

Subcatchment Ex-1: Pre-Developed

Hydrograph



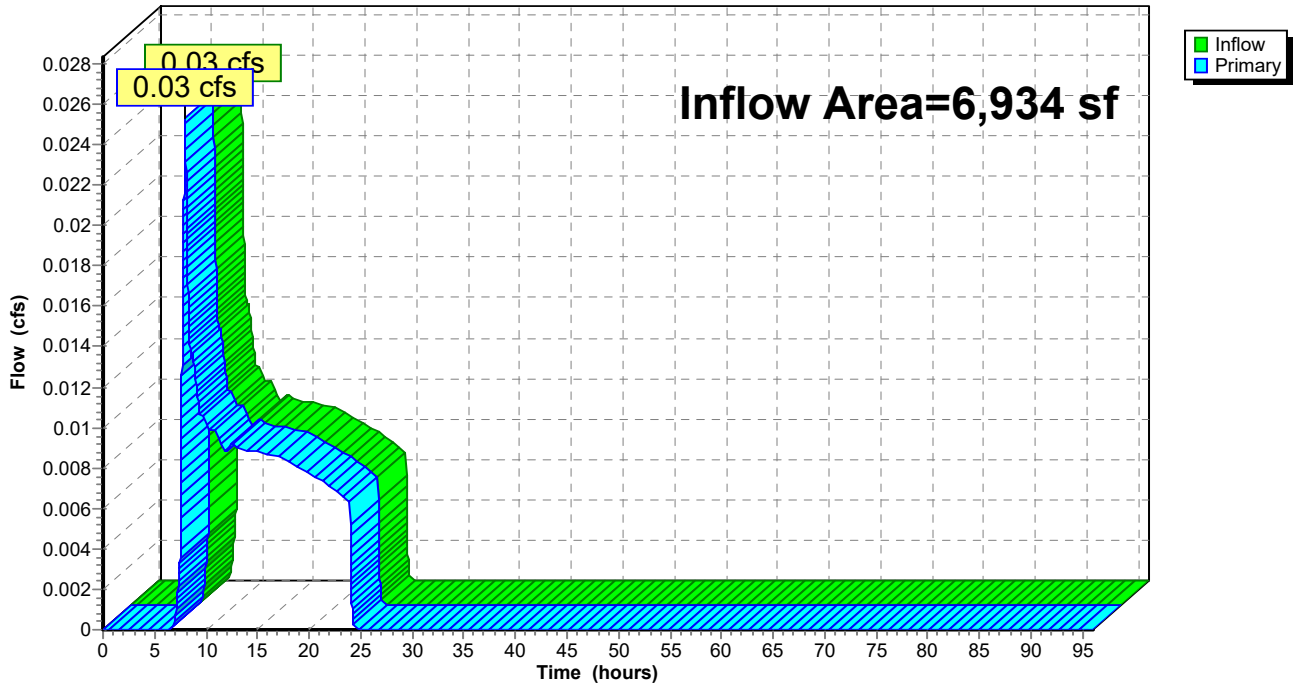
Summary for Link 1S: Summary

Inflow Area = 6,934 sf, 0.00% Impervious, Inflow Depth = 0.95" for 10-year event
Inflow = 0.03 cfs @ 8.00 hrs, Volume= 547 cf
Primary = 0.03 cfs @ 8.00 hrs, Volume= 547 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 1S: Summary

Hydrograph



Summary for Subcatchment Ex-1: Pre-Developed

Runoff = 0.04 cfs @ 8.00 hrs, Volume= 692 cf, Depth= 1.20"

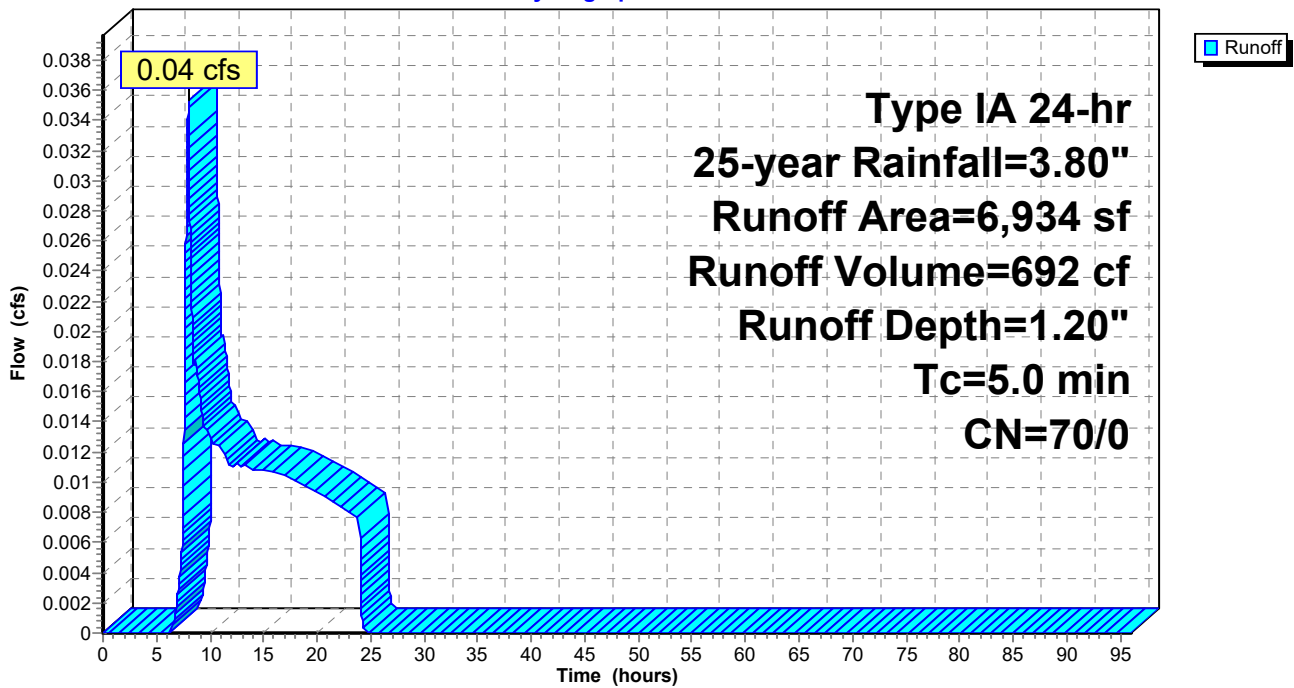
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-year Rainfall=3.80"

	Area (sf)	CN	Description
*	3,745	70	>75% Grass cover, Good, HSG C
*	3,189	70	>75% Grass cover, Good, HSG C
	6,934	70	Weighted Average
	6,934	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Time of Concentration

Subcatchment Ex-1: Pre-Developed

Hydrograph



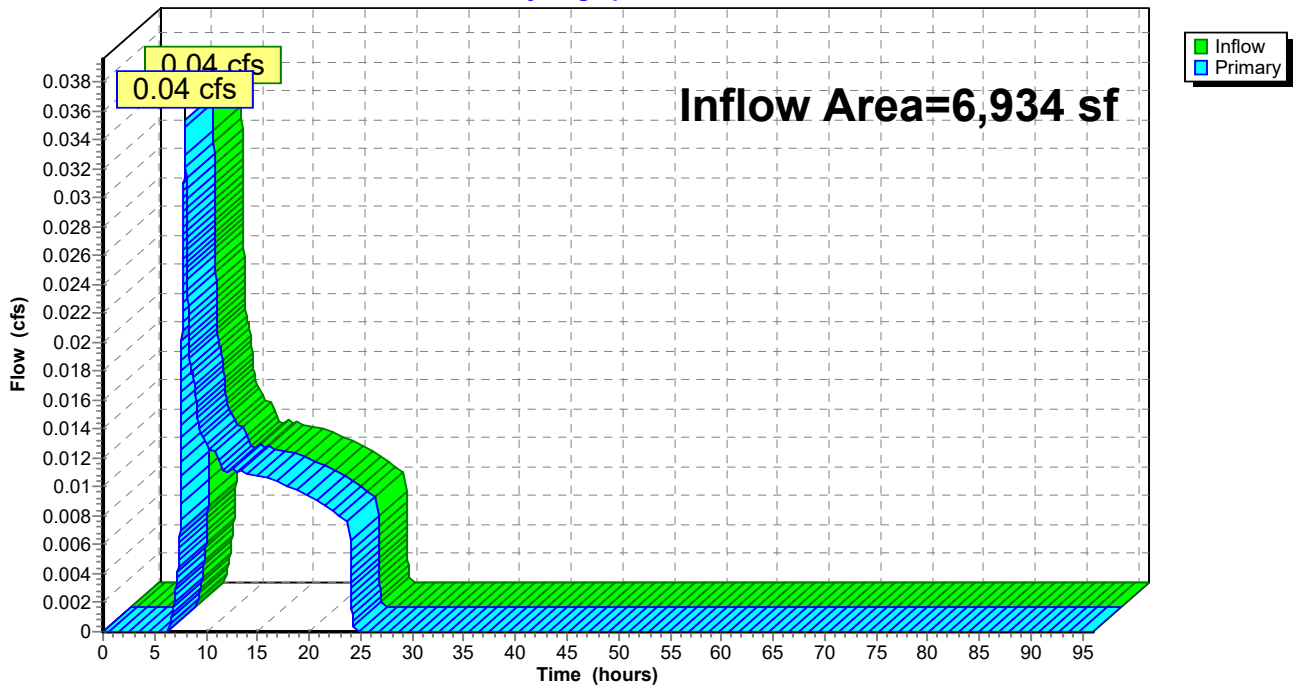
Summary for Link 1S: Summary

Inflow Area = 6,934 sf, 0.00% Impervious, Inflow Depth = 1.20" for 25-year event
Inflow = 0.04 cfs @ 8.00 hrs, Volume= 692 cf
Primary = 0.04 cfs @ 8.00 hrs, Volume= 692 cf, Atten= 0%, Lag= 0.0 min

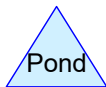
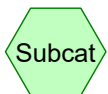
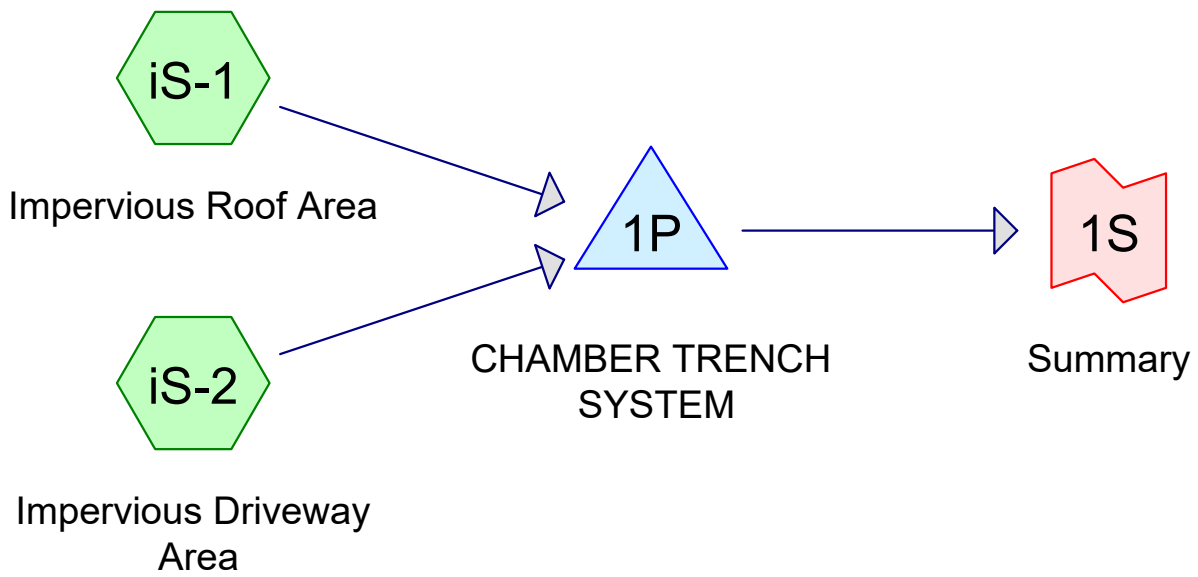
Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 1S: Summary

Hydrograph



Appendix D: Post-Developed Hydrographs and Flow Information



9269 POST

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Page 2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
3,189	98	Paved parking, HSG C (iS-2)
3,745	98	Roofs, HSG C (iS-1)
6,934	98	TOTAL AREA

9269 POST

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
6,934	HSG C	iS-1, iS-2
0	HSG D	
0	Other	
6,934		TOTAL AREA

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Page 4

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1P	0.75	4.05	25.1	-0.1315	0.013	6.0	0.0	0.0

Summary for Subcatchment iS-1: Impervious Roof Area

Runoff = 0.05 cfs @ 7.88 hrs, Volume= 678 cf, Depth= 2.17"

