



15895 SW 72ND AVE
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JB Mac Development Review Package

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Case No. _____
 Fee _____
 Receipt _____
 Date _____
 Application Type _____

Application for Land Use Action Check All That Apply

- | | |
|--|---|
| <input type="checkbox"/> Annexation
<input type="checkbox"/> Conditional Use

<input type="checkbox"/> Plan Amendment / Map Amendment
<input type="checkbox"/> Site Plan Type II -- Fast Track*

<input type="checkbox"/> Site Plan Type II -- Design Upgraded*

<input checked="" type="checkbox"/> Site Plan Type III 15,000 – 40,000 Sq ft.
Building + Parking
<input type="checkbox"/> Site Plan Type IV – 40,000+ Sq ft or in Old Town
Overlay | <input type="checkbox"/> Modification / Major / Minor
<input type="checkbox"/> Medical / Recreational Marijuana Site
Plan Review
<input type="checkbox"/> Planned Unit Development
<input type="checkbox"/> Partition (Subdivision no more than 3
lot)
<input type="checkbox"/> Subdivision Proposed # of Lots

<input type="checkbox"/> Lot Line Adjustment

<input type="checkbox"/> Variance |
|--|---|

***Fast-track** -- Site Plan review, defined as those site plan applications which propose less than 15,000 square feet of floor area, parking or seating capacity of public, institutional, commercial or industrial use permitted by the underlying zone, or up to a total of 20% increase in floor area, parking or seating capacity for a land use or structure subject to a Conditional Use Permit, except as follows: auditoriums, theaters, stadiums, and those applications subject to Section SZCDC16.72.010.A.4.

***Design Upgraded** -- Site Plan review, defined as those site plan applications which propose between 15,001 and 40,000 square feet of floor area, parking or seating capacity and which propose a minimum of eighty percent (80%) of the total possible points of design criteria in the "Commercial Design Review Matrix" found in Section SZCDC 16.90.020.D.6.d.

Publication Fee: \$466 See City of Sherwood current Fee Schedule, which includes the "Publication/Distribution of Notice" fee, at www.sherwoodoregon.gov. Click on Government/Finance/Fee Schedule.

By submitting this form the Owner, or Owner's authorized agent/ representative, acknowledges and agrees that City of Sherwood employees, and appointed or elected City Officials, have authority to enter the project site at all reasonable times for the purpose of inspecting project site conditions and gathering information related specifically to the project site.

Owner/Applicant Information

Applicant: Matthew Bride room Phone: 503-226-1285
 Applicant Address: 15895 SW 72nd Ave #200, Portland, OR 97224 Email: matthewb@cidainc.com
 Owner: Jim & Brooks Bayne Phone: 971-235-9608
 Owner Address: 19435 SW 129th AVE TUALATIN, OR 97062 Email: BROOKS@AFPSYS.com
 Contact for Additional Information: BROOKS BAYNE

Property Information

Street Location: 14843 SW Oregon St
 Tax Lot and Map No: 2S129DC00500
 Size of Property(ies) 4 acres

Proposed Action:

Purpose and Description of Proposed Action:

The proposal is for a 20,000 SF metal building 15,000 SF will be **used** for Industrial use and 5,000 will be used for **offices. Outdoor** storage of pipe will be screened from view from adjacent **properties. The** entire site will be secured with **a fence and gate.**


Proposed Use: Industrial

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

Authorizing Signatures:

I am the owner/authorized agent of the owner empowered to submit this application and affirm that the information submitted with this application is correct to the best of my knowledge.

I further acknowledge that I have read the applicable standards for review of the land use action I am requesting and understand that I must demonstrate to the City review authorities compliance with these standards prior to approval of my request.


Applicant's Signature

05/17/22
Date


Owner's Signature

5-12-22
Date

THE FOLLOWING MATERIALS ARE REQUIRED TO BE SUBMITTED WITH YOUR APPLICATION, OR IT WILL NOT BE ACCEPTED AT THE COUNTER

Once taken at the counter, the City has up to 30 days to review the materials submitted to determine if we have everything we need to complete the review. Applicant can verify submittal includes specific materials necessary for the application per checklist.

- THREE (3) Copies of Application Form:** Completely filled out and signed by the property owner and/or person with authority to make decisions on the property
- Copy of Deed:** Verifying ownership, easements, etc.
- THREE (3) Folded Sets of Plans**
- THREE (3) Copies* of Narrative:** Addressing Application Criteria
- SERVICE PROVIDER LETTERS**
 - 1) **Clean Water Services:** <https://www.cleanwaterservices.org/permits-development/step-by-step-process/environmental-review/>
 - 2) **Tualatin Valley Fire & Rescue:** <https://www.tvfr.com/399/Service-Provider-Permit>
- Fee** (Along with calculations utilized to determine fee if applicable)
 $\$6843.14 \text{ (Type III)} + 102 + 466 = \$7,411.14$
- Neighborhood Meeting Verification:** including affidavit, sign-in sheet and meeting summary (required for Type III, IV and V projects)

* **Note:** Upon initial submittal, prior to completeness applicants are encouraged to submit only 3 copies for review. Once the application is deemed completed (FILL IN)



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TYPE III –LAND USE REVIEW

Applicant's Submittal

05/18/22

APPLICANT: CIDA – c/o Matthew Bridegroom
15895 SW 72nd Avenue
Suite 200
Portland, OR 97224

OWNER: JBMAC Ventures, LLC
19435 SW 129th Avenue
Tualatin, OR 97062
Dirk Otis, Owner Representative

LOCATION: **2S129DC00500**
14843 SW Oregon Street
Sherwood, Oregon

I. BACKGROUND:

Existing Conditions

The project site is approximately 4 acres on the north side of SW Oregon Street. The site is currently vacant and was previously used as a tannery. The site is bordered to the west by Zenport Industries, to the north by a rail line and to the east by PGE power lines, with vacant property beyond, all zoned Light Industrial. On the south side of SW Oregon Street, across from the property, is a residential neighborhood, zoned There is a residential development, zoned Low Density Residential.

The property consist of three lots. The proposed development is on Lot 500, with access on an existing access easement across lot 9600. Frontage improvements to Oregon Street along lots 900 and 1000 will be completed in conjunction with the current development. Full development of lots 600 and 700 will occur under separate application.

Project Description

CIDA Inc. and Stratus Real Estate Developers are representing JB Mac for development of a new building on a currently vacant lot on SE Oregon Street at SW Lower Roy Street. We are proposing to develop the northerly 4.00 acre lot for the purposes of a new 20,000 square foot warehouse building with exterior storage yard, covered storage area and associated offices for AFP Systems, who design, install and maintain residential and commercial fire sprinkler systems.

II. APPLICANT RESPONSE TO APPLICABLE REGULATIONS

16.31 – Industrial Land Use Districts

16.31.020 - Uses

Building, heating, plumbing or electrical contractors and suppliers, building maintenance services, and similar uses. Permitted in LI

Response: The purpose of the proposed site is to manufacture and store fire suppression systems meant for the installation in other buildings and is thus a permitted use in LI Zone.



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16.31.030 – Development Standards

B. Development Standards – Except as otherwise provided, required minimum lot areas and dimensions and setbacks shall be:

Development Standards by Zone	LI	GI	EI
Lot area - industrial uses:	10,000 SF	20,000 SF	3 acres ⁹
Lot area - commercial uses (subject to Section 16.31.050):	10,000 SF	20,000 SF	10,000 SF
Lot width at front property line:	100 feet		
Lot width at building line:	100 feet		
Front yard setback ¹¹	20 feet	None	20 feet
Side yard setback ¹⁰	None	None	None
Rear yard setback ¹¹	None	None	None
Corner lot street side ¹¹	20 feet	None	20 feet
Height ¹¹	50 feet		

¹⁰ When a yard is abutting a residential zone or public park, there shall be a minimum setback of forty (40) feet provided for properties zoned Employment Industrial and Light Industrial zones, and a minimum setback of fifty (50) feet provided for properties zoned General Industrial.

¹¹ Structures located within one hundred (100) feet of a residential zone shall be limited to the height requirements of that residential zone.

(Low Density Residential max height limit = 30' or 2 stories)

Response: The lot size of the site is 174,262 SF and is greater than the minimum 10,000 SF required. The lot width at the front property line is 460' which is greater than the minimum 100'. The lot width at building line is 488' which is greater than the minimum 100'. The front yard setback is 22' which is greater than the minimum 20'. The proposed height of the building is 29'-8 1/2" which is less than the maximum height of 50'.

16.58 – Vision Clearance and Fence Standards

16.58.010 – Clear Vision Areas

A. A clear vision area shall be maintained on the corners of all property at the intersection of two (2) streets, intersection of a street with a railroad, or intersection of a street with an alley or private driveway.

B. A clear vision area shall consist of a triangular area, two (2) sides of which are lot lines measured from the corner intersection of the street lot lines for a distance specified in this regulation; or, where the lot lines have rounded corners, the lot lines extended in a straight line to a point of intersection, and so measured, and the third side of which is a line across the corner of the lot joining the non-intersecting ends of the other two (2) sides.

C. A clear vision area shall contain no planting, sight obscuring fence, wall, structure, or temporary or permanent obstruction exceeding two and one-half (2 1/2) feet in height, measured from the top of the curb, or where no curb exists, from the established street center line grade, except that trees exceeding this height may be located in this area, provided all branches and foliage are removed to the height of seven (7) feet above the ground on the sidewalk side and ten (10) feet on the street side.

The following requirements shall govern clear vision areas:

1. In all zones, the minimum distance shall be twenty (20) feet.
2. In all zones, the minimum distance from corner curb to any driveway shall be twenty-five (25) feet.
3. Where no setbacks are required, buildings may be constructed within the clear vision area.

Response: Vision Triangles will be maintained onto the site at SW Lower Roy St and SW Oregon Street and are indicated on the site plan.

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16.58.020 – Fences, Walls, and Hedges

D. Location—Non-Residential Zone:

1. Fences up to eight (8) feet high are allowed along front, rear and side property lines, subject to [Section 16.58.010](#). (Clear Vision Areas) and building department requirements.

3. Hedges up to twelve (12) feet tall are allowed.

E. General Conditions—All Fences:

1. Retaining, masonry, concrete, and modular retaining walls may not be constructed within the eight-foot public utility easement (PUE) located on the front and corner street side yards, without approval from the City Engineer.

4. The finished side of the fence must face the street or the neighboring property. This does not preclude finished sides on both sides.

5. Buffering: If a proposed development is adjacent to a dissimilar use such as a commercial use adjacent to a residential use, or development adjacent to an existing farming operation, a buffer plan that includes, but is not limited to, setbacks, fencing, landscaping, and maintenance via a homeowner's association or managing company must be submitted and approved as part of the preliminary plat or site plan review process per [Section 16.90.020](#) and [Chapter 16.122](#).

6. In the event of a conflict between this Section and the clear vision standards of [Section 16.58.010](#), the standards in [Section 16.58.010](#) prevail.

Response: Fencing along the property is proposed to be less than 8' high with the finish side facing outwards and will not intervene into the clear vision standards.

16.72 – Procedures for Processing Development Permits

16.72.010 – Generally

A. Classifications

Except for Final Development Plans for Planned Unit Developments, which are reviewed per [Section 16.40.030](#), all quasi-judicial development permit applications and legislative land use actions shall be classified as one of the following:

3. Type III

b. Site Plan Review – between 15,001 and 40,000 square feet of floor area, parking or seating capacity except those within the Old Town Overlay District, per [Section 16.72.010.A](#).

Response: The proposed project will be subject to Type III Review

16.72.020 – Public Notice and Hearing

A. Newspaper Notice

Notices of all public hearings for Type III, IV and V land use actions required by this Code shall be published in a newspaper of general circulation available within the City two (2) calendar weeks prior to the initial scheduled hearing before the Hearing Authority and shall be published one additional time in the Sherwood Archer, Sherwood Gazette or similarly local publication, no less than 5 days prior to the initial scheduled hearing before the hearing authority.

B. Posted Notice

1. Notices of all Type II, III, IV and V land use actions required by this Code shall be posted by the City in no fewer than five (5) conspicuous locations within the City, not less than fourteen (14) calendar days in advance of the staff decision on Type II applications or twenty (20) calendar days in advance of the initial hearing before the Hearing Authority for Type III, IV and V applications.

2. Signage must be posted on the subject property fourteen (14) calendar days in advance of the staff decision on Type II applications and twenty (20) calendar days in advance of the initial hearing before the Hearing Authority for Type III, IV and V applications.



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- a. on-site posted notice shall provide a general description of the land use action proposed, the project number and where additional information can be obtained.
- b. On-site posted notice shall be designed to be read by motorists passing by; the exact size and font style to be determined by the City.
- c. On-site posted notice shall be located on the property in a manner to be visible from the public street. For large sites or sites with multiple street frontages, more than one sign may be required.

C. Mailed Notice

I. For Type II, III, IV and V actions specific to a property or group of properties, the City shall send written notice by regular mail to owners of record of all real property within one thousand (1,000) feet from the property subject to the land use action. Written notice shall also be sent to Oregon Department of Transportation (ODOT), Metro, the applicable transit service provider and other affected or potentially affected agencies. If the subject property is located adjacent to or split by a railroad crossing ODOT Rail Division shall also be sent public notice.

Response: Newspaper Notice and Signage will be posted prior to the hearing as required. Mailing labels have been provided for Mailed Notices.

16.90 – Site Planning

16.90.020 Site Plan Review

D Required Findings

No site plan approval will be granted unless each of the following is found:

1. The proposed development meets applicable zoning district standards and design standards in Division II, and all provisions of Divisions V, VI, VIII and IX.

Response: The proposed development will meet applicable zoning and design standards.

2. The proposed development can be adequately served by services conforming to the Community Development Plan, including but not limited to water, sanitary facilities, storm water, solid waste, parks and open space, public safety, electric power, and communications.

Response: Services will be provided on site including water, sanitary, storm water, solid waste, park and open space, public safety, and utilities including electricity, natural gas, telephone and data.

3. Covenants, agreements, and other specific documents are adequate, in the City's determination, to assure an acceptable method of ownership, management, and maintenance of structures, landscaping, and other on-site features.

Response: The property is under a single ownership and will maintain their property. We do not believe covenants are needed at this time.

4. The proposed development preserves significant natural features to the maximum extent feasible, including but not limited to natural drainage ways, wetlands, trees, vegetation (including but not limited to environmentally sensitive lands), scenic views, and topographical features, and conforms to the applicable provisions of Division VIII of this Code and Chapter 5 of the Community Development Code.

Response: Per AKS evaluation, there are no wetlands or significant natural features on site. There is also no significant trees or vegetation on site feasible to preserve. Natural drainage ways will be preserved.

5. For developments that are likely to generate more than 400 average daily trips (ADTs), or at the discretion of the City Engineer, the applicant must provide adequate information,

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such as a traffic impact analysis (TIA) or traffic counts, to demonstrate the level of impact to the surrounding transportation system.

Response: A trip generation letter is included in the submittal package showing that the development is not likely to generate more than 400 ADT's.

16.90.020 Site Plan Review

7. Industrial developments provide employment opportunities for citizens of Sherwood and the region as a whole. The proposed industrial development is designed to enhance areas visible from arterial and collector streets by reducing the "bulk" appearance of large buildings. Industrial design standards include the following:

a. Portions of the proposed industrial development within 200 feet of an arterial or collector street and visible to the arterial or collector (i.e. not behind another building) must meet any four of the following six design criteria:

(1) A minimum 15% window glazing for all frontages facing an arterial or collector.

(2) A minimum of two (2) building materials used to break up vertical facade street facing frontages (no T-111 or aluminum siding).

(3) Maximum thirty-five (35) foot setback for all parts of the building from the property line separating the site from all arterial or collector streets (required visual corridor falls within this maximum setback area).

(4) Parking is located to the side or rear of the building when viewed from the arterial or collector.

(5) Loading areas are located to the side or rear of the building when viewed from the arterial or collector. If a loading area is visible from an arterial or collector, it must be screened with vegetation or a screen made of materials matching the building materials.

(6) All roof-mounted equipment is screened with materials complimentary to the building design materials.

Response: The proposed project is 253' from the collector street (Oregon St) and therefore is not required to meet the design criteria.

8. Driveways that are more than twenty-four (24) feet in width shall align with existing streets or planned streets as shown in the Local Street Connectivity Map in the adopted Transportation System Plan (Figure 17), except where prevented by topography, rail lines, freeways, pre-existing development, or leases, easements, or covenants.

Response: The driveway will align with SW Lower Roy St.in accordance with the access easement

16.92.030 - Site Area Landscaping and Perimeter Screening Standards

A. Perimeter Screening and Buffering

2. Perimeter Landscaping Buffer

a. A minimum ten (10) foot wide landscaped strip comprised of trees, shrubs and ground cover shall be provided between off-street parking, loading, or vehicular use areas on separate, abutting, or adjacent properties.

Response: A 10' landscape buffer will be provided along the perimeter of the site.

B. Parking Area Landscaping

3. Required Landscaping

There shall be at least forty-five (45) square feet parking area landscaping for each parking space located on the site. The amount of required plant materials are based on the number of spaces as identified below.



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Response: In addition to landscape islands, there will be landscaping along the perimeter of the parking area in order to meet the area landscaping requirements for number of spaces
 43 parking spaces x 45sqft = 1,935sqft landscaping
 3,000+ sq. ft landscaping along east parking perimeter > 1,935 sq. ft. required

5. Individual Landscape Islands Requirements

(3) Industrial uses: one (1) island for every twelve (12) contiguous parking spaces.

Response: The longest contiguous parking is 10 spaces before being interrupted by a landscape island.

*C. Screening of Mechanical Equipment, Outdoor Storage, Service and Delivery Areas
 All mechanical equipment, outdoor storage and manufacturing, and service and delivery areas, shall be screened from view from all public streets and any adjacent residential zones. If unfeasible to fully screen due to policies and standards, the applicant shall make efforts to minimize the visual impact of the mechanical equipment.*

Response: Fencing will be placed along the perimeter of the site to obscure any storage areas as well as ground mounted mechanical equipment.

16.94. – Off-Street Parking and Loading

16.94.020 – Off-Street Parking Standards

Table 1 – General Office = 2.7 Industrial = 1.6 parking spaces per thousand square feet.

Response: 15,000sqft x 1.6 = 24 parking spaces, 5,000sqft x 2.7 = 13.5, 24+13.5 = 37.5 spaces
 43 parking spaces provided > 37.5 parking spaces

B. Dimensional and General Configuration Standards

1. Dimensions For the purpose of this Chapter, a "parking space" means a stall nine (9) feet in width and twenty (20) feet in length. Up to twenty five (25) percent of required parking spaces may have a minimum dimension of eight (8) feet in width and eighteen (18) feet in length so long as they are signed as compact car stalls.

Response: All parking spaces are designed to be 9 feet by 20 feet.

3. Wheel Stops

a. Parking spaces along the boundaries of a parking lot or adjacent to interior landscaped areas or sidewalks shall be provided with a wheel stop at least four (4) inches high, located three (3) feet back from the front of the parking stall as shown in the above diagram.

c. The paved portion of the parking stall length may be reduced by three (3) feet if replaced with three (3) feet of low lying landscape or hardscape in lieu of a wheel stop; however, a curb is still required. In other words, the traditional three-foot vehicle overhang from a wheel stop may be low-lying landscaping rather than an impervious surface.

Response: Wheel stops will be provided along the sidewalk leading up to the building entrance as indicated on plans. Additional low lying landscape will be provided along the eastern parking edge.

C. Bicycle Parking Facilities

1. General Provisions

a. Applicability. Bicycle parking spaces shall be provided for new development, changes of use, and major renovations, defined as construction valued at twenty-five (25) percent or more of the assessed value of the existing structure.



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Table 4: Industrial – 2 or 1 per 40 spaces, whichever is greater

Response: 2 short-term bicycle parking spots will be provided near the main entrance to the building.

16.94.030 – Off-Street Loading Standards

B. Separation of Areas

Any area to be used for the maneuvering of delivery vehicles and the unloading or loading of materials shall be separated from designated off-street parking areas and designed to prevent the encroachment of delivery vehicles onto off-street parking areas or public streets. Off-street parking areas used to fulfill the requirements of this Chapter shall not be used for loading and unloading operations.

Response: Loading operations are done on the southwest portion of the site, located away from the parking on the northeast portion of the site.

16.96 – On-Site Circulation

16.96.010 – On-Site Pedestrian and Bicycle Circulation

D. Connection to Streets

1. Except for joint access per this Section, all ingress and egress to a use or parcel shall connect directly to a public street, excepting alleyways with paved sidewalk.

Response: Road and sidewalk to the site and building entrance will be provided from SW Oregon Street via the existing access easement.

16.96.030 – Minimum Non-Residential Standards

A. Driveways

2 – Industrial: Improved hard surfaced driveways are required as follows: 1-249 parking spaces = 1 Driveway, 15' wide one-way pair or 24' two-way.

Response: A 30-foot wide driveway in existing easement is provided for two-way traffic.

B. Sidewalks and Curbs

1. A private pathway/sidewalk system extending throughout the development site shall be required to connect to existing development, to public rights-of-way with or without improvements, to parking and storage areas, and to connect all building entrances to one another. The system shall also connect to transit facilities within five hundred (500) feet of the site, future phases of development, and whenever possible to parks and open spaces.

Response: Sidewalk is provided from the public right of way at SW Oregon St to the site, the primary entrance to the building, and around the building connecting all entrances.

16.98 – On-Site Storage

16.98.020 – Solid Waste and Recycling Storage

All uses shall provide solid waste and recycling storage receptacles which are adequately sized to accommodate all solid waste generated on site. All solid waste and recycling storage areas and receptacles shall be located out of public view. Solid waste and recycling receptacles for multi-family, commercial, industrial and institutional uses shall be screened by six (6) foot high sight-obscuring fence or masonry wall and shall be easily accessible to collection vehicles.

Response: A minimum 6-foot tall chain link fence with gate will enclose the trash and recycling receptacles, which will be located behind the building, on the north end of the site, out of view from the public.

16.98.030 – Material Storage



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B. Standards. Except as per [Section 16.98.040](#), all service, repair, storage, and merchandise display activities carried on in connection with any commercial or industrial activity, and not conducted within an enclosed building, shall be screened from the view of all adjacent properties and adjacent streets by a six (6) foot to eight (8) foot high, sight obscuring fence subject to [chapter 16.58.020](#). In addition, unless adjacent parcels to the side and rear of the storage area have existing solid evergreen screening or sight-obscuring fencing in place, new evergreen screening no less than three (3) feet in height shall be planted along side and rear property lines. Where other provisions of this Code require evergreen screening, fencing, or a landscaped berm along side and rear property lines, the additional screening stipulated by this Section shall not be required.

Response: A 6'-0" privacy fence will be placed around the site to obscure visibility of exterior storage areas.. A three foot high evergreen screen will also be planted around areas of storage adjacent to side and rear properties along the western portion of the lot.

16.106 – Transportation Facilities

16.106.010 – Generally

A. Creation

Public streets shall be created in accordance with provisions of this Chapter. Except as otherwise provided, all street improvements and rights-of-way shall conform to standards for the City's functional street classification, as shown on the Transportation System Plan (TSP) Map (Figure 17) and other applicable City standards. The following table depicts the guidelines for the street characteristics.

Type of Street: 40' Commercial/Industrial Not Exceeding 3000 vehicles per day = 64' Right of Way Width, 2 Number of Lanes, 20' Minimum Lane Width, 8' On Street Parking Width, No Bike Lane. 6' Sidewalk Width, 5' Landscape Strip, No Median

Response: Streets improvements will comply with requirements.

16.106.040 – Design

Standard cross sections showing street design and pavement dimensions are located in the City of Sherwood's Engineering Design Manual.

B. Alignment

All proposed streets shall, as far as practicable, be in alignment with existing streets. In no case shall the staggering of streets create a "T" intersection or a dangerous condition. Street offsets of less than one hundred (100) feet are not allowed.

Response: The new street giving access to the site will align with SW Lower Roy St.

E. Cul-de-sacs

1. All cul-de-sacs shall be used only when exceptional topographical constraints, existing development patterns, or compliance with other standards in this code preclude a street extension and circulation. A cul-de-sac shall not be more than two hundred (200) feet in length and shall not provide access to more than 25 dwelling units.

2. All cul-de-sacs shall terminate with a turnaround in accordance with the specifications in the Engineering Design Manual. The radius of circular turnarounds may be larger when they contain a landscaped island, parking bay in their center, Tualatin Valley Fire and Rescue submits a written request, or an industrial use requires a larger turnaround for truck access.

3. Public easements, tracts, or right-of-way shall provide paved pedestrian and bicycle access ways at least 6 feet wide where a cul-de-sac or dead-end street is planned, to connect the ends of the streets together, connect to other streets, or connect to other existing or planned developments in accordance with the standards of this Chapter, the TSP, the Engineering Design Manual or other provisions identified in this Code for the preservation of trees.



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Response: The access drive leading to the site is located on the existing access easement and terminates in a 48' radius turning circle. The drive incorporates a 6' sidewalk connecting the main entrance of the building to the public sidewalk.

16.106.060 – Sidewalks

B. Design Standards

1. Arterial and Collector Streets

Arterial and collector streets shall have minimum six (6) or eight (8) foot wide sidewalks/multi-use paths, located as required by this Code. Residential areas shall have a minimum of a six (6) foot wide sidewalk and commercial industrial areas shall have a minimum of an eight (8) foot wide sidewalk.

2. Local Streets

Local streets shall have minimum five (5) foot wide sidewalks, located as required by this Code.

Response: A 12' sidewalk will be constructed along SW Oregon St and a 6' sidewalk will lead into the site.

16.160.080 – Traffic Impact Analysis (TIA)

B. Applicability

A traffic impact analysis (TIA) shall be required to be submitted to the City with a land use application at the request of the City Engineer or if the proposal is expected to involve one (1) or more of the following:

1. An amendment to the Sherwood Comprehensive Plan or zoning map.
2. A new direct property approach road to Highway 99W is proposed.
3. The proposed development generates fifty (50) or more PM peak-hour trips on Highway 99W, or one hundred (100) PM peak-hour trips on the local transportation system.
4. An increase in use of any adjacent street or direct property approach road to Highway 99W by ten (10) vehicles or more per day that exceed the twenty thousand-pound gross vehicle weight.
5. The location of an existing or proposed access driveway does not meet minimum spacing or sight distance requirements, or is located where vehicles entering or leaving the property are restricted, or such vehicles are likely to queue or hesitate at an approach or access connection, thereby creating a safety hazard.
6. A change in internal traffic patterns that may cause safety problems, such as back up onto the highway or traffic crashes in the approach area.

Response: A Traffic Impact letter is included in this submittal package.

16.108 – Improvement Plan Review

16.108.010 – Preparation and Submission

An improvement plan shall be prepared and stamped by a Registered Civil Engineer certifying compliance with City specifications. Two (2) sets of the plan shall be submitted to the City for review. An improvements plan shall be accompanied by a review fee as per this Section.

Response: Civil drawings are provided in this submittal package.

16.110 – Sanitary Sewers

16.110.010 – Required Improvements

Sanitary sewers shall be installed to serve all new developments and shall connect to existing sanitary sewer mains. Provided, however, that when impractical to immediately connect to a trunk sewer system, the use of septic tanks may be approved, if sealed sewer laterals are installed for future connection and the temporary system meets all other applicable City, Clean Water Services, Washington County and State sewage disposal standards.



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WWW.CIDAINC.COM

Response: Sanitary sewers will be provided and connect to sewer mains. See utility plan in submittal package.

16.112 – Water Supply

16.112.010 – Required Improvements

Water lines and fire hydrants conforming to City and Fire District standards shall be installed to serve all building sites in a proposed development. All waterlines shall be connected to existing water mains or shall construct new mains appropriately sized and located in accordance with the Water System Master Plan.

Response: Water lines and fire hydrants conforming to City and Fire District standards will be installed and connected to water mains. See utility plan in submittal package.

16.112.020 – Design Standards

B. Fire Protection

All new development shall comply with the fire protection requirements of [Chapter 16.116](#), the applicable portions of Chapter 7 of the Community Development Plan, and the Fire District.

Response: Water lines and fire hydrants are provided and sized by the civil engineer. A service provider letter from Tualatin Valley Fire & Rescue is provided for fire protection.

16.114 – Storm Water

16.114.010 – Required Improvements

Storm water facilities, including appropriate source control and conveyance facilities, shall be installed in new developments and shall connect to the existing downstream drainage systems consistent with the Comprehensive Plan and the requirements of the Clean Water Services water quality regulations contained in their Design and Construction Standards R&O 04-9, or its replacement

Response: Storm water will be designed by the civil engineer and in accordance with Clean Water Services.

16.116 – Fire Protection

16.116.010 – Required Improvements

When land is developed so that any commercial or industrial structure is further than two hundred and fifty (250) feet or any residential structure is further than five hundred (500) feet from an adequate water supply for fire protection, as determined by the Fire District, the developer shall provide fire protection facilities necessary to provide adequate water supply and fire safety.

Response: Fire hydrants will be located on the site as required.

B. Fire Flow

Standards published by the Insurance Services Office, entitled "Guide for Determination of Required Fire Flows" shall determine the capacity of facilities required to furnish an adequate fire flow. Fire protection facilities shall be adequate to convey quantities of water, as determined by ISO standards, to any outlet in the system, at no less than twenty (20) pounds per square inch residual pressure. Water supply for fire protection purposes shall be restricted to that available from the City water system. The location of hydrants shall be taken into account in determining whether an adequate water supply exists.

Response: Fire flow will be made adequate as noted on the attached correspondence and hydrants will be located as required.

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C. Access to Facilities

Whenever any hydrant or other appurtenance for use by the Fire District is required by this Chapter, adequate ingress and egress shall be provided. Access shall be in the form of an improved, permanently maintained roadway or open paved area, or any combination thereof, designed, constructed, and at all times maintained, to be clear and unobstructed. Widths, height clearances, ingress and egress shall be adequate for District firefighting equipment. The Fire District, may further prohibit vehicular parking along private accessways in order to keep them clear and unobstructed, and cause notice to that effect to be posted.

Response: A fire lane is provided to the site and meets the requirements of Tualatin Valley Fire & Rescue for access to the site. Electric gates along the fire lane will be operable to the fire department. Adequate space for truck turnaround is provided on site. A knox box for building access and after-hours gate entrance is provided.

D. Hydrants

Hydrants located along private, accessways shall either have curbs painted yellow or otherwise marked prohibiting parking for a distance of at least fifteen (15) feet in either direction, or where curbs do not exist, markings shall be painted on the pavement, or signs erected, or both, given notice that parking is prohibited for at least fifteen (15) feet in either direction.

Response: No fire hydrants will be located along the private accessway.

16.118 – Public and Private Utilities

16.118.010 – Purpose

Public telecommunication conduits as well as conduits for franchise utilities including, but not limited to, electric power, telephone, natural gas, lighting, and cable television shall be installed to serve all newly created lots and developments in Sherwood.

Response: Utilities including electricity, natural gas, telephone and data will be brought to the site.

16.118.030 – Underground Facilities

Except as otherwise provided, all utility facilities, including but not limited to, electric power, telephone, natural gas, lighting, cable television, and telecommunication cable, shall be placed underground, unless specifically authorized for above ground installation, because the points of connection to existing utilities make underground installation impractical, or for other reasons deemed acceptable by the City.

Response: All utilities will be brought to site underground.

16.126 – Replatting, Lot Consolidations and Vacation of Plats

16.126.050 – Lot Consolidations

Upon approval of a Type I lot consolidation by the City Manager or designee, and upon demonstrating compliance with approval conditions:

- A. For the consolidation of lots or parcels of a recorded plat, the lot consolidation shall be finalized by a re-plat of the subdivision or partition.

Response: There is expected to be a lot consolidation already in process at the time of review. Parcels 1 and 2 are expected to be consolidated prior to final design review approval.

16.142 – Parks, Trees, and Open Spaces

16.142.040 – Visual Corridors

A. Corridors Required



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New developments located outside of the Old Town Overlay with frontage on Highway 99W, or arterial or collector streets designated on Figure 8-1 of the Transportation System Plan shall be required to establish a landscaped visual corridor according to the following standards

Collector: 10' width

Response: 10' of landscaping will be maintained on the north side of the sidewalk along SW Oregon St.

16.142.060 – Street Trees

A. Installation of Street Trees on New or Redeveloped Property.

Trees are required to be planted to the following specifications along public streets abutting or within any new development or re-development. Planting of such trees shall be a condition of development approval. The City shall be subject to the same standards for any developments involving City-owned property, or when constructing or reconstructing City streets. After installing street trees, the property owner shall be responsible for maintaining the street trees on the owner's property or within the right-of-way adjacent to the owner's property.

Response: Street trees will be planted in the planter strip with minimum two caliper inch trunk diameter, selected from the approved tree listed, and spaced according to canopy spread.

16.142.070 – Trees on Property Subject to Certain Land Use Applications

B. Applicability

All applications including a Type II - IV land use review, shall be required to preserve trees or woodlands, as defined by this Section to the maximum extent feasible within the context of the proposed land use plan and relative to other codes, policies, and standards of the City Comprehensive Plan.

Response: No trees of substance are on site that are necessary or feasible to preserve.

16.144 – Wetland, Habitat, and Natural Areas

16.144.020 – Standards

A. The applicant shall identify and describe the significance and functional value of wetlands on the site and protect those wetlands from adverse effects of the development. A facility complies with this standard if it complies with the criteria of subsections A.1.a and A.1.b, below:

1. The facility will not reduce the area of wetlands on the site, and development will be separated from such wetlands by an area determined by the Clean Water Services Design and Construction Standards R&O 00-7 or its replacement provided [Section 16.140.090](#) does not require more than the requested setback.

a. A natural condition such as topography, soil, vegetation or other feature isolates the area of development from the wetland.

b. Impact mitigation measures will be designed, implemented, and monitored to provide effective protection against harm to the wetland from sedimentation, erosion, loss of surface or ground water supply, or physical trespass.

Response: Per AKS evaluation, there are no wetlands are on site.

B. The applicant shall provide appropriate plans and text that identify and describe the significance and functional value of natural features on the site (if identified in the Community Development Plan, Part 2) and protect those features from impacts of the development or mitigate adverse effects that will occur.

Response: Per AKS evaluation, there are no significant natural features on site.

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16.146 – Noise

16.146.020 – Noise Sensitive Uses

When proposed commercial and industrial uses do not adjoin land exclusively in commercial or industrial zones, or when said uses adjoin special care, institutional, or parks and recreational facilities, or other uses that are, in the City's determination, sensitive to noise impacts, then:

A. The applicant shall submit to the City a noise level study prepared by a professional acoustical engineer. Said study shall define noise levels at the boundaries of the site in all directions.

B. The applicant shall show that the use will not exceed the noise standards contained in OAR 340-35-035, based on accepted noise modeling procedures and worst case assumptions when all noise sources on the site are operating simultaneously.

Response: Noise is not anticipated to be above normal.

16.148 – Vibrations

16.148.010 – Generally

All otherwise permitted commercial, industrial, and institutional uses shall not cause discernible vibrations that exceed a peak of 0.002 gravity at the property line of the originating use, except for vibrations that last five (5) minutes or less per day, based on a certification by a professional engineer.

Response: Vibrations are not anticipated to be above normal.

16.150 – Air Quality

16.148.020 – Proof of Compliance

Proof of compliance with air quality standards as per [Section 16.150.010](#) shall be in the form of copies of all applicable State permits, or if permits have not been issued, submission by the applicant, and acceptance by the City, of a report certified by a professional engineer indicating that the proposed use will comply with State air quality standards. Depending on the nature and size of the use proposed, the applicant may, in the City's determination, be required to submit to the City a report or reports substantially identical to that required for issuance of State Air Contaminant Discharge Permits.

Response: Proof of compliance will be provided via state permits.

16.152 – Odors

16.152.020 – Standards

The applicant shall submit a narrative explanation of the source, type and frequency of the odorous emissions produced by the proposed commercial, industrial, or institutional use. In evaluating the potential for adverse impacts from odors, the City shall consider the density and characteristics of surrounding populations and uses, the duration of any odorous emissions, and other relevant factors.

Response: No odors are anticipated.

16.154 – Heat and Glare

16.154.020 – Standards

Except for exterior lighting, all otherwise permitted commercial, industrial, and institutional uses shall conduct any operations producing excessive heat or glare entirely within enclosed buildings. Exterior lighting shall be directed away from adjoining properties, and the use shall not cause such glare or lights to shine off site in excess of one-half (0.5) foot candle when adjoining properties are zoned for residential uses.

Response: All exterior lighting will be directed downward onto the site and away from other properties.



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16.156 – Energy Conservation

16.156.020 – Standards

A. Building Orientation - The maximum number of buildings feasible shall receive sunlight sufficient for using solar energy systems for space, water or industrial process heating or cooling. Buildings and vegetation shall be sited with respect to each other and the topography of the site so that unobstructed sunlight reaches the south wall of the greatest possible number of buildings between the hours of 9:00 AM and 3:00 PM, Pacific Standard Time on December 21st.

B. Wind - The cooling effects of prevailing summer breezes and shading vegetation shall be accounted for in site design. The extent solar access to adjacent sites is not impaired vegetation shall be used to moderate prevailing winter wind on the site.

Response: The building is sited with access to daylight and cooling winds.

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PLANNING DEPARTMENT NEIGHBORHOOD MEETING PACKET

(Required for all Type III, IV or V projects)

Submit the following with land use application materials to the City of Sherwood Planning Department, 22560 SW Pine St., Sherwood, OR 97140: (503) 625-5522.

The purpose of the neighborhood meeting is to solicit input and exchange information about the proposed development per Sherwood Zoning and Community Development Code 16.70.020.

The meeting must be held in a public location **prior** to submitting a land use application.

- x* Affidavits of mailing to adjacent property owners that are within 1,000 feet of the subject application.

- x* Sign-in sheet(s)

- x* Summary of the meeting notes

(Projects requiring a neighborhood meeting in which the City or Urban Renewal District is the property owner or applicant shall also provide published and posted notice of the neighborhood meeting consistent with the notice requirements in 16.72.020.)

Affidavit of Mailing

DATE: 05.18.22

STATE OF OREGON)
)
Washington County)

I, Tara W. Lund, representative for the JB Mac - Oregon Street proposed development project do hereby certify that the attached notice to adjacent property owners and recognized neighborhood organizations that are within 1,000 feet of the subject project, was placed in a U.S. Postal receptacle on March 30, 2022.



Representatives Name: Tara W. Lund
Name of the Organization: CIDA, Inc.

NEIGHBORHOOD MEETING SIGN IN SHEET

Proposed Project: JB Mac Oregon Street

Proposed Project Location: 14843 SW Oregon Street; Sherwood, Oregon

Project Contact: Tara W. Lund

Meeting Location: Virtual Meeting

Meeting Date: April 14, 2022

Name	Address	E-Mail	Please identify yourself (check all that apply)			
			Resident	Property owner	Business owner	Other
<i>Dirk Otis</i>	19363 Willamette Dr. #133 West Linn, OR 97068-2079	<i>dirk@stratusdevelopers.com</i>				<i>x</i>
<i>Tara W. Lund</i>	15895 SW 72nd Ave #200 Portland, OR 97224	<i>taral@cidainc.com</i>				<i>x</i>



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Meeting Minutes

Date: April 16, 2022
Subject: Neighborhood Meeting – Meeting Minutes
Project Title: JB Mac – Oregon Street
Project No: 210129.01
Present: Tara Lund
Dirk Otis

By: Tara W. Lund

The virtual meeting was opened at 5:50 p.m. on Thursday, April 16th, 2022. Dirk Otis and Tara Lund were present on the Microsoft Teams platform for the meeting until 7:00 p.m. No other persons joined the meeting. No questions or communications of interest were received prior to or subsequent to the meeting.

Approximately 220 notices were mailed. A copy of the notice is attached.

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Every effort has been made to accurately record this meeting. If any errors or omissions are noted, recipients are asked to please provide written response within five days of receipt.



Date: March 30, 2022
 Tara W. Lund
 15895 SW 72nd Ave
 Portland, OR 97224

Re: VIRTUAL NEIGHBORHOOD REVIEW MEETING
Proposed Development: **JB Mac 20,000 SF Warehouse**

Dear Property Owner/Resident:

15895 SW 72ND AVE
 SUITE 200
 PORTLAND, OR 97224
 PHONE: 503.226.1285
 FAX: 503.226.1670
 INFO@CIDAINC.COM
 WWW.CIDAINC.COM

CIDA Inc. and Stratus Real Estate Developers are representing JB Mac for development of a new building on a currently vacant lot on SE Oregon Street at SW Lower Roy Street. Interested community members are invited and encouraged to attend this meeting.

The purpose of this VIRTUAL meeting is to provide a forum for the applicant and surrounding property owners and residents to review the proposal and to identify issues so that they may be considered before a land development application is submitted to the City. This meeting also gives you the opportunity to share with us any specific information you might have about the property involved. During the meeting, we will strive to answer questions relevant to meeting development standards consistent with the City of Sherwood's Community Development Code and the respective Community Plan.

The development property is Tax Lot 500 on tax map 2S129D; address of the property is 14843 SW Oregon Street, and it is zoned Light Industrial. We are proposing to develop the 4.00 acre lot for the purposes of a new 20,000 square foot warehouse building with exterior storage yard, covered storage area and associated offices for AFP Systems, who design, install and maintain residential and commercial fire sprinkler systems. Improvements will also include frontage improvements to Oregon Street along the adjacent lots 600 and 700, as well as an access drive along an existing easement on Tax Lot 600. Full development of Tax Lots 600 and 700 are not included in our proposal.

Date & Time: **Thursday, April 14th, 2022 at 6:00 pm**

Microsoft Teams Conference ID: 337 418 510#

Toll Free Number: [+1 207-352-4038](tel:+12073524038), [337418510#](tel:+12073524038)
 United States, Portland

Please email taral@cidainc.com to request an emailed link to the meeting and/or the Neighborhood meeting materials for easier access. URL's are noted below.

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Please note this meeting will be an informational meeting on preliminary development plans. These plans may be altered prior to submittal of the application to the City.

Virtual Meeting Web Location: https://teams.microsoft.com//meetup-join/19%3ameeting_OGVkOGQzZTctNjkzZi00YjY3LTkwNGQtNGY3NTg3ZmU2ZGJj%40thread.v2/0?context=%7b%22Tid%22%3a%2297748716-de5f-46a3-a99b-e87079552b5d%22%2c%22Oid%22%3a%2215c030d6-1441-49d3-a63f-4d7228c4f6cd%22%7d

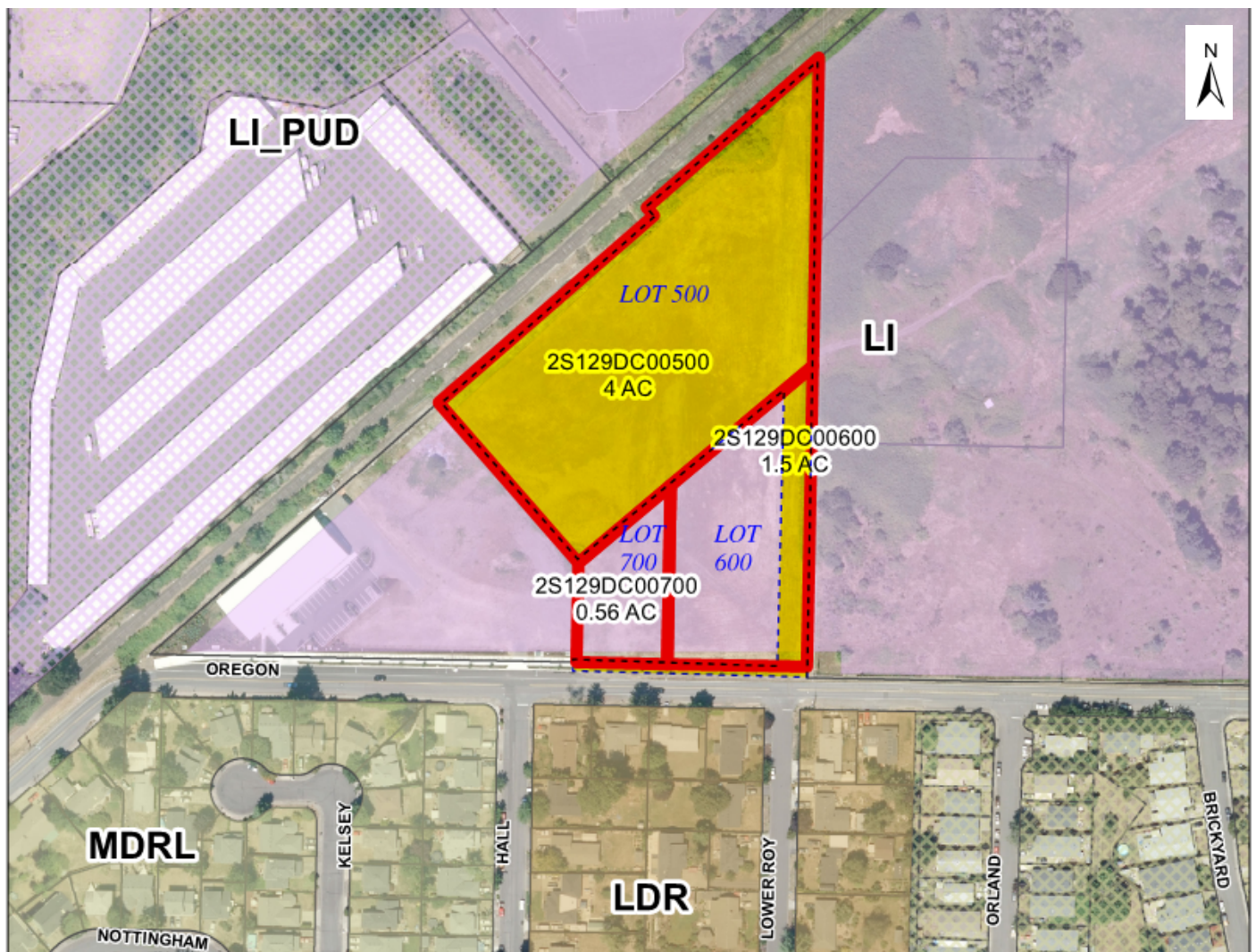
URL for Meeting Materials: https://cidainc-my.sharepoint.com/:f/p/taral/Englww-aSV1DqRawTNT_u4ABA8yc6A7WqbokZwlAt85Qtw?e=AeejuT

We look forward to more specifically discussing the proposal with you. Contact us at 503.226.1285 or taral@cidainc.com if you have questions.

Sincerely,

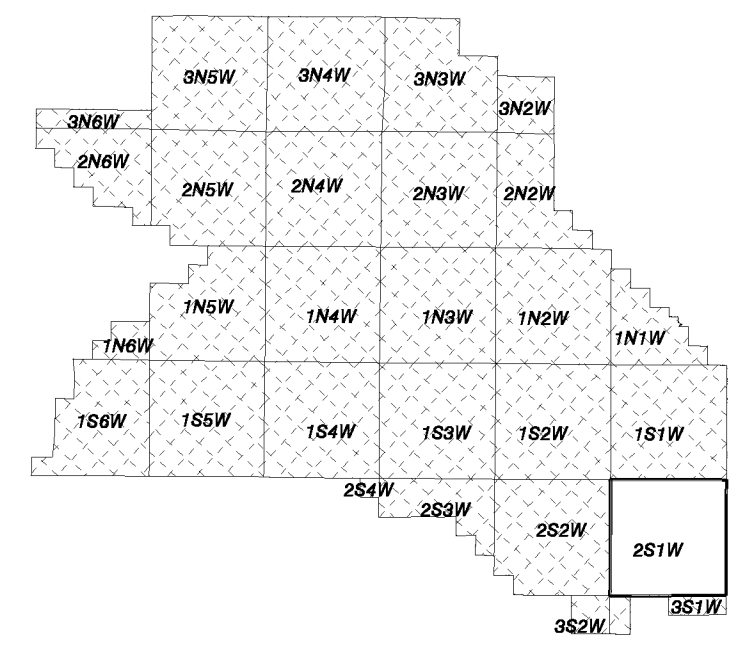


Tara W. Lund, LEED AP BD+C
Principal Architect
CIDA, Inc.



VICINITY MAP

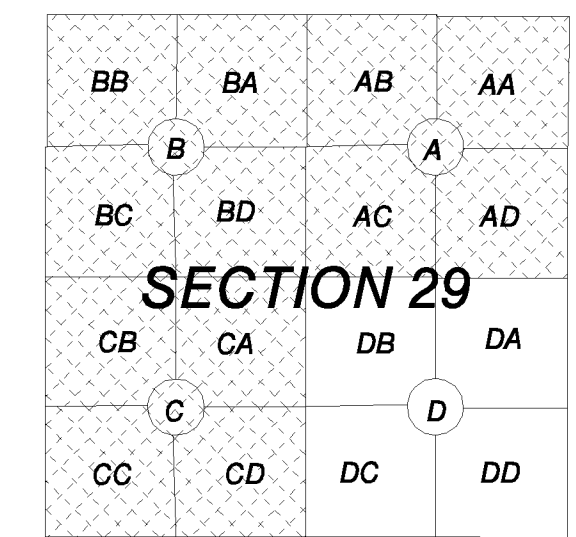
Exhibit A4



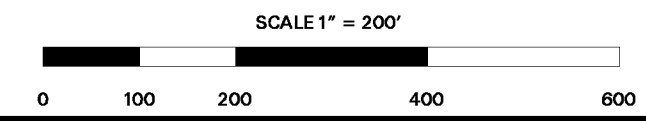
WASHINGTON COUNTY OREGON
 SE 1/4 SECTION 29 T2S R1W W.M.
 SCALE 1" = 200'

36	31	32	33	34	35	36	31
1	6	5	4	3	2	1	6
12	7	8	9	10	11	12	7
13	18	17	16	15	14	13	18
24	19	20	21	22	23	24	19
25	30	29	28	27	26	25	30
36	31	32	33	34	35	36	31
1	6	5	4	3	2	1	6

FOR ADDITIONAL MAPS VISIT OUR WEBSITE AT
www.co.washington.or.us

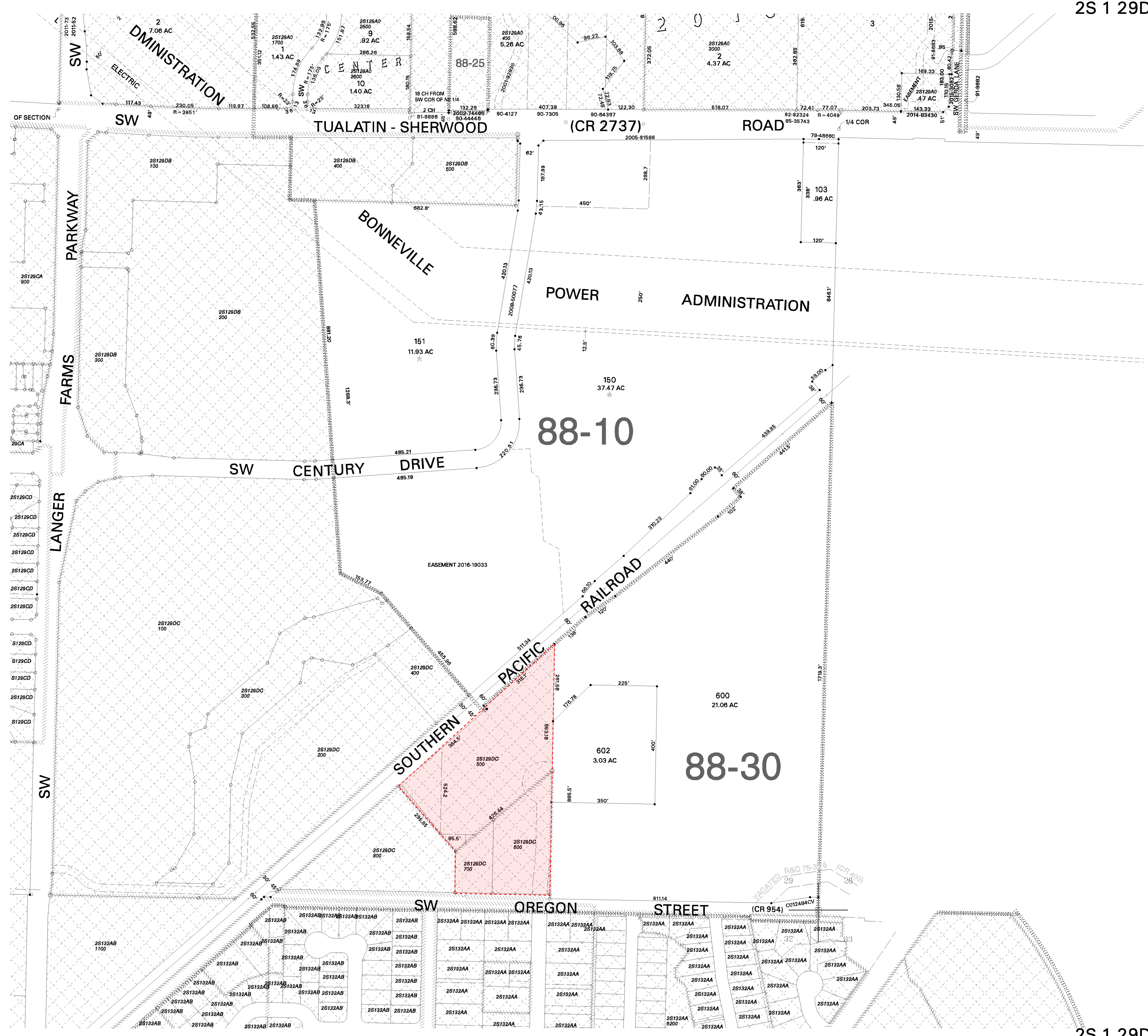


Cancelled Taxlots For: 2S129D
 401,402,500-A1,104,200,400,403,501,101,102,500,
 700,800,900,1000,1100,100,601,



PLOT DATE: August 02, 2016
FOR ASSESSMENT PURPOSES ONLY - DO NOT RELY ON FOR OTHER USE

Map areas delineated by either gray shading or a cross-hatched pattern are for reference only and may not indicate the most current property boundaries. Please consult the appropriate map for the most current information.



ACTAUL MAILING LABELS WILL BE PROVIDED AFTER COMPLETENESS CHECK

David Bevins
Juli Bevins
22207 SW Orland St
Sherwood OR 97140

Brian Hilderbrand
22166 SW Orland St
Sherwood OR 97140

Diane Eaton
Leslie Eaton
22173 SW Orland St
Sherwood OR 97140

Wilson Risa Lvg Trust
6091 SE Genrosa St
Hillsboro OR 97123

Daniel Dickerson
Rosa Garcia
22146 SW Orland St #29
Sherwood OR 97140

Laura Mubeen
22189 SW Orland St
Sherwood OR 97140

Lila Francis-Pappas
22190 SW Orland St
Sherwood OR 97140

Blume Joint Trust
2676 NE Jones Rd
Bend OR 97701

Lilly Nunn
22178 SW Orland St
Sherwood OR 97140

Jerry Helms
22263 SW Orland St
Sherwood OR 97140

Ronald Jackson
Laurie Jackson
22251 SW Orland St
Sherwood OR 97140

Holly Sanborn
22275 SW Orland St
Sherwood OR 97140

Jimenez Apodaca
12061 SW Tualatin Rd #521
Tualatin OR 97062

Graciela Sosa
22181 SW Orland St
Sherwood OR 97140

Linda Pierce
22283 SW Orland St
Sherwood OR 97140

Wesley Anderson
22262 SW Orland St
Sherwood OR 97140

Joyce Delanoy
22165 SW Orland St
Sherwood OR 97140

Haylee Hilderbrand
22158 SW Orland St
Sherwood OR 97140

Anthony Eamon
Ketkeo Eamon
22141 SW Orland St
Sherwood OR 97140

Deborah Liew
22220 SW Orland St
Sherwood OR 97140

Brandon Hilderbrand
22153 SW Orland St
Sherwood OR 97140

Mary Consani
22106 SW Orland St
Sherwood OR 97140

Brian Hilderbrand
22166 SW Orland St
Sherwood OR 97140

Washington County Facilities
Mgmt
169 N 1St Ave #42
Hillsboro OR 97124

Ronald Engel
22111 SW Orland St
Sherwood OR 97140

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Exhibit A5

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Errol Shervey
22219 SW Orland St
Sherwood OR 97140

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Joc LLC
PO Box 105
Lake Oswego OR 97034

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Aaron Tusko
Crystal Taves
22232 SW Orland St
Sherwood OR 97140

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Lea Murphy
Jay Murphy
22198 SW Orland St
Sherwood OR 97140

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Barbara Bowes
22134 SW Orland St
Sherwood OR 97140

Sherwood, City Of
22560 SW Pine St
Sherwood OR 97140

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Morris Work
Cheryl Work
14959 SW Brickyard Dr
Sherwood OR 97140

Pedro Urzua
Teresa Urzua
22315 SW Nottingham Ct
Sherwood OR 97140

Todd Tebo
Maki Bishop
15310 SW Oregon St
Sherwood OR 97140

Brenna Ray
15294 SW Oregon St
Sherwood OR 97140

Stephen Turner
Jennifer Turner
1272 S Pine St
Canby OR 97013

Kimberly Kaholo
22301 SW Nottingham Ct
Sherwood OR 97140

Exhibit A5

Carrie Nelson
22293 SW Nottingham Ct
Sherwood OR 97140

Fulfs Eli & Olivia
22306 SW Nottingham Ct
Sherwood OR 97140

Blue Water Holdings LLC
20 Cervantes Cir
Lake Oswego OR 97035

Lebrun Timothy & Susan Family
13275 SW Greenfield Dr
Tigard OR 97223

Brian Almquist
Kori Almquist
15207 SW Wert Ct
Sherwood OR 97140

Alfred Musgrove III
Shirlee Musgrove
15183 SW Wert Ct
Sherwood OR 97140

Gaylene Beck
15151 SW Wert Ct
Sherwood OR 97140

Brian Crow
Jessica Crow
15135 SW Wert Ct
Sherwood OR 97140

Jacob Cooper
15123 SW Wert Ct
Sherwood OR 97140

Joan Smith
Patrick Smith
15105 SW Wert Ct
Sherwood OR 97140

Bradford Bertram
Rebecca Bertram
22269 SW Hall St
Sherwood OR 97140

Michael Schafer
22291 SW Hall St
Sherwood OR 97140

Justin Callistini
Katelyn Callistini
15100 SW Wert Ct
Sherwood OR 97140

Marcy Ratcliff
John Ratcliff
15118 SW Wert Ct
Sherwood OR 97140

Sood Eoff
Eddie L Eoff
PO Box 1515
Tualatin OR 97062

Travis Roberts
Crystal Roberts
15156 SW Wert Ct
Sherwood OR 97140

George Stavrakis
Dnise Stavrakis
22281 SW Nottingham Ct
Sherwood OR 97140

Jill Roberts
Mark Roberts
22273 SW Nottingham Ct
Sherwood OR 97140

Joseph Hovanic
Jennifer Hovanic
22269 SW Nottingham Ct
Sherwood OR 97140

Michael A Musselman
Colette J Musselman
22183 SW Kelsey Ct
Sherwood OR 97140

Clyde Keebaugh
17332 SW Minnie Ct
Beaverton OR 97007

Carla Bietz
Jason Bietz
22159 SW Kelsey Ct
Sherwood OR 97140

Suphawadee Ross
22137 SW Kelsey Ct
Sherwood OR 97140

Dana Hiserote
22113 SW Kelsey Ct
Sherwood OR 97140

Tone Joint Trust
22105 SW Kelsey Ct
Sherwood OR 97140

Julia Ediger
Eric Ediger
22102 SW Kelsey Ct
Sherwood OR 97140

Travis Harper
Jill Harper
22112 SW Kelsey Ct
Sherwood OR 97140

Brian Wilkins
Shannon Wilkins
22120 SW Kelsey Ct
Sherwood OR 97140

Joel Griffin
Nancy Griffin
22126 SW Kelsey Ct
Sherwood OR 97140

Chris Huff
Simone Huff
22134 SW Kelsey Ct
Sherwood OR 97140

Exhibit A5

Kim Nickel
Lynne Taffert
22140 SW Kelsey Ct
Sherwood OR 97140

Christopher Peet
22148 SW Kelsey Ct
Sherwood OR 97140

Stephen Orsolini
Katie Orsolini
22156 SW Kelsey Ct
Sherwood OR 97140

Carissa Clark
Nicole Harmon
22162 SW Kelsey Ct
Sherwood OR 97140

James Myers
Lindsay Myers
22170 SW Kelsey Ct
Sherwood OR 97140

Kylie Euscher
22188 SW Kelsey Ct
Sherwood OR 97140

Eduardo Aragon
Reyes Valenzuela
22193 SW Hall St
Sherwood OR 97140

Jose Campuzano
22179 SW Hall St
Sherwood OR 97140

Patricia Cole
22165 SW Hall St
Sherwood OR 97140

David M Scheirman
Deborah A Lewis
22151 SW Hall St
Sherwood OR 97140

Tom Berger Sr
Carmen Berger
22137 SW Hall St
Sherwood OR 97140

Terrell Bennett
Analia Bennett
22123 SW Hall St
Sherwood OR 97140

Christie Burks
22109 SW Hall St
Sherwood OR 97140

Derek Mires
Apryl Mires
22206 SW Nottingham Ct
Sherwood OR 97140

Presley Segoviano
Mark Segoviano
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Sherwood OR 97140

Destiny M Cowan
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Anne Cerling
22268 SW Nottingham Ct
Sherwood OR 97140

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Jo Atkins
22284 SW Nottingham Ct
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Cindy Nevill
14642 SW Brickyard Dr
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Orfilio Naranjo
John Naranjo
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Audrey O'leary
Dawn O'leary
14658 SW Brickyard Dr
Sherwood OR 97140

Kenneth Higgason
Patricia Higgason
14673 SW Brickyard Dr
Sherwood OR 97140

Exhibit A5

Holly Jackson
William Lewis
32055 NE Corral Creek Rd
Newberg OR 97132

Hyunsuk Seo
Bridget Loftis
14645 SW Brickyard Dr
Sherwood OR 97140

James Mcburnett
14637 SW Brickyard Dr
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Marisol Vega
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Carol Riggs
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Blake Elison
Joan Elison
14615 SW Brickyard Dr
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Dennis Titko
Kristen Titko
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Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Atley Estates Hoa
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Sara Betz
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Dion Breshears
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Leonard Enterprises LLC
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Sherwood OR 97140

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Jbmac Ventures LLC
19435 SW 129Th Ave
Tualatin OR 97062

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19435 SW 129Th Ave
Tualatin OR 97062

Killion Real Estate Partnership
11825 SW Katherine St
Tigard OR 97223

Washington County Facilities
Mgmt
169 N 1St Ave #42
Hillsboro OR 97124

Washington County Facilities
Mgmt
169 N 1St Ave #42
Hillsboro OR 97124

George Haliski
Loretta Haliski
22159 SW Lower Roy St
Sherwood OR 97140

Nicholas White
Anita White
31850 NE Schaad Rd
Newberg OR 97132

Calli Luikart
22145 SW Lower Roy St
Sherwood OR 97140

Allied Systems Company
21433 SW Oregon St
Sherwood OR 97140

Wal-Mart Real Estate Business
Trust
PO Box 8050 Ms 0555
Bentonville AR 72716

Langer Storage LLC
15585 SW Tualatin Sherwood Rd
Sherwood OR 97140

Exhibit A5

Sherwood, City Of
22560 SW Pine St
Sherwood OR 97140

Sherwood, City Of
22560 SW Pine St
Sherwood OR 97140

Orwa Sherwood LLC
8320 NE Highway 99
Vancouver WA 98665

Langer Storage 2 LLC
15585 SW Tualatin Sherwood Rd
Sherwood OR 97140

Langer Parkway South LLC
15585 SW Tualatin Sherwood Rd
Sherwood OR 97140

Langer Parkway South LLC
15585 SW Tualatin Sherwood Rd
Sherwood OR 97140

Langer Entertainment LLC
15585 SW Tualatin Sherwood Rd
Sherwood OR 97140

Orwa Sherwood LLC
8320 NE Highway 99
Vancouver WA 98665

Washington County Facilities
Mgmt
169 N 1St Ave #42
Hillsboro OR 97124

Bradley Thomas
Dorothy Thomas
14861 SW Brickyard Dr
Sherwood OR 97140

Worthen Family Trust
22150 SW Lower Roy St
Sherwood OR 97140

Ellen Franklin
22138 SW Lower Roy St
Sherwood OR 97140

Shirley Morehouse
22174 SW Lower Roy St
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Beverly Olson
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Sherwood OR 97140

Kathleen Moore
22266 SW Lower Roy St
Sherwood OR 97140

Jay Sorenson
22214 SW Lower Roy St
Sherwood OR 97140

West Trust & West Credit Shelter
Trust
PO Box 3159
Oregon City OR 97045

Jenny Braden
Nathan Dahl
22296 SW Lower Roy St
Sherwood OR 97140

Joyce Hepburn
Roger Hepburn
22110 SW Lower Roy St
Sherwood OR 97140

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Katharine Sitton
14860 SW Oregon St
Sherwood OR 97140

Ryan Walker
22105 SW Lower Roy St
Sherwood OR 97140

Kerry Neill
22112 SW Hall St
Sherwood OR 97140

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Traci Rossi
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Portland OR 97212

James Catron
14960 SW Oregon St
Sherwood OR 97140

Robert White Jr
14938 SW Oregon St
Sherwood OR 97140

Robert Michaud-Tradd
Kathleen Michaud-Tradd
PO Box 623
Sherwood OR 97140

Jose Alegria
22148 SW Hall St
Sherwood OR 97140

Cook Barbara J & Darrell D
22278 SW Hall St
Sherwood OR 97140

David Kaufman
Laura Kaufman
22246 SW Hall St
Sherwood OR 97140

Michael Peterson
22176 SW Hall St
Sherwood OR 97140

Exhibit A5

Patrick Bridge
Adrienne Bridge
22204 SW Hall St
Sherwood OR 97140

Swenson, Dale & Laura Living
Trust
22183 SW Lower Roy St
Sherwood OR 97140

Perry Deanna
22215 SW Lower Roy St
Sherwood OR 97140

James Bareinger
Bobbi Bareinger
22263 SW Lower Roy St
Sherwood OR 97140

Katharine Nelson
Anthony Ogle Jr
22239 SW Lower Roy St
Sherwood OR 97140

Mario Vivanco
Nicole Vivanco
22117 SW Lower Roy St
Sherwood OR 97140

Sierra I Rosenberg
Jonathan W S Thayer
22340 SW Hall St
Sherwood OR 97140

Sean Roark
Shelley Roark
22235 SW Hall St
Sherwood OR 97140

Fre 596 LLC
707 Old County Rd
Belmont CA 94002

Jared Tarter
Michelle Tarter
22335 SW Hall St
Sherwood OR 97140

Angela Vaughn
Leo Vaughn
15039 SW Merryman St
Sherwood OR 97140

Allied Systems Company
21433 SW Oregon St
Sherwood OR 97140

Ronald Engel
22111 SW Orland St
Sherwood OR 97140

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

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Seattle WA 98178

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10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Errol Shervey
22219 SW Orland St
Sherwood OR 97140

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Douglas Brown
Dorice Brown
22298 SW Orland St
Sherwood OR 97140

Joc LLC
PO Box 105
Lake Oswego OR 97034

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Aaron Tusko
Crystal Taves
22232 SW Orland St
Sherwood OR 97140

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Lea Murphy
Jay Murphy
22198 SW Orland St
Sherwood OR 97140

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Barbara Bowes
22134 SW Orland St
Sherwood OR 97140

Exhibit A5

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Morris Work
Cheryl Work
14959 SW Brickyard Dr
Sherwood OR 97140

Pedro Urzua
Teresa Urzua
22315 SW Nottingham Ct
Sherwood OR 97140

Brenna Ray
15294 SW Oregon St
Sherwood OR 97140

Stephen Turner
Jennifer Turner
1272 S Pine St
Canby OR 97013

Kimberly Kaholo
22301 SW Nottingham Ct
Sherwood OR 97140

Carrie Nelson
22293 SW Nottingham Ct
Sherwood OR 97140

Fults Eli & Olivia
22306 SW Nottingham Ct
Sherwood OR 97140

Blue Water Holdings LLC
20 Cervantes Cir
Lake Oswego OR 97035

Lebrun Timothy & Susan Family
13275 SW Greenfield Dr
Tigard OR 97223

Brian Almquist
Kori Almquist
15207 SW Wert Ct
Sherwood OR 97140

Alfred Musgrove III
Shirlee Musgrove
15183 SW Wert Ct
Sherwood OR 97140

Gaylene Beck
15151 SW Wert Ct
Sherwood OR 97140

Brian Crow
Jessica Crow
15135 SW Wert Ct
Sherwood OR 97140

Jacob Cooper
15123 SW Wert Ct
Sherwood OR 97140

Joan Smith
Patrick Smith
15105 SW Wert Ct
Sherwood OR 97140

Bradford Bertram
Rebecca Bertram
22269 SW Hall St
Sherwood OR 97140

Michael Schafer
22291 SW Hall St
Sherwood OR 97140

Justin Callistini
Katelyn Callistini
15100 SW Wert Ct
Sherwood OR 97140

Marcy Ratcliff
John Ratcliff
15118 SW Wert Ct
Sherwood OR 97140

Sood Eoff
Eddie L Eoff
PO Box 1515
Tualatin OR 97062

Travis Roberts
Crystal Roberts
15156 SW Wert Ct
Sherwood OR 97140

Jiankun Li
Jia Wang
15178 SW Wert Ct
Sherwood OR 97140

George Stavrakis
Dnise Stavrakis
22281 SW Nottingham Ct
Sherwood OR 97140

Jill Roberts
Mark Roberts
22273 SW Nottingham Ct
Sherwood OR 97140

Joseph Hovanic
Jennifer Hovanic
22269 SW Nottingham Ct
Sherwood OR 97140

Michael A Musselman
Colette J Musselman
22183 SW Kelsey Ct
Sherwood OR 97140

Clyde Keebaugh
17332 SW Minnie Ct
Beaverton OR 97007

Carla Bietz
Jason Bietz
22159 SW Kelsey Ct
Sherwood OR 97140

Suphawadee Ross
22137 SW Kelsey Ct
Sherwood OR 97140

Dana Hiserote
22113 SW Kelsey Ct
Sherwood OR 97140

Tone Joint Trust
22105 SW Kelsey Ct
Sherwood OR 97140

Julia Ediger
Eric Ediger
22102 SW Kelsey Ct
Sherwood OR 97140

Travis Harper
Jill Harper
22112 SW Kelsey Ct
Sherwood OR 97140

Brian Wilkins
Shannon Wilkins
22120 SW Kelsey Ct
Sherwood OR 97140

Joel Griffin
Nancy Griffin
22126 SW Kelsey Ct
Sherwood OR 97140

Chris Huff
Simone Huff
22134 SW Kelsey Ct
Sherwood OR 97140

Kim Nickel
Lynne Taffert
22140 SW Kelsey Ct
Sherwood OR 97140

Christopher Peet
22148 SW Kelsey Ct
Sherwood OR 97140

Stephen Orsolini
Katie Orsolini
22156 SW Kelsey Ct
Sherwood OR 97140

Carissa Clark
Nicole Harmon
22162 SW Kelsey Ct
Sherwood OR 97140

James Myers
Lindsay Myers
22170 SW Kelsey Ct
Sherwood OR 97140

Kylie Euscher
22188 SW Kelsey Ct
Sherwood OR 97140

Eduardo Aragon
Reyes Valenzuela
22193 SW Hall St
Sherwood OR 97140

Jose Campuzano
22179 SW Hall St
Sherwood OR 97140

Patricia Cole
22165 SW Hall St
Sherwood OR 97140

David M Scheirman
Deborah A Lewis
22151 SW Hall St
Sherwood OR 97140

Tom Berger Sr
Carmen Berger
22137 SW Hall St
Sherwood OR 97140

Terrell Bennett
Analia Bennett
22123 SW Hall St
Sherwood OR 97140

Christie Burks
22109 SW Hall St
Sherwood OR 97140

Derek Mires
Apryl Mires
22206 SW Nottingham Ct
Sherwood OR 97140

Presley Segoviano
Mark Segoviano
22214 SW Nottingham Ct
Sherwood OR 97140

Destiny M Cowan
22220 SW Nottingham Ct
Sherwood OR 97140

Jon Rievley
Emily Rievley
22228 SW Nottingham Ct
Sherwood OR 97140

Lorin Johnson
22236 SW Nottingham Ct
Sherwood OR 97140

Paul Mickel
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22244 SW Nottingham Ct
Sherwood OR 97140

Mary Green-Zwemke
Christopher Zwemke
22252 SW Nottingham Ct
Sherwood OR 97140

Roger Vidal-Roque
Evelyn Castellanos
22260 SW Nottingham Ct
Sherwood OR 97140

Anne Cerling
22268 SW Nottingham Ct
Sherwood OR 97140

Aaron Atkins
Jo Atkins
22284 SW Nottingham Ct
Sherwood OR 97140

Keith Beaumont
14602 SW Brickyard Dr
Sherwood OR 97140

Gabriel M Tanoue
14616 SW Brickyard Dr
Sherwood OR 97140

Bonnie Miller
14630 SW Brickyard Dr
Sherwood OR 97140

Cindy Nevill
14642 SW Brickyard Dr
Sherwood OR 97140

Orfilio Naranjo
John Naranjo
14650 SW Brickyard Dr
Sherwood OR 97140

Audrey O'leary
Dawn O'leary
14658 SW Brickyard Dr
Sherwood OR 97140

Meghan Jackson
Meghan Jackson
14672 SW Brickyard Dr
Sherwood OR 97140

David Krempley
14680 SW Brickyard Dr
Sherwood OR 97140

Abdallah Salame
14694 SW Brickyard Dr
Sherwood OR 97140

Zeb N Menle
14706 SW Brickyard Dr
Sherwood OR 97140

Alejandra Nicolas
14718 SW Brickyard Dr
Sherwood OR 97140

Olga Hopkins
14730 SW Brickyard Dr
Sherwood OR 97140

Paul Spath
Stephanie Spath
14738 SW Brickyard Dr
Sherwood OR 97140

Nathan Buehler
14746 SW Brickyard Dr
Sherwood OR 97140

Ronald Kolakowski
Theresa Kolakowski
14754 SW Brickyard Dr
Sherwood OR 97140

Brownhill, Timothy & Doris Ann Living
Trust
14762 SW Brickyard Dr
Sherwood OR 97140

Daniel Dragomir
Roxena Groshong
14770 SW Brickyard Dr
Sherwood OR 97140

Knight, Joni Realty Group 401K Plan
PO Box 1538
Sherwood OR 97140

Stephen Steller
14786 SW Brickyard Dr
Sherwood OR 97140

Joseph Ellington
Cassandra Ellington
14796 SW Brickyard Dr
Sherwood OR 97140

Vassar-Moore M M Lvg Trust
14814 SW Brickyard Dr
Sherwood OR 97140

Daniel Santana
Gabriel S Torres
14826 SW Brickyard Dr
Sherwood OR 97140

Casa De Cathy LLC
220 NW 8Th Ave
Portland OR 97209

Cynthia Cordray
14751 SW Brickyard Dr
Sherwood OR 97140

Jamie Morris
Patricia Morris
14743 SW Brickyard Dr
Sherwood OR 97140

Debra Clemmens
14723 SW Brickyard Dr
Sherwood OR 97140

Daniel Goodyear
14685 SW Brickyard Dr
Sherwood OR 97140

Kenneth Higgason
Patricia Higgason
14673 SW Brickyard Dr
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Holly Jackson
William Lewis
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Hyunsuk Seo
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Sherwood OR 97140

Exhibit A5

Katherine Mcburnett
James B Mcburnett
14637 SW Brickyard Dr
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David V Garcia
Marisol Vega
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Joan Elison
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Dennis Titko
Kristen Titko
14603 SW Brickyard Dr
Sherwood OR 97140

Orland Villa LLC
10410 Rainier Ave S
Seattle WA 98178

Atley Estates Hoa
14673 SW Brickyard Dr
Sherwood OR 97140

Sandra Miles
Richard Miles
22115 SW Chesapeake Pl
Sherwood OR 97140

Katharina E Lingemann
22105 SW Chesapeake Pl
Sherwood OR 97140

Rebecca Osmond
Jason Berg
22095 SW Chesapeake Pl
Sherwood OR 97140

Sara Betz
Anthony Betz
22085 SW Chesapeake Pl
Sherwood OR 97140

Ryan T Mcclung
Cara D Mcclung
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Tualatin OR 97062

Robert Taylor
Amanda Taylor
14596 SW Oregon St
Sherwood OR 97140

Empyrean Real Estate LLC
13751 SW Rock Creek Rd
Sheridan OR 97378

James Buckner
Colleen Buckner
59 Margate St
Daly City CA 94015

22060 SW Chesapeake Place LLC
PO Box 1626
Sherwood OR 97140

Calla Lilly
22070 SW Chesapeake Pl
Sherwood OR 97140

David Zaganiacz
Stephanie Zaganiacz
3952 Carman Dr
Lake Oswego OR 97035

Preston Griffin
Rochelle Griffin
22090 SW Chesapeake Pl
Sherwood OR 97140

David Hiser
22100 SW Chesapeake Pl
Sherwood OR 97140

Dion Breshears
Larry Cutshall
15258 SW Oregon St
Sherwood OR 97140

Michael Rooke
Linda Rooke
15240 SW Oregon St
Sherwood OR 97140

Kristi Huntley
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Sherwood OR 97140

Leonard Enterprises LLC
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Sherwood OR 97140

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Loretta Haliski
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Sherwood OR 97140

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Anita White
31850 NE Schaad Rd
Newberg OR 97132

Calli Luikart
22145 SW Lower Roy St
Sherwood OR 97140

Exhibit A5

Langer Storage LLC
15585 SW Tualatin Sherwood Rd
Sherwood OR 97140

Langer Storage 2 LLC
15585 SW Tualatin Sherwood Rd
Sherwood OR 97140

Langer Parkway South LLC
15585 SW Tualatin Sherwood Rd
Sherwood OR 97140

Langer Parkway South LLC
15585 SW Tualatin Sherwood Rd
Sherwood OR 97140

Langer Entertainment LLC
15585 SW Tualatin Sherwood Rd
Sherwood OR 97140

Orwa Sherwood LLC
8320 NE Highway 99
Vancouver WA 98665

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Dorothy Thomas
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Worthen Family Trust
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Sherwood OR 97140

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Sherwood OR 97140

Shirley Morehouse
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Sherwood OR 97140

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Kathleen Moore
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Sherwood OR 97140

Jay Sorenson
22214 SW Lower Roy St
Sherwood OR 97140

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Oregon City OR 97045

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Roger Hepburn
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Ryan Walker
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22176 SW Hall St
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Exhibit A5

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Sherwood OR 97140

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22239 SW Lower Roy St
Sherwood OR 97140

Mario Vivanco
Nicole Vivanco
22117 SW Lower Roy St
Sherwood OR 97140

Sierra I Rosenberg
Jonathan W S Thayer
22340 SW Hall St
Sherwood OR 97140

Cynthia Souza
22384 SW Hall St
Sherwood OR 97140

Michael D & Lawrence D Kay LLC
22210 SW Murdock Rd
Sherwood OR 97140

Austin Westover
Adriana Westover
22432 SW Lower Roy St
Sherwood OR 97140

Fiona Dohman
22420 SW Lower Roy St
Sherwood OR 97140

Bennie Lucero
Dana Lucero
14874 SW Brickyard Dr
Sherwood OR 97140

Clint Sofich
Jaime Sofich
14886 SW Brickyard Dr
Sherwood OR 97140

Thomas Astleford
Rachael Astleford
14928 SW Brickyard Dr
Sherwood OR 97140

Heather A Lavell
PO Box 1324
Sherwood OR 97140

Stephanie Reimer
22411 SW Lower Roy St
Sherwood OR 97140

Sean Roark
Shelley Roark
22235 SW Hall St
Sherwood OR 97140

Fre 596 LLC
707 Old County Rd
Belmont CA 94002

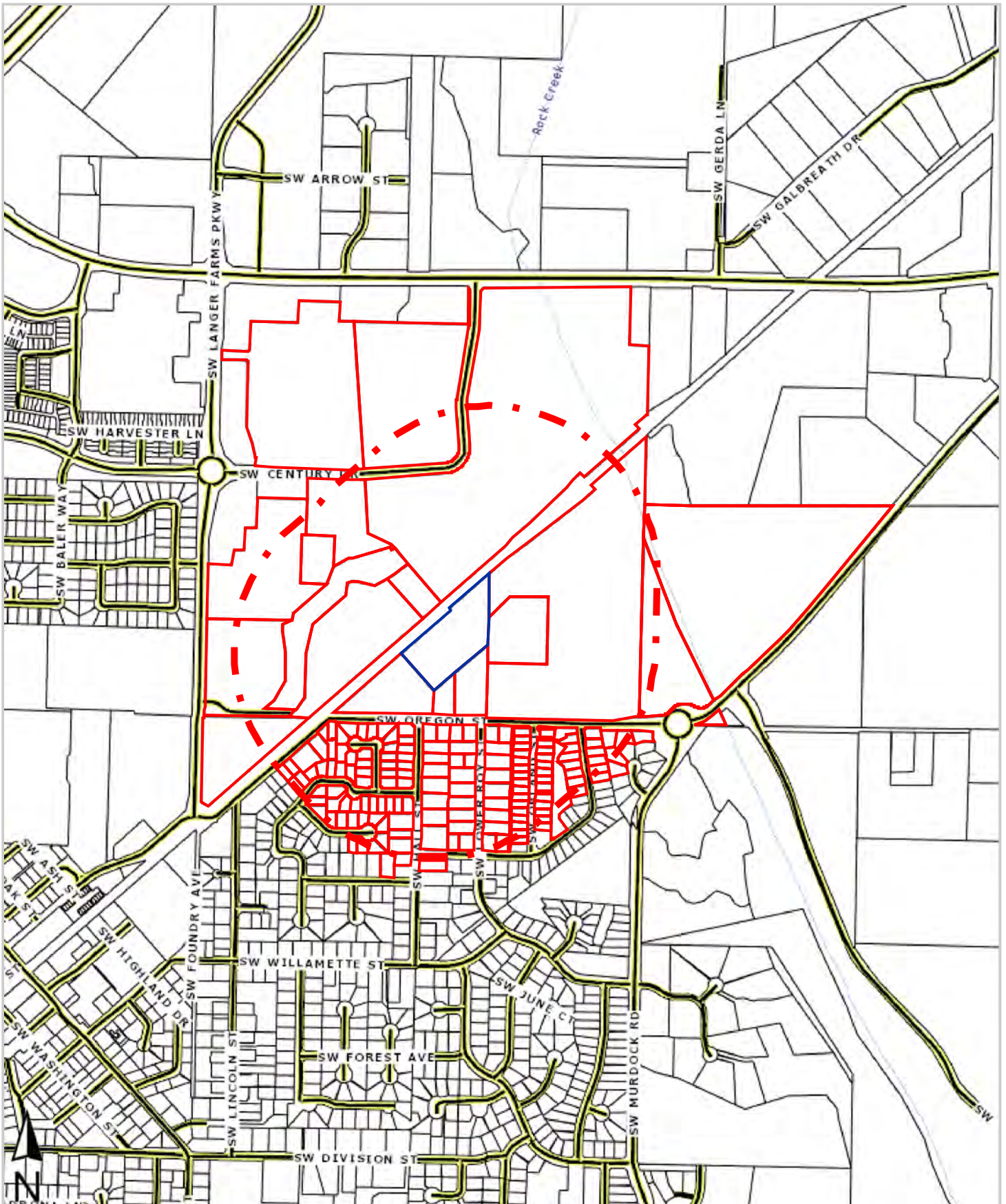
Gene Rivas
Christine Rivas
20390 SW 70Th Ave
Tualatin OR 97062

Jared Tarter
Michelle Tarter
22335 SW Hall St
Sherwood OR 97140

Angela Vaughn
Leo Vaughn
15039 SW Merryman St
Sherwood OR 97140

Kalen A Garrison
Donna J Garrison
15061 SW Merryman St
Sherwood OR 97140

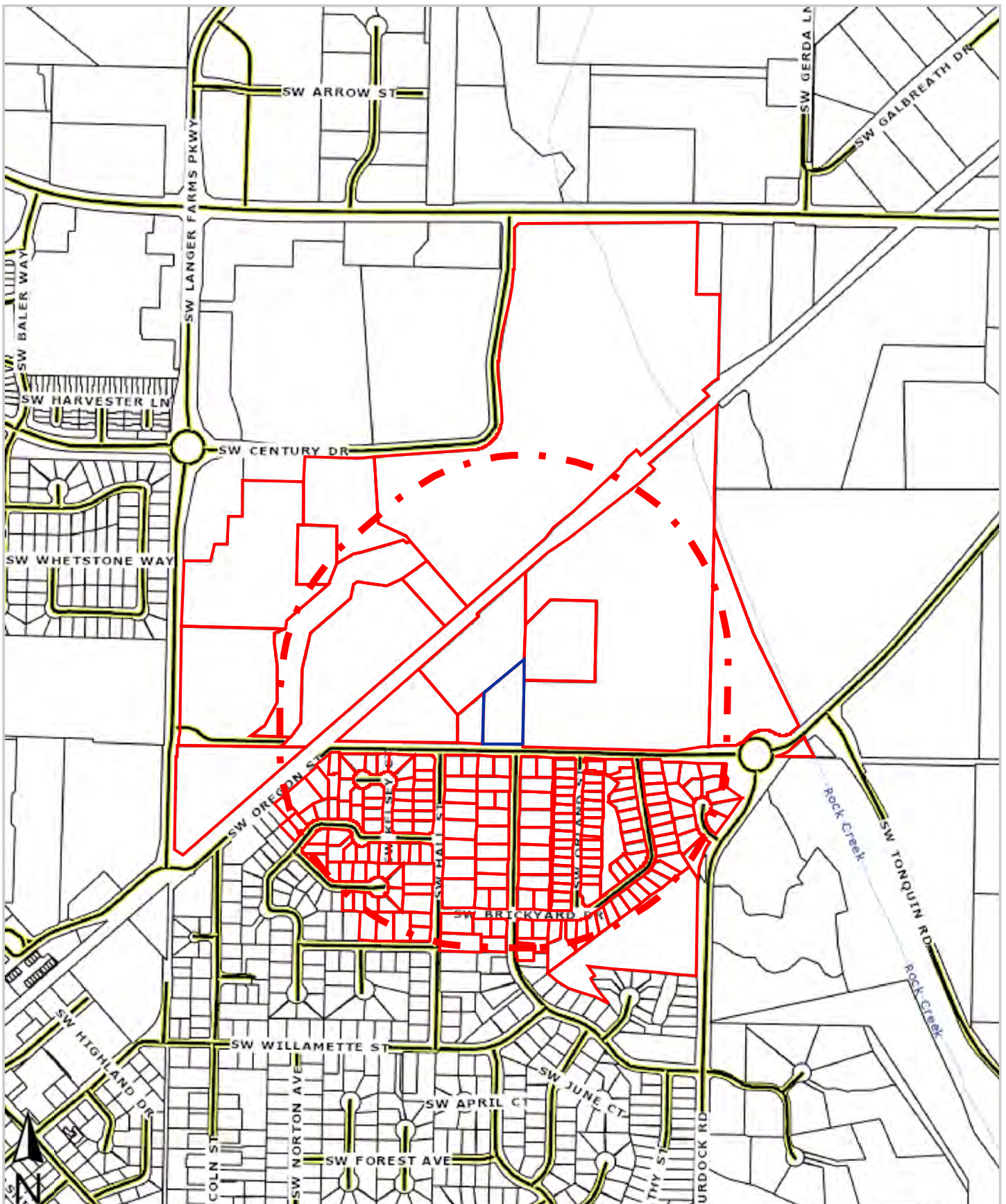
Sean Newbury
15083 SW Merryman St
Sherwood OR 97140



14843 SW Oregon Street - 1000 Ft Radius Map



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



Radius Map

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



LI_PUD

LI

LOT 500

2S129DC00500
4 AC

2S129DC00600
1.5 AC

LOT 700
2S129DC00700
0.56 AC

LOT 600

OREGON

MDRL

LDR

MDRL_PUD

KELSEY

HALL



LOWER ROY

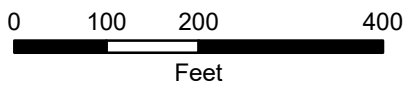
ORLAND

BRICKYARD

NOTTINGHAM

Legend

-  Subject Site
-  Taxlots



Date: 3/4/2021

Map data provided by METRO and the City of Sherwood. The City of Sherwood's infrastructure records, drawings, and other documents have been gathered over many years, using many different formats and standards. While the data provided is generally believed to be accurate, occasionally it proves to be

Washington County, Oregon **2021-075182**
D-DW
Stn=2 S AKINS 07/02/2021 12:26:27 PM
\$30.00 \$11.00 \$5.00 \$60.00 \$1,600.00 **\$1,706.00**

I, Joe Nelson, Interim Director of Assessment and Taxation and Ex-Officio County Clerk for Washington County, Oregon, do hereby certify that the within instrument of writing was received and recorded in the book of records of said county.

Joe Nelson, Interim Director of Assessment and Taxation, Ex-Officio

File No.: 21-177825

WFG Title 21-177825 COMM

Grantor	
WFG Investments, LLC, an Idaho limited liability company and the Grabowski Family Trust dated August 13, 1993	
Grantee	
JBMAC Ventures, LLC, an Oregon limited liability company 19435 SW 129th Avenue Tualatin, OR 97062	
After recording return to	
JBMAC Ventures, LLC, an Oregon limited liability company 19435 SW 129th Avenue Tualatin, OR 97062	
Until requested, all tax statements shall be sent to	
JBMAC Ventures, LLC, an Oregon limited liability company 19435 SW 129th Avenue Tualatin, OR 97062 Tax Acct No(s): 2S129DC-00500, R548161, R2118788, R2118789	

Reserved for Recorder's Use

STATUTORY WARRANTY DEED

WFG Investments, LLC, an Idaho limited liability company and Robert C. Grabowski and Barbara G. Grabowski, as Trustees of The Grabowski Family Trust, as tenants in common, as to Parcel I Robert C. Grabowski and Barbara G. Grabowski, Trustees of the Grabowski Family Trust, dated August 13, 1993, as to Parcel II, Grantor(s) convey and warrant to JBMAC Ventures, LLC, an Oregon limited liability company, Grantee(s), the real property described in the attached Exhibit A, subject only to those liens and encumbrances set forth on the attached Exhibit B.

The true consideration for this conveyance is **\$1,600,000.00**. (Here comply with requirements of ORS 93.030)

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.

Executed this 30 day of June, 2021

WFG Investments, LLC, an Idaho limited liability company

By: [Signature]
Name: William F. Gallagher
Its: Managing Member

By: [Signature]
Name: Carol Gallagher
Its: Managing Member

the Grabowski Family Trust dated August 13, 1993

By: _____
Name: Robert C. Grabowski
Its: Trustee

By: _____
Name: Barbara G. Grabowski
Its: Trustee

STATE OF ~~OREGON~~ Idaho
COUNTY OF Ada

This instrument was acknowledged before me this 30 day of June, 2021 by William F. Gallagher and Carol Gallagher as Managing Members of William F. GallagherWFG Investments, LLC, an Idaho limited liability company, on behalf of the limited liability company.

[Signature]
Notary Public for Oregon
My Commission Expires: 1-27-2026



STATE OF OREGON
COUNTY OF _____

This instrument was acknowledged before me this _____ day of June, 2021 by Robert C. Grabowski, as Trustee, and Barbara G. Grabowski, as Trustee, of the Grabowski Family Trust dated August 13, 1993, on behalf of the Trust.

Notary Public for Oregon
My Commission Expires: _____

Executed this _____ day of June, 2021

WFG Investments, LLC, an Idaho limited liability company

By: _____
Name: William F. Gallagher
Its: Managing Member

By: _____
Name: Carol Gallagher
Its: Managing Member

the Grabowski Family Trust dated August 13, 1993

By: RCG
Name: Robert C. Grabowski
Its: Trustee

By: Barbara G. Grabowski
Name: Barbara G. Grabowski
Its: Trustee

STATE OF OREGON
COUNTY OF _____

This instrument was acknowledged before me this _____ day of June, 2021 by William F. Gallagher and Carol Gallagher as Managing Members of William F. GallagherWFG Investments, LLC, an Idaho limited liability company, on behalf of the limited liability company

Notary Public for Oregon
My Commission Expires: _____

STATE OF ~~OREGON~~ Idaho
COUNTY OF Blaine

This instrument was acknowledged before me this 30th day of June, 2021 by Robert C. Grabowski, as Trustee, and Barbara G. Grabowski, as Trustee, of the Grabowski Family Trust dated August 13, 1993, on behalf of the Trust.

Vaelene K. Bryant
Notary Public for ~~Oregon~~ Idaho
My Commission Expires: 08/10/2021

VAELENE K BRYANT
Notary Public - State of Idaho
Commission Number 54613
My Commission Expires 08-10-2021

EXHIBIT "A"
LEGAL DESCRIPTION

PARCEL I:

A parcel of land situated in the Southeast one-quarter of Section 29, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Sherwood, County of Washington and State of Oregon, being more particularly described as follows:

Commencing at the Southwest corner of the Southeast one-quarter of said Section 29; thence North 89°59'00" East, along the South line of said Southeast one-quarter of Section 29, a distance of 1726.21 feet to the Southerly extension of the West line of that parcel conveyed to Frontier Leather Company by document recorded in Book 467, page 108, Washington County Deed Records; thence North 00°01'00" West along said West line and the Southerly extension thereof, a distance of 347.41 feet to the Southwest corner of that parcel conveyed to Transpacific International, Inc. by document recorded as Fee No. 96082349, Washington County Deed Records; thence North 89°59'00" East, along the South line thereof, a distance of 350.00 feet to the Southeast corner thereof; thence North 00°01'00" West along the East line thereof a distance of 400.00 feet to the Northeast corner thereof; thence South 89°59'00" West along the North line thereof a distance of 225.00 feet to an angle point therein; thence South 44°59'00" West continuing along said North line a distance of 176.78 feet to a point on the West line of the aforementioned Frontier Leather Company parcel and the true point of beginning; thence South 00°01'00" East along said West line a distance of 168.36 feet; thence South 48°52'28" West a distance of 426.44 feet; thence North 42°10'49" West a distance of 295.85 feet to the Southeasterly right-of-way line of the Southern Pacific Railroad, said point being 45.00 feet from, when measured at right angles to, the center line of said railroad; thence North 47°49'15" East along said Southeasterly right-of-way line a distance of 396.92 feet to an angle point therein; thence North 42°10'45" West continuing along said Southeasterly right-of-way line a distance of 15.00 feet; thence North 47°49'15" East continuing along said Southeasterly right-of-way line a distance of 318.04 feet to the Northwest corner of the aforementioned Frontier Leather Company parcel; thence South 00°01'00" East along said West line a distance of 261.58 feet to the true point of beginning.

PARCEL II:

Parcel 1 and 2, PARTITION PLAT NO. 2003-030, in the City of Sherwood, County of Washington and State of Oregon.

TOGETHER WITH non-exclusive easement for ingress and egress as described in Access Easement and Joint Maintenance Agreement recorded July 15, 2010, Recording No. 2010-053595.

EXHIBIT "B"
Exceptions

1. Possible Easement as disclosed by instrument, including the terms and provisions thereof:
 - For : Electric Transmission lines, and appurtenances with rights to "danger trees"
 - Granted to : Portland General Electric Company, an Oregon Corporation
 - Recorded : June 12, 1959
 - Recording No(s) : (book) 418 (page) 678
 - Affects : the East 12.5 feet of premises as disclosed by DRG EB 4071 attached to document.

2. Terms and provisions of Permanent Easement Agreement::
 - For : Underground sewer line and permitted waste and maintenance responsibilities
 - Between : Linke Enterprises of Oregon, Inc., an Oregon corporation
 - formerly : known as Frontier Leather Company, Inc
 - And : Transpacific International, Inc., an Oregon corporation
 - Recorded : August 8, 1995
 - Recording No(s). : 95055118
 - Affects : appurtenant rights over property lying East of Parcel 1 Partition Plat No. 2003-030

3. Prospective Purchase Agreement, including the terms and provisions thereof with ground water restrictions, land use restrictions and Easement for right of entry:
 - Between : Oregon Department of Environmental Quality
 - And : Pacific III, LLC
 - Recorded : March 19, 2002
 - Recording No. : 2002-032053

As amended or modified by Easement and Equitable Servitude, including ghe terms and provisions thereof:

 - Recorded : April 3, 2008
 - Recording No. : 2008-029679

4. Effect, if any of Declaration of Private Access and Utility Easement, including the terms and provisions thereof:
 - Recorded : September 24, 2002
 - Recording No(s) : 2002-111387
 - Affects : Parcel 1 Partition Plat No. 2003-030 - also delineated on the Partition plat.

NOTE: When property becomes under one ownership, the above easement would merge.

5. Effect if any, of Declaration of Private Access and Utility Easement, including the terms and provisions thereof:
 - Recorded : September 24, 2002
 - Recording No(s) : 2002-111388
 - Affects : Parcel 2, Partition Plat No. 2003-030 - also delineated on the partition plat.

NOTE: When property becomes under one ownership, the above easement would merge.

6. **Access Easement and Maintenance Agreement, including the terms and provisions thereof:**
 For : reciprocal easement to be used for ingress, egress and utility purposes
 To : owner of Tax Lot 600 in the Southeast quarter of Section 29 T2S, R1W and the general public at large
 Recorded : July 15, 2010
 Recording No(s) : 2010-053593
 (Affects Parcel 1, Partition Plat 2003-30 see document for location for the benefit of 2S129D-00600)
7. **Access Easement and Maintenance Agreement, including the terms and provisions thereof:**
 For : reciprocal easement to be used for ingress, egress and utility purposes
 To : Owner of Tax Lot 602 in the Southeast quarter of Section 29 T2S R1W and the general public at large
 Recorded : July 15, 2010
 Recording No(s) : 2010-053594
 (Affects Parcel I, Partition Plat No. 2003-030 for the benefit of 2S129D 0602)
8. **Terms and provisions of Access Easement and Joint Maintenance Agreement::**
 For : ingress and egress
 Between : Sherwood Oaks Care Facility, LLC, an Oregon limited liability company
 And : Pacific III, LLC, an Oregon limited liability company and general public at large
 Recorded : July 15, 2010
 Recording No(s) : 2010-053595
9. 2021/2022 real property taxes a lien due but not yet payable



PROPERTY INFORMATION REPORT

Date: May 4, 2022

File No.: 22-384649

Property: 14843 SW Oregon Street, Sherwood, OR 97140

Your Reference:

REPORT FEE: \$350.00

The information contained in this report is furnished by WFG National Title Insurance Company (the "Company") as an information service based on the records and the indices maintained by the Company for the county identified below. This report does not constitute title insurance and is not to be construed or used as a commitment for title insurance. The Company assumes and shall have no liability whatsoever for any errors or inaccuracies in this report. In the event any such liability is ever asserted or enforced, such liability shall in no event exceed the paid herein. No examination has been made of the Company's records, other than as specifically set forth in this report.

The effective date of this report is April 27, 2022

REPORT FINDINGS

A. The land referred to in this report is located in the county of Washington State of Oregon, and is described as follows:

See Attached Exhibit "A"

B. As of the Effective Date and according to the last deed of record, we find the title to the land to be vested as follows:

JBMAC Ventures, LLC, an Oregon limited liability company

C. As of the Effective Date and according to the Public Records, the Land is subject to the following liens and encumbrances, which are not necessarily shown in the order of priority:

1. Possible Easement as disclosed by instrument, including the terms and provisions thereof:

For	:	Electric Transmission lines, and appurtenances with rights to "danger trees"
Granted to	:	Portland General Electric Company, an Oregon Corporation
Recorded	:	June 12, 1959
Recording No(s)	:	(book) 418 (page) 678
Affects	:	the East 12.5 feet of premises as disclosed by DRG EB 4071 attached to document.

2. Terms and provisions of Permanent Easement Agreement::

For	:	Underground sewer line and permitted waste and maintenance responsibilities
Between	:	Linke Enterprises of Oregon, Inc., an Oregon corporation formerly known as Frontier Leather Company, Inc
And	:	Transpacific International, Inc., an Oregon corporation
Recorded	:	August 8, 1995
Recording No(s).	:	95055118
Affects	:	appurtenant rights over property lying East of Parcel 1 Partition Plat No. 2003-030

3. Prospective Purchase Agreement, including the terms and provisions thereof with ground water restrictions, land use restrictions and Easement for right of entry:

Between : Oregon Department of Environmental Quality
 And : Pacific III, LLC
 Recorded : March 19, 2002
 Recording No. : [2002-032053](#)

As amended or modified by Easement and Equitable Servitude, including the terms and provisions thereof:

Recorded : April 3, 2008
 Recording No. : [2008-029679](#)

4. Effect, if any of Declaration of Private Access and Utility Easement, including the terms and provisions thereof:

Recorded : September 24, 2002
 Recording No(s) : [2002-111387](#)
 Affects : Parcel 1 Partition Plat No. 2003-030 - also delineated on the Partition plat.

NOTE: When property becomes under one ownership, the above easement would merge.

5. Effect if any, of Declaration of Private Access and Utility Easement, including the terms and provisions thereof:

Recorded : September 24, 2002
 Recording No(s) : [2002-111388](#)
 Affects : Parcel 2, Partition Plat No. 2003-030 - also delineated on the partition plat.

NOTE: When property becomes under one ownership, the above easement would merge.

6. Access Easement and Maintenance Agreement, including the terms and provisions thereof:

For : reciprocal easement to be used for ingress, egress and utility purposes
 To : owner of Tax Lot 600 in the Southeast quarter of Section 29 T2S, R1W and the general public at large
 Recorded : July 15, 2010
 Recording No(s) : [2010-053593](#)
 (Affects Parcel 1, Partition Plat 2003-30 see document for location for the benefit of 2S129D-00600)

7. Access Easement and Maintenance Agreement, including the terms and provisions thereof:

For : reciprocal easement to be used for ingress, egress and utility purposes
 To : Owner of Tax Lot 602 in the Southeast quarter of Section 29 T2S R1W and the general public at large
 Recorded : July 15, 2010
 Recording No(s) : [2010-053594](#)
 (Affects Parcel I, Partition Plat No. 2003-030 for the benefit of 2S129D 0602)

8. Terms and provisions of Access Easement and Joint Maintenance Agreement::

For : ingress and egress
 Between : Sherwood Oaks Care Facility, LLC, an Oregon limited liability company
 And : Pacific III, LLC, an Oregon limited liability company and general public at large
 Recorded : July 15, 2010
 Recording No(s) : [2010-053595](#)

9. City liens, if any, of the City of Sherwood.

10. Trust Deed, including the terms and provisions thereof to secure the amount noted below and other amounts secured thereunder, if any:

Grantor	:	JBMAC Ventures LLC
Trustee	:	Moran P. Kevin and at Law Attorney
Beneficiary	:	Heritage Bank
Dated	:	June 28, 2021
Recorded	:	July 2, 2021
Recording No(s)	:	2021-075183
Amount	:	\$800,000.00

END OF EXCEPTIONS

NOTE: Taxes paid in full for 2021 -2022

Levied Amount	:	\$8,349.14
Property ID No.	:	R548161
Levy Code	:	088.52
Map Tax Lot No.	:	2S129DC-00500

Affects Tax Lot 500, being Parcel I

NOTE: Taxes paid in full for 2021 -2022

Levied Amount	:	\$6,428.18
Property ID No.	:	R2118788
Levy Code	:	088.52
Map Tax Lot No.	:	2S129DC00600

Affects Tax Lot 600, being part of Parcel II

NOTE: Taxes paid in full for 2021 -2022

Levied Amount	:	\$2,398.56
Property ID No.	:	R2118789
Levy Code	:	088.52
Map Tax Lot No.	:	2S129DC00700

Affects Tax Lot 700, being part of Parcel II

NOTE: We find NO judgments or Federal Tax Liens against the name(s) of JBMAC Ventures LLC.

NOTE: Links for additional supporting documents:

- [Vesting Deed](#)
- [Assessor map](#)
- [Partition Plat 2003-030](#)
- [Aerial map](#)

END OF REPORT

Tammera Appel
 WFG National Title Insurance Company
 12909 SW 68th Pkwy., Suite 350
 Portland, OR 97223
 Phone:
 Fax:
 Email: tappel@wfgnationaltitle.com

**EXHIBIT A
LEGAL DESCRIPTION**

PARCEL I:

A parcel of land situated in the Southeast one-quarter of Section 29, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Sherwood, County of Washington and State of Oregon, being more particularly described as follows:

Commencing at the Southwest corner of the Southeast one-quarter of said Section 29; thence North 89°59'00" East, along the South line of said Southeast one-quarter of Section 29, a distance of 1726.21 feet to the Southerly extension of the West line of that parcel conveyed to Frontier Leather Company by document recorded in Book 467, page 108, Washington County Deed Records; thence North 00°01'00" West along said West line and the Southerly extension thereof, a distance of 347.41 feet to the Southwest corner of that parcel conveyed to Transpacific International, Inc. by document recorded as Fee No. 96082349, Washington County Deed Records; thence North 89°59'00" East, along the South line thereof, a distance of 350.00 feet to the Southeast corner thereof; thence North 00°01'00" West along the East line thereof a distance of 400.00 feet to the Northeast corner thereof; thence South 89°59'00" West along the North line thereof a distance of 225.00 feet to an angle point therein; thence South 44°59'00" West continuing along said North line a distance of 176.78 feet to a point on the West line of the aforementioned Frontier Leather Company parcel and the true point of beginning; thence South 00°01'00" East along said West line a distance of 168.36 feet; thence South 48°52'28" West a distance of 426.44 feet; thence North 42°10'49" West a distance of 295.85 feet to the Southeasterly right-of-way line of the Southern Pacific Railroad, said point being 45.00 feet from, when measured at right angles to, the center line of said railroad; thence North 47°49'15" East along said Southeasterly right-of-way line a distance of 396.92 feet to an angle point therein; thence North 42°10'45" West continuing along said Southeasterly right-of-way line a distance of 15.00 feet; thence North 47°49'15" East continuing along said Southeasterly right-of-way line a distance of 318.04 feet to the Northwest corner of the aforementioned Frontier Leather Company parcel; thence South 00°01'00" East along said West line a distance of 261.58 feet to the true point of beginning.

PARCEL II:

Parcel 1 and 2, Partition Plat No. 2003-030, in the City of Sherwood, County of Washington and State of Oregon.

TOGETHER WITH non-exclusive easement for ingress and egress as described in Access Easement and Joint Maintenance Agreement recorded July 15, 2010, Recording No. 2010-053595.

FIRE CODE / LAND USE / BUILDING REVIEW APPLICATION

Exhibit A9



North Operating Center
11945 SW 70th Avenue
Tigard, OR 97223
Phone: 503-649-8577

South Operating Center
8445 SW Elligsen Rd
Wilsonville, OR 97070
Phone: 503-649-8577

REV 6-30-20

Project Information

Applicant Name: Matthew Bridegroom
Address: 15865 SW 72nd Ave #200, Portland, OR 97224
Phone: 503-226-1285
Email: matthewb@cidainc.com
Site Address: 14843 SW Oregon St
City: Sherwood, OR 97140
Map & Tax Lot #: 2S129DC00500
Business Name: JBMac Ventures for American Fire Systems Inc
Land Use/Building Jurisdiction: Com/Sherwood
Land Use/ Building Permit #
Choose from: Beaverton, Tigard, Newberg, Tualatin, North Plains, West Linn, Wilsonville, Sherwood, Rivergrove, Durham, King City, Washington County, Clackamas County, Multnomah County, Yamhill County

Project Description

Permit/Review Type (check one):

- Land Use / Building Review - Service Provider Permit
Emergency Radio Responder Coverage Install/Test
LPG Tank (Greater than 2,000 gallons)
Flammable or Combustible Liquid Tank Installation (Greater than 1,000 gallons)
Exception: Underground Storage Tanks (UST) are deferred to DEQ for regulation.
Explosives Blasting (Blasting plan is required)
Exterior Toxic, Pyrophoric or Corrosive Gas Installation (in excess of 810 cu.ft.)
Tents or Temporary Membrane Structures (in excess of 10,000 square feet)
Temporary Haunted House or similar
OLCC Cannabis Extraction License Review
Ceremonial Fire or Bonfire (For gathering, ceremony or other assembly)

For Fire Marshal's Office Use Only

TVFR Permit # 2022-0061
Permit Type: SPP
Submittal Date:
Assigned To: Darby
Due Date: 5/18/22
Fees Due:
Fees Paid:

Approval/Inspection Conditions (For Fire Marshal's Office Use Only)

This section is for application approval only

5/18/22 0206
Fire Marshal or Designee Date

Conditions:

See Attached Conditions: Yes No

Site Inspection Required: Yes No

This section used when site inspection is required

Inspection Comments:

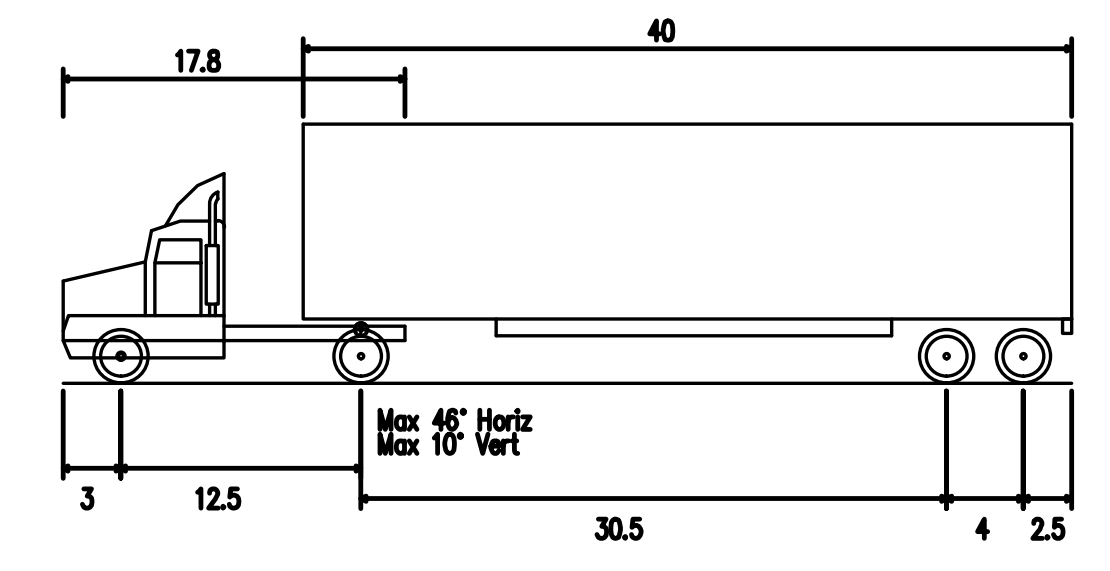
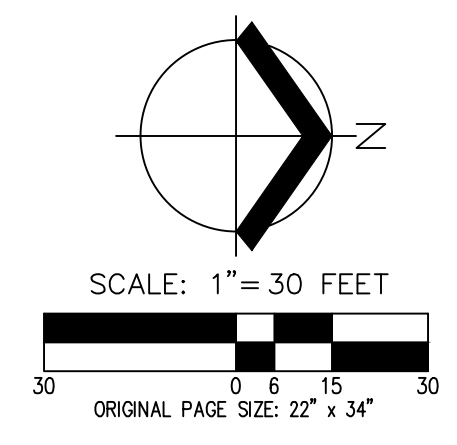
Final TVFR Approval Signature & Emp ID Date



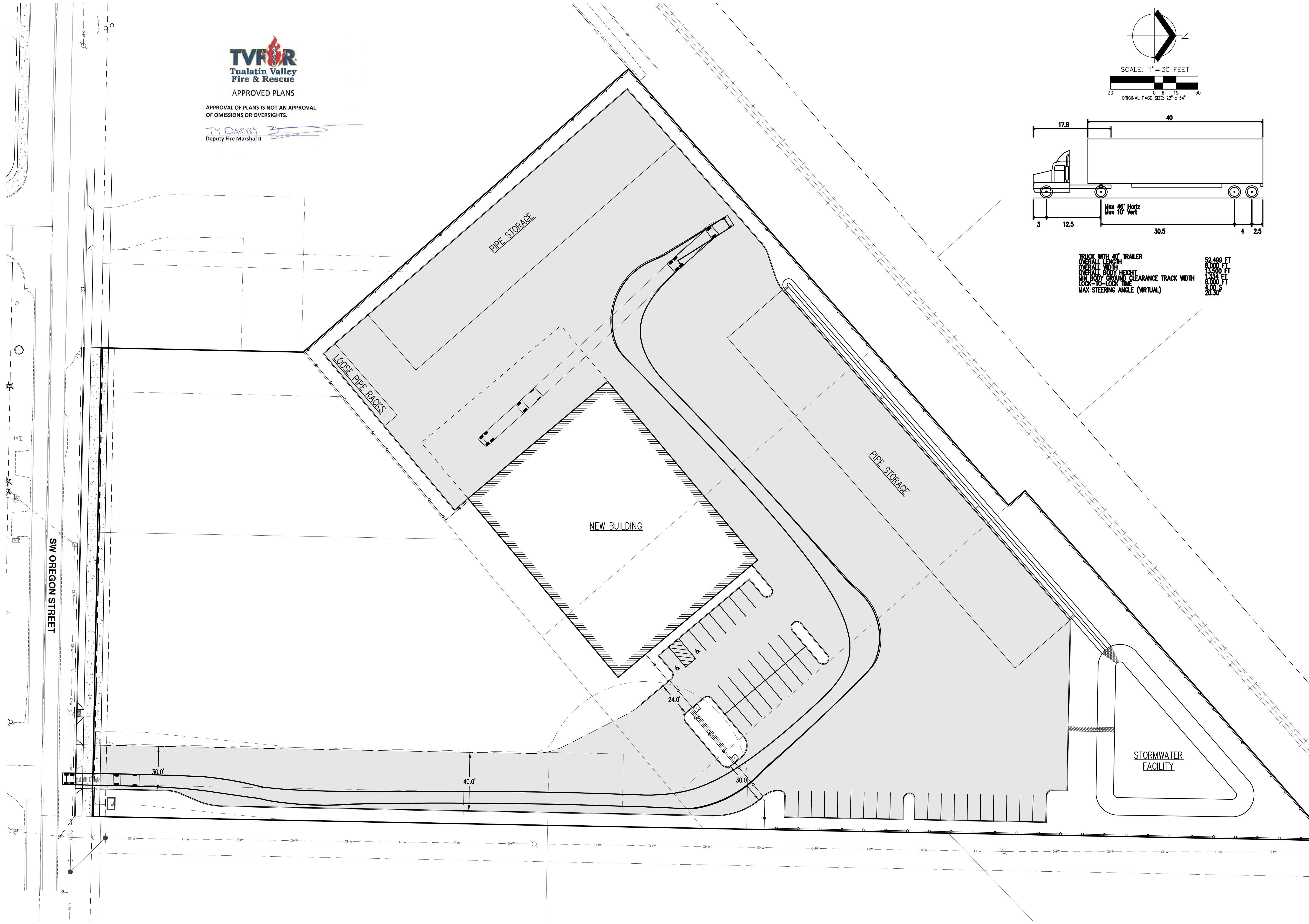
APPROVED PLANS

APPROVAL OF PLANS IS NOT AN APPROVAL OF OMISSIONS OR OVERSIGHTS.

TJ DARBY
 Deputy Fire Marshal II



TRUCK WITH 40' TRAILER
 OVERALL LENGTH 52.489 FT
 OVERALL WIDTH 8.000 FT
 OVERALL HEIGHT 13.500 FT
 MIN BODY HEIGHT 7.334 FT
 MIN BODY GROUND CLEARANCE TRACK WIDTH 8.000 FT
 LOCK-TO-LOCK TIME 3.00 S
 MAX STEERING ANGLE (VIRTUAL) 20.3°



**INBOUND TRUCK TURNING MOVEMENT
 AFP SYSTEMS SITE PLAN
 AFP SYSTEMS
 SHERWOOD, OREGON**

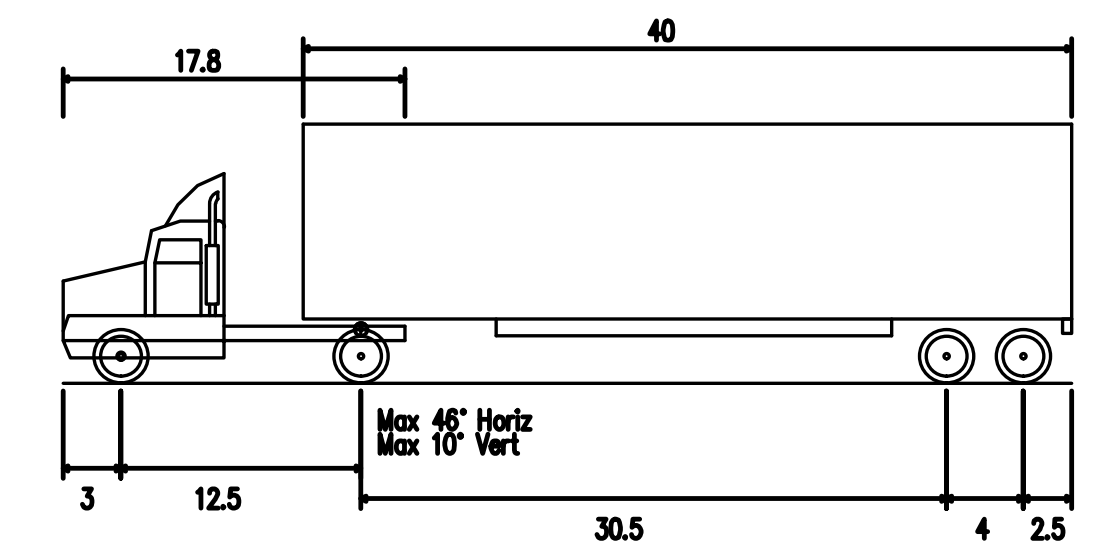
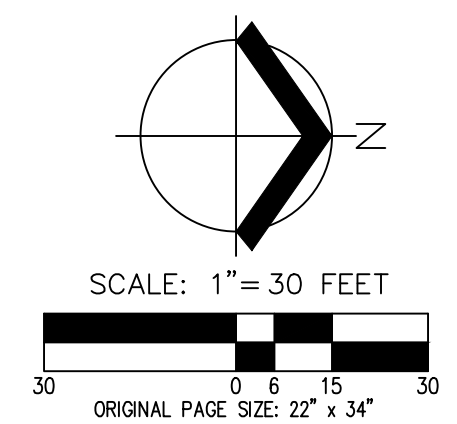
JOB NUMBER: 8827-03
 DATE: 04/22/2022
 DESIGNED BY: APC & TJ
 DRAWN BY: APC
 CHECKED BY: TJ



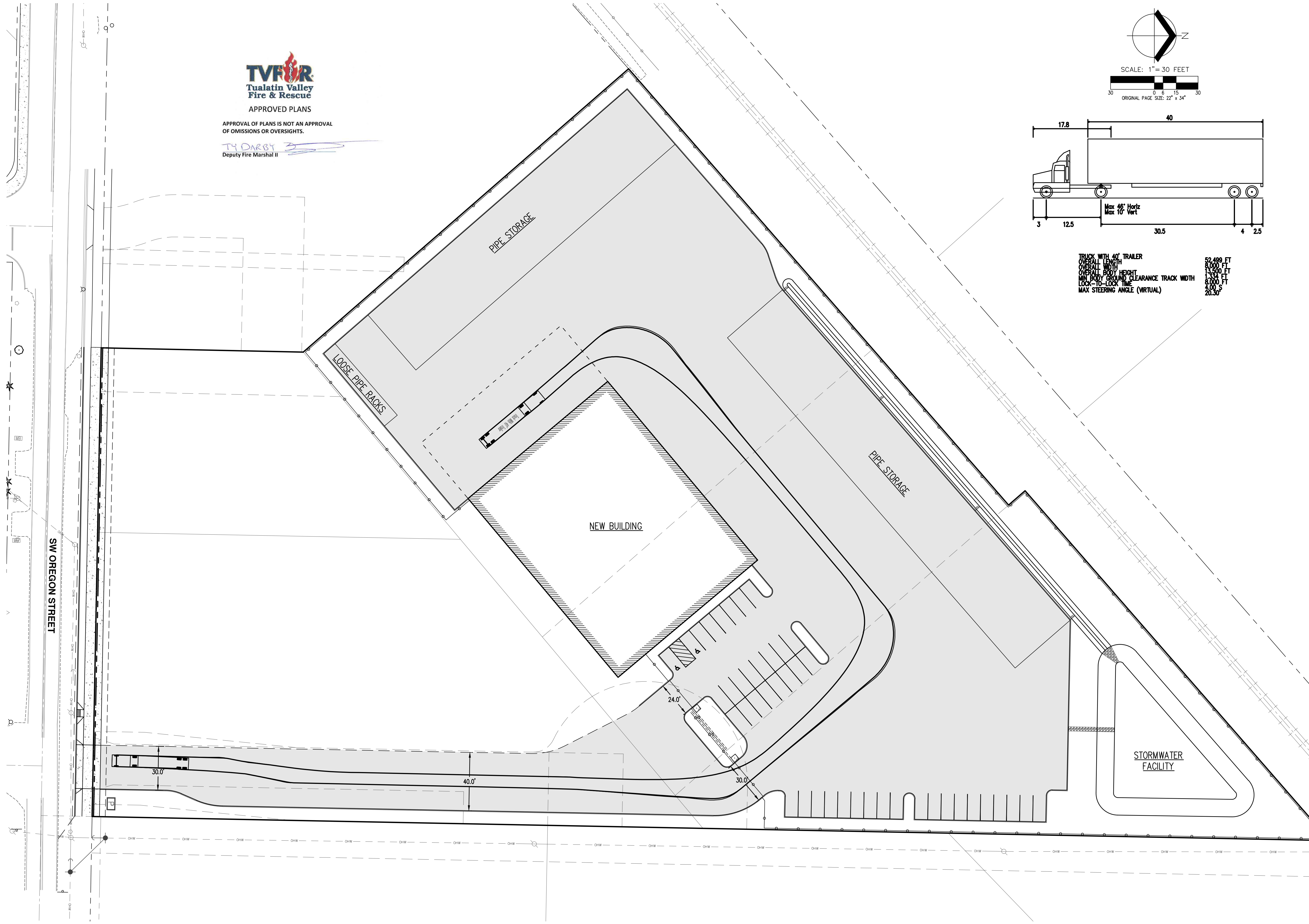
APPROVED PLANS

APPROVAL OF PLANS IS NOT AN APPROVAL OF OMISSIONS OR OVERSIGHTS.

TJ DARBY
 Deputy Fire Marshal II



TRUCK WITH 40' TRAILER	52.489 FT
OVERALL LENGTH	52.489 FT
OVERALL WIDTH	8.000 FT
OVERALL HEIGHT	13.500 FT
MIN BODY HEIGHT	7.500 FT
MIN BODY GROUND CLEARANCE	8.000 FT
TRACK WIDTH	8.000 FT
LOCK-TO-LOCK TIME	3.00 S
MAX STEERING ANGLE (VIRTUAL)	20.3°



**OUTBOUND TRUCK TURNING MOVEMENT
 AFP SYSTEMS SITE PLAN
 AFP SYSTEMS
 SHERWOOD, OREGON**

JOB NUMBER:	8827-03
DATE:	04/22/2022
DESIGNED BY:	APC & TJ
DRAWN BY:	APC
CHECKED BY:	TJ



AKS ENGINEERING & FORESTRY, LLC
12865 SW HERMAN RD., STE. 100
TUALATIN, OR 97062
503.563.6151
WWW.AKS-ENG.COM

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

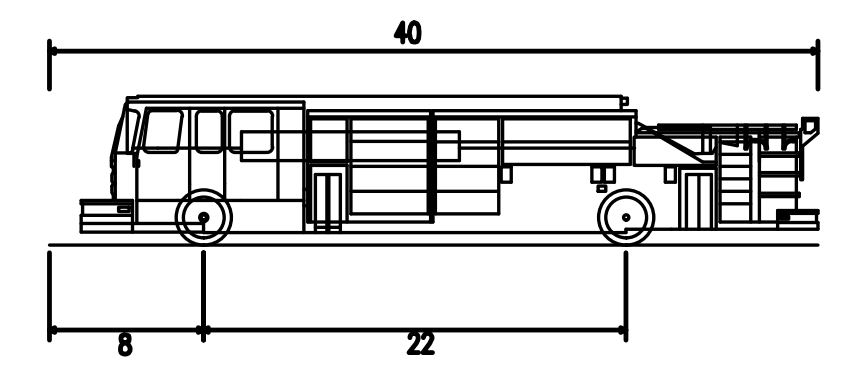
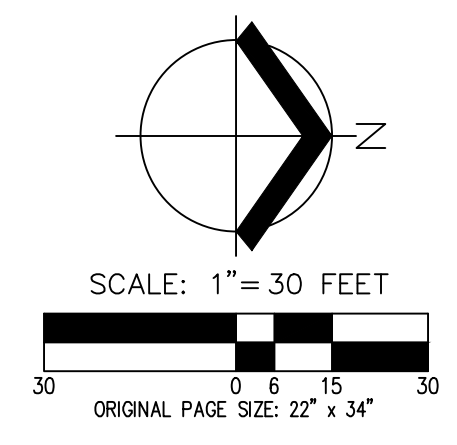


Tualatin Valley
Fire & Rescue

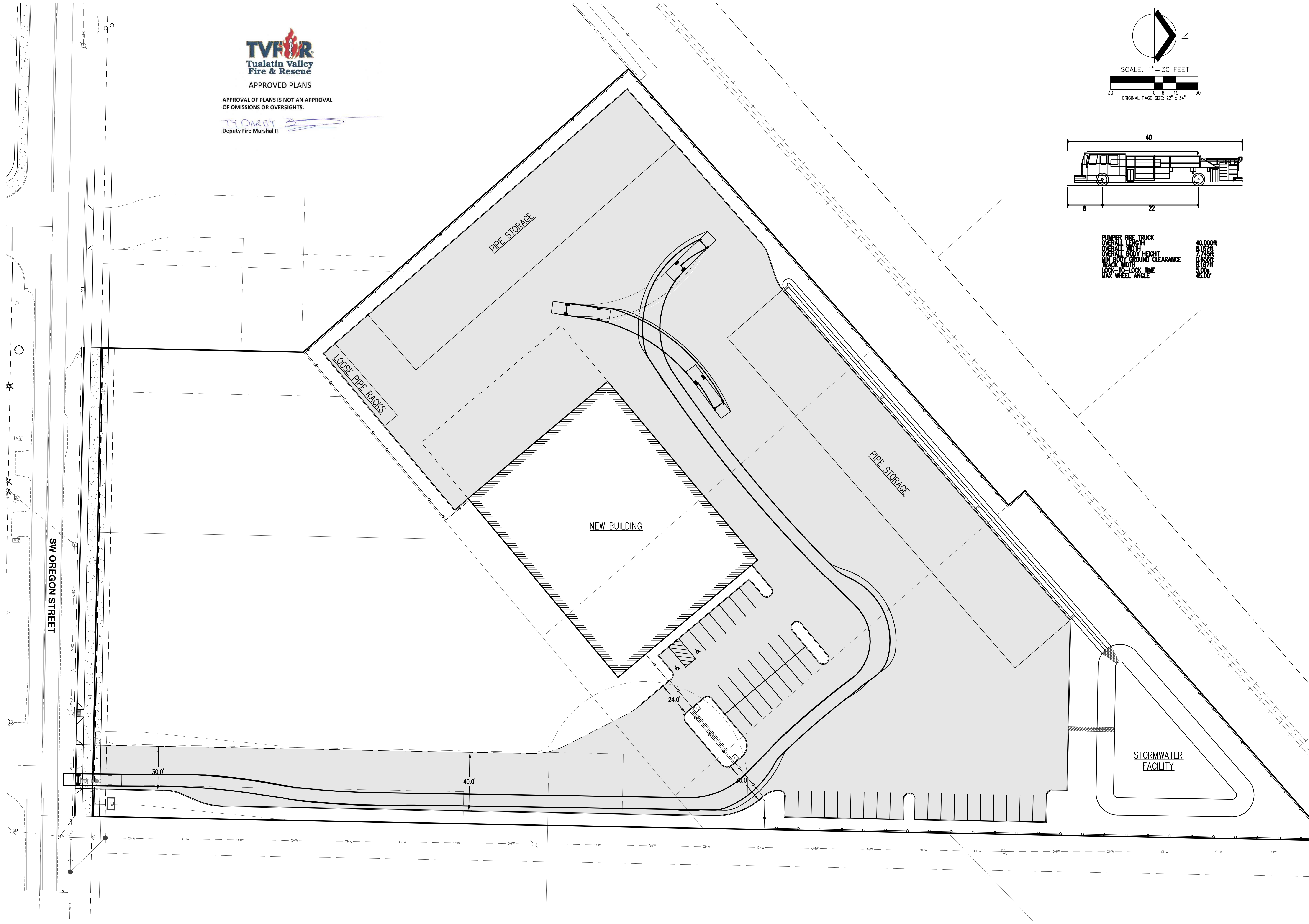
APPROVED PLANS

APPROVAL OF PLANS IS NOT AN APPROVAL
OF OMISSIONS OR OVERSIGHTS.

TJ DARBY
Deputy Fire Marshal II



PUMPER FIRE TRUCK	
OVERALL LENGTH	40.000ft
OVERALL WIDTH	8.167ft
OVERALL BODY HEIGHT	7.750ft
MIN BODY GROUND CLEARANCE	0.656ft
TRUCK WIDTH	8.167ft
LOCK-TO-LOCK TIME	5.00s
MAX WHEEL ANGLE	45.00°



PUMPER FIRE TRUCK TURNING MOVEMENT A
AFP SYSTEMS SITE PLAN
AFP SYSTEMS
SHERWOOD, OREGON

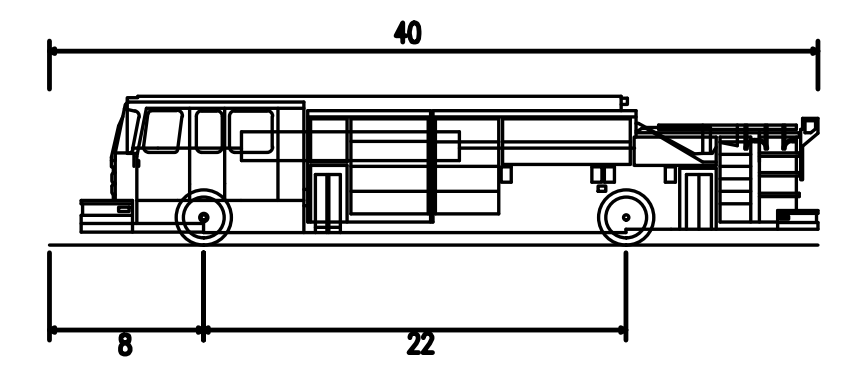
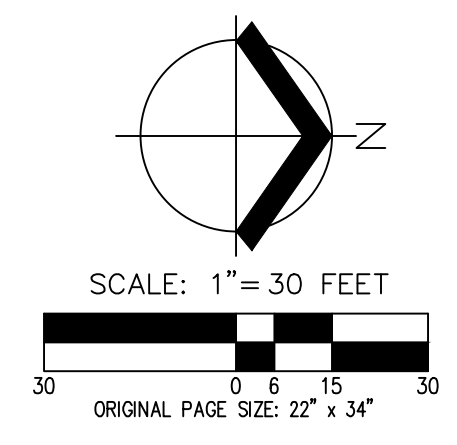
JOB NUMBER:	8827-03
DATE:	04/22/2022
DESIGNED BY:	APC & TJ
DRAWN BY:	APC
CHECKED BY:	TJ



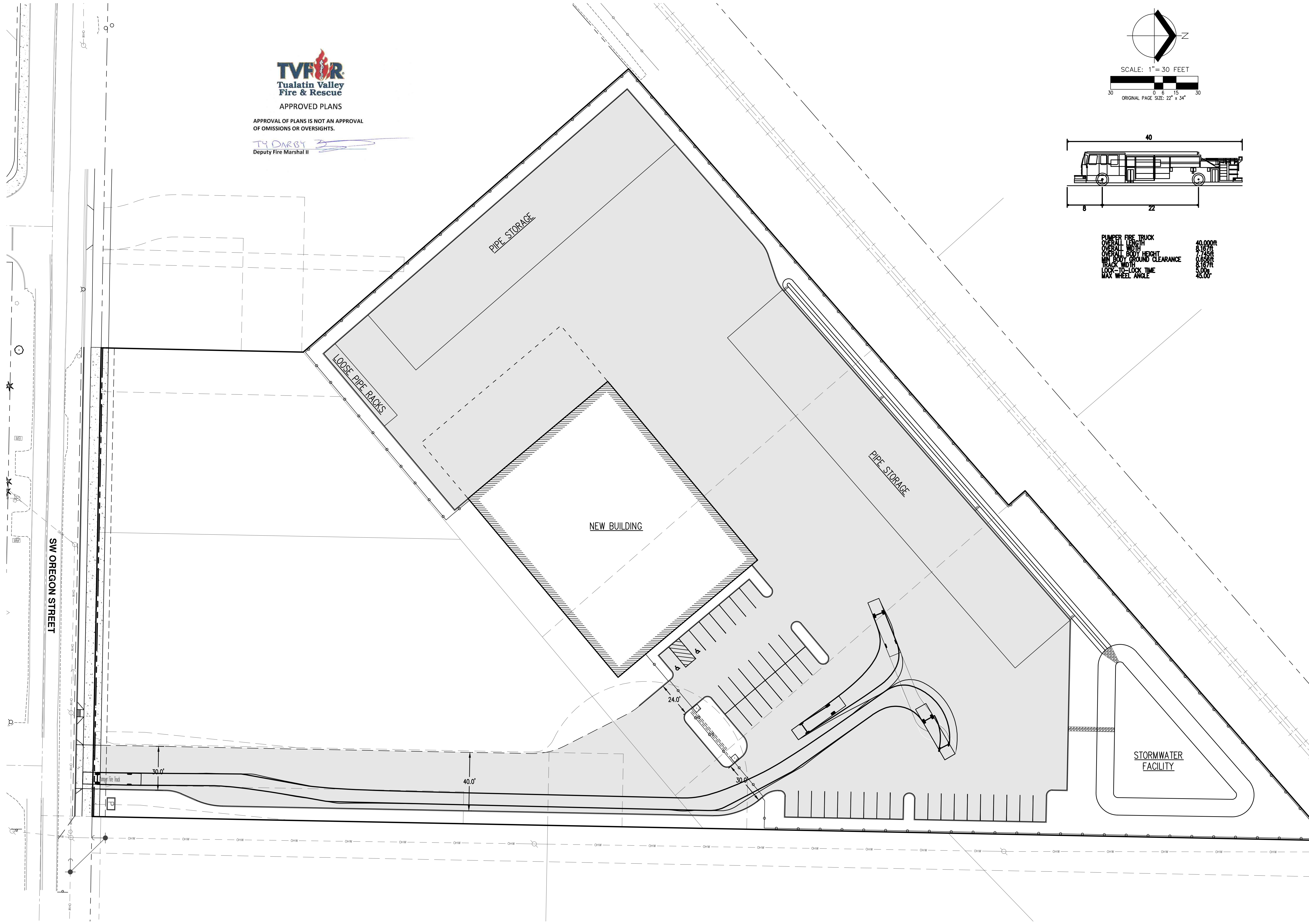
APPROVED PLANS

APPROVAL OF PLANS IS NOT AN APPROVAL OF OMISSIONS OR OVERSIGHTS.

TJ DARBY
 Deputy Fire Marshal II



PUMPER FIRE TRUCK	
OVERALL LENGTH	40.000ft
OVERALL WIDTH	8.167ft
OVERALL BODY HEIGHT	7.750ft
MIN BODY GROUND CLEARANCE	0.656ft
TRUCK WIDTH	8.167ft
LOCK-TO-LOCK TIME	5.00s
MAX WHEEL ANGLE	45.00°



PUMPER FIRE TRUCK TURNING MOVEMENT B
AFP SYSTEMS SITE PLAN
AFP SYSTEMS
SHERWOOD, OREGON

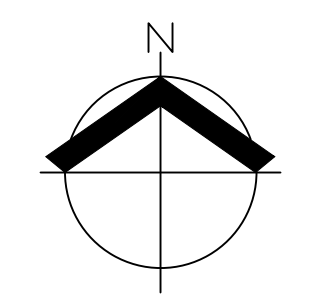
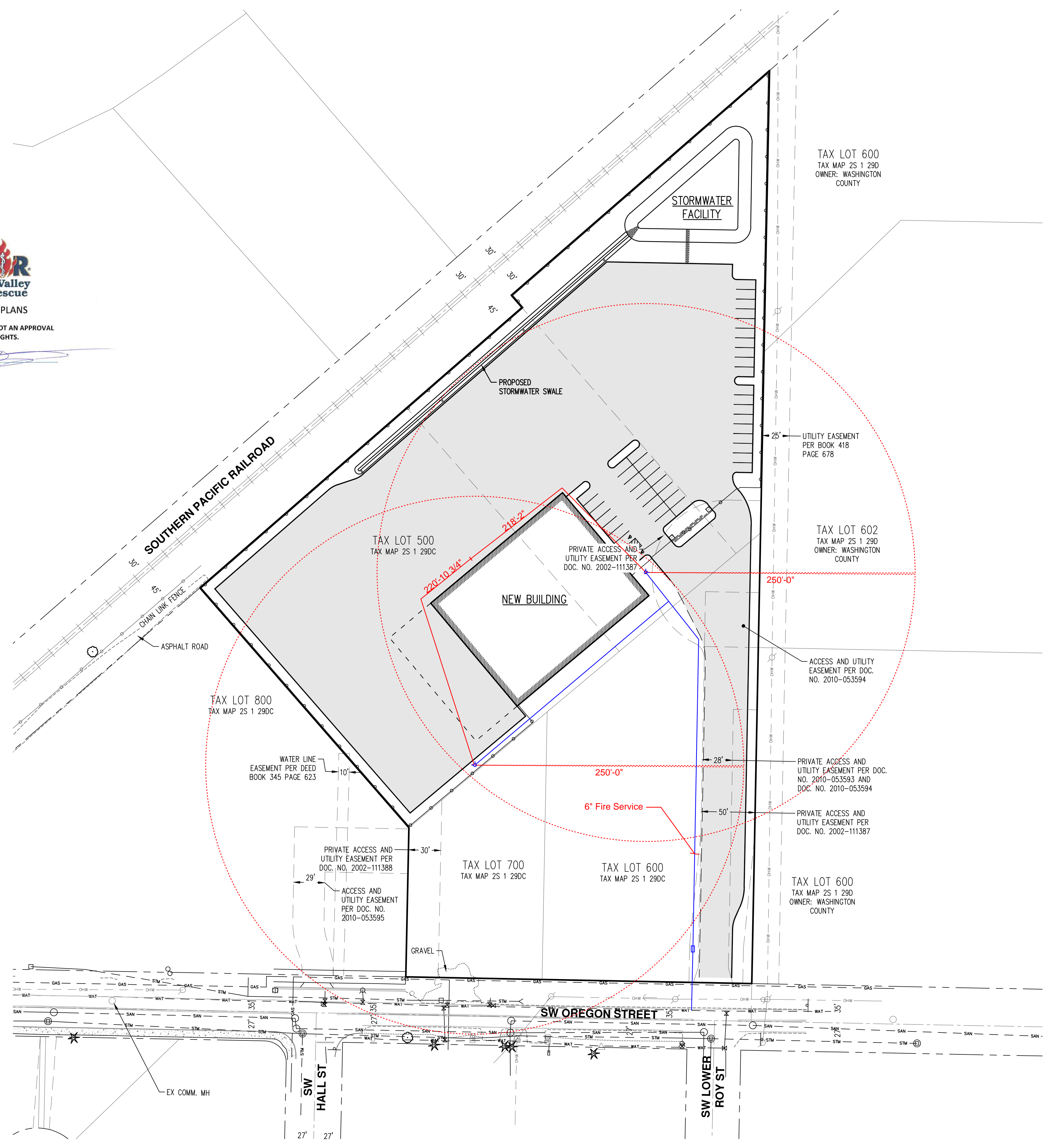
JOB NUMBER:	8827-03
DATE:	04/22/2022
DESIGNED BY:	APC & TJ
DRAWN BY:	APC
CHECKED BY:	TJ



APPROVED PLANS

APPROVAL OF PLANS IS NOT AN APPROVAL OF OMISSIONS OR OVERSIGHTS.

TJ DARBY
 Deputy Fire Marshal II



SCALE: 1" = 50 FEET
 ORIGINAL PAGE SIZE: 22" x 34"

SITE PLAN
AFP SYSTEMS SITE PLAN
AFP SYSTEMS
SHERWOOD, OREGON

JOB NUMBER: 8627-03
 DATE:
 DESIGNED BY: APC & TJ
 DRAWN BY: APC
 CHECKED BY: TJ

FIGURE 6

Tara Lund

From: Tyler Joki <jokit@aks-eng.com>
Sent: Monday, May 9, 2022 9:58 AM
To: Tara Lund
Cc: Dirk Otis
Subject: FW: Fire Flow & Pressure Test Data for Hydrant on SW Oregon St

Good morning Tara and Dirk,

Below is the email chain Jason wants us to reference regarding hydrant flow testing for our upcoming Land Use submittal. Per our meeting last week, this should be sufficient documentation to show suitable flow for fire and water service to the site. I'll follow up once I get any additional information.

Thanks again,

Tyler Joki**AKS ENGINEERING & FORESTRY, LLC**

P: 503.563.6151 Ext. 273 | C: 971.207.1556 | www.aks-eng.com | jokit@aks-eng.com

From: Jason Waters <WatersJ@SherwoodOregon.gov>
Sent: Monday, May 9, 2022 9:07 AM
To: Tyler Joki <jokit@aks-eng.com>
Subject: Fwd: Fire Flow & Pressure Test Data for Hydrant on SW Oregon St

EXTERNAL EMAIL: This email originated from outside AKS Engineering & Forestry.

Hi Tyler,

See below re: hydrant test for the AFP site in Sherwood and you can use this email chain in-lieu of the data for a few weeks. Our GIS data shows older tests at 80-84 PSI and this is a resiliency line that we'll be replacing with the road project.

I'll check-in with Craig Christensen today on his schedule for Tuesday or Wednesday to verify assumptions for your initial application for the 3 lots east of the Zenport site. We'll get something setup in Teams.

Thanks,
Jason

Get [Outlook for iOS](#)

From: Richard Sattler <SattlerR@SherwoodOregon.gov>
Sent: Monday, May 9, 2022 8:03:06 AM
To: Jason Waters <WatersJ@SherwoodOregon.gov>
Subject: RE: Fire Flow & Pressure Test Data for Hydrant on SW Oregon St

Morning Jason,
We can put on the schedule.
Take Care,
Rich

From: Jason Waters <WatersJ@SherwoodOregon.gov>
Sent: Friday, May 6, 2022 11:37 AM

To: Richard Sattler <SattlerR@SherwoodOregon.gov>

Subject: FW: Fire Flow & Pressure Test Data for Hydrant on SW Oregon St

Hi Rich,

Following up on the email below regarding recent hydrant pressure & flow test data available for 1 of the 3-4 hydrants around the Zenport Development, per the attached exhibits (hydrant ID's WHY483, WHY7798, or WHY386). If not, let me know if someone needs to submit a formal hydrant test request.

Take care,
Jason

From: Jason Waters

Sent: Friday, April 29, 2022 10:10 AM

To: Richard Sattler <SattlerR@SherwoodOregon.gov>

Subject: Fire Flow & Pressure Test Data for Hydrant on SW Oregon St

Hi Rich,

I'm looking for recent fire flow test data from one of the 3 or 4 hydrants near the Zenport development on SW Oregon St. I've extracted the GIS data for each hydrant in the attached .xlsx file and also a map showing the locations of each hydrant (.pdf). AKS will eventually need the data for their land-use project due east of Zenport site; I'll be using it too for my road design project, so let me know if a test request form is required or email reply should do.

Thanks,
Jason

Jason M. Waters, P.E.

Civil Engineer

CITY OF SHERWOOD

Engineering Department

22560 SW Pine Street | Sherwood, OR | 97140

Desk 503.925.2304 | Mobile 971.979.2985 | Fax 503.625.0629

watersj@sherwoodoregon.gov | www.sherwoodoregon.gov



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May 17, 2022

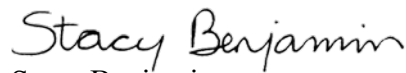
STACEY REED
AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD #100
TUALATIN OR 97062

Re: 14843 SW Oregon Street Commercial Subdivision; CWS file 22-001413 (Tax map 2S129DC Tax lot 00500, 00600, 00700)

Clean Water Services has reviewed your proposal for the above referenced activity on your site. Staff has conducted a pre-screen review and requested completion of a Sensitive Areas Certification Form. Following review of submitted materials it appears that Sensitive Areas do not exist on-site or within 200' from your project. In light of this result, this document will serve as your Service Provider letter as required by Resolution and Order 19-5, Section 3.02.1, as amended by Resolution and Order 19-22. All required permits and approvals must be obtained and completed under applicable local, state, and federal law.

This concurrence letter does NOT eliminate the need to protect Sensitive Areas if they are subsequently identified on your site.

Sincerely,



Stacy Benjamin
Environmental Plan Review

Attachments (3)

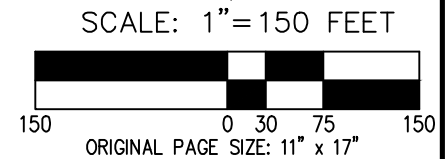
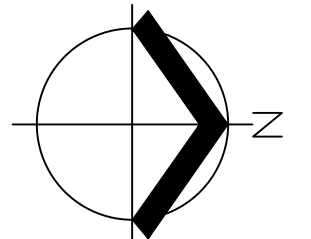


CWS FILE NO. 22-001413
 Approved
 Clean Water Services
 FOR ENVIRONMENTAL REVIEW
 By *SNB* Date 5/17/2022
 SPL ATTACHMENT 1 OF 3

LEGEND

PLOT LOCATIONS SHOWN WERE LOCATED BY AKS ENGINEERING & FORESTRY, LLC ON APRIL 28, 2022 USING A TRIMBLE GEO 7X HANDHELD GPS RECEIVER WITH SUB-METER ACCURACY. NO WETLAND OR WATER BOUNDARIES WERE DELINEATED ON-SITE.

1 FT INTERVAL GROUND CONTOURS, STUDY AREA BOUNDARY AND TREE SURVEY >6" DBH DERIVED FROM AKS PROFESSIONAL LAND SURVEY.



GOOGLE EARTH AERIAL MAY 2021

DATE: 05/09/2022

NATURAL RESOURCES EXISTING CONDITIONS OVERVIEW MAP	FIGURE
JBMAC VENTURES NATURAL RESOURCES SITE ASSESSMENT REPORT	5
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM	DRWN: RAS CHKD: SKT AKS JOB: 8627-03

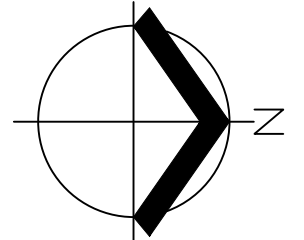


LEGEND

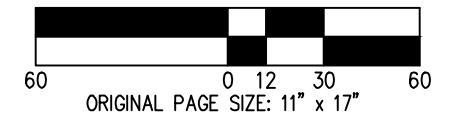
 PHOTO POINT LOCATION AND ORIENTATION

PLOT LOCATIONS SHOWN WERE LOCATED BY AKS ENGINEERING & FORESTRY, LLC ON APRIL 28, 2022 USING A TRIMBLE GEO 7X HANDHELD GPS RECEIVER WITH SUB-METER ACCURACY. NO WETLAND OR WATER BOUNDARIES WERE DELINEATED ON-SITE.

1 FT INTERVAL GROUND CONTOURS, STUDY AREA BOUNDARY AND TREE SURVEY >6" DBH DERIVED FROM AKS PROFESSIONAL LAND SURVEY.

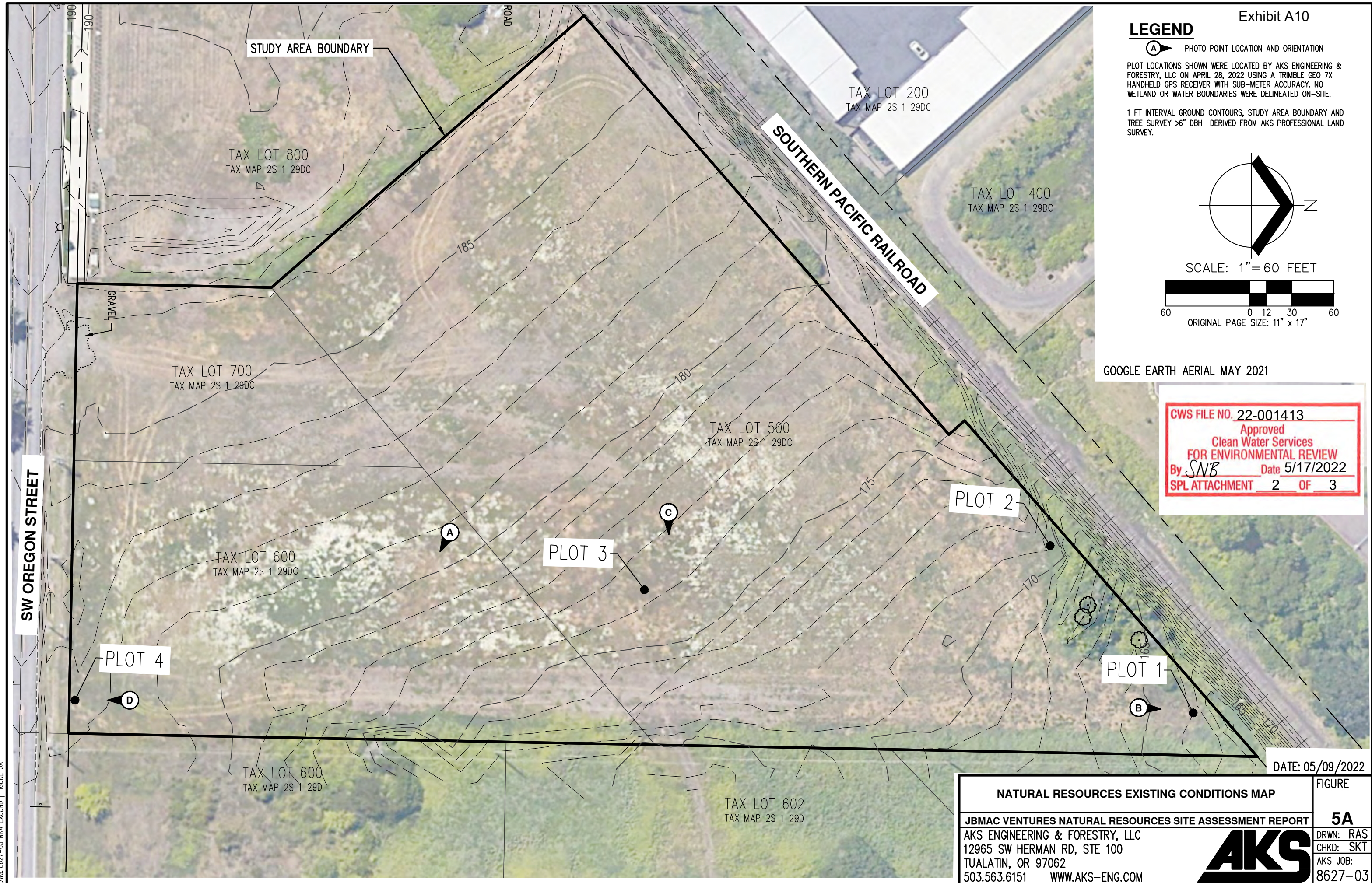


SCALE: 1" = 60 FEET



GOOGLE EARTH AERIAL MAY 2021

CWS FILE NO. 22-001413
Approved
Clean Water Services
FOR ENVIRONMENTAL REVIEW
By SNB Date 5/17/2022
SPL ATTACHMENT 2 OF 3



DATE: 05/09/2022

NATURAL RESOURCES EXISTING CONDITIONS MAP

FIGURE

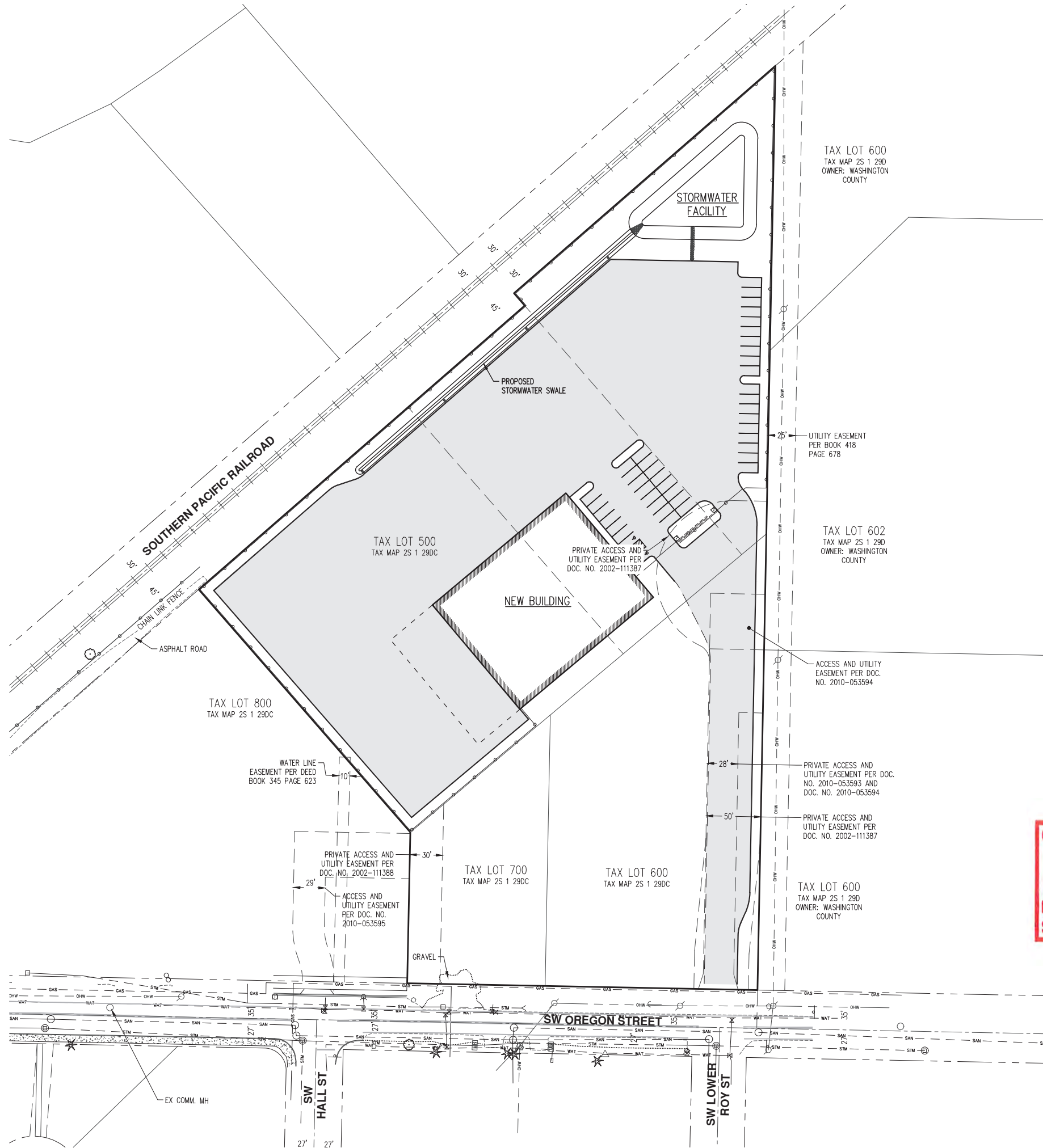
JBMAC VENTURES NATURAL RESOURCES SITE ASSESSMENT REPORT

5A

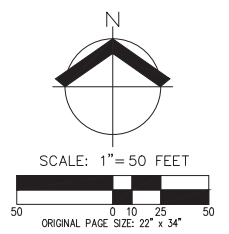
AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM



DRWN: RAS
CHKD: SKT
AKS JOB:
8627-03



CWS FILE NO. 22-001413
 Approved
 Clean Water Services
 FOR ENVIRONMENTAL REVIEW
 By *SNB* Date 5/17/2022
 SPL ATTACHMENT 3 OF 3



SITE PLAN
AFP SYSTEMS SITE PLAN
AFP SYSTEMS
SHERWOOD, OREGON

JOB NUMBER: 8627-03
 DATE:
 DESIGNED BY: APC & TJ
 DRAWN BY: APC
 CHECKED BY: TJ

FIGURE 6

**JBMac Ventures
Sherwood, Oregon**

Preliminary Stormwater Report

Date:	March 2022
Client:	JBMac Ventures, LLC 19435 SW 129 TH AVE Tualatin, OR 97062
Engineering Contact:	Blair Carlson, PE, CH - Principal (503) 563-6151 carlsonb@aks-eng.com
Prepared By:	Andreas Collins (503) 563-6151 collinsa@aks-eng.com
Engineering Firm:	AKS Engineering & Forestry, LLC 12965 SW Herman Road, Suite 100 Tualatin, OR 97062
AKS Job Number:	8627-03 & 8627-04



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Exhibit A: Vicinity Map

Appendices

- Appendix A:** Pre-Developed Catchment Basins Map and Peak Flow Calculations - HydroCAD
- Appendix B:** Post-Developed Catchment Basins Map and Peak Flow Calculations - HydroCAD
- Appendix C:** TR-55 Runoff Curve Numbers
- Appendix D:** USDA-NRCS Soil Resource Report
- Appendix E:** Stormwater Quality Calculations

PRELIMINARY STORMWATER REPORT

JBMAC VENTURES
SHERWOOD, OREGON

1.0 Purpose of Report

The purpose of this report is to analyze the effects the proposed development will have on the existing stormwater conveyance system; document the criteria, methodology, and informational sources used to design the proposed stormwater system; and present the results of the preliminary hydraulic analysis.

2.0 Project Location/Description

The JBMac Ventures project is located at Tax Lot 500, 600, and 700, Washington County Tax Map 2S 1 29DC, Sherwood, Oregon. Improvements are split into two parts. Part 1 encompasses Tax Lot 500 and includes the construction of an industrial building, paved parking, private underground utilities, and stormwater management facility. Part 2 encompasses Tax Lot 600 and 700 and includes the construction of a shared driveway and frontage improvements to SW Oregon Street. Per discussion with City of Sherwood staff, stormwater runoff from Part 1 of the development will be managed by a private facility while runoff from Part 2 of the development will be routed to the public system for treatment at a regional facility.

3.0 Regulatory Design Criteria

3.1 Stormwater Quantity

Per *CWS Design and Construction Standards Manual for Sanitary Sewer and Surface Water Management* (R&O 19-5, as amended by R&O 19-22), Section 4.02.1, Mitigation Requirement, the District or City shall determine which of the following techniques may be used:

- a. *Construction of permanent on-site stormwater quantity detention facilities designed in accordance with this Chapter; or*
- b. *Enlargement or improvement of the downstream conveyance system in accordance with this Chapter and Chapter 5; or*
- c. *Payment of a Storm and Surface Water Management System Development Charge (SWM SDC), as provided in CWS Ordinance 28, which includes a water quantity component to meet these requirements. If district or City requires that an on-site detention facility be constructed, the development shall be eligible for a credit against SWM SDC fees, as provided in District Ordinance and Rules.*

Per R&O 19-5, as amended by R&O 19-22, Section 4.02.2, Criteria for Requiring On-Site Detention for Conveyance Capacity, on-site detention is required when any of the following conditions exist:

1. *There is an identified downstream deficiency and the District or City determines that detention rather than conveyance system enlargement is the more effective solution.*
2. *There is an identified regional detention site within the boundary of the development.*
3. *Water quantity facilities are required by District-adopted watershed management plans or subbasin master plans or District- approved subbasin strategy.*

3.2 Hydromodification

Per R&O 19-5, as amended by R&O 19-22, Section 4.03, Hydromodification Approach Requirements, implementing or funding techniques to reduce impacts to the downstream receiving water body is

required when a new development or other activities create or modify 1,000 square feet or more of impervious surfaces or increase the amount or rate of surface water leaving the site. The funding can be directed, or the following techniques can be implemented to reduce impacts to the downstream receiving water body:

- a. Construction of permanent LIDA designed in accordance with this Chapter; or
- b. Construction of a permanent stormwater detention facility designed in accordance with this Chapter; or
- c. Construction or funding of a hydromodification approach that is consistent with a District-approved subbasin strategy; or
- d. Payment of a Hydromodification Fee-In-Lieu.

Per R&O 19-5, as amended by R&O 19-22, Section 4.03.3, the receiving reach for this project is Rock Creek. The Risk Level for the receiving reach identified for this project is Low. The Development Class was determined using the Hydromodification Map provided by CWS. The project site is classified as a Developed Area. Per Section 4.08.1, Impervious Area Used in Design, the project site is classified as a Large Project as it is greater than 80,000 square feet. Using these input parameters, per Table 4-2, Hydromodification Approach Project Category Table (shown below), the project falls within Category 2. See details in the appendices of this report for further information.

TABLE 4-2
 HYDROMODIFICATION APPROACH PROJECT CATEGORY TABLE

Development Class/ Risk Level	Small Project 1,000 – 12,000 SF	Medium Project >12,000 – 80,000 SF	Large Project > 80,000 SF
Expansion/High	Category 1	Category 3	Category 3
Expansion/ Moderate		Category 2	
Expansion/ Low		Category 3	
Developed/ High		Category 2	Category 2
Developed/ Moderate			
Developed/ Low			

Table 4-2 from R&O 19-5, as amended by R&O 19-22

Per R&O 19-5, as amended by R&O 19-22, Section 4.03.5b, Hydromodification Approach Selection – Category 2, any of the following options may be used to address hydromodification:

- 1. Infiltration facility, using the Standard LIDA Sizing, described in Section 4.08.5; or
- 2. Peak-Flow Matching Detention, using design criteria described in Section 4.08.6; or
- 3. Combination of Infiltration facility and Peak-Flow Matching Detention, using criteria described in Section 4.08.5 and 4.08.6; or
- 4. Any option listed in Category 3.

3.3 Stormwater Quality

Per R&O 19-5, as amended by R&O 19-22, Section 4.04, Water Quality Treatment Requirements, implementing or funding a permanent water quality approach is required when a new development or other activities create or modify 1,000 square feet or more of impervious surfaces, or increase the amount

of stormwater runoff or pollution leaving the site. Unless there is a more efficient and effective regional approach within the subbasin that was designed to incorporate the development, or there is an approach in the subbasin which is demonstrated to have the capacity to treat the site.

This project will create approximately 157,359 square feet of new impervious area, therefore requiring water quality mitigation. Stormwater quality management for Part 1 of this project will be met by the combination of a stormwater quality manhole and new stormwater facility. Stormwater quality management for Part 2 of this project will be met by a public regional stormwater facility.

Per discussion with City of Sherwood Staff, all stormwater runoff resulting from improvements to Tax Lot 600 and 700 as well as the frontage improvements to SW Oregon Street is to be routed to the public system. This runoff will be treated at a public regional facility. A stormwater report being completed by Kittelson & Associates on behalf of the city of Sherwood includes the subject site within their area of analysis. An exhibit included as Appendix B of this report highlights the area to be routed to the regional facility.

4.0 Design Methodology

The Santa Barbara Urban Hydrograph (SBUH) Method was used to analyze stormwater runoff from the site. This method uses the Soil Conservation Service (SCS) Type 1A 24-hour design storm. HydroCAD 10.00-22 computer software aided in the analysis. Representative runoff curve numbers (CN) were obtained from the Natural Resources Conservation Service (NRCS) *Technical Release 55* and are included in the appendices.

5.0 Design Parameters

5.1 Design Storms

Stormwater mains, inlets, and laterals for the site are placed at locations that adequately collect and convey the stormwater for the proposed improvements. Per R&O 19-5, as amended by R&O 19-22, Section 5.05.2, the stormwater analysis used the 24-hour design storm for the evaluation and design of the existing and proposed stormwater facilities. The following 24-hour rainfall intensities from CWS Standard Drawing No. 1280 were used as the design storms for the recurrence interval:

Table 5-1: Rainfall Intensities

Recurrence Interval (Years)	Total Precipitation Depth (Inches)
2	2.50
5	3.10
10	3.45
25	3.90

5.2 Predeveloped Site Conditions

5.2.1 Site Topography

Existing on-site grades generally vary from ± 2 to 5 percent, with most of the site draining to the northeast towards land owned by the Southern Pacific Railroad. The site has a high point of ± 187 feet along the western property line and a low point of ± 162 feet in the northeast corner.