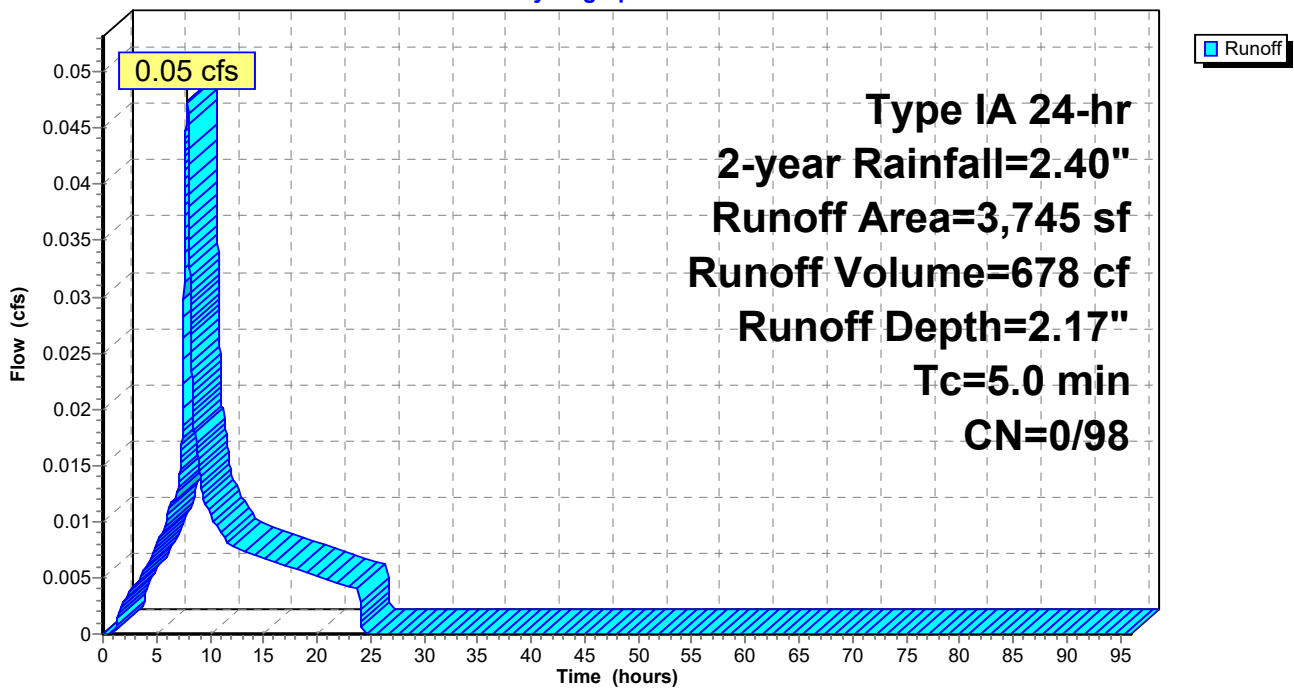
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2-year Rainfall=2.40"

Area (sf)	CN	Description
3,745	98	Roofs, HSG C
3,745	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Time of Concentration

Subcatchment iS-1: Impervious Roof Area

Hydrograph



Summary for Subcatchment iS-2: Impervious Driveway Area

Runoff = 0.04 cfs @ 7.88 hrs, Volume= 577 cf, Depth= 2.17"

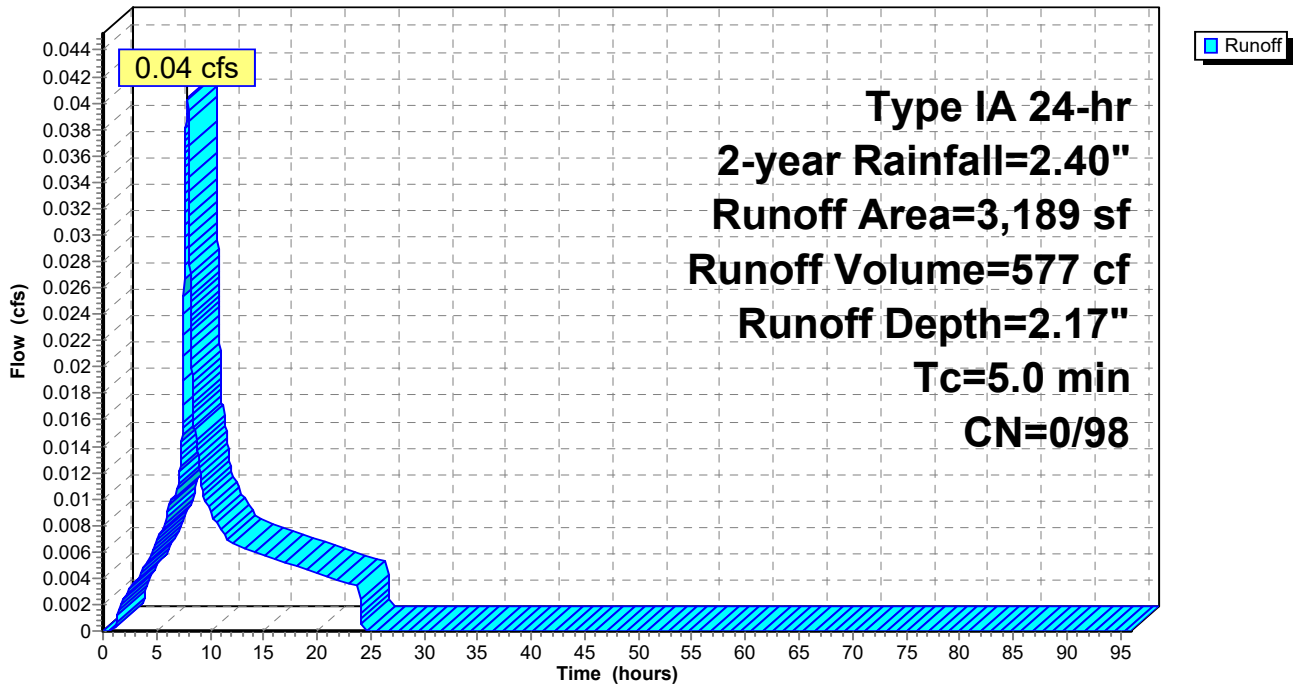
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-year Rainfall=2.40"

Area (sf)	CN	Description
3,189	98	Paved parking, HSG C
3,189	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Time of Concentration

Subcatchment iS-2: Impervious Driveway Area

Hydrograph



Summary for Pond 1P: CHAMBER TRENCH SYSTEM

Inflow Area = 6,934 sf, 100.00% Impervious, Inflow Depth = 2.17" for 2-year event
 Inflow = 0.09 cfs @ 7.88 hrs, Volume= 1,255 cf
 Outflow = 0.01 cfs @ 2.36 hrs, Volume= 1,255 cf, Atten= 94%, Lag= 0.0 min
 Discarded = 0.01 cfs @ 2.36 hrs, Volume= 1,255 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Peak Elev= 3.89' @ 24.03 hrs Surf.Area= 350 sf Storage= 798 cf

Plug-Flow detention time= 1,273.7 min calculated for 1,255 cf (100% of inflow)
 Center-of-Mass det. time= 1,273.8 min (1,947.8 - 674.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	403 cf	8.42'W x 41.55'L x 5.50'H Field A 1,923 cf Overall - 580 cf Embedded = 1,344 cf x 30.0% Voids
#2A	0.75'	580 cf	ADS_StormTech MC-3500 d +Cap x 5 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap Cap Storage= +14.9 cf x 2 x 1 rows = 29.8 cf
		983 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.700 in/hr Exfiltration over Surface area
#2	Primary	4.05'	6.0" Round Overflow L= 25.1' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.75' / 4.05' S= -0.1315 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Discarded OutFlow Max=0.01 cfs @ 2.36 hrs HW=0.06' (Free Discharge)
 ↗**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)
 ↗**2=Overflow** (Controls 0.00 cfs)

9269 POST

Prepared by AKS Engineering and Forestry LLC
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Type IA 24-hr 2-year Rainfall=2.40"

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Pond 1P: CHAMBER TRENCH SYSTEM - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf

Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap

Cap Storage= +14.9 cf x 2 x 1 rows = 29.8 cf

5 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 39.55' Row Length +12.0" End Stone x 2 = 41.55' Base Length

1 Rows x 77.0" Wide + 12.0" Side Stone x 2 = 8.42' Base Width

9.0" Base + 45.0" Chamber Height + 12.0" Cover = 5.50' Field Height

5 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 1 Rows = 579.6 cf Chamber Storage

1,923.4 cf Field - 579.6 cf Chambers = 1,343.9 cf Stone x 30.0% Voids = 403.2 cf Stone Storage

Chamber Storage + Stone Storage = 982.7 cf = 0.023 af

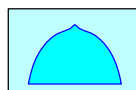
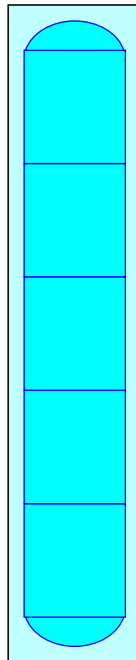
Overall Storage Efficiency = 51.1%

Overall System Size = 41.55' x 8.42' x 5.50'