5.2.2 Land Use

The property is zoned Light Industrial (LI). The property is open grassland and is currently undeveloped.

5.3 Soil Type

The soil beneath the project area is classified as Aloha Silt Loam and Quatama Loam, according to the NRCS Web Soil Survey for Washington County. The following table outlines the Hydrologic Soil Group rating for the soil type:

Table 5-2: Hydrologic Soil Group Ratings

NRCS Map Unit Identification	NRCS Soil Classification	Hydrologic Soil Group Rating
1	Aloha Silt Loam	C
37A	Quatama Loam	C

Further information on this soil type is included in the Geotech Report and NRCS Soil Resource Report located in the appendices of this report.

5.4 Post-Developed Site Conditions

5.4.1 Site Topography

The on-site slopes will be modified to create a flat pad for the new building and gently sloped impervious surfaces for proper drainage. All stormwater from the new impervious areas will be collected by new or existing stormwater infrastructure and will not impact surrounding properties. Post-Development flow paths will generally mimic Pre-Development flow paths.

5.4.2 Land Use

The property's zoning will remain LI.

5.4.3 Description of Off-Site Contributing Basins

The surrounding properties do not direct any stormwater runoff towards the development area.

6.0 Stormwater Analyses

6.1 Proposed Stormwater Conduit Sizing and Inlet Spacing

The proposed storm system pipes will be sized using Manning's equation to convey the peak flows from the 25-year storm event.

6.2 Proposed Stormwater Quality Control Facility

Stormwater quality management for Part 1 of this project will be met by the combination of a stormwater quality manhole and new private stormwater facility. The new stormwater facility has been designed per CWS Design and Construction Standards for Sanitary Sewer and Surface Water Management (R&O 19-05). The facility has been sized to treat runoff from all impervious surfaces on Tax Lot 500. Detailed calculations are included as Appendix E.

Stormwater quality management for Part 2 of this project will be met by a public regional stormwater facility. Per discussion with City of Sherwood Staff, all stormwater runoff resulting from improvements to Tax Lot 600 and 700 as well as the frontage improvements to SW Oregon Street is to be routed to the public system. This runoff will be treated for water quality at a public regional facility. A stormwater report being completed by Kittelson & Associates on behalf of the City of Sherwood includes the subject site within their area of analysis. An exhibit included as Appendix B of this report highlights the area to be routed to the regional facility.

6.3 Hydromodification

Part 1 of this project will create approximately 133,720 SF of new impervious surface. The proposed site improvements will reduce impacts to the downstream receiving water body by implementing a private detention pond facility designed per CWS standards. Per R&O 19-5, as amended by R&O 19-22, Section 4.03.5b, Hydromodification Approach Selection – Category 2, hydromodification will be met to the fullest potential of the site by peak-flow matching. Post-developed runoff rates from the site will not exceed the predeveloped runoff rates for 50% of the 2-year, 5-year and 10-year design storms, when on-site stormwater infrastructure is accounted for.

Part 2 of this project will create approximately 8,327 SF of new impervious surface. Per discussion with City of Sherwood Staff, all stormwater runoff resulting from improvements to Tax Lot 600 and 700 as well as the frontage improvements to SW Oregon Street is to be routed to the public system. This runoff will be managed by a public regional facility. A stormwater report being completed by Kittelson & Associates on behalf of the city of Sherwood includes the subject site within their area of analysis. An exhibit included as Appendix B of this report highlights the area to be routed to the regional facility.

6.4 Proposed Stormwater Quantity Control Facility

Stormwater quantity management for the newly created impervious areas in part 1 will be addressed by the construction of a stormwater quality facility in the northeast corner of the site. The following table summarizes the pre and post developed flows from the stormwater facility. Post developed flows are limited to less than the allowable pre-development peak flows, as outlined within CWS stormwater quantity and hydromodification management requirements.

See Equations 1 for additional information regarding the allowable release rate from the Private Facility for the 2-yr storm event.

Equation 1: 50 percent of the 2-Year Storm

$$Pre\ Developed\ 2\ Year = 0.42\ cfs$$

$$Required\ Private\ Facility\ Flow\ Reduction\ (50\% \ of\ 2\ Year) = \frac{(0.42\ cfs)}{2} = 0.21\ cfs$$

Table 6-1: Pre and Post Development On-Site Flows (Part 1)

Recurrence Interval (Years)	Peak Pre-Development Flows (cfs)	Peak Post-Development Flows (cfs)*	Peak Flow Increase or (Decrease) – (cfs)
2	0.42 (50% of 2-yr=0.21)	0.21	0.00
5	0.73	0.48	-0.25
10	0.93	0.67	-0.26
25	1.21	1.08	-0.13

Based on the peak flow comparison in the table above, the total peak flow rates for the Part 1 project area do not exceed 50% of the 2-year, 5-year, and 10-year design storms.

Stormwater quantity management for the newly created impervious areas in Part 2 will be addressed by a public regional facility operated by the City of Sherwood. The following table summarizes the pre and post developed flows from the Part 2 project area.

Table 6-2: Pre and Post Development On-Site Flows (Part 2)

Recurrence Interval (Years)	Peak Pre-Development Flows (cfs)	Peak Post-Development Flows (cfs)*	Peak Flow Increase or (Decrease) – (cfs)
2	0.29 (50% of 2-yr=0.15)	0.52	+0.23
5	0.49	0.74	+0.25
10	0.62	0.88	+0.26
25	0.80	1.06	+0.26

Based on the peak flow comparison in the table above, the total peak flow rates from the Part 2 project area exceed the 50% of the 2-year, 5-year, and 10-year design storm. Due to the increase in peak flows resulting from Part 2 of the development additional stormwater quantity management will be required. Per discussions with City of Sherwood staff, the City is prepared to accept all stormwater runoff from the development of Tax Lot 600 and 700 as well as the frontage improvements to SW Oregon Street for management in their regional facility. A stormwater report being completed by Kittelson & Associates on behalf of the city of Sherwood provides additional information on how the city will treat and manage this stormwater.

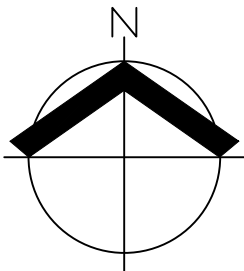
6.5 Downstream Analysis

Stormwater from Part 1 of this project discharges to an existing drainage ditch within the Southern Pacific Railroad ROW. Stormwater then flows approximately 1,000 feet east into Rock Creek. As shown in table 6-1 the private stormwater facility will result in a decrease in peak flow during the 25-year storm event when compared to the pre-developed condition. Therefore, the existing drainage ditch downstream of the project site is expected be adequate.

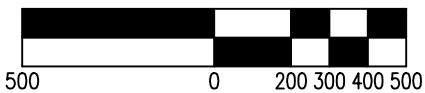
Stormwater from Part 2 of this project discharges to the public stormwater system. As part of the analysis being completed by Kittelson & Associates the downstream capacity of the public system is being assessed. Any deficiencies in the existing network will be identified by Kittelson & Associates and addressed by the City of Sherwood.



Exhibit A: Vicinity Map



SCALE: 1" = 500 FEET



DATE: 06/16/2022

VICINITY MAP

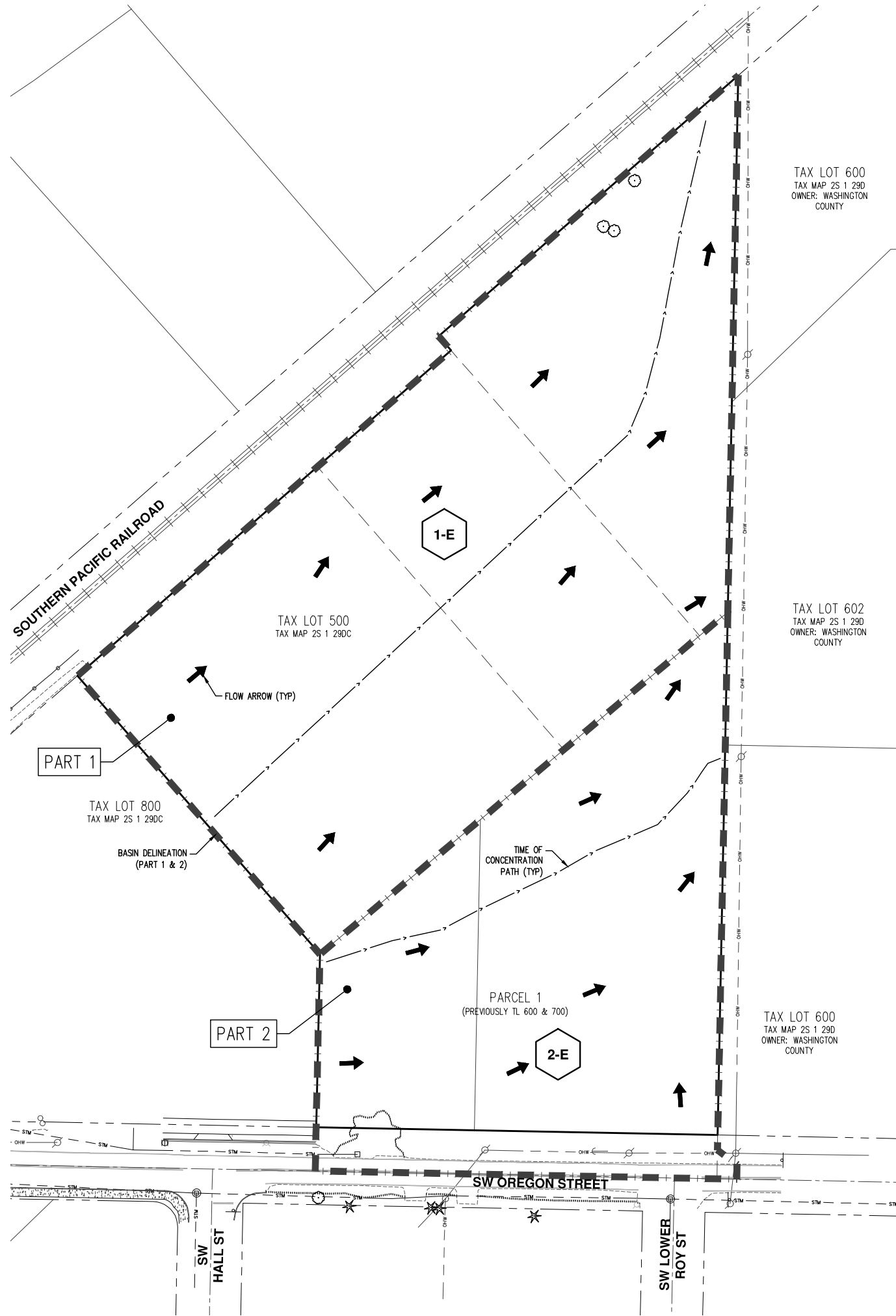
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AKS ENGINEERING & FORESTRY, LLC
 12965 SW HERMAN RD, STE 100
 TUALATIN, OR 97062
 P: 503.563.6151 F: 503.563.6152 aks-eng.com



DRWN: APC
 CHKD: BGC
 AKS JOB:
 8627-03

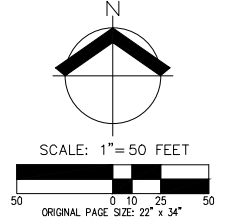
Appendix A: Pre-Developed Catchment Basins Map and Peak Flow Calculations - HydroCAD



LEGEND

- BASIN DELINEATION (PART 1 & 2)
- SUBBASIN DELINEATION
- TIME OF CONCENTRATION PATH
- SUBBASIN
- FLOW ARROW

- NOTES:**
- CATCHMENT AREAS SHOWN ON THIS MAP ARE:
 - SHOWN TO ILLUSTRATE THE SUBCATCHMENT DELINEATION BASED ON EXISTING CONDITIONS PRIOR TO THE JBMAC VENTURES DEVELOPMENT.



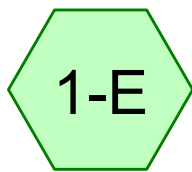
**PRE-DEVELOPED CATCHMENT BASINS MAP
 OREGON STREET JBMAC
 SHERWOOD, OREGON**



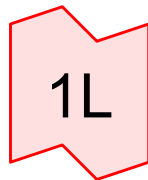
RENEWS:

JOB NUMBER:	8827-03
DATE:	06/16/2022
DESIGNED BY:	APC & TJ
DRAWN BY:	APC
CHECKED BY:	BGC

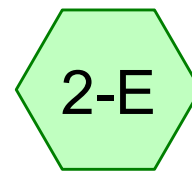
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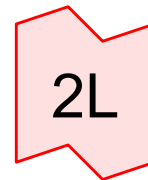
Existing



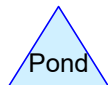
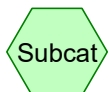
Flow Summary Part 1



Existing



Flow Summary Part 2



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
6.244	79	50-75% Grass cover, Fair, HSG C (1-E, 2-E)
0.077	98	Impervious Paving, HSG C (2-E)
6.322	79	TOTAL AREA

8627-03 Pre-DEV*Type IA 24-hr 2-YR Rainfall=2.50"*

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 2

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1-E: Existing

Runoff Area=174,233 sf 0.00% Impervious Runoff Depth=0.84"

Flow Length=707' Slope=0.0300 '/' Tc=28.3 min CN=79/0 Runoff=0.42 cfs 0.279 af

Subcatchment2-E: Existing

Runoff Area=101,133 sf 3.34% Impervious Runoff Depth=0.89"

Flow Length=363' Tc=22.8 min CN=79/98 Runoff=0.29 cfs 0.171 af

Link 1L: Flow Summary Part 1

Inflow=0.42 cfs 0.279 af

Primary=0.42 cfs 0.279 af

Link 2L: Flow Summary Part 2

Inflow=0.29 cfs 0.171 af

Primary=0.29 cfs 0.171 af

Total Runoff Area = 6.322 ac Runoff Volume = 0.450 af Average Runoff Depth = 0.85"
98.77% Pervious = 6.244 ac 1.23% Impervious = 0.077 ac

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Type IA 24-hr 2-YR Rainfall=2.50"

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Summary for Subcatchment 1-E: Existing

Runoff = 0.42 cfs @ 8.13 hrs, Volume= 0.279 af, Depth= 0.84"

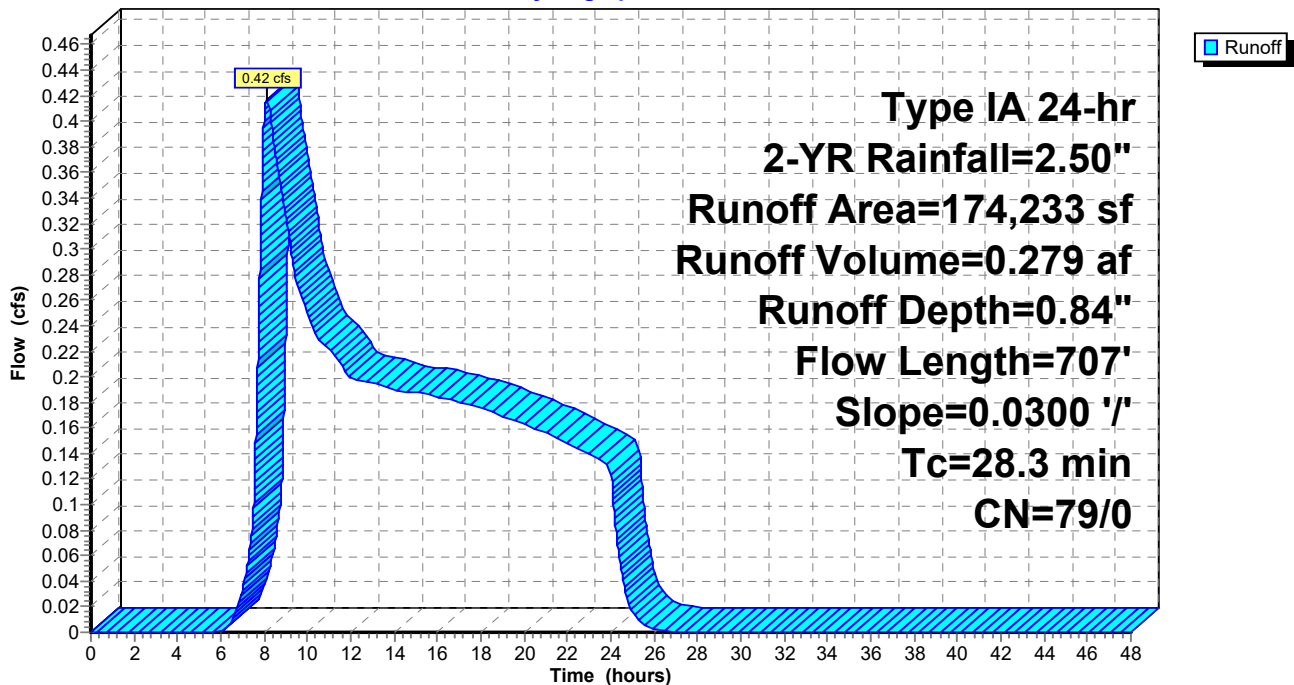
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-YR Rainfall=2.50"

Area (sf)	CN	Description
174,233	79	50-75% Grass cover, Fair, HSG C
174,233		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.7	300	0.0300	0.22		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
5.6	407	0.0300	1.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
28.3	707	Total			

Subcatchment 1-E: Existing

Hydrograph



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Type IA 24-hr 2-YR Rainfall=2.50"

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Summary for Subcatchment 2-E: Existing

Runoff = 0.29 cfs @ 8.02 hrs, Volume= 0.171 af, Depth= 0.89"

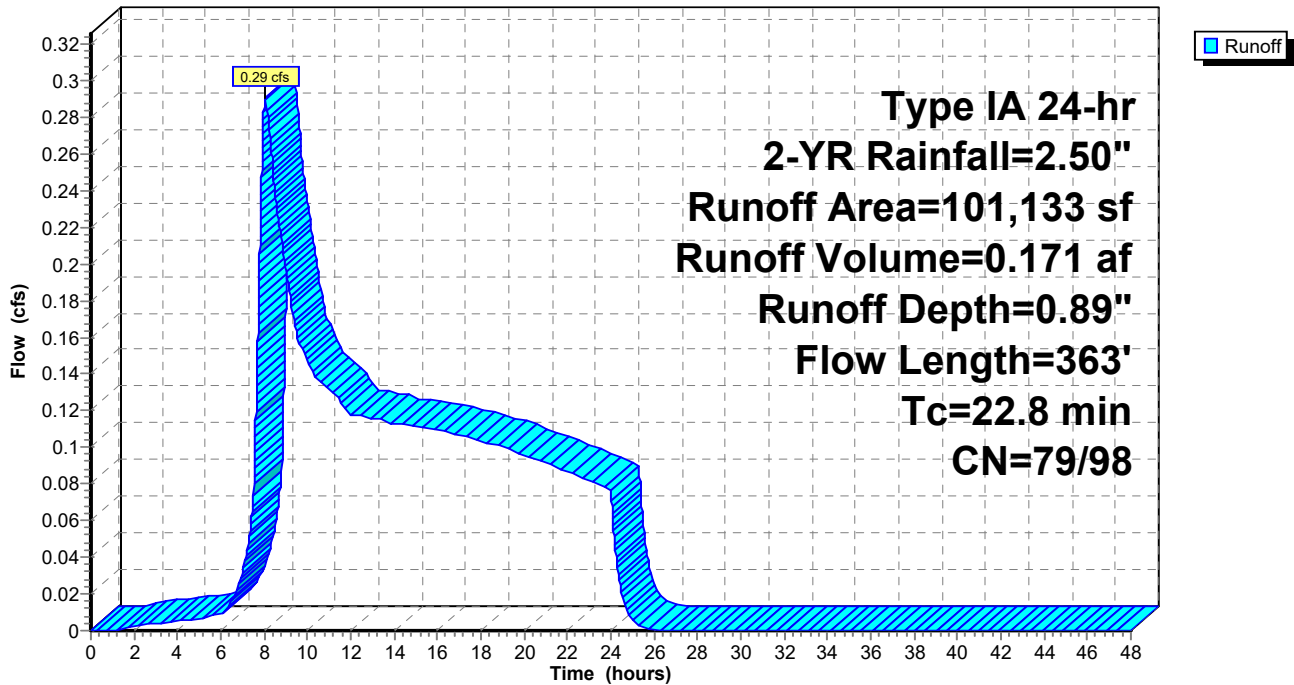
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-YR Rainfall=2.50"

Area (sf)	CN	Description
97,758	79	50-75% Grass cover, Fair, HSG C
* 3,375	98	Impervious Paving, HSG C
101,133	80	Weighted Average
97,758		96.66% Pervious Area
3,375		3.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.2	300	0.0316	0.22		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
0.6	63	0.0600	1.71		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
22.8	363	Total			

Subcatchment 2-E: Existing

Hydrograph



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Type IA 24-hr 2-YR Rainfall=2.50"

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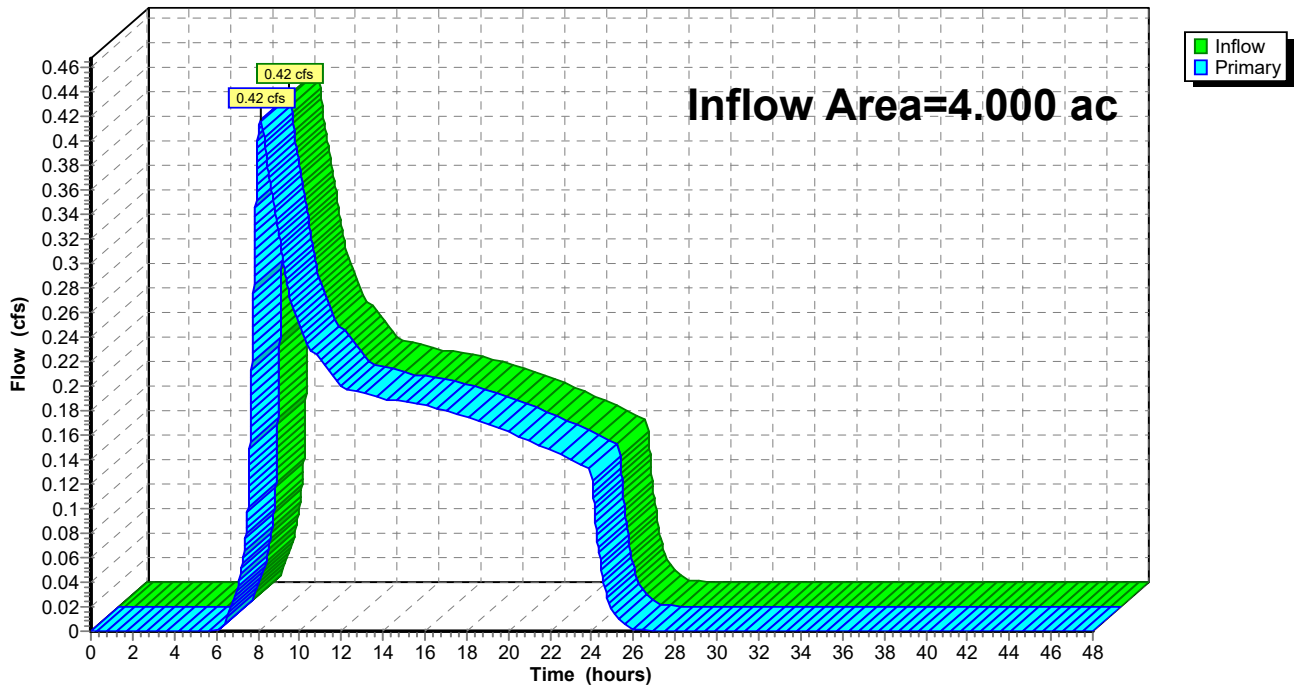
Summary for Link 1L: Flow Summary Part 1

Inflow Area = 4.000 ac, 0.00% Impervious, Inflow Depth = 0.84" for 2-YR event
 Inflow = 0.42 cfs @ 8.13 hrs, Volume= 0.279 af
 Primary = 0.42 cfs @ 8.13 hrs, Volume= 0.279 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link 1L: Flow Summary Part 1

Hydrograph



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Type IA 24-hr 2-YR Rainfall=2.50"

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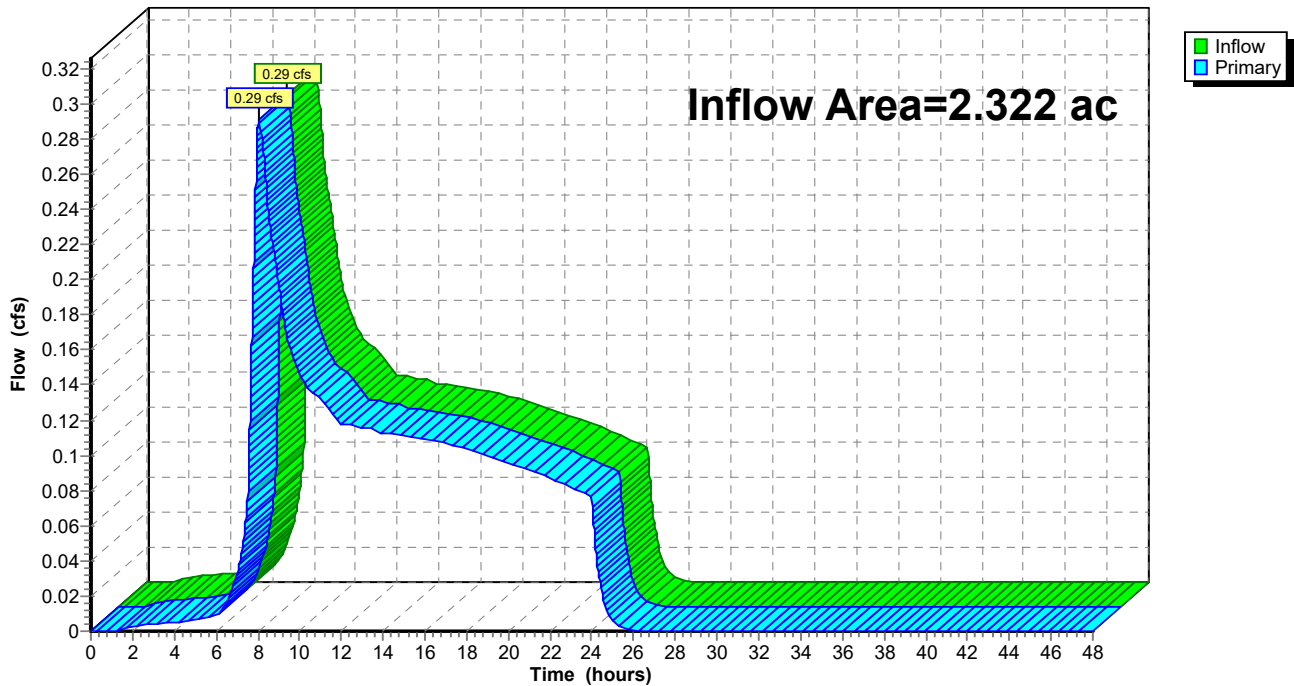
Summary for Link 2L: Flow Summary Part 2

Inflow Area = 2.322 ac, 3.34% Impervious, Inflow Depth = 0.89" for 2-YR event
 Inflow = 0.29 cfs @ 8.02 hrs, Volume= 0.171 af
 Primary = 0.29 cfs @ 8.02 hrs, Volume= 0.171 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link 2L: Flow Summary Part 2

Hydrograph



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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 2

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1-E: Existing

Runoff Area=174,233 sf 0.00% Impervious Runoff Depth=1.26"

Flow Length=707' Slope=0.0300 '/' Tc=28.3 min CN=79/0 Runoff=0.73 cfs 0.421 af

Subcatchment2-E: Existing

Runoff Area=101,133 sf 3.34% Impervious Runoff Depth=1.32"

Flow Length=363' Tc=22.8 min CN=79/98 Runoff=0.49 cfs 0.255 af

Link 1L: Flow Summary Part 1

Inflow=0.73 cfs 0.421 af

Primary=0.73 cfs 0.421 af

Link 2L: Flow Summary Part 2

Inflow=0.49 cfs 0.255 af

Primary=0.49 cfs 0.255 af

Total Runoff Area = 6.322 ac Runoff Volume = 0.675 af Average Runoff Depth = 1.28"
98.77% Pervious = 6.244 ac 1.23% Impervious = 0.077 ac

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Type IA 24-hr 5-YR Rainfall=3.10"

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Summary for Subcatchment 1-E: Existing

Runoff = 0.73 cfs @ 8.07 hrs, Volume= 0.421 af, Depth= 1.26"

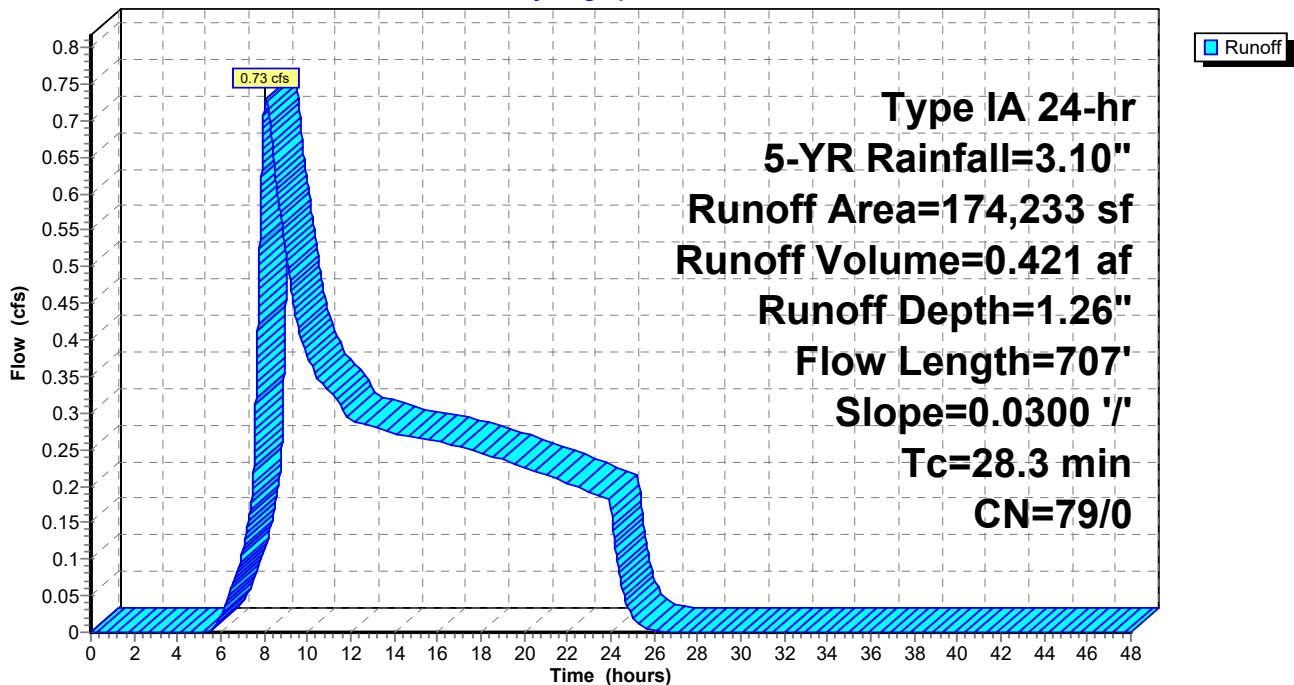
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5-YR Rainfall=3.10"

Area (sf)	CN	Description
174,233	79	50-75% Grass cover, Fair, HSG C
174,233		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.7	300	0.0300	0.22		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
5.6	407	0.0300	1.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
28.3	707	Total			

Subcatchment 1-E: Existing

Hydrograph



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Type IA 24-hr 5-YR Rainfall=3.10"

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Summary for Subcatchment 2-E: Existing

Runoff = 0.49 cfs @ 8.01 hrs, Volume= 0.255 af, Depth= 1.32"

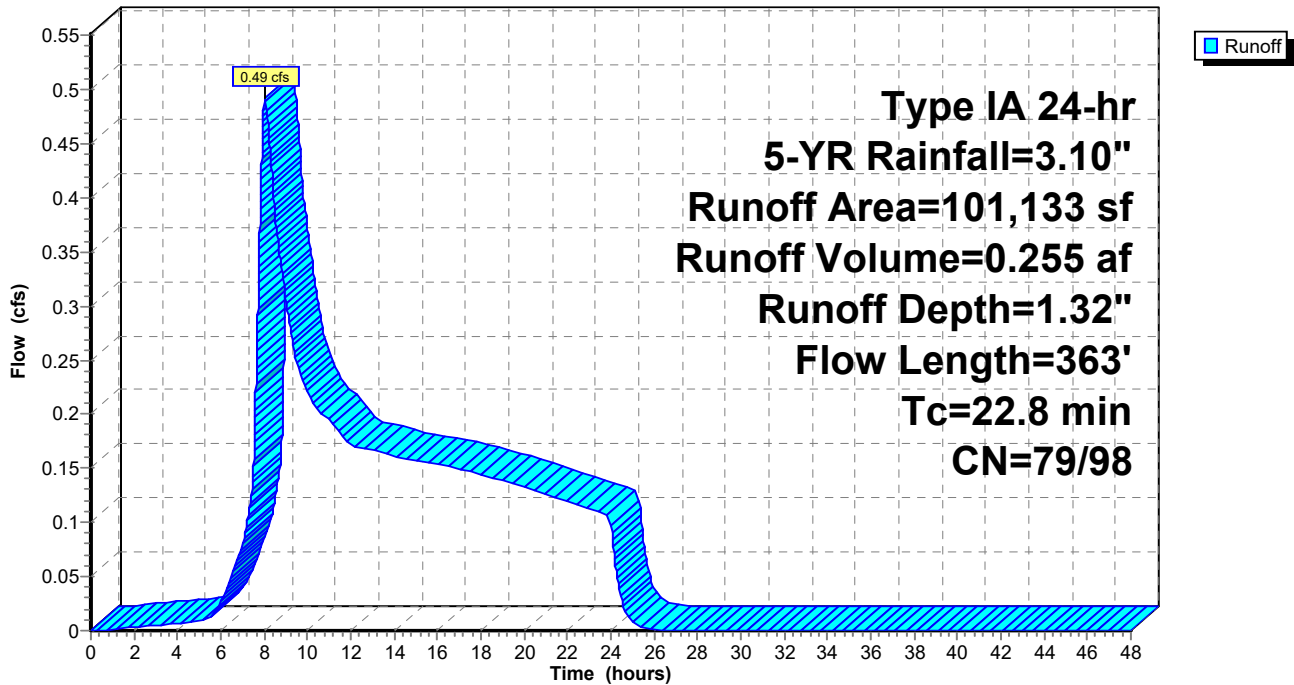
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5-YR Rainfall=3.10"

Area (sf)	CN	Description
97,758	79	50-75% Grass cover, Fair, HSG C
* 3,375	98	Impervious Paving, HSG C
101,133	80	Weighted Average
97,758		96.66% Pervious Area
3,375		3.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.2	300	0.0316	0.22		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
0.6	63	0.0600	1.71		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
22.8	363	Total			

Subcatchment 2-E: Existing

Hydrograph



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Type IA 24-hr 5-YR Rainfall=3.10"

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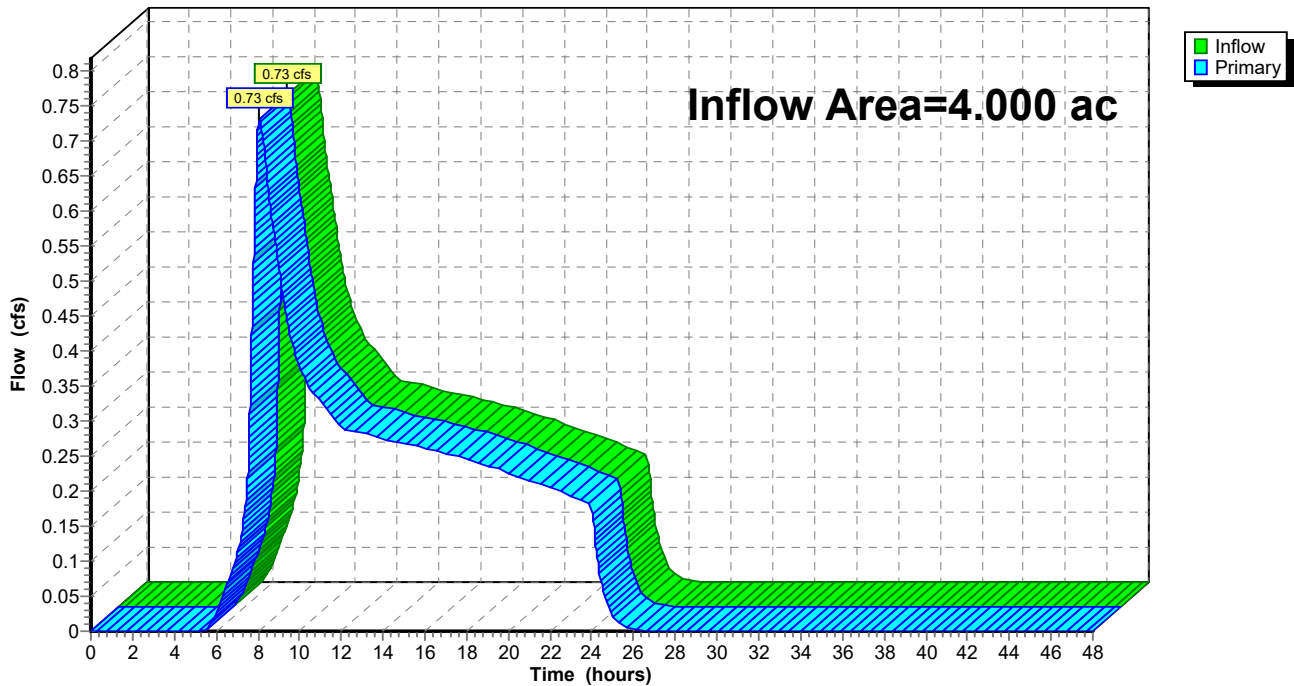
Summary for Link 1L: Flow Summary Part 1

Inflow Area = 4.000 ac, 0.00% Impervious, Inflow Depth = 1.26" for 5-YR event
 Inflow = 0.73 cfs @ 8.07 hrs, Volume= 0.421 af
 Primary = 0.73 cfs @ 8.07 hrs, Volume= 0.421 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link 1L: Flow Summary Part 1

Hydrograph



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Type IA 24-hr 5-YR Rainfall=3.10"

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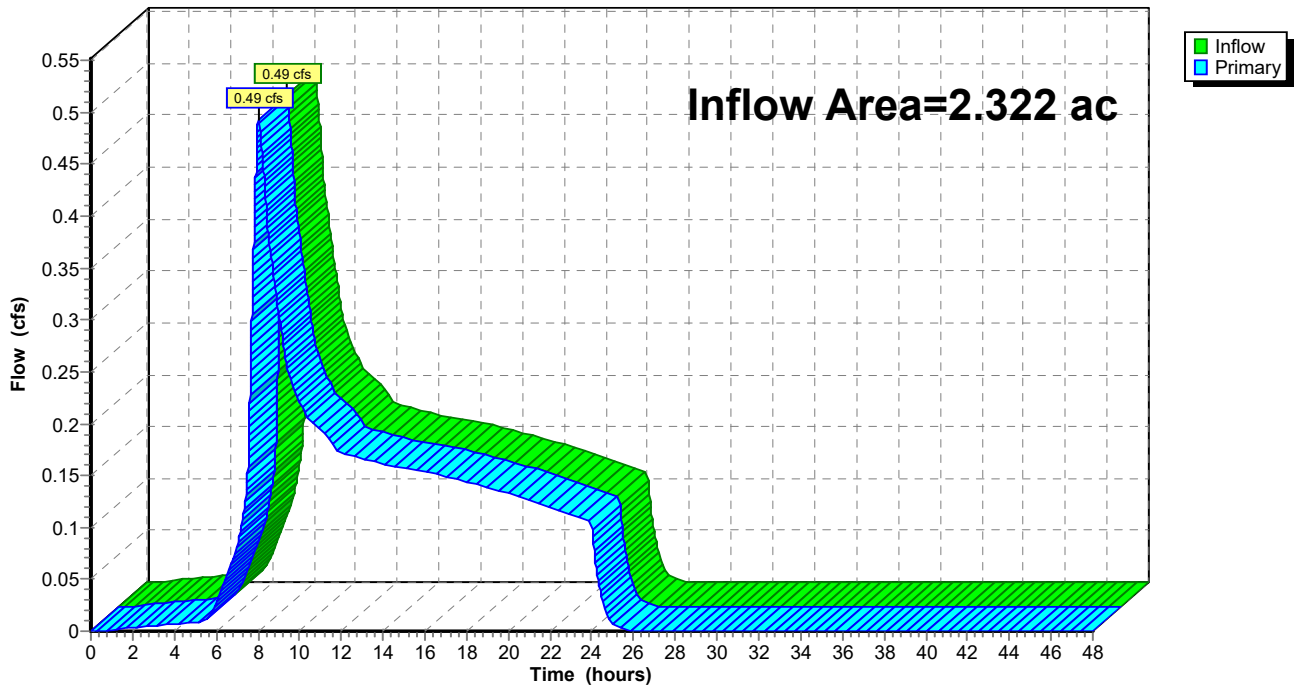
Summary for Link 2L: Flow Summary Part 2

Inflow Area = 2.322 ac, 3.34% Impervious, Inflow Depth = 1.32" for 5-YR event
 Inflow = 0.49 cfs @ 8.01 hrs, Volume= 0.255 af
 Primary = 0.49 cfs @ 8.01 hrs, Volume= 0.255 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link 2L: Flow Summary Part 2

Hydrograph



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Type IA 24-hr 10-YR Rainfall=3.45"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 2

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1-E: Existing

Runoff Area=174,233 sf 0.00% Impervious Runoff Depth=1.53"

Flow Length=707' Slope=0.0300 '/' Tc=28.3 min CN=79/0 Runoff=0.93 cfs 0.509 af

Subcatchment2-E: Existing

Runoff Area=101,133 sf 3.34% Impervious Runoff Depth=1.58"

Flow Length=363' Tc=22.8 min CN=79/98 Runoff=0.62 cfs 0.306 af

Link 1L: Flow Summary Part 1

Inflow=0.93 cfs 0.509 af

Primary=0.93 cfs 0.509 af

Link 2L: Flow Summary Part 2

Inflow=0.62 cfs 0.306 af

Primary=0.62 cfs 0.306 af

Total Runoff Area = 6.322 ac Runoff Volume = 0.815 af Average Runoff Depth = 1.55"
98.77% Pervious = 6.244 ac 1.23% Impervious = 0.077 ac

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Type IA 24-hr 10-YR Rainfall=3.45"

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Summary for Subcatchment 1-E: Existing

Runoff = 0.93 cfs @ 8.04 hrs, Volume= 0.509 af, Depth= 1.53"

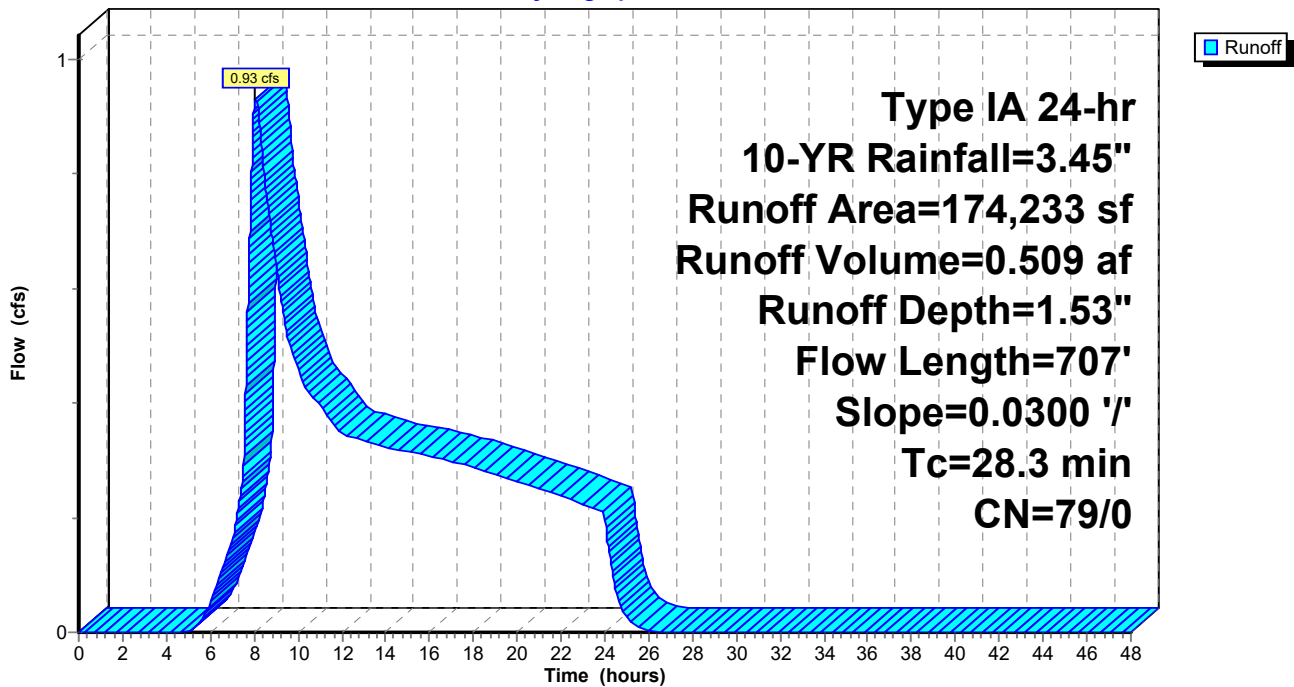
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-YR Rainfall=3.45"

Area (sf)	CN	Description
174,233	79	50-75% Grass cover, Fair, HSG C
174,233		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.7	300	0.0300	0.22		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
5.6	407	0.0300	1.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
28.3	707	Total			

Subcatchment 1-E: Existing

Hydrograph



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Type IA 24-hr 10-YR Rainfall=3.45"

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Summary for Subcatchment 2-E: Existing

Runoff = 0.62 cfs @ 8.01 hrs, Volume= 0.306 af, Depth= 1.58"

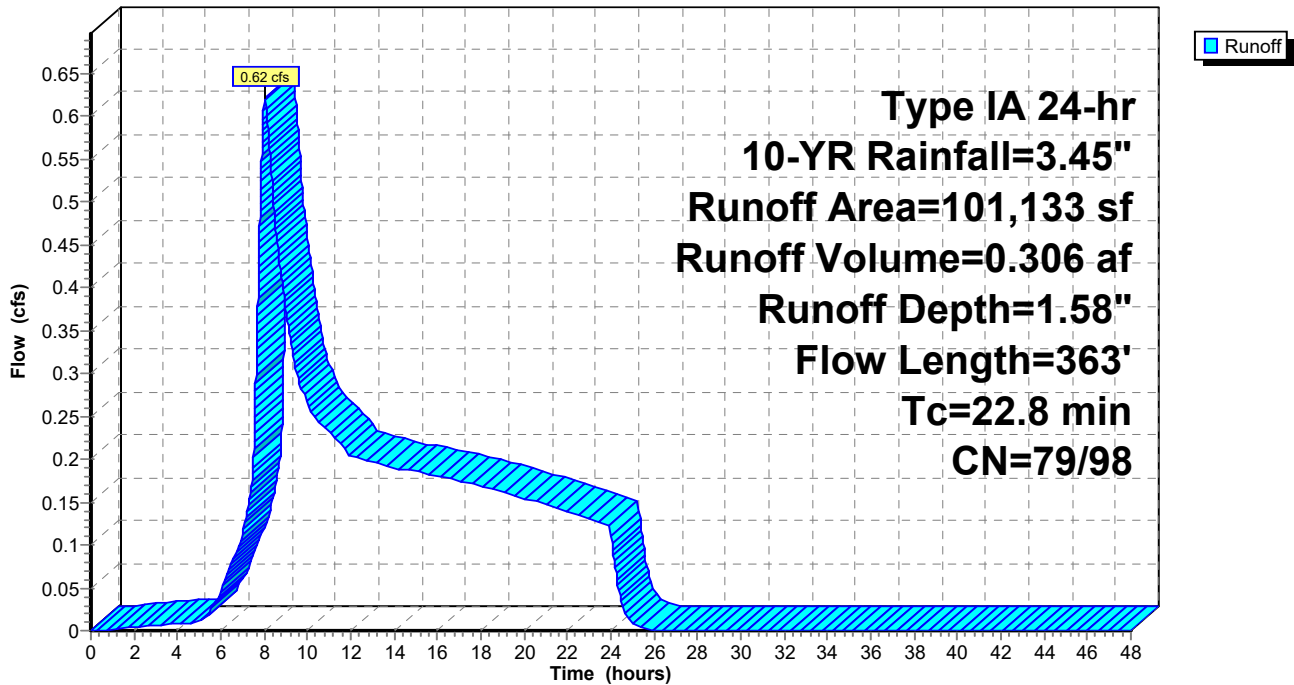
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-YR Rainfall=3.45"

Area (sf)	CN	Description
97,758	79	50-75% Grass cover, Fair, HSG C
* 3,375	98	Impervious Paving, HSG C
101,133	80	Weighted Average
97,758		96.66% Pervious Area
3,375		3.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.2	300	0.0316	0.22		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
0.6	63	0.0600	1.71		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
22.8	363	Total			

Subcatchment 2-E: Existing

Hydrograph



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Type IA 24-hr 10-YR Rainfall=3.45"

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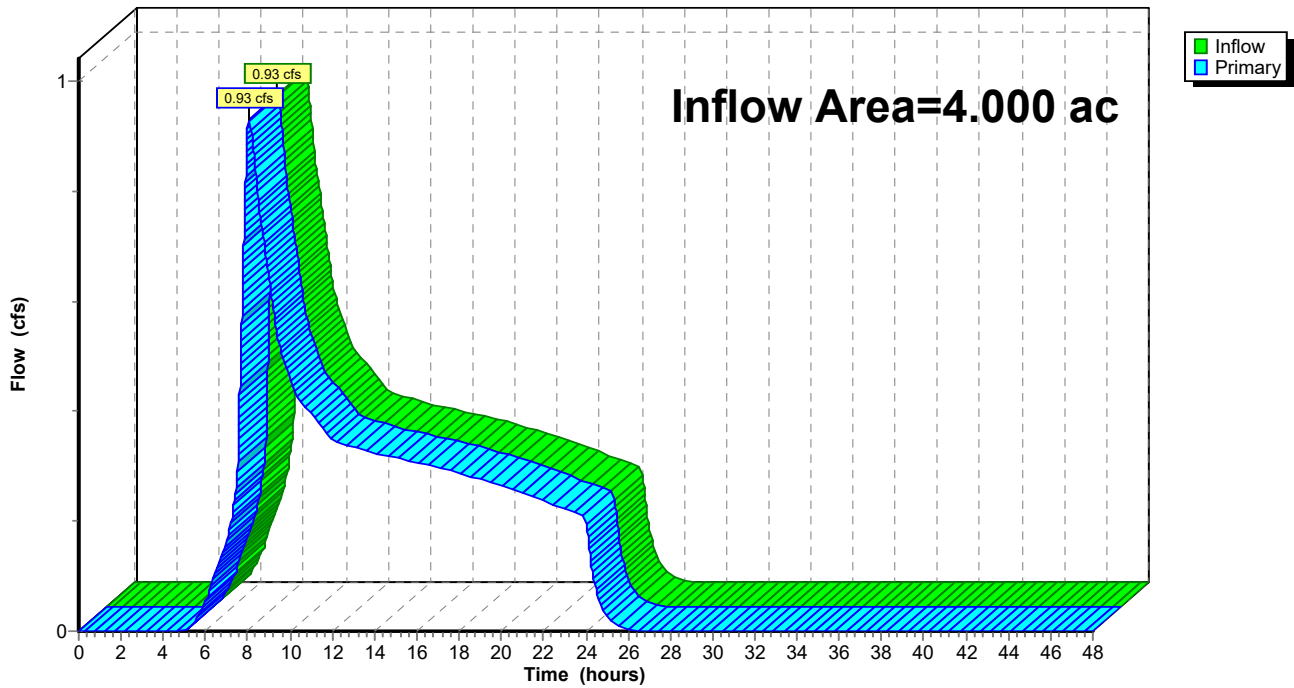
Summary for Link 1L: Flow Summary Part 1

Inflow Area = 4.000 ac, 0.00% Impervious, Inflow Depth = 1.53" for 10-YR event
 Inflow = 0.93 cfs @ 8.04 hrs, Volume= 0.509 af
 Primary = 0.93 cfs @ 8.04 hrs, Volume= 0.509 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link 1L: Flow Summary Part 1

Hydrograph



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Type IA 24-hr 10-YR Rainfall=3.45"

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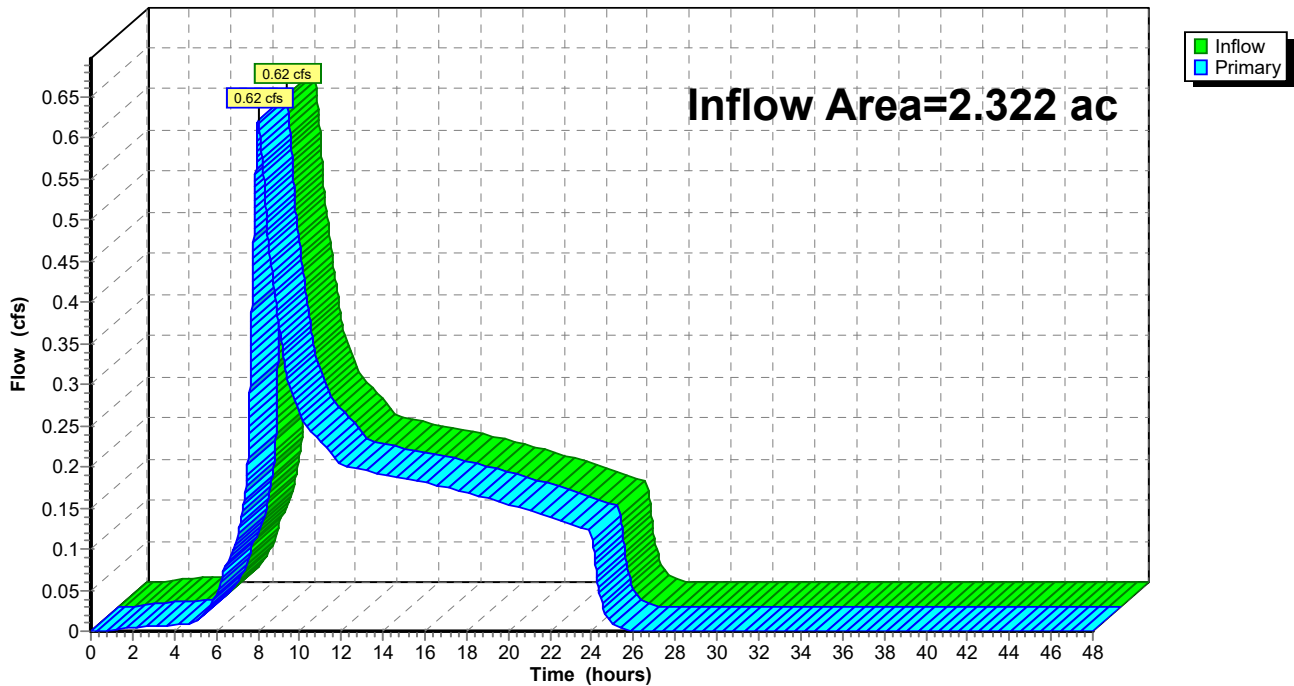
Summary for Link 2L: Flow Summary Part 2

Inflow Area = 2.322 ac, 3.34% Impervious, Inflow Depth = 1.58" for 10-YR event
 Inflow = 0.62 cfs @ 8.01 hrs, Volume= 0.306 af
 Primary = 0.62 cfs @ 8.01 hrs, Volume= 0.306 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link 2L: Flow Summary Part 2

Hydrograph



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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 2

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1-E: Existing

Runoff Area=174,233 sf 0.00% Impervious Runoff Depth=1.88"

Flow Length=707' Slope=0.0300 '/' Tc=28.3 min CN=79/0 Runoff=1.21 cfs 0.628 af

Subcatchment2-E: Existing

Runoff Area=101,133 sf 3.34% Impervious Runoff Depth=1.94"

Flow Length=363' Tc=22.8 min CN=79/98 Runoff=0.80 cfs 0.376 af

Link 1L: Flow Summary Part 1

Inflow=1.21 cfs 0.628 af

Primary=1.21 cfs 0.628 af

Link 2L: Flow Summary Part 2

Inflow=0.80 cfs 0.376 af

Primary=0.80 cfs 0.376 af

Total Runoff Area = 6.322 ac Runoff Volume = 1.003 af Average Runoff Depth = 1.90"
98.77% Pervious = 6.244 ac 1.23% Impervious = 0.077 ac

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Type IA 24-hr 25-YR Rainfall=3.90"

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Summary for Subcatchment 1-E: Existing

Runoff = 1.21 cfs @ 8.02 hrs, Volume= 0.628 af, Depth= 1.88"

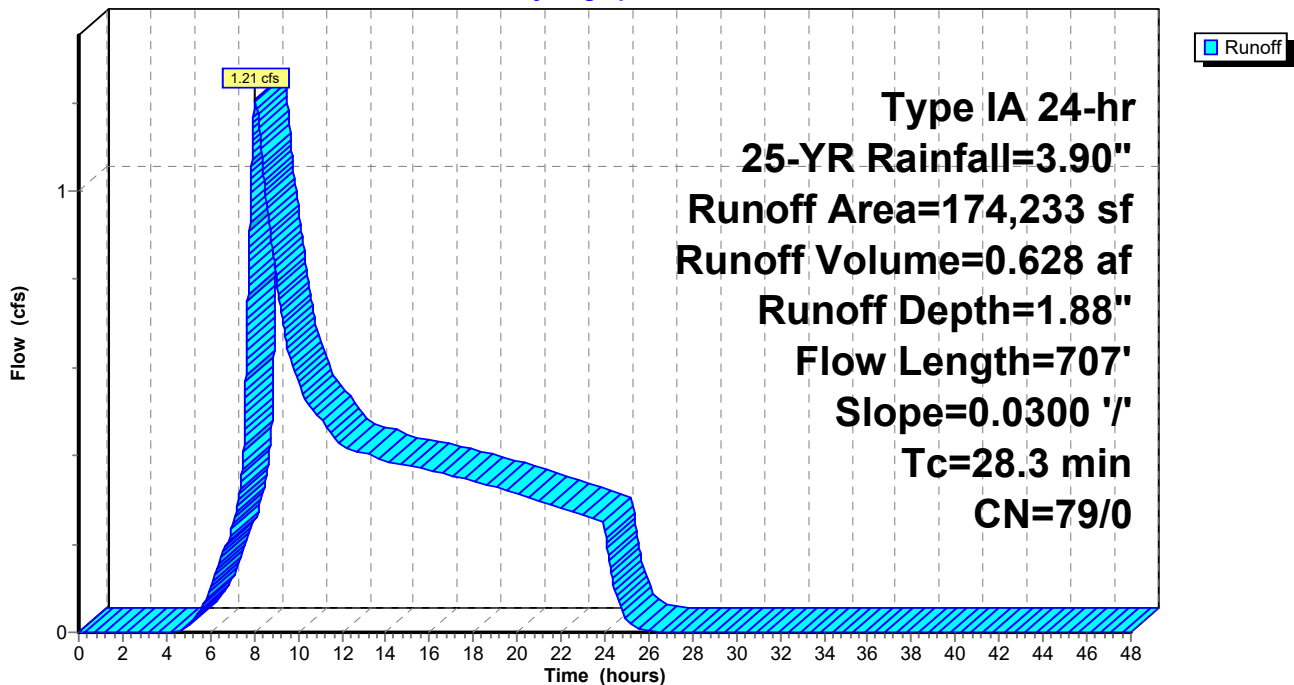
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25-YR Rainfall=3.90"

Area (sf)	CN	Description
174,233	79	50-75% Grass cover, Fair, HSG C
174,233		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.7	300	0.0300	0.22		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
5.6	407	0.0300	1.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
28.3	707	Total			

Subcatchment 1-E: Existing

Hydrograph



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Type IA 24-hr 25-YR Rainfall=3.90"

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Summary for Subcatchment 2-E: Existing

Runoff = 0.80 cfs @ 8.01 hrs, Volume= 0.376 af, Depth= 1.94"

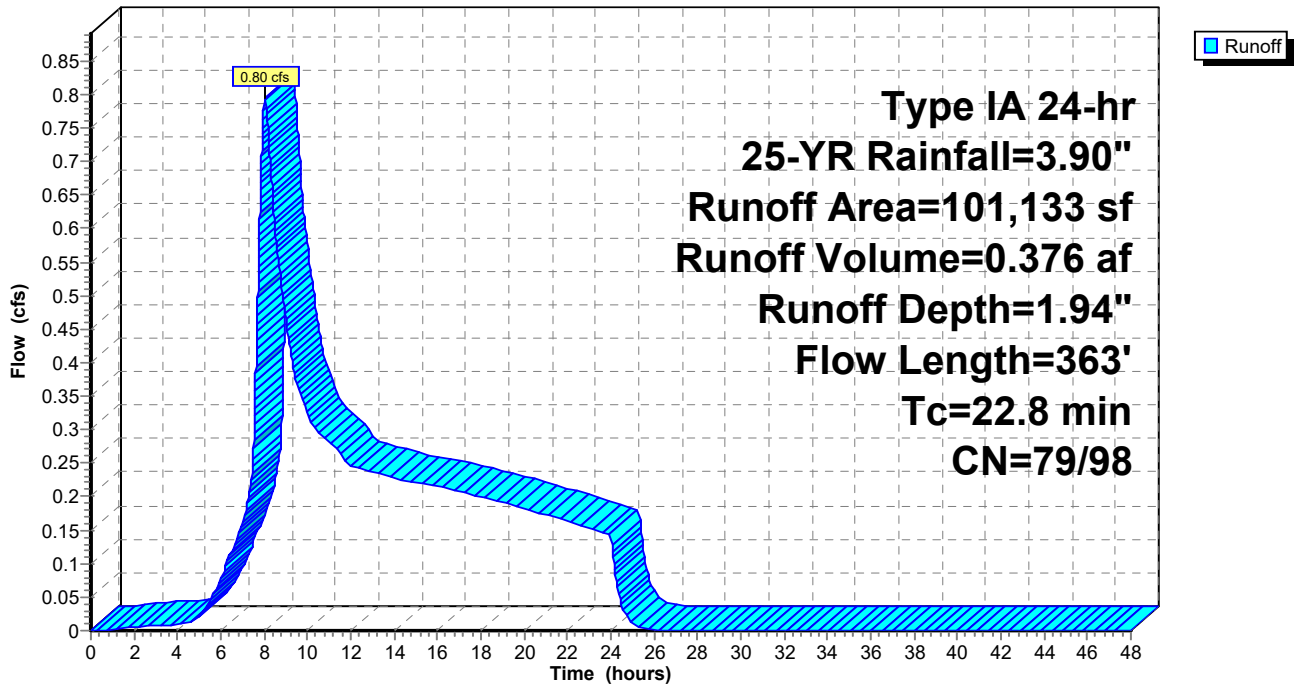
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25-YR Rainfall=3.90"

Area (sf)	CN	Description
97,758	79	50-75% Grass cover, Fair, HSG C
* 3,375	98	Impervious Paving, HSG C
101,133	80	Weighted Average
97,758		96.66% Pervious Area
3,375		3.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.2	300	0.0316	0.22		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
0.6	63	0.0600	1.71		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
22.8	363	Total			

Subcatchment 2-E: Existing

Hydrograph



8627-03 Pre-DEV

Type IA 24-hr 25-YR Rainfall=3.90"

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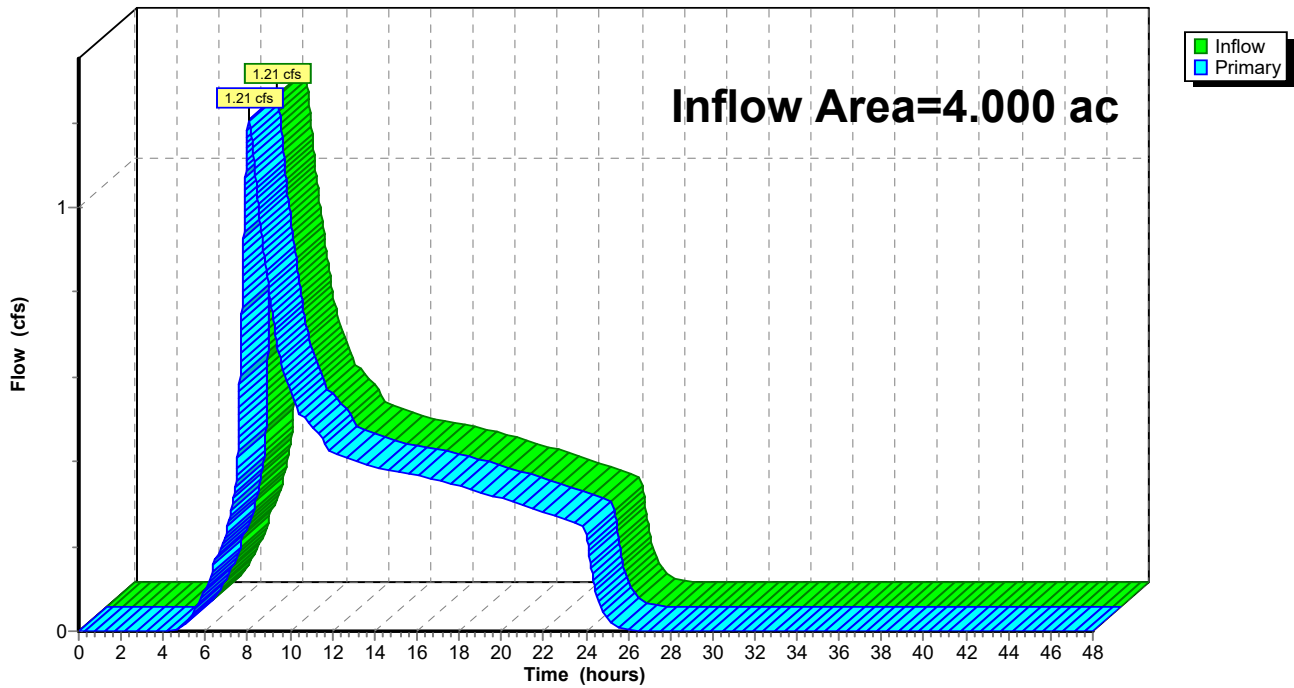
Summary for Link 1L: Flow Summary Part 1

Inflow Area = 4.000 ac, 0.00% Impervious, Inflow Depth = 1.88" for 25-YR event
 Inflow = 1.21 cfs @ 8.02 hrs, Volume= 0.628 af
 Primary = 1.21 cfs @ 8.02 hrs, Volume= 0.628 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link 1L: Flow Summary Part 1

Hydrograph



8627-03 Pre-DEV

Type IA 24-hr 25-YR Rainfall=3.90"

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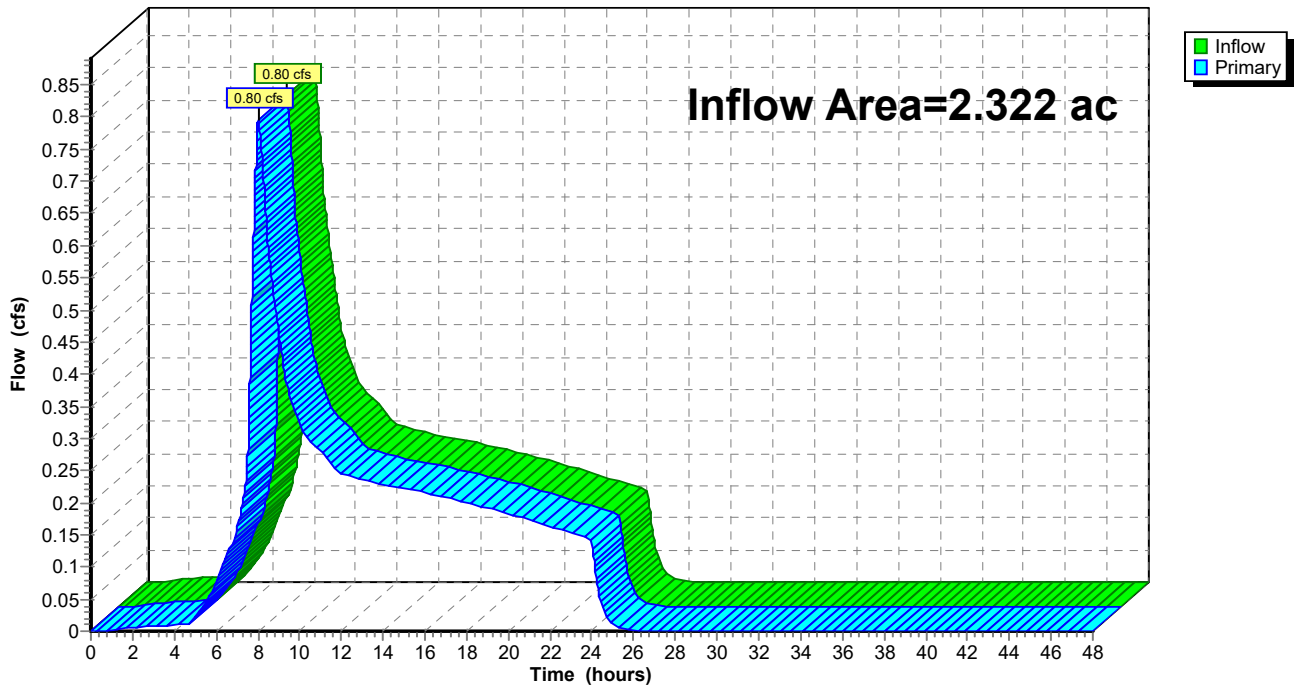
Summary for Link 2L: Flow Summary Part 2

Inflow Area = 2.322 ac, 3.34% Impervious, Inflow Depth = 1.94" for 25-YR event
 Inflow = 0.80 cfs @ 8.01 hrs, Volume= 0.376 af
 Primary = 0.80 cfs @ 8.01 hrs, Volume= 0.376 af, Atten= 0%, Lag= 0.0 min

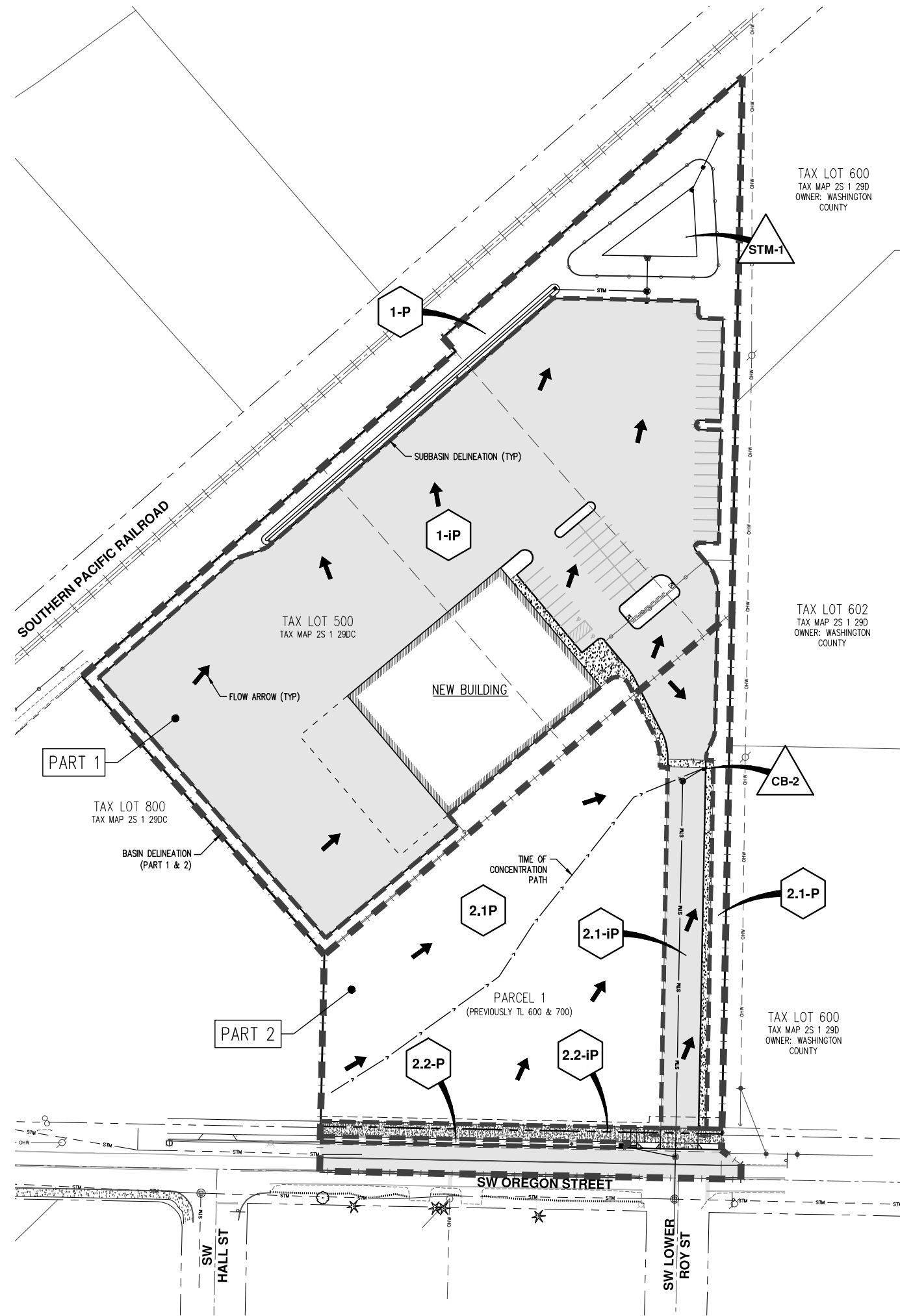
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link 2L: Flow Summary Part 2

Hydrograph



Appendix B: Post-Developed Catchment Basins Map and Peak Flow Calculations - HydroCAD

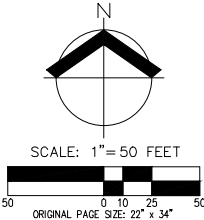


LEGEND

BASIN DELINEATION (PART 1 & 2)	
SUBBASIN DELINEATION	
TIME OF CONCENTRATION PATH	
SUBBASIN	
STORMWATER POND/CB	
FLOW ARROW	

NOTES:
 1. CATCHMENT AREAS SHOWN ON THIS MAP ARE:

- SHOWN TO ILLUSTRATE THE SUBCATCHMENT DELINEATION AS A RESULT OF THE JBMAC VENTURES DEVELOPMENT.
- USED FOR PURPOSES OF CONVEYANCE SIZING FOR THE JBMAC DEVELOPMENT ONLY. A REVIEW OF THE STORM DRAIN SYSTEM DOWNSTREAM OF THE SUBJECT SITE IS ADDRESSED IN THE "JBMAC VENTURES FINAL STORMWATER REPORT".
- NOT INTENDED FOR WATER QUALITY CALCULATIONS. STORMWATER QUALITY CRITERIA FOR THIS SITE WERE FORMERLY ADDRESSED IN THE "JBMAC VENTURES FINAL STORMWATER REPORT."



**POST-DEVELOPED CATCHMENT BASINS MAP
 OREGON STREET JBMAC
 SHERWOOD, OREGON**



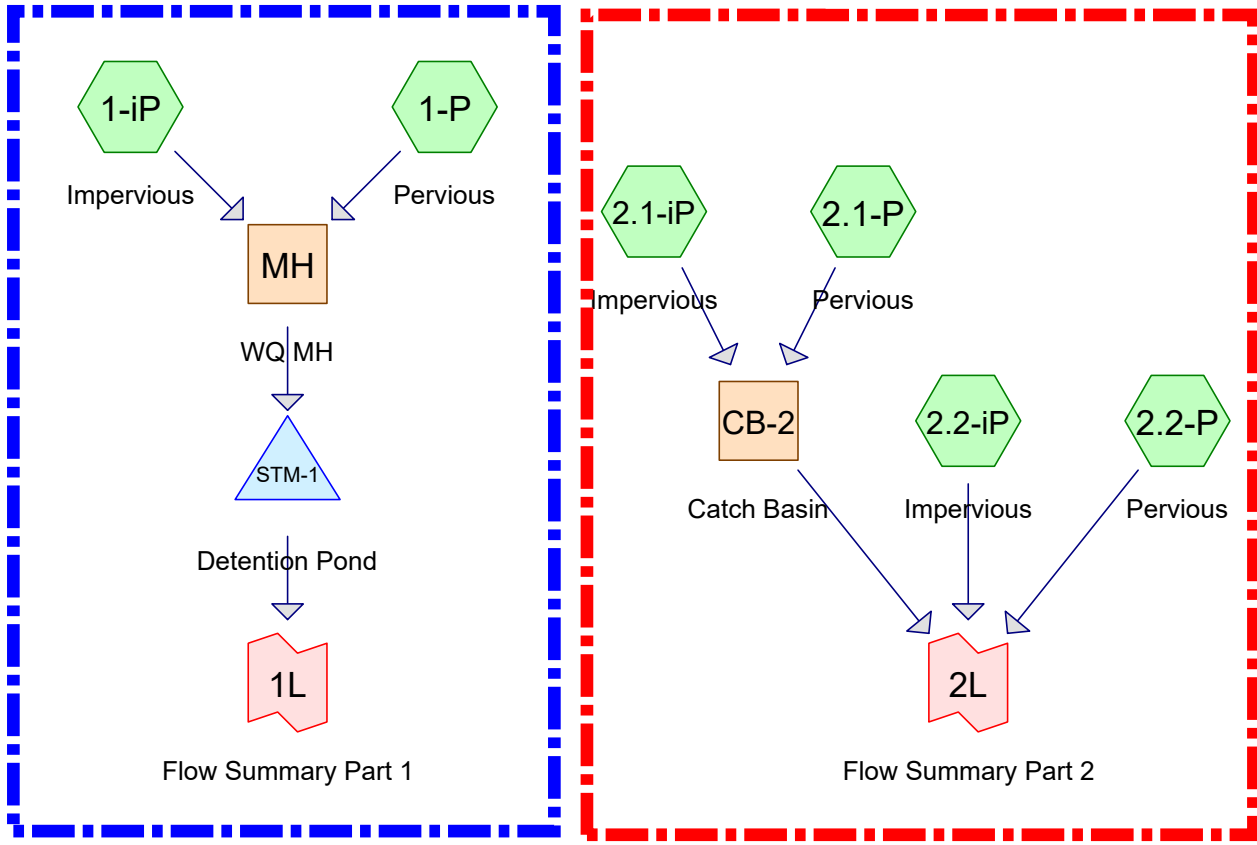
RENEWS:

JOB NUMBER:	8827-03
DATE:	06/16/2022
DESIGNED BY:	APC & TJ
DRAWN BY:	APC
CHECKED BY:	BGC

POST

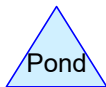
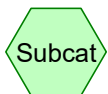
Part 1

Part 2



Flow Summary Part 1

Flow Summary Part 2



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.631	79	50-75% Grass cover, Fair, HSG C (1-P, 2.1-P, 2.2-P)
3.690	98	Roof/Drive Aisle (1-iP, 2.1-iP, 2.2-iP)
6.321	90	TOTAL AREA

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Type IA 24-hr 2-YR Rainfall=2.50"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 2

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1-iP: Impervious Runoff Area=133,720 sf 100.00% Impervious Runoff Depth=2.27"
Tc=5.0 min CN=0/98 Runoff=1.77 cfs 0.581 af

Subcatchment1-P: Pervious Runoff Area=40,503 sf 0.00% Impervious Runoff Depth=0.84"
Tc=5.0 min CN=79/0 Runoff=0.15 cfs 0.065 af

Subcatchment2.1-iP: Impervious Runoff Area=15,312 sf 100.00% Impervious Runoff Depth=2.27"
Tc=5.0 min CN=0/98 Runoff=0.20 cfs 0.067 af

Subcatchment2.1-P: Pervious Runoff Area=72,679 sf 0.00% Impervious Runoff Depth=0.84"
Flow Length=409' Tc=27.4 min CN=79/0 Runoff=0.18 cfs 0.116 af

Subcatchment2.2-iP: Impervious Runoff Area=11,702 sf 100.00% Impervious Runoff Depth=2.27"
Tc=5.0 min CN=0/98 Runoff=0.15 cfs 0.051 af

Subcatchment2.2-P: Pervious Runoff Area=1,440 sf 0.00% Impervious Runoff Depth=0.84"
Tc=5.0 min CN=79/0 Runoff=0.01 cfs 0.002 af

Reach CB-2: Catch Basin Avg. Flow Depth=0.24' Max Vel=2.80 fps Inflow=0.37 cfs 0.183 af
10.0" Round Pipe n=0.010 L=302.0' S=0.0050 '/' Capacity=2.01 cfs Outflow=0.37 cfs 0.183 af

Reach MH: WQ MH Avg. Flow Depth=0.28' Max Vel=11.66 fps Inflow=1.91 cfs 0.646 af
10.0" Round Pipe n=0.010 L=26.3' S=0.0722 '/' Capacity=7.66 cfs Outflow=1.91 cfs 0.646 af

Pond STM-1: Detention Pond Peak Elev=170.92' Storage=15,914 cf Inflow=1.91 cfs 0.646 af
Outflow=0.21 cfs 0.595 af

Link 1L: Flow Summary Part 1 Inflow=0.21 cfs 0.595 af
Primary=0.21 cfs 0.595 af

Link 2L: Flow Summary Part 2 Inflow=0.52 cfs 0.236 af
Primary=0.52 cfs 0.236 af

Total Runoff Area = 6.321 ac Runoff Volume = 0.882 af Average Runoff Depth = 1.67"
41.63% Pervious = 2.631 ac 58.37% Impervious = 3.690 ac

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Type IA 24-hr 2-YR Rainfall=2.50"

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Summary for Subcatchment 1-iP: Impervious

Runoff = 1.77 cfs @ 7.88 hrs, Volume= 0.581 af, Depth= 2.27"

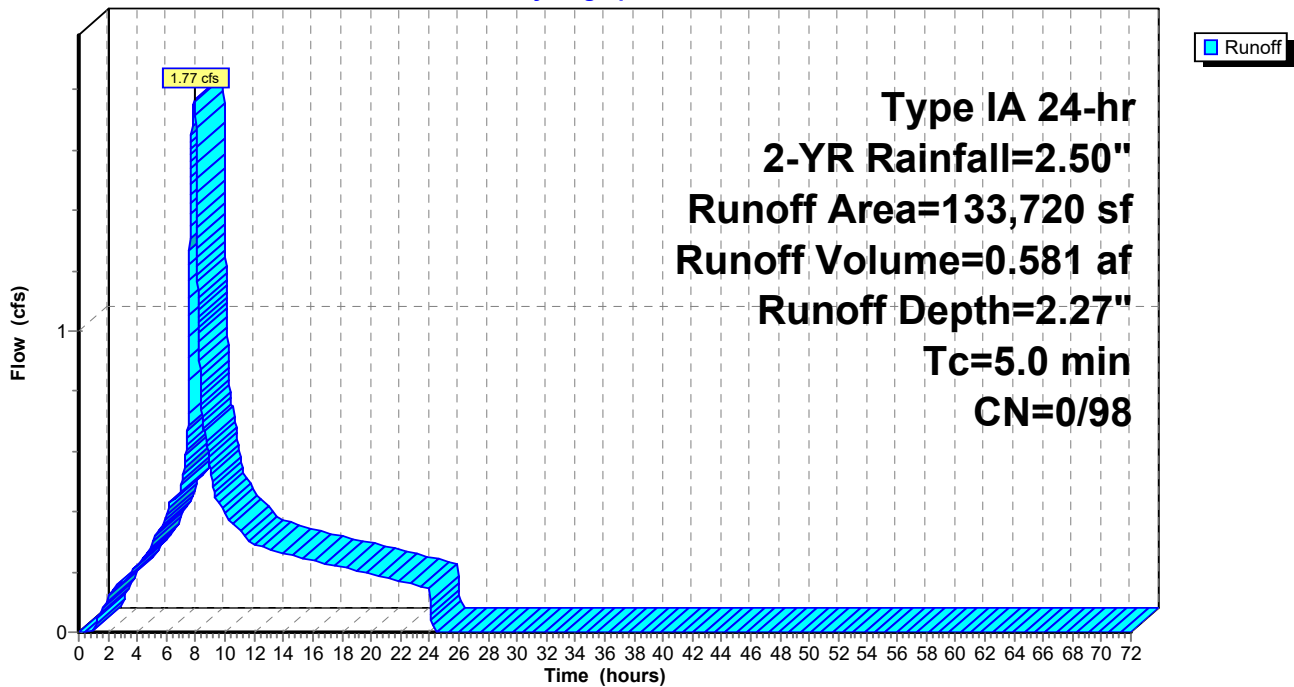
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-YR Rainfall=2.50"

Area (sf)	CN	Description
* 133,720	98	Roof/Drive Aisle
133,720		100.00% Impervious Area

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

Subcatchment 1-iP: Impervious

Hydrograph



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Type IA 24-hr 2-YR Rainfall=2.50"

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Summary for Subcatchment 1-P: Pervious

Runoff = 0.15 cfs @ 8.00 hrs, Volume= 0.065 af, Depth= 0.84"

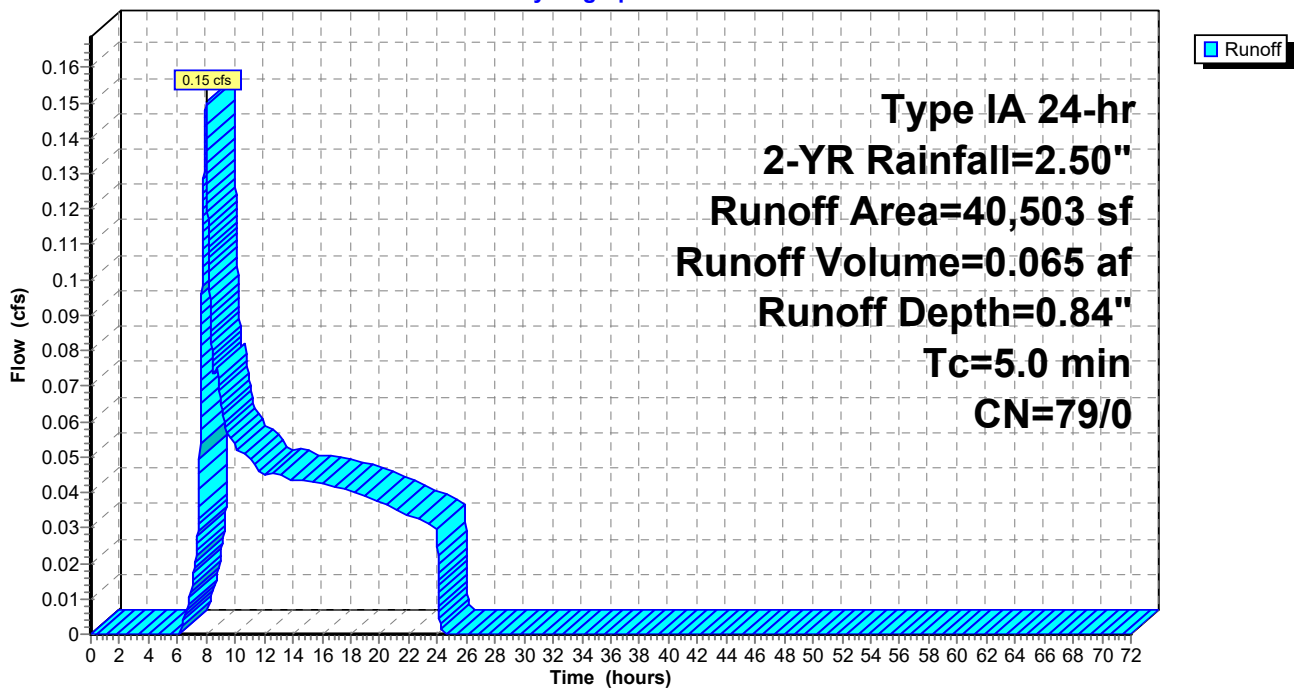
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-YR Rainfall=2.50"

Area (sf)	CN	Description
40,503	79	50-75% Grass cover, Fair, HSG C
40,503		100.00% Pervious Area

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

Subcatchment 1-P: Pervious

Hydrograph



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Type IA 24-hr 2-YR Rainfall=2.50"

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Summary for Subcatchment 2.1-iP: Impervious

Runoff = 0.20 cfs @ 7.88 hrs, Volume= 0.067 af, Depth= 2.27"

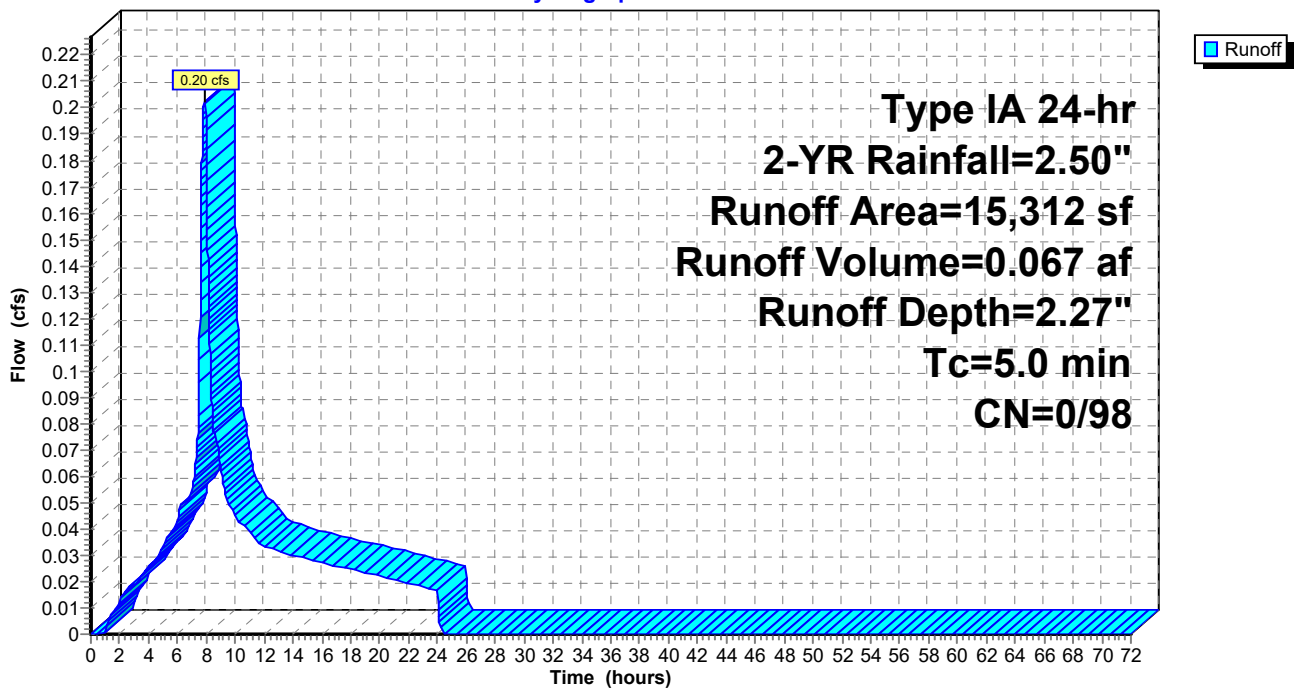
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-YR Rainfall=2.50"

Area (sf)	CN	Description
* 15,312	98	Roof/Drive Aisle
15,312		100.00% Impervious Area

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

Subcatchment 2.1-iP: Impervious

Hydrograph



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Type IA 24-hr 2-YR Rainfall=2.50"

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Summary for Subcatchment 2.1-P: Pervious

Runoff = 0.18 cfs @ 8.12 hrs, Volume= 0.116 af, Depth= 0.84"

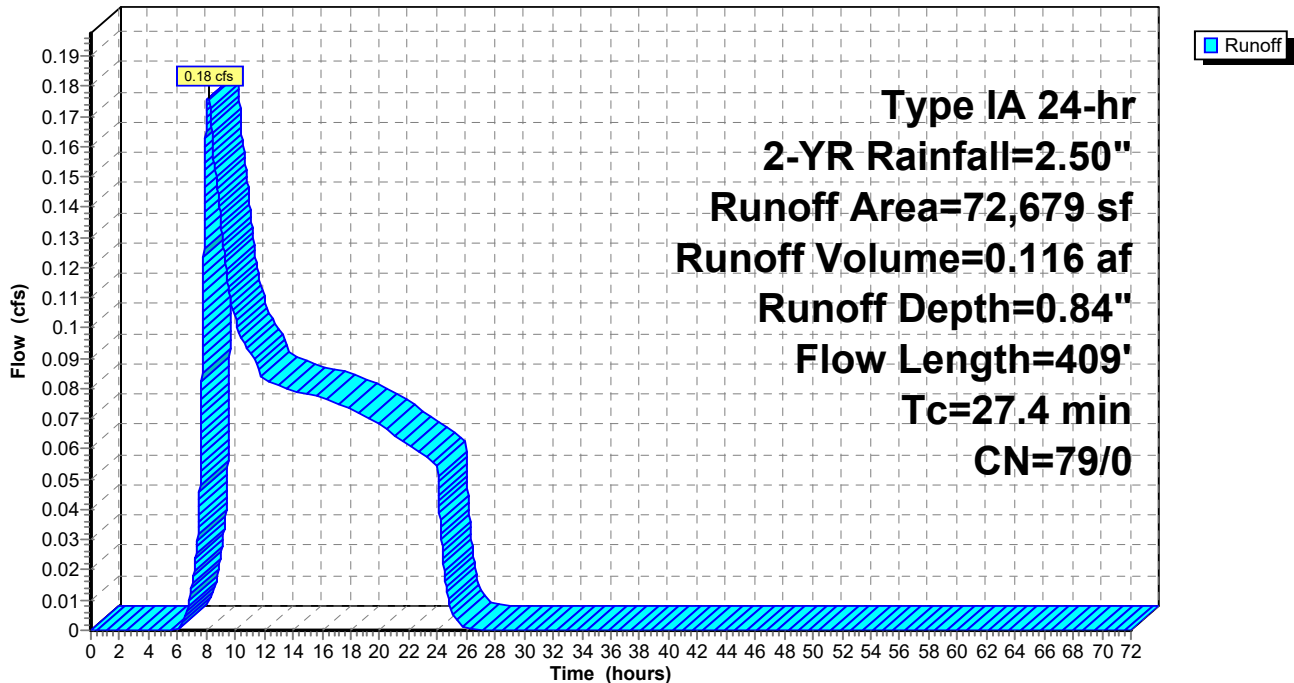
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-YR Rainfall=2.50"

Area (sf)	CN	Description
72,679	79	50-75% Grass cover, Fair, HSG C
72,679		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.7	300	0.0220	0.19		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 2.50"
1.7	109	0.0227	1.05		Shallow Concentrated Flow, Concentrated Flow Short Grass Pasture Kv= 7.0 fps
27.4	409	Total			

Subcatchment 2.1-P: Pervious

Hydrograph



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Type IA 24-hr 2-YR Rainfall=2.50"

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Summary for Subcatchment 2.2-iP: Impervious

Runoff = 0.15 cfs @ 7.88 hrs, Volume= 0.051 af, Depth= 2.27"

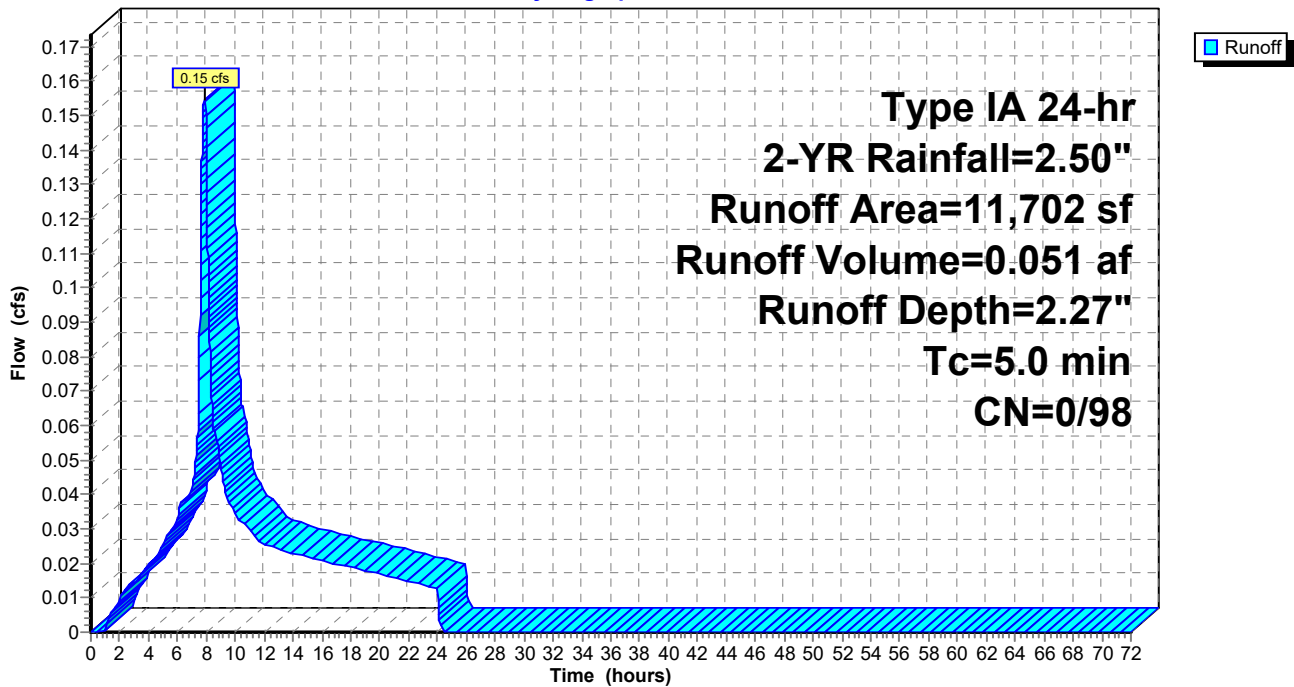
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-YR Rainfall=2.50"

Area (sf)	CN	Description
* 11,702	98	Roof/Drive Aisle
11,702		100.00% Impervious Area

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

Subcatchment 2.2-iP: Impervious

Hydrograph



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Type IA 24-hr 2-YR Rainfall=2.50"

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Summary for Subcatchment 2.2-P: Pervious

Runoff = 0.01 cfs @ 8.00 hrs, Volume= 0.002 af, Depth= 0.84"

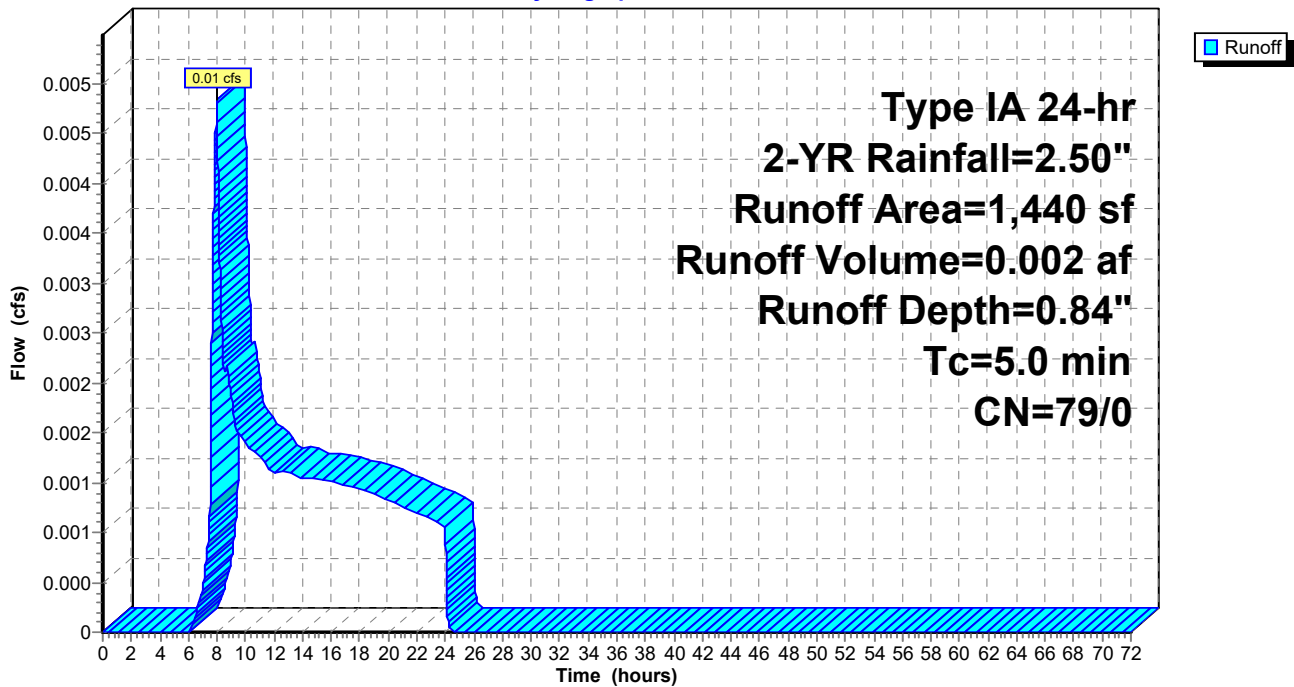
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-YR Rainfall=2.50"

Area (sf)	CN	Description
1,440	79	50-75% Grass cover, Fair, HSG C
1,440		100.00% Pervious Area

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

Subcatchment 2.2-P: Pervious

Hydrograph



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Type IA 24-hr 2-YR Rainfall=2.50"

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Summary for Reach CB-2: Catch Basin

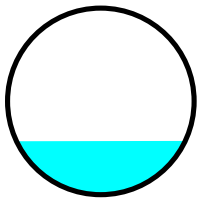
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 2.020 ac, 17.40% Impervious, Inflow Depth = 1.09" for 2-YR event
 Inflow = 0.37 cfs @ 8.00 hrs, Volume= 0.183 af
 Outflow = 0.37 cfs @ 8.01 hrs, Volume= 0.183 af, Atten= 1%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
 Max. Velocity= 2.80 fps, Min. Travel Time= 1.8 min
 Avg. Velocity = 1.64 fps, Avg. Travel Time= 3.1 min

Peak Storage= 39 cf @ 8.01 hrs
 Average Depth at Peak Storage= 0.24'
 Defined Flood Depth= 177.89' Flow Area= 20.2 sf, Capacity= -1,793.61 cfs
 Bank-Full Depth= 0.83' Flow Area= 0.5 sf, Capacity= 2.01 cfs

10.0" Round Pipe
 n= 0.010 PVC, smooth interior
 Length= 302.0' Slope= 0.0050 '/'
 Inlet Invert= 176.89', Outlet Invert= 175.38'



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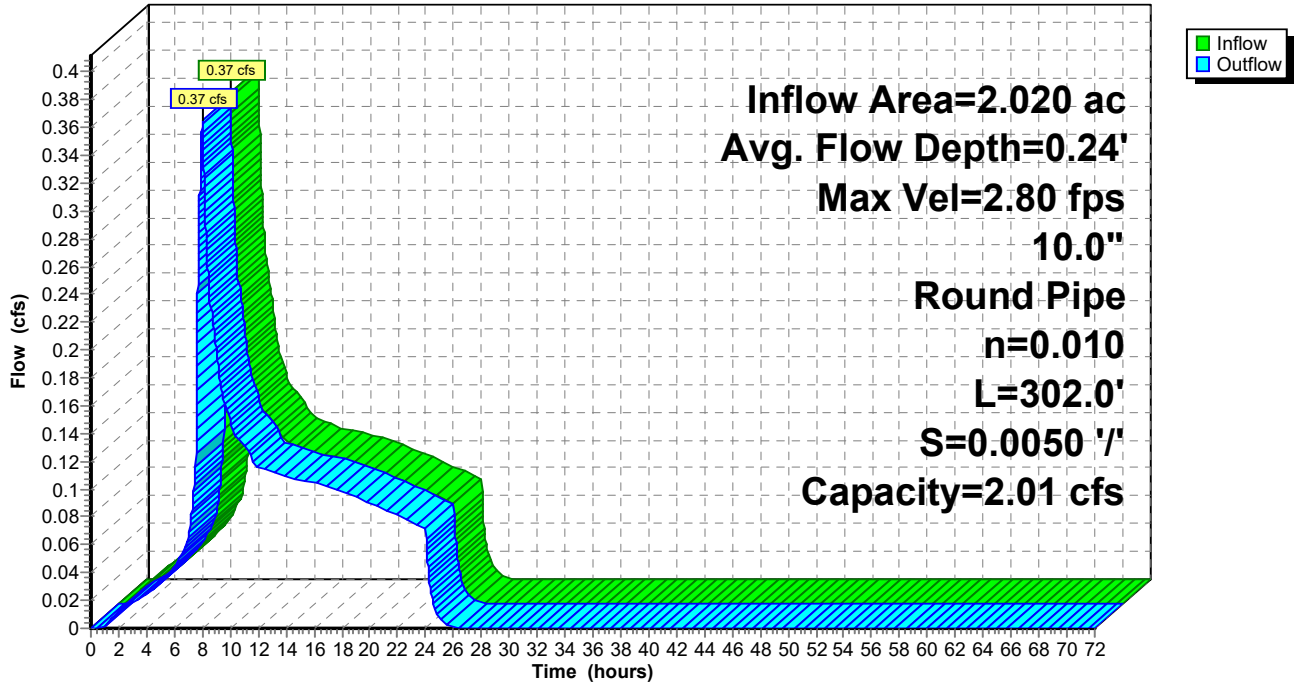
Type IA 24-hr 2-YR Rainfall=2.50"

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Reach CB-2: Catch Basin

Hydrograph



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Type IA 24-hr 2-YR Rainfall=2.50"

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Summary for Reach MH: WQ MH

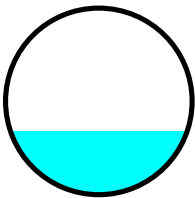
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 4.000 ac, 76.75% Impervious, Inflow Depth = 1.94" for 2-YR event
 Inflow = 1.91 cfs @ 7.90 hrs, Volume= 0.646 af
 Outflow = 1.91 cfs @ 7.90 hrs, Volume= 0.646 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
 Max. Velocity= 11.66 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 6.64 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 7.90 hrs
 Average Depth at Peak Storage= 0.28'
 Defined Flood Depth= 171.30' Flow Area= 19.4 sf, Capacity= -6,563.73 cfs
 Bank-Full Depth= 0.83' Flow Area= 0.5 sf, Capacity= 7.66 cfs

10.0" Round Pipe
 n= 0.010 PVC, smooth interior
 Length= 26.3' Slope= 0.0722 '/'
 Inlet Invert= 169.30', Outlet Invert= 167.40'



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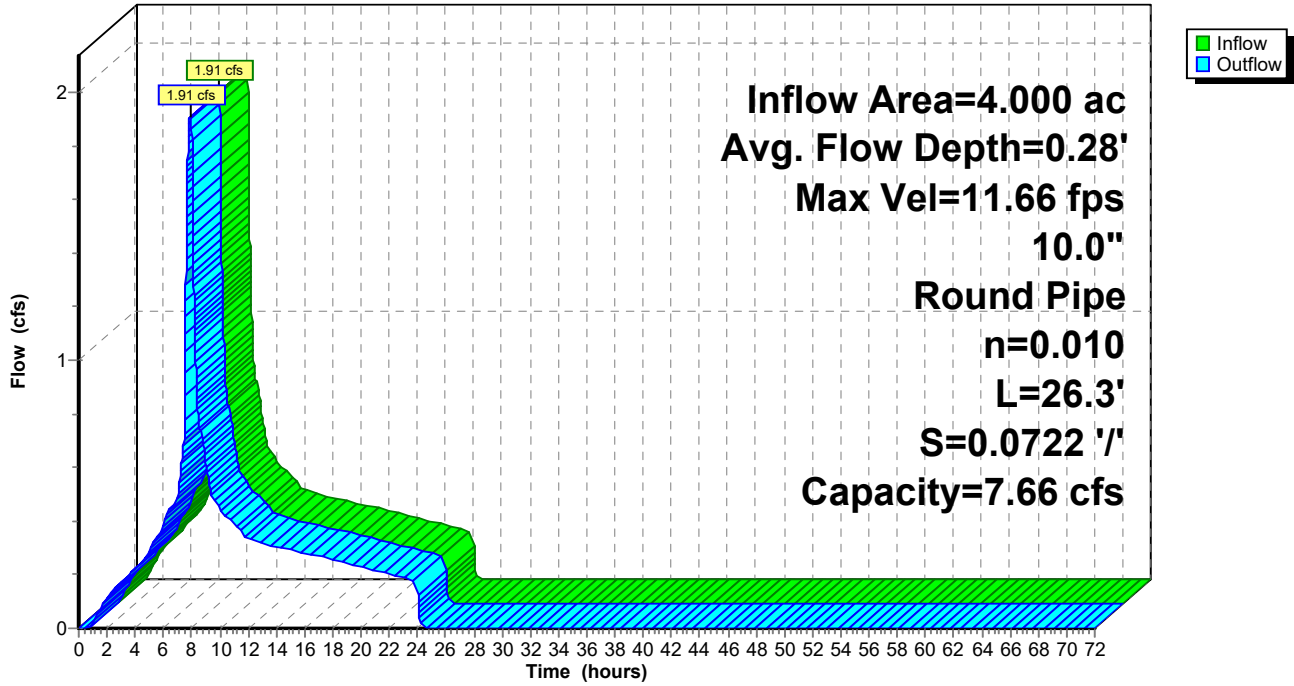
Type IA 24-hr 2-YR Rainfall=2.50"

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Reach MH: WQ MH

Hydrograph



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Type IA 24-hr 2-YR Rainfall=2.50"

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Summary for Pond STM-1: Detention Pond

[63] Warning: Exceeded Reach MH INLET depth by 1.54' @ 24.25 hrs

Inflow Area = 4.000 ac, 76.75% Impervious, Inflow Depth = 1.94" for 2-YR event
 Inflow = 1.91 cfs @ 7.90 hrs, Volume= 0.646 af
 Outflow = 0.21 cfs @ 21.30 hrs, Volume= 0.595 af, Atten= 89%, Lag= 804.2 min
 Primary = 0.21 cfs @ 21.30 hrs, Volume= 0.595 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 170.92' @ 21.30 hrs Surf.Area= 5,726 sf Storage= 15,914 cf

Plug-Flow detention time= 982.7 min calculated for 0.595 af (92% of inflow)
 Center-of-Mass det. time= 927.0 min (1,618.4 - 691.4)

Volume	Invert	Avail.Storage	Storage Description		
#1	166.75'	24,092 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
166.75	2,138	224.0	0	0	2,138
167.00	2,309	232.0	556	556	2,434
168.00	3,059	267.0	2,675	3,231	3,846
169.00	3,912	297.0	3,477	6,708	5,222
170.00	4,832	316.0	4,364	11,072	6,198
171.00	5,809	335.0	5,313	16,385	7,234
172.20	7,056	357.6	7,707	24,092	8,548

Device	Routing	Invert	Outlet Devices
#1	Primary	166.00'	10.0" Round Outlet Pipe L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 166.00' / 163.00' S= 0.0600 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf
#2	Device 1	166.75'	0.9" Vert. WQ Outlet C= 0.600
#3	Device 1	168.25'	2.0" Vert. 2-YR Storm C= 0.600
#4	Device 1	170.92'	2.2' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.21 cfs @ 21.30 hrs HW=170.92' TW=0.00' (Dynamic Tailwater)

- ↑ 1=Outlet Pipe (Passes 0.21 cfs of 5.57 cfs potential flow)
- ↑ 2=WQ Outlet (Orifice Controls 0.04 cfs @ 9.79 fps)
- ↑ 3=2-YR Storm (Orifice Controls 0.17 cfs @ 7.74 fps)
- ↑ 4=Sharp-Crested Rectangular Weir(Controls 0.00 cfs)

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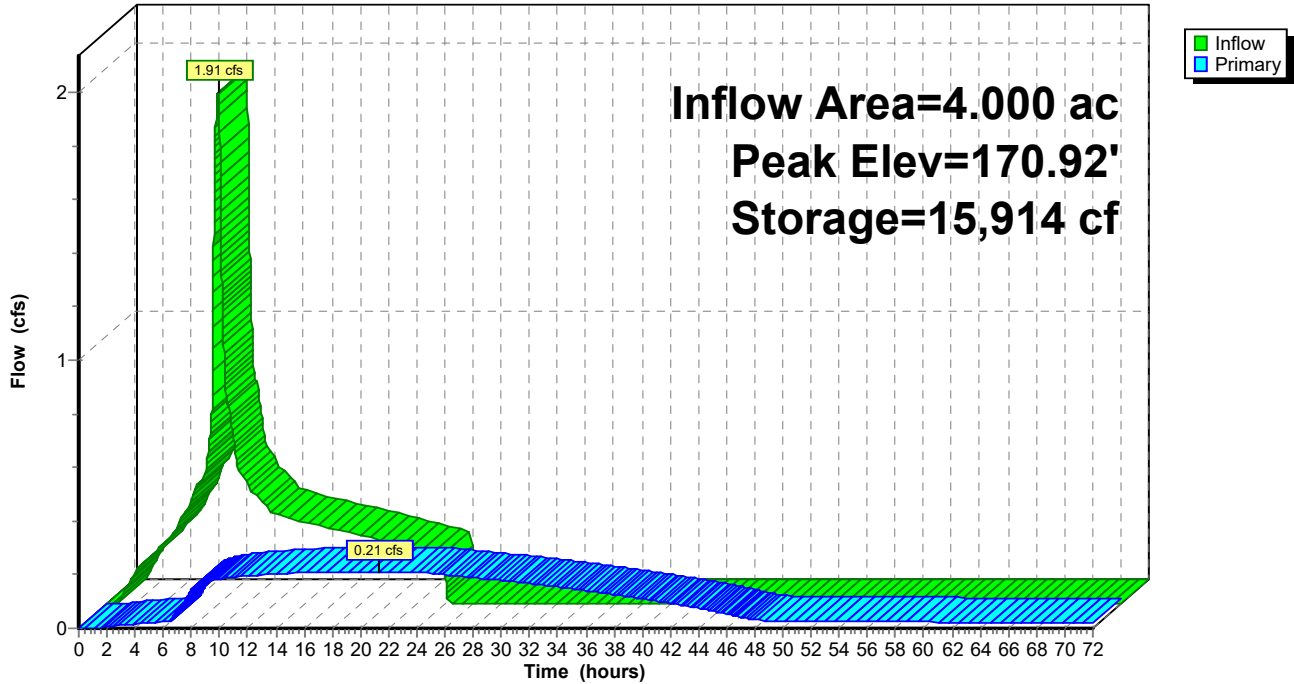
Type IA 24-hr 2-YR Rainfall=2.50"

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Pond STM-1: Detention Pond

Hydrograph



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Type IA 24-hr 2-YR Rainfall=2.50"

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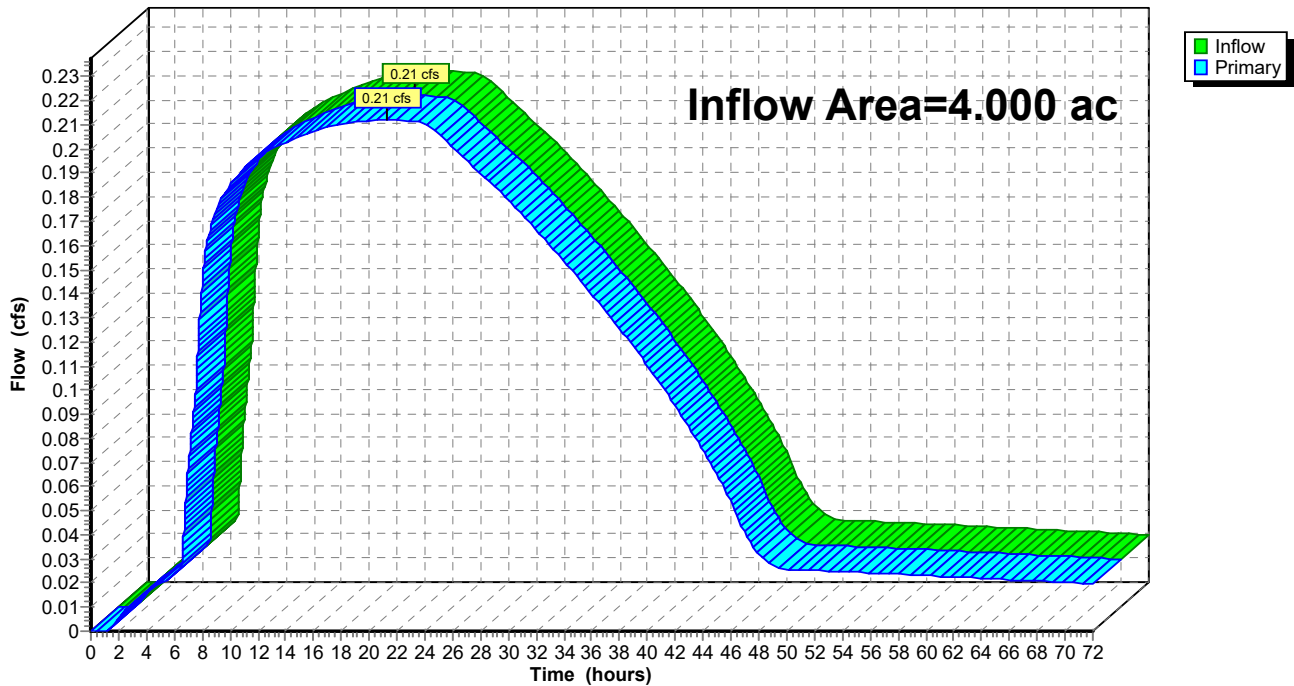
Summary for Link 1L: Flow Summary Part 1

Inflow Area = 4.000 ac, 76.75% Impervious, Inflow Depth > 1.79" for 2-YR event
 Inflow = 0.21 cfs @ 21.30 hrs, Volume= 0.595 af
 Primary = 0.21 cfs @ 21.30 hrs, Volume= 0.595 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 1L: Flow Summary Part 1

Hydrograph



8627-03 POST-DEV

Type IA 24-hr 2-YR Rainfall=2.50"

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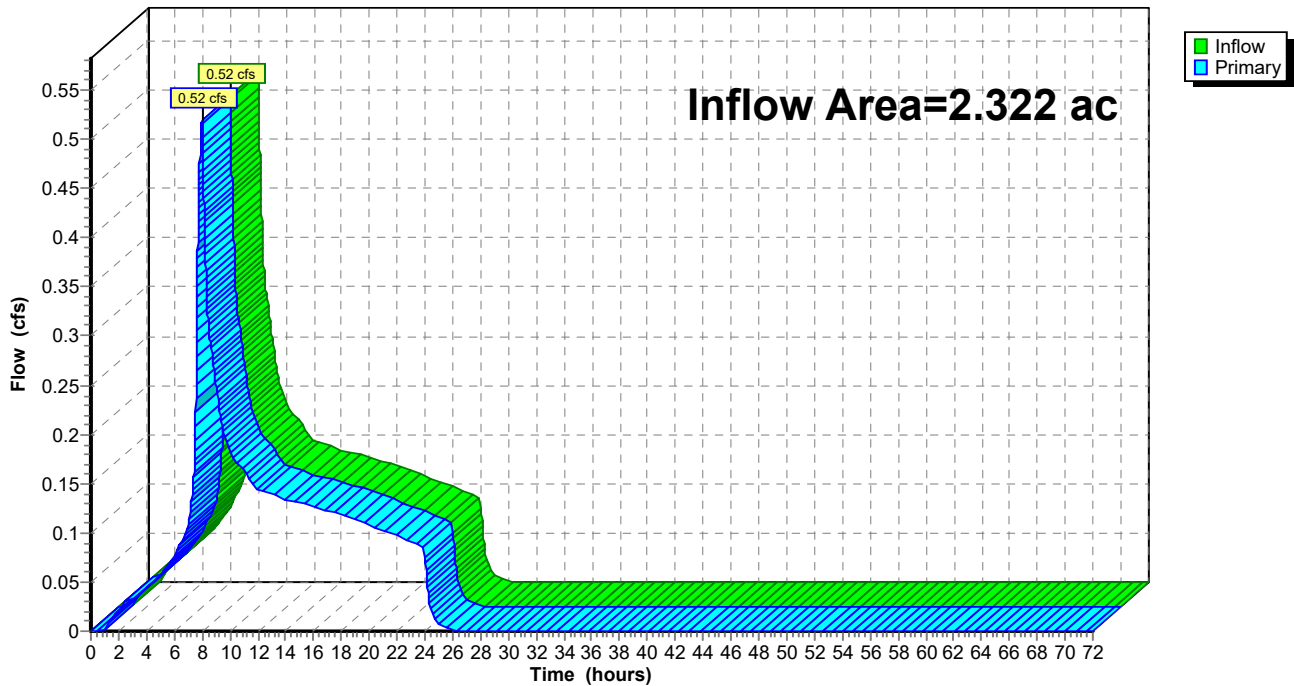
Summary for Link 2L: Flow Summary Part 2

Inflow Area = 2.322 ac, 26.71% Impervious, Inflow Depth = 1.22" for 2-YR event
 Inflow = 0.52 cfs @ 8.00 hrs, Volume= 0.236 af
 Primary = 0.52 cfs @ 8.00 hrs, Volume= 0.236 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 2L: Flow Summary Part 2

Hydrograph



8627-03 POST-DEV

Type IA 24-hr 5-YR Rainfall=3.10"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 2

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1-iP: Impervious Runoff Area=133,720 sf 100.00% Impervious Runoff Depth=2.87"
Tc=5.0 min CN=0/98 Runoff=2.22 cfs 0.734 af

Subcatchment1-P: Pervious Runoff Area=40,503 sf 0.00% Impervious Runoff Depth=1.26"
Tc=5.0 min CN=79/0 Runoff=0.25 cfs 0.098 af

Subcatchment2.1-iP: Impervious Runoff Area=15,312 sf 100.00% Impervious Runoff Depth=2.87"
Tc=5.0 min CN=0/98 Runoff=0.25 cfs 0.084 af

Subcatchment2.1-P: Pervious Runoff Area=72,679 sf 0.00% Impervious Runoff Depth=1.26"
Flow Length=409' Tc=27.4 min CN=79/0 Runoff=0.31 cfs 0.175 af

Subcatchment2.2-iP: Impervious Runoff Area=11,702 sf 100.00% Impervious Runoff Depth=2.87"
Tc=5.0 min CN=0/98 Runoff=0.19 cfs 0.064 af

Subcatchment2.2-P: Pervious Runoff Area=1,440 sf 0.00% Impervious Runoff Depth=1.26"
Tc=5.0 min CN=79/0 Runoff=0.01 cfs 0.003 af

Reach CB-2: Catch Basin Avg. Flow Depth=0.30' Max Vel=3.14 fps Inflow=0.55 cfs 0.259 af
10.0" Round Pipe n=0.010 L=302.0' S=0.0050 '/' Capacity=2.01 cfs Outflow=0.55 cfs 0.259 af

Reach MH: WQ MH Avg. Flow Depth=0.32' Max Vel=12.50 fps Inflow=2.46 cfs 0.831 af
10.0" Round Pipe n=0.010 L=26.3' S=0.0722 '/' Capacity=7.66 cfs Outflow=2.46 cfs 0.831 af

Pond STM-1: Detention Pond Peak Elev=171.03' Storage=16,570 cf Inflow=2.46 cfs 0.831 af
Outflow=0.48 cfs 0.780 af

Link 1L: Flow Summary Part 1 Inflow=0.48 cfs 0.780 af
Primary=0.48 cfs 0.780 af

Link 2L: Flow Summary Part 2 Inflow=0.74 cfs 0.327 af
Primary=0.74 cfs 0.327 af

Total Runoff Area = 6.321 ac Runoff Volume = 1.159 af Average Runoff Depth = 2.20"
41.63% Pervious = 2.631 ac 58.37% Impervious = 3.690 ac

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Type IA 24-hr 5-YR Rainfall=3.10"

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Summary for Subcatchment 1-iP: Impervious

Runoff = 2.22 cfs @ 7.88 hrs, Volume= 0.734 af, Depth= 2.87"

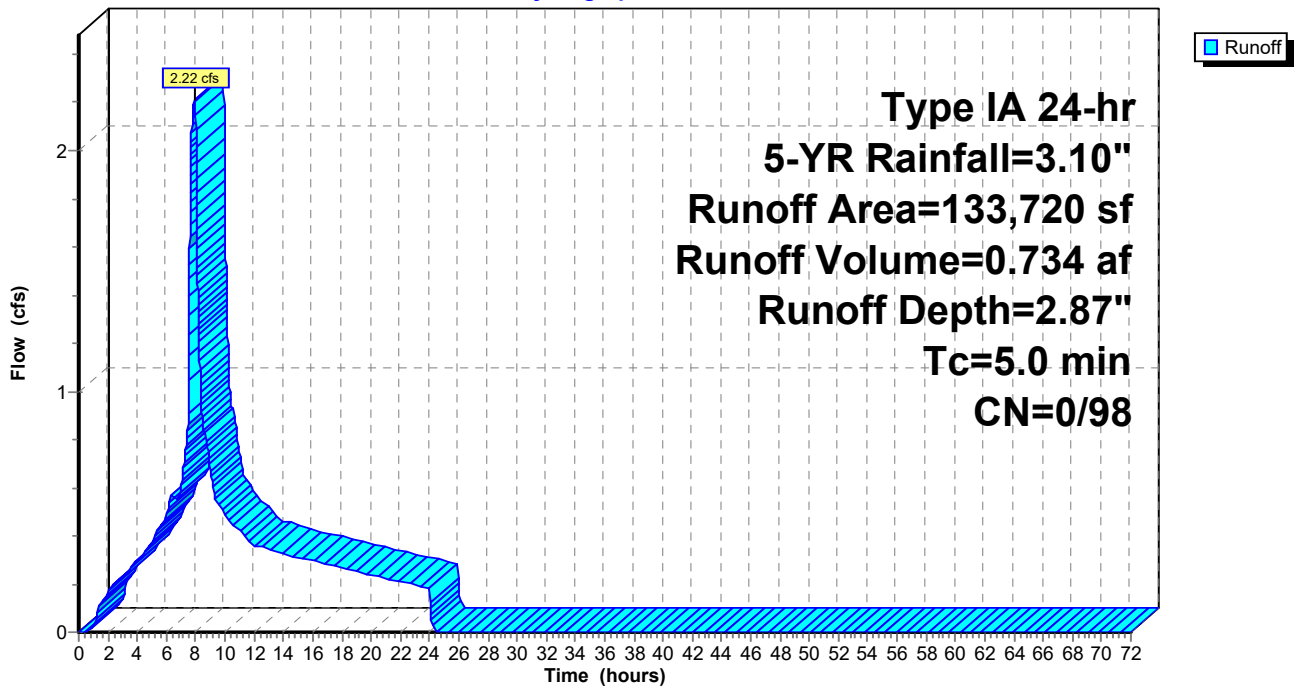
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5-YR Rainfall=3.10"

Area (sf)	CN	Description
* 133,720	98	Roof/Drive Aisle
133,720		100.00% Impervious Area

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

Subcatchment 1-iP: Impervious

Hydrograph



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Type IA 24-hr 5-YR Rainfall=3.10"

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Summary for Subcatchment 1-P: Pervious

Runoff = 0.25 cfs @ 8.00 hrs, Volume= 0.098 af, Depth= 1.26"

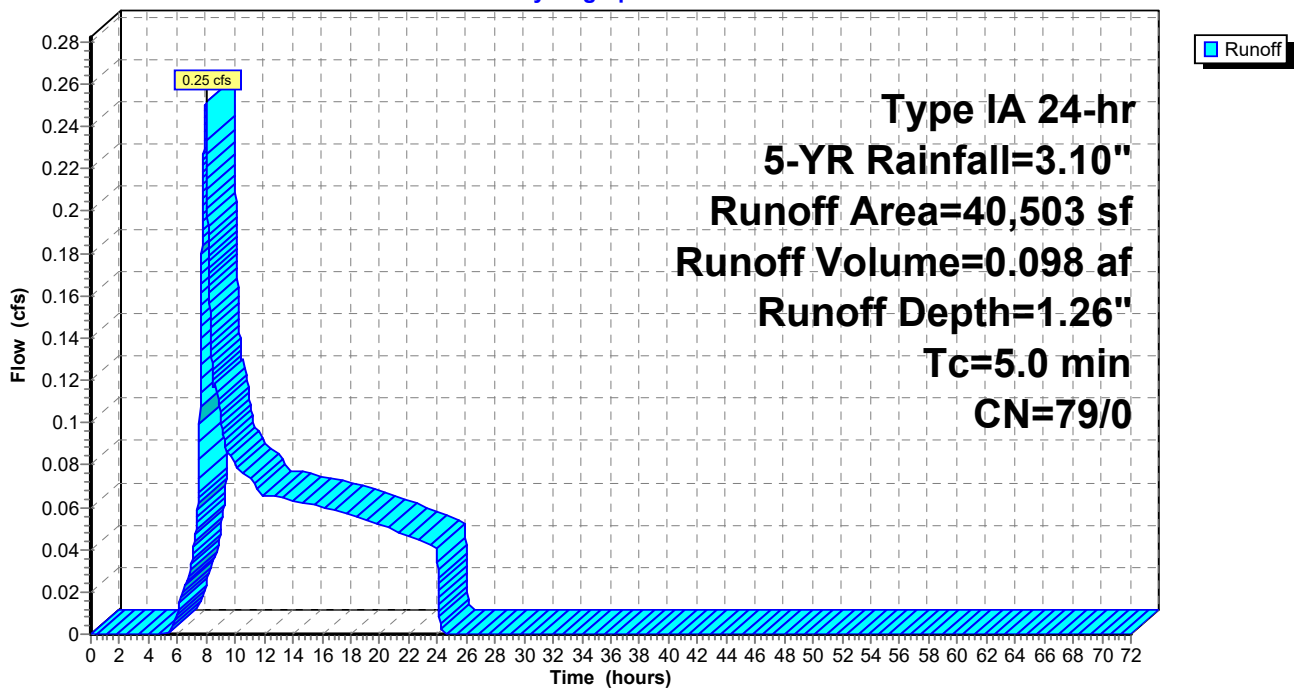
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5-YR Rainfall=3.10"

Area (sf)	CN	Description
40,503	79	50-75% Grass cover, Fair, HSG C
40,503		100.00% Pervious Area

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

Subcatchment 1-P: Pervious

Hydrograph



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Type IA 24-hr 5-YR Rainfall=3.10"

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Summary for Subcatchment 2.1-iP: Impervious

Runoff = 0.25 cfs @ 7.88 hrs, Volume= 0.084 af, Depth= 2.87"

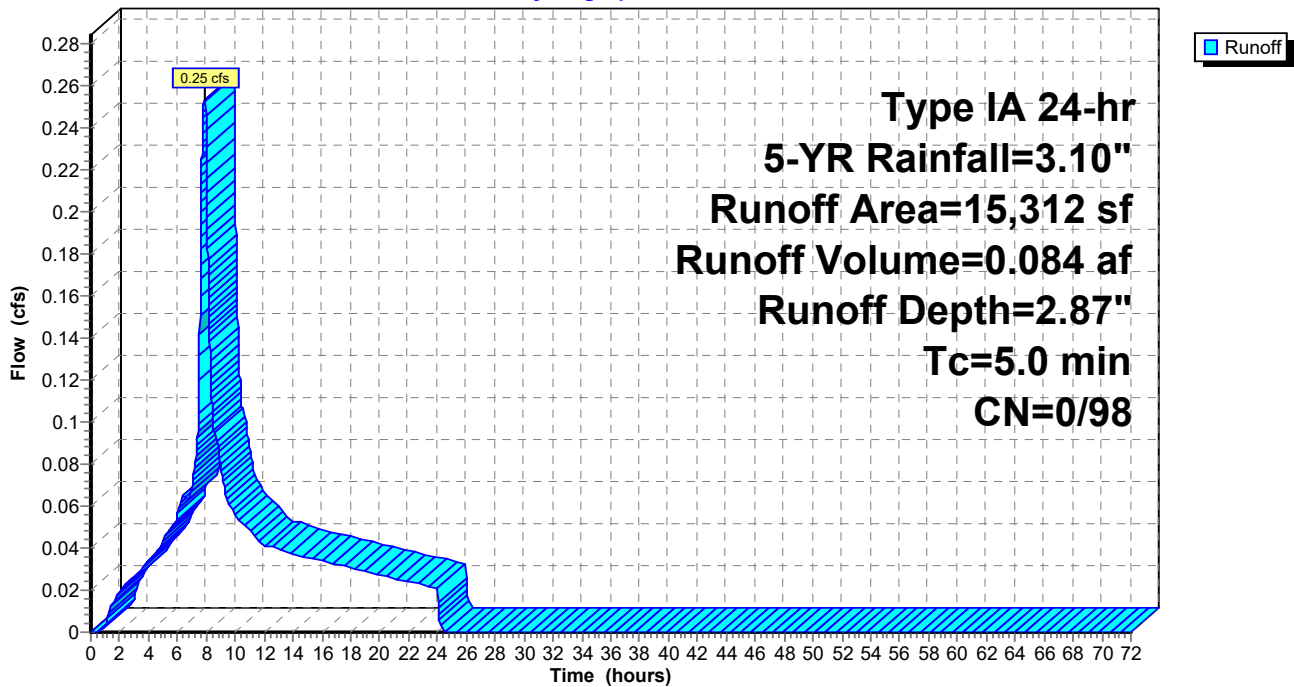
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 5-YR Rainfall=3.10"

Area (sf)	CN	Description
* 15,312	98	Roof/Drive Aisle
15,312		100.00% Impervious Area

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

Subcatchment 2.1-iP: Impervious

Hydrograph



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Type IA 24-hr 5-YR Rainfall=3.10"

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Summary for Subcatchment 2.1-P: Pervious

Runoff = 0.31 cfs @ 8.05 hrs, Volume= 0.175 af, Depth= 1.26"

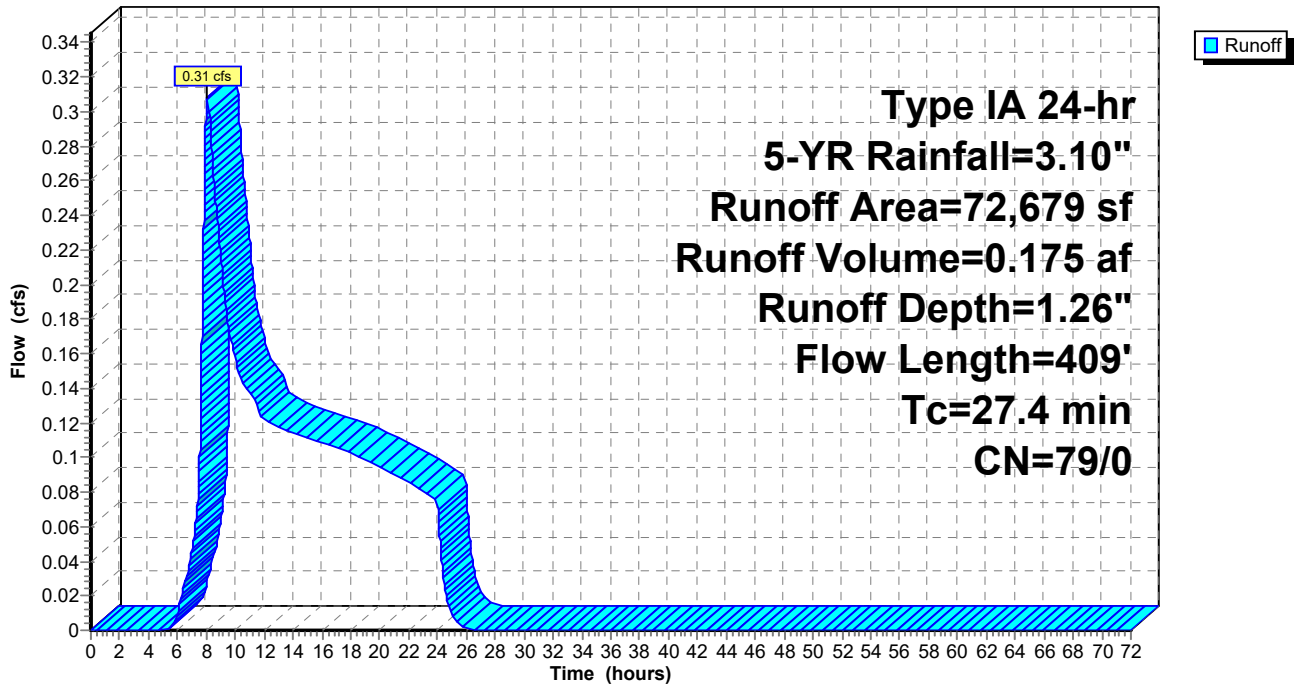
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5-YR Rainfall=3.10"

Area (sf)	CN	Description
72,679	79	50-75% Grass cover, Fair, HSG C
72,679		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.7	300	0.0220	0.19		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 2.50"
1.7	109	0.0227	1.05		Shallow Concentrated Flow, Concentrated Flow Short Grass Pasture Kv= 7.0 fps
27.4	409	Total			

Subcatchment 2.1-P: Pervious

Hydrograph



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Type IA 24-hr 5-YR Rainfall=3.10"

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Summary for Subcatchment 2.2-iP: Impervious

Runoff = 0.19 cfs @ 7.88 hrs, Volume= 0.064 af, Depth= 2.87"

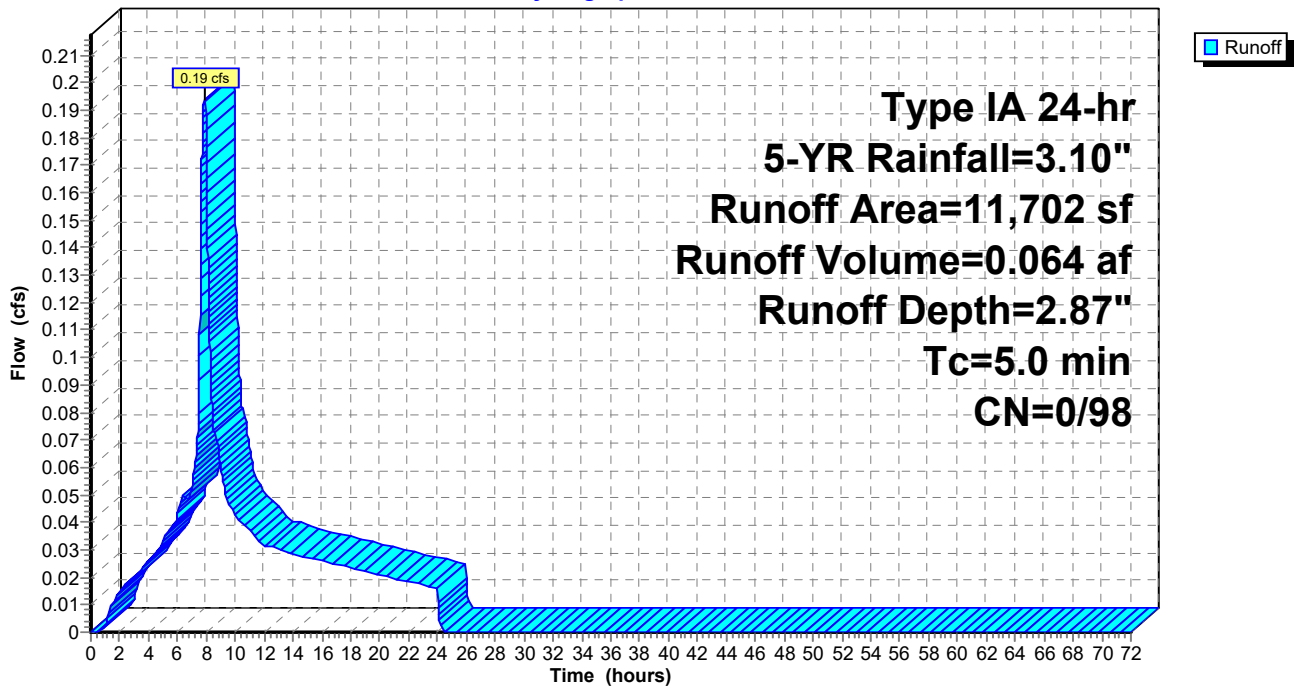
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5-YR Rainfall=3.10"

	Area (sf)	CN	Description
*	11,702	98	Roof/Drive Aisle
	11,702		100.00% Impervious Area

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

Subcatchment 2.2-iP: Impervious

Hydrograph



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Type IA 24-hr 5-YR Rainfall=3.10"

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Summary for Subcatchment 2.2-P: Pervious

Runoff = 0.01 cfs @ 8.00 hrs, Volume= 0.003 af, Depth= 1.26"

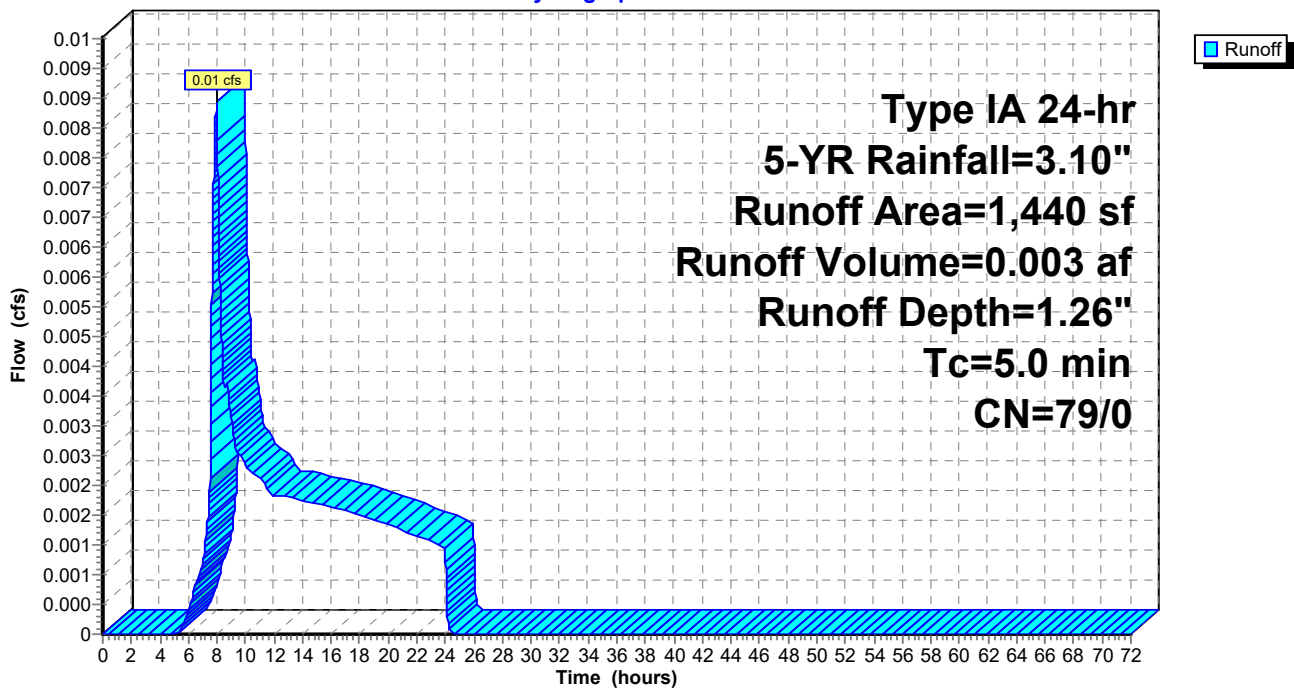
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5-YR Rainfall=3.10"

Area (sf)	CN	Description
1,440	79	50-75% Grass cover, Fair, HSG C
1,440		100.00% Pervious Area

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

Subcatchment 2.2-P: Pervious

Hydrograph



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Type IA 24-hr 5-YR Rainfall=3.10"

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Summary for Reach CB-2: Catch Basin

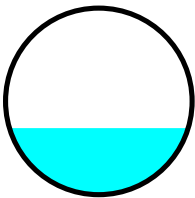
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 2.020 ac, 17.40% Impervious, Inflow Depth = 1.54" for 5-YR event
Inflow = 0.55 cfs @ 8.00 hrs, Volume= 0.259 af
Outflow = 0.55 cfs @ 8.01 hrs, Volume= 0.259 af, Atten= 1%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Max. Velocity= 3.14 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 1.79 fps, Avg. Travel Time= 2.8 min

Peak Storage= 53 cf @ 8.01 hrs
Average Depth at Peak Storage= 0.30'
Defined Flood Depth= 177.89' Flow Area= 20.2 sf, Capacity= -1,793.61 cfs
Bank-Full Depth= 0.83' Flow Area= 0.5 sf, Capacity= 2.01 cfs

10.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 302.0' Slope= 0.0050 '/'
Inlet Invert= 176.89', Outlet Invert= 175.38'



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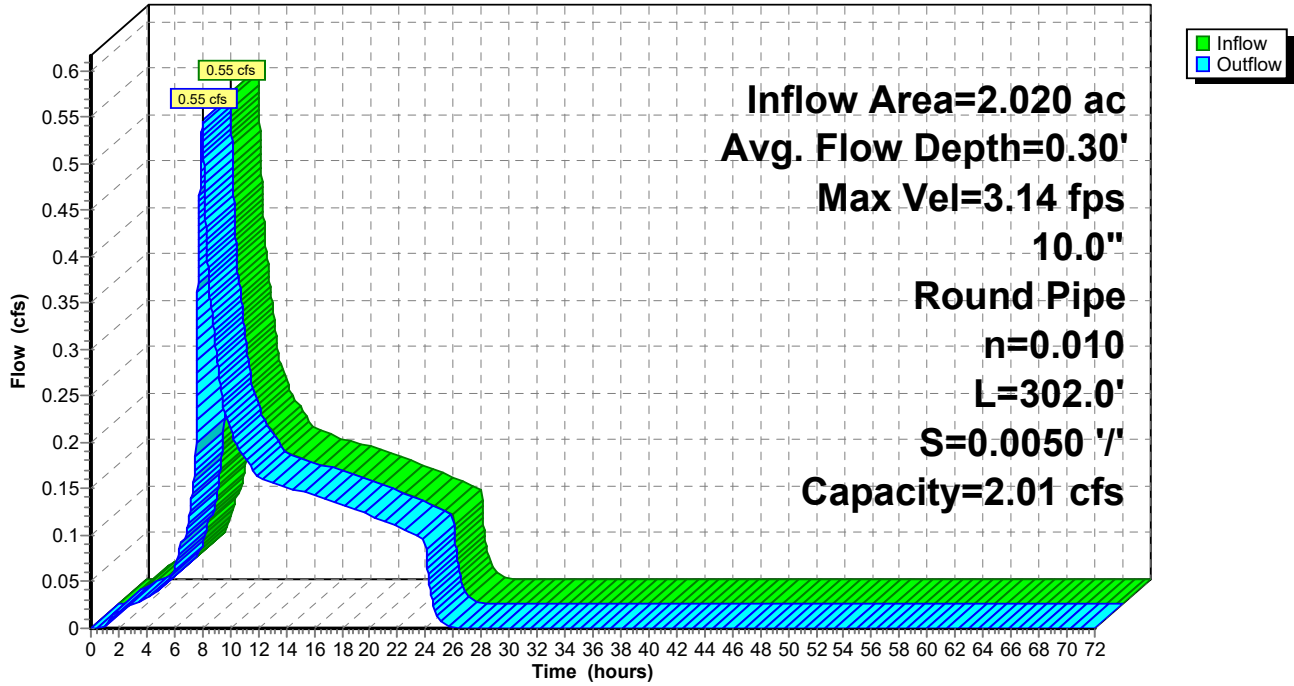
Type IA 24-hr 5-YR Rainfall=3.10"

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Reach CB-2: Catch Basin

Hydrograph



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Type IA 24-hr 5-YR Rainfall=3.10"

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Summary for Reach MH: WQ MH

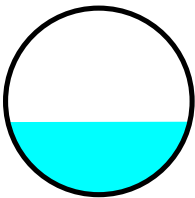
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 4.000 ac, 76.75% Impervious, Inflow Depth = 2.49" for 5-YR event
Inflow = 2.46 cfs @ 7.89 hrs, Volume= 0.831 af
Outflow = 2.46 cfs @ 7.89 hrs, Volume= 0.831 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Max. Velocity= 12.50 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 7.13 fps, Avg. Travel Time= 0.1 min

Peak Storage= 5 cf @ 7.89 hrs
Average Depth at Peak Storage= 0.32'
Defined Flood Depth= 171.30' Flow Area= 19.4 sf, Capacity= -6,563.73 cfs
Bank-Full Depth= 0.83' Flow Area= 0.5 sf, Capacity= 7.66 cfs

10.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 26.3' Slope= 0.0722 '/'
Inlet Invert= 169.30', Outlet Invert= 167.40'



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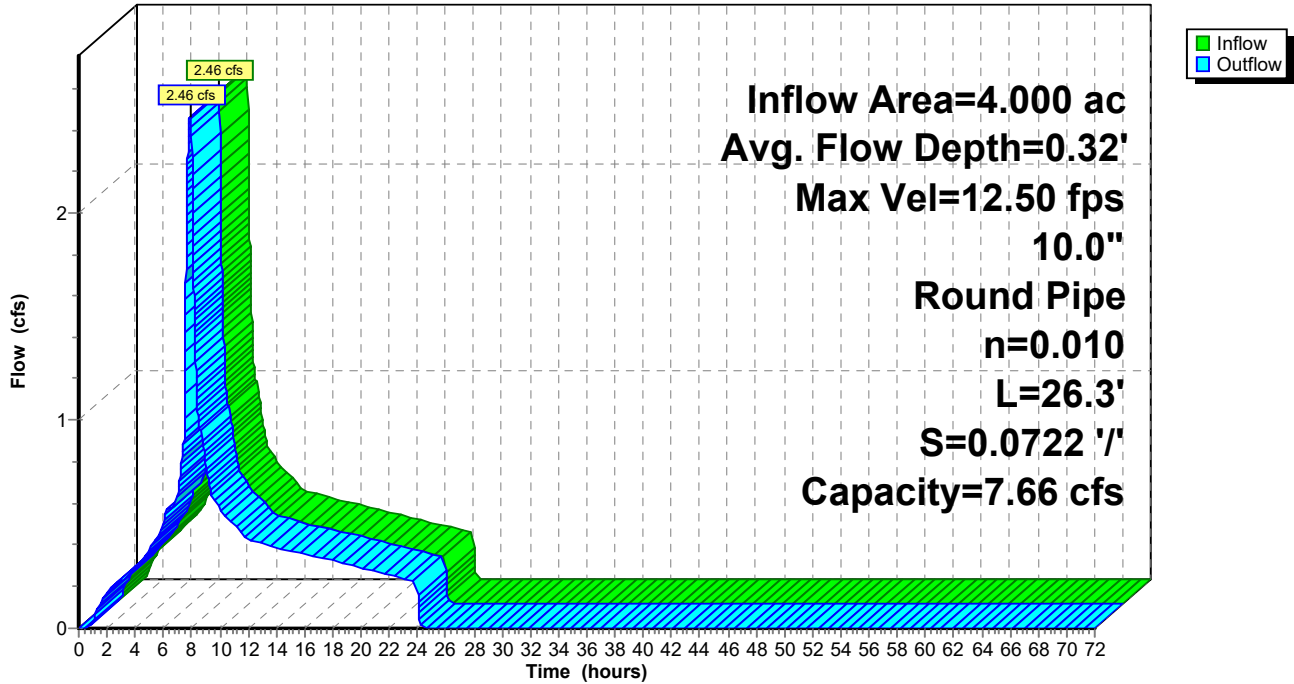
Type IA 24-hr 5-YR Rainfall=3.10"

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Reach MH: WQ MH

Hydrograph



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Type IA 24-hr 5-YR Rainfall=3.10"

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Summary for Pond STM-1: Detention Pond

[63] Warning: Exceeded Reach MH INLET depth by 1.59' @ 24.27 hrs

Inflow Area = 4.000 ac, 76.75% Impervious, Inflow Depth = 2.49" for 5-YR event
 Inflow = 2.46 cfs @ 7.89 hrs, Volume= 0.831 af
 Outflow = 0.48 cfs @ 11.19 hrs, Volume= 0.780 af, Atten= 80%, Lag= 197.8 min
 Primary = 0.48 cfs @ 11.19 hrs, Volume= 0.780 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 171.03' @ 11.19 hrs Surf.Area= 5,841 sf Storage= 16,570 cf

Plug-Flow detention time= 812.4 min calculated for 0.780 af (94% of inflow)
 Center-of-Mass det. time= 767.6 min (1,453.2 - 685.6)

Volume	Invert	Avail.Storage	Storage Description			
#1	166.75'	24,092 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
166.75	2,138	224.0	0	0	2,138	
167.00	2,309	232.0	556	556	2,434	
168.00	3,059	267.0	2,675	3,231	3,846	
169.00	3,912	297.0	3,477	6,708	5,222	
170.00	4,832	316.0	4,364	11,072	6,198	
171.00	5,809	335.0	5,313	16,385	7,234	
172.20	7,056	357.6	7,707	24,092	8,548	

Device	Routing	Invert	Outlet Devices	
#1	Primary	166.00'	10.0" Round Outlet Pipe L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 166.00' / 163.00' S= 0.0600 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf	
#2	Device 1	166.75'	0.9" Vert. WQ Outlet C= 0.600	
#3	Device 1	168.25'	2.0" Vert. 2-YR Storm C= 0.600	
#4	Device 1	170.92'	2.2' long Sharp-Crested Rectangular Weir 2 End Contraction(s)	

Primary OutFlow Max=0.48 cfs @ 11.19 hrs HW=171.03' TW=0.00' (Dynamic Tailwater)

- ↑ **1=Outlet Pipe** (Passes 0.48 cfs of 5.64 cfs potential flow)
- ↑ **2=WQ Outlet** (Orifice Controls 0.04 cfs @ 9.92 fps)
- ↑ **3=2-YR Storm** (Orifice Controls 0.17 cfs @ 7.91 fps)
- ↑ **4=Sharp-Crested Rectangular Weir**(Weir Controls 0.27 cfs @ 1.09 fps)

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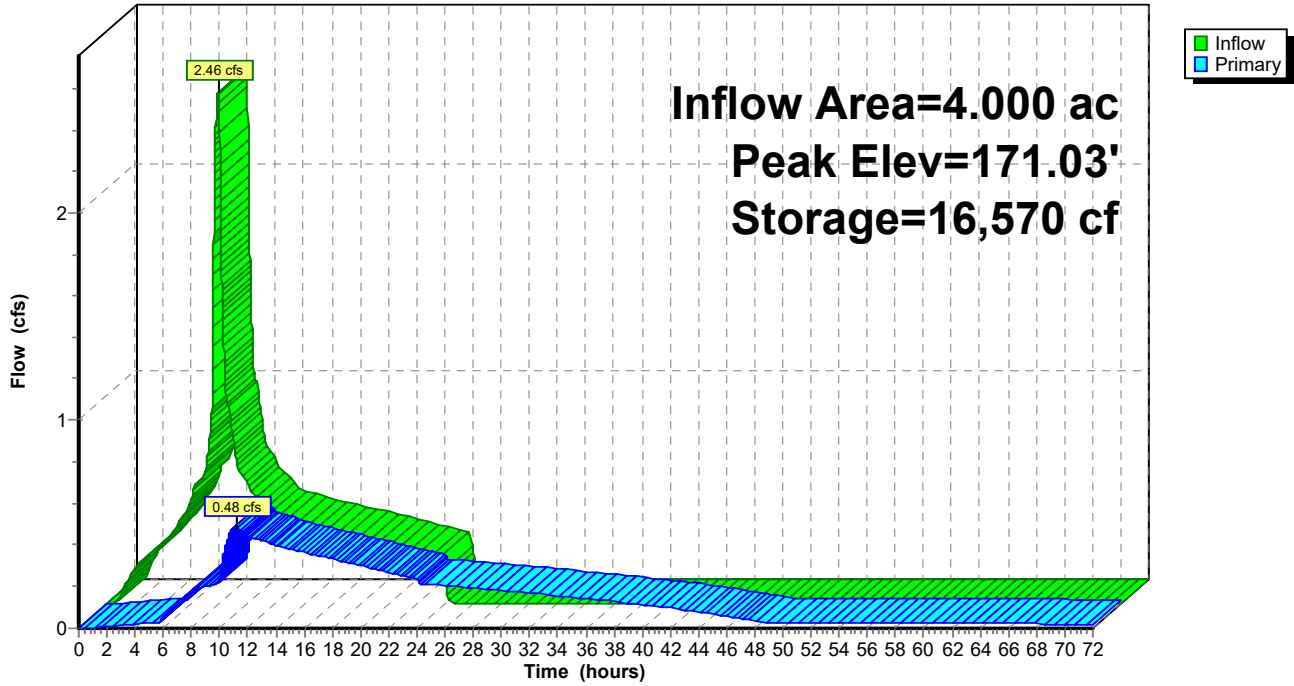
Type IA 24-hr 5-YR Rainfall=3.10"

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Pond STM-1: Detention Pond

Hydrograph



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Type IA 24-hr 5-YR Rainfall=3.10"

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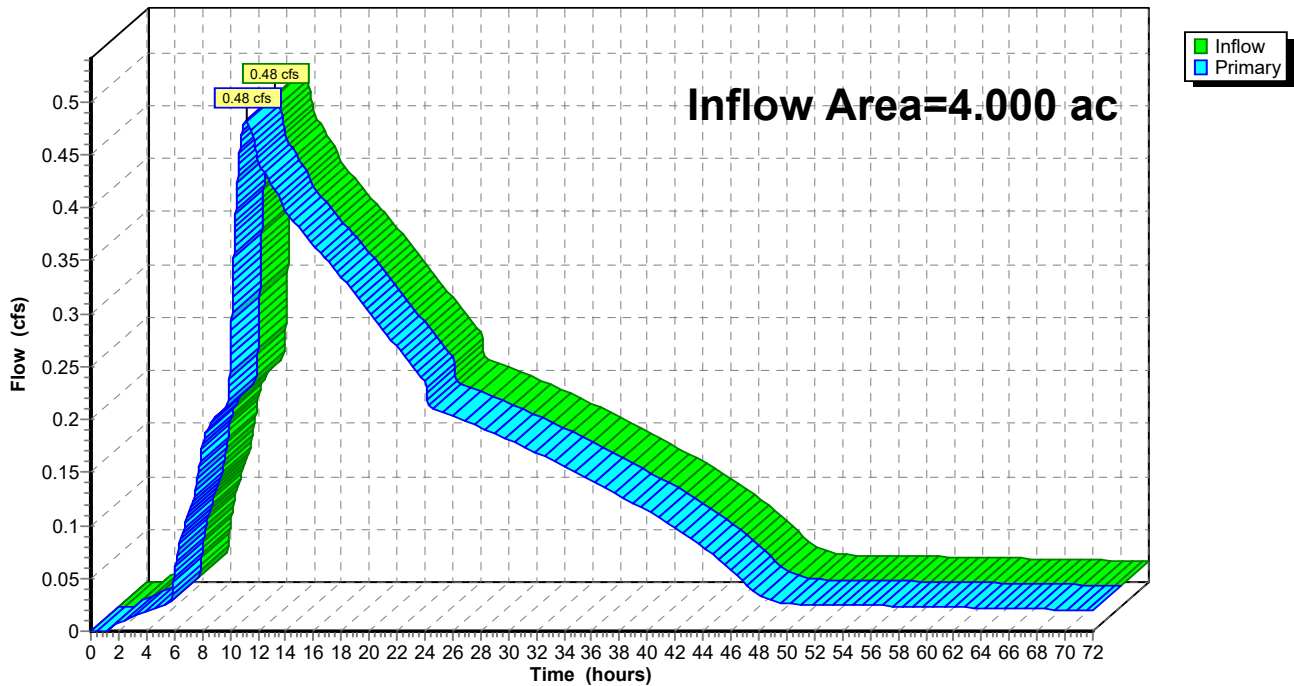
Summary for Link 1L: Flow Summary Part 1

Inflow Area = 4.000 ac, 76.75% Impervious, Inflow Depth > 2.34" for 5-YR event
 Inflow = 0.48 cfs @ 11.19 hrs, Volume= 0.780 af
 Primary = 0.48 cfs @ 11.19 hrs, Volume= 0.780 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 1L: Flow Summary Part 1

Hydrograph



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Type IA 24-hr 5-YR Rainfall=3.10"

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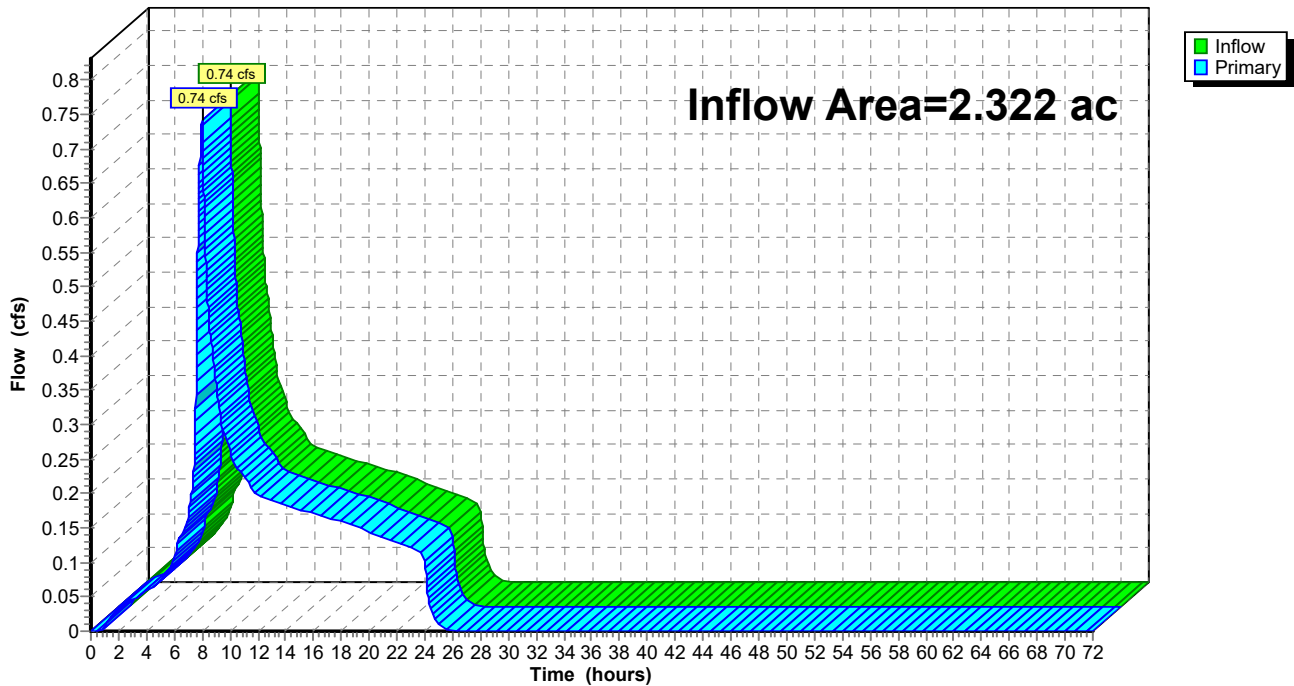
Summary for Link 2L: Flow Summary Part 2

Inflow Area = 2.322 ac, 26.71% Impervious, Inflow Depth = 1.69" for 5-YR event
 Inflow = 0.74 cfs @ 8.00 hrs, Volume= 0.327 af
 Primary = 0.74 cfs @ 8.00 hrs, Volume= 0.327 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 2L: Flow Summary Part 2

Hydrograph



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Type IA 24-hr 10-YR Rainfall=3.45"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 2

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1-iP: Impervious Runoff Area=133,720 sf 100.00% Impervious Runoff Depth=3.22"
Tc=5.0 min CN=0/98 Runoff=2.48 cfs 0.823 af

Subcatchment1-P: Pervious Runoff Area=40,503 sf 0.00% Impervious Runoff Depth=1.53"
Tc=5.0 min CN=79/0 Runoff=0.32 cfs 0.118 af

Subcatchment2.1-iP: Impervious Runoff Area=15,312 sf 100.00% Impervious Runoff Depth=3.22"
Tc=5.0 min CN=0/98 Runoff=0.28 cfs 0.094 af