5 Chambers

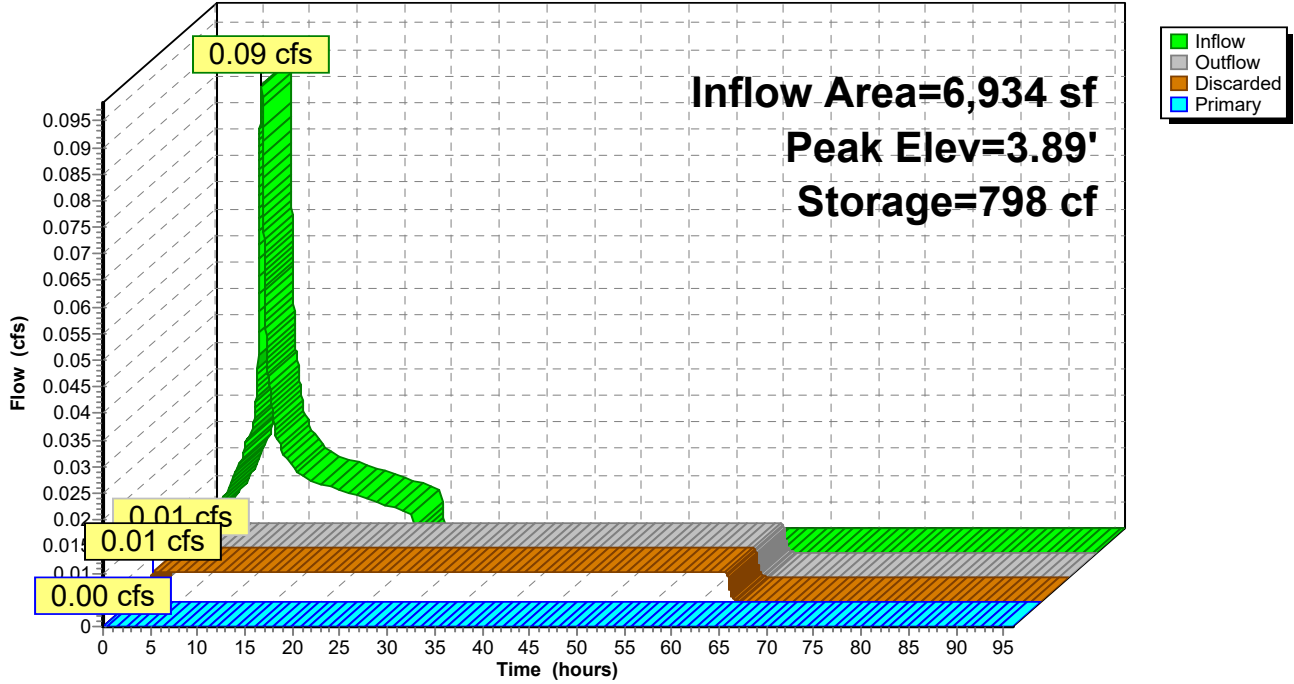
71.2 cy Field

49.8 cy Stone



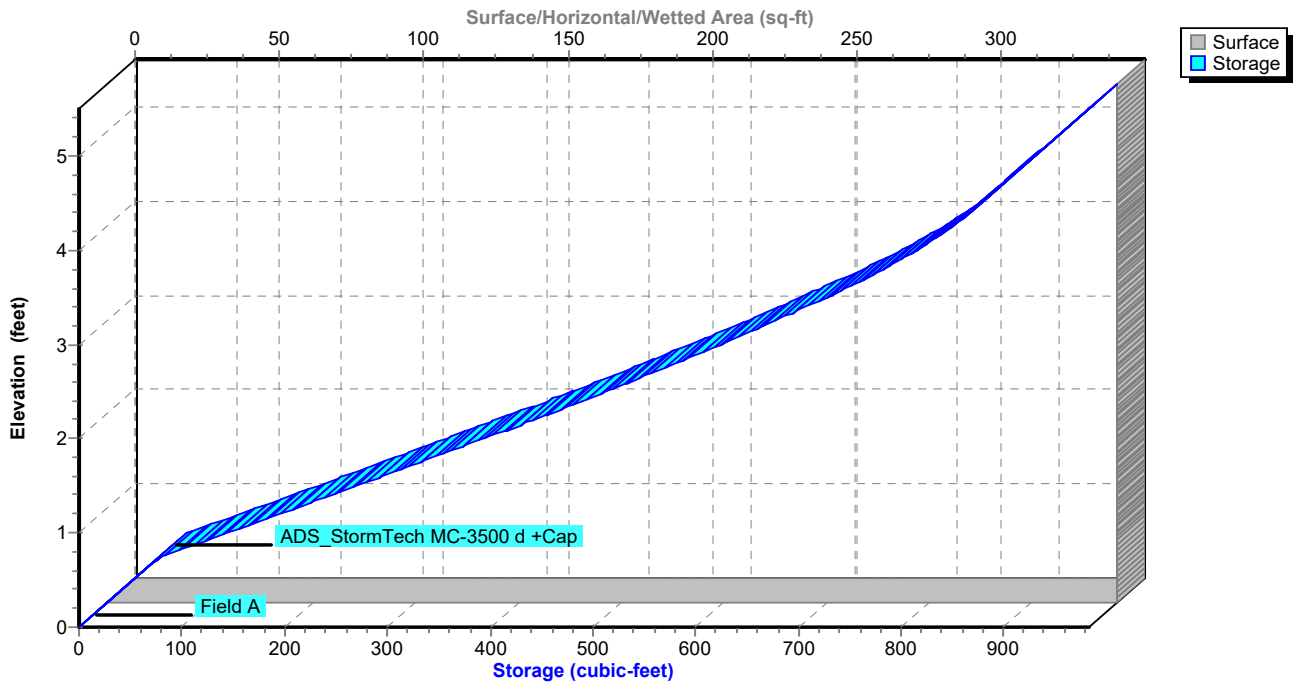
Pond 1P: CHAMBER TRENCH SYSTEM

Hydrograph



Pond 1P: CHAMBER TRENCH SYSTEM

Stage-Area-Storage



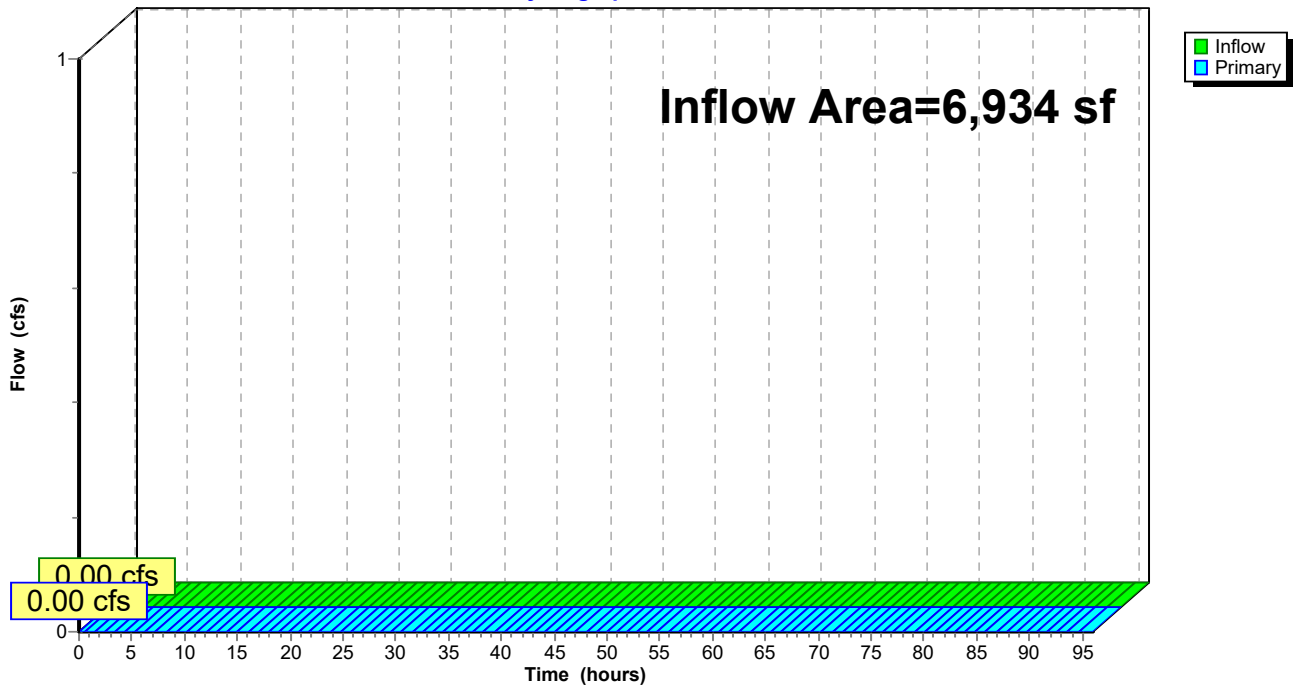
Summary for Link 1S: Summary

Inflow Area = 6,934 sf, 100.00% Impervious, Inflow Depth = 0.00" for 2-year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 1S: Summary

Hydrograph



Summary for Subcatchment iS-1: Impervious Roof Area

Runoff = 0.07 cfs @ 7.88 hrs, Volume= 988 cf, Depth= 3.17"

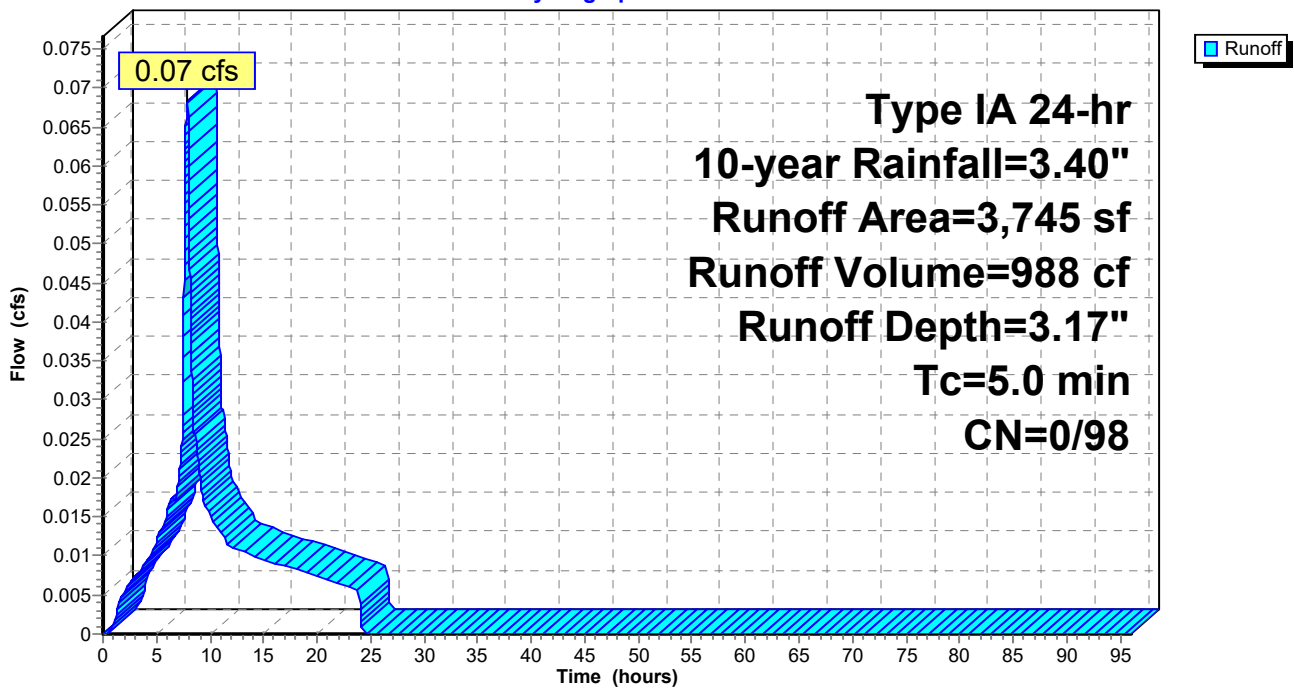
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10-year Rainfall=3.40"

Area (sf)	CN	Description
3,745	98	Roofs, HSG C
3,745	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Time of Concentration

Subcatchment iS-1: Impervious Roof Area

Hydrograph



Summary for Subcatchment iS-2: Impervious Driveway Area

Runoff = 0.06 cfs @ 7.88 hrs, Volume= 842 cf, Depth= 3.17"

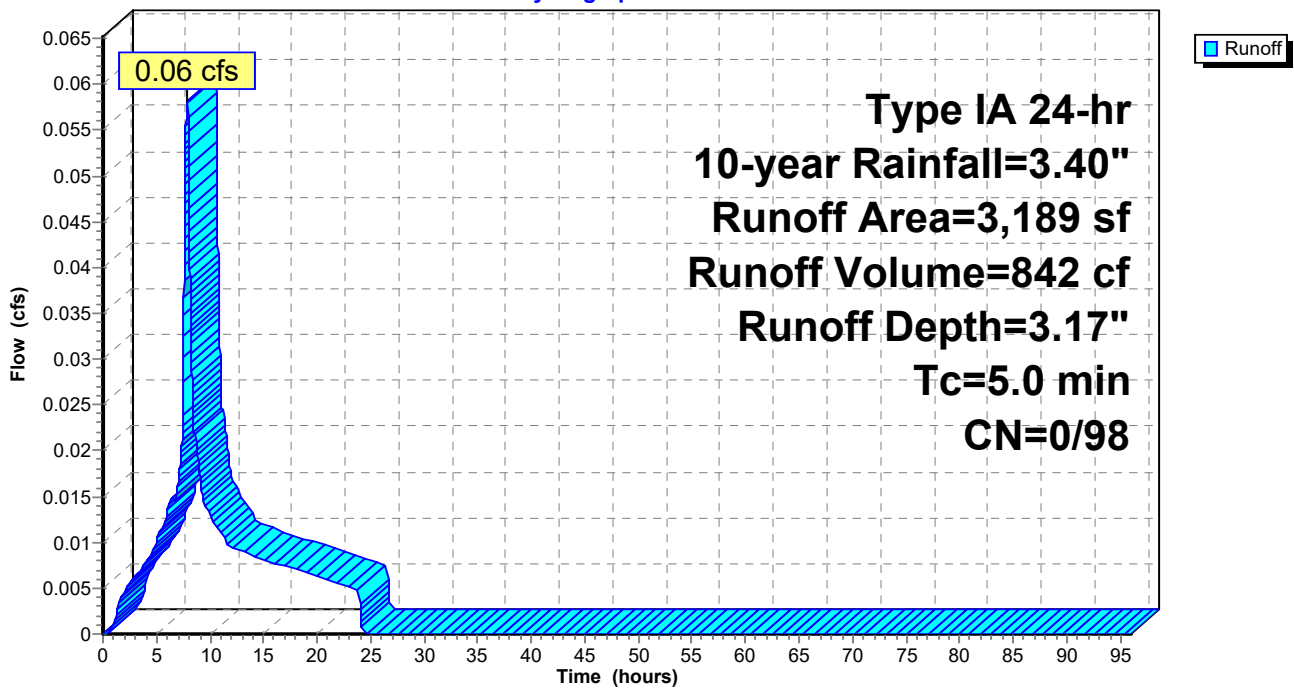
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10-year Rainfall=3.40"

Area (sf)	CN	Description
3,189	98	Paved parking, HSG C
3,189	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Time of Concentration

Subcatchment iS-2: Impervious Driveway Area

Hydrograph



Summary for Pond 1P: CHAMBER TRENCH SYSTEM

Inflow Area = 6,934 sf, 100.00% Impervious, Inflow Depth = 3.17" for 10-year event
 Inflow = 0.13 cfs @ 7.88 hrs, Volume= 1,830 cf
 Outflow = 0.03 cfs @ 10.67 hrs, Volume= 1,830 cf, Atten= 80%, Lag= 167.7 min
 Discarded = 0.01 cfs @ 1.60 hrs, Volume= 1,294 cf
 Primary = 0.02 cfs @ 10.67 hrs, Volume= 536 cf

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Peak Elev= 4.14' @ 10.67 hrs Surf.Area= 350 sf Storage= 836 cf

Plug-Flow detention time= 1,012.0 min calculated for 1,830 cf (100% of inflow)
 Center-of-Mass det. time= 1,011.9 min (1,675.5 - 663.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	403 cf	8.42'W x 41.55'L x 5.50'H Field A 1,923 cf Overall - 580 cf Embedded = 1,344 cf x 30.0% Voids
#2A	0.75'	580 cf	ADS_StormTech MC-3500 d +Cap x 5 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap Cap Storage= +14.9 cf x 2 x 1 rows = 29.8 cf
		983 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.700 in/hr Exfiltration over Surface area
#2	Primary	4.05'	6.0" Round Overflow L= 25.1' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.75' / 4.05' S= -0.1315 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Discarded OutFlow Max=0.01 cfs @ 1.60 hrs HW=0.06' (Free Discharge)
 ↳ **1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.02 cfs @ 10.67 hrs HW=4.14' (Free Discharge)
 ↳ **2=Overflow** (Inlet Controls 0.02 cfs @ 0.80 fps)

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Type IA 24-hr 10-year Rainfall=3.40"

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Pond 1P: CHAMBER TRENCH SYSTEM - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf

Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap

Cap Storage= +14.9 cf x 2 x 1 rows = 29.8 cf

5 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 39.55' Row Length +12.0" End Stone x 2 = 41.55' Base Length

1 Rows x 77.0" Wide + 12.0" Side Stone x 2 = 8.42' Base Width

9.0" Base + 45.0" Chamber Height + 12.0" Cover = 5.50' Field Height

5 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 1 Rows = 579.6 cf Chamber Storage

1,923.4 cf Field - 579.6 cf Chambers = 1,343.9 cf Stone x 30.0% Voids = 403.2 cf Stone Storage

Chamber Storage + Stone Storage = 982.7 cf = 0.023 af

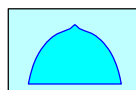
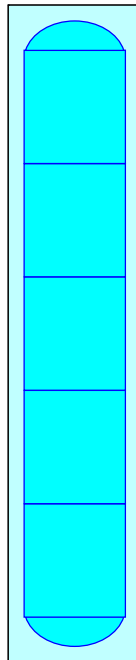
Overall Storage Efficiency = 51.1%

Overall System Size = 41.55' x 8.42' x 5.50'

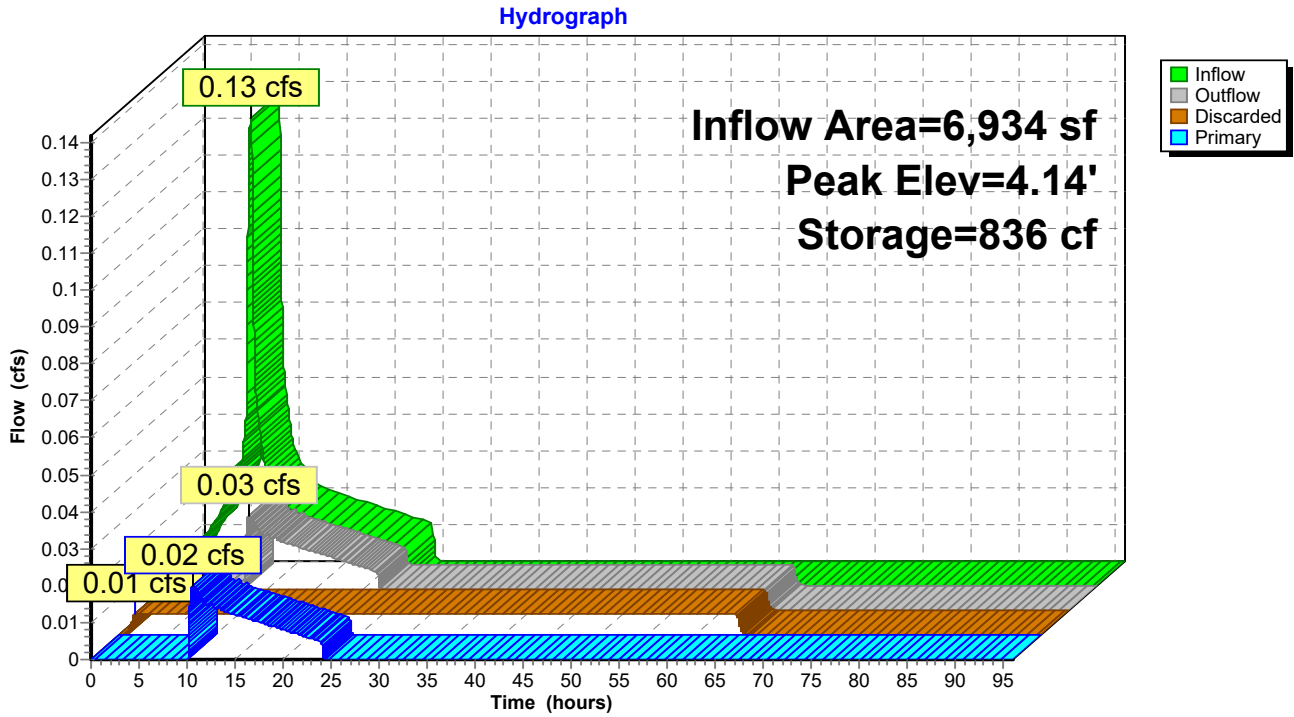
5 Chambers

71.2 cy Field

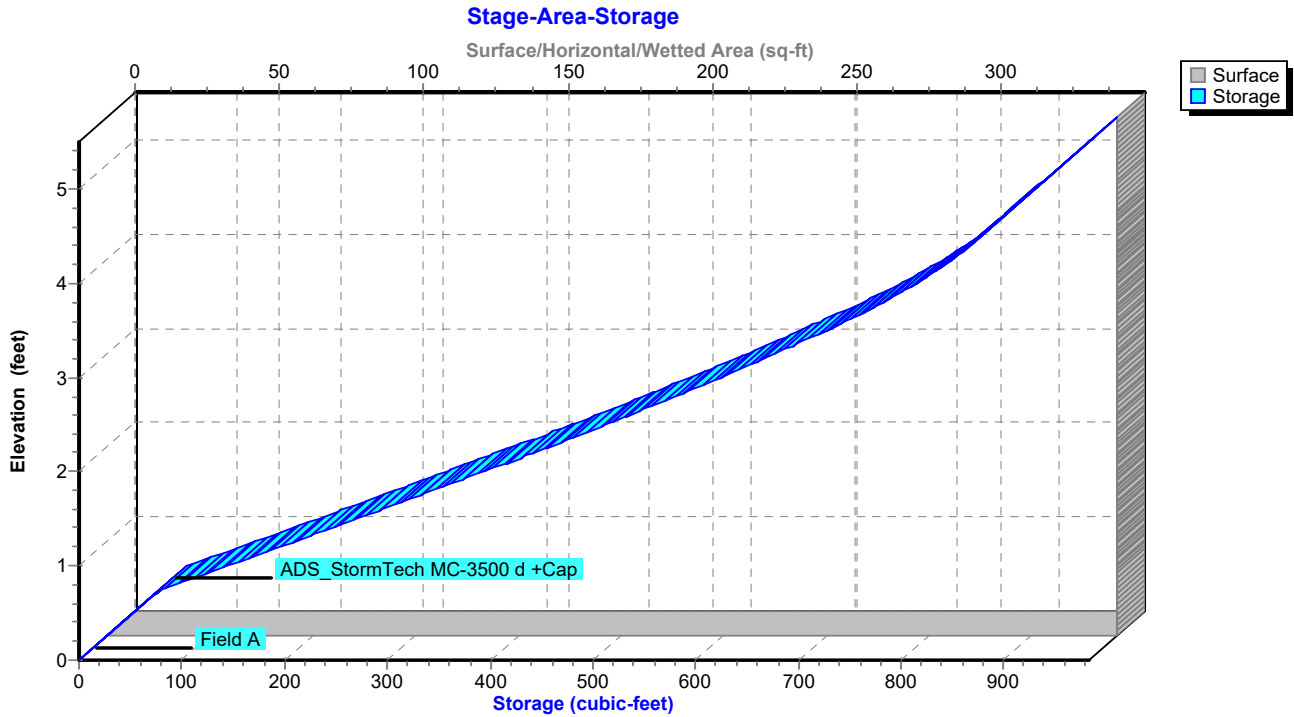
49.8 cy Stone



Pond 1P: CHAMBER TRENCH SYSTEM



Pond 1P: CHAMBER TRENCH SYSTEM



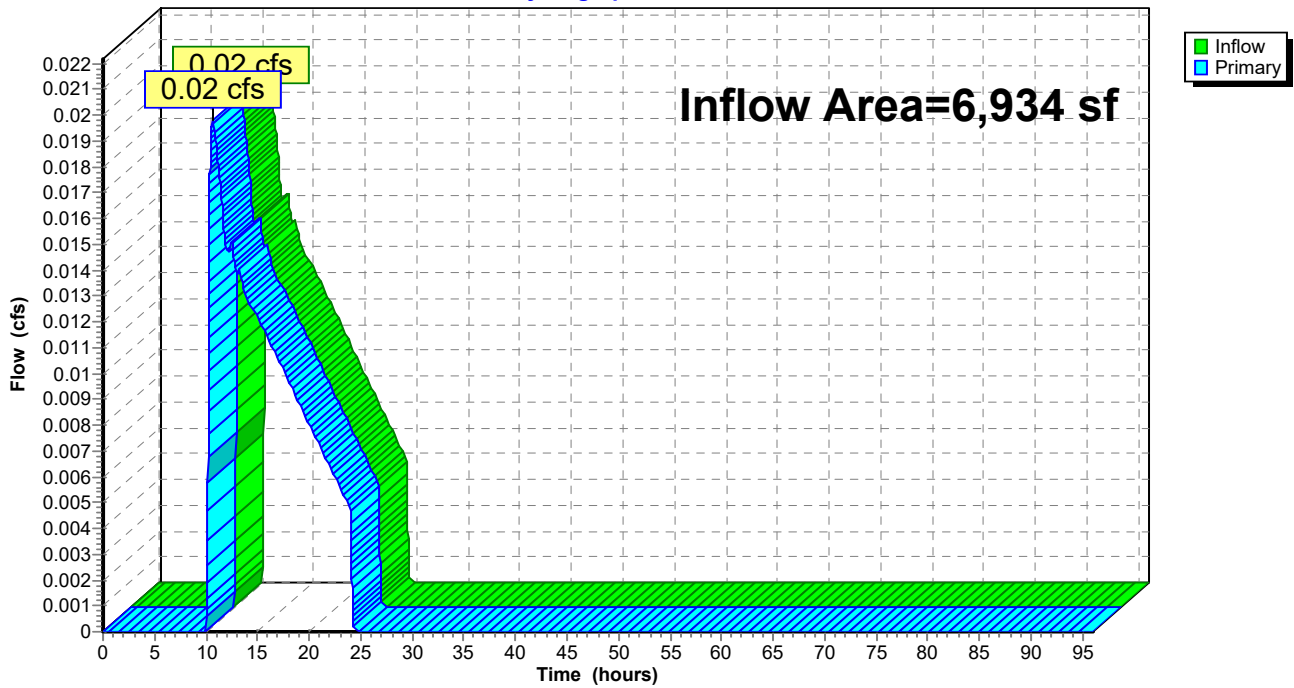
Summary for Link 1S: Summary

Inflow Area = 6,934 sf, 100.00% Impervious, Inflow Depth = 0.93" for 10-year event
Inflow = 0.02 cfs @ 10.67 hrs, Volume= 536 cf
Primary = 0.02 cfs @ 10.67 hrs, Volume= 536 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 1S: Summary

Hydrograph



Summary for Subcatchment iS-1: Impervious Roof Area

Runoff = 0.08 cfs @ 7.88 hrs, Volume= 1,113 cf, Depth= 3.57"

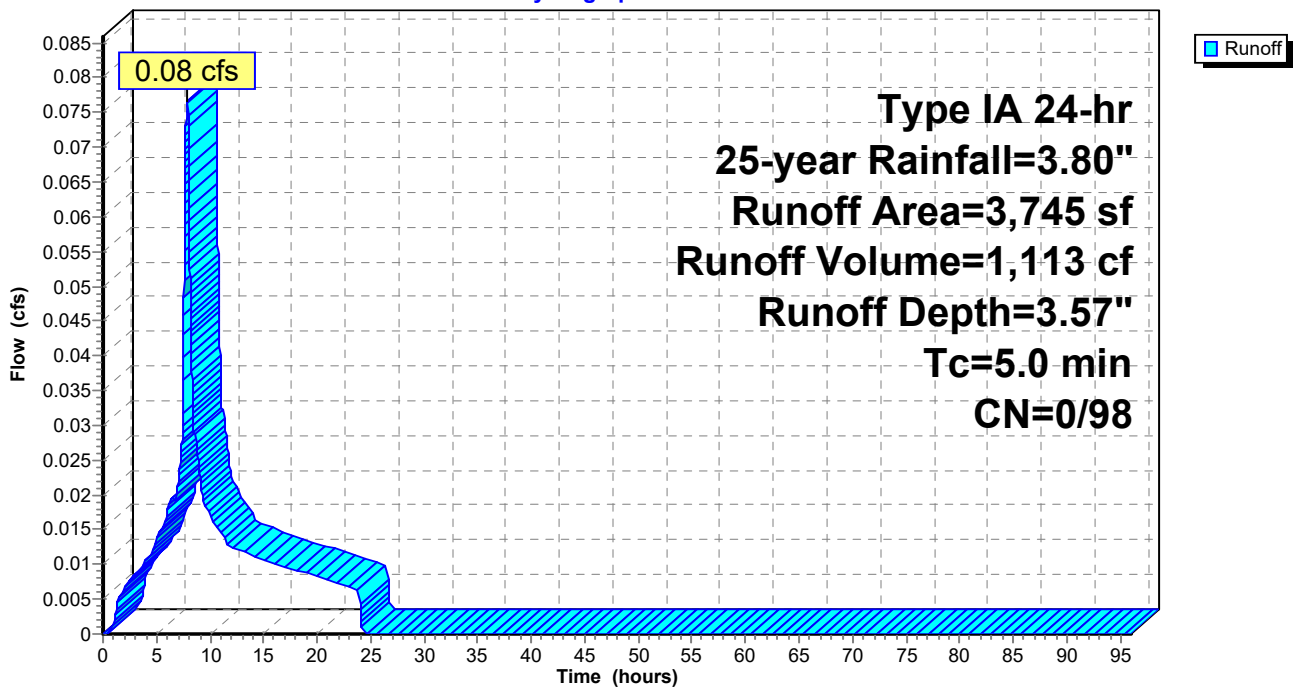
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-year Rainfall=3.80"

Area (sf)	CN	Description
3,745	98	Roofs, HSG C
3,745	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Time of Concentration

Subcatchment iS-1: Impervious Roof Area

Hydrograph



Summary for Subcatchment iS-2: Impervious Driveway Area

Runoff = 0.07 cfs @ 7.88 hrs, Volume= 948 cf, Depth= 3.57"