Subcatchment2.1-P: Pervious Runoff Area=72,679 sf 0.00% Impervious Runoff Depth=1.53"
Flow Length=409' Tc=27.4 min CN=79/0 Runoff=0.39 cfs 0.212 af

Subcatchment2.2-iP: Impervious Runoff Area=11,702 sf 100.00% Impervious Runoff Depth=3.22"
Tc=5.0 min CN=0/98 Runoff=0.22 cfs 0.072 af

Subcatchment2.2-P: Pervious Runoff Area=1,440 sf 0.00% Impervious Runoff Depth=1.53"
Tc=5.0 min CN=79/0 Runoff=0.01 cfs 0.004 af

Reach CB-2: Catch Basin Avg. Flow Depth=0.33' Max Vel=3.31 fps Inflow=0.66 cfs 0.307 af
10.0" Round Pipe n=0.010 L=302.0' S=0.0050 '/' Capacity=2.01 cfs Outflow=0.66 cfs 0.307 af

Reach MH: WQ MH Avg. Flow Depth=0.35' Max Vel=12.93 fps Inflow=2.78 cfs 0.941 af
10.0" Round Pipe n=0.010 L=26.3' S=0.0722 '/' Capacity=7.66 cfs Outflow=2.78 cfs 0.941 af

Pond STM-1: Detention Pond Peak Elev=171.08' Storage=16,855 cf Inflow=2.78 cfs 0.941 af
Outflow=0.67 cfs 0.890 af

Link 1L: Flow Summary Part 1 Inflow=0.67 cfs 0.890 af
Primary=0.67 cfs 0.890 af

Link 2L: Flow Summary Part 2 Inflow=0.88 cfs 0.383 af
Primary=0.88 cfs 0.383 af

Total Runoff Area = 6.321 ac Runoff Volume = 1.324 af Average Runoff Depth = 2.51"
41.63% Pervious = 2.631 ac 58.37% Impervious = 3.690 ac

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Type IA 24-hr 10-YR Rainfall=3.45"

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Summary for Subcatchment 1-iP: Impervious

Runoff = 2.48 cfs @ 7.88 hrs, Volume= 0.823 af, Depth= 3.22"

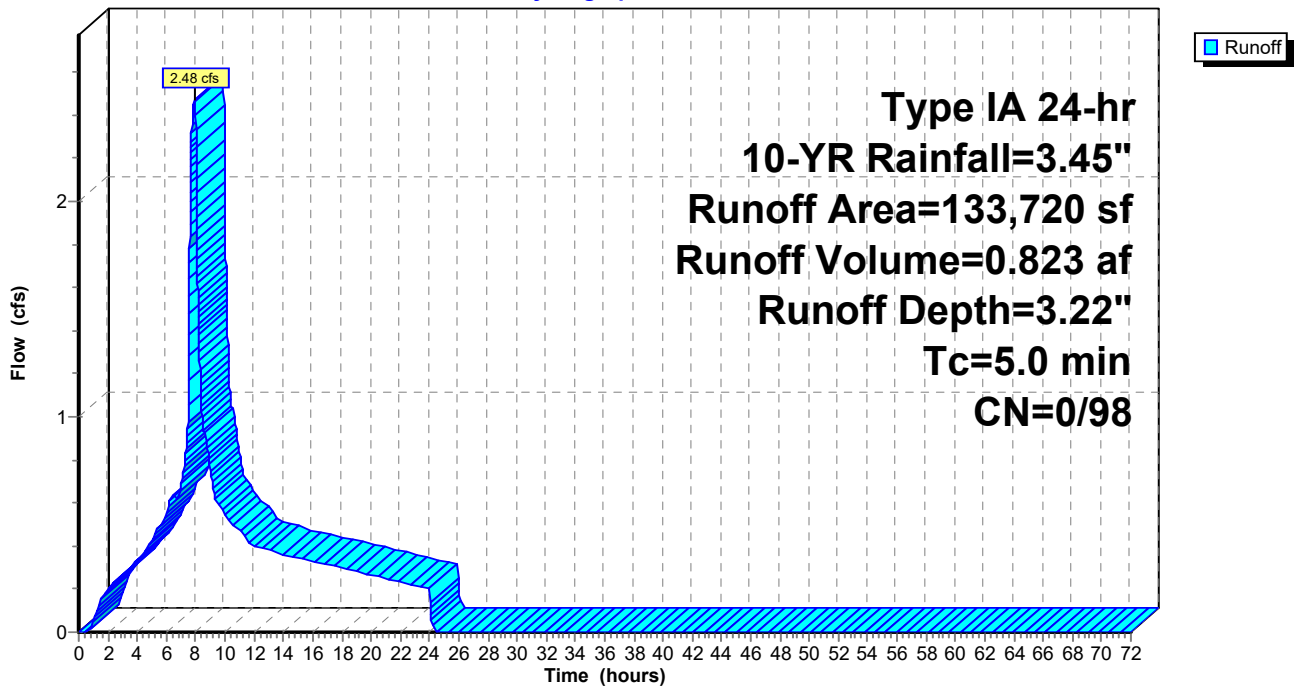
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10-YR Rainfall=3.45"

Area (sf)	CN	Description
* 133,720	98	Roof/Drive Aisle
133,720		100.00% Impervious Area

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

Subcatchment 1-iP: Impervious

Hydrograph



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Type IA 24-hr 10-YR Rainfall=3.45"

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Summary for Subcatchment 1-P: Pervious

Runoff = 0.32 cfs @ 7.99 hrs, Volume= 0.118 af, Depth= 1.53"

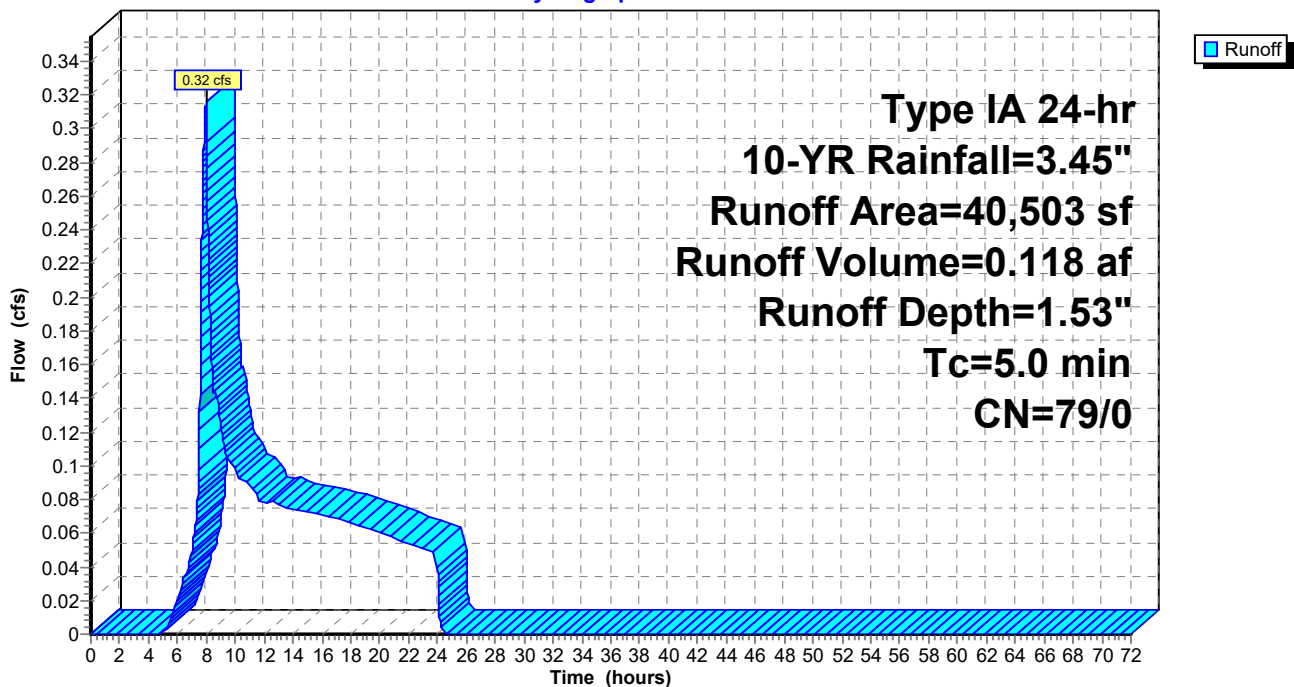
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-YR Rainfall=3.45"

Area (sf)	CN	Description
40,503	79	50-75% Grass cover, Fair, HSG C
40,503		100.00% Pervious Area

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

Subcatchment 1-P: Pervious

Hydrograph



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Type IA 24-hr 10-YR Rainfall=3.45"

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Summary for Subcatchment 2.1-iP: Impervious

Runoff = 0.28 cfs @ 7.88 hrs, Volume= 0.094 af, Depth= 3.22"

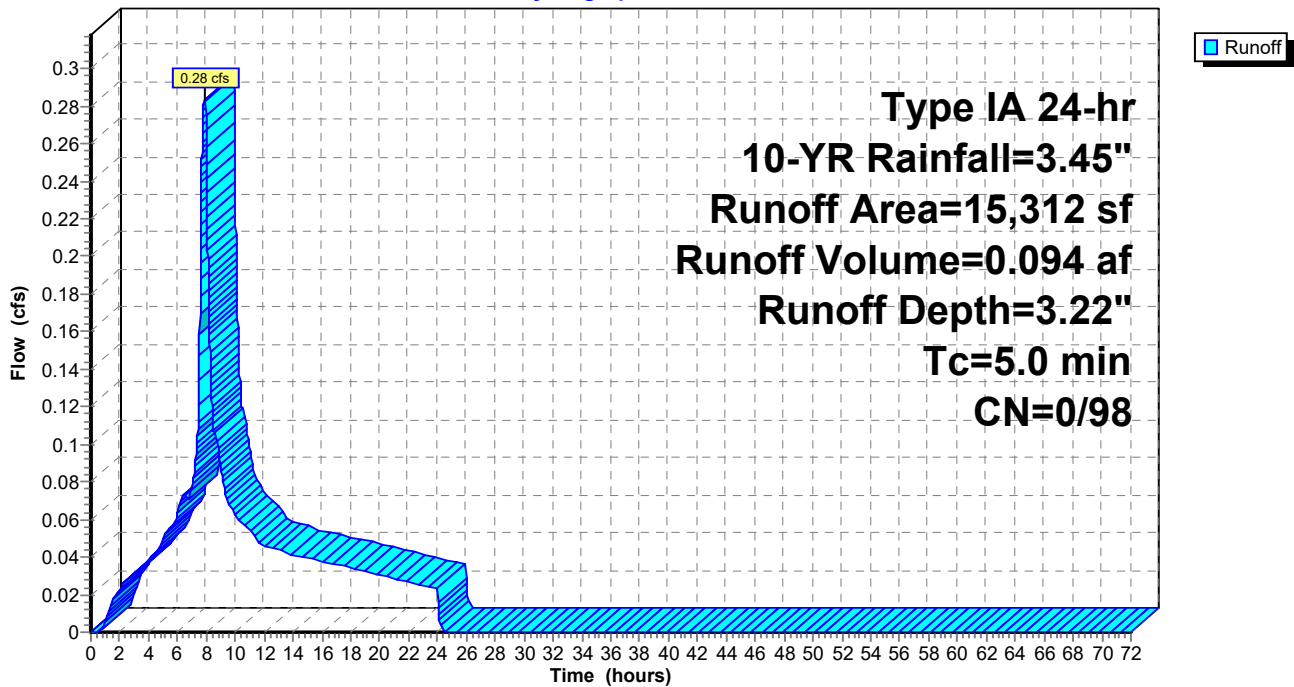
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-YR Rainfall=3.45"

Area (sf)	CN	Description
* 15,312	98	Roof/Drive Aisle
15,312		100.00% Impervious Area

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

Subcatchment 2.1-iP: Impervious

Hydrograph



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Type IA 24-hr 10-YR Rainfall=3.45"

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Summary for Subcatchment 2.1-P: Pervious

Runoff = 0.39 cfs @ 8.03 hrs, Volume= 0.212 af, Depth= 1.53"

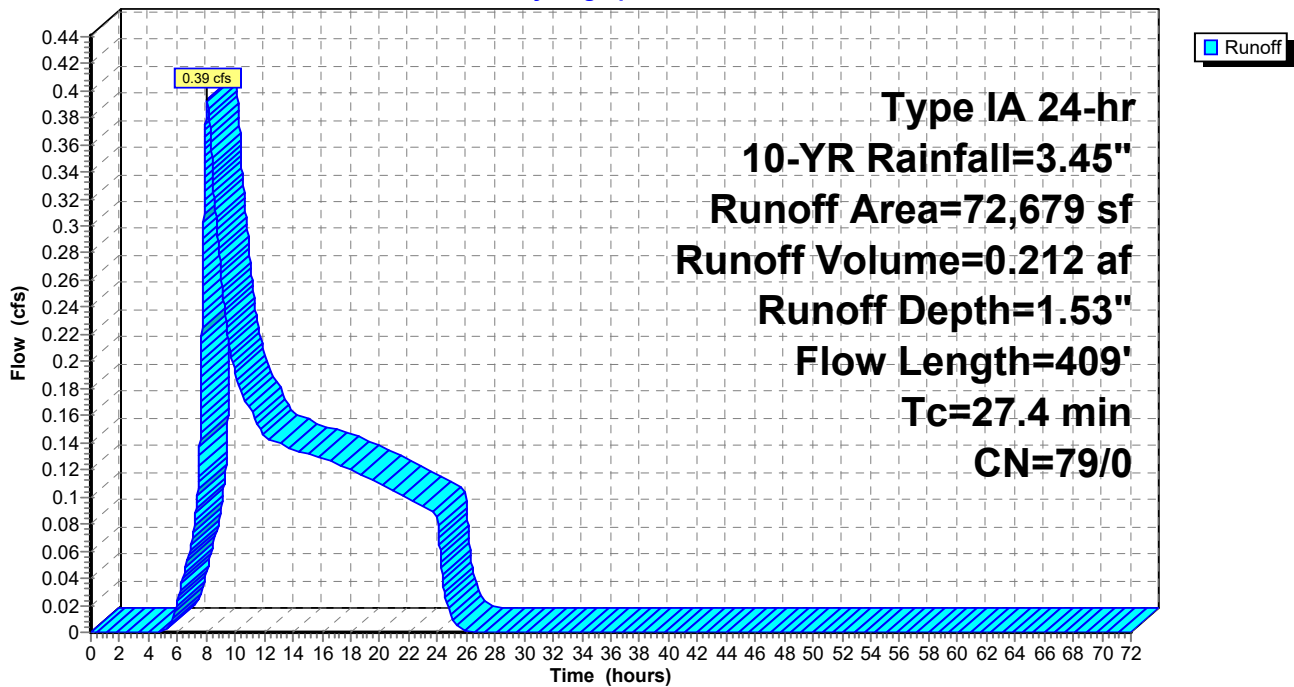
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-YR Rainfall=3.45"

Area (sf)	CN	Description
72,679	79	50-75% Grass cover, Fair, HSG C
72,679		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.7	300	0.0220	0.19		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 2.50"
1.7	109	0.0227	1.05		Shallow Concentrated Flow, Concentrated Flow Short Grass Pasture Kv= 7.0 fps
27.4	409	Total			

Subcatchment 2.1-P: Pervious

Hydrograph



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Type IA 24-hr 10-YR Rainfall=3.45"

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Summary for Subcatchment 2.2-iP: Impervious

Runoff = 0.22 cfs @ 7.88 hrs, Volume= 0.072 af, Depth= 3.22"

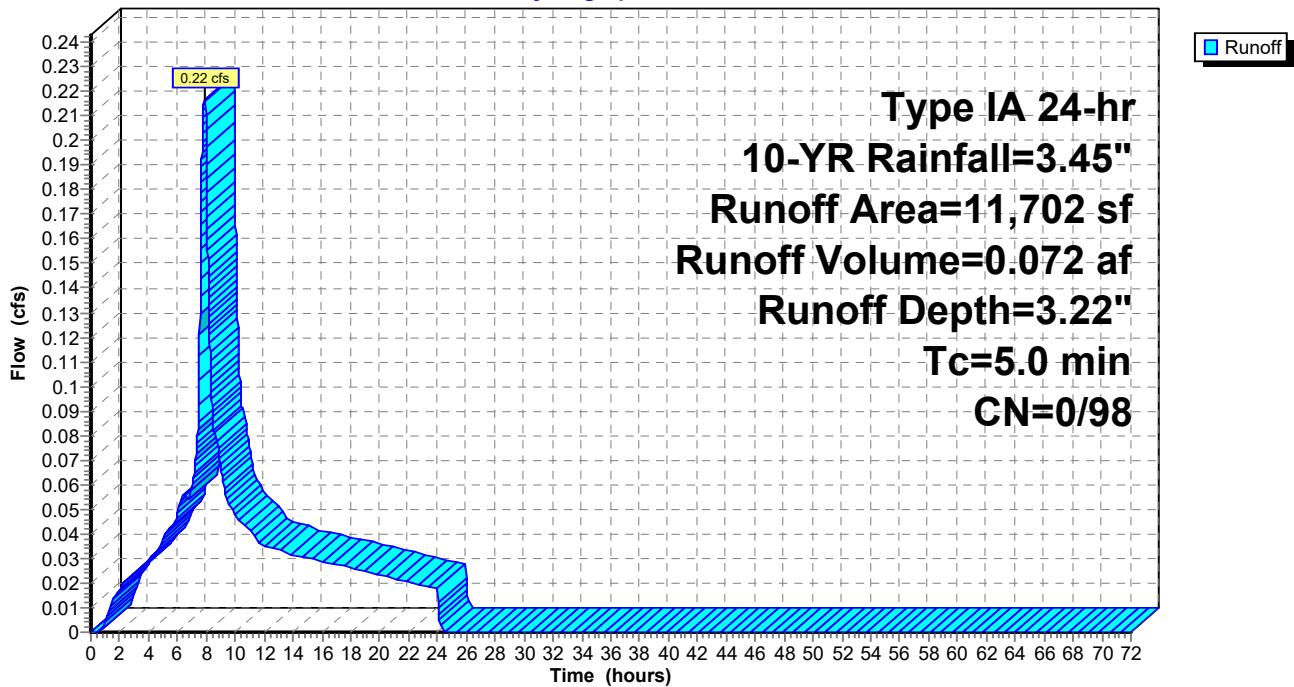
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-YR Rainfall=3.45"

Area (sf)	CN	Description
* 11,702	98	Roof/Drive Aisle
11,702		100.00% Impervious Area

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

Subcatchment 2.2-iP: Impervious

Hydrograph



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Summary for Subcatchment 2.2-P: Pervious

Runoff = 0.01 cfs @ 7.99 hrs, Volume= 0.004 af, Depth= 1.53"

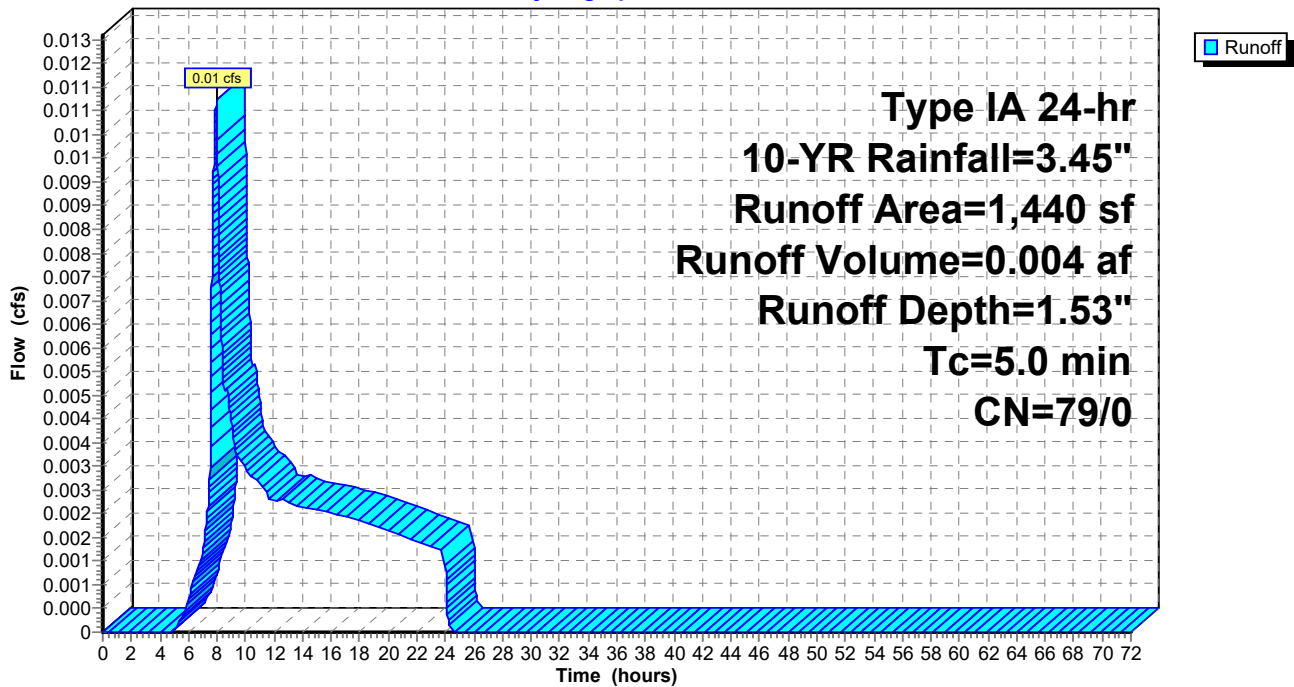
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-YR Rainfall=3.45"

Area (sf)	CN	Description
1,440	79	50-75% Grass cover, Fair, HSG C
1,440		100.00% Pervious Area

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

Subcatchment 2.2-P: Pervious

Hydrograph



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Type IA 24-hr 10-YR Rainfall=3.45"

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Summary for Reach CB-2: Catch Basin

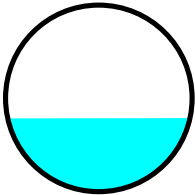
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 2.020 ac, 17.40% Impervious, Inflow Depth = 1.82" for 10-YR event
 Inflow = 0.66 cfs @ 8.00 hrs, Volume= 0.307 af
 Outflow = 0.66 cfs @ 8.01 hrs, Volume= 0.307 af, Atten= 1%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
 Max. Velocity= 3.31 fps, Min. Travel Time= 1.5 min
 Avg. Velocity = 1.87 fps, Avg. Travel Time= 2.7 min

Peak Storage= 60 cf @ 8.01 hrs
 Average Depth at Peak Storage= 0.33'
 Defined Flood Depth= 177.89' Flow Area= 20.2 sf, Capacity= -1,793.61 cfs
 Bank-Full Depth= 0.83' Flow Area= 0.5 sf, Capacity= 2.01 cfs

10.0" Round Pipe
 n= 0.010 PVC, smooth interior
 Length= 302.0' Slope= 0.0050 '/'
 Inlet Invert= 176.89', Outlet Invert= 175.38'



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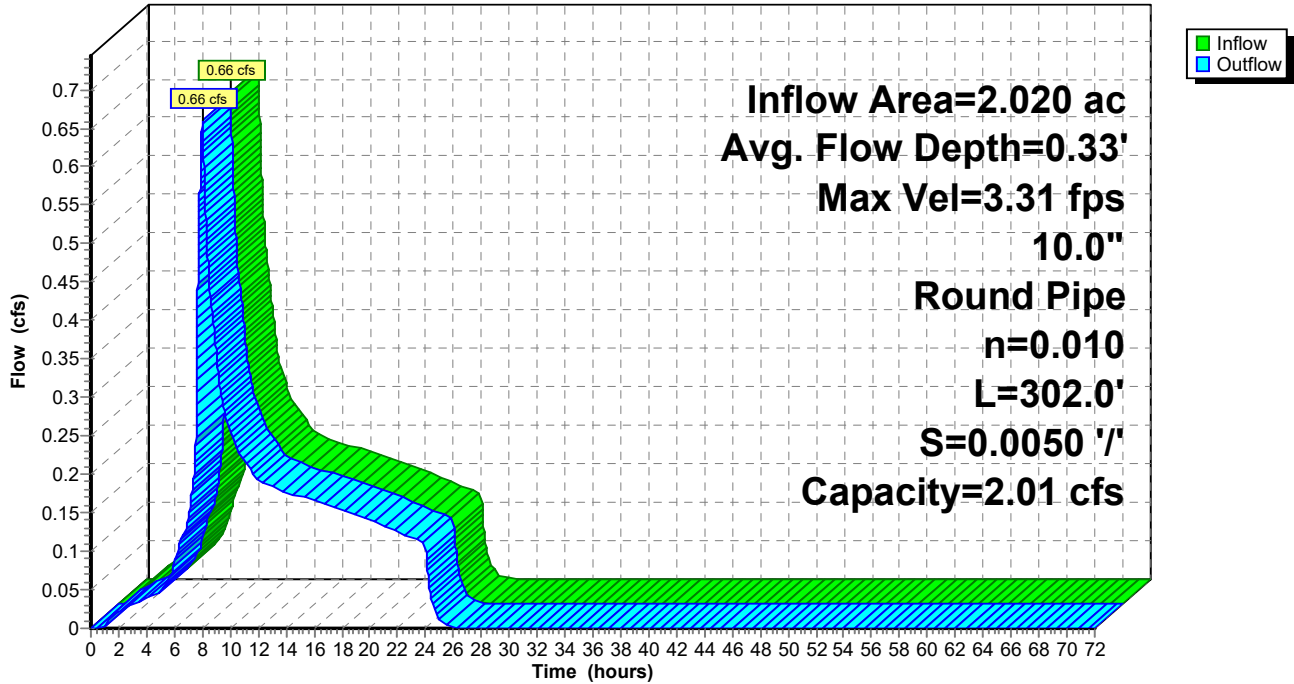
Type IA 24-hr 10-YR Rainfall=3.45"

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Reach CB-2: Catch Basin

Hydrograph



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Type IA 24-hr 10-YR Rainfall=3.45"

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Summary for Reach MH: WQ MH

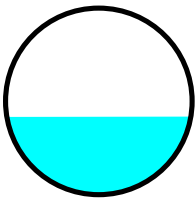
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 4.000 ac, 76.75% Impervious, Inflow Depth = 2.82" for 10-YR event
 Inflow = 2.78 cfs @ 7.89 hrs, Volume= 0.941 af
 Outflow = 2.78 cfs @ 7.89 hrs, Volume= 0.941 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
 Max. Velocity= 12.93 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 7.39 fps, Avg. Travel Time= 0.1 min

Peak Storage= 6 cf @ 7.89 hrs
 Average Depth at Peak Storage= 0.35'
 Defined Flood Depth= 171.30' Flow Area= 19.4 sf, Capacity= -6,563.73 cfs
 Bank-Full Depth= 0.83' Flow Area= 0.5 sf, Capacity= 7.66 cfs

10.0" Round Pipe
 n= 0.010 PVC, smooth interior
 Length= 26.3' Slope= 0.0722 '/'
 Inlet Invert= 169.30', Outlet Invert= 167.40'



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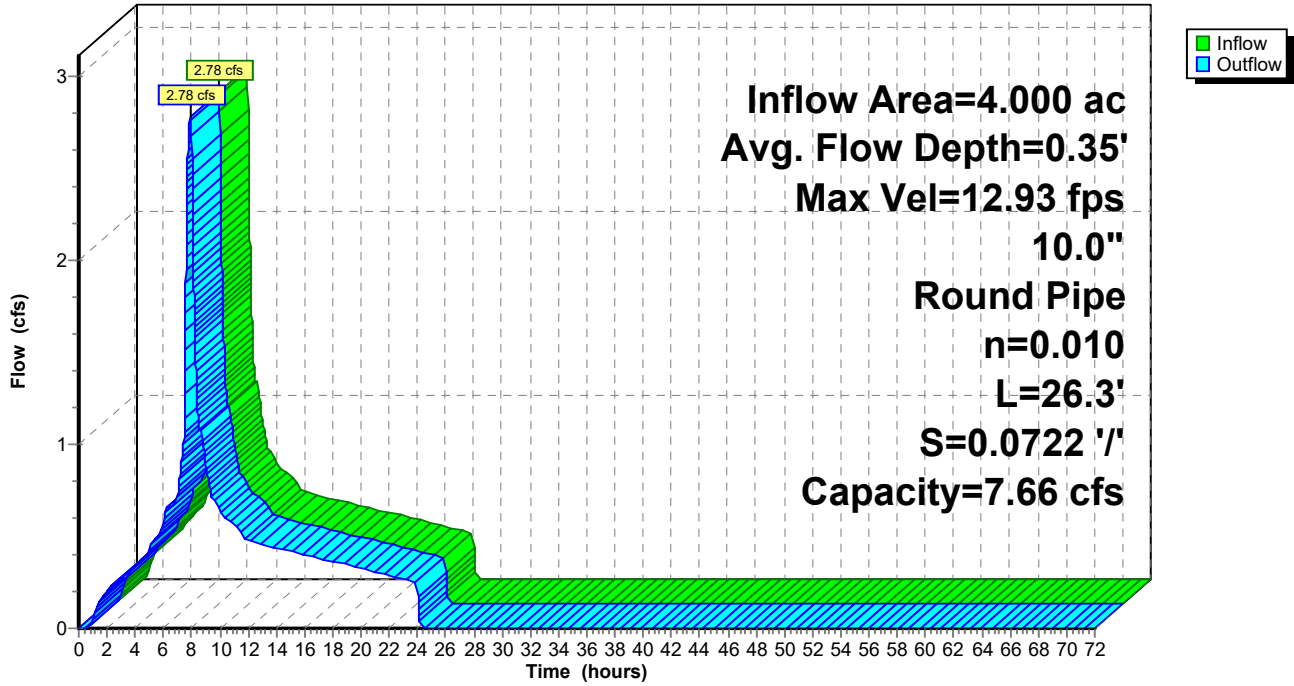
Type IA 24-hr 10-YR Rainfall=3.45"

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Reach MH: WQ MH

Hydrograph



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Type IA 24-hr 10-YR Rainfall=3.45"

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Summary for Pond STM-1: Detention Pond

[63] Warning: Exceeded Reach MH INLET depth by 1.62' @ 10.11 hrs

Inflow Area = 4.000 ac, 76.75% Impervious, Inflow Depth = 2.82" for 10-YR event
 Inflow = 2.78 cfs @ 7.89 hrs, Volume= 0.941 af
 Outflow = 0.67 cfs @ 9.82 hrs, Volume= 0.890 af, Atten= 76%, Lag= 115.6 min
 Primary = 0.67 cfs @ 9.82 hrs, Volume= 0.890 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 171.08' @ 9.82 hrs Surf.Area= 5,889 sf Storage= 16,855 cf

Plug-Flow detention time= 726.9 min calculated for 0.890 af (95% of inflow)
 Center-of-Mass det. time= 686.9 min (1,369.8 - 682.9)

Volume	Invert	Avail.Storage	Storage Description			
#1	166.75'	24,092 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
166.75	2,138	224.0	0	0	2,138	
167.00	2,309	232.0	556	556	2,434	
168.00	3,059	267.0	2,675	3,231	3,846	
169.00	3,912	297.0	3,477	6,708	5,222	
170.00	4,832	316.0	4,364	11,072	6,198	
171.00	5,809	335.0	5,313	16,385	7,234	
172.20	7,056	357.6	7,707	24,092	8,548	

Device	Routing	Invert	Outlet Devices
#1	Primary	166.00'	10.0" Round Outlet Pipe L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 166.00' / 163.00' S= 0.0600 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf
#2	Device 1	166.75'	0.9" Vert. WQ Outlet C= 0.600
#3	Device 1	168.25'	2.0" Vert. 2-YR Storm C= 0.600
#4	Device 1	170.92'	2.2' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.67 cfs @ 9.82 hrs HW=171.08' TW=0.00' (Dynamic Tailwater)

- 1=Outlet Pipe (Passes 0.67 cfs of 5.67 cfs potential flow)
- 2=WQ Outlet (Orifice Controls 0.04 cfs @ 9.98 fps)
- 3=2-YR Storm (Orifice Controls 0.17 cfs @ 7.98 fps)
- 4=Sharp-Crested Rectangular Weir(Weir Controls 0.46 cfs @ 1.31 fps)

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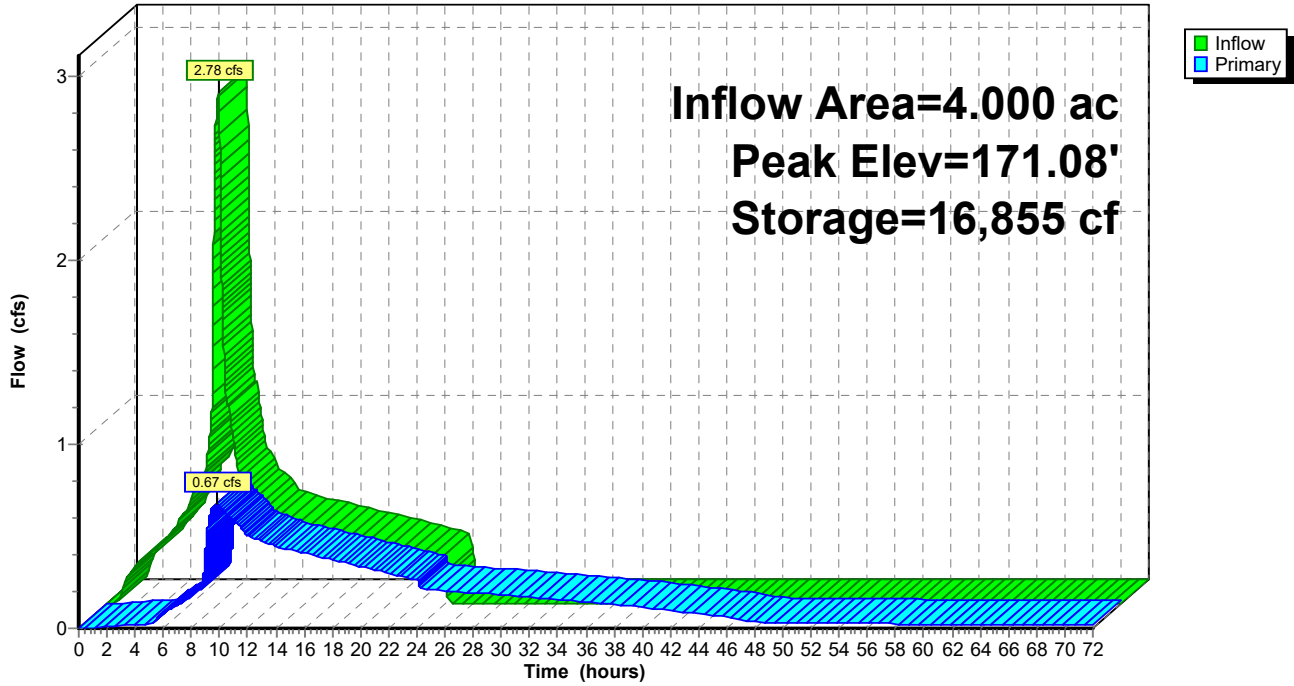
Type IA 24-hr 10-YR Rainfall=3.45"

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Pond STM-1: Detention Pond

Hydrograph



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Type IA 24-hr 10-YR Rainfall=3.45"

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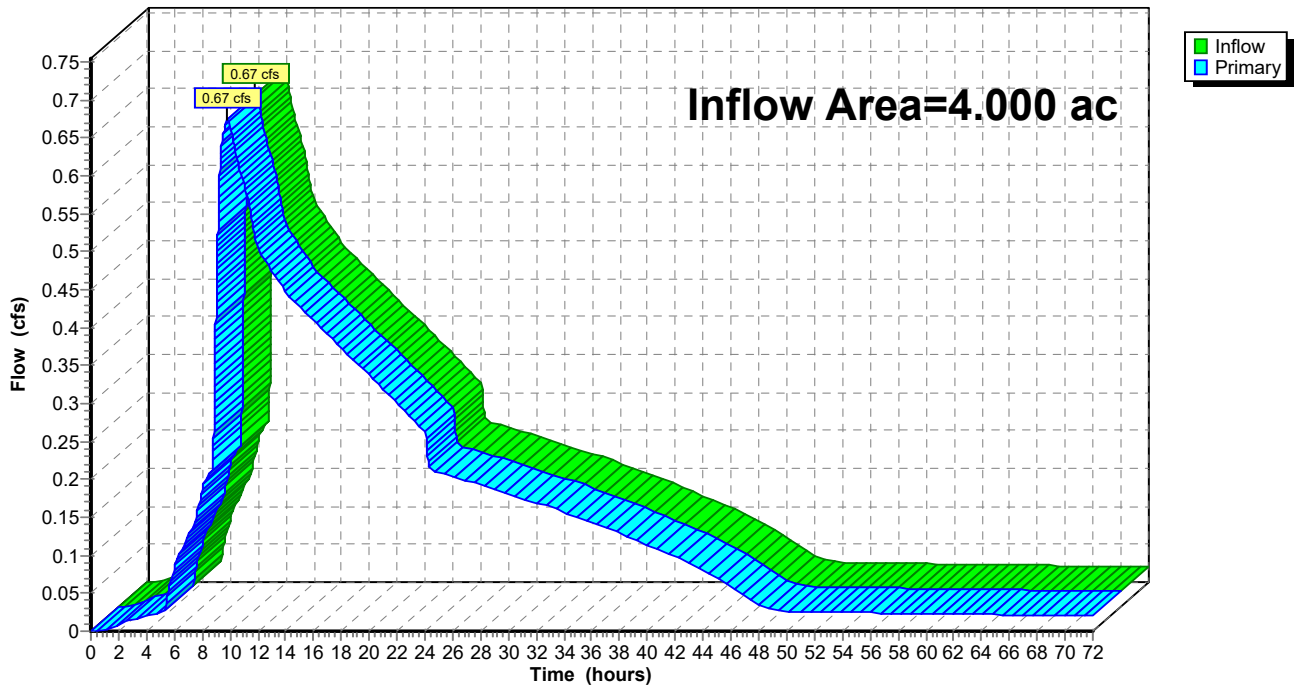
Summary for Link 1L: Flow Summary Part 1

Inflow Area = 4.000 ac, 76.75% Impervious, Inflow Depth > 2.67" for 10-YR event
 Inflow = 0.67 cfs @ 9.82 hrs, Volume= 0.890 af
 Primary = 0.67 cfs @ 9.82 hrs, Volume= 0.890 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 1L: Flow Summary Part 1

Hydrograph



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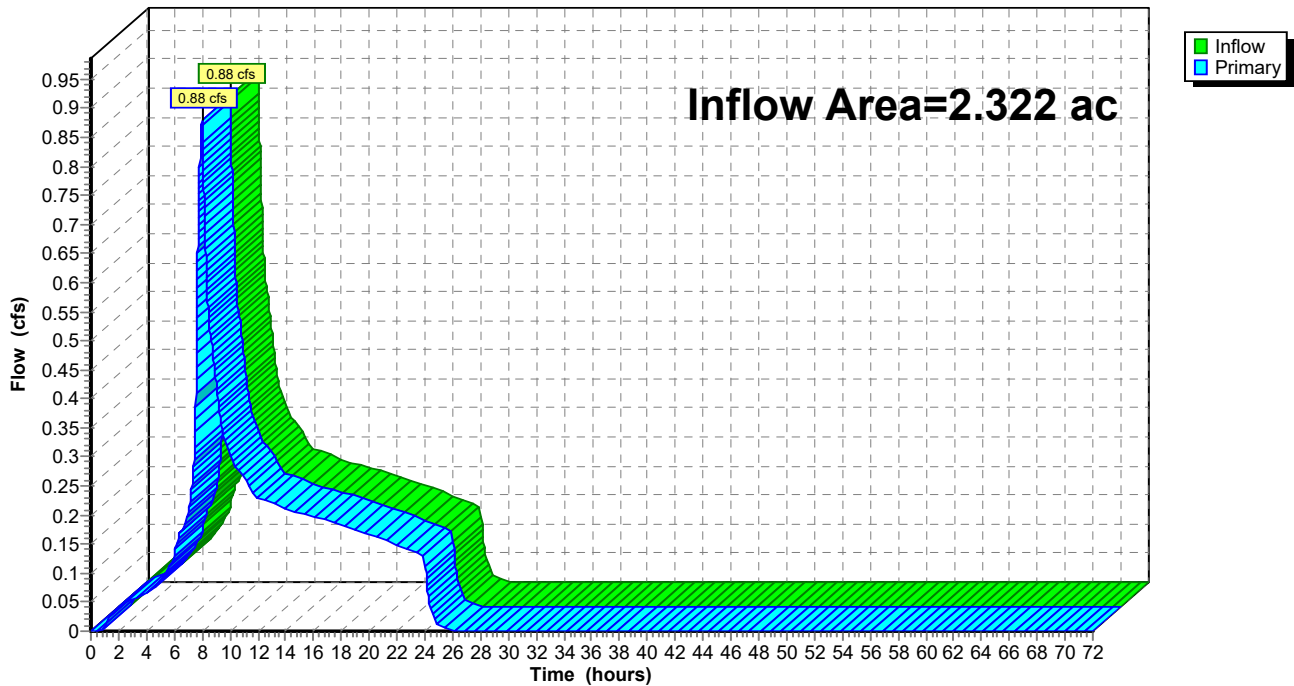
Summary for Link 2L: Flow Summary Part 2

Inflow Area = 2.322 ac, 26.71% Impervious, Inflow Depth = 1.98" for 10-YR event
 Inflow = 0.88 cfs @ 8.00 hrs, Volume= 0.383 af
 Primary = 0.88 cfs @ 8.00 hrs, Volume= 0.383 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 2L: Flow Summary Part 2

Hydrograph



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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 2

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1-iP: Impervious Runoff Area=133,720 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=0/98 Runoff=2.81 cfs 0.938 af

Subcatchment1-P: Pervious Runoff Area=40,503 sf 0.00% Impervious Runoff Depth=1.88"
Tc=5.0 min CN=79/0 Runoff=0.40 cfs 0.146 af

Subcatchment2.1-iP: Impervious Runoff Area=15,312 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=0/98 Runoff=0.32 cfs 0.107 af

Subcatchment2.1-P: Pervious Runoff Area=72,679 sf 0.00% Impervious Runoff Depth=1.88"
Flow Length=409' Tc=27.4 min CN=79/0 Runoff=0.51 cfs 0.262 af

Subcatchment2.2-iP: Impervious Runoff Area=11,702 sf 100.00% Impervious Runoff Depth=3.67"
Tc=5.0 min CN=0/98 Runoff=0.25 cfs 0.082 af

Subcatchment2.2-P: Pervious Runoff Area=1,440 sf 0.00% Impervious Runoff Depth=1.88"
Tc=5.0 min CN=79/0 Runoff=0.01 cfs 0.005 af

Reach CB-2: Catch Basin Avg. Flow Depth=0.37' Max Vel=3.50 fps Inflow=0.82 cfs 0.369 af
10.0" Round Pipe n=0.010 L=302.0' S=0.0050 '/' Capacity=2.01 cfs Outflow=0.81 cfs 0.369 af

Reach MH: WQ MH Avg. Flow Depth=0.38' Max Vel=13.42 fps Inflow=3.21 cfs 1.084 af
10.0" Round Pipe n=0.010 L=26.3' S=0.0722 '/' Capacity=7.66 cfs Outflow=3.21 cfs 1.084 af

Pond STM-1: Detention Pond Peak Elev=171.17' Storage=17,366 cf Inflow=3.21 cfs 1.084 af
Outflow=1.08 cfs 1.032 af

Link 1L: Flow Summary Part 1 Inflow=1.08 cfs 1.032 af
Primary=1.08 cfs 1.032 af

Link 2L: Flow Summary Part 2 Inflow=1.06 cfs 0.456 af
Primary=1.06 cfs 0.456 af

Total Runoff Area = 6.321 ac Runoff Volume = 1.540 af Average Runoff Depth = 2.92"
41.63% Pervious = 2.631 ac 58.37% Impervious = 3.690 ac

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Summary for Subcatchment 1-iP: Impervious

Runoff = 2.81 cfs @ 7.88 hrs, Volume= 0.938 af, Depth= 3.67"

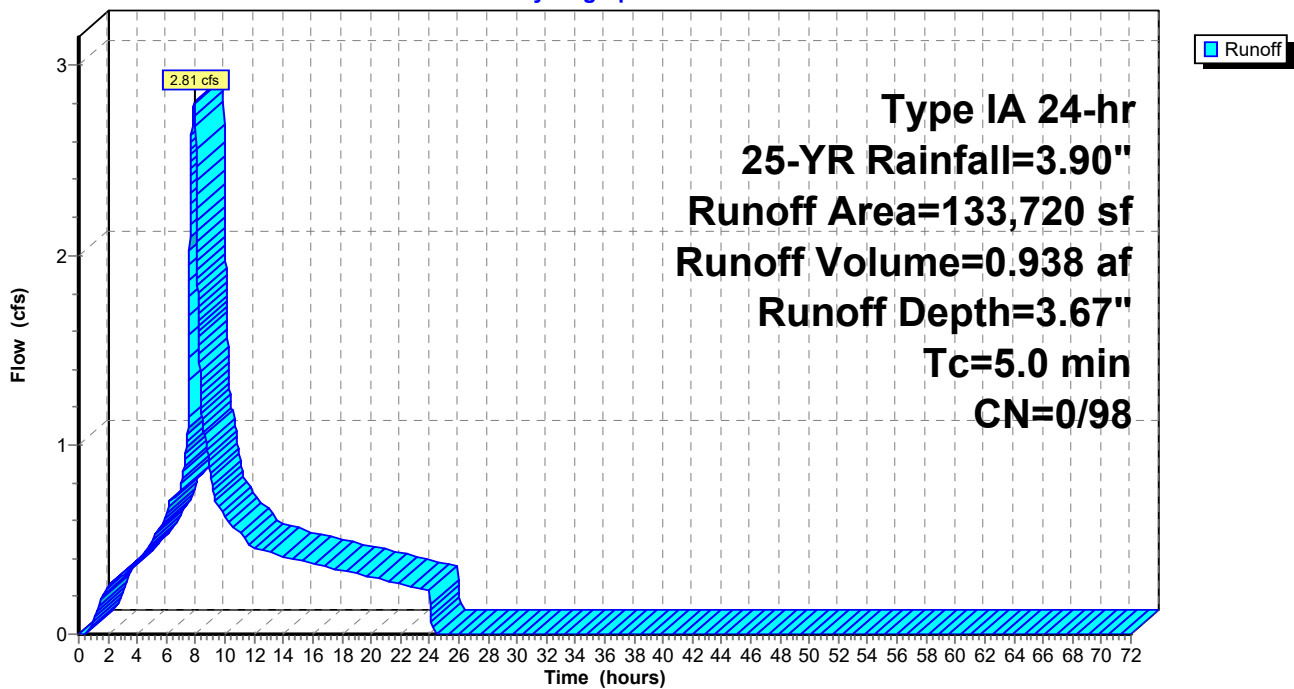
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25-YR Rainfall=3.90"

Area (sf)	CN	Description
* 133,720	98	Roof/Drive Aisle
133,720		100.00% Impervious Area

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

Subcatchment 1-iP: Impervious

Hydrograph



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Type IA 24-hr 25-YR Rainfall=3.90"

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Summary for Subcatchment 1-P: Pervious

Runoff = 0.40 cfs @ 7.98 hrs, Volume= 0.146 af, Depth= 1.88"

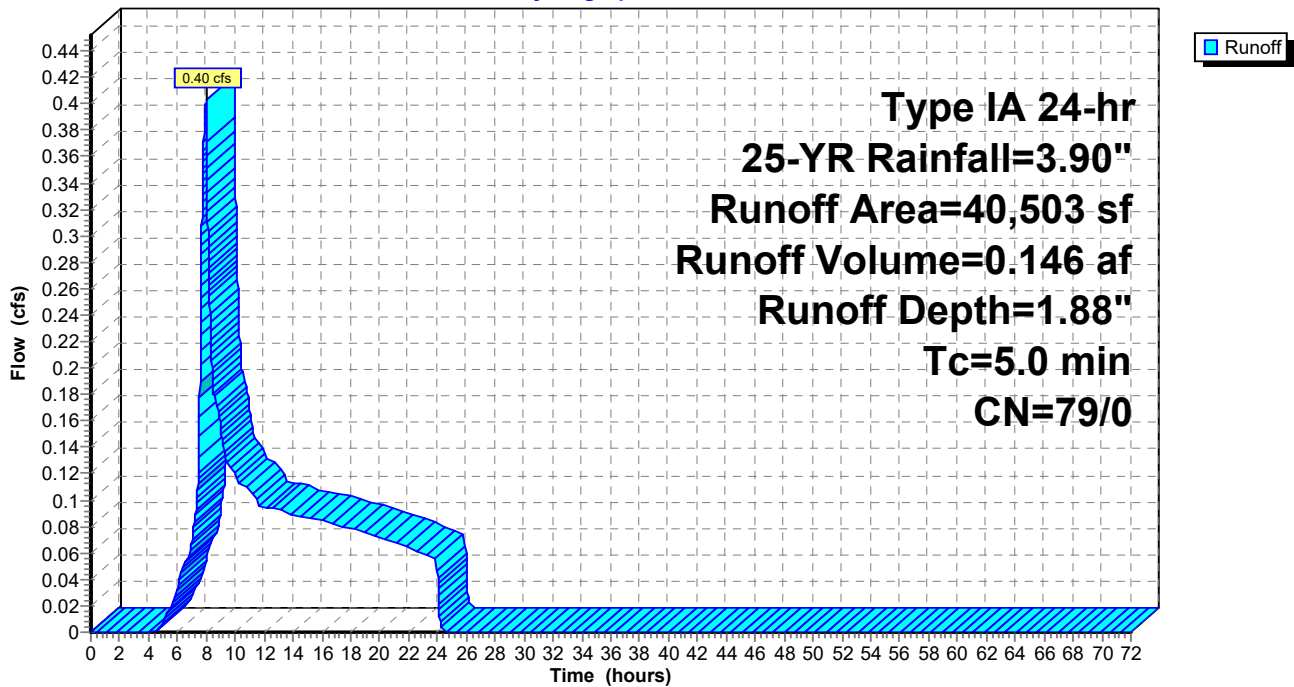
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25-YR Rainfall=3.90"

Area (sf)	CN	Description
40,503	79	50-75% Grass cover, Fair, HSG C
40,503		100.00% Pervious Area

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

Subcatchment 1-P: Pervious

Hydrograph



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Type IA 24-hr 25-YR Rainfall=3.90"

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Summary for Subcatchment 2.1-iP: Impervious

Runoff = 0.32 cfs @ 7.88 hrs, Volume= 0.107 af, Depth= 3.67"

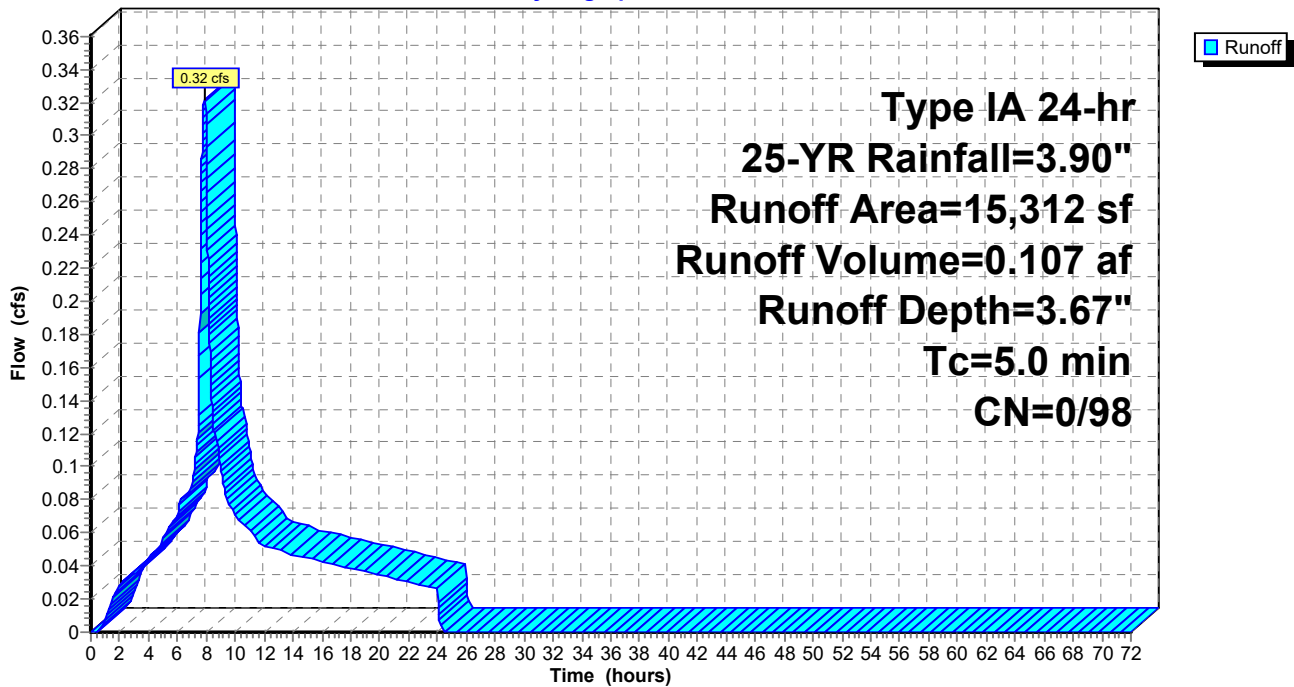
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25-YR Rainfall=3.90"

	Area (sf)	CN	Description
*	15,312	98	Roof/Drive Aisle
	15,312		100.00% Impervious Area

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

Subcatchment 2.1-iP: Impervious

Hydrograph



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Type IA 24-hr 25-YR Rainfall=3.90"

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Summary for Subcatchment 2.1-P: Pervious

Runoff = 0.51 cfs @ 8.01 hrs, Volume= 0.262 af, Depth= 1.88"

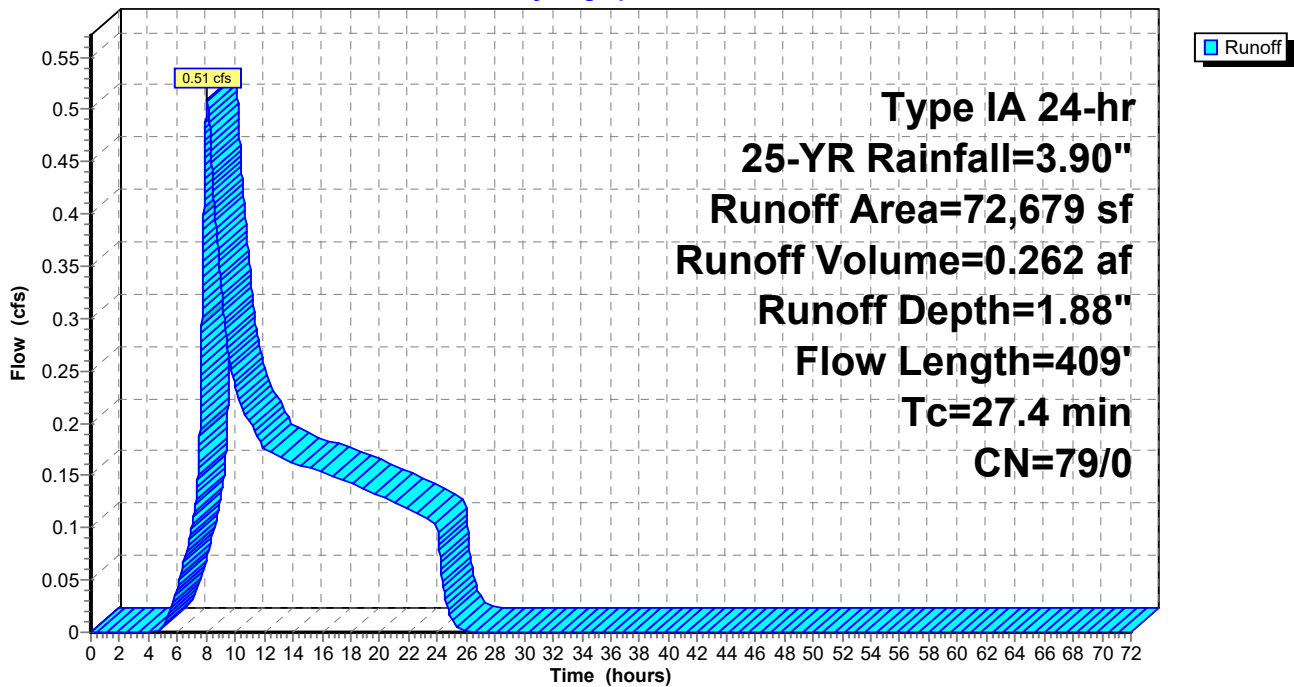
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25-YR Rainfall=3.90"

Area (sf)	CN	Description
72,679	79	50-75% Grass cover, Fair, HSG C
72,679		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.7	300	0.0220	0.19		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 2.50"
1.7	109	0.0227	1.05		Shallow Concentrated Flow, Concentrated Flow Short Grass Pasture Kv= 7.0 fps
27.4	409	Total			

Subcatchment 2.1-P: Pervious

Hydrograph



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Summary for Subcatchment 2.2-iP: Impervious

Runoff = 0.25 cfs @ 7.88 hrs, Volume= 0.082 af, Depth= 3.67"

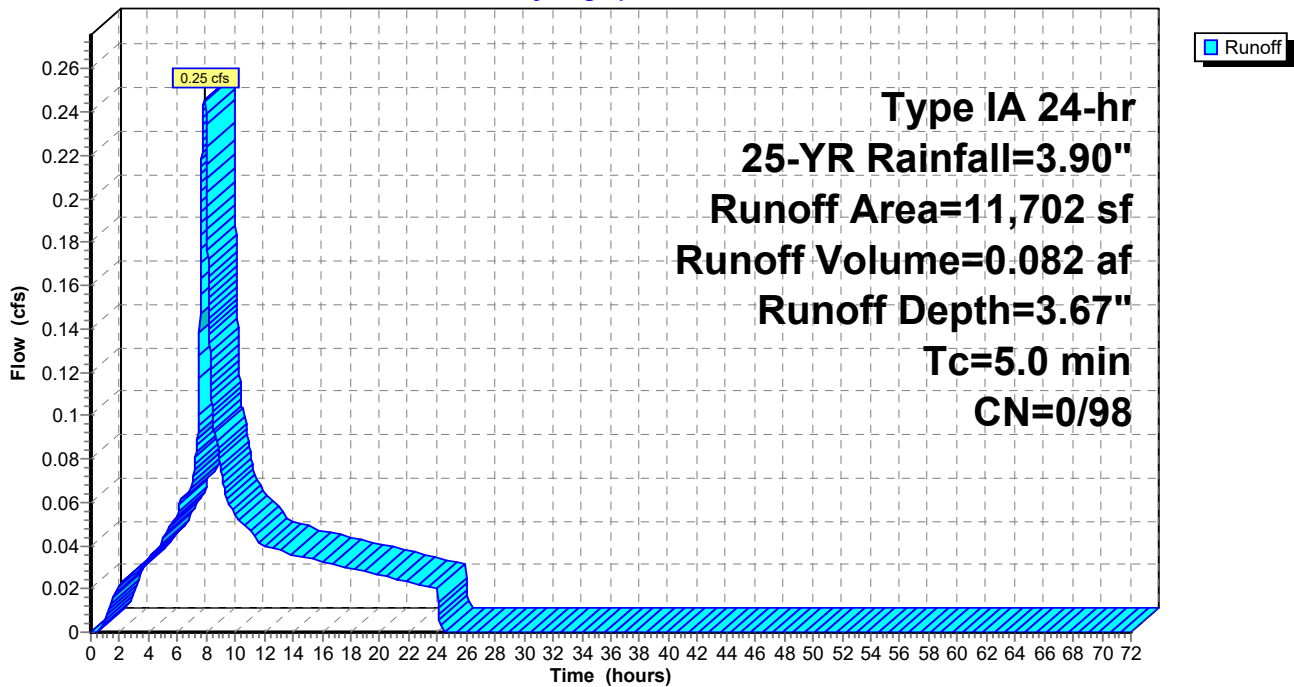
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25-YR Rainfall=3.90"

Area (sf)	CN	Description
* 11,702	98	Roof/Drive Aisle
11,702		100.00% Impervious Area

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

Subcatchment 2.2-iP: Impervious

Hydrograph



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Type IA 24-hr 25-YR Rainfall=3.90"

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Summary for Subcatchment 2.2-P: Pervious

Runoff = 0.01 cfs @ 7.98 hrs, Volume= 0.005 af, Depth= 1.88"

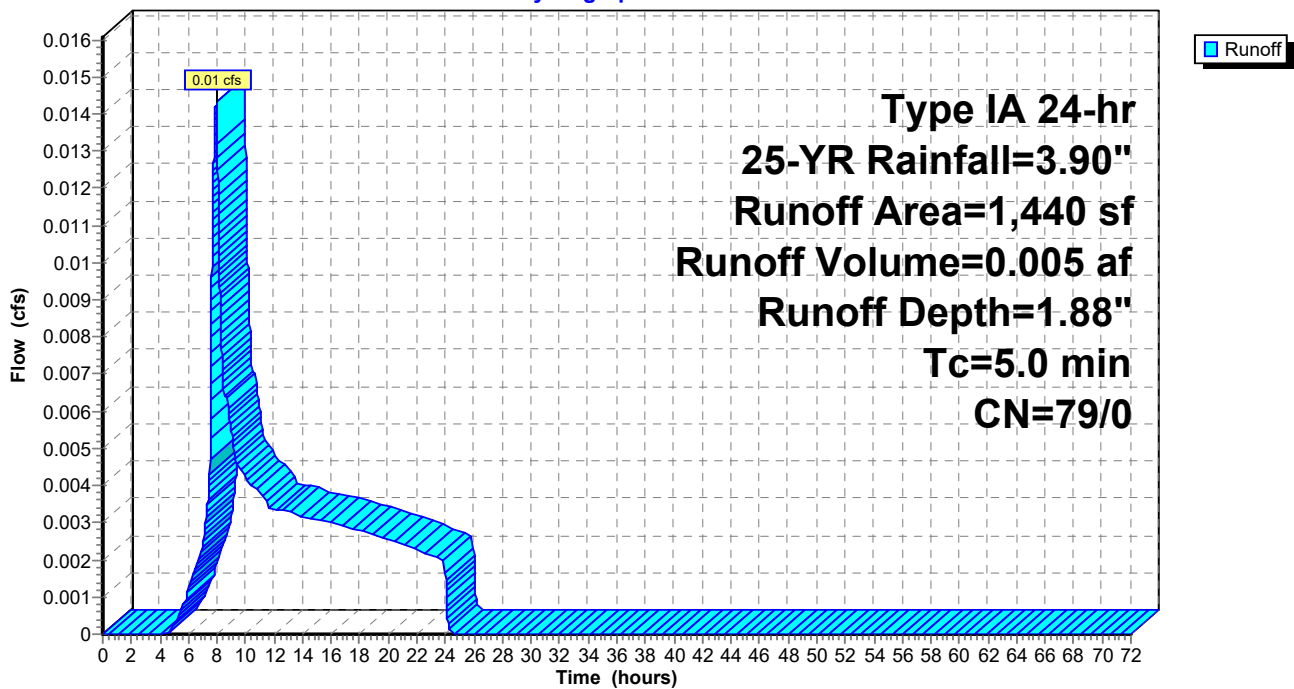
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25-YR Rainfall=3.90"

Area (sf)	CN	Description
1,440	79	50-75% Grass cover, Fair, HSG C
1,440		100.00% Pervious Area

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

Subcatchment 2.2-P: Pervious

Hydrograph



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Type IA 24-hr 25-YR Rainfall=3.90"

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Summary for Reach CB-2: Catch Basin

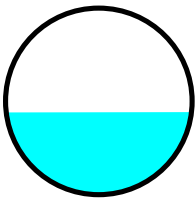
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 2.020 ac, 17.40% Impervious, Inflow Depth = 2.19" for 25-YR event
 Inflow = 0.82 cfs @ 8.00 hrs, Volume= 0.369 af
 Outflow = 0.81 cfs @ 8.01 hrs, Volume= 0.369 af, Atten= 1%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
 Max. Velocity= 3.50 fps, Min. Travel Time= 1.4 min
 Avg. Velocity = 1.97 fps, Avg. Travel Time= 2.6 min

Peak Storage= 70 cf @ 8.01 hrs
 Average Depth at Peak Storage= 0.37'
 Defined Flood Depth= 177.89' Flow Area= 20.2 sf, Capacity= -1,793.61 cfs
 Bank-Full Depth= 0.83' Flow Area= 0.5 sf, Capacity= 2.01 cfs

10.0" Round Pipe
 n= 0.010 PVC, smooth interior
 Length= 302.0' Slope= 0.0050 '/'
 Inlet Invert= 176.89', Outlet Invert= 175.38'



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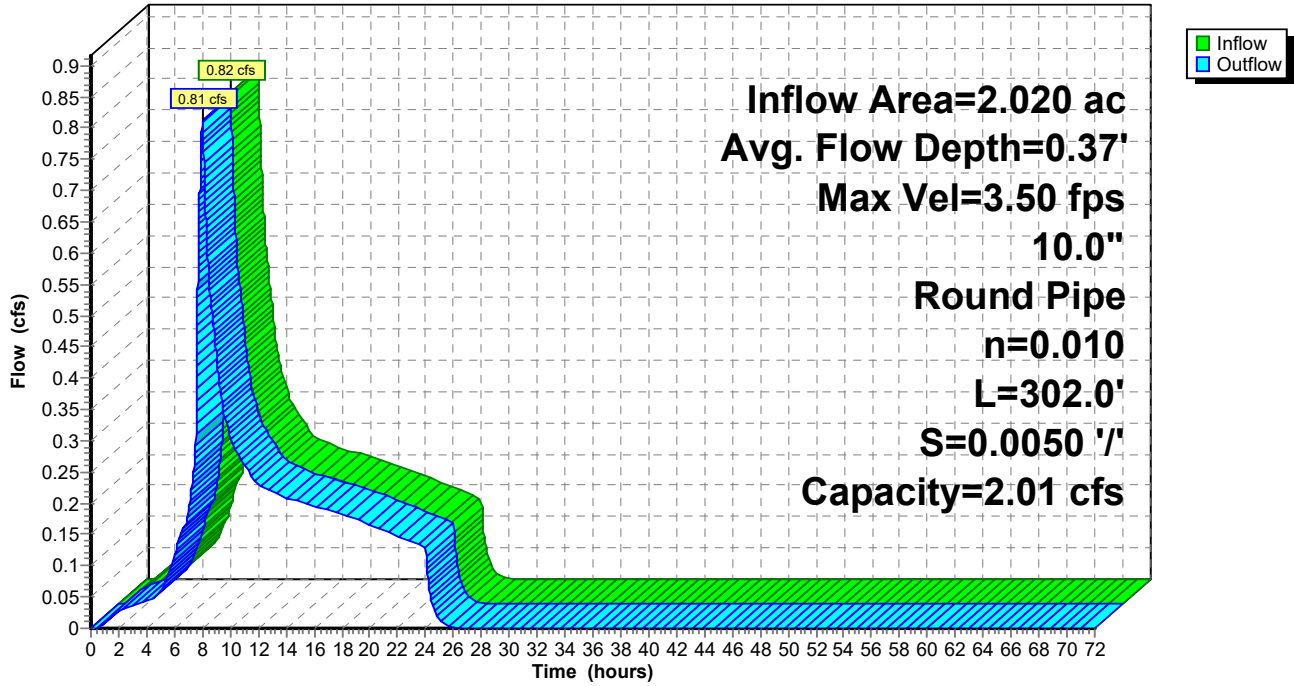
Type IA 24-hr 25-YR Rainfall=3.90"

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Reach CB-2: Catch Basin

Hydrograph



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Type IA 24-hr 25-YR Rainfall=3.90"

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Summary for Reach MH: WQ MH

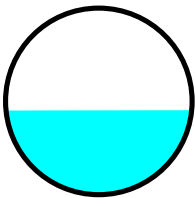
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 4.000 ac, 76.75% Impervious, Inflow Depth = 3.25" for 25-YR event
 Inflow = 3.21 cfs @ 7.89 hrs, Volume= 1.084 af
 Outflow = 3.21 cfs @ 7.89 hrs, Volume= 1.084 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
 Max. Velocity= 13.42 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 7.69 fps, Avg. Travel Time= 0.1 min

Peak Storage= 6 cf @ 7.89 hrs
 Average Depth at Peak Storage= 0.38'
 Defined Flood Depth= 171.30' Flow Area= 19.4 sf, Capacity= -6,563.73 cfs
 Bank-Full Depth= 0.83' Flow Area= 0.5 sf, Capacity= 7.66 cfs

10.0" Round Pipe
 n= 0.010 PVC, smooth interior
 Length= 26.3' Slope= 0.0722 '/'
 Inlet Invert= 169.30', Outlet Invert= 167.40'



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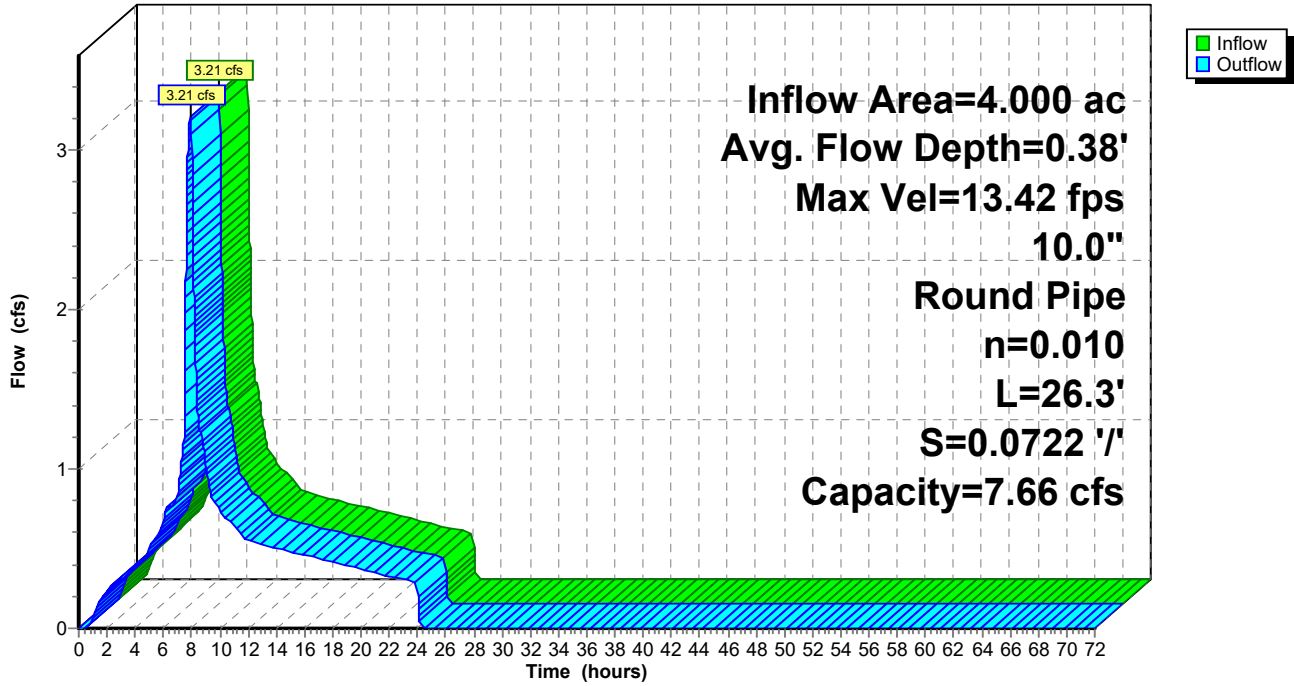
Type IA 24-hr 25-YR Rainfall=3.90"

Printed 6/16/2022

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Reach MH: WQ MH

Hydrograph



8627-03 POST-DEV

Type IA 24-hr 25-YR Rainfall=3.90"

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Printed 6/16/2022

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Summary for Pond STM-1: Detention Pond

[63] Warning: Exceeded Reach MH INLET depth by 1.66' @ 9.11 hrs

Inflow Area = 4.000 ac, 76.75% Impervious, Inflow Depth = 3.25" for 25-YR event
 Inflow = 3.21 cfs @ 7.89 hrs, Volume= 1.084 af
 Outflow = 1.08 cfs @ 8.90 hrs, Volume= 1.032 af, Atten= 66%, Lag= 60.3 min
 Primary = 1.08 cfs @ 8.90 hrs, Volume= 1.032 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 171.17' @ 8.90 hrs Surf.Area= 5,975 sf Storage= 17,366 cf

Plug-Flow detention time= 639.3 min calculated for 1.032 af (95% of inflow)
 Center-of-Mass det. time= 604.1 min (1,283.9 - 679.9)

Volume	Invert	Avail.Storage	Storage Description		
#1	166.75'	24,092 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
166.75	2,138	224.0	0	0	2,138
167.00	2,309	232.0	556	556	2,434
168.00	3,059	267.0	2,675	3,231	3,846
169.00	3,912	297.0	3,477	6,708	5,222
170.00	4,832	316.0	4,364	11,072	6,198
171.00	5,809	335.0	5,313	16,385	7,234
172.20	7,056	357.6	7,707	24,092	8,548

Device	Routing	Invert	Outlet Devices
#1	Primary	166.00'	10.0" Round Outlet Pipe L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 166.00' / 163.00' S= 0.0600 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf
#2	Device 1	166.75'	0.9" Vert. WQ Outlet C= 0.600
#3	Device 1	168.25'	2.0" Vert. 2-YR Storm C= 0.600
#4	Device 1	170.92'	2.2' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=1.08 cfs @ 8.90 hrs HW=171.17' TW=0.00' (Dynamic Tailwater)

- 1=Outlet Pipe (Passes 1.08 cfs of 5.72 cfs potential flow)
- 2=WQ Outlet (Orifice Controls 0.04 cfs @ 10.08 fps)
- 3=2-YR Storm (Orifice Controls 0.18 cfs @ 8.10 fps)
- 4=Sharp-Crested Rectangular Weir(Weir Controls 0.86 cfs @ 1.62 fps)

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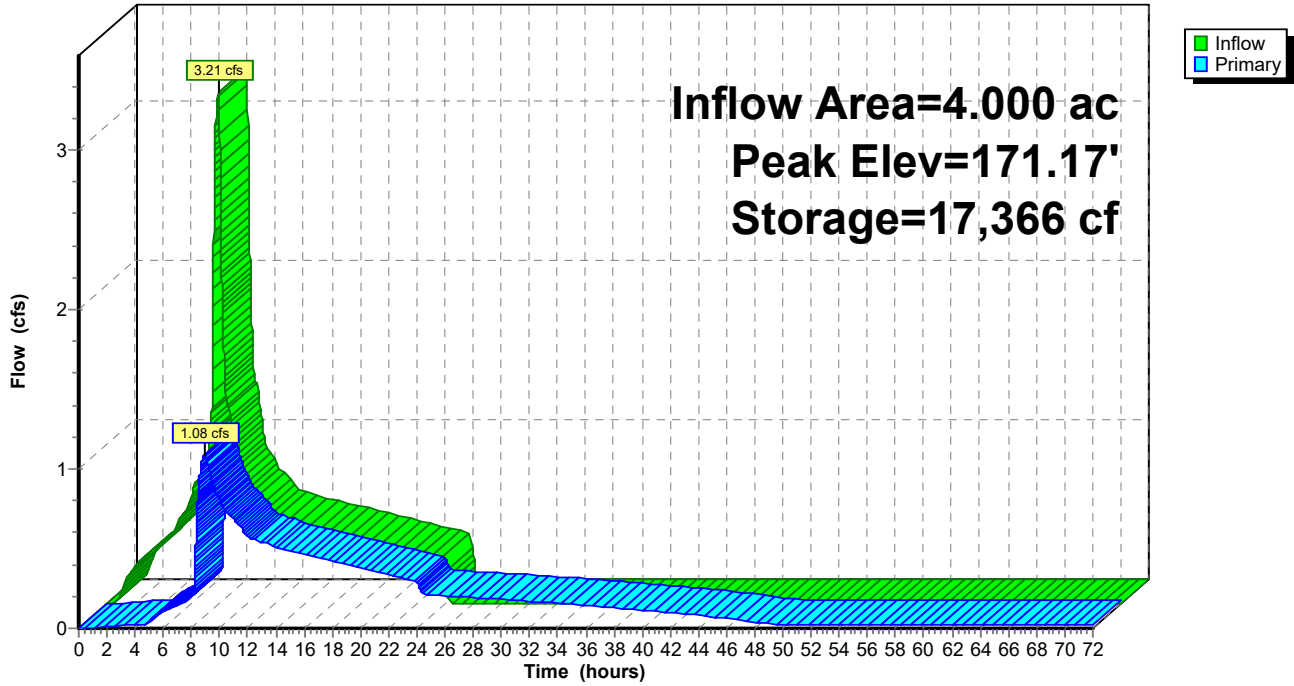
Type IA 24-hr 25-YR Rainfall=3.90"

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Pond STM-1: Detention Pond

Hydrograph



8627-03 POST-DEV

Type IA 24-hr 25-YR Rainfall=3.90"

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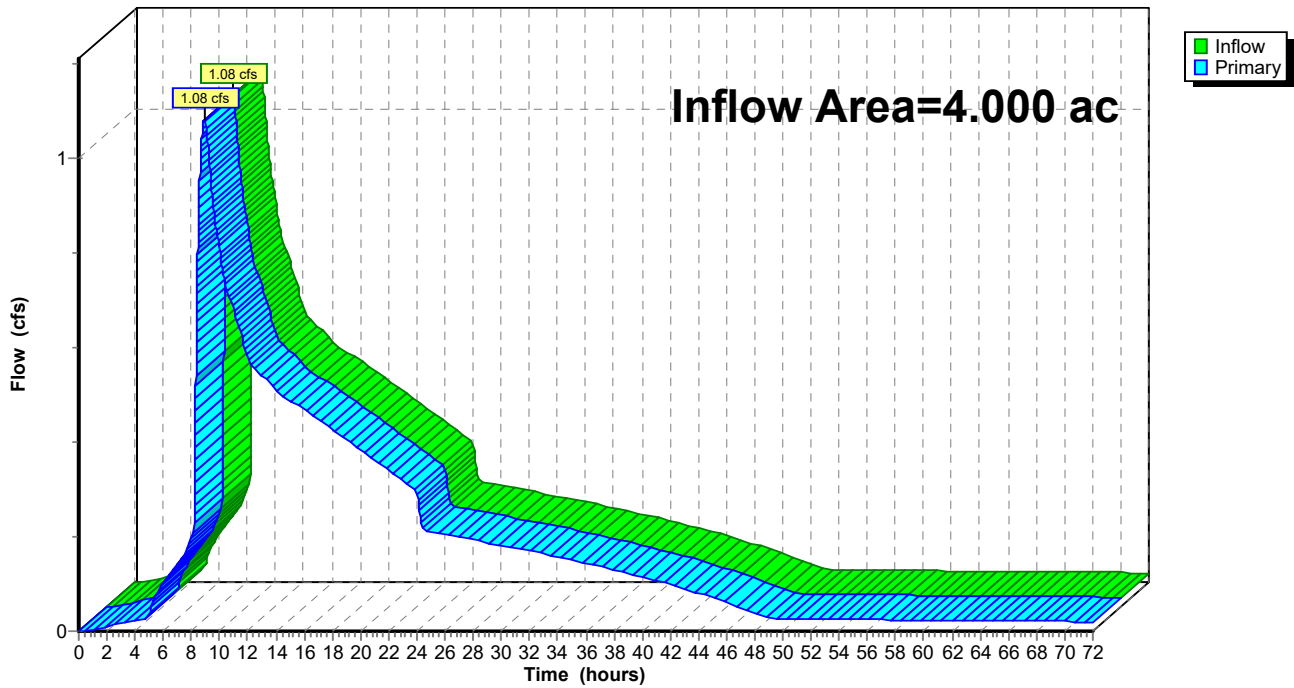
Summary for Link 1L: Flow Summary Part 1

Inflow Area = 4.000 ac, 76.75% Impervious, Inflow Depth > 3.10" for 25-YR event
 Inflow = 1.08 cfs @ 8.90 hrs, Volume= 1.032 af
 Primary = 1.08 cfs @ 8.90 hrs, Volume= 1.032 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 1L: Flow Summary Part 1

Hydrograph



8627-03 POST-DEV

Type IA 24-hr 25-YR Rainfall=3.90"

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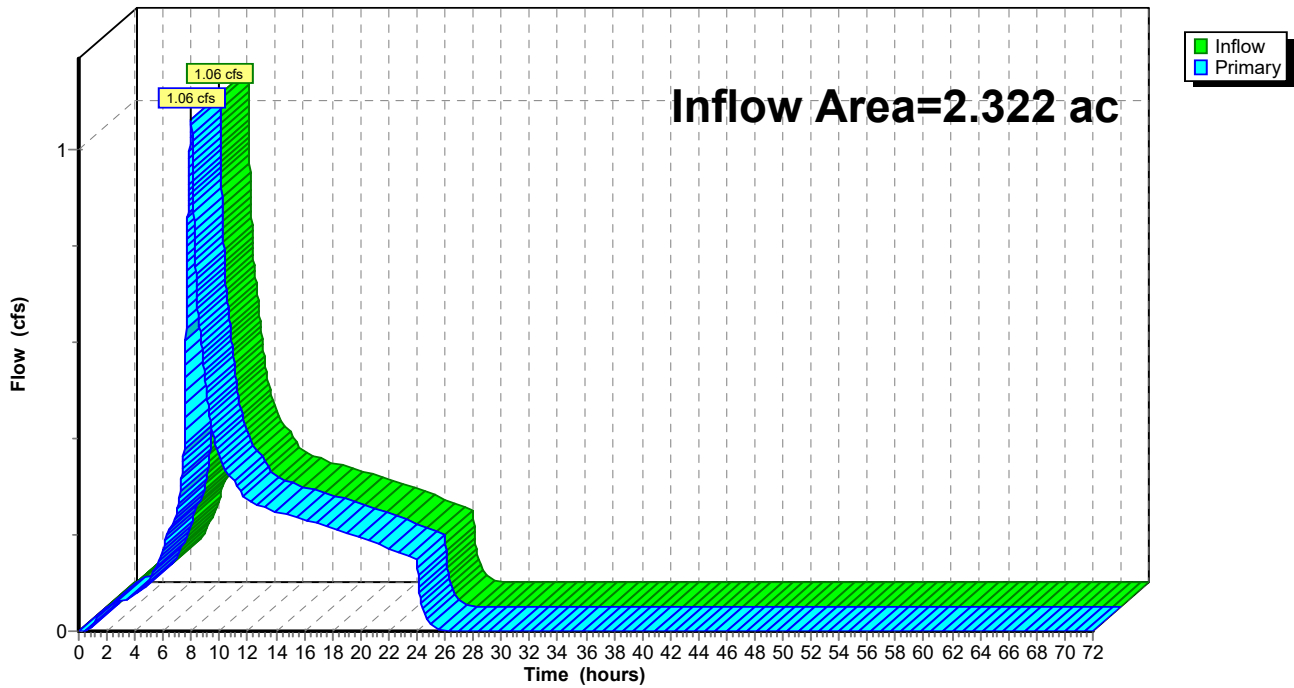
Summary for Link 2L: Flow Summary Part 2

Inflow Area = 2.322 ac, 26.71% Impervious, Inflow Depth = 2.36" for 25-YR event
 Inflow = 1.06 cfs @ 8.00 hrs, Volume= 0.456 af
 Primary = 1.06 cfs @ 8.00 hrs, Volume= 0.456 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 2L: Flow Summary Part 2

Hydrograph



Appendix C: TR-55 Runoff Curve Numbers

Table 2-2a Runoff curve numbers for urban areas ^{1/}

Cover description	Average percent impervious area ^{2/}	Curve numbers for hydrologic soil group			
		A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) ^{3/} :					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)					
		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)					
		98	98	98	98
Paved; open ditches (including right-of-way)					
		83	89	92	93
Gravel (including right-of-way)					
		76	85	89	91
Dirt (including right-of-way)					
		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) ^{4/}					
		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)					
		96	96	96	96
Urban districts:					
Commercial and business					
	85	89	92	94	95
Industrial					
	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)					
	65	77	85	90	92
1/4 acre					
	38	61	75	83	87
1/3 acre					
	30	57	72	81	86
1/2 acre					
	25	54	70	80	85
1 acre					
	20	51	68	79	84
2 acres					
	12	46	65	77	82

Developing urban areas

Newly graded areas (pervious areas only, no vegetation) ^{5/}					
		77	86	91	94

Idle lands (CN's are determined using cover types similar to those in table 2-2c).