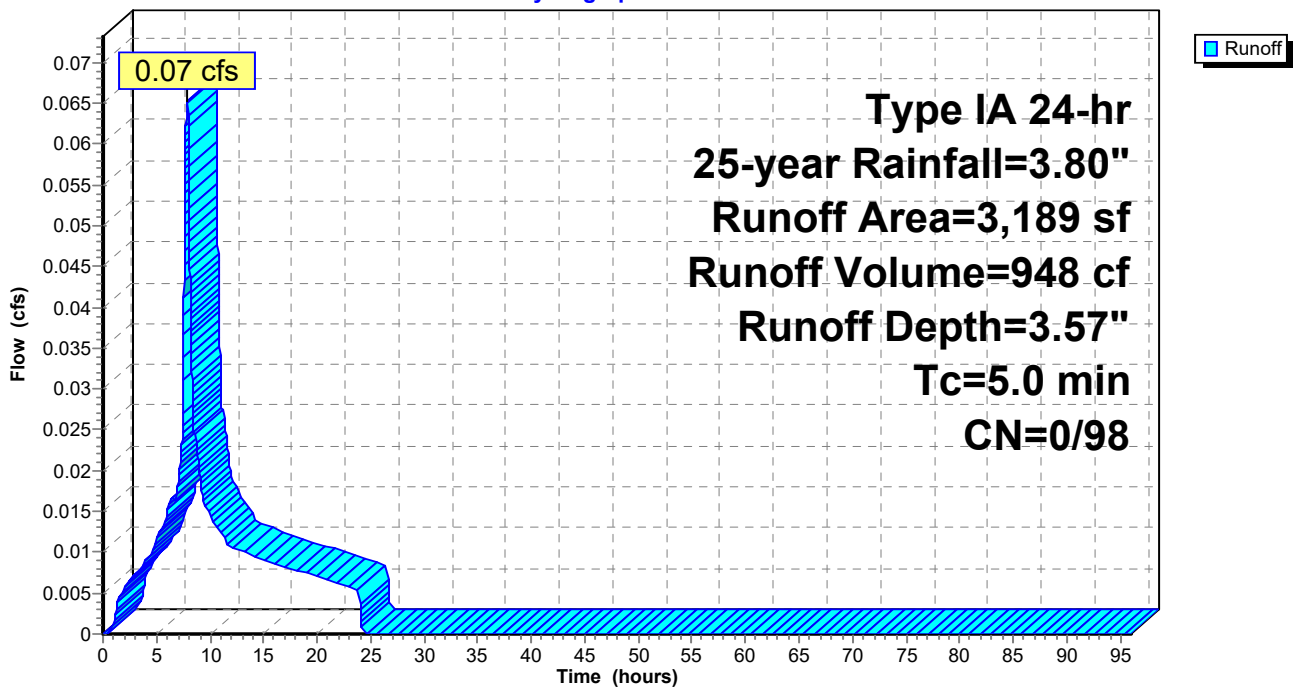
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-year Rainfall=3.80"

Area (sf)	CN	Description
3,189	98	Paved parking, HSG C
3,189	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Time of Concentration

Subcatchment iS-2: Impervious Driveway Area

Hydrograph



Summary for Pond 1P: CHAMBER TRENCH SYSTEM

Inflow Area = 6,934 sf, 100.00% Impervious, Inflow Depth = 3.57" for 25-year event
 Inflow = 0.14 cfs @ 7.88 hrs, Volume= 2,060 cf
 Outflow = 0.04 cfs @ 9.20 hrs, Volume= 2,060 cf, Atten= 73%, Lag= 79.2 min
 Discarded = 0.01 cfs @ 1.45 hrs, Volume= 1,296 cf
 Primary = 0.03 cfs @ 9.20 hrs, Volume= 764 cf

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Peak Elev= 4.17' @ 9.20 hrs Surf.Area= 350 sf Storage= 839 cf

Plug-Flow detention time= 910.7 min calculated for 2,060 cf (100% of inflow)
 Center-of-Mass det. time= 910.6 min (1,571.4 - 660.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	403 cf	8.42'W x 41.55'L x 5.50'H Field A 1,923 cf Overall - 580 cf Embedded = 1,344 cf x 30.0% Voids
#2A	0.75'	580 cf	ADS_StormTech MC-3500 d +Cap x 5 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap Cap Storage= +14.9 cf x 2 x 1 rows = 29.8 cf
		983 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.700 in/hr Exfiltration over Surface area
#2	Primary	4.05'	6.0" Round Overflow L= 25.1' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.75' / 4.05' S= -0.1315 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Discarded OutFlow Max=0.01 cfs @ 1.45 hrs HW=0.06' (Free Discharge)
 ↖ **1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.03 cfs @ 9.20 hrs HW=4.17' (Free Discharge)
 ↖ **2=Overflow** (Inlet Controls 0.03 cfs @ 0.93 fps)

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Type IA 24-hr 25-year Rainfall=3.80"

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Pond 1P: CHAMBER TRENCH SYSTEM - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf

Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap

Cap Storage= +14.9 cf x 2 x 1 rows = 29.8 cf

5 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 39.55' Row Length +12.0" End Stone x 2 = 41.55' Base Length

1 Rows x 77.0" Wide + 12.0" Side Stone x 2 = 8.42' Base Width

9.0" Base + 45.0" Chamber Height + 12.0" Cover = 5.50' Field Height

5 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 1 Rows = 579.6 cf Chamber Storage

1,923.4 cf Field - 579.6 cf Chambers = 1,343.9 cf Stone x 30.0% Voids = 403.2 cf Stone Storage

Chamber Storage + Stone Storage = 982.7 cf = 0.023 af

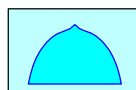
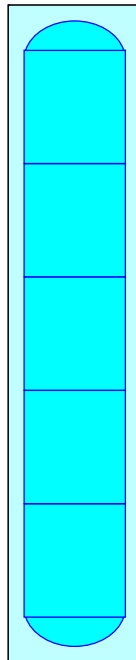
Overall Storage Efficiency = 51.1%

Overall System Size = 41.55' x 8.42' x 5.50'

5 Chambers

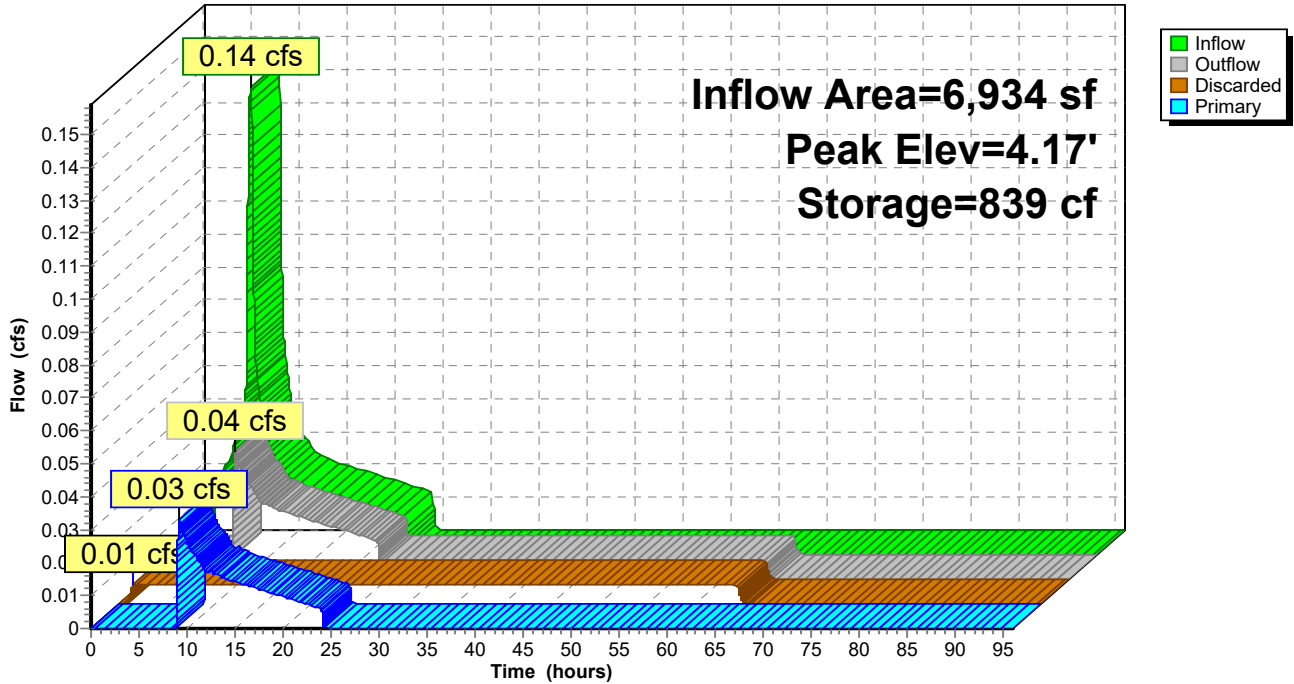
71.2 cy Field

49.8 cy Stone



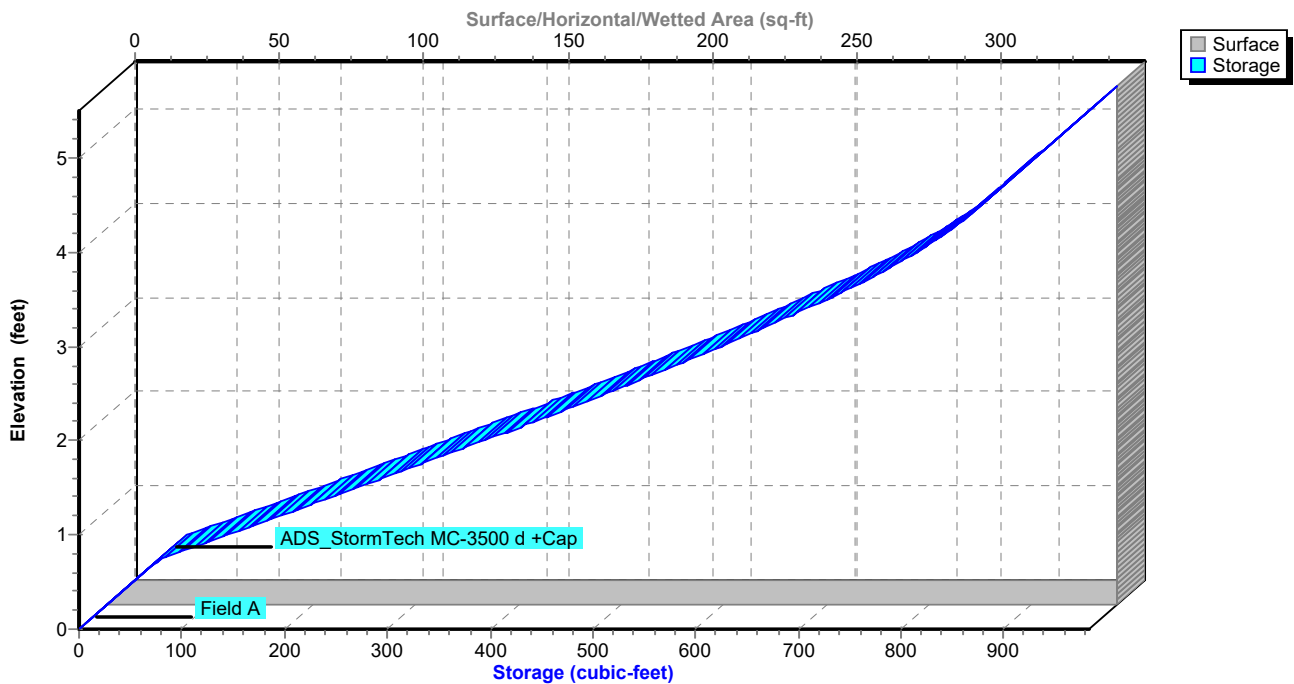
Pond 1P: CHAMBER TRENCH SYSTEM

Hydrograph



Pond 1P: CHAMBER TRENCH SYSTEM

Stage-Area-Storage



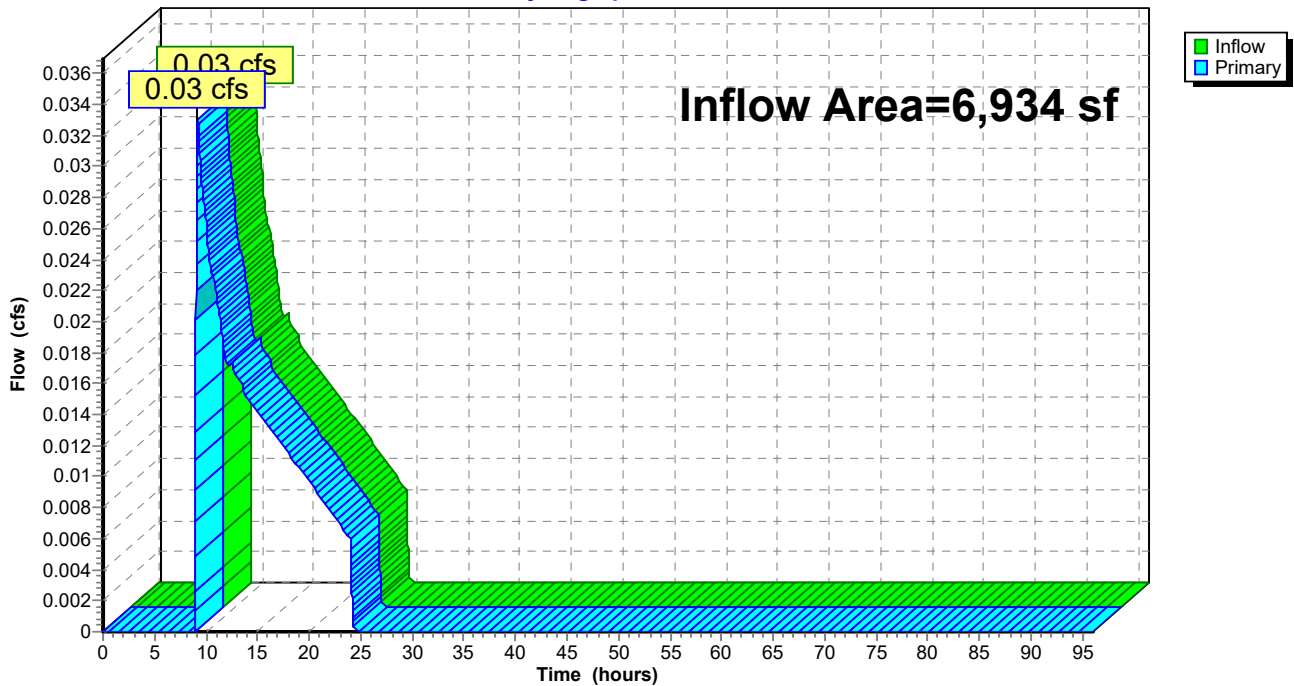
Summary for Link 1S: Summary

Inflow Area = 6,934 sf, 100.00% Impervious, Inflow Depth = 1.32" for 25-year event
Inflow = 0.03 cfs @ 9.20 hrs, Volume= 764 cf
Primary = 0.03 cfs @ 9.20 hrs, Volume= 764 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 1S: Summary

Hydrograph



Summary for Subcatchment iS-1: Impervious Roof Area

Runoff = 0.10 cfs @ 7.88 hrs, Volume= 1,393 cf, Depth= 4.46"

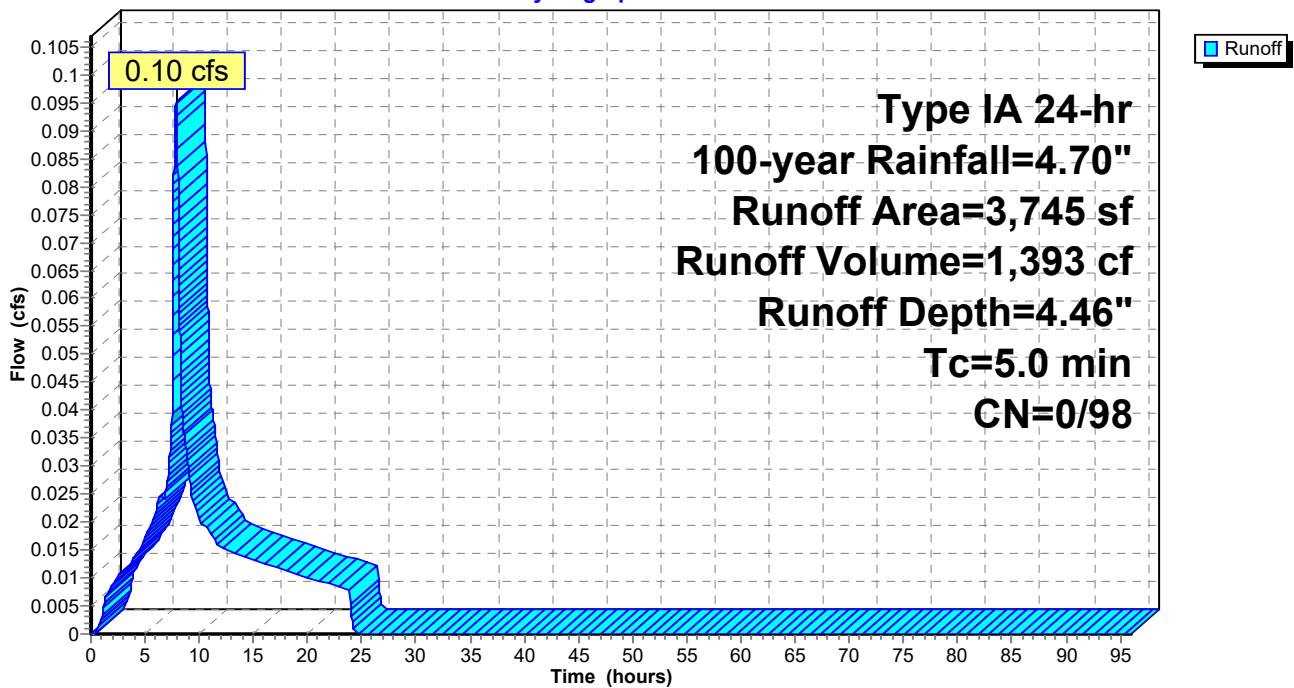
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100-year Rainfall=4.70"

Area (sf)	CN	Description
3,745	98	Roofs, HSG C
3,745	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Time of Concentration

Subcatchment iS-1: Impervious Roof Area

Hydrograph



Summary for Subcatchment iS-2: Impervious Driveway Area

Runoff = 0.08 cfs @ 7.88 hrs, Volume= 1,186 cf, Depth= 4.46"

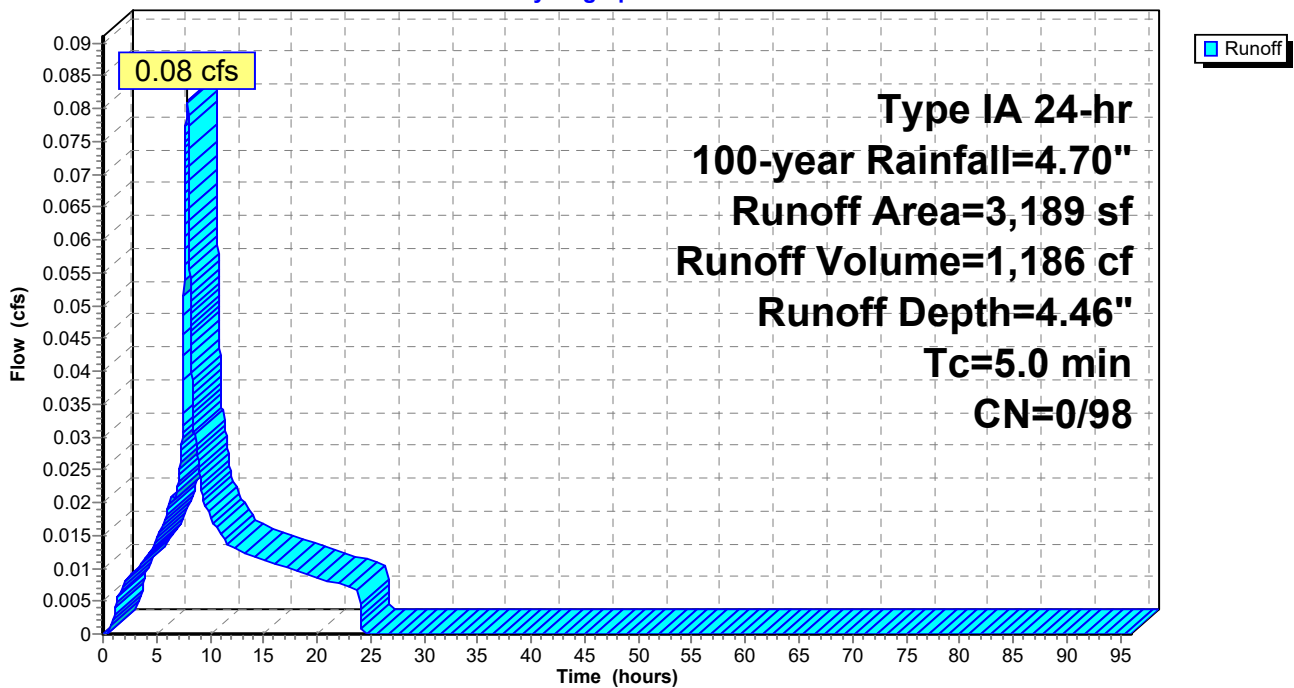
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100-year Rainfall=4.70"

Area (sf)	CN	Description
3,189	98	Paved parking, HSG C
3,189	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Time of Concentration

Subcatchment iS-2: Impervious Driveway Area

Hydrograph



Summary for Pond 1P: CHAMBER TRENCH SYSTEM

Inflow Area = 6,934 sf, 100.00% Impervious, Inflow Depth = 4.46" for 100-year event
 Inflow = 0.18 cfs @ 7.88 hrs, Volume= 2,579 cf
 Outflow = 0.12 cfs @ 8.12 hrs, Volume= 2,579 cf, Atten= 32%, Lag= 14.7 min
 Discarded = 0.01 cfs @ 1.23 hrs, Volume= 1,301 cf
 Primary = 0.11 cfs @ 8.12 hrs, Volume= 1,278 cf

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Peak Elev= 4.28' @ 8.12 hrs Surf.Area= 350 sf Storage= 853 cf

Plug-Flow detention time= 742.1 min calculated for 2,579 cf (100% of inflow)
 Center-of-Mass det. time= 742.1 min (1,398.1 - 656.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	403 cf	8.42'W x 41.55'L x 5.50'H Field A 1,923 cf Overall - 580 cf Embedded = 1,344 cf x 30.0% Voids
#2A	0.75'	580 cf	ADS_StormTech MC-3500 d +Cap x 5 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap Cap Storage= +14.9 cf x 2 x 1 rows = 29.8 cf
		983 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.700 in/hr Exfiltration over Surface area
#2	Primary	4.05'	6.0" Round Overflow L= 25.1' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.75' / 4.05' S= -0.1315 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Discarded OutFlow Max=0.01 cfs @ 1.23 hrs HW=0.06' (Free Discharge)
 ↗ **1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.11 cfs @ 8.12 hrs HW=4.28' (Free Discharge)
 ↗ **2=Overflow** (Inlet Controls 0.11 cfs @ 1.29 fps)

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Type IA 24-hr 100-year Rainfall=4.70"

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Pond 1P: CHAMBER TRENCH SYSTEM - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf

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Cap Storage= +14.9 cf x 2 x 1 rows = 29.8 cf

5 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 39.55' Row Length +12.0" End Stone x 2 = 41.55' Base Length

1 Rows x 77.0" Wide + 12.0" Side Stone x 2 = 8.42' Base Width

9.0" Base + 45.0" Chamber Height + 12.0" Cover = 5.50' Field Height

5 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 1 Rows = 579.6 cf Chamber Storage

1,923.4 cf Field - 579.6 cf Chambers = 1,343.9 cf Stone x 30.0% Voids = 403.2 cf Stone Storage

Chamber Storage + Stone Storage = 982.7 cf = 0.023 af

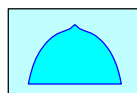
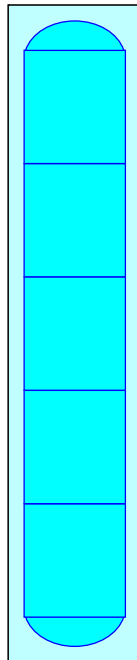
Overall Storage Efficiency = 51.1%

Overall System Size = 41.55' x 8.42' x 5.50'