¹ Average runoff condition, and $I_a = 0.2S$.

² The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

³ CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

⁴ Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

⁵ Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

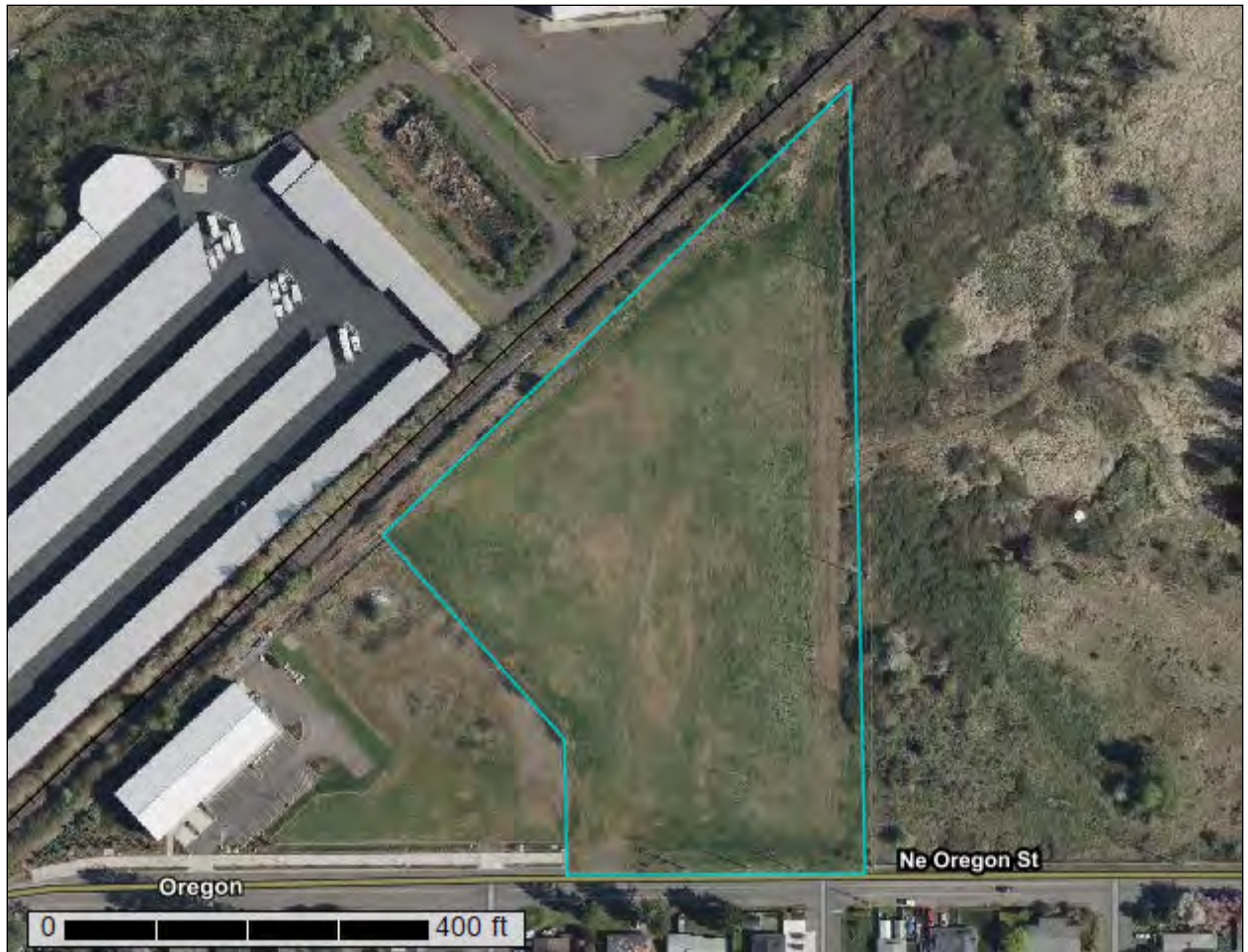
Appendix D: USDA-NRCS Soil Resource Report



A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Washington County, Oregon

JBMac Ventures



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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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Soil Map

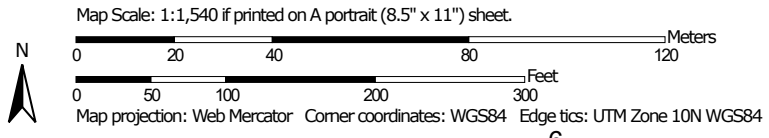
The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Exhibit A11




Soil Map may not be valid at this scale.




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MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils







 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Washington County, Oregon
 Survey Area Data: Version 21, 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: Apr 16, 2021—Apr 18, 2021

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
1	Aloha silt loam	1.6	25.4%
37A	Quatama loam, 0 to 3 percent slopes	4.7	74.6%
Totals for Area of Interest		6.3	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,

Custom Soil Resource Report

onsite investigation is needed to define and locate the soils and miscellaneous areas.

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.

Washington County, Oregon

1—Aloha silt loam

Map Unit Setting

National map unit symbol: 21x8
Elevation: 150 to 250 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 160 to 210 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Aloha and similar soils: 90 percent
Minor components: 1 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Aloha

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Old loamy alluvium

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 46 inches: silt loam
H3 - 46 to 65 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.8 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: R002XC007OR - Valley Swale Group
Forage suitability group: Somewhat Poorly Drained (G002XY005OR)
Other vegetative classification: Somewhat Poorly Drained (G002XY005OR)
Hydric soil rating: No

Minor Components

Huberly

Percent of map unit: 1 percent
Landform: Terraces

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Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Poorly Drained (G002XY006OR)
Hydric soil rating: Yes

37A—Quatama loam, 0 to 3 percent slopes**Map Unit Setting**

National map unit symbol: 21zl
Elevation: 140 to 250 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

Quatama and similar soils: 85 percent
Minor components: 4 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Quatama**Setting**

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

H1 - 0 to 15 inches: loam
H2 - 15 to 30 inches: clay loam
H3 - 30 to 62 inches: 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 (0.20 to 0.57 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C
Ecological site: R002XC008OR - Valley Terrace Group

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Forage suitability group: Moderately Well Drained < 15% Slopes (G002XY004OR)

Other vegetative classification: Moderately Well Drained < 15% Slopes
(G002XY004OR)

Hydric soil rating: No

Minor Components**Huberly**

Percent of map unit: 4 percent

Landform: Terraces

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Other vegetative classification: Poorly Drained (G002XY006OR)

Hydric soil rating: Yes

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Appendix E: Stormwater Quality Calculations



STORMWATER QUALITY CALCULATIONS

AKS ENGINEERING & FORESTRY, LLC | 12965 SW Herman Rd, Suite 100 | Tualatin, OR 97062

p: 503.563.6151 | f: 503.563.6152 | www.aks-eng.com

PROJECT

JBMac Ventures

AKS JOB NO.

8627-03 and 8627-04

DATE

6/14/2022

PREPARED FOR:

JBMac Ventures, LLC

ADDRESS

19435 SW 129th Ave

CITY/STATE/ZIP

Tualatin, OR 97062

PROJECT MANAGER:

BGC

PREPARED BY:

APC

REVIEWED BY:

BGC

IMPERVIOUS AREA TABLE		
SUBCATCHMENT		NET CHANGE (sq ft)
Existing 1-E (sf)	PROPOSED 1-iP (sf)	
0.00	133,720	133,720.00
*TOTAL		133,720.00

Note:

*Runoff generated on impervious area to be treated by new pond.



STORMWATER QUALITY CALCULATIONS

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PROJECT

JBMac Ventures

AKS JOB NO.

8627-03 and 8627-04

DATE

6/14/2022

SUBCATCHMENT 1-1p

IMPERVIOUS AREA USED IN DESIGN

Per CWS 4.05.5 - R&O 07-20

133,720 square feet

WATER QUALITY VOLUME (WQV)

Per CWS 4.05.6b - R&O 07-20

PREPARED FOR:

JBMac Ventures, LLC

ADDRESS

19435 SW 129th Ave

CITY/STATE/ZIP

Tualatin, OR 97062

$$WQV = \frac{0.36 \text{ in.} \times \text{Area (sq ft.)}}{12 \text{ in. per ft.}} =$$

4012 cubic feet

WATER QUALITY FLOW (WQF)

Per CWS 4.05.6b - R&O 07-20

$$WQF = \frac{WQV \text{ (sf)}}{14,400 \text{ seconds}} =$$

0.28 cubic feet per second

PROJECT MANAGER:

BGC

WATER QUALITY MANHOLE SUMP VOLUME CALCULATIONS

Per CWS 4.06.1b - R&O 07-20

CWS Criteria: Sump Volume = 20 cubic feet per 1.0 cfs of flow

PREPARED BY:

APC

Calculated 25-year Flow through WQ Manhole = **3.2** cubic feet per second

REVIEWED BY:

BGC

Calculated Manhole Sump Volume = **64.0** cubic feet

Calculated Manhole Sump Depth (60" dia. MH) = **3.3** feet **therefore sump = 3.3 ft.**

3 ft. minimum < Sump Depth < 5 ft. maximum



STORMWATER QUALITY CALCULATIONS

AKS ENGINEERING & FORESTRY, LLC | 12965 SW Herman Rd, Suite 100 | Tualatin, OR 97062
 p: 503.563.6151 | f: 503.563.6152 | www.aks-eng.com

PROJECT

JBMac Ventures

AKS JOB NO.

8627-03 and 8627-04

DATE

6/14/2022

PREPARED FOR:

JBMac Ventures, LLC

ADDRESS

19435 SW 129th Ave

CITY/STATE/ZIP

Tualatin, OR 97062

PROJECT MANAGER:

BGC

PREPARED BY:

APC

REVIEWED BY:

BGC

EXTENDED DRY BASIN WATER QUALITY FLOW DESIGN AND CALCULATIONS

Hydraulic Design Criteria (Per CWS 4.06.3 - R&O 07-20)

Design Flow: Water Quality Flow

Water Quality Drawdown Time: 48 hours

Maximum Water Design Depth: 4.0 feet

Minimum Freeboard: 1.0 foot (for facilities not protected from high flows)

48-HOUR WATER QUALITY DRAW DOWN RATE (Q):

Water Quality Volume Pond Depth = **1.50** feet

$$Q = \frac{\text{WQV (sf)}}{172,800 \text{ seconds}} = \mathbf{0.023} \text{ cubic feet per second}$$

ORIFICE SIZING

Diameter of Orifice

$$D = 24 \times \left[\frac{Q / (C[2gH]^{0.5})}{\pi} \right]^{0.5} = \mathbf{0.92} \text{ inches}$$

ORIFICE SIZING ASSUMPTIONS:

Q	C	g	H*
(cfs)		(ft/s ²)	(ft)
0.023	0.62	32.2	1.0

Note:

* H is 2/3 of the temporary detention height to centerline of orifice

POND ELEVATIONS:

Top of Pond =	172.20	feet
Top of WQV Storage =	168.25	feet
Top of Dead Storage =	166.75	feet
Centerline of Orifice Elevation =	166.75	feet

25-YEAR STORM EVENT:

Peak Flow Elevation =	171.20	feet
Freeboard depth =	1.00	foot
Ponding depth =	4.45	feet
Total Pond Depth =	5.45	feet



STORMWATER QUALITY CALCULATIONS

AKS ENGINEERING & FORESTRY, LLC | 12965 SW Herman Rd, Suite 100 | Tualatin, OR 97062

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PROJECT

JBMac Ventures

AKS JOB NO.

8627-03 and 8627-04

DATE

6/14/2022

PREPARED FOR:

JBMac Ventures, LLC

ADDRESS

19435 SW 129th Ave

CITY/STATE/ZIP

Tualatin, OR 97062

PROJECT MANAGER:

BGC

PREPARED BY:

APC

REVIEWED BY:

BGC

EXTENDED DRY BASIN VOLUME

Contour Elevation (Feet)	Contour Area (SF)	Average Area (SF)	Contour Interval (Feet)	Incremental Volume (CF)	Cumulative Volume (CF)	
166.75	2,138			0	0	
		2,224	0.25			
167.00	2,309			556	556	
		2,684	1.00			
168.00	3,059			2,684	3,240	
		3,161	0.25			
168.25	3,263			790	4,030	Top of WQV
		3,588	0.75			
169.00	3,912			2,691	6,721	
		4,372	1.00			
170.00	4,832			4,372	11,093	
		5,321	1.00			
171.00	5,809			5,321	16,414	
		6,433	1.20			
172.20	7,056			7,720	24,134	



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Vancouver, WA 98682
(360) 882-0419

Date: 7/28/2022
To: Eric Rutledge, City of Sherwood
From: Blair Carlson
Project Name: JBMac Ventures – Oregon Street
AKS Job No.: 8627-03/04
Subject: Stormwater Routing and Standards



RENEWAL DATE:

Eric –

Per our correspondence to date and following up on the discussion from our coordination meeting on July 12th, 2022, we wanted to provide some additional clarification into our plan for stormwater routing, our understanding of Clean Water Services rules and design requirements, and the results of our additional field investigations.

There will be no change to the existing flow pattern, path, level of concentration, or volumes of discharge during the design storm events, and the route of stormwater downslope from the outfall of our private system at no point enters the Rail right-of-way. The proposed flow path is through the existing drainage path from the subject property and along the northern edge of the adjacent parcel to eventually enter Rock Creek as it does under existing conditions. This was verified through field survey to tie to the rail right-of-way using the available survey records of said rail right-of-way.

Further guidance regarding maintaining historic flow patterns is provided through the Clean Water Services Design and Construction Manual (DCM), Oregon Department of Transportation Hydraulics Manual, and Washington County Grading ordinance as referenced below:

- The project is required to maintain the existing flow path in the basin per CWS DCM 4.04.4(c.) and CWS DCM 5.05.5(a.)
 - 5.05.5(a.): *Developments shall not materially increase or concentrate runoff onto adjacent properties, except when the runoff is contained in an existing drainage way.*
 - 4.04.4(c.): *Discharges to sensitive areas shall maintain the hydro period and flows of pre-development site conditions to the extent necessary to protect the characteristic functions of the sensitive area. Conversely, discharge of flows that may be critical to downstream water quality sensitive areas into other catchments will not be permitted unless addressed in the applicant's Service Provider Letter.*
- The project is required to install and maintain a Private Stormwater Facility, not a Public Stormwater Facility as the stormwater facility only serves a single property, Taxlot 500 (CWS DCM 4.07.7(d.))
 - A Public Stormwater Facility would technically require approval of a variance from the City/CWS.
- The projects proposed outfall plan is technically defined as sheet flow by CWS at the outlet structure (CWS ESC Detail 825, as required by CWS DCM 5.05.6)

- As the outfall is entirely located on the JBMac property and provides sheet flow from the outfall to the existing drainage path, all conditions will be met as required.
- The DCM references the ODOT Hydraulics Manual as the guidance to follow regarding stormwater outfall design, so the Oregon Drainage Law reference becomes a direct citation through CWS rules (CWS DCM 5.07.7).
 - This is the excerpt from the ODOT Hydraulics Manual that provides an overview and explanation of Oregon Drainage Law as it pertains to this item.
https://www.oregon.gov/odot/GeoEnvironmental/Docs_Hydraulics_Manual/Hydraulics-02.pdf.

2.2 Oregon Drainage Law

Oregon drainage law, which originates from common law or case law, has developed without legislative action, and it is embodied in the decisions of the courts. Therefore, there are no Oregon Revised Statutes to cite pertaining to Oregon drainage law.

Oregon has adopted the civil law doctrine of drainage. Under this doctrine, adjoining landowners are entitled to have the normal course of natural drainage maintained. The lower owner must accept water that naturally comes to his land from above, but he is entitled to not have the normal drainage changed or substantially increased. The lower landowner may not obstruct the runoff from the upper land if the upper landowner is properly discharging the water.

For a landowner to drain water onto lands of another in the State of Oregon, one of two conditions must be satisfied initially: (1) the lands must contain a natural drainage course; or, (2) the landowner must have acquired the right of drainage supported by valuable consideration (i.e. a purchased drainage easement). In addition, because Oregon has adopted the civil law doctrine of drainage, the following three basic elements must be followed.

1. A landowner may not divert water onto adjoining land that would not otherwise have flowed there. "Divert water" includes but is not necessarily limited to:
 - a. water diverted from one drainage area to another, and,
 - b. water collected and discharged which normally would infiltrate into the ground, pond, and/or evaporate.
2. The upper landowner may not change the place where the water flows onto the lower owner's land. (Most of the diversions not in compliance with this element result from grading and paving work and/or improvements to water collection systems.)
3. The upper landowner may not accumulate a large quantity of water, then release it, greatly accelerating the flow onto the lower owner's land. This does not mean that the upper landowner cannot accelerate the water at all; experience has found the drainage to be improper only when the acceleration and concentration were substantially increased.

- Washington County does have a drainage component to their Grading Ordinance (689) that governs how drainage should be handled between properties in these situations in unincorporated areas of Washington County. (<https://www.co.washington.or.us/LUT/Divisions/Building/Forms/Grading/upload/Grading-Ordinance-No-689-adopted-May-2008x.pdf>). While that does not technically apply inside the City of Sherwood, it provides additional context for our approach since it conforms to County requirements as well.

14.12.310 Drainage facilities and terraces

A. Drainage Analysis Report: Site specific drainage analysis report shall be submitted to substantiate that:

1. The proposed grading work shall preserve the existing site natural drainage channel characteristics (via sheet flow or concentrated flow) and its surrounding adjacent properties in quantity, quality, and flow rate. When changes are made, the design shall preserve the quantity, quality, the flow rate and the pattern of flow that leaves the proposed work site to the adjacent surrounding properties at predevelopment level.

Based on the standards referenced above, the proposed stormwater design accounts for the following:

- Not concentrating flow beyond the level that it concentrates under existing conditions.
- Providing water quality treatment per CWS standards.
- The proposed stormwater outfall is located on our property and leaves the property through the existing flow path, perpetuating the current condition and not entering onto rail property downstream of our site.
- The project is matching the rate of existing discharge (predevelopment per CWS standards) in our proposed stormwater design.
- Washington County defines "natural drainage" as both sheet flow and concentrated flow under the existing conditions, so the fact that the drainage path downslope of our outfall is a combination of ditches and overland sheet flow downslope of our outfall does not change the rules under which it is evaluated.

Based on this information and additional field verification, an easement is not required under Clean Water Services rules, Oregon Drainage Law, or Washington County Rules as there is no change to predevelopment/existing conditions. As the drainage path **does not enter** the rail right-of-way, the rail company cannot give an easement or permission for something that is not on their property, so no further action is needed on this subject and it should be considered closed.

REPORT OF GEOTECHNICAL ENGINEERING SERVICES

Oregon Street Site
SW Oregon Street
Sherwood, Oregon

For
JBMAC Ventures, LLC
May 9, 2022

Project: JBMAC-1-01



May 9, 2022

JBMAC Ventures, LLC
c/o Stratus Real Estate Developers, LLC
19363 Willamette Drive, #133
West Linn, OR 97068-2079

Attention: Dirk Otis

Report of Geotechnical Engineering Services
Oregon Street Site
SW Oregon Street
Sherwood, Oregon
Project: JBMAC-1-01

NV5 is pleased to submit this report of geotechnical engineering services for the proposed development located on SW Oregon Street in Sherwood, Oregon. Our services for this project were conducted in general accordance with our proposal dated March 22, 2022.

We appreciate the opportunity to be of continued service to you. Please call if you have questions regarding this report.

Sincerely,

NV5



Brett A. Shipton, P.E., G.E.
Principal Engineer

BAS:kt

Attachments

One copy submitted (via email only)

Document ID: JBMAC-1-01-050922-geor.docx

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EXECUTIVE SUMMARY

Based on our review of the available information and the results of our explorations, it is our opinion that the site can be developed as proposed. Our specific recommendations for site development and design are provided later in this report. The following items will have an impact on design and construction of the proposed project:

- The structures can be supported on spread footings that bear on undisturbed native soil or structural fill overlying undisturbed native soil, provided they can tolerate the predicted static and liquefaction-induced settlement.
- Undocumented fill was encountered at the site. Given the history of the site, we expect that deeper undocumented fill is present where subsurface structures were present.
- The site is susceptible to liquefaction under design levels of ground shaking. We estimate a maximum of 4 inches of liquefaction-induced settlement. A differential settlement of 2 inches can be assumed over a distance of 50 feet.
- The on-site soil can be sensitive to small changes in moisture content and difficult, if not impossible, to adequately compact during wet weather or when the moisture content of the soil is more than a couple of percent above the optimum required for compaction. As discussed in the report, the moisture content of the soil currently is above optimum and drying will be required if used as structural fill.
- The on-site soil will provide inadequate support for construction equipment during periods of wet weather or when above optimum moisture. Granular haul roads and working pads or cement amendment should be employed if earthwork will occur during the wet winter months.
- Groundwater seepage was observed at depths generally between 2 and 15 feet BGS in the test pits. Groundwater depths inferred by pore water pressure measurements in the CPTs was approximately 4 to 6 feet BGS.
- Pavement and floor slab performance can be affected by poor subgrade, such as is possible with uncontrolled fill and disturbed soil encountered in the explorations. Provided a small risk of additional pavement distress and associated maintenance is acceptable, there is an option to limit the excavation by scarifying and compacting the upper 18 inches of the fill material within pavement and floor slab areas.
- Cement amendment will be required if the on-site soil is to be used as structural fill during the wet season.
- Given that measured infiltration rates were negligible and groundwater is relatively shallow, stormwater infiltration at the site is not recommended.
- The test pit excavations were backfilled with minimal compactive effort. The loose soil should be removed to a depth of 3 feet BGS and replaced with structural fill where they are present beneath AC pavement or slabs-on-grade. Full-depth removal is recommended beneath foundations.

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ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
AC	asphalt concrete
ACP	asphalt concrete pavement
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
BGS	below ground surface
CPT	cone penetration test
CRBG	Columbia River Basalt Group
ESAL	equivalent single-axle load
FHWA	Federal Highway Administration
g	gravitational acceleration (32.2 feet/second ²)
H:V	horizontal to vertical
MCE	maximum considered earthquake
MCE _G	maximum considered earthquake geometric mean
NGVD	National Geodetic Vertical Datum
OSHA	Occupational Safety and Health Administration
OSSC	2021 Oregon Standard Specifications for Construction
pcf	pounds per cubic foot
pci	pounds per cubic inch
PG	performance grade
PGA	peak ground acceleration
PGA _M	maximum considered earthquake geometric mean peak ground acceleration adjusted for site affects
psf	pounds per square foot
psi	pounds per square inch
SOSSC	State of Oregon Structural Specialty Code
SPT	standard penetration test
USGS	U.S. Geological Survey
UST	underground storage tank

1.0 INTRODUCTION

This report presents the results of our geotechnical engineering evaluation for the proposed development located on SW Oregon Street in Sherwood, Oregon. The site is bound by SW Oregon Street along the south boundary, the business at 15101 SW Oregon Street along the west boundary, a railroad along the north boundary, and a wetland along with Rock Creek along the east boundary. The site is currently unpaved and covered with grass. Gravel covers the ground surface at several locations. Figure 1 shows the site relative to existing physical features. Figure 2 shows the site boundary.

Two approximately 20,000-square-foot, at-grade, prefabricated metal buildings are planned. Associated improvements may include loading docks, AC-paved parking and truck area, and stormwater facilities at the far north end of the site. We are not aware of any off-site improvement on SW Oregon Street.

Foundation loads were not known at the time of this report. However, based on our experience with similar structures, we anticipate that maximum column, wall, and floor loads will be approximately 120 kips, 4 kips per foot, and 250 psf, respectively. Given the site topography, some minor grading will be required. A grading plan had not been prepared at the time of this report. We have assumed maximum cuts and fills of 3 feet each.

We understand that the site was formally occupied by the Frontier Leather Company. Several buildings previously occupied the site. We also understand that several USTs were present and have been removed. Other subsurface structures were also present at the former tannery. Fires occurred at the facility in 1961 and 2005, and demolition and re-grading of the site extended until 2016. In addition to some environmental considerations, areas of the site are underlain by undocumented fill.

2.0 PURPOSE AND SCOPE

The purpose of this evaluation was to provide geotechnical engineering recommendations for use in design and construction of the proposed development. Specifically, we completed the following scope of services:

- Reviewed information available in our files from previous geological and geotechnical studies conducted at and in the vicinity of the site.
- Reviewed preliminary grading plans, foundation loading, and slab loading prepared by others.
- Conducted a subsurface exploration program that consisted of the following explorations:
 - Drilled one boring to a depth of 40.1 feet BGS where refusal was encountered.
 - Drilled three borings to depths between 11.5 and 16.5 feet BGS.
 - Conducted two CPTs to practical refusal at depths of 23.6 and 29.9 feet BGS.
 - Measured shear wave velocity in each of the CPTs at 1-meter depth intervals.
 - Excavated 11 test pits to depths between 6 and 15 feet BGS.
 - Conducted infiltration testing two of the test pits at depths of 1.5 and 3 feet BGS. A third test was attempted, but infiltration was not observed because of shallow groundwater.

- Maintained continuous logs of the borings and test pits and collected soil samples at representative intervals.
- Conducted a laboratory testing program consisting of the following laboratory tests:
 - Twenty natural moisture content determinations in general accordance with ASTM D2216.
 - Two particle-size analyses in general accordance with ASTM 1140
 - One Atterberg limits test in general accordance with ASTM D4318
- Provided recommendations for site preparation, grading and drainage, stripping depths, fill type for imported material, compaction criteria, trench excavation and backfill, use of on-site soil, and wet weather earthwork.
- Provided recommendations for design and construction of shallow spread footings, including allowable design bearing pressure, and minimum footing depth and width.
- Provided recommendations for preparation of floor slab subgrade.
- Provided design criteria recommendations for retaining walls, including lateral earth pressures, backfill, compaction, and drainage.
- Provided recommendations for managing groundwater conditions that may affect the performance of structures or pavement.
- Provided recommendations for construction of AC pavement for on-site access roads and parking areas, including subbase, base course, and AC paving thickness.
- Provided recommendations for subsurface drainage of foundations and roadways, as necessary.
- Provided seismic design parameters in accordance with ASCE 7-16 and the 2019 SOSSC.
- Prepared this report that presents our findings, conclusions, and recommendations.

3.0 SITE CONDITIONS

3.1 GEOLOGY

3.1.1 Regional Geology

The site is located in the Tualatin Basin physiographic province, which is a northwest/southeast-trending, pull-apart sub-basin of the Willamette Valley (Wilson, 1998). The Tualatin Basin is separated from adjacent sub-basins of the Willamette Valley by slightly folded and faulted basalt flows of the CRBG, which form topographic divides between adjacent basins (Popowski., 1997). The Coast Range and Chehalem Mountains bound the Tualatin Basin to the west and south, respectively, and the Tualatin Mountains (Portland Hills) bound the Portland Basin to the north and east. The region has undergone large-scale and localized tectonic activity, which has contributed to form the hills and valleys in the Willamette Valley.

3.1.2 Seismicity

The site is located in a seismically active region. Subduction of the Juan de Fuca Plate beneath the west margin of the North American Plate presents the potential for great plate-interface earthquakes (magnitude greater than 8). Paleoseismic investigations indicate that plate interface earthquakes have an average recurrence of 500 to 600 years (Atwater and Hemphill-Haley, 1997; Goldfinger et al., 2003) and that the last subduction zone earthquake occurred in the year 1700 (Satake et al., 1996). Moderate intensity and long duration ground shaking would be expected at the site in the event of a large magnitude Cascadia plate-interface earthquake.

Crustal faults have also been mapped in the site vicinity. The closest crustal fault to the site is the Canby-Molalla fault, which is located approximately 4 miles from the site (USGS, 2020).

3.1.3 Site Geology

The mapped geologic unit across most of the site is undifferentiated CRBG (Burns et al., 1997; Schlicker and Deacon, 1967). Fine-grained Missoula flood deposits are mapped beneath the site. The flood deposits are generally thin and lap onto the weathered surface of the CRBG, which occupies higher elevations in the site vicinity.

3.1.3.1 Missoula Flood Deposits

The Pleistocene Age (15,500 to 13,000 years before present) catastrophic Missoula flood deposits consist of poorly consolidated, fine- to coarse-grained sand, silt, and clay. The Missoula flood deposits resulted from a series of catastrophic late Pleistocene glacial outburst floods. During this time interval, enormous floods would periodically flow across eastern Washington and down the Columbia River Valley caused by failures of a glacial ice dam that impounded a large lake located in southwestern Montana (Lake Missoula). Floodwater would inundate the Willamette Valley and Tualatin Basin, leaving deposits of gravel, sand, and silt to elevations ranging from 250 to 400 feet.

3.1.3.2 CRBG

The middle Miocene Age (20 million to 10 million years before present) CRBG represents the oldest geologic unit encountered at the site, which is exposed in outcrops in the site vicinity and forms many of the topographic highlands within the Tualatin Valley (Wilson, 1998). The CRBG is up to 1,000 feet thick within the Tualatin Valley (Schlicker and Deacon, 1967) with individual flows ranging between 10 to 100 feet thick. The CRBG is composed of a series of basalt flows erupted from linear vent systems in southeastern Washington that flowed down the course of the ancestral Columbia River until reaching the Pacific Ocean. Some of these lava flows ponded and cooled in the northern Willamette Valley, resulting in a stacked series of basalt units. Sediments deposited on the surface of an individual basalt flow would be covered by subsequent flows, resulting in a stacked sequence of basalt flows and sedimentary interbeds. These thick flows were subsequently folded and faulted by compressional tectonics in the region.

3.2 SURFACE CONDITIONS

The site is an irregular shaped parcel of land that is approximately 6.06 acres in size. The site is bound by SW Oregon Street along the south boundary, commercial property along the west boundary, a railroad along the north boundary, and a wetland along with Rock Creek along the east boundary. The site is currently unpaved and covered with grass. Gravel is present at the ground surface at several locations. Site grades slope down toward the northeast with elevations varying between approximately 162 feet at the northeast corner of the site and 187 feet at the southwest corner of the site, relative to the NGVD29 datum.

Vegetation at the site consists primarily of short grass; portions of the site are covered with gravel. This site was previously occupied by the Frontier Leather Company, which burned in 2005. Demolition and re-grading of the site extended until 2016. Remnants of the former facility may still be buried at the site.

3.3 SUBSURFACE CONDITIONS

We conducted a subsurface exploration program that consisted of the following:

- Four drilled boring to depths between 11.5 and 40.1 feet BGS
- Two CPTs to depths of 23.6 and 29.9 feet BGS
- Eleven test pit excavations to depths between 6 and 15 feet BGS

Figure 2 show the exploration locations. A description of the boring and test pit explorations and laboratory testing program, logs of the borings and test pits, and laboratory test results are presented in Appendix A. A description of the CPT explorations and results of the CPTs are presented in Appendix B. Subsurface conditions generally consist of fill, silt, sand, and gravel. The following sections provide a summary of each of the subsurface units we encountered.

3.3.1 Fill

Fill was encountered in several of the explorations to depths of up to 6 feet BGS, but generally shallower than 3.5 feet BGS. The fill consists of silt, sand, and gravel and contains debris, including reinforcing steel, masonry fragments, asphalt fragments. The fill appears to have been placed with minimal compactive effort. Test pit TP-11 encountered a pit, which may have been part of the former tannery operation or possibly a cesspool. Since numerous USTs and other subsurface structures have been removed from the site, deeper fills may be present at locations not explored. Laboratory testing shows that the fill had a moisture content of between 10 and 34 percent at the time of our explorations.

3.3.2 Silt and Sand Alluvium

Layers of native silt and silty sand alluvium underlie the fill or are at the ground surface in all of the explorations. The maximum depth of the alluvium was encountered at 33 feet BGS in boring B-1. SPTs and pocket penetrometer result show that the silt is generally medium stiff. However, soft, organic-rich silt was encountered in test pit TP-9 at a depth of 7 feet BGS, located near the north site boundary. Laboratory testing shows that the silt had a moisture content of between 31 and 36 percent at the time of our explorations. SPTs show the sand to be in the loose to medium dense range. Laboratory testing shows that the sand had a moisture content of between 29 and 34 percent at the time of our explorations. We also determined the fines content of the sand to be 44 percent during our laboratory testing program.

3.3.3 Gravel

Gravel underlies the alluvial sand and silt to a depth of 40.1 feet BGS, the maximum depth explored. A clay interbed was encountered in the gravel between depths of 28.5 and 33 feet BGS. SPTs show that the gravel is very dense and the clay is stiff. The natural moisture content of the clay was determined to be 43 percent at the time of our explorations.

3.3.4 Groundwater

We typically observed water seepage in the test pits. We noted the seepage at depths generally between 2 and 15 feet BGS. Mud rotary drilling methods obscured the depth to groundwater in the borings. Groundwater depths inferred by pore water pressure measurements in the CPTs was approximately 4 to 6 feet BGS.

3.3.5 Caving

Minor to severe caving occurred in most of the test pits between depths of 0 and 15 feet BGS. Caving generally occurred in the fill and saturated sandy soil.

3.4 INFILTRATION TESTING

We conducted two falling head infiltration tests to evaluate infiltration capacity at the site; a third test was planned, but shallow groundwater prevented us from conducting the test. Figure 2 shows test locations. We performed infiltration tests in silt using the encased falling head test method. Table 1 summarizes the infiltration test results. The exploration logs and laboratory test results are presented in Appendix A.

Table 1. Measured Infiltration Rates

Location	Depth (feet BGS)	Material	Infiltration Rate (inches per hour) ¹
TP-1	3	Silt	Negligible
TP-10	1.5	Silt	Negligible

1. Infiltration rates are not factored.
2. Fines content: material passing the U.S. Standard No. 200 sieve

The infiltration rates provided in Table 1 are measured rates and are unfactored.

4.0 GEOLOGIC HAZARDS

We evaluated the presence of geologic hazards in the site vicinity based on a review of published literature and our experience with nearby projects. Individual geologic hazards are summarized in the following sections.

4.1 SEISMIC

4.1.1 Liquefaction

Liquefaction is a phenomenon caused by a rapid increase in pore water pressure that reduces the effective stress between soil particles to near zero. The excessive buildup of pore water pressure results in the sudden loss of shear strength in a soil. Granular soil, which relies on interparticle friction for strength, is susceptible to liquefaction until the excess pore pressures can dissipate. Sand boils and flows observed at the ground surface after an earthquake are the result of excess pore pressures dissipating upwards, carrying soil particles with the draining water. In general, loose, saturated sand soil with low silt and clay content is the most susceptible to liquefaction. Low plasticity silty sand and silt may be moderately susceptible to liquefaction under relatively higher levels of ground shaking. Liquefaction can densify subsurface soil, which can result in settlement at the ground surface. We estimate a maximum of 4 inches of liquefaction-induced settlement. A differential settlement of 2 inches can be assumed over a distance of 50 feet.

4.1.2 Lateral Spreading

Lateral spreading is a liquefaction-related seismic hazard and occurs on gently sloping sites or flat sites underlain by liquefiable sediment adjacent to an open face, such as a riverbank. Liquefied soil on a sloping site can flow downhill or a site adjacent to an open face can flow toward the open face, resulting in lateral ground displacement. Since the site is relatively flat and the closest body of water, Rock Creek, is over 800 feet away, it is our opinion that lateral spreading is not considered a hazard at this site.

4.1.3 Surface Fault Rupture

There are no mapped active faults within approximately 4 miles of the site (USGS, 2020). In our opinion, the risk of surface fault rupture at this site is low.

5.0 DESIGN RECOMMENDATIONS

5.1 SEISMIC DESIGN CRITERIA

We understand this project will be designed and constructed in accordance with the 2019 SOSSC, which references ASCE 7-16. Since the soil is susceptible to liquefaction, the site is considered a Site Class F. However, based on shear wave velocity, the seismic design parameters for Site Class D can be used for design, provided the period of the structures is less than 0.5 second. According to ASCE 7-16 Section 11.4.8, structures on Site Class D sites with an S_1 greater than or equal to 0.2 g require a site-specific seismic hazard evaluation. Exception 2 of Section 11.4.8 allows the site-specific ground motion evaluation to be omitted depending on site-specific building parameters provided by the structural engineer. We recommend the structural engineer evaluate these requirements and exceptions to determine if the parameters for Site Class D provided in Table 2 can be used for design or if a site-specific seismic hazard evaluation is required.

Table 2. Seismic Design Parameters

Parameter	Short Period	1 Second Period
Spectral Acceleration (MCE)	$S_s = 0.833 \text{ g}$	$S_1 = 0.392 \text{ g}$
Site Class	F ¹	
Site Coefficient	$F_a = 1.200$	$F_v = 1.908$
Spectral Acceleration Parameters	$S_{MS} = 0.999 \text{ g}$	$S_{M1} = 0.748 \text{ g}$
Design Spectral Acceleration Parameters	$S_{DS} = 0.666 \text{ g}$	$S_{D1} = 0.499 \text{ g}$
Spectral PGA	0.380 g	
Design Spectral PGA	0.253 g	
MCE _G PGA Adjusted for Site Class Effects ²	$PGA_M = 0.464 \text{ g}$	

- Parameters are provided for Site Class D, which can be used for structures with a fundamental period of 0.5 second or less per ASCE 7-16 Section 20.3.1.
- From ASCE 7-16. Minimum PGA value to use when evaluating liquefaction and soil strength loss, as required by ASCE 7-16 Section 11.8.3.

5.2 FOUNDATION SUPPORT

5.2.1 General

The buildings can be supported by shallow foundations established on undisturbed native soil or on structural fill overlying undisturbed native soil. Our recommendations assume that the buildings can tolerate the estimated liquefaction-induced settlement during the design earthquake. All undocumented fill should be removed from footing subgrade and replaced with compacted structural fill.

5.2.2 Bearing Capacity

Continuous wall and isolated spread footings should be at least 16 and 20 inches wide, respectively. The bottom of exterior footings should be at least 18 inches below the lowest adjacent exterior grade. The bottom of interior footings should be established at least 12 inches below the base of the slab. Footings established on gravel pads and prepared as recommended above should be sized based on an allowable bearing pressure of 2,500 psf. This value is a net bearing pressure; the weight of the footing and overlying backfill can be ignored in calculating footing sizes. The recommended allowable bearing pressure applies to the total of dead plus long-term live loads and can be increased by one-half for short-term loads, such as those resulting from wind or seismic forces.

5.2.3 Settlement

Based on our analysis and experience with similar soil, total post-construction consolidation-induced settlement under static conditions should be less than 1 inch with differential settlement of less than 0.5 inch between footings. This does not include the estimated liquefaction-induced settlement.

5.2.4 Lateral Resistance

Lateral loads on footings can be resisted by passive earth pressure on the sides of footings and by friction along the base of footings. Our analysis indicates that the available passive earth pressure is 350 pcf modeled as an equivalent fluid pressure. The upper 12 inches of adjacent, unpaved areas should not be considered when calculating passive resistance. A coefficient of friction value equal to 0.30 may be used when calculating resistance to sliding for foundations bearing on silt or clay. A coefficient of friction value of 0.50 may be used when calculating resistance to sliding for foundations bearing on dense native gravel or crushed rock.

5.3 SLABS-ON-GRADE

A modulus of subgrade reaction of 100 pci can be used for design of the floor slabs, provided the subgrade is prepared in accordance with the recommendations in this report. The native soil is not expansive, so heave is not anticipated beneath floor slabs.

We recommend that the floor slabs be supported on at least 6 inches of imported granular material to provide uniform support and to aid as a capillary break. The imported granular material should be placed and compacted as recommended.

While groundwater is unlikely to be encountered within the slab subgrade materials, the native soil is fine grained and will tend to maintain a high moisture content. The installation of a vapor barrier may be warranted in order to reduce the potential for moisture transmission through, and

efflorescence growth on, the floor slabs. In addition, flooring manufacturers often require vapor barriers to protect flooring and flooring adhesives and will warrant their product only if a vapor barrier is installed according to their recommendations. Actual selection and design of an appropriate vapor barrier, if needed, should be based on discussions among members of the design team.

5.4 RETAINING WALLS

Our retaining wall design recommendations are based on the following assumptions: (1) the walls are conventional, cantilevered retaining walls; (2) the walls are less than 6 feet in height; (3) the backfill is drained and consists of imported granular material; and (4) the retained soil is level. Re-evaluation of our recommendations will be required if these assumptions are not correct. Once a final grading plan has been prepared, we should review the grading plan and provide additional recommendations on a case-by-case basis for retaining walls taller than 6 feet.

5.4.1 Wall Design Parameters

For unrestrained retaining walls, an active equivalent fluid pressure of 35 pcf should be used for design. Where retaining walls are restrained from rotation prior to being backfilled, an equivalent fluid pressure of 55 pcf should be used for design. A superimposed seismic lateral force should be calculated based on a dynamic force of $7H^2$ pounds per linear foot of wall, where H is the height of the wall in feet. The load should be applied as a distributed load with the centroid located at a distance of $0.6H$ above the base of the wall.

If surcharges (e.g., retained slopes, building foundations, vehicles, terraced walls, etc.) are located within a horizontal distance from the back of a wall equal to the height of the wall, additional pressures will need to be accounted for in the wall design. Our office should be contacted for additional pressures resulting from alternate loading scenarios. We recommend a vertical live load of 250 psf be applied at the surface of the retained soil where the wall retains roadways.

The base of the wall footing excavations should extend a minimum of 18 inches below the lowest adjacent grade. The wall footings should be designed in accordance with the guidelines in the "Foundation Support" section. At locations where there is a slope in front of the retaining wall, we recommend that a minimum 5-foot-wide, horizontal bench be placed between the wall and the top of the slope.

5.4.2 Wall Drainage and Backfill

The above design parameters have been provided assuming drains will be installed behind the walls to prevent hydrostatic pressures from developing. Backfill material placed behind retaining walls and extending a horizontal distance of $\frac{1}{2}H$, where H is the height of the retaining wall, should consist of select granular wall backfill meeting the requirements described in the "Structural Fill" section. Alternatively, the native soil can be used as backfill material, provided oversized material is removed and a minimum 2-foot-wide column of angular drain rock wrapped in a drainage geotextile is placed against the wall and the native soil can be adequately moisture conditioned for compaction. The rock column should extend from the perforated drainpipe or foundation drains to within approximately 1 foot of the ground surface. The angular drain rock

should have a maximum particle size of 2 inches, should have less than 2 percent by dry weight passing the U.S. Standard No. 200 sieve, should have at least two mechanically fractured faces, and should be free of organic material and other unsuitable material.

Perforated collector pipes should be placed at the base of the granular backfill behind the walls. The pipe should be embedded in a minimum 2-foot-wide zone of angular drain rock wrapped in a drainage geotextile fabric. The collector pipes should discharge at an appropriate location away from the base of the wall. The discharge pipe should not be tied directly into stormwater drain systems, unless measures are taken to prevent backflow into the drainage system of the wall.

Backfill should be placed and compacted as recommended for select granular wall backfill as described in the “Structural Fill” section.

Settlement of up to 1 percent of the wall height commonly occurs immediately adjacent to the wall as the wall rotates and develops active lateral earth pressures. Consequently, we recommend that construction of flatwork adjacent to retaining walls be postponed at least four weeks after construction, unless survey data indicates settlement is complete prior to that time.

5.5 PERMANENT SLOPES

Permanent cut or fill slopes should not exceed a gradient of 2H:1V, unless specifically evaluated for stability. Upslope buildings, access roads, and hardscapes should be set back a minimum of 5 feet from the crest of such slopes. Slopes should be planted with appropriate vegetation to provide protection against erosion as soon as possible after grading. Surface water runoff should be collected and directed away from slopes to prevent water from running down the face of the slope.

5.6 DRAINAGE

5.6.1 Surface

The finished ground surface around the buildings should be sloped away from foundations at a minimum 2 percent gradient for a distance of at least 5 feet. Pavement surfaces and open space areas should be sloped such that surface water runoff is collected and routed to suitable discharge points. Runoff water should not be directed to the top of slopes.

5.6.2 Subsurface

It is not necessary to install footing drains for at-grade structures, such as the proposed buildings. Perimeter footing drains should be installed around buried structures if any are proposed. We recommend that footing drains (if used) and roof downspouts or scuppers discharge to a solid pipe that carries the collected water to an appropriate stormwater system that is designed to prevent backflow.

5.6.3 Temporary

During grading, the contractor should be made responsible for temporary drainage of surface water as necessary to prevent standing water and/or erosion at the working surface. During rough and finished grading of the building site, the contractor should keep all footing excavations and building pads free of water.

5.7 PAVEMENT

Pavement should be installed on native subgrade or new engineered fill prepared in conformance with the “Site Preparation” and “Structural Fill” sections. Design parameters and assumptions used in our analysis are summarized as follows:

- Resilient moduli of approximately 4,500 psi and 20,000 psi were assumed for the subgrade and base rock, respectively.
- No traffic growth.
- A pavement design life of 20 years.
- Initial and terminal serviceability indices of 4.2 and 2.5, respectively.
- Reliability of 80 percent and standard deviation of 0.45.

We have assumed traffic will consist of passenger cars in light traffic areas and trucks in heavy-duty areas. We have assumed the truck traffic to be approximately 60 percent FHWA Class 5 vehicles (two-axle trucks) and 40 percent FHWA Class 8 vehicles (four-axle or fewer single trailer trucks).

If any of these assumptions are incorrect, our office should be contacted with the appropriate information so that the pavement designs can be revised. Based on the traffic assumptions, we recommend the AC pavement sections presented in Table 3. We have also included pavement sections for areas with less truck traffic (if necessary).

Table 3. Minimum Pavement Thicknesses

Traffic Levels	Trucks per Day	ESALs	AC (inches)	Base Rock (inches)
Passenger Cars Only	0	5,000	2.5	8.0
Heavy Duty	5	19,000	3.0	9.0
Heavy Duty	10	38,000	3.5	10.0
Heavy Duty	20	77,000	4.0	12.0

If the subgrade is cement amended to the thicknesses indicated below and the amended soil achieves a seven-day unconfined compressive strength of at least 100 psi, the pavement can be constructed as recommended in Table 4.

Table 4. Recommended Flexible Pavement Sections with Cement Amendment

Traffic Levels	Trucks per Day	ESALs	AC (inches)	Base Rock (inches)	Cement Amendment ¹ (inches)
Passenger Cars Only	0	5,000	2.5	4.0	12.0
Truck Areas	5	19,000	3.0	4.0	12.0
Truck Areas	10	38,000	3.5	4.0	12.0
Truck Areas	20	77,000	4.0	4.0	12.0

1. Assumes a minimum seven-day unconfined compressive strength of 100 psi.

All thicknesses are intended to be the minimum acceptable. Design of the recommended pavement sections assume that construction will be completed during an extended period of dry weather. Wet weather construction could require an increased thickness of aggregate base. In addition, to prevent strength loss during curing, cement-amended soil should be allowed to cure for at least four days prior to construction traffic or placing the base rock. Lastly, the amended subgrade should be protected with a minimum of 4 inches of base rock prior to construction traffic access.

The aggregate base, AC, and cement amendment should meet the requirements outlined in the “Materials” section.

Construction traffic should be limited to non-building, unpaved portions of the site or haul roads. Construction traffic should be limited on new pavement. If construction traffic is to be allowed on newly constructed road sections, an allowance for this additional traffic will need to be made in the design pavement section. In areas where multiple lifts of AC will be placed, construction traffic should not operate on the first lift only. Operating repeated traffic over a single lift of AC will result in decrease of the pavement life and possibly pavement failure.

6.0 CONSTRUCTION RECOMMENDATIONS

6.1 SITE PREPARATION

6.1.1 Stripping

The existing organic material and topsoil should be stripped and removed from all proposed building and pavement areas. Based on the explorations, we anticipate a stripping depth of 3 to 4 inches. The actual stripping depth should be evaluated based on observations made during construction. Stripped material should be transported off site for disposal or processed and used as fill in landscaping areas.

Greater depths may be necessary to remove localized zones of organic material. The primary root systems of any brush or trees should be completely grubbed and removed from the site. Stripping should extend at least 5 feet beyond the limits of proposed structural areas. Stripped material should be transported off site for disposal or used as fill in landscaping areas.

6.1.2 Subgrade Improvement

Undocumented fill and disturbed soil was observed in several of the explorations. The disturbed soil will require improvement before it will be capable of supporting foundations, floor slabs, or pavement. The disturbed soil can be improved using one or a combination of the following methods:

1. Scarify and compact the material in place in accordance with the “Structural Fill” section. The moisture content of the tilled soil was above optimum at the time of our explorations. Significant tilling and drying will be required to remove the excess moisture. Tilling can be accomplished with a variety of equipment, but is generally more effective with an agricultural disc.

2. Amend the tilled zone with cement or lime as discussed in the “Soil Amendment with Cement” section. An amendment depth of 12 to 18 inches is typical for most amendment equipment.

Pavement and floor performance can also be affected by poor subgrade, such as is possible with uncontrolled fill. However, provided a small risk of additional pavement distress and associated maintenance is acceptable, there is an option to limit the excavation by scarifying and compacting the upper 18 inches of the fill material within pavement and floor slab areas.

6.1.3 Test Pit Excavations

The test pit excavations were backfilled with minimal compactive effort. The loose soil should be removed to a depth of 3 feet and replaced with structural fill where they are present beneath AC pavement or slabs-on-grade. Full-depth removal is recommended beneath foundations.

6.2 SUBGRADE EVALUATION

After stripping and any required cutting, the subgrade should be proof rolled with a fully loaded dump truck or similar heavy rubber tire construction equipment to identify any soft, loose, or unsuitable areas. Proof rolling should be observed by a qualified geotechnical engineer or geotechnical field technician who should evaluate the suitability of the subgrade and identify any areas of yielding, which are indicative of soft or loose soil. If soft or loose zones are identified during proof rolling, these areas should be excavated to the extent indicated by the engineer or technician and replaced with structural fill.

6.2.1 Subgrade Evaluation

A member of our geotechnical staff should observe all footing, floor slab, and hardscape subgrade after stripping, excavation, scarifying and compaction, and placement of structural fill have been completed to confirm that there are no areas of unsuitable or unstable soil. The subgrade should be evaluated using moisture-density testing, a hand probe, or proof rolling with a fully loaded dump truck (or similar heavy, rubber tire construction equipment). Soft, loose, or unsuitable soil found at the subgrade level should be over-excavated and replaced with structural fill.

6.3 EXCAVATION

6.3.1 General

Conventional earthmoving equipment in proper working condition should generally be capable of making the necessary excavations. Excavation sidewalls may not stand vertical in the sandy soil, especially if groundwater seepage occurs. Larger backfill volumes should be assumed.

Excavations deeper than 4 feet will require shoring or should be sloped. Sloped excavations may be used to vertical depths of 10 feet BGS and should have side slopes no steeper than 1.5H:1V, provided groundwater seepage does not occur. We recommend a minimum horizontal distance of 5 feet from the edge of the existing improvements to the top of any temporary slope. All cut slopes should be protected from erosion by covering them during wet weather. If seepage, sloughing, or instability is observed, the slope should be flattened or shored. Shoring will be

required where slopes are not possible. We can provide additional shoring recommendations if shoring will be used on this project. The contractor should be responsible for selecting the appropriate shoring system.

Excavations should not be allowed to undermine adjacent improvements. If existing roads or structures are located near a proposed excavation, unsupported excavations can be maintained outside of a 1H:1V downward projection that starts 5 feet from the base of the existing footings. Excavations that must be inside of this zone should be supported by temporary or permanent shoring designed for moment resistance for the full height of the excavation, including kick-out for the full buried depth of the retaining system.

While we have described certain approaches to performing excavations, it is the contractor's responsibility to select the excavation and dewatering methods, monitor the excavations for safety, and provide any shoring required to protect personnel and adjacent improvements. All excavations should be in accordance with applicable OSHA and state regulations.

6.3.2 Dewatering

Groundwater seepage was generally observed in the test pit excavation as shallow as 2 feet BGS. Dewatering may be required in some excavations. If possible, we recommend that construction be scheduled for the dry season. Water generated during dewatering operations should be treated, if necessary, and pumped to a suitable disposal point.

Where groundwater seepage occurs in excavations, we recommend placing at least 1 foot of stabilization material at the base of the excavations. The stabilization material should consist of 4- or 6-inch-minus pit- or quarry-run rock, crushed rock, or crushed gravel and sand. The material should have a maximum particle size of 6 inches, should have less than 5 percent by dry weight passing the U.S. Standard No. 4 sieve, and should have at least two mechanically fractured faces. The material should be free of organic material and other deleterious material.

We note that these recommendations are for guidance only. Dewatering of excavations is the sole responsibility of the contractor, as the contractor is in the best position to select the appropriate system based on their means and methods.

6.4 MATERIALS

6.4.1 Structural Fill

6.4.1.1 General

Fill should be placed on subgrade that has been prepared in conformance with the "Site Preparation" section. A variety of material may be used as structural fill at the site. However, all material used as structural fill should be free of organic material and other unsuitable material. A brief characterization of some of the acceptable materials and our recommendations for their use as structural fill are provided below.

6.4.1.2 On-Site Soil

The material at the site should be suitable for use as general structural fill, provided it is properly moisture conditioned and free of debris, organic material, and particles over 4 inches in diameter. However, based on our experience, we estimate the optimum moisture content for

compaction to be approximately 14 to 16 percent; therefore, significant moisture conditioning (drying) will be required to use on-site silty and clayey soil for structural fill. Accordingly, extended dry weather and sufficient area to dry the soil will be required to adequately condition the soil for use as structural fill.

When used as structural fill, the on-site soil should be placed in lifts with a maximum uncompacted thickness of 8 inches and compacted to not less than 92 percent of the maximum dry density, as determined by ASTM D1557.

6.4.1.3 Imported Granular Material

Imported granular material used as structural fill should be pit- or quarry-run rock, crushed rock, or crushed gravel and sand. The imported granular material should also be angular, should be fairly well graded between coarse and fine material, should have less than 5 percent fines (material passing the U.S. Standard No. 200 sieve) by dry weight, and should have at least two mechanically fractured faces.

Imported granular material should be placed in lifts with a maximum uncompacted thickness of 12 inches and compacted to not less than 95 percent of the maximum dry density, as determined by ASTM D1557. During the wet season or when wet subgrade conditions exists, the initial lift should be approximately 18 inches in uncompacted thickness and should be compacted by rolling with a smooth-drum roller without using vibratory action.

6.4.1.4 Stabilization Material

Stabilization material used in staging or haul road areas or in trenches should consist of 4- or 6-inch-minus pit- or quarry-run rock, crushed rock, or crushed gravel and sand. The material should have a maximum particle size of 6 inches, should have less than 5 percent by dry weight passing the U.S. Standard No. 4 sieve, and should have at least two mechanically fractured faces. The material should be free of organic material and other deleterious material. Stabilization material should be placed in lifts between 12 and 24 inches thick and compacted to a firm condition.

6.4.1.5 Trench Backfill

Trench backfill placed beneath, adjacent to, and for at least 12 inches above utility lines (i.e., the pipe zone) should consist of well-graded granular material with a maximum particle size of $\frac{3}{4}$ inch and less than 8 percent fines by dry weight. The material should be free of organic material and other deleterious material. The pipe zone backfill should be compacted to at least 90 percent of the maximum dry density, as determined by ASTM D1557, or as required by the pipe manufacturer or local building department.

The remainder of the trench backfill up to the subgrade elevation should be compacted to at least 92 percent of the maximum dry density, as determined by ASTM D1557, or as required by the pipe manufacturer or local building department. The upper 3 feet of the trench backfill should be compacted to at least 95 percent of the maximum dry density, as determined by ASTM D1557.

Outside of structural improvement areas (e.g., roadway alignments or building pads), trench backfill placed above the pipe zone may consist of general fill material that is free of organic material and material over 6 inches in diameter. This general trench backfill should be compacted to at least 90 percent of the maximum dry density, as determined by ASTM D1557, or as required by the pipe manufacturer or local building department.

6.4.1.6 Aggregate Base Rock

Imported granular material used as base rock for building floor slabs and pavement should consist of $\frac{3}{4}$ - or $1\frac{1}{2}$ -inch-minus material (depending on the application). In addition, the aggregate should have less than 5 percent fines by dry weight. The aggregate base should be compacted to not less than 95 percent of the maximum dry density, as determined by ASTM D1557.

6.4.1.7 Retaining Wall Select Backfill

Backfill material placed behind retaining walls and extending a horizontal distance of $\frac{1}{2}H$, where H is the height of the retaining wall, should consist of imported granular material as described above and should have less than 7 percent fines by dry weight. We recommend the wall backfill be separated from general fill, native soil, and/or topsoil using a geotextile fabric that meets the specifications provided below for drainage geotextiles.

The wall backfill should be compacted to a minimum of 95 percent of the maximum dry density, as determined by ASTM D1557. However, backfill located within a horizontal distance of 3 feet from a retaining wall should only be compacted to approximately 90 percent of the maximum dry density, as determined by ASTM D1557. Backfill placed within 3 feet of the wall should be compacted in lifts less than 6 inches thick using hand-operated tamping equipment (such as a jumping jack or vibratory plate compactor). If flatwork (sidewalks or pavement) will be placed atop the wall backfill, we recommend the upper 2 feet of material be compacted to 95 percent of the maximum dry density, as determined by ASTM D1557.

6.4.2 Geotextile Fabric

6.4.2.1 Subgrade Geotextile

The subgrade geotextile should meet the specifications provided in OSSC Table 02320-4 – Geotextile Property Values for Subgrade Geotextile (Separation). The geotextile should be installed in conformance with OSSC 00350 (Geosynthetic Installation). A minimum initial aggregate base lift of 6 inches is required over geotextiles. All drainage aggregate and stabilization material should be underlain by a subgrade geotextile.

6.4.2.2 Drainage Geotextile

Drainage geotextile should meet the specifications provided in OSSC Table 02320-1 – Geotextile Property Values for Drainage Geotextile. The geotextile should be installed in conformance with OSSC 00350 (Geosynthetic Installation). A minimum initial aggregate base lift of 6 inches is required over geotextiles.

6.4.3 Soil Amendment with Cement

6.4.3.1 General

As an alternative to the use of imported granular material for wet weather structural fill, an experienced contractor may be able to amend the on-site soil with portland cement to obtain suitable support properties. Successful use of soil amendment depends on the use of correct mixing techniques, soil moisture content, and amendment quantities. Soil amending should be conducted in accordance with the specifications provided in OSSC 00344 (Treated Subgrade). The amount of cement used during amendment should be based on an assumed soil dry unit weight of 110 pcf.

6.4.3.2 Cement-Amended Structural Fill

On-site soil that would not otherwise be suitable for structural fill may be amended and placed as fill over a subgrade prepared in conformance with the "Site Preparation" section. The cement ratio for general cement-amended fill can generally be reduced by 1 percent (by dry weight). Typically, a minimum curing time of four days is required between amendment and construction traffic access. Consecutive lifts of fill may be amended immediately after the previous lift has been amended and compacted (e.g., the four-day wait period does not apply). However, where the final lift of fill is a building or roadway subgrade, the four-day wait period is in effect.

6.4.3.3 Other Considerations

Portland cement-amended soil is hard and has low permeability. This soil does not drain well and it is not suitable for planting. Future planted areas should not be cement amended, if practical, or accommodations should be made for drainage and planting. Moreover, cement amending soil within building areas must be done carefully to avoid trapping water under floor slabs. We should be contacted if this approach is considered.

6.4.4 AC

The AC should be Level 2, ½-inch, dense ACP according to OSSC 00744 (Asphalt Concrete Pavement) and compacted to 91 percent of the theoretical maximum density of the mix, as determined by AASHTO T 209. The minimum and maximum lift thickness is 2.0 and 3.0 inches, respectively, for ½-inch ACP. Lift thicknesses desired outside these limits should be discussed with the design team prior to design or construction. Asphalt binder should be performance graded and conform to PG 64-22 or better.

6.5 EROSION CONTROL

The on-site soil is susceptible to erosion. Consequently, we recommend that slopes be covered with an appropriate erosion control product if construction occurs during periods of wet weather. We recommend that all slope surfaces be planted as soon as practical to minimize erosion. Surface water runoff should be collected and directed away from slopes to prevent water from running down the slope face. Erosion control measures such as straw bales, sediment fences, and temporary detention and settling basins should be used in accordance with local and state ordinances.

6.6 WET WEATHER CONSTRUCTION

Trafficability of soil at the ground surface may be difficult during extended wet periods or when the moisture content of the surface soil is more than a few percentage points above optimum. If not carefully executed, earthwork activities can create extensive soft areas, resulting in significant repair costs.

When the subgrade is wet of optimum, site preparation may need to be accomplished using track-mounted equipment loading into trucks supported on granular haul roads or working blankets. Based on our experience, at least 12 inches of granular material is typically required for light staging areas and at least 18 inches of granular material for haul roads subject to repeated equipment traffic. We typically recommend that imported granular material for haul roads and working blankets consist of durable crushed rock that is well graded and has less than 8 percent by dry weight passing the U.S. Standard No. 200 sieve. Where silt or clay is exposed at the ground surface, the performance of haul roads can typically be improved by placing a geotextile on the subgrade before placing the granular material. The granular material should be placed in a single lift and the surface compacted until well keyed. Although we have presented typical recommendations for haul road and working blankets, the actual thickness and material should be determined by the contractor based on their sequencing of the project and the type and frequency of construction equipment. The base rock thickness for building slab areas is intended to support post-construction design loads and will not support construction traffic when the subgrade soil is wet. If construction is planned for periods when the subgrade soil is wet, an increased thickness of base rock will be required.

7.0 OBSERVATION OF CONSTRUCTION

Satisfactory foundation and earthwork performance depends to a large degree on quality of construction. Sufficient observation of the contractor's activities is a key part of determining that the work is completed in accordance with the construction drawings and specifications. Subsurface conditions observed during construction should be compared with those encountered during the subsurface exploration. Recognition of changed conditions often requires experience; therefore, qualified personnel should visit the site with sufficient frequency to detect if subsurface conditions change significantly from those anticipated.

We recommend that NV5 be retained to observe earthwork activities. We anticipate this will consist of evaluating footing and floor slab subgrade, observing the placement of structural fill during mass grading and repair of soft subgrade areas, observing the installation of AC pavement, observing retaining wall construction, and performing laboratory compaction and field moisture-density tests.

8.0 LIMITATIONS

We have prepared this report for use by JBMAC Ventures, LLC and their design and construction teams for the proposed project. The data and report can be used for bidding or estimating purposes, but our report, conclusions, and interpretations should not be construed as warranty of the subsurface conditions and are not applicable to other sites.

Soil explorations indicate soil conditions only at specific locations and only to the depths penetrated. They do not necessarily reflect soil strata or water level variations that may exist between exploration locations. If subsurface conditions differing from those described are noted during the course of excavation and construction, re-evaluation will be necessary.

If there are changes in the site grades or location, configuration, design loads, or type of construction, the conclusions and recommendations presented may not be applicable. If design changes are made, we request that we be retained to review our conclusions and recommendations and to provide a written verification or modification.

The scope of our services does not include services related to construction safety precautions, and our recommendations are not intended to direct the contractor's methods, techniques, sequences, or procedures, except as specifically described in this report for consideration in design.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with generally accepted practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

◆ ◆ ◆

We appreciate the opportunity to be of continued service to you. Please call if you have questions concerning this report or if we can provide additional services.

Sincerely,

NV5



Brett A. Shipton, P.E., G.E.
Principal Engineer



REFERENCES

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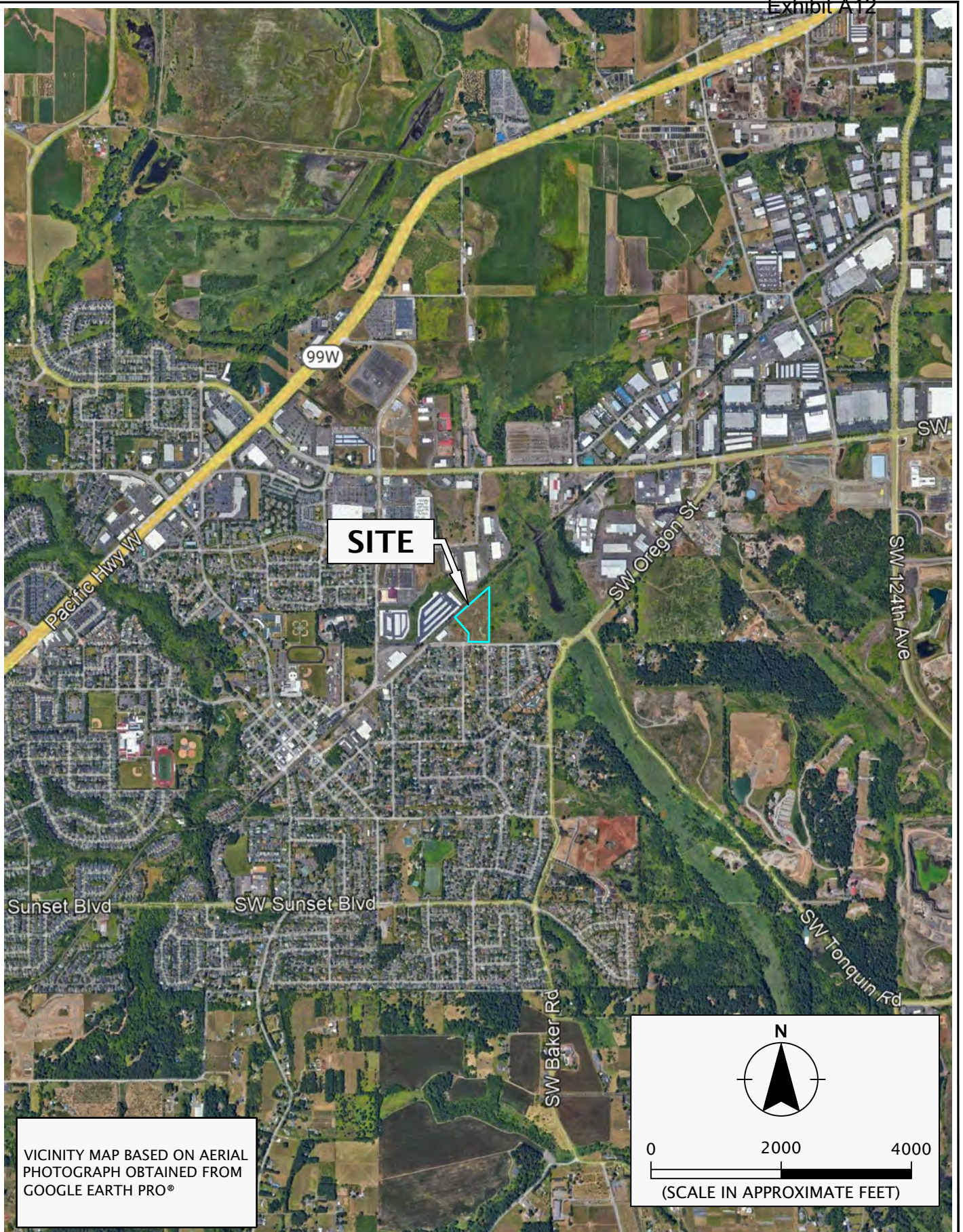
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FIGURES



VICINITY MAP BASED ON AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO®

Printed By: mmiller | Print Date: 5/6/2022 12:53:40 PM
 File Name: J:\E-L\JBMAC\JBMAC-1\JBMAC-1-01-VM01.dwg | Layout: FIGURE 1

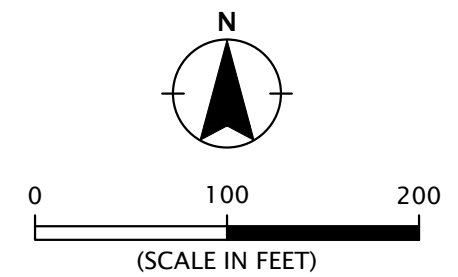
	JBMAC-1-01	VICINITY MAP	
	MAY 2022	OREGON STREET SITE SHERWOOD, OR	FIGURE 1

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File Name: J:\E-L\JBMAC\JBMAC-1\JBMAC-1-01\Figures\CAD\JBMAC-1-01-SP01.dwg | Layout: FIGURE 2



LEGEND:

- SITE BOUNDARY
- B-1 ⊕ BORING
- TP-1 ⊠ TEST PIT WITH INFILTRATION TEST
- TP-2 ⊠ TEST PIT
- CPT-1 ⊠ CPT
- APPROXIMATE LOCATION OF CESSPOOL



SITE PLAN BASED ON AERIAL PHOTOGRAPH
OBTAINED FROM GOOGLE EARTH PRO®
APRIL 19, 2022

SITE PLAN

OREGON STREET SITE
SHERWOOD, OR

JBMAC-1-01

MAY 2022



FIGURE 2

APPENDIX A

APPENDIX A

BORING AND TEST PIT EXPLORATIONS

GENERAL

Our subsurface investigation included drilling 4 borings (B-1 through B-4) and excavating 11 test pits (TP-1 through TP-11). Drilling services were provided by Western States Soil Conservation of Hubbard, Oregon, on April 9, 2022, using a CME 550 X track-mounted drilling rig and mud rotary drilling methods. Excavation services by Dan J. Fischer Excavating, Inc. of Forest Grove, Oregon, on April 21, 2022, using a Case 540 excavator with a 30-inch-wide bucket. A member of our geology staff observed the explorations. The exploration logs are presented in this appendix.

The approximate exploration locations are shown on Figure 2. Exploration locations were determined by pacing from existing physical features.

SOIL SAMPLING

We collected representative samples of the various soils encountered in the explorations for visual classification and laboratory testing. We collected these samples from the test pit walls and base using the excavator bucket. Samples from the borings were collected using the following methods:

- SPTs were performed in general conformance with ASTM D1586. The sampler was driven with a 140-pound automatic hammer falling 30 inches. The number of blows required to drive the sampler 1 foot, or as otherwise indicated, into the soil is shown adjacent to the sample symbols on the boring logs. The hammer has an average efficiency of 77.2 percent.
- Relatively undisturbed samples were collected at selected intervals by pushing a Shelby tube sampler 24 inches ahead of the boring front. Shelby tube samples were preferred for consolidation and strength testing due to the lower level of disturbance relative to the Dames & Moore samples.

Sampling intervals are shown on the exploration logs.

SOIL CLASSIFICATION

The soil samples were classified in accordance with the “Exploration Key” (Table A-1) and “Soil Classification System” (Table A-2), which are presented in this appendix. The exploration logs indicate the depths at which the soils or their characteristics change, although the change could be gradual. A horizontal line between soil types indicates an observed (visual or digging action) change. If the change occurred between sample locations and was not observed or obvious, the depth was interpreted and the change is indicated using a dashed line. Classifications are shown on the exploration logs.

LABORATORY TESTING

We visually examined soil samples collected from the explorations to confirm field classifications. We also performed the following laboratory testing.

MOISTURE CONTENT










We determined the natural moisture content of select soil samples in general accordance with ASTM D2216. The natural moisture content is a ratio of the weight of the water to soil in a test sample and is expressed as a percentage. The test results are presented in this appendix.

PARTICLE-SIZE ANALYSIS

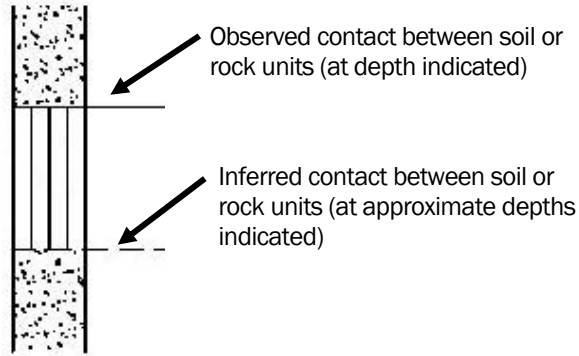
Particle-size analysis was performed on select soil samples. The test consisted of percent fines determination (percent passing the U.S. Standard No. 200 sieve) analyses completed in general accordance with ASTM D1140 (P200). The test results are presented in this appendix.

ATTERBERG LIMITS TEST

We determined the Atterberg limits of a soil sample in general accordance with ASTM D4318. Atterberg limits include the liquid limit, plastic limit, and the plasticity index of soil. These index properties are used to classify soil and for correlation with other engineering properties of soil. The test results are presented in this appendix.

SYMBOL	SAMPLING DESCRIPTION
	Location of sample collected in general accordance with ASTM D1586 using Standard Penetration Test (SPT) with recovery
	Location of sample collected using thin-wall Shelby tube or Geoprobe® sampler in general accordance with ASTM D1587 with recovery
	Location of sample collected using Dames & Moore sampler and 300-pound hammer or pushed with recovery
	Location of sample collected using Dames & Moore sampler and 140-pound hammer or pushed with recovery
	Location of sample collected using 3-inch-outside diameter California split-spoon sampler and 140-pound hammer with recovery
	Location of grab sample
	Rock coring interval
	Water level during drilling
	Water level taken on date shown

Graphic Log of Soil and Rock Types



Observed contact between soil or rock units (at depth indicated)

Inferred contact between soil or rock units (at approximate depths indicated)

GEOTECHNICAL TESTING EXPLANATIONS

ATT	Atterberg Limits	P	Pushed Sample
CBR	California Bearing Ratio	PP	Pocket Penetrometer
CON	Consolidation	P200	Percent Passing U.S. Standard No. 200 Sieve
DD	Dry Density		
DS	Direct Shear	RES	Resilient Modulus
HYD	Hydrometer Gradation	SIEV	Sieve Gradation
MC	Moisture Content	TOR	Torvane
MD	Moisture-Density Relationship	UC	Unconfined Compressive Strength
NP	Non-Plastic	VS	Vane Shear
OC	Organic Content	kPa	Kilopascal

ENVIRONMENTAL TESTING EXPLANATIONS

CA	Sample Submitted for Chemical Analysis	ND	Not Detected
P	Pushed Sample	NS	No Visible Sheen
PID	Photoionization Detector Headspace Analysis	SS	Slight Sheen
ppm	Parts per Million	MS	Moderate Sheen
		HS	Heavy Sheen




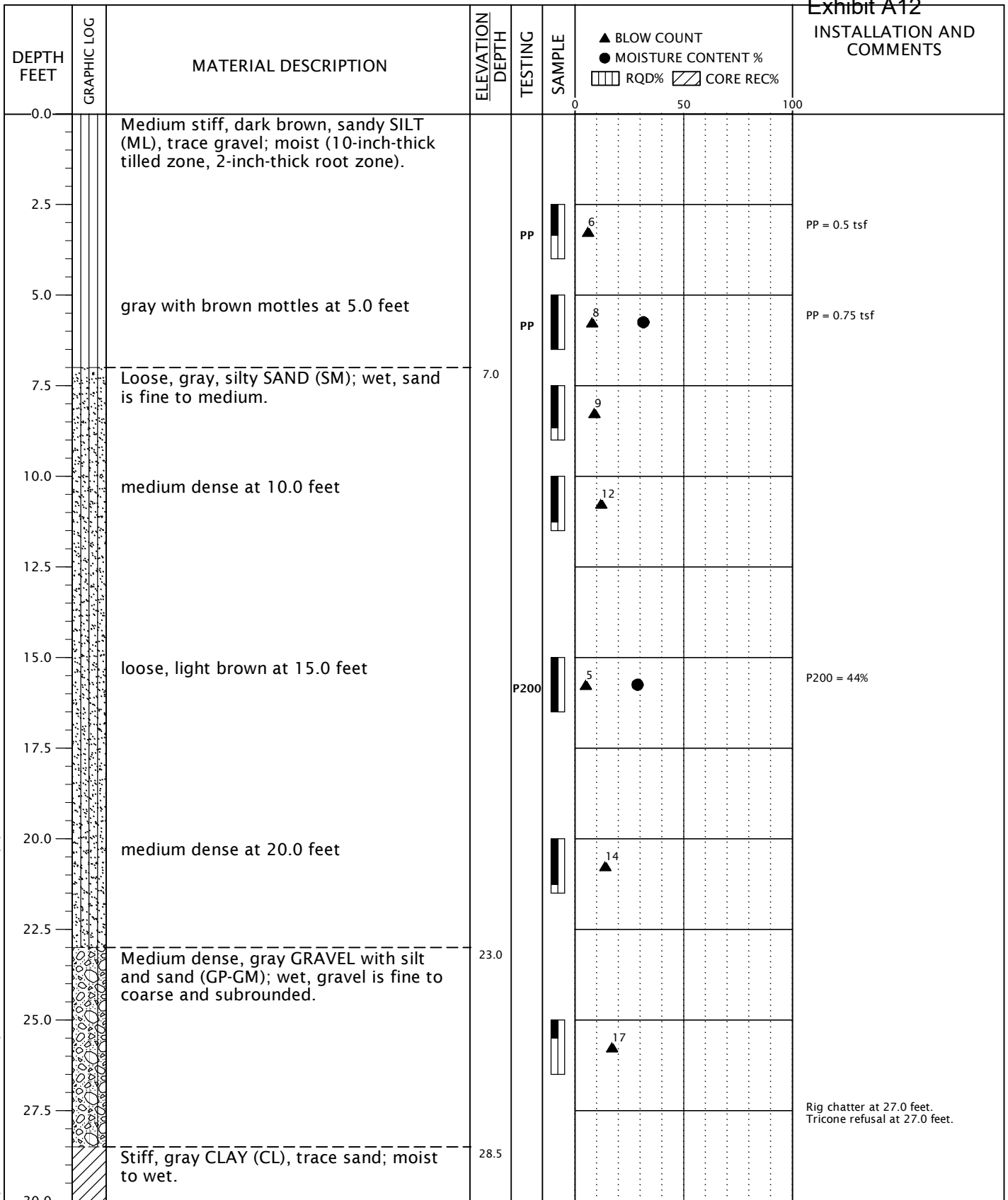
RELATIVE DENSITY - COARSE-GRAINED SOIL								
Relative Density	Standard Penetration Test (SPT) Resistance		Dames & Moore Sampler (140-pound hammer)		Dames & Moore Sampler (300-pound hammer)			
Very loose	0 - 4		0 - 11		0 - 4			
Loose	4 - 10		11 - 26		4 - 10			
Medium dense	10 - 30		26 - 74		10 - 30			
Dense	30 - 50		74 - 120		30 - 47			
Very dense	More than 50		More than 120		More than 47			
CONSISTENCY - FINE-GRAINED SOIL								
Consistency	Standard Penetration Test (SPT) Resistance	Dames & Moore Sampler (140-pound hammer)	Dames & Moore Sampler (300-pound hammer)	Unconfined Compressive Strength (tsf)				
Very soft	Less than 2	Less than 3	Less than 2	Less than 0.25				
Soft	2 - 4	3 - 6	2 - 5	0.25 - 0.50				
Medium stiff	4 - 8	6 - 12	5 - 9	0.50 - 1.0				
Stiff	8 - 15	12 - 25	9 - 19	1.0 - 2.0				
Very stiff	15 - 30	25 - 65	19 - 31	2.0 - 4.0				
Hard	More than 30	More than 65	More than 31	More than 4.0				
PRIMARY SOIL DIVISIONS				GROUP SYMBOL	GROUP NAME			
COARSE-GRAINED SOIL (more than 50% retained on No. 200 sieve)	GRAVEL (more than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVEL (< 5% fines)		GW or GP	GRAVEL			
		GRAVEL WITH FINES ($\geq 5\%$ and $\leq 12\%$ fines)		GW-GM or GP-GM	GRAVEL with silt			
		GRAVEL WITH FINES (> 12% fines)		GW-GC or GP-GC	GRAVEL with clay			
				GM	silty GRAVEL			
				GC	clayey GRAVEL			
	SAND (50% or more of coarse fraction passing No. 4 sieve)	CLEAN SAND (<5% fines)		SW or SP	SAND			
		SAND WITH FINES ($\geq 5\%$ and $\leq 12\%$ fines)		SW-SM or SP-SM	SAND with silt			
		SAND WITH FINES (> 12% fines)		SW-SC or SP-SC	SAND with clay			
				SM	silty SAND			
				SC	clayey SAND			
FINE-GRAINED SOIL (50% or more passing No. 200 sieve)	SILT AND CLAY	Liquid limit less than 50		ML	SILT			
				CL	CLAY			
				CL-ML	silty CLAY			
		Liquid limit 50 or greater		OL	ORGANIC SILT or ORGANIC CLAY			
				MH	SILT			
	Liquid limit 50 or greater		CH	CLAY				
			OH	ORGANIC SILT or ORGANIC CLAY				
			PT	PEAT				
	HIGHLY ORGANIC SOIL				PT	PEAT		
	MOISTURE CLASSIFICATION		ADDITIONAL CONSTITUENTS					
Term	Field Test	Secondary granular components or other materials such as organics, man-made debris, etc.						
		Percent	Silt and Clay In:		Percent	Sand and Gravel In:		
dry	very low moisture, dry to touch		Fine-Grained Soil	Coarse-Grained Soil		Fine-Grained Soil	Coarse-Grained Soil	
		< 5			trace			trace
moist	damp, without visible moisture	5 - 12	minor	with	5 - 15	minor	minor	
		> 12	some	silty/clayey	15 - 30	with	with	
wet	visible free water, usually saturated				> 30	sandy/gravelly	Indicate %	
		SOIL CLASSIFICATION SYSTEM				TABLE A-2		

Exhibit A12
INSTALLATION AND
COMMENTS



DRILLED BY: Western States Soil Conservation, Inc.