5 Chambers

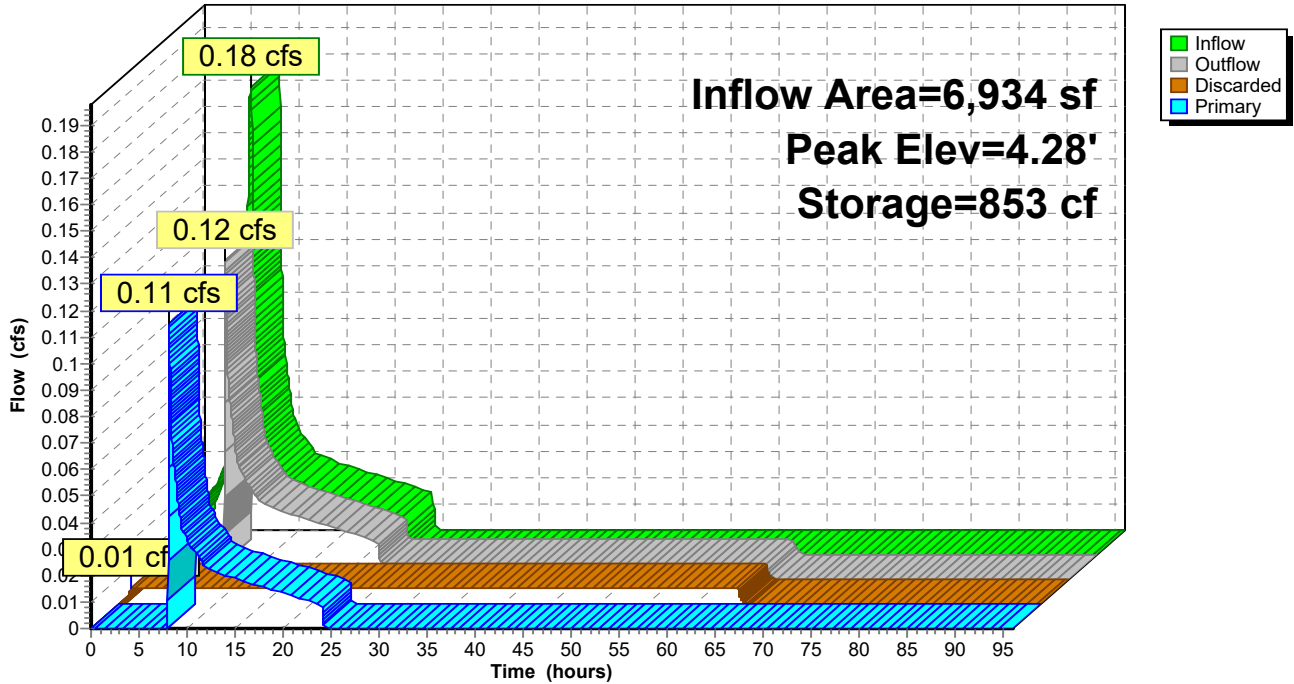
71.2 cy Field

49.8 cy Stone



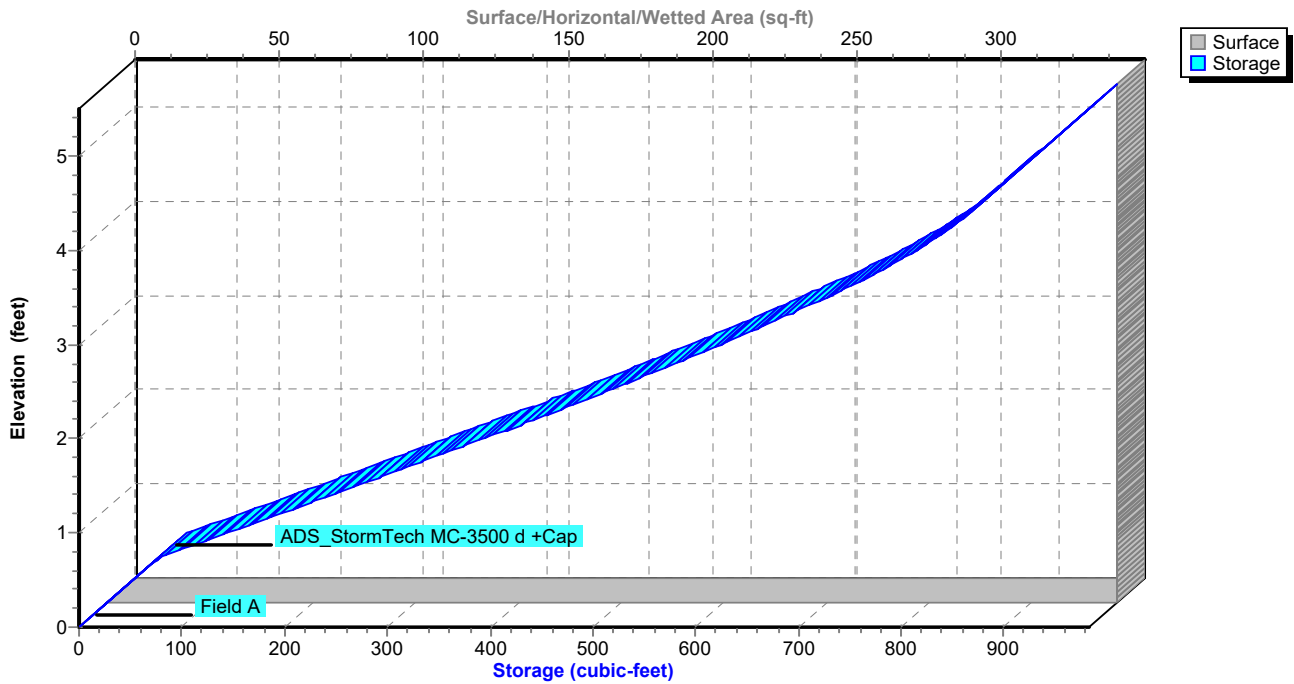
Pond 1P: CHAMBER TRENCH SYSTEM

Hydrograph



Pond 1P: CHAMBER TRENCH SYSTEM

Stage-Area-Storage



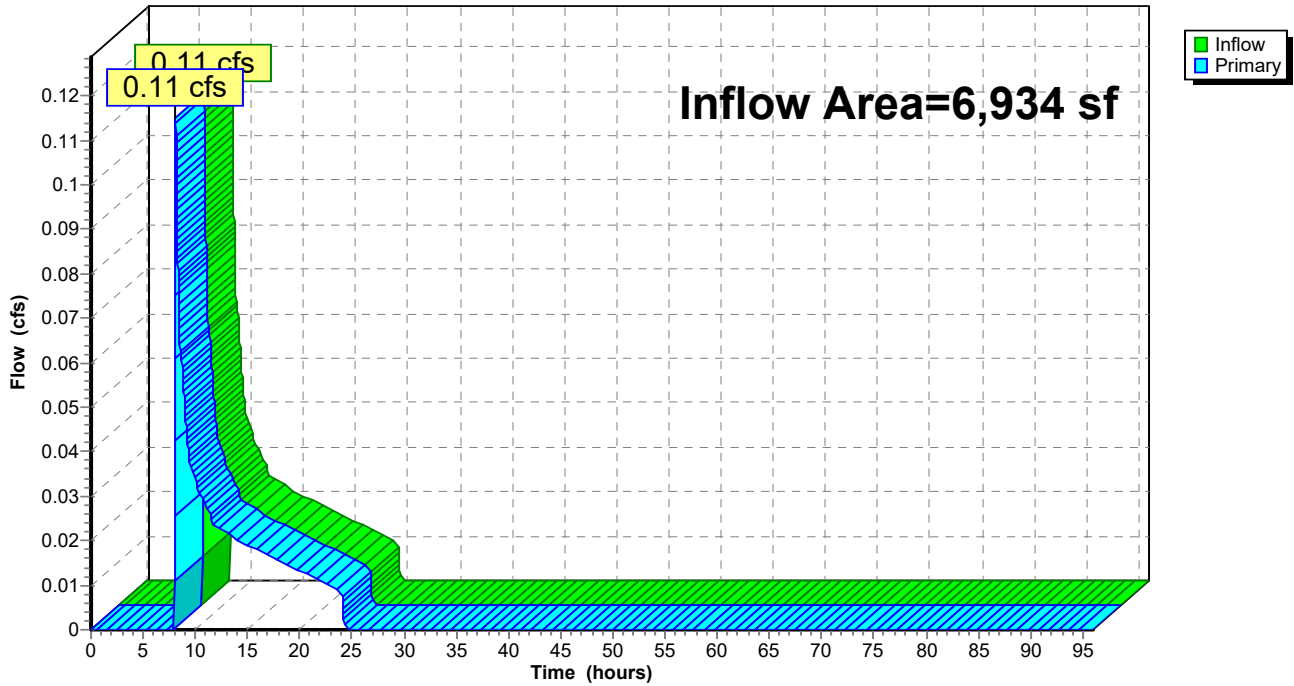
Summary for Link 1S: Summary

Inflow Area = 6,934 sf, 100.00% Impervious, Inflow Depth = 2.21" for 100-year event
Inflow = 0.11 cfs @ 8.12 hrs, Volume= 1,278 cf
Primary = 0.11 cfs @ 8.12 hrs, Volume= 1,278 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 1S: Summary

Hydrograph



Appendix E: Soil Information from the USDA Soil Survey of Clackamas County

Custom Soil Resource Report for **Clackamas County Area, Oregon**



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

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scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.





































Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



MAP LEGEND

Area of Interest (AOI)	 Area of Interest (AOI)	 Spoil Area
Soils	 Soil Map Unit Polygons	 Stony Spot
	 Soil Map Unit Lines	 Very Stony Spot
	 Soil Map Unit Points	 Wet Spot
Special Point Features	 Blowout	 Other
	 Borrow Pit	 Special Line Features
	 Clay Spot	Water Features
	 Closed Depression	 Streams and Canals
	 Gravel Pit	Transportation
	 Gravelly Spot	 RAILS
	 Landfill	 Interstate Highways
	 Lava Flow	 US Routes
	 Marsh or swamp	 Major Roads
	 Mine or Quarry	 Local Roads
	 Miscellaneous Water	Background
	 Perennial Water	 Aerial Photography
	 Rock Outcrop	
	 Saline Spot	
	 Sandy Spot	
	 Severely Eroded Spot	
	 Sinkhole	
	 Slide or Slip	
	 Sodic Spot	

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clackamas County Area, Oregon
 Survey Area Data: Version 18, Oct 27, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 13, 2019—Jul 25, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
88A	Willamette silt loam, wet, 0 to 3 percent slopes	0.5	100.0%
Totals for Area of Interest		0.5	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Clackamas County Area, Oregon

88A—Willamette silt loam, wet, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 227q
Elevation: 150 to 350 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Willamette, wet, and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Willamette, Wet

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Stratified glaciolacustrine deposits

Typical profile

H1 - 0 to 14 inches: silt loam
H2 - 14 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: About 30 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C
Ecological site: R002XC008OR - Valley Terrace Group
Forage suitability group: Moderately Well Drained < 15% Slopes (G002XY004OR)
Other vegetative classification: Moderately Well Drained < 15% Slopes
(G002XY004OR)
Hydric soil rating: No

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**Appendix F: Geotechnical Engineering Report from
GeoPacific Engineering, Inc.**



Real-World Geotechnical Solutions
Investigation • Design • Construction Support

October 4, 2022
Project No. 22-6110

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Tualatin, OR 97062
Phone: (503) 563-6151
Email: jonm@aks-eng.com

SUBJECT: INFILTRATION TEST RESULTS
1686 19TH STREET
TAX LOT 31E03AA 1600 & 1700
WEST LINN, OREGON

This letter presents the results of a geotechnical engineering study conducted by GeoPacific Engineering, Inc. (GeoPacific) for the above-referenced project. The purpose of our study was to conduct infiltration testing at the site and provide design recommendations for stormwater management.

This letter presents the results of soil infiltration to aid on-site stormwater management system design. On September 6, 2022, GeoPacific Engineering, Inc. (GeoPacific) logged and sampled two exploratory soil borings to a depth of 30 feet below the ground surface (bgs) at 1686 19th Street. The approximate locations of the borings are indicated on Figure 1. Design of the stormwater management systems is to be completed by others.

SITE AND PROJECT DESCRIPTION

As shown on Figures 1, the subject site is located at 1686 19th Street in the City of West Linn, Oregon. The property is approximately 0.5 acres in size and rectangular in shape. Topography is flat to gently sloping down to the north. The site is currently occupied by a single-family dwelling and associated structures. Vegetation onsite consists of landscaped grasses and shrubs and medium-sized trees.

We understand that it is desired to incorporate infiltration into the plans to aid in stormwater disposal.

REGIONAL GEOLOGIC SETTING

Regionally, the subject site lies within the Willamette Valley/Puget Sound lowland, a broad structural depression situated between the Coast Range on the west and the Cascade Range on the east. A series of discontinuous faults subdivide the Willamette Valley into a mosaic of fault-bounded, structural blocks (Yeats et al., 1996). Uplifted structural blocks form bedrock highlands, while down-warped structural blocks form sedimentary basins.

According to the Geologic framework of the Willamette lowland aquifer system, Oregon and Washington, (United States Geological Survey, Gannett, M.W., and Caldwell, R.R. 1998), the site is underlain by Quaternary-aged (last 1.6 million years) lacustrine deposits consisting of unconsolidated gravel, sand, and silt (Qs), generally referred to as catastrophic flood deposits, and referred to as the Willamette Formation in some geological maps. The catastrophic flood deposits are associated with repeated glacial outburst flooding of the Willamette Valley (Yeats et al., 1996). The last of these outburst floods occurred about 10,000 years ago. This material is poorly to moderately sorted (Madin, 1990).

Underlying the catastrophic flood deposits are Miocene-aged (approximately 23 to 5 million years ago) Columbia River basalt flows, which consist of phryic basalt and basaltic-andesite flows erupted eastern Oregon, Washington, and Idaho, (Tcr). The basalts are generally composed of dense, finely crystalline rock that is commonly fractured along blocky and columnar vertical joints. The Web Soil Survey (United States Department of Agriculture, Natural Resource Conservation Service (USDA NRCS 2022 Website), indicates that near-surface soils consist of the Willamette Silt Loam soil series. Willamette series soils generally consist of moderately well-drained terrace deposits.

SOIL CONDITIONS

In our borings, we encountered approximately 5 inches of topsoil, consisting of brown Organic SILT (OL-ML) with fine roots throughout, at the ground surface. The topsoil was underlain by native Catastrophic Flood Deposits, which consisted of brown, soft to stiff SILT with Sand (ML). The SILT with Sand (ML) graded to Silty SAND (SM) at depths of approximately 20 and 7.5 feet bgs in borings B-1 and B-2, respectively. This soil type extended beyond the maximum depth of our exploration (7 feet).

Groundwater and Soil Moisture

On September 6, 2022, observed soil moisture conditions were generally damp to moist. Groundwater was not observed in our soil borings to a maximum depth of 21.5 feet bgs. Regional geologic mapping indicates that static groundwater is present at a depth of 65 and 75 feet below the existing ground surface (Snyder, 2008). It is anticipated that groundwater conditions will vary depending on the season, local subsurface conditions, changes in site utilization, and other factors. Perched groundwater may be encountered in localized areas. Seeps and springs may exist in areas not explored and may become evident during site grading.

INFILTRATION TESTING

Soil infiltration testing was performed in borings B-1 and B-2 using the open hole falling head testing method. Infiltration testing was conducted at depths of approximately 20 and 7.5 feet below the ground surface in the native silty sand.

The soils were presoaked prior to infiltration testing. During testing, we measured the water level to the nearest 0.01 foot (1/8 inch) from a fixed point and the change in water level was recorded at regular intervals until three successive measurements showing a consistent infiltration rate were achieved. At 20 feet bgs in boring B-1 and at 7.5 feet bgs in boring B-2, we observed infiltration rates of 0 and 1.4 inches per hour, respectively. The infiltration rates have been reported without applying a factor of safety. Care should be taken when estimating infiltration capacity at the site.