LOGGED BY: L. Gose

COMPLETED: 04/09/22

BORING METHOD: mud rotary (see document text)

BORING BIT DIAMETER: 4 7/8 inches



JBMAC-1-01

BORING B-1






MAY 2022

OREGON STREET SITE
SHERWOOD, OR

FIGURE A-1

BORING LOG - NV5 - 1 PER PAGE JBMAC-1-01-B1_4-TP1_1.GPJ GDL_NV5.GDT PRINT DATE: 5/9/22:KT

Exhibit A12
INSTALLATION AND
COMMENTS

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	▲ BLOW COUNT ● MOISTURE CONTENT % ▨ RQD% ▩ CORE REC%	INSTALLATION AND COMMENTS
30.0		(continued from previous page)		PP		12 (BLOW COUNT) ● (MOISTURE CONTENT %)	PP = 0.5 tsf
32.5		Very dense, dark gray GRAVEL (GP); moist.	33.0				Lots of rig chatter at 33.0 feet. Likely basalt.
35.0						50/3 (BLOW COUNT)	
37.5							
40.0		Exploration completed at a depth of 40.1 feet. Hammer efficiency factor is 77.2 percent.	40.1			50/4 (BLOW COUNT)	Surface elevation was not measured at the time of exploration.
42.5							
45.0							
47.5							
50.0							
52.5							
55.0							
57.5							
60.0							

DRILLED BY: Western States Soil Conservation, Inc.

LOGGED BY: L. Gose

COMPLETED: 04/09/22

BORING METHOD: mud rotary (see document text)

BORING BIT DIAMETER: 4 7/8 inches



JBMAC-1-01

BORING B-1
(continued)

MAY 2022

OREGON STREET SITE
SHERWOOD, OR

FIGURE A-1

BORING LOG - NV5 - 1 PER PAGE JBMAC-1-01-B1_4-TP1_1.GPJ GDL-NV5.GDT PRINT DATE: 5/9/22:KT

Exhibit A12
INSTALLATION AND
COMMENTS

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	▲ BLOW COUNT ● MOISTURE CONTENT % ▨ RQD% ▩ CORE REC%	INSTALLATION AND COMMENTS
0.0		Medium stiff, brown, sandy SILT (ML); moist, sand is fine.					
2.5				ATT PP	5		PP = 0.5 tsf LL = 40% PL = 24%
5.0							
7.5		brown at 7.0 feet		PP	5		PP = 0.25 tsf
10.0				PP	6		PP = 0.5 tsf
11.5		Exploration completed at a depth of 11.5 feet. Hammer efficiency factor is 77.2 percent.	11.5				Surface elevation was not measured at the time of exploration.
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							

DRILLED BY: Western States Soil Conservation, Inc.

LOGGED BY: L. Gose

COMPLETED: 04/09/22

BORING METHOD: mud rotary (see document text)

BORING BIT DIAMETER: 4 7/8 inches



JBMAC-1-01

BORING B-2

MAY 2022

OREGON STREET SITE
SHERWOOD, OR

FIGURE A-2

BORING LOG - NV5 - 1 PER PAGE JBMAC-1-01-B1_4-TP1_1.GPJ GDL_NV5.GDT PRINT DATE: 5/9/22:KT

Exhibit A12
INSTALLATION AND COMMENTS

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	▲ BLOW COUNT ● MOISTURE CONTENT % ▨ RQD% ▩ CORE REC%	INSTALLATION AND COMMENTS
0.0		Medium stiff, gray with brown mottled, sandy SILT (ML); moist (10-inch-thick tilled zone, 2-inch-thick root zone).					
2.5				PP	6		PP = 0.5 tsf
5.0		Loose, brown with gray mottled, silty SAND (SM); moist to wet.	4.5		8		
7.5							
10.0		medium dense; wet at 10.0 feet					
11.5		Exploration completed at a depth of 11.5 feet.	11.5				Surface elevation was not measured at the time of exploration.
12.5		Hammer efficiency factor is 77.2 percent.					
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							

DRILLED BY: Western States Soil Conservation, Inc.

LOGGED BY: L. Gose

COMPLETED: 04/13/22

BORING METHOD: mud rotary (see document text)

BORING BIT DIAMETER: 4 7/8 inches



JBMAC-1-01

BORING B-3

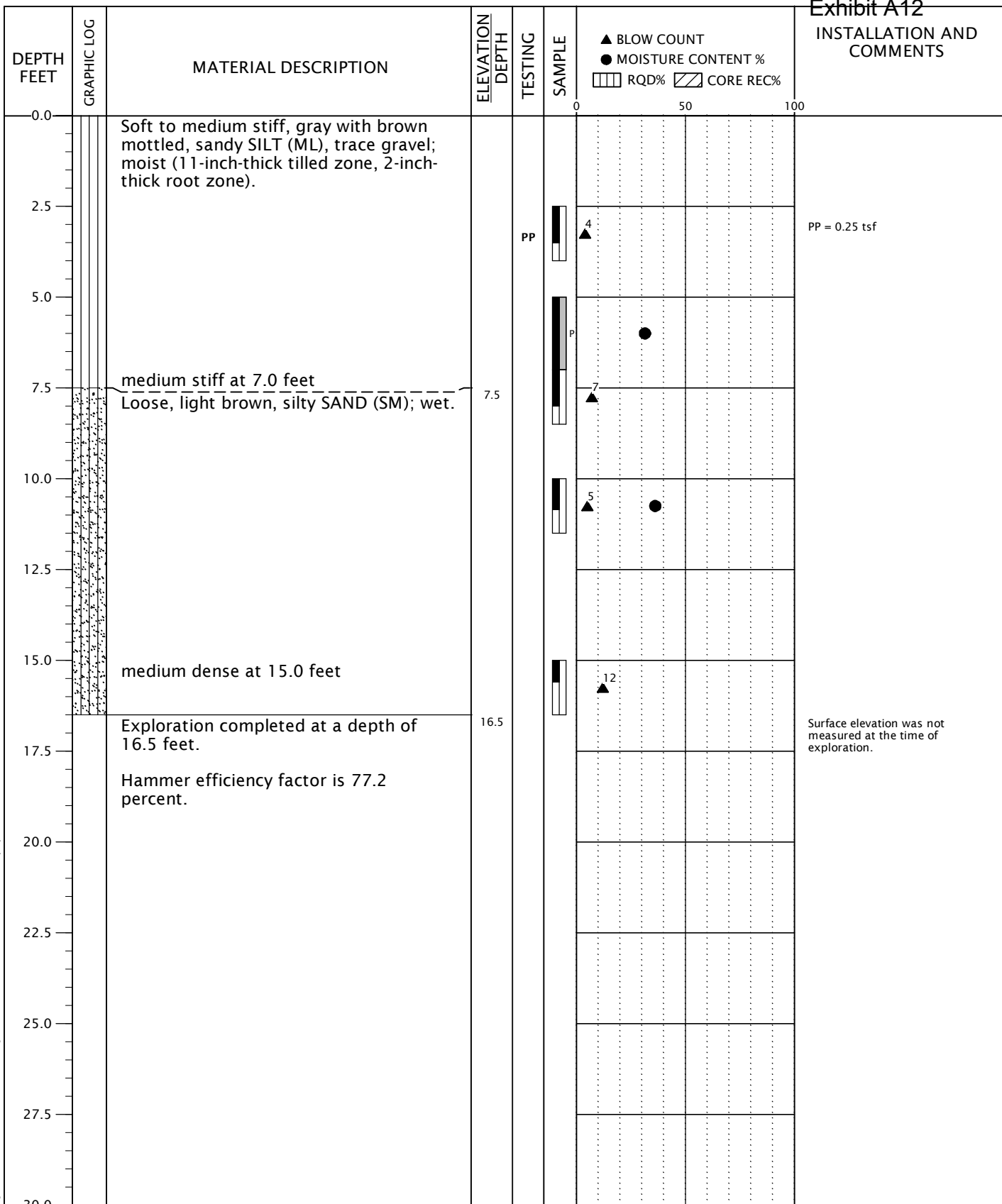
MAY 2022

OREGON STREET SITE
SHERWOOD, OR

FIGURE A-3

BORING LOG - NV5 - 1 PER PAGE JBMAC-1-01-B1_4-TP1_1.GPJ GDL-NV5.GDT PRINT DATE: 5/9/22:KT

Exhibit A12
INSTALLATION AND
COMMENTS



BORING LOG - NV5 - 1 PER PAGE JBMAC-1-01-B1_4-TP1_1.GPJ GDL-NV5.GDT PRINT DATE: 5/9/22:KT

DRILLED BY: Western States Soil Conservation, Inc.

LOGGED BY: L. Gose

COMPLETED: 04/09/22

BORING METHOD: mud rotary (see document text)

BORING BIT DIAMETER: 4 7/8 inches



JBMAC-1-01

BORING B-4

MAY 2022

OREGON STREET SITE
SHERWOOD, OR

FIGURE A-4

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	MOISTURE CONTENT %	COMMENTS
0.0		Medium dense, gray-brown SAND with silt and gravel (SP-SM), trace debris (nails, brick, wood); moist - FILL.			☒	●	
2.5		Stiff, brown, sandy SILT (ML); moist to wet, sand is fine.	2.0	PP	☒		
5.0		Dense, light brown, silty SAND (SM); moist, sand is fine to medium.	5.5		☒	●	
7.5		wet at 9.0 feet			☒		
10.0					☒		
15.0		Exploration completed at a depth of 15.0 feet.	15.0		☒		Surface elevation was not measured at the time of exploration.
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							

Infiltration test at 3.0 feet.
 PP = 1.5 tsf
 Slow groundwater seepage observed from 4.0 to 15.0 feet.
 Excavator Comment: Very hard at 4.5 feet.

Minor caving observed from 9.0 to 15.0 feet.

Surface elevation was not measured at the time of exploration.

EXCAVATED BY: Dan J. Fischer Excavating, Inc.

LOGGED BY: L. Gose

COMPLETED: 04/21/22

EXCAVATION METHOD: backhoe (see document text)

TEST PIT LOG - NV5 - 1 PER PAGE JBMAC-1-01-B1-4-TP1_11.GPJ GDI_NV5.GDT PRINT DATE: 5/9/22:KT



JBMAC-1-01

TEST PIT TP-1

MAY 2022

OREGON STREET SITE
 SHERWOOD, OR

FIGURE A-5

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT %	COMMENTS
0.0		Medium dense, light brown GRAVEL with silt and sand (GP-GM), trace debris (concrete); moist - FILL.	2.5		☒	●	
2.5		Medium dense, red-brown, silty SAND (SM); moist.			☒		
5.0					☒	●	
7.5							
10.0					☒		
12.5							
15.0		Exploration completed at a depth of 15.0 feet.	15.0		☒	●	No groundwater seepage observed to the depth explored. No caving observed to the depth explored. Surface elevation was not measured at the time of exploration.
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							

EXCAVATED BY: Dan J. Fischer Excavating, Inc.

LOGGED BY: L. Gose

COMPLETED: 04/21/22

EXCAVATION METHOD: backhoe (see document text)



JBMAC-1-01

TEST PIT TP-2

MAY 2022

OREGON STREET SITE
SHERWOOD, OR

FIGURE A-6

TEST PIT LOG - NV5 - 1 PER PAGE JBMAC-1-01-B1-4-TP1_11.GPJ GDI_NV5.GDT PRINT DATE: 5/9/22:KT

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT %	COMMENTS
0.0		Loose, brown GRAVEL with silt and sand (GP-GM), minor debris (brick, nails, asphalt concrete); moist to wet (3-inch-thick root zone) - FILL.			☒		Severe caving observed from 0.0 to 10.0 feet.
2.5							Slow to moderate groundwater seepage observed from 3.0 to 5.0 feet.
3.5		Stiff, brown, sandy SILT (ML); moist to wet, sand is fine to medium.	3.5	PP	☒		PP = 1.75 tsf
5.0							
6.0		Loose to medium dense, gray, silty SAND (SM); wet, sand is fine to medium.	6.0				
7.5							
10.0		Exploration terminated at a depth of 10.0 feet due to caving/water.	10.0		☒	●	Rapid groundwater seepage observed at 9.0 feet. Surface elevation was not measured at the time of exploration.
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							

EXCAVATED BY: Dan J. Fischer Excavating, Inc.

LOGGED BY: L. Gose

COMPLETED: 04/21/22

EXCAVATION METHOD: backhoe (see document text)



JBMAC-1-01

TEST PIT TP-3

MAY 2022

OREGON STREET SITE
SHERWOOD, OR

FIGURE A-7

TEST PIT LOG - NV5 - 1 PER PAGE JBMAC-1-01-B1-4-TP1_11.GPJ GDI_NV5.GDT PRINT DATE: 5/9/22:KT

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT %	COMMENTS
0.0		Medium dense to dense, brown GRAVEL with silt and sand (GP-GM), trace debris (rebar, masonry); moist (4-inch-thick root zone) - FILL.	1.5		☒		PID = 3.25 ppm
2.5		Stiff, brown, sandy SILT (ML); moist, sand is fine to medium. gray with brown mottles at 4.0 feet			☒		Moderate groundwater seepage observed from 4.0 to 15.0 feet.
6.5		Medium dense, brown, silty SAND (SM); moist, sand is fine to medium.	6.5		☒	●	
15.0		Exploration completed at a depth of 15.0 feet.	15.0		☒		No caving observed to the depth explored. Surface elevation was not measured at the time of exploration.

TEST PIT LOG - NV5 - 1 PER PAGE JBMAC-1-01-B1-4-TP1_11.GPJ GDI_NV5.GDT PRINT DATE: 5/9/22:KT

EXCAVATED BY: Dan J. Fischer Excavating, Inc.

LOGGED BY: L. Gose

COMPLETED: 04/21/22

EXCAVATION METHOD: backhoe (see document text)



JBMAC-1-01

TEST PIT TP-4

MAY 2022

OREGON STREET SITE
SHERWOOD, OR

FIGURE A-8

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT %	COMMENTS
0.0		Loose, light brown, silty SAND (SM), trace gravel; moist, sand is fine to coarse (12-inch-thick tilled zone, 3-inch-thick root zone) - FILL.			☒		
2.5							
3.5		Medium dense, brown, silty SAND (SM); moist, sand is fine to medium.	3.5		☒		
5.0							
7.5							
10.0							
12.5							
15.0		Exploration completed at a depth of 15.0 feet.	15.0		☒		Slow groundwater seepage observed from 6.0 to 15.0 feet.
17.5							No caving observed to the depth explored.
20.0							Surface elevation was not measured at the time of exploration.
22.5							
25.0							
27.5							
30.0							

EXCAVATED BY: Dan J. Fischer Excavating, Inc.

LOGGED BY: L. Gose

COMPLETED: 04/21/22

EXCAVATION METHOD: backhoe (see document text)



JBMAC-1-01

TEST PIT TP-5

MAY 2022

OREGON STREET SITE
SHERWOOD, OR

FIGURE A-9

TEST PIT LOG - NV5 - 1 PER PAGE JBMAC-1-01-B1-4-TP1_11.GPJ GDI_NV5.GDT PRINT DATE: 5/9/22:KT

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT %	COMMENTS
0.0		Loose, brown, silty SAND (SM), trace gravel and debris (asphalt); moist, sand is fine to coarse (3-inch-thick root zone) - FILL.			☒	●	Slow groundwater seepage observed from 2.0 to 15.0 feet. PP = 0.25 tsf Plastic odor at 6.0 feet. Minor caving observed from 7.0 to 15.0 feet. Surface elevation was not measured at the time of exploration.
2.5		Soft to medium stiff, brown SILT with sand (ML); moist.	3.0	PP	☒		
5.0							
7.5		Medium dense, gray, silty SAND (SM); moist, sand is fine to medium.	6.0		☒		
10.0						☒	
12.5							
15.0		brown-gray at 14.0 feet					
15.0		Exploration completed at a depth of 15.0 feet.	15.0		☒		
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							

EXCAVATED BY: Dan J. Fischer Excavating, Inc.

LOGGED BY: L. Gose

COMPLETED: 04/21/22

EXCAVATION METHOD: backhoe (see document text)



JBMAC-1-01

TEST PIT TP-6

MAY 2022

OREGON STREET SITE
SHERWOOD, OR

FIGURE A-10

TEST PIT LOG - NV5 - 1 PER PAGE JBMAC-1-01-B1-4-TP1_11.GPJ GDL NV5.GDT PRINT DATE: 5/9/22:KT

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT %	COMMENTS
0.0		Medium dense, light brown-gray GRAVEL with silt, sand, and debris (GP-GM); moist, gravel is fine to coarse and subrounded to angular, sand is fine to coarse, debris consists of concrete, asphalt concrete, and masonry (2-inch-thick root zone)- FILL.			☒	●	No infiltration; water too shallow.
2.5		Medium dense, brown, silty SAND (SM); moist, sand is fine to medium.	3.0		☒		Moderate to rapid groundwater seepage observed from 3.0 to 15.0 feet.
5.0		sand is fine at 6.0 feet			☒		
7.5		blue-gray at 9.0 feet			☒		
10.0		wet at 12.0 feet			☒		Minor caving observed from 10.0 to 15.0 feet.
12.5							
15.0		Exploration completed at a depth of 15.0 feet.	15.0				Surface elevation was not measured at the time of exploration.
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							

EXCAVATED BY: Dan J. Fischer Excavating, Inc.

LOGGED BY: L. Gose

COMPLETED: 04/21/22

EXCAVATION METHOD: backhoe (see document text)



JBMAC-1-01

TEST PIT TP-7

MAY 2022

OREGON STREET SITE
SHERWOOD, OR

FIGURE A-11

TEST PIT LOG - NV5 - 1 PER PAGE JBMAC-1-01-B1-4-TP1_11.GPJ GDL NV5.GDT PRINT DATE: 5/9/22:KT

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT %	COMMENTS
0.0		Medium stiff, brown SILT (ML), minor sand, trace debris (masonry); moist (1 1/2-inch-thick tilled zone, 2-inch-thick root zone) - FILL .					
2.5				PP	☒		Minor caving observed from 1.0 to 4.0 feet. PP = 0.5 tsf
5.0		with gravel and sand at 4.0 feet		PP	☒	●	Slow groundwater seepage observed from 2.5 to 15.0 feet. Native? Change is not distinct. PP = 0.25 tsf
6.0		Medium dense, light brown, silty SAND (SM); moist.	6.0		☒		
11.0		light brown with gray mottles at 11.0 feet			☒		
15.0		Exploration completed at a depth of 15.0 feet.	15.0		☒		Surface elevation was not measured at the time of exploration.
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							

EXCAVATED BY: Dan J. Fischer Excavating, Inc.

LOGGED BY: L. Gose

COMPLETED: 04/21/22

EXCAVATION METHOD: backhoe (see document text)



JBMAC-1-01

TEST PIT TP-8

MAY 2022

OREGON STREET SITE
SHERWOOD, OR

FIGURE A-12

TEST PIT LOG - NV5 - 1 PER PAGE JBMAC-1-01-B1-4-TP1_11.GPJ GDL_NV5.GDT PRINT DATE: 5/9/22:KT

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT %	COMMENTS
0.0		Loose to medium dense, brown-gray GRAVEL with silt, sand, and debris (GP-GM), trace organics (rootlets); moist, debris consists of construction materials, concrete, asphalt, metal, and masonry (3-inch-thick root zone) - FILL.			☒		Severe caving observed from 0.0 to 9.0 feet.
2.5							Moderate groundwater seepage observed from 3.0 to 8.0 feet.
4.0		wet at 4.0 feet			☒		
5.0		Loose, brown, silty SAND (SM); moist to wet.	4.5		☒		
7.0		Soft, black SILT (ML), trace sand; moist, organic odor.	7.0	PP	☒		PP = 0.0 tsf
8.0		Exploration terminated at a depth of 8.0 feet due to caving.	8.0				Surface elevation was not measured at the time of exploration.
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							

EXCAVATED BY: Dan J. Fischer Excavating, Inc.

LOGGED BY: L. Gose

COMPLETED: 04/21/22

EXCAVATION METHOD: backhoe (see document text)



JBMAC-1-01

TEST PIT TP-9

MAY 2022

OREGON STREET SITE
SHERWOOD, OR

FIGURE A-13

TEST PIT LOG - NV5 - 1 PER PAGE JBMAC-1-01-B1-4-TP1_11.GPJ GDI_NV5.GDT PRINT DATE: 5/9/22:KT

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	MOISTURE CONTENT %	COMMENTS
0.0		Medium stiff, brown SILT (ML), minor sand, trace organics (rootlets); moist (10-inch-thick tilled zone, 3-inch-thick root zone). wet at 2.0 feet	4.0	PP	☒	● 69	PP = 0.5 tsf Infiltration test at 1.5 feet. Slow groundwater seepage observed from 2.0 to 15.0 feet. P200 = 69% PP = 0.5 tsf
2.5		moist to wet at 3.5 feet		P200 PP	☒		
5.0		Loose to medium dense, light brown, silty SAND (SM); moist, sand is fine to medium.		☒			
7.5		moist to wet at 8.0		☒			
10.0				☒			
15.0		Exploration completed at a depth of 15.0 feet.		15.0	☒		
17.5						Moderate caving observed from 7.0 to 15.0 feet.	
20.0						Surface elevation was not measured at the time of exploration.	
22.5							
25.0							
27.5							
30.0							

EXCAVATED BY: Dan J. Fischer Excavating, Inc.

LOGGED BY: L. Gose

COMPLETED: 04/21/22

EXCAVATION METHOD: backhoe (see document text)



JBMAC-1-01

TEST PIT TP-10

MAY 2022

OREGON STREET SITE
SHERWOOD, OR

FIGURE A-14

TEST PIT LOG - NV5 - 1 PER PAGE JBMAC-1-01-B1-4-TP1-11.GPJ GDL NV5.GDT PRINT DATE: 5/9/22:KT

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT %	COMMENTS
0.0		Soft, brown, sandy SILT (ML), minor sand; moist - FILL.					Rapid groundwater seepage observed from 0.0 to 6.0 feet.
2.5					☒	●	
3.5		black; strong odor at 3.5 feet					
5.0					☒		
6.0		Exploration completed at a depth of 6.0 feet.	6.0				No caving observed to the depth explored. Surface elevation was not measured at the time of exploration.
7.5							
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							

EXCAVATED BY: Dan J. Fischer Excavating, Inc.

LOGGED BY: L. Gose

COMPLETED: 04/21/22

EXCAVATION METHOD: backhoe (see document text)



JBMAC-1-01

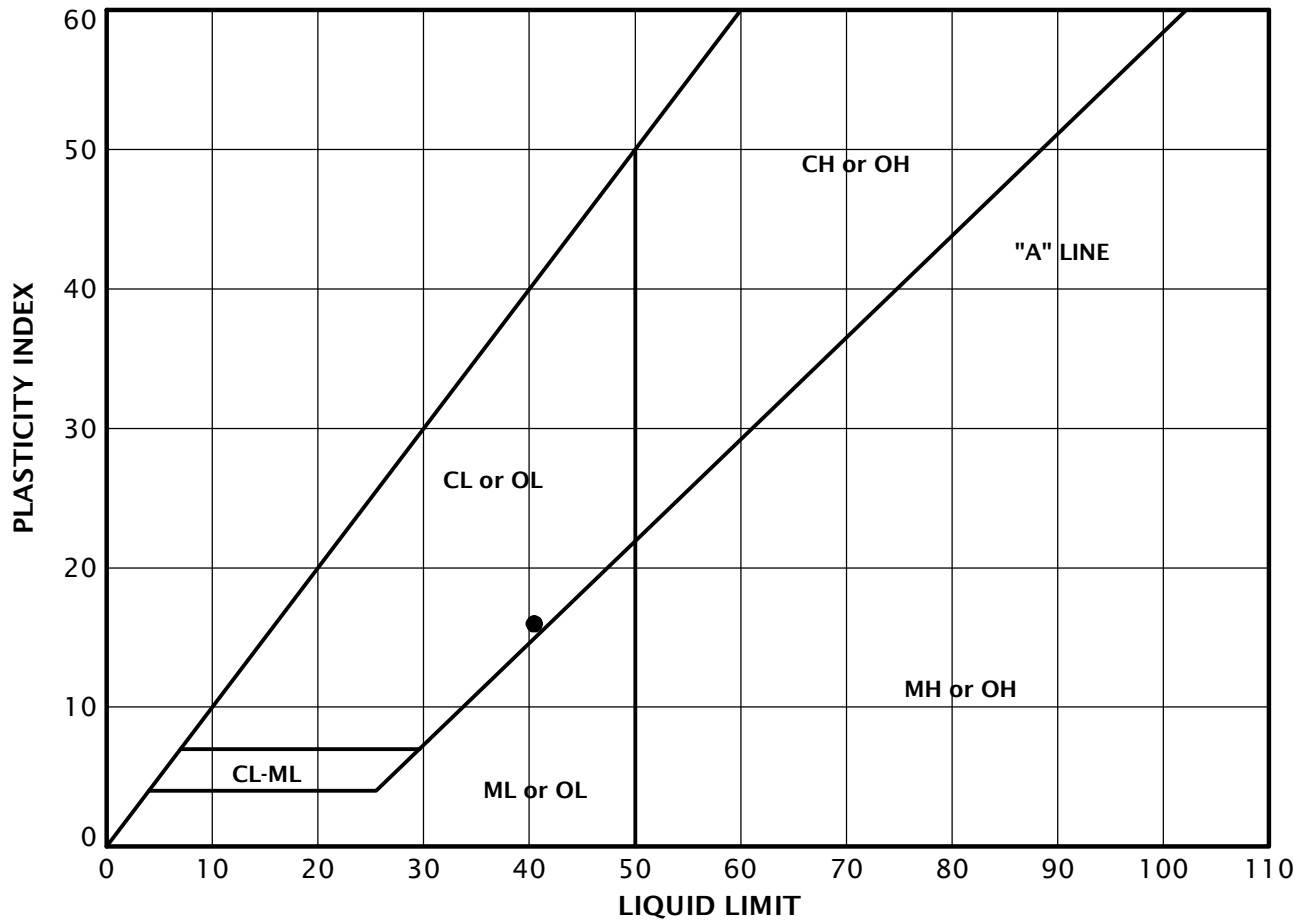
TEST PIT TP-11

MAY 2022

OREGON STREET SITE
SHERWOOD, OR

FIGURE A-15

TEST PIT LOG - NV5 - 1 PER PAGE JBMAC-1-01-B1-4-TP1-11.GPJ GDI_NV5.GDT PRINT DATE: 5/9/22:KT



KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
●	B-2	2.5	35	40	24	16

_ATTERBERG_LIMITS 7 JBMAC-1-01-B1_4-TP1_11.GPJ GEODESIGN.GDT PRINT DATE: 5/6/22:KT



JBMAC-1-01

ATTERBERG LIMITS TEST RESULTS

MAY 2022


OREGON STREET SITE
SHERWOOD, OR

FIGURE A-16

Exhibit A12

SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
B-1	5.0		31							
B-1	15.0		29			44				
B-1	30.0		43							
B-2	2.5		35				40	24	16	
B-2	7.0		36							
B-3	8.0		33							
B-4	5.0		31							
B-4	10.0		36							
TP-1	1.0		24							
TP-1	6.0		30							
TP-2	1.0		10							
TP-2	5.0		31							
TP-2	14.0		29							
TP-3	10.0		34							
TP-4	6.5		32							
TP-6	1.0		14							
TP-7	1.0		16							
TP-8	4.0		34							
TP-10	2.0		36			69				
TP-11	1.0		24							

LAB SUMMARY - GDI-NV5_JBMAC-1-01-B1_4-TP1_11.GPJ GDI_NV5.GDT PRINT DATE: 5/6/22:KT

	JBMAC-1-01	SUMMARY OF LABORATORY DATA		
	MAY 2022	OREGON STREET SITE SHERWOOD, OR		FIGURE A-17

Pile Dynamics, Inc.
SPT Analyzer Results

RIG #3
PDA-S Ver. 2021.34 - Printed: 12/27/2021

Summary of SPT Test Results

Project: WSSC-8-06, Test Date: 12/23/2021

Instr. Length ft	Blows Applied /6"	N Value	N60 Value	Average FMX kips	Average VMX ft/s	Average BPM bpm	Average EFV ft-lb	Average ETR %
60.00	2-6-6	12	15	42	16.7	44.1	250	71.6
60.00	4-6-7	13	16	41	13.5	47.5	280	80.1
60.00	4-4-7	11	14	41	16.7	48.1	279	79.6
60.00	5-9-11	20	25	39	14.4	47.2	270	77.1
60.00	6-7-6	13	16	39	14.5	46.1	272	77.7
Overall Average Values:				40	15.0	46.7	270	77.2
Standard Deviation:				5	2.1	2.1	35	10.1
Overall Maximum Value:				44	17.5	58.6	300	85.8
Overall Minimum Value:				0	1.4	39.3	0	0.0

APPENDIX B

APPENDIX B

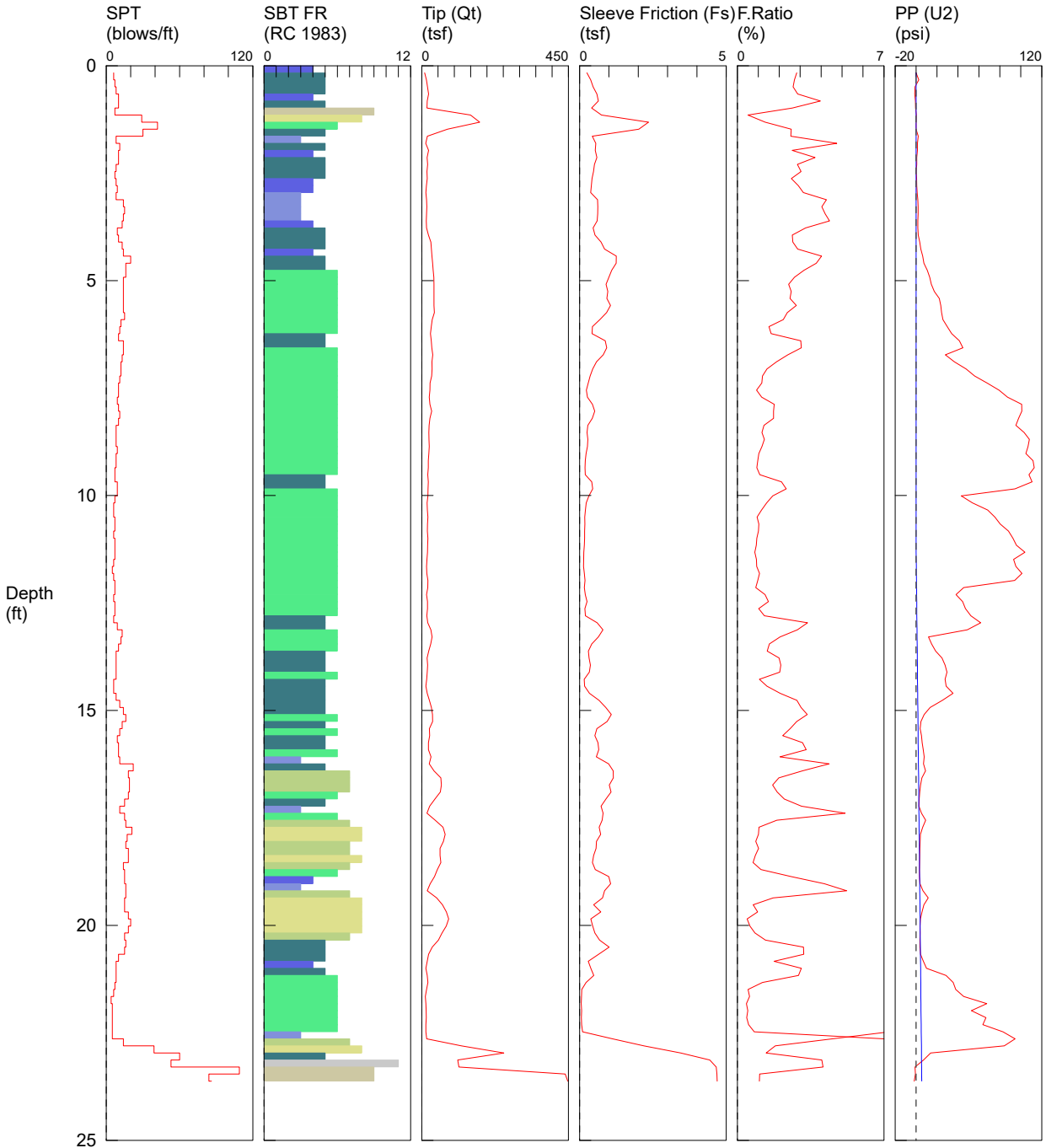
CPT EXPLORATIONS

Our subsurface exploration program included conducting two CPTs (CPT-1 and CPT-2) to depths of 23.6 and 29.8 feet BGS, respectively. Figure 2 shows the approximate CPT locations. The CPTs were performed in general accordance with ASTM D5778 by Oregon Geotechnical Explorations, Inc. of Keizer, Oregon, on April 7, 2022. The results of the CPT are presented in this appendix.

The CPT is an in-situ test that characterizes subsurface stratigraphy. The testing includes advancing a 35.6-millimeter-diameter cone equipped with a load cell and a friction sleeve through the soil profile. The cone is advanced at a rate of approximately 2 centimeters per second. Tip resistance, sleeve friction, and pore pressure are typically recorded at 0.1-meter intervals. We collected shear wave velocity measurements in CPT-1 at 1-meter intervals.

NV5 / CPT-1 / 15101 SW Oregon St Sherwood

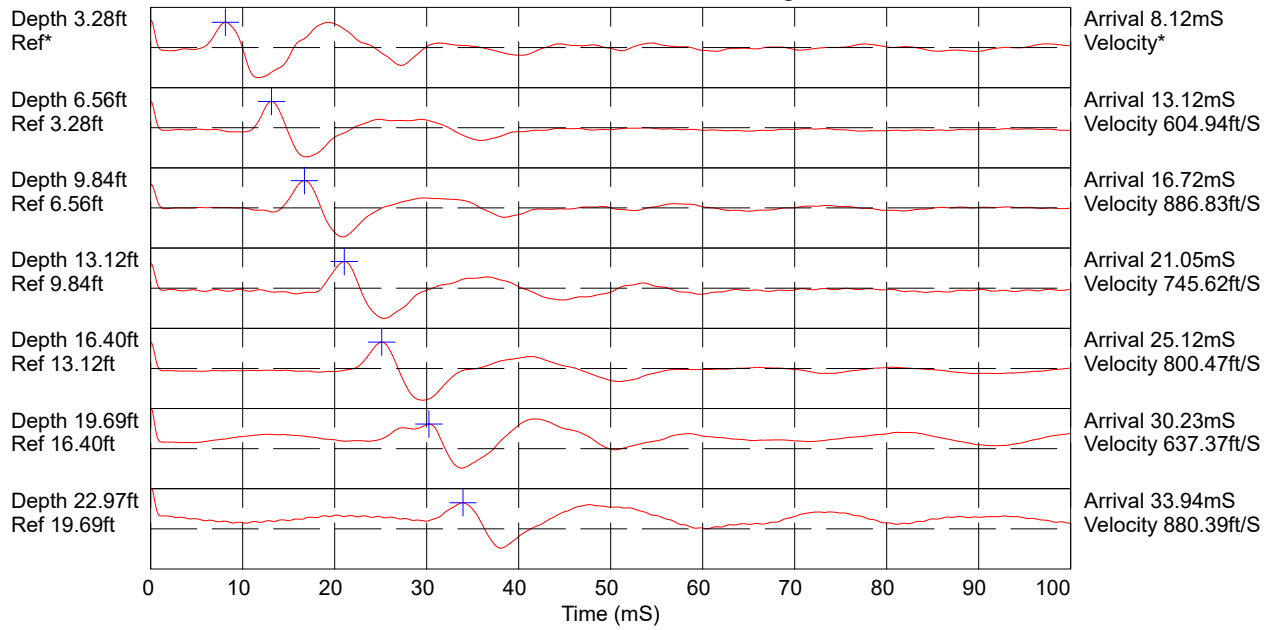
OPERATOR: OGE DMM
 CONE ID: DDG1532
 HOLE NUMBER: CPT-1
 TEST DATE: 4/7/2022 8:22:55 AM
 TOTAL DEPTH: 23.622 ft



- | | | | |
|--------------------------|-----------------------------|----------------------------|--------------------------------|
| 1 sensitive fine grained | 4 silty clay to clay | 7 silty sand to sandy silt | 10 gravelly sand to sand |
| 2 organic material | 5 clayey silt to silty clay | 8 sand to silty sand | 11 very stiff fine grained (*) |
| 3 clay | 6 sandy silt to clayey silt | 9 sand | 12 sand to clayey sand (*) |

*SBT/SPT CORRELATION: UBC-1983

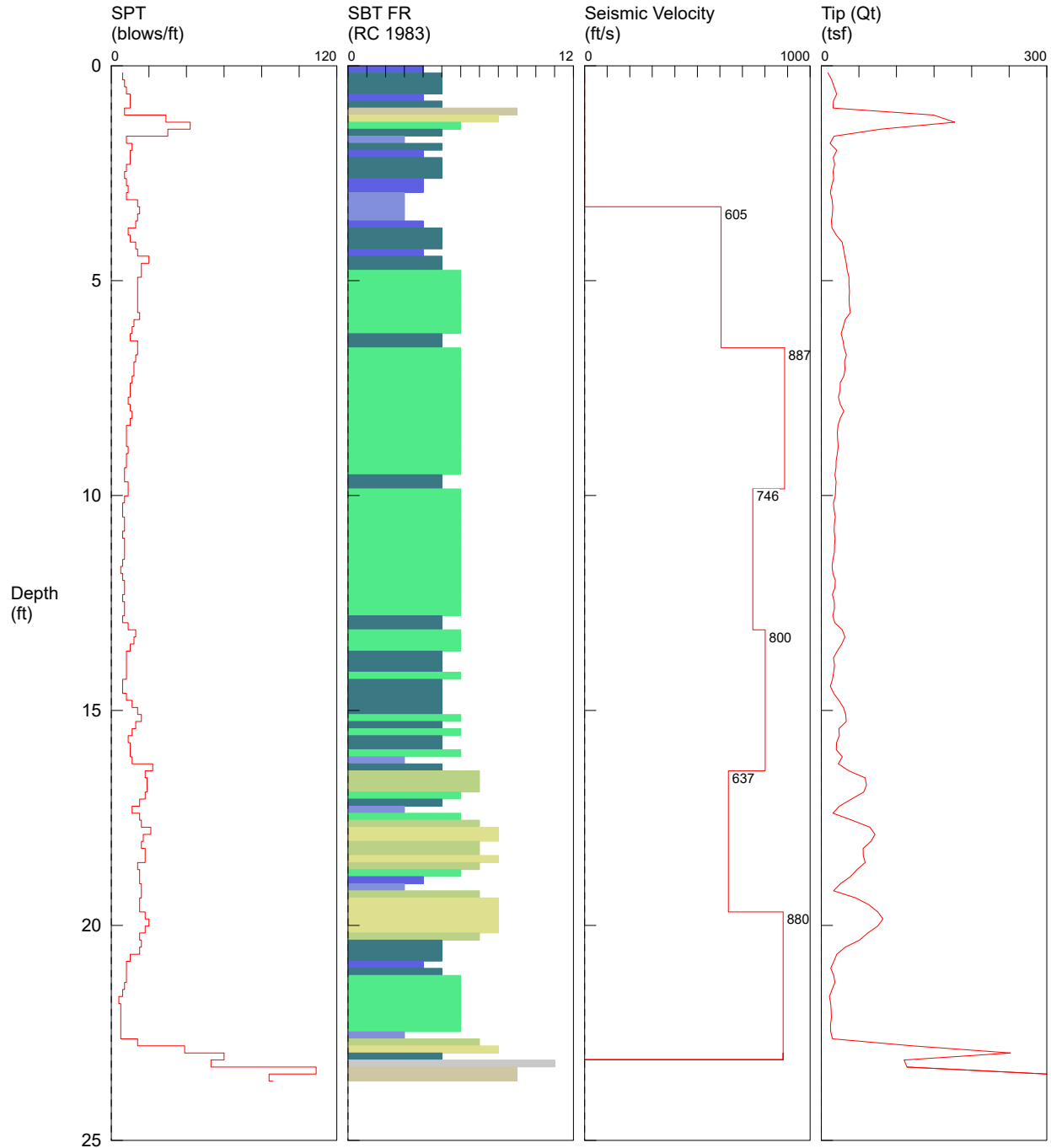
COMMENT: NV5 / CPT-1 / 15101 SW Oregon St Sherwood



Hammer to Rod String Distance (ft): 1.97
 * = Not Determined

NV5 / CPT-1 / 15101 SW Oregon St Sherwood

OPERATOR: OGE DMM
 CONE ID: DDG1532
 HOLE NUMBER: CPT-1
 TEST DATE: 4/7/2022 8:22:55 AM
 TOTAL DEPTH: 23.622 ft

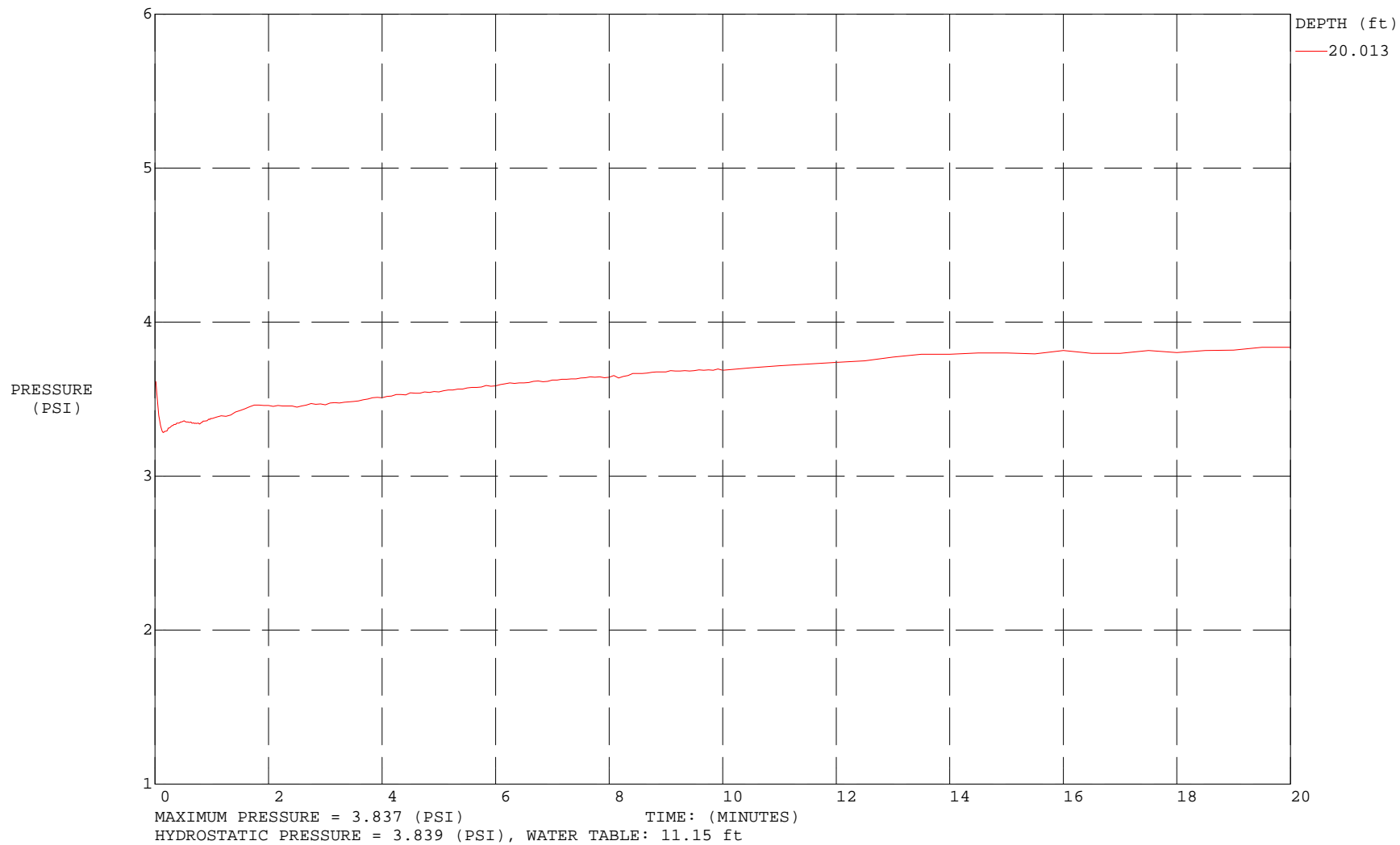


- | | | | |
|--------------------------|-----------------------------|----------------------------|--------------------------------|
| 1 sensitive fine grained | 4 silty clay to clay | 7 silty sand to sandy silt | 10 gravelly sand to sand |
| 2 organic material | 5 clayey silt to silty clay | 8 sand to silty sand | 11 very stiff fine grained (*) |
| 3 clay | 6 sandy silt to clayey silt | 9 sand | 12 sand to clayey sand (*) |

*SBT/SPT CORRELATION: UBC-1983

COMMENT: NV5 / CPT-1 / 15101 SW Oregon St Sherwood

TEST DATE: 4/7/2022 8:22:55 AM



NV5 / CPT-1 / 15101 SW Oregon St Sherwood

OPERATOR: OGE DMM
 CONE ID: DDG1532
 HOLE NUMBER: CPT-1
 TEST DATE: 4/7/2022 8:22:55 AM
 TOTAL DEPTH: 23.622 ft

Depth ft	Tip (Qt) (tsf)	Sleeve Friction (Fs) (tsf)	F.Ratio (%)	PP (U2) (psi)	SPT (blows/ft)	Zone	Soil Behavior Type UBC-1983
0.164	8.65	0.2449	2.830	-0.024	6	4	silty clay to clay
0.328	13.77	0.3746	2.720	2.429	7	5	clayey silt to silty clay
0.492	17.10	0.4545	2.657	-1.075	8	5	clayey silt to silty clay
0.656	20.39	0.5866	2.876	-1.269	10	5	clayey silt to silty clay
0.820	16.06	0.6354	3.956	-0.819	10	4	silty clay to clay
0.984	15.52	0.4072	2.623	-0.563	7	5	clayey silt to silty clay
1.148	149.29	0.7447	0.499	0.189	29	9	sand
1.312	177.38	2.3499	1.325	-0.099	42	8	sand to silty sand
1.476	78.55	2.0162	2.567	-0.173	30	6	sandy silt to clayey silt
1.640	16.80	0.4280	2.547	2.003	8	5	clayey silt to silty clay
1.804	11.60	0.5504	4.745	1.213	11	3	clay
1.969	20.42	0.5343	2.617	1.101	10	5	clayey silt to silty clay
2.133	15.86	0.5886	3.711	0.592	10	4	silty clay to clay
2.297	17.71	0.5077	2.867	0.488	8	5	clayey silt to silty clay
2.461	15.55	0.4722	3.037	0.035	7	5	clayey silt to silty clay
2.625	16.39	0.4227	2.579	0.368	8	5	clayey silt to silty clay
2.789	13.74	0.3997	2.910	0.651	9	4	silty clay to clay
2.953	11.92	0.3754	3.148	0.939	8	4	silty clay to clay
3.117	14.31	0.6082	4.251	1.541	14	3	clay
3.281	15.27	0.6159	4.033	1.955	15	3	clay
3.445	14.61	0.6129	4.194	1.757	14	3	clay
3.609	13.49	0.5929	4.396	1.528	13	3	clay
3.773	14.11	0.4603	3.261	1.608	9	4	silty clay to clay
3.937	19.92	0.5215	2.619	2.059	10	5	clayey silt to silty clay
4.101	27.53	0.7285	2.646	3.394	13	5	clayey silt to silty clay
4.265	29.47	0.8477	2.877	4.432	14	5	clayey silt to silty clay
4.429	31.14	1.2508	4.017	6.229	20	4	silty clay to clay
4.593	33.06	1.2462	3.769	7.381	16	5	clayey silt to silty clay
4.757	34.43	1.0947	3.180	10.610	16	5	clayey silt to silty clay
4.921	36.59	0.9956	2.721	12.986	14	6	sandy silt to clayey silt
5.085	36.77	0.8999	2.448	14.434	14	6	sandy silt to clayey silt
5.249	37.33	0.9587	2.568	17.305	14	6	sandy silt to clayey silt
5.413	36.90	0.9267	2.512	22.041	14	6	sandy silt to clayey silt
5.577	37.31	1.0494	2.813	23.518	14	6	sandy silt to clayey silt
5.741	38.43	0.9160	2.384	24.198	15	6	sandy silt to clayey silt
5.906	31.67	0.6921	2.185	25.516	12	6	sandy silt to clayey silt
6.070	29.13	0.4373	1.501	29.715	11	6	sandy silt to clayey silt
6.234	26.38	0.4235	1.605	33.872	10	6	sandy silt to clayey silt
6.398	28.86	0.8737	3.027	41.293	14	5	clayey silt to silty clay
6.562	30.25	0.9223	3.049	44.581	14	5	clayey silt to silty clay
6.726	33.38	0.8030	2.405	27.867	13	6	sandy silt to clayey silt
6.890	30.79	0.5731	1.861	36.435	12	6	sandy silt to clayey silt
7.054	31.55	0.4446	1.409	47.703	12	6	sandy silt to clayey silt
7.218	29.87	0.3571	1.195	55.844	11	6	sandy silt to clayey silt

Exhibit A12

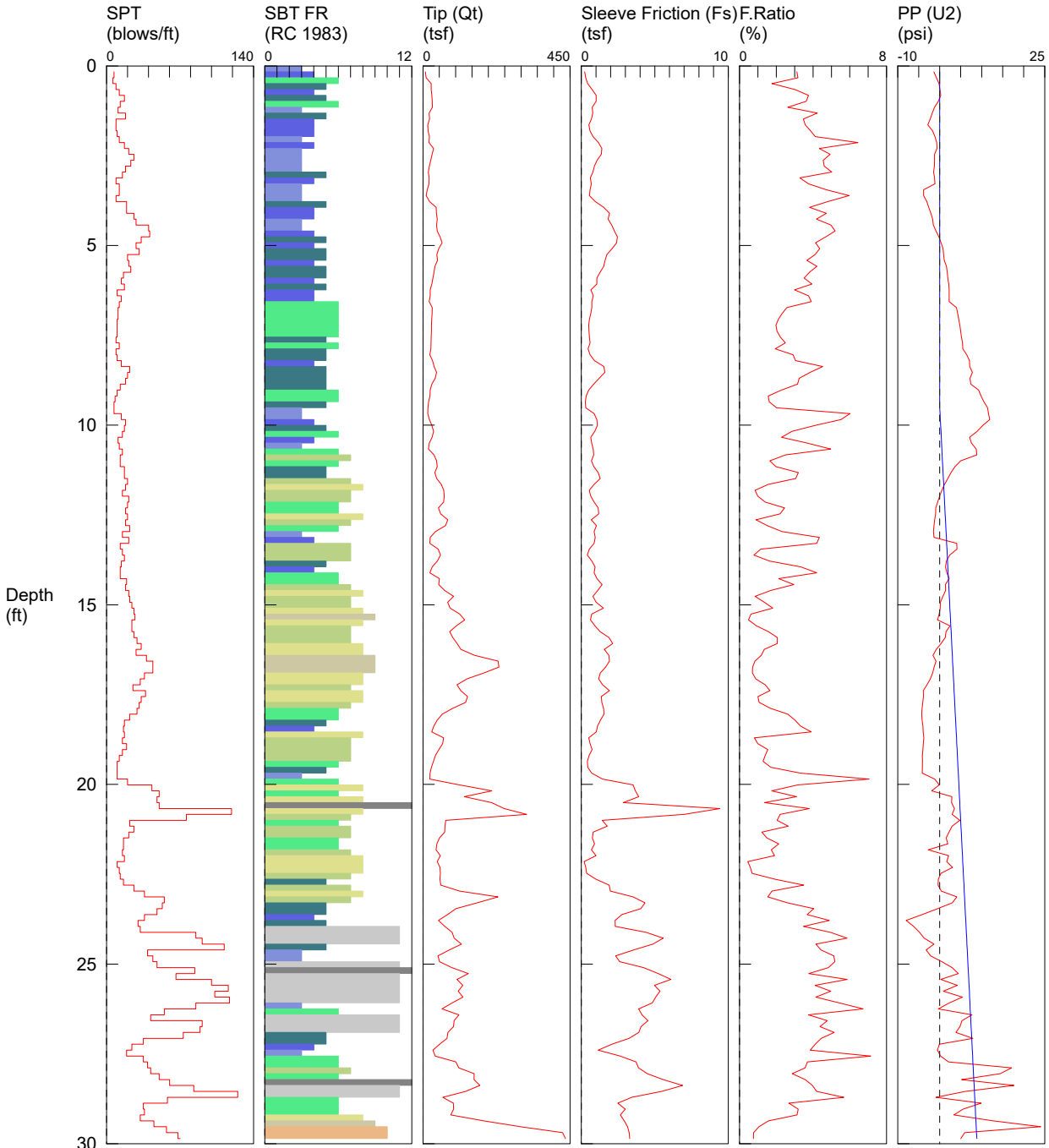
Depth ft	Tip (Qt) (tsf)	Sleeve Friction (Fs) (tsf)	F.Ratio (%)	PP (U2) (psi)	SPT (blows/ft)	Zone	Soil Behavior Type UBC-1983
7.382	25.04	0.2916	1.164	67.707	10	6	sandy silt to clayey silt
7.546	24.84	0.2272	0.915	79.096	10	6	sandy silt to clayey silt
7.710	22.68	0.2631	1.160	87.244	9	6	sandy silt to clayey silt
7.874	24.91	0.4377	1.757	100.785	10	6	sandy silt to clayey silt
8.038	29.89	0.5148	1.722	100.838	11	6	sandy silt to clayey silt
8.202	24.93	0.4295	1.723	97.812	10	6	sandy silt to clayey silt
8.366	22.12	0.2800	1.266	95.215	8	6	sandy silt to clayey silt
8.530	21.26	0.2486	1.169	103.123	8	6	sandy silt to clayey silt
8.694	21.69	0.2787	1.285	108.155	8	6	sandy silt to clayey silt
8.858	22.47	0.2631	1.171	106.763	9	6	sandy silt to clayey silt
9.022	21.26	0.2170	1.021	104.771	8	6	sandy silt to clayey silt
9.186	19.65	0.1904	0.969	111.669	8	6	sandy silt to clayey silt
9.350	19.51	0.1801	0.923	112.805	7	6	sandy silt to clayey silt
9.514	18.08	0.1936	1.070	107.747	7	6	sandy silt to clayey silt
9.678	19.56	0.4118	2.105	110.691	9	5	clayey silt to silty clay
9.843	19.01	0.4433	2.332	94.303	9	5	clayey silt to silty clay
10.007	18.54	0.3127	1.687	43.176	7	6	sandy silt to clayey silt
10.171	16.02	0.2238	1.397	53.735	6	6	sandy silt to clayey silt
10.335	16.89	0.1938	1.147	68.334	6	6	sandy silt to clayey silt
10.499	18.53	0.1740	0.939	75.072	7	6	sandy silt to clayey silt
10.663	17.28	0.1767	1.022	80.229	7	6	sandy silt to clayey silt
10.827	16.93	0.1697	1.003	88.186	6	6	sandy silt to clayey silt
10.991	18.23	0.1683	0.923	92.401	7	6	sandy silt to clayey silt
11.155	17.45	0.1578	0.904	95.700	7	6	sandy silt to clayey silt
11.319	17.29	0.1427	0.825	103.851	7	6	sandy silt to clayey silt
11.483	15.37	0.1398	0.910	93.073	6	6	sandy silt to clayey silt
11.647	14.36	0.1318	0.918	95.268	5	6	sandy silt to clayey silt
11.811	15.35	0.1617	1.053	101.078	6	6	sandy silt to clayey silt
11.975	18.58	0.1802	0.970	94.076	7	6	sandy silt to clayey silt
12.139	18.05	0.1579	0.875	45.429	7	6	sandy silt to clayey silt
12.303	14.63	0.1935	1.323	38.035	6	6	sandy silt to clayey silt
12.467	17.25	0.2548	1.477	44.365	7	6	sandy silt to clayey silt
12.631	17.34	0.1761	1.016	47.071	7	6	sandy silt to clayey silt
12.795	15.29	0.1969	1.287	52.231	6	6	sandy silt to clayey silt
12.959	17.89	0.5987	3.347	61.577	9	5	clayey silt to silty clay
13.123	27.76	0.7937	2.859	48.954	13	5	clayey silt to silty clay
13.287	31.28	0.6358	2.033	11.762	12	6	sandy silt to clayey silt
13.451	27.16	0.4143	1.525	14.650	10	6	sandy silt to clayey silt
13.615	21.01	0.2994	1.425	18.564	8	6	sandy silt to clayey silt
13.780	16.00	0.3182	1.988	24.665	8	5	clayey silt to silty clay
13.944	17.54	0.3632	2.070	27.699	8	5	clayey silt to silty clay
14.108	16.41	0.3312	2.018	29.417	8	5	clayey silt to silty clay
14.272	14.78	0.1543	1.045	27.657	6	6	sandy silt to clayey silt
14.436	12.02	0.1691	1.407	28.654	6	5	clayey silt to silty clay
14.600	16.38	0.3338	2.038	35.197	8	5	clayey silt to silty clay
14.764	23.20	0.6587	2.839	25.113	11	5	clayey silt to silty clay
14.928	29.29	0.8895	3.036	13.263	14	5	clayey silt to silty clay
15.092	32.43	1.0803	3.331	7.597	16	5	clayey silt to silty clay
15.256	33.12	0.9366	2.828	4.624	13	6	sandy silt to clayey silt
15.420	23.21	0.5849	2.520	3.690	11	5	clayey silt to silty clay
15.584	23.96	0.5185	2.164	4.992	9	6	sandy silt to clayey silt
15.748	20.12	0.6256	3.110	5.794	10	5	clayey silt to silty clay
15.912	19.85	0.6509	3.279	6.760	10	5	clayey silt to silty clay

Exhibit A12

Depth ft	Tip (Qt) (tsf)	Sleeve Friction (Fs) (tsf)	F.Ratio (%)	PP (U2) (psi)	SPT (blows/ft)	Zone	Soil Behavior Type UBC-1983
16.076	27.94	0.5686	2.035	7.578	11	6	sandy silt to clayey silt
16.240	22.52	0.9869	4.381	6.984	22	3	clay
16.404	36.85	1.1440	3.104	8.853	18	5	clayey silt to silty clay
16.568	58.25	1.1502	1.975	5.458	19	7	silty sand to sandy silt
16.732	60.09	1.0104	1.682	4.186	19	7	silty sand to sandy silt
16.896	56.43	1.0705	1.897	3.394	18	7	silty sand to sandy silt
17.060	40.07	0.8976	2.240	2.858	15	6	sandy silt to clayey silt
17.224	23.86	0.7285	3.054	2.661	11	5	clayey silt to silty clay
17.388	15.48	0.7960	5.144	4.994	15	3	clay
17.552	40.87	0.7671	1.877	9.122	16	6	sandy silt to clayey silt
17.717	64.74	0.6627	1.024	6.208	21	7	silty sand to sandy silt
17.881	71.37	0.7161	1.003	4.050	17	8	sand to silty sand
18.045	65.96	0.5766	0.874	3.765	16	8	sand to silty sand
18.209	55.57	0.5594	1.007	3.506	18	7	silty sand to sandy silt
18.373	55.83	0.4754	0.852	3.448	18	7	silty sand to sandy silt
18.537	58.37	0.4348	0.745	3.304	14	8	sand to silty sand
18.701	47.53	0.5345	1.125	3.160	15	7	silty sand to sandy silt
18.865	38.70	0.9927	2.565	3.160	15	6	sandy silt to clayey silt
19.029	25.46	1.0567	4.151	3.581	16	4	silty clay to clay
19.193	16.34	0.8515	5.210	6.506	16	3	clay
19.357	45.72	0.7804	1.707	11.557	15	7	silty sand to sandy silt
19.521	63.30	0.4744	0.749	7.354	15	8	sand to silty sand
19.685	75.06	0.7201	0.959	5.570	18	8	sand to silty sand
19.849	82.00	0.3790	0.462	4.008	20	8	sand to silty sand
20.013	74.93	0.4446	0.593	3.613	18	8	sand to silty sand
20.177	61.83	0.5182	0.838	3.805	15	8	sand to silty sand
20.341	50.73	0.6794	1.339	3.565	16	7	silty sand to sandy silt
20.505	31.81	1.0036	3.155	3.504	15	5	clayey silt to silty clay
20.669	20.47	0.6484	3.167	4.173	10	5	clayey silt to silty clay
20.833	16.60	0.2903	1.749	6.826	8	5	clayey silt to silty clay
20.997	12.46	0.3796	3.047	9.887	8	4	silty clay to clay
21.161	16.48	0.4802	2.913	28.515	8	5	clayey silt to silty clay
21.325	18.14	0.2172	1.197	35.368	7	6	sandy silt to clayey silt
21.490	14.43	0.0732	0.507	37.739	6	6	sandy silt to clayey silt
21.654	10.72	0.0621	0.579	45.383	4	6	sandy silt to clayey silt
21.818	12.43	0.0531	0.428	67.345	5	6	sandy silt to clayey silt
21.982	12.98	0.0643	0.495	52.668	5	6	sandy silt to clayey silt
22.146	13.43	0.0591	0.440	66.598	5	6	sandy silt to clayey silt
22.310	12.17	0.0646	0.531	63.606	5	6	sandy silt to clayey silt
22.474	12.51	0.1011	0.808	82.839	5	6	sandy silt to clayey silt
22.638	14.83	1.1198	7.551	94.487	14	3	clay
22.802	121.24	2.1906	1.807	84.183	39	7	silty sand to sandy silt
22.966	251.70	3.4521	1.372	13.871	60	8	sand to silty sand
23.130	110.13	4.4390	4.031	7.109	53	5	clayey silt to silty clay
23.294	113.85	4.6578	4.091	-1.157	109	11	very stiff fine grained (*)
23.458	440.10	4.6812	1.064	-0.768	84	9	sand
23.622	448.01	4.6912	1.047	-1.867	86	9	sand

NV5 / CPT-2 / 15101 SW Oregon St Sherwood

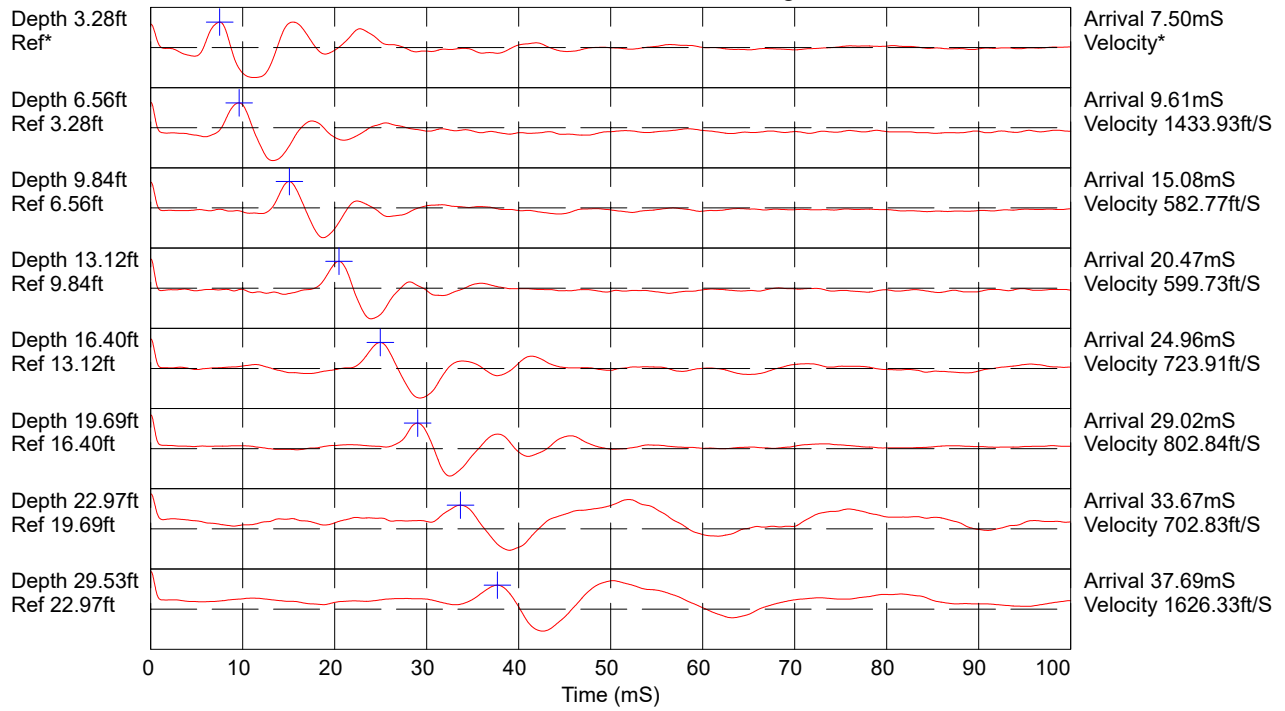
OPERATOR: OGE DMM
 CONE ID: DDG1532
 HOLE NUMBER: CPT-2
 TEST DATE: 4/7/2022 9:24:19 AM
 TOTAL DEPTH: 29.856 ft



- | | | | |
|--------------------------|-----------------------------|----------------------------|--------------------------------|
| 1 sensitive fine grained | 4 silty clay to clay | 7 silty sand to sandy silt | 10 gravelly sand to sand |
| 2 organic material | 5 clayey silt to silty clay | 8 sand to silty sand | 11 very stiff fine grained (*) |
| 3 clay | 6 sandy silt to clayey silt | 9 sand | 12 sand to clayey sand (*) |

*SBT/SPT CORRELATION: UBC-1983

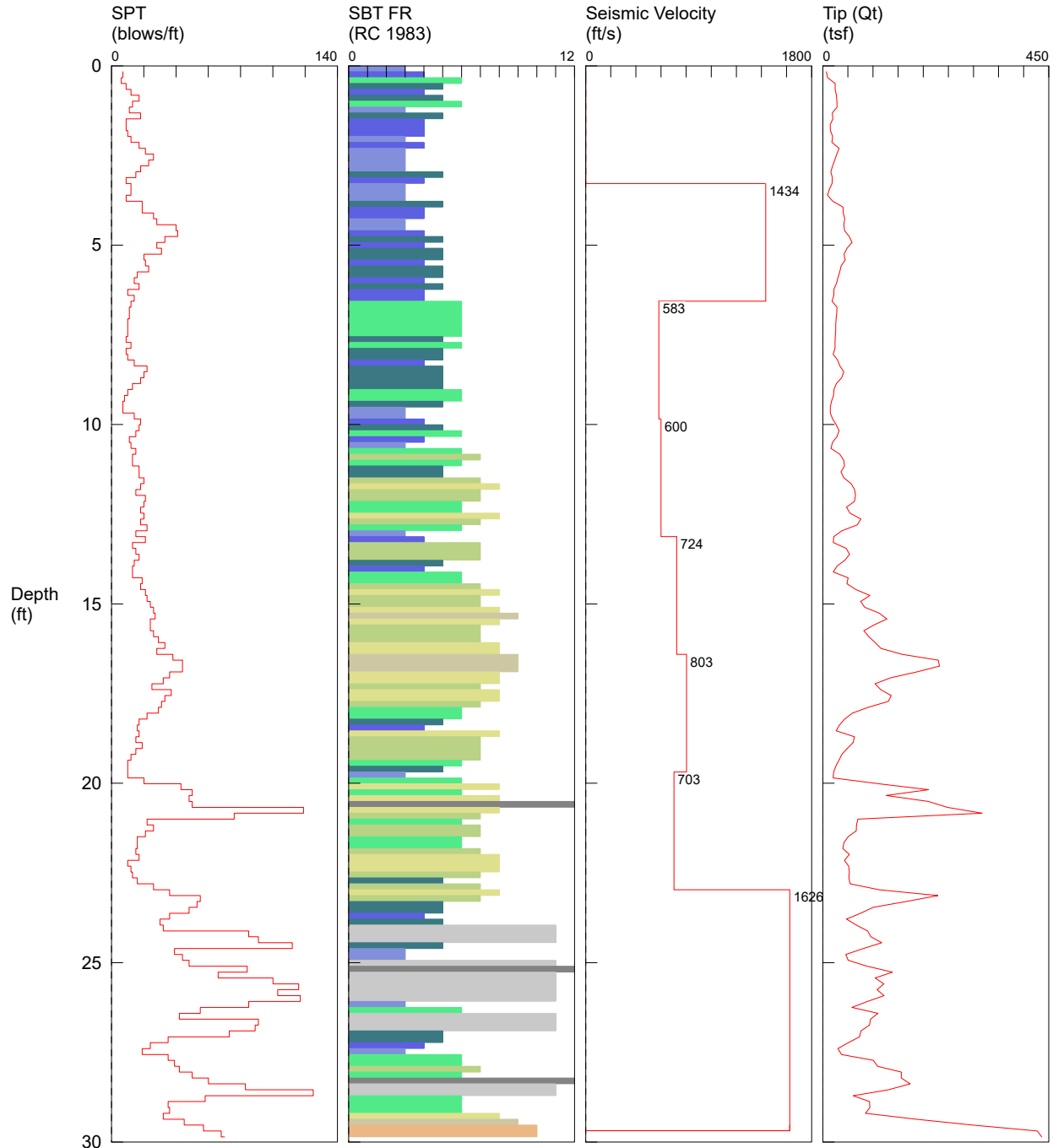
COMMENT: NV5 / CPT-2 / 15101 SW Oregon St Sherwood



Hammer to Rod String Distance (ft): 1.97
 * = Not Determined

NV5 / CPT-2 / 15101 SW Oregon St Sherwood

OPERATOR: OGE DMM
 CONE ID: DDG1532
 HOLE NUMBER: CPT-2
 TEST DATE: 4/7/2022 9:24:19 AM
 TOTAL DEPTH: 29.856 ft

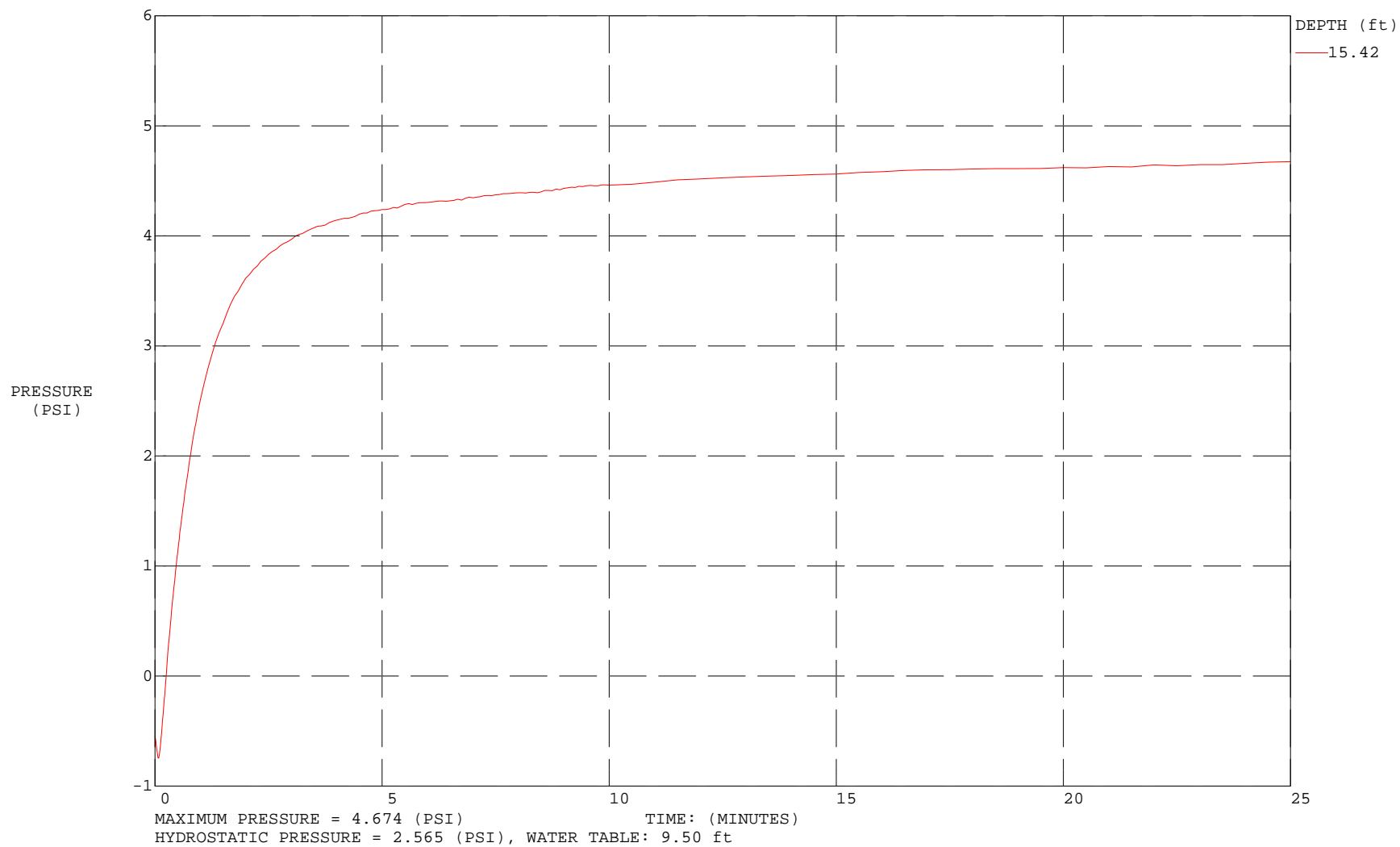


- | | | | |
|--------------------------|-----------------------------|----------------------------|--------------------------------|
| 1 sensitive fine grained | 4 silty clay to clay | 7 silty sand to sandy silt | 10 gravelly sand to sand |
| 2 organic material | 5 clayey silt to silty clay | 8 sand to silty sand | 11 very stiff fine grained (*) |
| 3 clay | 6 sandy silt to clayey silt | 9 sand | 12 sand to clayey sand (*) |

*SBT/SPT CORRELATION: UBC-1983

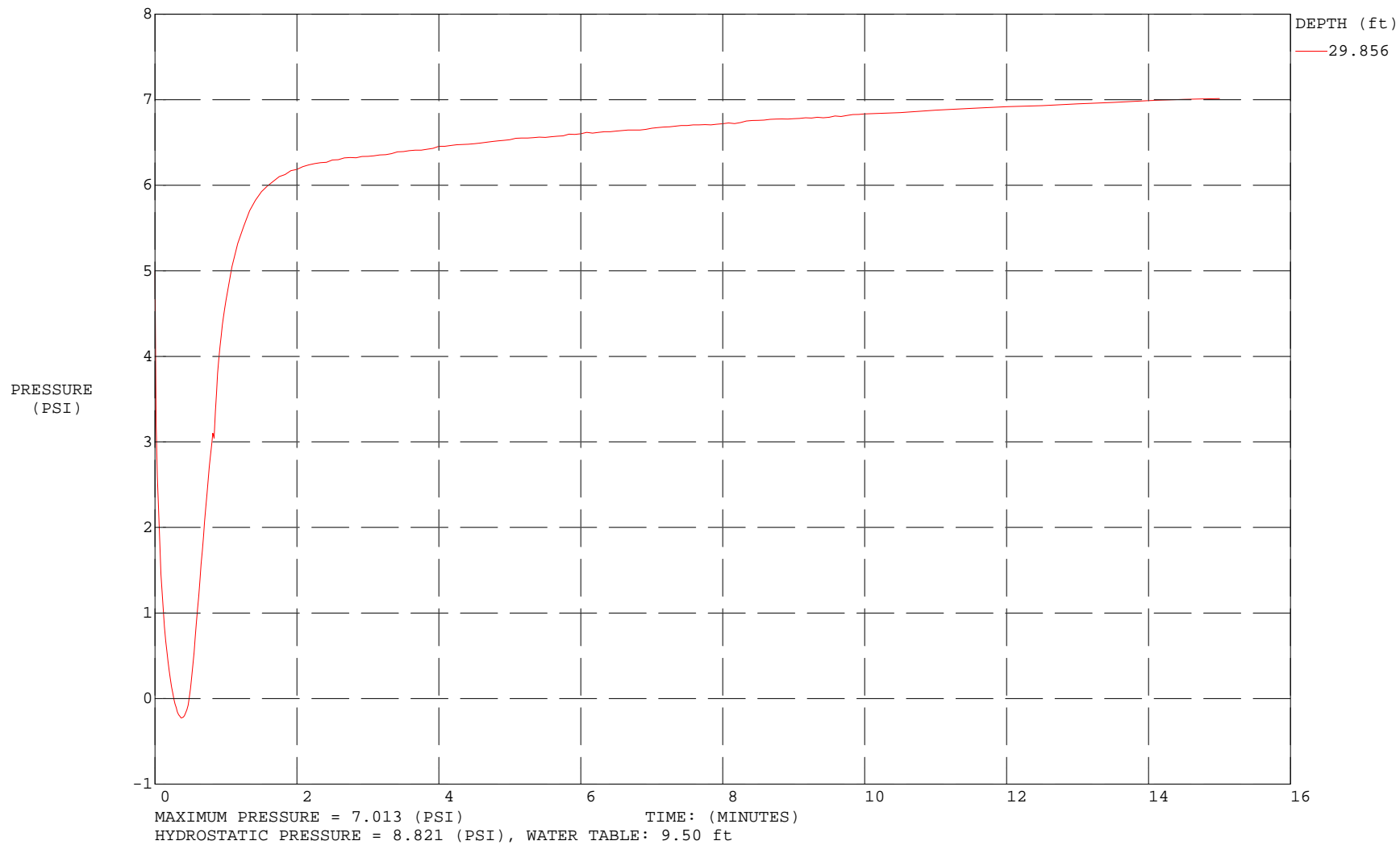
COMMENT: NV5 / CPT-2 / 15101 SW Oregon St Sherwood

TEST DATE: 4/7/2022 9:24:19 AM



COMMENT: NV5 / CPT-2 / 15101 SW Oregon St Sherwood

TEST DATE: 4/7/2022 9:24:19 AM



NV5 / CPT-2 / 15101 SW Oregon St Sherwood

OPERATOR: OGE DMM
 CONE ID: DDG1532
 HOLE NUMBER: CPT-2
 TEST DATE: 4/7/2022 9:24:19 AM
 TOTAL DEPTH: 29.856 ft

Depth ft	Tip (Qt) (tsf)	Sleeve Friction (Fs) (tsf)	F.Ratio (%)	PP (U2) (psi)	SPT (blows/ft)	Zone	Soil Behavior Type UBC-1983
0.164	7.02	0.2186	3.115	-1.408	7	3	clay
0.328	9.40	0.2990	3.181	-0.787	6	4	silty clay to clay
0.492	24.47	0.4304	1.759	-0.216	9	6	sandy silt to clayey silt
0.656	24.49	0.7392	3.018	0.043	12	5	clayey silt to silty clay
0.820	26.98	1.0106	3.745	0.221	17	4	silty clay to clay
0.984	27.92	1.0125	3.626	-0.349	13	5	clayey silt to silty clay
1.148	28.26	0.7422	2.627	-1.237	11	6	sandy silt to clayey silt
1.312	18.54	0.7831	4.224	-1.776	18	3	clay
1.476	19.84	0.6886	3.471	-2.288	9	5	clayey silt to silty clay
1.640	14.45	0.5174	3.580	-2.864	9	4	silty clay to clay
1.804	15.14	0.5840	3.858	-1.739	10	4	silty clay to clay
1.969	19.31	0.7962	4.124	-1.136	12	4	silty clay to clay
2.133	18.05	1.1631	6.445	-0.747	17	3	clay
2.297	32.12	1.3932	4.338	-0.693	21	4	silty clay to clay
2.461	27.57	1.3576	4.924	-1.259	26	3	clay
2.625	23.56	1.0723	4.551	-1.253	23	3	clay
2.789	19.26	0.8875	4.608	-1.283	18	3	clay
2.953	15.77	0.7916	5.019	-1.453	15	3	clay
3.117	18.67	0.6130	3.283	-1.243	9	5	clayey silt to silty clay
3.281	18.09	0.6778	3.747	-1.136	12	4	silty clay to clay
3.445	12.62	0.5963	4.724	-3.864	12	3	clay
3.609	9.25	0.5511	5.956	-3.850	9	3	clay
3.773	19.59	0.9429	4.812	-3.104	19	3	clay
3.937	39.98	1.5241	3.812	-2.640	19	5	clayey silt to silty clay
4.101	40.55	1.9165	4.726	-2.125	26	4	silty clay to clay
4.265	43.48	1.8192	4.184	-1.717	28	4	silty clay to clay
4.429	41.43	2.0619	4.977	-1.539	40	3	clay
4.593	43.21	2.2489	5.204	-0.899	41	3	clay
4.757	52.23	2.4521	4.695	-0.243	33	4	silty clay to clay
4.921	58.16	2.4040	4.134	0.288	28	5	clayey silt to silty clay
5.085	48.11	2.0972	4.360	0.776	31	4	silty clay to clay
5.249	42.11	1.7313	4.111	0.893	20	5	clayey silt to silty clay
5.413	44.19	1.6193	3.665	1.048	21	5	clayey silt to silty clay
5.577	36.21	1.5228	4.206	1.573	23	4	silty clay to clay
5.741	33.53	1.2750	3.803	1.773	16	5	clayey silt to silty clay
5.906	30.04	1.0568	3.518	1.928	14	5	clayey silt to silty clay
6.070	26.72	1.0519	3.937	2.139	17	4	silty clay to clay
6.234	21.81	0.6530	2.994	2.203	10	5	clayey silt to silty clay
6.398	21.66	0.8137	3.756	2.200	14	4	silty clay to clay
6.562	18.20	0.7113	3.908	2.224	12	4	silty clay to clay
6.726	27.90	0.7168	2.569	3.960	11	6	sandy silt to clayey silt
6.890	27.51	0.6384	2.321	4.240	11	6	sandy silt to clayey silt
7.054	26.26	0.5549	2.113	4.533	10	6	sandy silt to clayey silt
7.218	25.66	0.5075	1.978	4.760	10	6	sandy silt to clayey silt