Boring ID	Depth (ft)	Infiltration Rate (in/hr)
B-1	20	0.0
B-2	7.5	1.4

CONCLUSIONS AND RECOMMENDATIONS

We understand that plans for project development may include stormwater management facilities, and that it is desired to incorporate subsurface disposal of stormwater. Based on the results of our infiltration testing, The SILT observed above 7 feet and the Silty SAND (SM) observed below 17 feet exhibits an infiltration rate of nearly 0 inches per hour. The Silty SAND (SM) observed between 7 and 17 feet exhibits an infiltration rate of approximately 1.4 inches per hour

Stormwater management systems should be constructed as specified by the designer and/or in accordance with the applicable stormwater design codes. The infiltration rates presented in this report do not incorporate a factor of safety. All systems should include an adequate factor of safety. Stormwater exceeding soil infiltration and/or soil storage capacities will need to be directed in a controlled manner to a suitable surface discharge location, away from structures.

UNCERTAINTIES AND LIMITATIONS

This scope of this study includes measuring infiltration rates only. Rates of infiltration that were affected by impermeable soils or groundwater seepage were not reported. This study did not include risk assessment for geologic hazards or flooding on the site. Environmental implications of stormwater disposal or ODEQ approval at this site are also beyond the scope of this report.

Infiltration test methods and procedures attempt to simulate the as-built conditions of the planned subsurface disposal system. However, due to natural variations in soil properties, actual infiltration rates may vary from the measured and/or recommended design rates. All systems should be constructed such that potential overflow is discharged in a controlled manner away from structures, and all systems should include an adequate factor of safety. Infiltration rates presented in this report should not be applied to inappropriate or complex hydrological models such as a closed basin without extensive further studies. This report presents infiltration test results only and should not be construed as an approval of a system design.

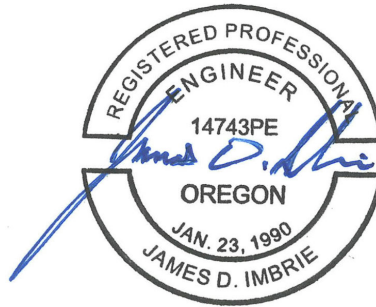
Please call if you have any questions or need further information.

Sincerely,

GeoPacific Engineering, Inc.



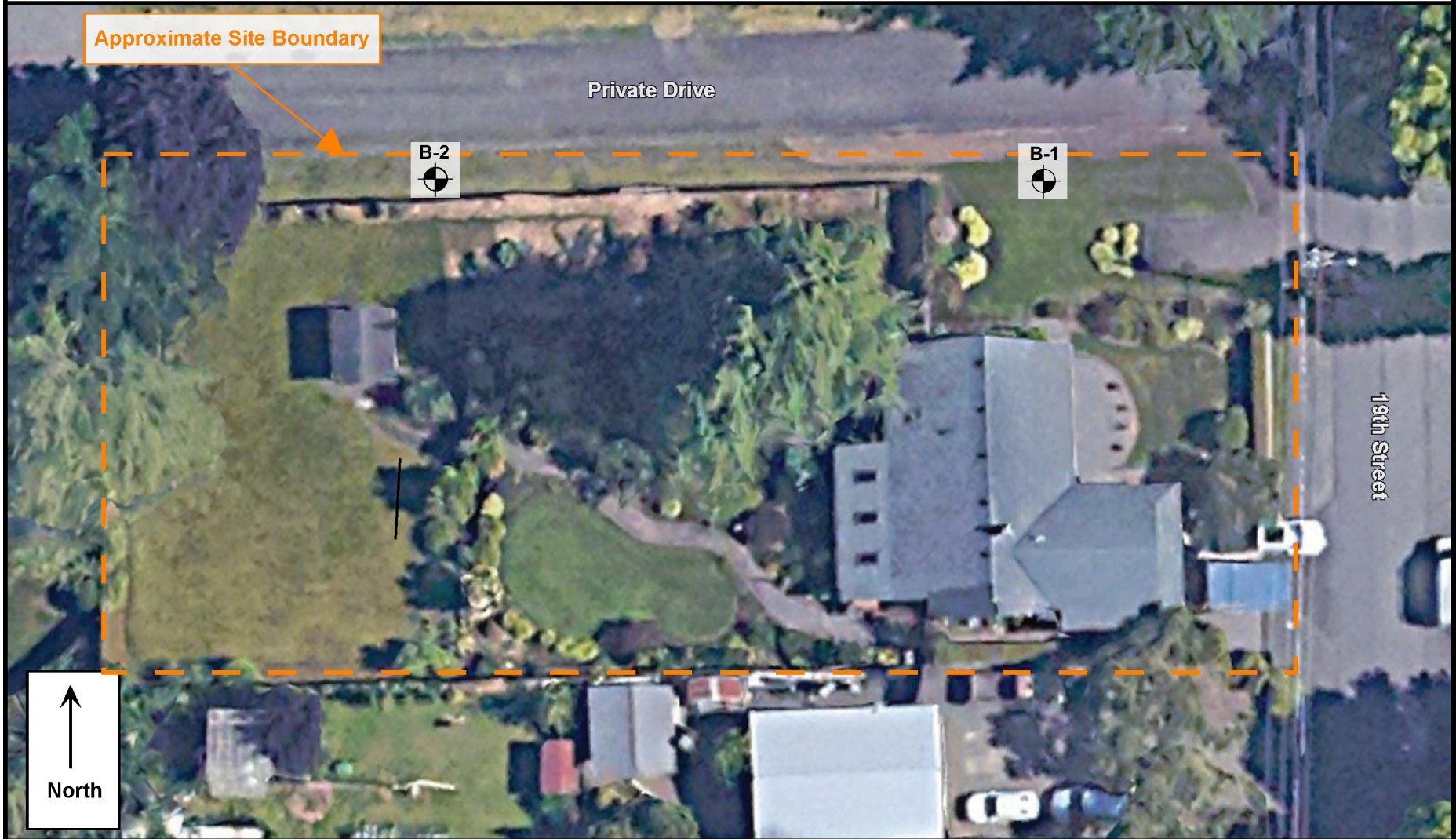
Alexandria B. Campbell, E.I.
Engineering Staff



EXPIRES: 06/30/20 23

James D. Imbrie, P.E.
Principal Engineer

Attachments: Figure 1 – Site Aerial and Exploration Locations
Boring Logs
Laboratory Test Results



Legend



B-1 Boring Designation and Approximate Location

0 30'

APPROXIMATE SCALE 1"=30'

Date: 09/26/22

Drawn by: ABC







Project: 1686 19th Street infiltration
West Linn, Oregon

Project No. 22-6110

FIGURE 1







Project: 1686 19th Street West Linn, Oregon	Project No. 21-6110	Boring No. B-1
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Depth (ft)	Sample Type	N-Value	Well Construction	Moisture Content (%)	Water Bearing Zone	Material Description
5	[Split-Spoon]	7				Organic SILT (OL-ML), brown, fine roots throughout, damp (Topsoil)
7	[Split-Spoon]	7				SILT with Sand (ML), brown, medium stiff, damp (Catastrophic Flood Deposits)
10	[Split-Spoon]	4				Grades to sandy
12	[Split-Spoon]	5				Grades to moist and soft
15	[Split-Spoon]	11				Grades to very moist and stiff
18	[Split-Spoon]	8				Grades to medium stiff
20	[Split-Spoon]	8				Silty SAND (SM), brown, loose, very moist (Catastrophic Flood Deposits) Infiltration testing conducted at 20 feet bgs. Infiltration rate measured as 0 in/hr Water added to boring to aid in drilling
25	[Split-Spoon]	10				
30	[Split-Spoon]	29				Grades to coarse sand and medium dense
35						Boring terminated at 30 feet bgs No groundwater encountered above 21.5 feet bgs Moisture conditions below 21.5 feet could not be determined due to water added to the borehole

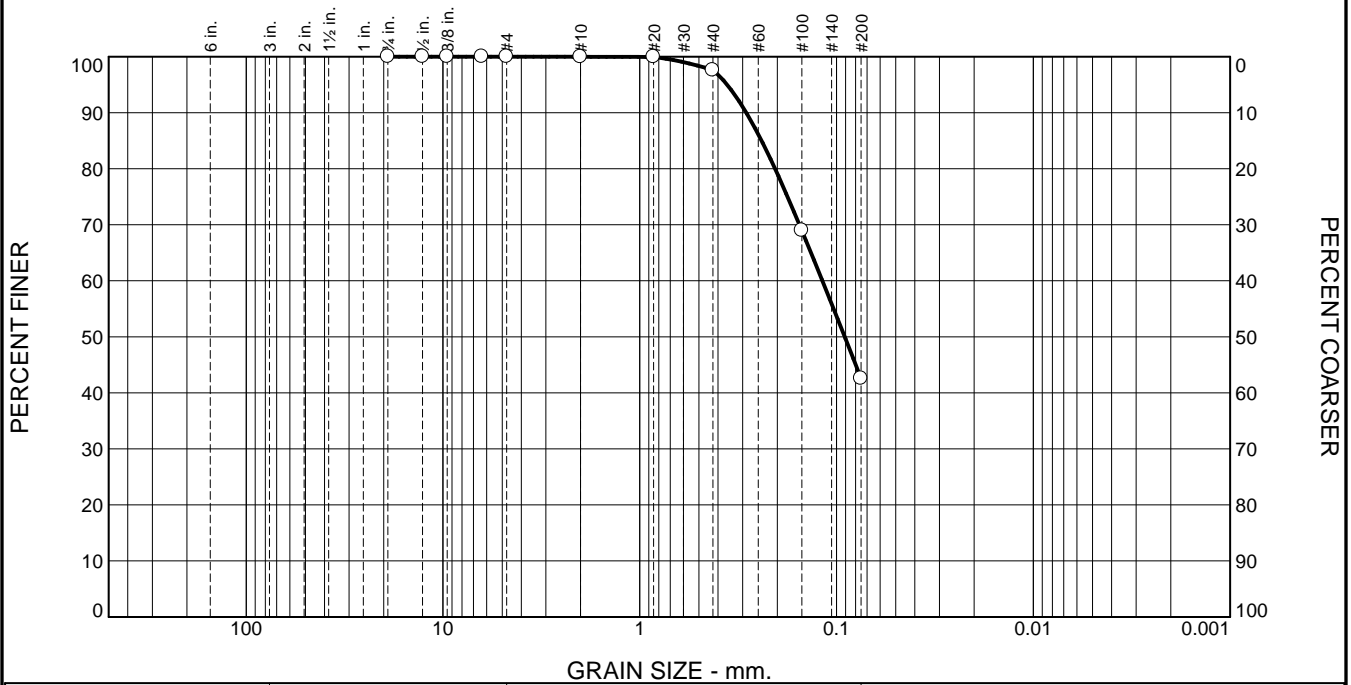
<p>LEGEND</p> <div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="text-align: center;">  Bag Sample </div> <div style="text-align: center;">  Split-Spoon </div> <div style="text-align: center;">  Shelby Tube Sample </div> <div style="text-align: center;">  Static Water Table at Drilling </div> <div style="text-align: center;">  Static Water Table </div> <div style="text-align: center;">  Water Bearing Zone </div> </div>	Date Drilled: 09/06/22 Logged By: ABC Surface Elevation:
--	--

Project: 1686 19th Street West Linn, Oregon	Project No. 21-6110	Boring No.
--	---------------------	------------

Depth (ft)	Sample Type	N-Value	Well Construction	Moisture Content (%)	Water Bearing Zone	Material Description
5	[Split-Spoon]	6				Organic SILT (OL-ML), brown, fine roots throughout, damp (Topsoil) ----- SILT with Sand (ML), brown, medium stiff, moist (Catastrophic Flood Deposits)
9	[Split-Spoon]	7				Grades to stiff
10	[Split-Spoon]	5				----- Silty SAND (SM), brown, loose, moist (Catastrophic Flood Deposits) Infiltration testing conducted at 7.5 feet bgs. Infiltration rate measured as 1.4 in/hr Water added to boring to aid in drilling
15	[Split-Spoon]	6				
20	[Split-Spoon]	7				
25	[Split-Spoon]	12				Grades to coarse sand
30	[Split-Spoon]	25				Grades to medium dense
35						Boring terminated at 30 feet bgs No groundwater encountered above 11.5 feet bgs Moisture conditions below 11.5 feet could not be determined due to water added to the borehole
40						

<p>LEGEND</p> <div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="text-align: center;">  Bag Sample </div> <div style="text-align: center;">  Split-Spoon </div> <div style="text-align: center;">  Shelby Tube Sample </div> <div style="text-align: center;">  Static Water Table at Drilling </div> <div style="text-align: center;">  Static Water Table </div> <div style="text-align: center;">  Water Bearing Zone </div> </div>	Date Drilled: 09/06/22 Logged By: ABC Surface Elevation:
--	--

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.4	55.0	42.6	

Test Results (AASHTO T 27 & AASHTO T 11)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.75	100.0		
.5	100.0		
.375	100.0		
.25	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	97.6		
#100	69.0		
#200	42.6		

Material Description

Native Silty Sand

Atterberg Limits (ASTM D 4318)

PL= _____ LL= _____ PI= _____

Classification

USCS (D 2487)= _____ AASHTO (M 145)= _____

Coefficients

D₉₀= 0.2875 D₈₅= 0.2405 D₆₀= 0.1180
D₅₀= 0.0909 D₃₀= _____ D₁₅= _____
D₁₀= _____ C_u= _____ C_c= _____

Remarks

Moisture Content = 29.0%

Date Received: _____ Date Tested: 9.8.2022

Tested By: TMM

Checked By: _____

Title: _____

* (no specification provided)

Location: B-1 Sample Number: S22-245 Depth: 20ft Date Sampled: 9.6.2022

<h2 style="margin: 0;">GEOPACIFIC ENGINEERING, INC.</h2>	<p>Client: AKS Engineering and Forestry Project: 1686 19th St Infiltration Project No: 22-6110</p>
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