Exhibit A12

Depth ft	Tip (Qt) (tsf)	Sleeve Friction (Fs) (tsf)	F.Ratio (%)	PP (U2) (psi)	SPT (blows/ft)	Zone	Soil Behavior Type UBC-1983
7.382	25.60	0.5221	2.040	4.986	10	6	sandy silt to clayey silt
7.546	24.68	0.5487	2.224	5.176	9	6	sandy silt to clayey silt
7.710	24.12	0.6014	2.493	5.410	12	5	clayey silt to silty clay
7.874	23.93	0.4636	1.937	5.482	9	6	sandy silt to clayey silt
8.038	20.40	0.5950	2.917	6.408	10	5	clayey silt to silty clay
8.202	29.13	0.8869	3.045	7.071	14	5	clayey silt to silty clay
8.366	33.90	1.5342	4.526	7.130	22	4	silty clay to clay
8.530	41.48	1.5935	3.841	7.765	20	5	clayey silt to silty clay
8.694	37.28	1.2101	3.246	7.181	18	5	clayey silt to silty clay
8.858	26.77	0.8450	3.156	7.389	13	5	clayey silt to silty clay
9.022	21.90	0.4993	2.280	9.245	10	5	clayey silt to silty clay
9.186	21.11	0.3291	1.559	9.826	8	6	sandy silt to clayey silt
9.350	17.03	0.2758	1.620	10.506	7	6	sandy silt to clayey silt
9.514	14.83	0.2988	2.015	11.357	7	5	clayey silt to silty clay
9.678	14.52	0.8729	6.011	11.615	14	3	clay
9.843	19.24	1.0604	5.513	11.900	18	3	clay
10.007	26.41	1.0879	4.120	10.234	17	4	silty clay to clay
10.171	32.17	0.9187	2.856	8.895	15	5	clayey silt to silty clay
10.335	27.72	0.6344	2.289	7.095	11	6	sandy silt to clayey silt
10.499	19.14	0.7063	3.689	7.535	12	4	silty clay to clay
10.663	16.15	0.8016	4.963	8.682	15	3	clay
10.827	33.48	0.8405	2.510	8.805	13	6	sandy silt to clayey silt
10.991	41.37	0.6810	1.646	4.941	13	7	silty sand to sandy silt
11.155	43.15	0.8515	1.973	3.613	17	6	sandy silt to clayey silt
11.319	35.78	1.1446	3.199	2.658	17	5	clayey silt to silty clay
11.483	41.78	1.2771	3.057	1.931	20	5	clayey silt to silty clay
11.647	56.04	0.8771	1.565	1.141	18	7	silty sand to sandy silt
11.811	63.31	0.5366	0.848	0.496	15	8	sand to silty sand
11.975	64.82	0.6446	0.995	-0.008	21	7	silty sand to sandy silt
12.139	62.84	0.8772	1.396	-0.520	20	7	silty sand to sandy silt
12.303	46.77	1.1463	2.451	-0.947	18	6	sandy silt to clayey silt
12.467	53.51	1.1823	2.209	-1.021	20	6	sandy silt to clayey silt
12.631	75.67	0.6783	0.896	-1.229	18	8	sand to silty sand
12.795	68.74	1.0314	1.500	-1.381	22	7	silty sand to sandy silt
12.959	38.02	0.8769	2.306	-1.531	15	6	sandy silt to clayey silt
13.123	21.71	0.9411	4.334	-1.376	21	3	clay
13.287	20.61	0.8664	4.205	4.042	13	4	silty clay to clay
13.451	46.29	0.5331	1.152	4.080	15	7	silty sand to sandy silt
13.615	53.12	0.4126	0.777	2.360	17	7	silty sand to sandy silt
13.780	43.76	0.7130	1.629	1.565	14	7	silty sand to sandy silt
13.944	28.11	0.9361	3.331	1.344	13	5	clayey silt to silty clay
14.108	20.65	0.8671	4.199	1.683	13	4	silty clay to clay
14.272	50.18	1.0679	2.128	2.200	19	6	sandy silt to clayey silt
14.436	47.83	1.4128	2.954	1.339	18	6	sandy silt to clayey silt
14.600	65.59	1.1183	1.705	1.384	21	7	silty sand to sandy silt
14.764	93.56	0.7876	0.842	0.747	22	8	sand to silty sand
14.928	75.12	1.0138	1.350	0.144	24	7	silty sand to sandy silt
15.092	82.97	1.5017	1.810	0.099	26	7	silty sand to sandy silt
15.256	112.10	0.7035	0.628	-0.160	27	8	sand to silty sand
15.420	127.32	0.6178	0.485	-0.552	24	9	sand
15.584	101.76	0.9307	0.915	2.432	24	8	sand to silty sand
15.748	81.37	1.2755	1.568	1.483	26	7	silty sand to sandy silt
15.912	91.21	1.8760	2.057	1.304	29	7	silty sand to sandy silt

Exhibit A12

Depth ft	Tip (Qt) (tsf)	Sleeve Friction (Fs) (tsf)	F.Ratio (%)	PP (U2) (psi)	SPT (blows/ft)	Zone	Soil Behavior Type UBC-1983
16.076	104.14	2.1320	2.047	0.293	33	7	silty sand to sandy silt
16.240	115.58	1.5547	1.345	-0.829	28	8	sand to silty sand
16.404	157.82	1.8715	1.186	-1.632	38	8	sand to silty sand
16.568	229.62	1.9114	0.832	-0.912	44	9	sand
16.732	232.17	1.6471	0.709	-1.363	44	9	sand
16.896	186.81	1.2960	0.694	-1.701	36	9	sand
17.060	134.29	1.1761	0.876	-2.243	32	8	sand to silty sand
17.224	103.79	1.4456	1.393	-3.061	25	8	sand to silty sand
17.388	115.19	1.9070	1.655	-3.938	37	7	silty sand to sandy silt
17.552	136.07	1.3598	0.999	-3.912	33	8	sand to silty sand
17.717	130.47	1.3934	1.068	-4.061	31	8	sand to silty sand
17.881	90.38	1.5207	1.683	-4.221	29	7	silty sand to sandy silt
18.045	58.71	1.5406	2.624	-4.304	22	6	sandy silt to clayey silt
18.209	43.36	1.3053	3.010	-4.240	17	6	sandy silt to clayey silt
18.373	33.02	1.0966	3.321	-4.021	16	5	clayey silt to silty clay
18.537	26.21	1.0228	3.902	-3.957	17	4	silty clay to clay
18.701	62.79	0.5055	0.805	-3.797	15	8	sand to silty sand
18.865	60.02	0.5951	0.991	-3.928	19	7	silty sand to sandy silt
19.029	48.22	0.7383	1.531	-4.005	15	7	silty sand to sandy silt
19.193	37.88	0.5292	1.397	-4.149	12	7	silty sand to sandy silt
19.357	31.80	0.4059	1.276	-4.114	10	7	silty sand to sandy silt
19.521	25.69	0.4387	1.708	-4.141	10	6	sandy silt to clayey silt
19.685	21.40	0.7090	3.313	-4.165	10	5	clayey silt to silty clay
19.849	20.51	1.4450	7.047	-1.211	20	3	clay
20.013	111.07	3.5232	3.172	-0.125	43	6	sandy silt to clayey silt
20.177	210.44	3.6772	1.747	-1.925	50	8	sand to silty sand
20.341	126.12	3.9120	3.102	2.845	48	6	sandy silt to clayey silt
20.505	209.71	2.8504	1.359	2.800	50	8	sand to silty sand
20.669	248.10	9.4293	3.801	3.466	119	12	sand to clayey sand (*)
20.833	316.97	6.9883	2.205	2.933	76	8	sand to silty sand
20.997	69.54	1.4198	2.042	4.749	22	7	silty sand to sandy silt
21.161	66.79	1.7676	2.647	2.946	26	6	sandy silt to clayey silt
21.325	66.37	0.8059	1.214	2.187	21	7	silty sand to sandy silt
21.490	50.27	0.7478	1.487	1.523	16	7	silty sand to sandy silt
21.654	41.93	0.8941	2.132	1.925	16	6	sandy silt to clayey silt
21.818	39.72	0.6882	1.732	-2.760	15	6	sandy silt to clayey silt
21.982	52.64	0.9995	1.899	2.117	17	7	silty sand to sandy silt
22.146	43.15	0.1937	0.449	1.661	10	8	sand to silty sand
22.310	51.41	0.3023	0.588	3.016	12	8	sand to silty sand
22.474	52.66	0.3571	0.678	0.259	13	8	sand to silty sand
22.638	51.52	0.9899	1.921	-0.363	16	7	silty sand to sandy silt
22.802	54.32	1.8934	3.485	-0.419	26	5	clayey silt to silty clay
22.966	111.83	1.9792	1.770	0.363	36	7	silty sand to sandy silt
23.130	229.22	3.5226	1.537	4.069	55	8	sand to silty sand
23.294	165.80	4.3327	2.613	2.957	53	7	silty sand to sandy silt
23.458	100.34	4.0523	4.039	-0.488	48	5	clayey silt to silty clay
23.622	74.96	2.7570	3.678	-4.226	36	5	clayey silt to silty clay
23.786	47.00	2.2956	4.884	-8.010	30	4	silty clay to clay
23.950	66.48	2.3112	3.477	-6.248	32	5	clayey silt to silty clay
24.114	88.95	4.4007	4.947	-4.810	85	11	very stiff fine grained (*)
24.278	95.28	5.5750	5.851	-3.754	91	11	very stiff fine grained (*)
24.442	117.37	4.8780	4.156	-1.387	112	11	very stiff fine grained (*)
24.606	80.60	3.5677	4.427	-3.264	39	5	clayey silt to silty clay

Exhibit A12

Depth ft	Tip (Qt) (tsf)	Sleeve Friction (Fs) (tsf)	F.Ratio (%)	PP (U2) (psi)	SPT (blows/ft)	Zone	Soil Behavior Type UBC-1983
24.770	45.52	2.3349	5.130	-2.189	44	3	clay
24.934	50.27	2.6088	5.189	0.483	48	3	clay
25.098	87.85	4.2446	4.831	2.944	84	11	very stiff fine grained (*)
25.262	138.75	5.2306	3.770	4.426	66	12	sand to clayey sand (*)
25.427	104.04	6.0974	5.861	0.224	100	11	very stiff fine grained (*)
25.591	121.36	4.9787	4.102	4.157	116	11	very stiff fine grained (*)
25.755	107.83	5.3562	4.967	0.843	103	11	very stiff fine grained (*)
25.919	121.75	5.0507	4.149	5.373	117	11	very stiff fine grained (*)
26.083	88.79	4.8257	5.435	2.267	85	11	very stiff fine grained (*)
26.247	57.93	3.8955	6.724	-0.349	55	3	clay
26.411	109.75	4.1233	3.757	7.669	42	6	sandy silt to clayey silt
26.575	94.95	4.5314	4.772	5.277	91	11	very stiff fine grained (*)
26.739	92.82	4.0611	4.375	4.792	89	11	very stiff fine grained (*)
26.903	75.87	3.9122	5.156	3.848	73	11	very stiff fine grained (*)
27.067	72.99	3.2437	4.444	7.877	35	5	clayey silt to silty clay
27.231	50.72	2.0875	4.116	-0.088	24	5	clayey silt to silty clay
27.395	29.93	1.1517	3.848	-0.573	19	4	silty clay to clay
27.559	36.99	2.6420	7.143	0.187	35	3	clay
27.723	100.55	3.7161	3.696	2.051	39	6	sandy silt to clayey silt
27.887	108.98	3.8867	3.567	17.100	42	6	sandy silt to clayey silt
28.051	156.45	4.4852	2.867	14.375	50	7	silty sand to sandy silt
28.215	155.98	5.5756	3.574	5.194	60	6	sandy silt to clayey silt
28.379	173.80	6.8833	3.961	17.652	83	12	sand to clayey sand (*)
28.543	130.35	5.4727	4.199	6.090	125	11	very stiff fine grained (*)
28.707	60.24	3.4180	5.674	-0.915	58	11	very stiff fine grained (*)
28.871	92.54	2.4856	2.686	9.855	35	6	sandy silt to clayey silt
29.035	93.63	2.9870	3.190	5.541	36	6	sandy silt to clayey silt
29.199	84.71	2.6513	3.130	3.357	32	6	sandy silt to clayey silt
29.364	186.07	2.9204	1.569	12.772	45	8	sand to silty sand
29.528	297.73	3.1425	1.056	24.044	57	9	sand
29.692	427.07	3.2508	0.761	5.946	68	10	gravelly sand to sand
29.856	435.87	3.2908	0.755	4.997	70	10	gravelly sand to sand

SENSITIVE AREA CERTIFICATION FORM

Clean Water Services File Number

1. Property Information (example 1S234AB01400)

Tax lot ID(s): 2S129DC00500
2S129DC00600
2S129DC00700
 Site Address: 14843 SW OREGON St
 City, State, Zip: Sherwood, OR 97140
 Nearest cross street: SW Lower Roy St

2. Owner Information

Name: Brooks Bayne
 Company: JBMac Ventures
 Address: 14843 SW Oregon St.
 City, State, Zip: Sherwood, OR, 97140
 Phone/Fax: 971-235-9608 / 503-692-8834
 E-Mail: Brooks@afpsys.com

3. Development Activity (check **all** that apply)

- Addition to single family residence (rooms, deck, garage)
- Lot line adjustment Minor land partition
- Residential condominium Commercial condominium
- Residential subdivision Commercial subdivision
- Single lot commercial Multi lot commercial

Other _____

4. Applicant Information

Name: Stacey Reed
 Company: AKS Engineering & Forestry
 Address: 12965 SW Herman Rd. Suite 100
 City, State, Zip: Tualatin, OR 97062
 Phone/Fax: 503-563-6151 ext 211
 E-Mail: staceyr@aks-eng.com

5. Check any of the following that apply to this project

- Adds less than 500 square feet of impervious surface.
- Does not encroach closer to the Sensitive Area than existing development on the property.
- Is not located on a slope greater than 25%.

6. Applicant Information

Name: _____
 Company: _____
 Address: _____
 City, State, Zip: _____
 Phone/Fax: _____
 E-Mail: _____

7. Will the project involve any off-site work? Yes No Unknown (check appropriate box)

If yes, location and description of off-site work:

8. Additional comments or information that may be needed to understand your project:

9. An on-site, water quality sensitive area reconnaissance was completed on:

Date 04/28/2022 By Lex Francis
 Title Natural Resource Specialist Company AKS Engineering & Forestry

SENSITIVE AREA CERTIFICATION FORM

Clean Water Services File Number

10. Existence of Water Quality Sensitive Areas (check all appropriate boxes)

As defined in the District's Design and Construction Standards:

- A. Water Quality Sensitive Areas do do not exist on the tax lot.
- B. Water Quality Sensitive Areas do do not exist within 200' on adjacent properties, or unable to evaluate adjacent property.
- C. Vegetated corridors do (_____SF) do not exist on the tax lot.
- D. Vegetated corridors do do not exist within 200' on adjacent properties, or unable to evaluate adjacent property.
- E. Impacts to sensitive areas and/or vegetated corridors will occur On-site Off-site None proposed at this time.
- F. If impacts, mitigation is On-site Off-site Other_____

11. Simplified Site Assessment containing the following information: (check only items submitted)

Please refer to Design and Construction Standards 19-5 section 3.02.2, as amended by Resolution and Order 19-22, for application requirements.

- Complete Certification Form (2 pages)
- Written description of the site and proposed activity.
- Site plan of the entire property.
- Photographs of the site labeled and keyed to the site plan.

12. Standard Site Assessment containing the following information: (check only items submitted)

Please refer to Design and Construction Standards 19-5 section 3.02.2, as amended by Resolution and Order 19-22, for application requirements.

- Complete Certification Form (2 pages)
- Written description per Design and Construction Standards 19-5 section 3.13.3 b. 1, as amended by Resolution and Order 19-22
- Wetland Data sheets
- Vegetated Corridor Data sheets
- Existing Site Condition Figures
- Proposed Development Figures

By signing this form the Owner, or Owner's authorized agent or representative, acknowledges and agrees that employees of Clean Water Services have authority to enter the project site at all reasonable times for the purpose of inspecting project site conditions and gathering information related to the project site.

I certify that I am familiar with the information contained in this document, and to the best of my knowledge and belief, this information is true, complete, and accurate.

Applicant:

Print/Type Name Lex Francis Print/Type Title Natural Resource Specialist

Signature  Date 05/06/2022

JBMac Ventures Sherwood Simplified Site Assessment Report

Date: May 2022

Prepared for: AFP Systems, Inc.
19435 SW 129th Avenue
Tualatin OR 97062

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

Site Information: 14843 SW Oregon Street
Sherwood, Oregon
Washington County Assessor's Map 2S 1 29DC
Tax Lots 500, 600, and 700

AKS Job Number: 8627-03



12965 SW Herman Road, Suite 100
Tualatin, OR 97062
(503) 563-6151

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- Figure 2:** Tax Map 2S 1 29DC
- Figure 3:** NRCS Soil Survey Map
- Figure 4:** City of Sherwood Local Wetlands Inventory (LWI) Map
- Figures 5- 5A:** Natural Resources Existing Conditions Map
- Figure 6:** Site Plan

Appendices

- Appendix A:** DSL File Number WD2002-0062
 - Appendix B:** DSL Removal Fill Permit Number 25059-FP
 - Appendix C:** Wetland Determination Data Sheets (Plots 1 through 4)
 - Appendix D:** Representative Site Photographs
-

Introduction

AKS Engineering & Forestry, LLC (AKS) was contracted by AFP Systems (Applicant), to conduct a site assessment for a commercial development project (referred to as JBMac Ventures). The study area is located at 14843 SW Oregon Street, in Sherwood, Washington County, Oregon (Figure 1). The study area includes Tax lots 500, 600, and 700 of Washington County Assessor's Maps 2S 1 29DC (Figure 2) and is approximately 6.06 acres in size.

A previous wetland delineation was conducted and concurred by the Oregon Department of State Lands (DSL) in 2002, per DSL File number WD2002-0062 (Appendix A). The 2002 delineation was conducted after cleanup of the former Oregon Street Tannery, which left excavation pits. The delineation documented two isolated Palustrine Emergent (PEM) jurisdictional wetlands on the site. A DSL removal fill permit was obtained in 2002 to fill the isolated wetlands under DSL File # 25059-FP (Appendix B).

AKS Natural Resource Specialists Lex Francis and Emma Eichhorn conducted a site visit on April 28, 2022, to confirm wetland conditions no longer persist on the site. Wetlands associated with Rock Creek located off-site to the east were observed to be greater than 200 feet from the study area. No vegetated corridor extends onto the study area.

This report has been prepared to meet CWS' simplified site assessment requirements listed under Chapter 3 of Clean Water Services' *Design and Construction Standards* (R&O 19-22).

Existing Conditions and Background

The site has been undeveloped for over a decade. Historically, the site was known as the Oregon Street Tannery and was used to industrially process and dye animal hides. The tannery ceased operation sometime in 2002.

Vegetation at the time of the April 2022 site visit was generally dominated by a non-native and invasive plant community. Dominant vegetation species included Himalayan blackberry (*Rubus armeniacus*-invasive), orchard grass (*Dactylis glomerata*), tall false ryegrass (*Schedonorus arundinaceus*), English plantain (*Plantago lanceolata*), Fuller's teasel (*Dipsacus fullonum*-invasive), colonial bentgrass (*Agrostis capillaris*), Canadian and bull thistle (*Cirsium arvense* and *C. vulgare*-invasive), common velvetgrass (*Holcus lanatus*), and ox-eye daisy (*Leucanthemum vulgare*). Black cottonwood (*Populus balsamifera*) trees were present in the northeast corner of the site.

Topography on the site is generally flat, with less than 3 percent overall slope. Rock Creek, a perennial tributary to the Tualatin River, is located greater than 200 feet off site to the east. The surrounding land uses adjacent to the study area are residential and light industrial. Railroad tracks border the site to the north. There was not a railroad ditch parallel to the project site.

According to the City of Sherwood Local Wetlands Inventory (LWI) map (Figure 4), no wetland or water features are mapped on the site.

The following soil units are mapped within the study area, according to the Natural Resources Conservation Service (NRCS) Washington County Area Soil Survey Map and Washington County hydric soil list (Figure 3):

- (Unit 37A) Quatama loam, 0 to 3 percent slopes; Non-hydric

- (Unit 1) Aloha silt loam; Non-hydric

Water Quality Sensitive Areas

Site Visit Methodology

AKS Natural Resource Specialists Lex Francis and Emma Eichhorn conducted a site visit on April 28, 2022 to document existing site conditions.

The methodology used to determine the presence of wetlands followed the USACE *Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (Wakeley et al., 2010). The *National Wetland Plant List: 2020 Wetland Ratings* (Lichvar et al., 2018) was used to assign wetland indicator status for the appropriate region.

Soils, vegetation, and indicators of hydrology were recorded at four sample plot locations on standardized wetland determination data sheets to document site conditions. The wetland determination data sheets are included in Appendix C. The plot locations were mapped using a handheld Trimble GPS unit with submeter accuracy. Representative site photos are included in Appendix D and photo and plot locations are shown on the Existing Conditions Map (Figures 5 and 5A).

Precipitation Prior to Site Visits

The National Weather Service (NWS) Aurora State Airport weather station is the closest source of precipitation data the closest National Oceanic and Atmospheric Administration (NOAA) Climate Analysis for Wetlands Tables (WETS) station. According to the Aurora State Airport station, 0.04 inches of precipitation were received on the day of the April 28, 2022, site visit and 1.45 inches were received within the two weeks prior.

As depicted in Table 1, the climatic conditions at the time of the April 28, 2022, site visit were considered normal.

Table 1: Monthly Precipitation Prior to April 28, 2022, Site Visit and Average Precipitation (1971-2021)

Prior Months	Observed Precipitation (Inches)	Average WETS Precipitation (Inches)	30% Chance Will Have		Condition Dry, Wet, Normal	Condition Value (1=dry, 2=normal, 3=wet)	Month Weight	Multiply Previous Two Columns
			Less Than	More Than				
Apr. 2022	4.32	2.95	2.05	3.51	Wet	3	3	9
Mar. 2022	3.00	4.28	3.06	5.06	Dry	1	2	2
Feb. 2022	2.21	3.76	2.39	4.54	Dry	1	1	1
Sum								12
								Normal
Rainfall of prior period was: drier than normal (sum is 6-9), normal (sum is 10-14), wetter than normal (sum is 15-18)								

Summary of Site Assessment Results

Plots 1 through 4 were taken in wetland areas identified in WD2002-0062 and within areas of low topography.

Plot 1 was located in the northeast corner of the study area in the vicinity of wetland delineated under WD2002-0062. Vegetation was dominated by Himalayan blackberry, black hawthorn, bentgrass, tall false rye grass, and reed canary grass. Soils lacked hydric soil indicators. Soils were dry throughout, lacking a

water table or saturation, or any indicators of wetland hydrology during our April 2022 site visit, which was conducted during the early portion of the growing season, within a normal rainfall period.

Plot 3 was taken within the lowest topographic location in the vicinity of a former wetland identified during the 2002 Wetland Delineation (WD2002-0062). Vegetation was dominated by bentgrass, bluegrass (*Poa* spp.), field meadow foxtail (*Alopecurus pratensis*), and lesser amounts of common weedy forbs. Plot 3 lacked hydric soil and wetland hydrology indicators.

Plot 4 was taken in an area of low topography adjacent to SW Oregon Street at the southern end of the study area. Vegetation was dominated by field meadow foxtail, tall false rye grass, and common weedy forbs. Soils were dry throughout, lacking indicators of wetland hydrology.

It was determined that all plots met upland parameters. During this study, no water quality sensitive areas were observed on site, nor were any observed off site within 200 feet of the study area. No vegetated corridor (VC) extends onto the site. The attached Natural Resources Existing Conditions Map (Figures 5 and 5A) shows Plots 1 through 4 and photo point locations. The site plan is also attached as Figure 6.

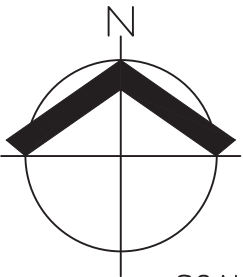
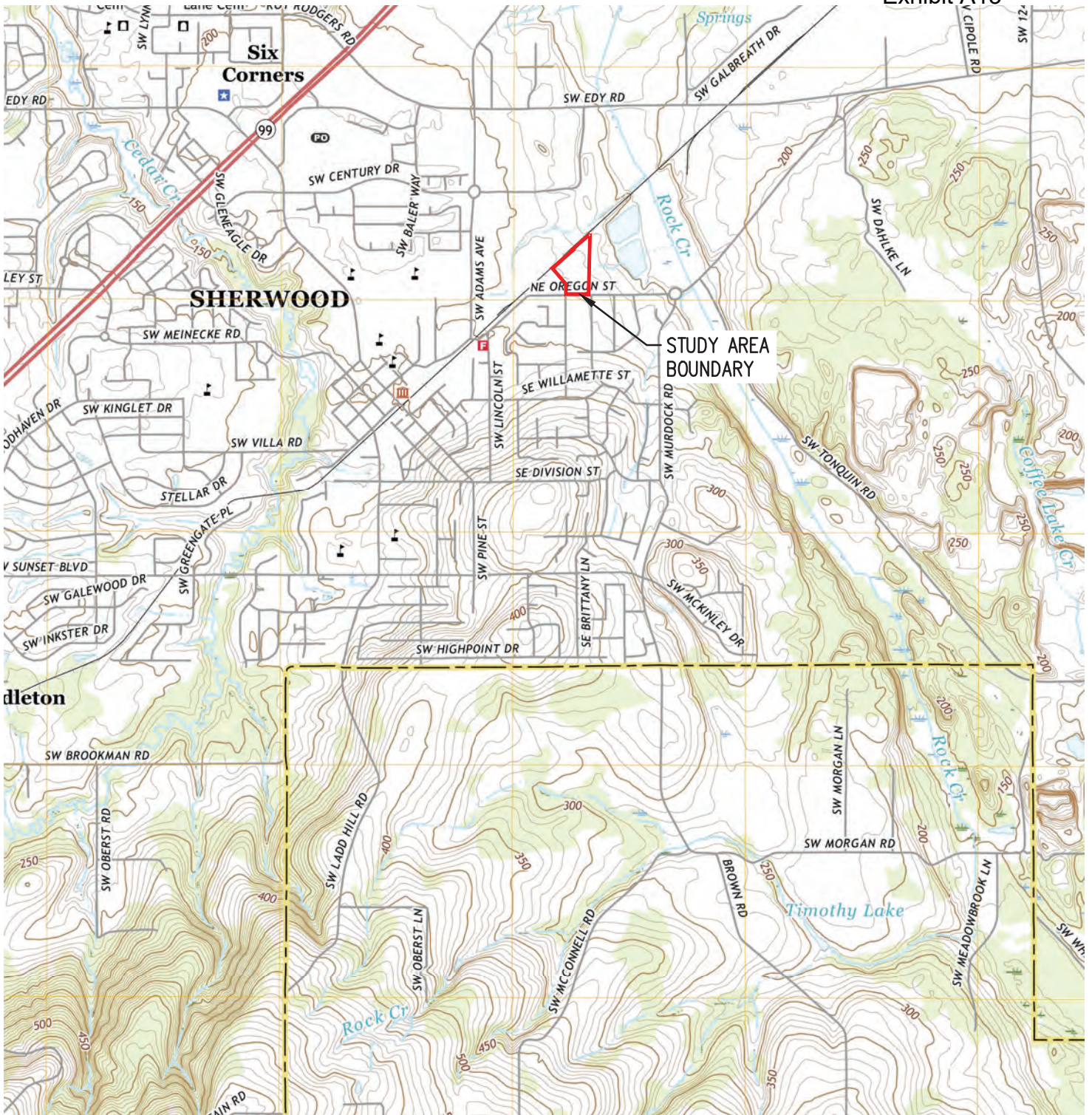
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SCALE: 1" = 2000 FEET



USGS 7.5' TOPOGRAPHIC SERIES
QUADRANGLE: SHERWOOD, OR (2020)

DATE: 04/29/2022

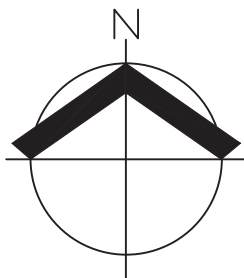
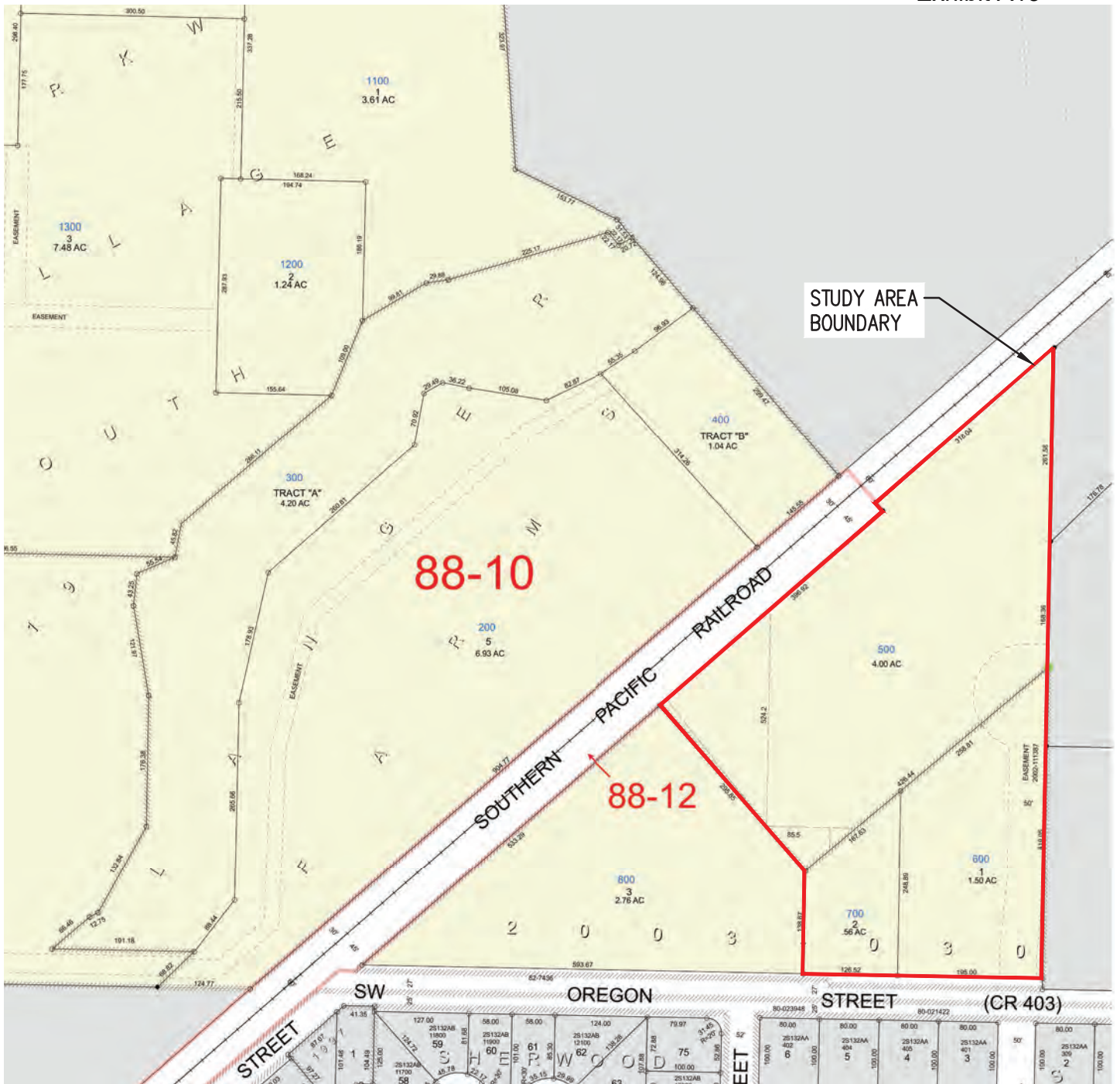
USGS VICINITY MAP
JBMAC VENTURES NATURAL RESOURCES SITE ASSESSMENT REPORT

FIGURE
1

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



DRWN: RAS
CHKD: SKT
AKS JOB:
8627-03



SCALE: 1" = 200 FEET



WASHINGTON COUNTY
 TAX LOTS 500, 600 AND 700
 TAX MAP 2S 1 29DC

DATE: 04/29/2022

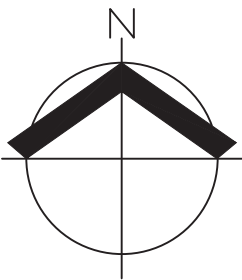
TAX MAP (MAP 2S 1 29DC) JBMAC VENTURES NATURAL RESOURCES SITE ASSESSMENT REPORT		FIGURE 2
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM		DRWN: RAS CHKD: SKT AKS JOB: 8627-03





MAP UNIT SYMBOL	MAP UNIT NAME
1	ALOHA SILT LOAM; NON-HYDRIC
37A	QUATAMA LOAM, 0% TO 3% SLOPES; NON-HYDRIC

NRCS WEB SOIL SURVEY FOR
WASHINGTON COUNTY



SCALE: 1" = 200 FEET

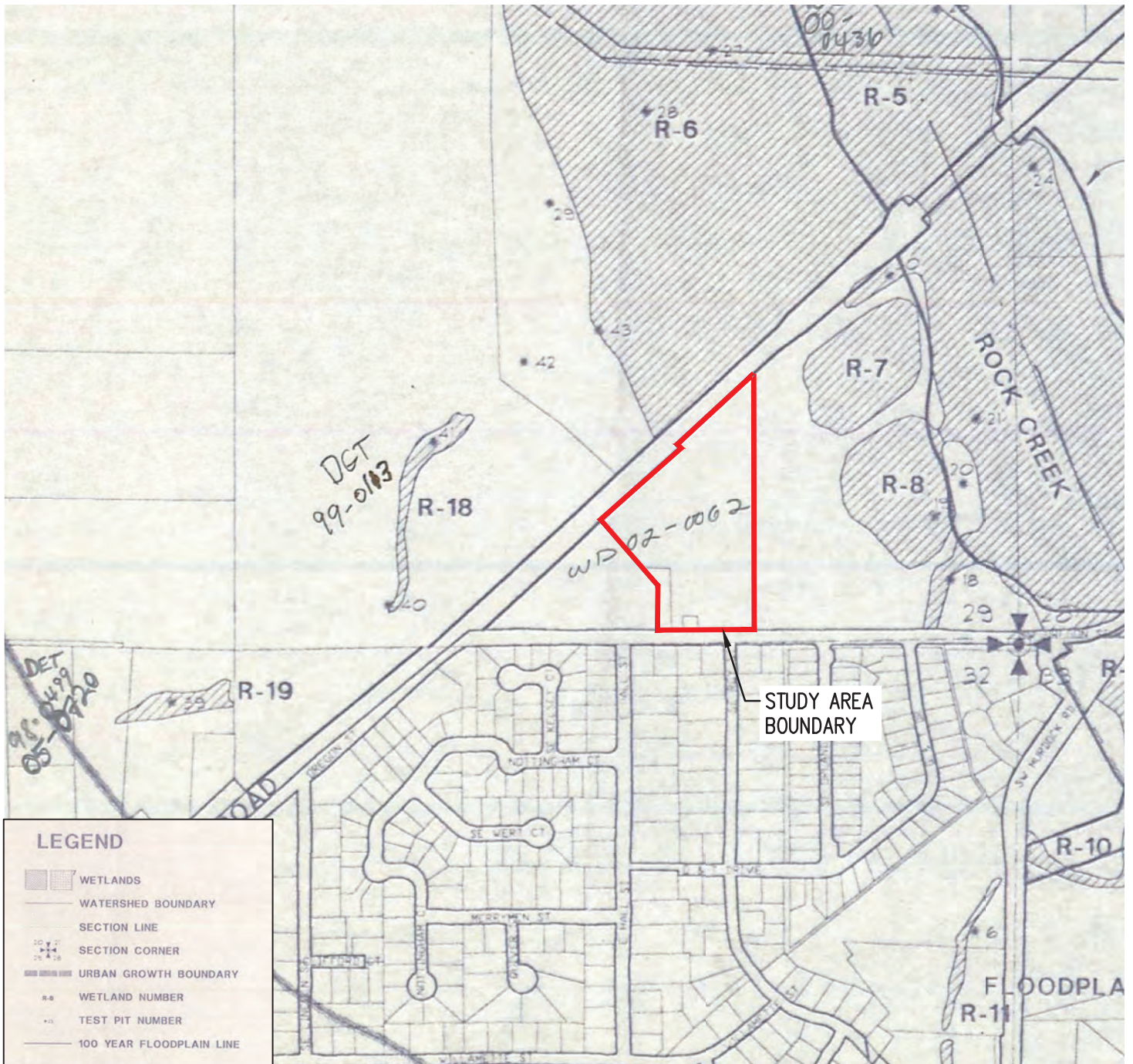


DATE: 04/29/2022

NRCS SOIL SURVEY MAP
JBMAC VENTURES NATURAL RESOURCES SITE ASSESSMENT REPORT
 AKS ENGINEERING & FORESTRY, LLC
 12965 SW HERMAN RD, STE 100
 TUALATIN, OR 97062
 503.563.6151 WWW.AKS-ENG.COM



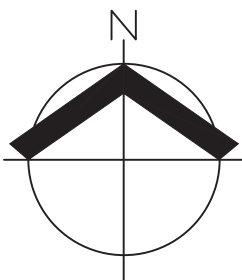
FIGURE 3
 DRWN: RAS
 CHKD: SKT
 AKS JOB:
 8627-03



LEGEND

- WETLANDS
- WATERSHED BOUNDARY
- SECTION LINE
- SECTION CORNER
- URBAN GROWTH BOUNDARY
- WETLAND NUMBER
- TEST PIT NUMBER
- 100 YEAR FLOODPLAIN LINE

CITY OF SHERWOOD
LOCAL WETLAND INVENTORY (1992)



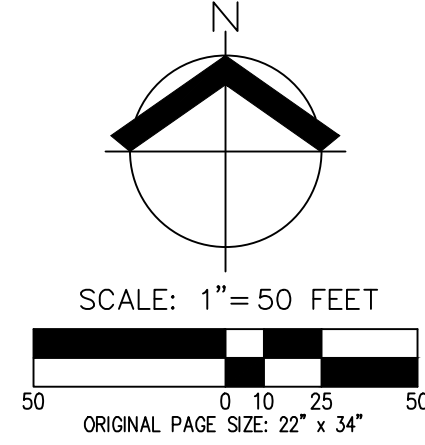
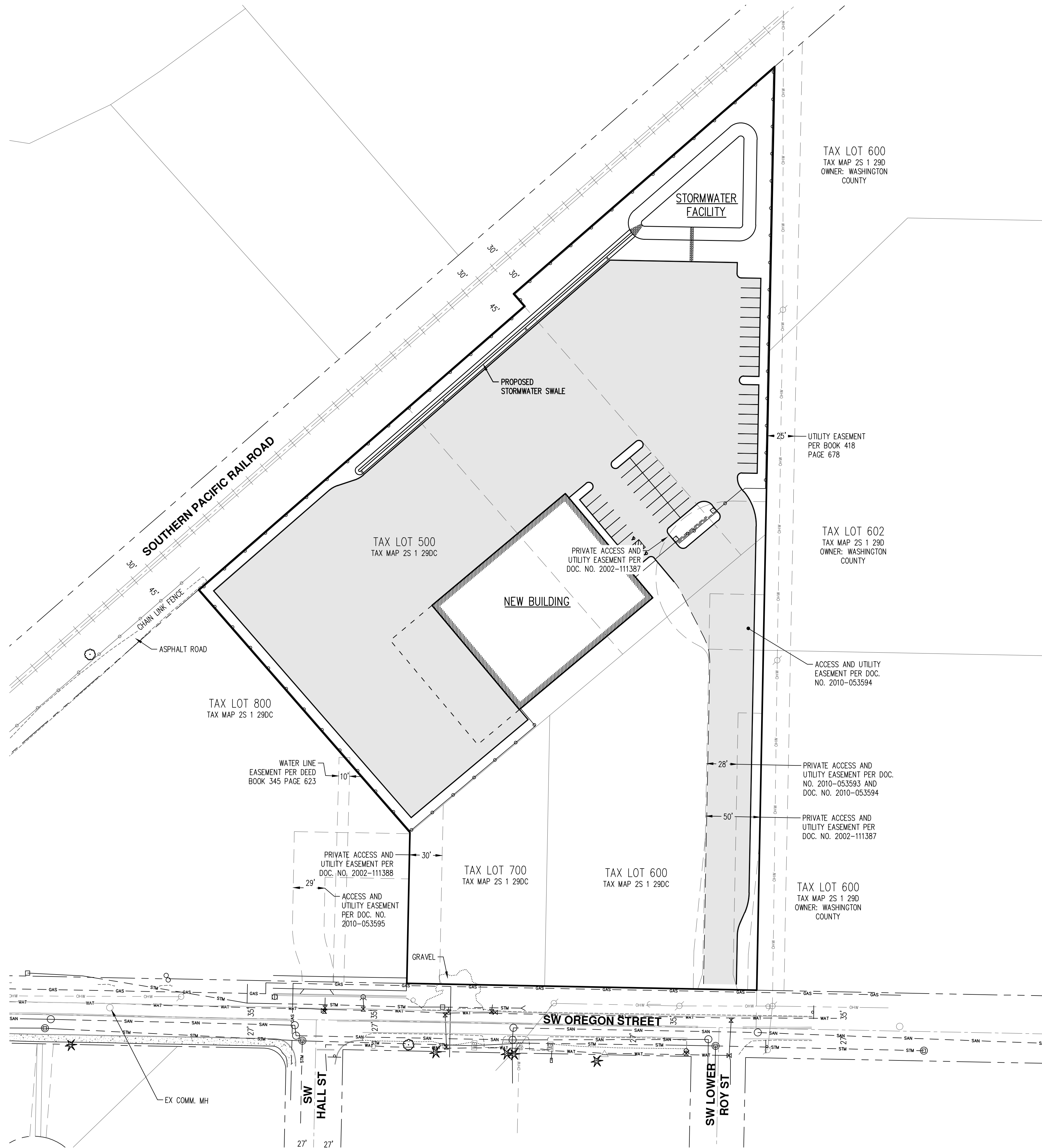
SCALE: 1" = 500 FEET



DATE: 04/29/2022

LOCAL WETLAND INVENTORY MAP JBMAC VENTURES NATURAL RESOURCES SITE ASSESSMENT REPORT		FIGURE 4
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM		DRWN: RAS CHKD: SKT AKS JOB: 8627-03





SITE PLAN
AFP SYSTEMS SITE PLAN
AFP SYSTEMS
SHERWOOD, OREGON

JOB NUMBER: 8627-03
 DATE:
 DESIGNED BY: APC & TJ
 DRAWN BY: APC
 CHECKED BY: TJ

FIGURE 6

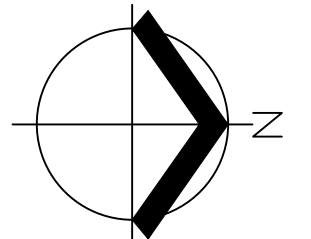
AKS DRAWING FILE: 8627-03 SITE PLANNING | LAYOUT: LAYOUT1



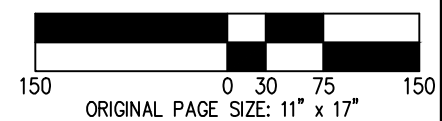
LEGEND

PLOT LOCATIONS SHOWN WERE LOCATED BY AKS ENGINEERING & FORESTRY, LLC ON APRIL 28, 2022 USING A TRIMBLE GEO 7X HANDHELD GPS RECEIVER WITH SUB-METER ACCURACY. NO WETLAND OR WATER BOUNDARIES WERE DELINEATED ON-SITE.

1 FT INTERVAL GROUND CONTOURS, STUDY AREA BOUNDARY AND TREE SURVEY >6" DBH DERIVED FROM AKS PROFESSIONAL LAND SURVEY.



SCALE: 1" = 150 FEET



GOOGLE EARTH AERIAL MAY 2021

DATE: 05/09/2022

NATURAL RESOURCES EXISTING CONDITIONS OVERVIEW MAP

FIGURE

JBMAC VENTURES NATURAL RESOURCES SITE ASSESSMENT REPORT

5

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



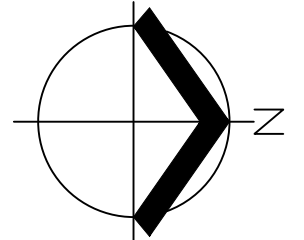
DRWN: RAS
CHKD: SKT
AKS JOB:
8627-03

LEGEND

 PHOTO POINT LOCATION AND ORIENTATION

PLOT LOCATIONS SHOWN WERE LOCATED BY AKS ENGINEERING & FORESTRY, LLC ON APRIL 28, 2022 USING A TRIMBLE GEO 7X HANDHELD GPS RECEIVER WITH SUB-METER ACCURACY. NO WETLAND OR WATER BOUNDARIES WERE DELINEATED ON-SITE.

1 FT INTERVAL GROUND CONTOURS, STUDY AREA BOUNDARY AND TREE SURVEY >6" DBH DERIVED FROM AKS PROFESSIONAL LAND SURVEY.

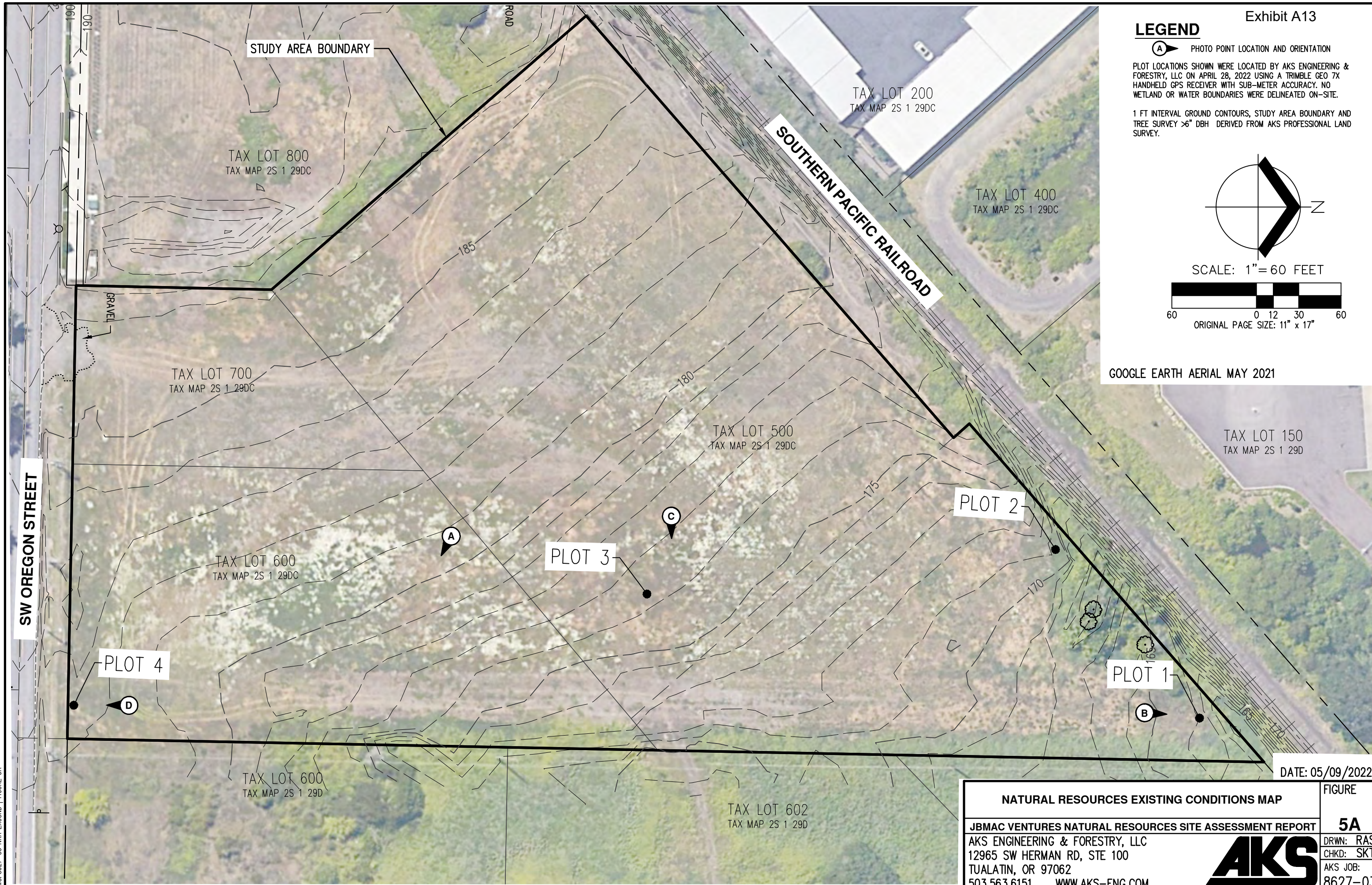


SCALE: 1" = 60 FEET



ORIGINAL PAGE SIZE: 11" x 17"

GOOGLE EARTH AERIAL MAY 2021



DATE: 05/09/2022

NATURAL RESOURCES EXISTING CONDITIONS MAP

FIGURE

JBMAC VENTURES NATURAL RESOURCES SITE ASSESSMENT REPORT

5A

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



DRWN: RAS
CHKD: SKT
AKS JOB:
8627-03

Appendix A: DSL File NumberWD2002-0062



Oregon

John A. Kitzhaber, M.D., Governor

Exhibit A13

Division of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 378-3805
FAX (503) 378-4844
<http://statelands.dsl.state.or.us>

May 8, 2002

State Land Board

John A. Kitzhaber
Governor

Bill Bradbury
Secretary of State

Randall Edwards
State Treasurer

Patrick Lucas
Pacific III LLC
18664 SW Boones Ferry Rd.
Tualatin, OR 97229

Re: Wetland Delineation Report for Oregon Street Subdivision in Sherwood,
Washington County; T2S R1W Sec. 29SE Tax Lots 400, 500, 600;
WD #02-0062; App. # 25059

Dear Mr. Lucas:

I have reviewed the wetland delineation report prepared by Environmental Solutions Northwest for the site referenced above. Based on the information presented in the report and supplemental information, I concur with the wetland boundaries as mapped in the revised (April 18) Figure 6. A wetland boundary was delineated on a narrow strip of Tax Lot 600 for sewer line avoidance and three depressional wetlands were mapped on Tax Lots 400 and 500. Based on information provided, only two of the wetlands are considered jurisdictional by the Division. The northern wetland (0.05 acre) was at one time connected to a larger hillslope seep wetland and the southern wetland (0.03 acre) was created by excavation in hydric soils. A state permit is required for fill or excavation of 50 cubic yards or more in these two wetland areas. The center depressional wetland (0.01 acre) was created by excavation in upland soils and is not considered jurisdictional by the Division.

This concurrence is for purposes of the state Removal-Fill Law only. Federal or local permit requirements may apply as well.

This concurrence is based on information provided to the agency. The jurisdictional determination is valid for five years from the date of this letter, unless new information necessitates a revision. Circumstances under which the Division may change a determination and procedures for renewal of an expired determination are found in OAR 141-090-0045 (available on our web site or upon request). The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within 60 calendar days of the date of this letter.

The City of Sherwood Local Wetland Inventory should now be revised or annotated by the planning department to show these more accurate wetland boundaries.

Thank you for having the site evaluated. Please phone me at extension 295 if you have any questions.

Sincerely,

Janet C. Moran

for Kathy Verble
Wetlands Specialist

Approved by _____

John E. Lilly
John E. Lilly
Assistant Director

cc: Environmental Solutions Northwest
City of Sherwood, Planning Department
Kathryn Harris, Corps of Engineers
Colin MacLaren, DSL

WETLAND DELINEATION / DETERMINATION REPORT COVER FORM


This form constitutes a request for a jurisdictional determination by the Division of State Lands and must be attached to the front of reports submitted to the Division for review and approval.

Oregon Division of State Lands
 Attn.: Wetlands Program Leader
 775 Summer Street NE, Suite 100
 Salem, OR 97301-1279

<input checked="" type="checkbox"/> Applicant <input checked="" type="checkbox"/> Owner Name, Firm and Address: PACIFIC III L.L.C. (PATRICK LUCAS) 18664 SW BOONES FERRY RD TUALATIN, OR 97229	Business phone # 503-691-1999 Home phone # (optional) FAX # 503-692-6928 E-mail:
---	---

<input checked="" type="checkbox"/> Authorized Legal Agent: Name and Address: SAME AS ABOVE	Business phone # FAX # E-mail:
---	--------------------------------------

The information contained in the attached report is true and accurate to the best of my knowledge. I either own the property described below or I have legal authority to allow access to the property. I authorize the Division to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact.

Typed/Printed Name: John P. Lucas, Manager Signature: 
 Date: _____ Special Instructions regarding site access: _____

Project and Site Information (for latitude & longitude, use centroid of site or start & end points of linear project)

Project Name: <u>OREGON STREET SUBDIVISION</u>	Latitude: <u>45° 21' 40"</u>	Longitude: <u>122° 41' 50"</u>
Proposed Use: <u>COMMERCIAL / INDUSTRIAL SUBDIVISION</u>	Tax Map # <u>88-10</u>	
Project Street Address (or other descriptive location): <u>0.25 EAST OF OLD TOWN SHERWOOD, NORTH OF OREGON STREET, SOUTH OF R&R TRACKS</u>	Township <u>2S</u> Range <u>1W</u> Section <u>29</u> <u>QQ SE</u>	
City: <u>SHERWOOD</u> County: <u>WASHINGTON</u>	Tax Lot (s) <u>400 + 500</u>	
	Waterway: <u>NONE</u>	River Mile:

Wetland Delineation Information

Wetland Consultant Name, Firm and Address: ENVIRONMENTAL SOLUTIONS NW (MIKE HOLSCHER) 4208 NW BETHANY BLVD. SUITE K5, # 333 PORTLAND, OR 97229	Phone # <u>503-629-5093</u> FAX # <u>503-629-6093</u> E-mail address: <u>MIKE@ENSWLNW.COM</u>
Primary Contact for report review and site access is <input checked="" type="checkbox"/> Consultant <input type="checkbox"/> Applicant/Owner <input type="checkbox"/> Authorized Agent	

Date of Delineation Report: <u>JAN, 25, 2002</u>	Wetland/Waters Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total Site Acreage: Total Wetland Acreage: <u>0.0944</u>
---	--	---

Other Information

	Yes	No	Unknown
Is any of the property crop land?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, Is Applicant/Owner a USDA Program Participant?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, has a NRCS Form 026 been completed for the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Does Local Wetlands Inventory, if any, show wetland on parcel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, LWI wetland code: _____			
Has a previous delineation/application been made on parcel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If applicable, previous Division of State Lands # _____			
NWI Quad Name(s): <u>SHERWOOD</u>		Site Zoning: <u>COMMERCIAL / INDUSTRIAL</u>	

For Office Use Only

Corps Project # _____	DSL Wetland Mgr _____	DSL WD # _____
Date Delineation Received: _____	DSL Project # _____	
Date Review Completed: _____	Related Case Number(s): _____	

DIVISION OF STATE LANDS
 RECEIVED
 2002 FEB - 6 P 1:10

↑ NORTH

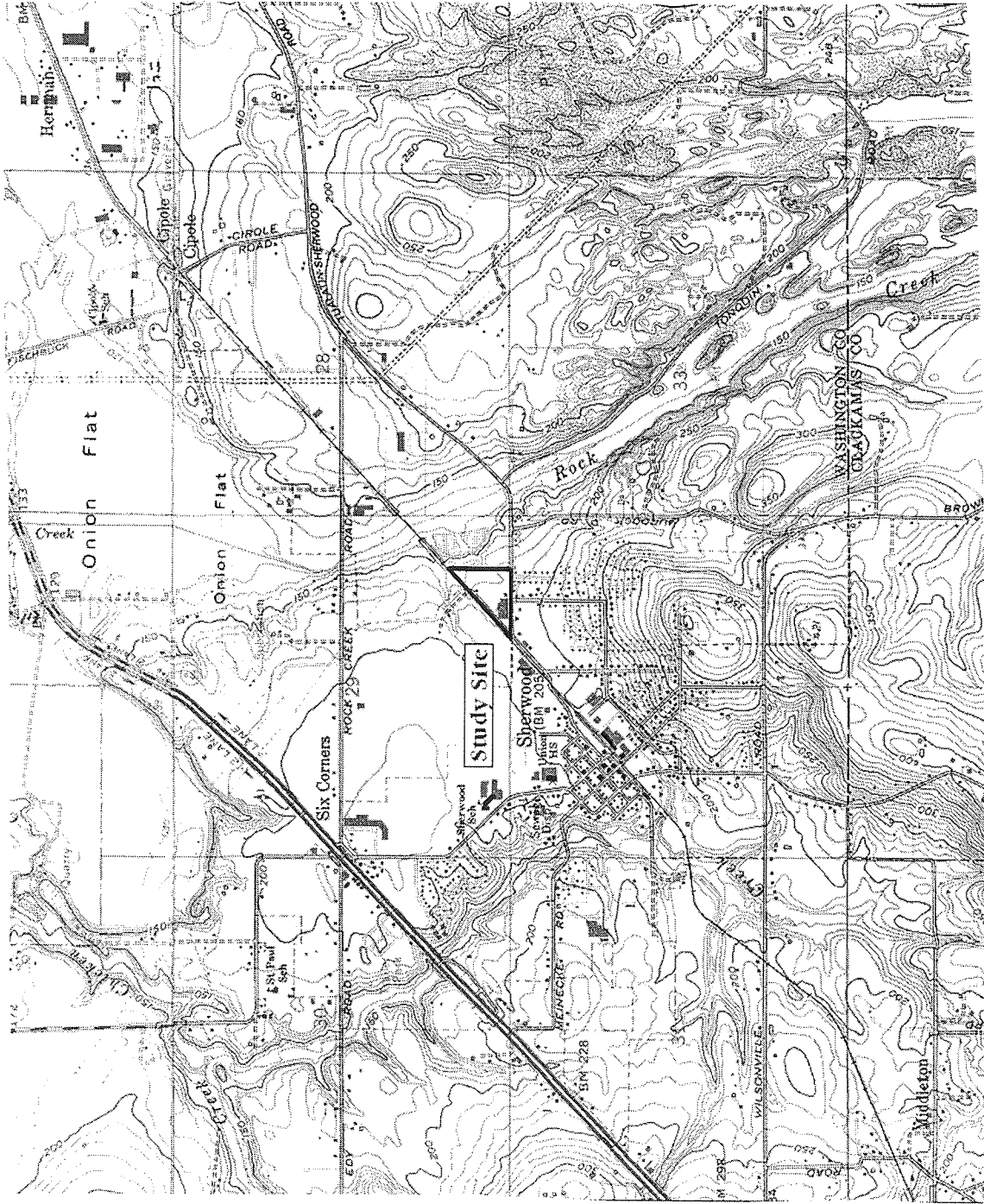


Exhibit A13

FIGURE 1

VICINITY
OREGON STREET TANNERY
 SHERWOOD, WASHINGTON COUNTY, OREGON

Approximate scale 1 inch = 2000 feet

Map Source: National Geographic Oregon Seamless USGS CD-ROM, 2001.

ENVIRONMENTAL
SOLUTIONS
NORTHWEST

January 22, 2002

← NORTH |

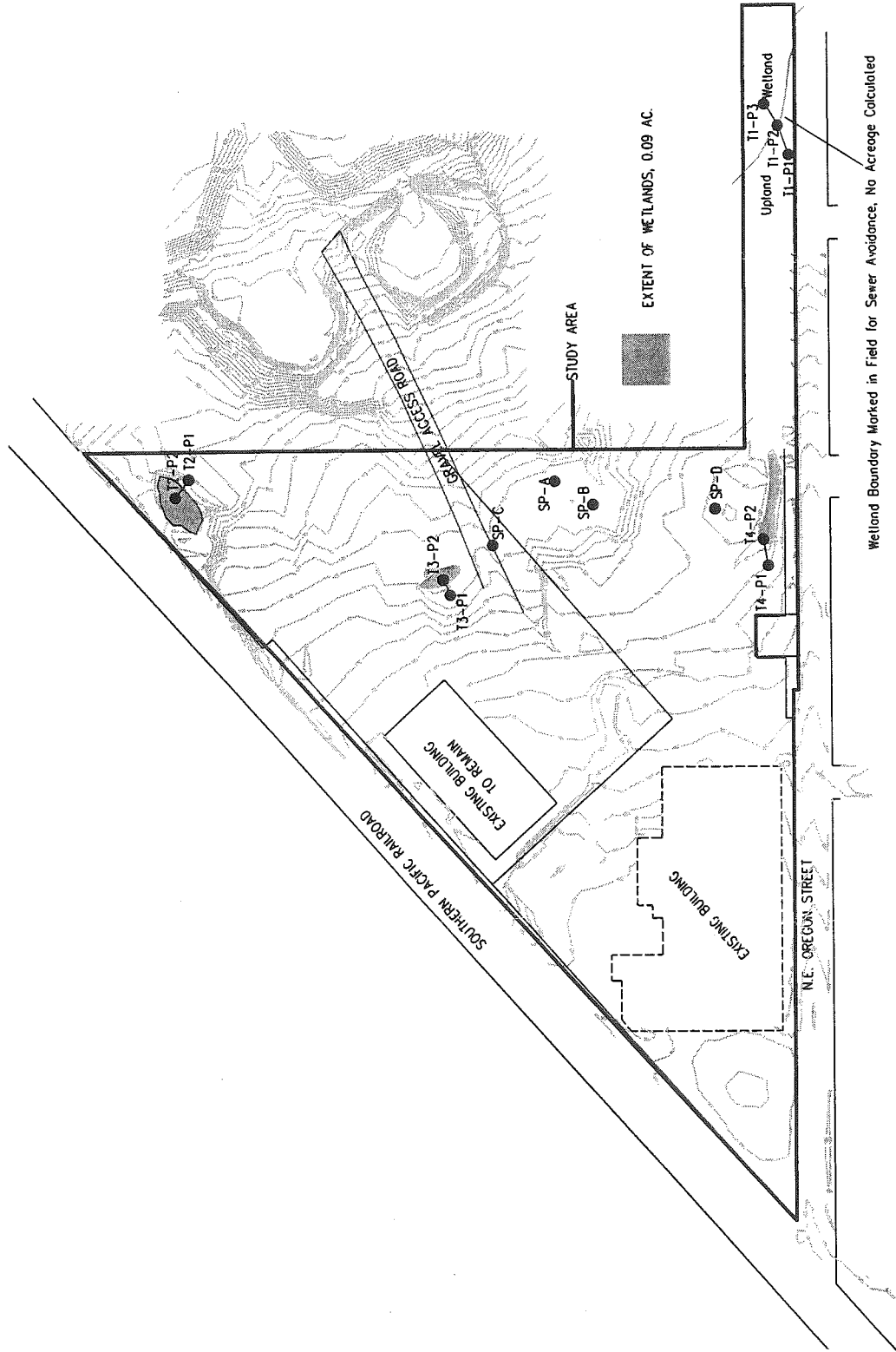


Exhibit A13

FIGURE 6

**WETLAND BOUNDARIES AND SAMPLE POINTS
OREGON STREET TANNERY
SHERWOOD, WASHINGTON COUNTY, OREGON**

**ENVIRONMENTAL
SOLUTIONS
NORTHWEST**

Approximate scale 1 inch = 200 feet

April 18, 2002 (revised)

Map Source: Olson engineering survey map (August 2001).

Appendix B:
USACE File Number 25059-FP

Division of State Lands
775 Summer Street NE, Suite 10
Salem, OR 97301-1279
☎ 503-378-3805

Permit No.:	<u>25059-FP</u>
Permit Title:	<u>Fill Exhibit A13</u>
Waterway:	<u>Wetland</u>
County:	<u>Washington</u>
Expiration Date:	<u>July 12, 2003</u>
Corps No.:	<u>2002-00076</u>


PACIFIC III, LLC

IS AUTHORIZED IN ACCORDANCE WITH ORS 196.800 TO 196.990 TO PERFORM THE OPERATIONS DESCRIBED IN THE ATTACHED COPY OF THE APPLICATION, SUBJECT TO THE SPECIAL CONDITIONS LISTED ON ATTACHMENT A AND TO THE FOLLOWING GENERAL CONDITIONS:

1. This permit does not authorize trespass on the lands of others. The permit holder shall obtain all necessary access permits or rights-of-way before entering lands owned by another.
2. This permit does not authorize any work that is not in compliance with local zoning or other local, state, or federal regulation pertaining to the operations authorized by this permit. The permit holder is responsible for obtaining the necessary approvals and permits before proceeding under this permit.
3. All work done under this permit must comply with Oregon Administrative Rules, Chapter 340; Standards of Quality for Public Waters of Oregon. Specific water quality provisions for this project are set forth on Attachment A.
4. Violations of the terms and conditions of this permit are subject to administrative and/or legal action which may result in revocation of the permit or damages. The permit holder is responsible for the activities of all contractors or other operators involved in work done at the site or under this permit.
5. A copy of the permit shall be available at the work site whenever operations authorized by the permit are being conducted.
6. Employees of the Division of State Lands and all duly authorized representatives of the Director shall be permitted access to the project area at all reasonable times for the purpose of inspecting work performed under this permit.
7. Any permit holder who objects to the conditions of this permit may request a hearing from the Director, in writing, within 10 days of the date this permit was issued.
8. In issuing this permit, the Division of State Lands makes no representation regarding the quality or adequacy of the permitted project design, materials, construction, or maintenance, except to approve the project's design and materials, as set forth in the permit application, as satisfying the resource protection, scenic, safety, recreation, and public access requirements of ORS Chapters 196, 390 and related administrative rules.
9. Permittee shall defend and hold harmless the State of Oregon, and its officers, agents, and employees from any claim, suit, or action for property damage or personal injury or death arising out of the design, material, construction, or maintenance of the permitted improvements.

NOTICE: If removal is from state-owned submerged and submersible land, the applicant must comply with leasing and royalty provisions of ORS 274.530. If the project involves creation of new lands by filling on state-owned submerged or submersible lands, you must comply with ORS 274.905 - 274.940. This permit does not relieve the permittee of an obligation to secure appropriate leases from the Division of State Lands, to conduct activities on state-owned submerged or submersible lands. Failure to comply with these requirements may result in civil or criminal liability. For more information about these requirements, please contact the Division of State Lands, 378-3805.

Lori Warner, Manager
Western Region Field Operations
Oregon Division of State Lands



Authorized Signature

July 12, 2002

Date Issued

ATTACHMENT A**Permittee: Pacific III LLC**

Special Conditions for Fill Permit No. 25059-FP. PLEASE READ AND BECOME FAMILIAR WITH CONDITIONS OF YOUR PERMIT. This project may be site inspected by the Division of State Lands as part of our monitoring program. The Division has the right to stop or modify the project at any time if you are not in compliance with these conditions. A copy of this permit shall be available at the work site whenever authorized operations are being conducted.

1. This permit authorizes the placement of up to 580 cubic yards of sand and silt in a wetland, T2S, R1W, Section 29, Tax Lot 400 and 500, Sherwood, Washington County for a commercial subdivision, as outlined in the attached permit application, maps and drawings, dated March 28, 2002. This permit also authorizes removal and fill activities necessary to complete the required compensatory mitigation.
2. **TURBIDITY/EROSION CONTROLS.** The authorized work shall not cause turbidity of affected waters to exceed 10% over natural background turbidity 100 feet downstream of the fill point. For projects proposed in areas with no discernible gradient break (gradient of 2% or less), monitoring shall take place at 4 hour intervals and the turbidity standard may be exceeded for a maximum of one monitoring interval per 24 hour work period provided all practicable control measures have been implemented. This turbidity standard exceedance interval applies only to coastal lowlands and floodplains, valley bottoms and other low-lying and/or relatively flat land.

For projects in all other areas, the turbidity standard can be exceeded for a maximum of 2 hours (limited duration) provided all practicable erosion control measures have been implemented. These projects may also be subject to additional reporting requirements.

Turbidity shall be monitored during active in-water work periods. Monitoring points shall be at an undisturbed site (representative background) 100 feet upstream from the turbidity causing activity (i.e., fill or discharge point), 100 feet downstream from the fill point, and at the point of fill. A turbidimeter is recommended, however, visual gauging is acceptable. Turbidity that is visible over background is considered an exceedance of the standard.

Practicable erosion control measures which shall be implemented, as appropriate, include but are not limited to the following:

- a. Place fill in the water using methods that avoid disturbance to the maximum practicable extent (e.g. placing fill with a machine rather than end-dumping from a truck).

- b. Prevent all construction materials and debris from entering waterway;
 - c. Use filter bags, sediment fences, sediment traps or catch basins, silt curtains, leave strips or berms, Jersey barriers, sand bags, or other measures sufficient to prevent movement of soil;
 - d. Use impervious materials to cover stockpiles when unattended or during rain event;
 - e. Erosion control measures shall be inspected and maintained daily to ensure their continued effectiveness;
 - f. No heavy machinery in a wetland or other waterway;
 - g. Use a gravel staging area and construction access;
 - h. Fence off planted areas to protect from disturbance and/or erosion; and
 - i. Flag or fence off wetlands adjacent to the construction area.
3. Erosion control measures shall be maintained as necessary to ensure their continued effectiveness, until soils become stabilized. All erosion control structures shall be removed when project is complete and soils are stabilized and vegetated.
 4. Petroleum products, chemicals, or other deleterious materials shall not be allowed to enter waters of the state.
 5. Waste materials and spoils shall be placed in a stable upland location and shall be suitably stabilized to prevent erosion.

MITIGATION

The following conditions apply to the actions described in the Mitigation Plan (pages 1 to 5), dated March 27, 2002. The issuance of this permit is contingent upon the successful replacement of compensatory wetland mitigation for the loss of 0.09 acres of wetlands.

6. Off-site compensatory mitigation for the loss of 0.09 acres PEM/Depressional wetland shall consist of 0.27 acres of enhancement from PEM non-native dominant to PSS-PFO/Depressional wetland type. The location of off-site wetland mitigation (T2S, R1W, NW ¼ Sec. 20, Tax Lot 2200) is shown on Figures 1 and 5, dated January 22, 2002.
7. Removal or control of invasive, non-native plant species shall be done by hand pulling or spot application of an herbicide approved for aquatic habitat.
8. Shrubs and trees shall be physically protected from herbivory and other damage with heavy gauge wire mesh or other appropriate material.
9. The slopes of the mitigation area shall be no steeper than 10:1.

10. There shall be a minimum of 3 pieces of downed wood (trees) in the mitigation site. The downed wood shall be a minimum of 20 feet in length, and shall include as many branches as possible. Evergreen trees are preferred.
11. The microtopography of the mitigation site shall vary between +/- 18 inches.
12. An as-built survey shall be provided to the Division of State Lands within 60 days of mitigation site grading.

SUCCESS CRITERIA

13. **To be deemed successful, the mitigation areas shall meet the following success criteria: (success criteria should be listed for each mitigation area)**
 - a. Survival of planted trees and shrubs (by species) shall be 80% for the duration of the monitoring period.
 - b. Cover of planted (see planting plan figure 5 and table on page 5 of the mitigation plan (March 27, 2002) and desirable recruits of herbaceous species shall be 60% after the first year of planting, 75% after the 2nd, and 80% after the 3rd, 4th and 5th years as measured by random sample plots (i.e. areal cover in random plots).
 - c. The water depth in the wetland enhancement area shall be no more than 8 inches during the growing season. All ponded areas shall go dry for at least some period during the growing season.

MONITORING CRITERIA

16. The permittee shall monitor the mitigation site to determine success for a minimum period of five (5) years. The annual monitoring report is due by December 1 of each year and shall include the following information:
 - Documentation that success criteria are being met and statements regarding criteria listed in condition 13 above.
 - Permit number
 - Permittee's Name
 - Project Name
 - Location of mitigation site-describe and show on current map.
 - Location of impact site

- Description of all activities that have occurred on the mitigation site during the past year (i.e. grading, re-grading, planting, re-planting, weed eradication, etc.).
 - Other information necessary or required to document compliance with mitigation plan.
15. The monitoring period will start when the permittee has demonstrated that hydrology has been established and initial plantings have been accomplished. Failure to submit a monitoring report at the above date may result in an extension of the monitoring period, loss of the performance bond, and/or enforcement action
 16. Issuance of this permit is contingent upon acquisition of the required preliminary plat approval from the City of Sherwood.
 17. The Division retains the authority to extend the mitigation monitoring period and require corrective action in the event the success criteria are not accomplished for two consecutive years (without re-planting for failure to meet survival or cover criteria) within the 5-year monitoring period.
 18. The Division of State Lands retains the authority to temporarily halt or modify the project in case of unforeseen damage to natural resources.
 19. If any archaeological resources and/or artifacts are uncovered during excavation, all construction activity shall immediately cease. The State Historic Preservation Office shall be contacted (phone: 503-378-4168).
 20. The permittee is responsible for carrying-out the terms and conditions of this permit unless the permit is transferred to another party using forms provided by the Division.

July 12, 2002

J:\AttachmentAwestLAS\FP Fill Permits\25059-FP.doc

Appendix C: Wetland Determination Data Sheets (Plots 1 through 4)

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: JBMac Ventures City/County: Sherwood/ Washington County Sampling Date: 4/28/2022
 Applicant/Owner: AFP Systems Inc State: OR Sampling Point: 1
 Investigator(s): Lex Francis and Emma Eichhorn Section, Township, Range: Sec. 29, T.2S, R.1
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Sl. Concave Slope (%): <3
 Subregion (LRR): A. Northwest Forests and Coast Lat: 45.36288036 Long: -122.8297624 Datum: NAD1983
 Soil Map Unit Name: Quatama Silt Loam (Unit 37A), 0 to 3 percent slopes; Non-Hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u> </u>	No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>			
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>			

Precipitation:
 According to the AgACIS Aurora AP weather station, 0.04 inches of rainfall was received on the day of the site visit and 1.45 inches within the two weeks prior.

Remarks:
 Plot located within former wetland area in NE corner of study area.

VEGETATION

Tree Stratum (Plot Size: 30' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot Size: 10' r or _____)				
1. <u>Rubus armeniacus</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>5</u> - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation (Explain) ¹ ¹ Indicators of hydric soil and wetland hydrology must be present.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot Size: 5' r or _____)				
1. <u>Agrostis species</u>	<u>45%</u>	<u>Yes</u>	<u>FAC*</u>	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
2. <u>Schedonorus arundinaceus</u>	<u>22%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Trifolium species</u>	<u>10%</u>	<u>No</u>	<u>FAC*</u>	
4. <u>Vicia species</u>	<u>10%</u>	<u>No</u>	<u>FAC*</u>	
5. <u>Cirsium arvense</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
6. <u>Dipsacus fullonum</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
7. <u>Phalaris arundinacea</u>	<u>3%</u>	<u>No</u>	<u>FACW</u>	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot Size: 10' r or _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>				

Remarks:
 *Assumed FAC.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: JBMac Ventures City/County: Sherwood/ Washington County Sampling Date: 4/28/2022
 Applicant/Owner: AFP Systems Inc State: OR Sampling Point: 2
 Investigator(s): Lex Francis and Emma Eichhorn Section, Township, Range: Sec. 29, T.2S, R.1
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Sl. Concave Slope (%): <3
 Subregion (LRR): A. Northwest Forests and Coast Lat: 45.36259801 Long: -122.83021374 Datum: NAD1983
 Soil Map Unit Name: Quatama Silt Loam (Unit 37A), 0 to 3 percent slopes; Non-Hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u> </u>	No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>			
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>			

Precipitation:
 According to the AgACIS Aurora AP weather station, 0.04 inches of rainfall was received on the day of the site visit and 1.45 inches within the two weeks prior.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
1. <u>Populus balsamifera</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>95</u> x 2 = <u>190</u> FAC species <u>98</u> x 3 = <u>294</u> FACU species <u>5</u> x 4 = <u>20</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>198</u> (A) <u>504</u> (B) Prevalence Index = B/A = <u>2.55</u>
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
<u>5%</u> = Total Cover					
Sapling/Shrub Stratum (Plot Size: 10' r or _____)					
1. <u>Rubus armeniacus</u>	<u>58%</u>	<u>Yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>5</u> - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation (Explain) ¹ ¹ Indicators of hydric soil and wetland hydrology must be present.	
2. <u>Crataegus douglasii</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>		
3. <u>Ilex aquifolium</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>		
4. <u>Populus balsamifera</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>		
5. <u>Spiraea douglasii</u>	<u>5%</u>	<u>No</u>	<u>FAC*</u>		
<u>93%</u> = Total Cover					
Herb Stratum (Plot Size: 5' r or _____)					
1. <u>Phalaris arundinacea</u>	<u>95%</u>	<u>Yes</u>	<u>FACW</u>		
2. <u>Athyrium americanum</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
<u>100%</u> = Total Cover					
Woody Vine Stratum (Plot Size: 10' r or _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
<u>0%</u> = Total Cover					
% Bare Ground in Herb Stratum <u>0%</u>					

Remarks:
 *Assumed FAC.

SOIL							Sampling Point: 2	
Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 3/2	100					SiL	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):						Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<input type="checkbox"/>			<input type="checkbox"/>					
Restrictive Layer (if present):						Hydric Soil Present?		
Type: _____ Depth (inches): _____						Yes _____ No <u>X</u>		
Remarks:								
HYDROLOGY								
Wetland Hydrology Indicators:								
<u>Primary Indicators (minimum of one required; check all that apply)</u>						<u>Secondary Indicators (2 or more required)</u>		
<input type="checkbox"/> Surface Water (A1)			<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)			<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)		
<input type="checkbox"/> High Water Table (A2)			<input type="checkbox"/> Salt Crust (B11)			<input type="checkbox"/> Drainage Patterns (B10)		
<input type="checkbox"/> Saturation (A3)			<input type="checkbox"/> Aquatic Invertebrates (B13)			<input type="checkbox"/> Dry-Season Water Table (C2)		
<input type="checkbox"/> Water Marks (B1)			<input type="checkbox"/> Hydrogen Sulfide Odor (C1)			<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)		
<input type="checkbox"/> Sediment Deposits (B2)			<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)			<input type="checkbox"/> Geomorphic Position (D2)		
<input type="checkbox"/> Drift Deposits (B3)			<input type="checkbox"/> Presence of Reduced Iron (C4)			<input type="checkbox"/> Shallow Aquitard (D3)		
<input type="checkbox"/> Algal Mat or Crust (B4)			<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)			<input type="checkbox"/> FAC-Neutral Test (D5)		
<input type="checkbox"/> Iron Deposits (B5)			<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)			<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)		
<input type="checkbox"/> Surface Soil Cracks (B6)			<input type="checkbox"/> Other (Explain in Remarks)			<input type="checkbox"/> Frost-Heave Hummocks (D7)		
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			<input type="checkbox"/>			<input type="checkbox"/>		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			<input type="checkbox"/>			<input type="checkbox"/>		
Field Observations:						Wetland Hydrology Present?		
Surface Water Present?		Yes _____ No <u>X</u>	Depth (inches): _____		Yes _____ No <u>X</u>			
Water Table Present?		Yes _____ No <u>X</u>	Depth (inches): <u>>16"</u>		Yes _____ No <u>X</u>			
Saturation Present? (includes capillary fringe)		Yes _____ No <u>X</u>	Depth (inches): <u>>16"</u>		Yes _____ No <u>X</u>			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:								
Remarks:								
Soils dry throughout. No evidence of prior ponding.								

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: JBMac Ventures City/County: Sherwood/ Washington County Sampling Date: 4/28/2022
 Applicant/Owner: AFP Systems Inc State: OR Sampling Point: 3
 Investigator(s): Lex Francis and Emma Eichhorn Section, Township, Range: Sec. 29, T.2S, R.1
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <3
 Subregion (LRR): A. Northwest Forests and Coast Lat: 45.36179176 Long: -122.83005858 Datum: NAD1983
 Soil Map Unit Name: Quatama Silt Loam (Unit 37A), 0 to 3 percent slopes; Non-Hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u> </u>	No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>			
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>			

Precipitation:
 According to the AgACIS Aurora AP weather station, 0.04 inches of rainfall was received on the day of the site visit and 1.45 inches within the two weeks prior.

Remarks:
 Plot located within former central wetland.

VEGETATION

Tree Stratum (Plot Size: 30' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>90</u> x 3 = <u>270</u> FACU species <u>6</u> x 4 = <u>24</u> UPL species <u>4</u> x 5 = <u>20</u> Column Totals: <u>100</u> (A) <u>314</u> (B) Prevalence Index = B/A = <u>3.14</u>
Sapling/Shrub Stratum (Plot Size: 10' r or _____)	1. _____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
0% = Total Cover				
Herb Stratum (Plot Size: 5' r or _____)	1. <u>Agrostis species</u>	<u>30%</u>	<u>Yes</u>	<u>FAC*</u>
2. <u>Poa species</u>	<u>28%</u>	<u>Yes</u>	<u>FAC*</u>	
3. <u>Alopecurus pratensis</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	
4. <u>Schedonorus arundinaceus</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
5. <u>Geranium lucidum</u>	<u>4%</u>	<u>No</u>	<u>NOL</u>	
6. <u>Plantago lanceolata</u>	<u>2%</u>	<u>No</u>	<u>FACU</u>	
7. <u>Leucanthemum vulgare</u>	<u>2%</u>	<u>No</u>	<u>FACU</u>	
8. <u>Daucus carota</u>	<u>2%</u>	<u>No</u>	<u>FACU</u>	
9. <u>Rumex crispus</u>	<u>2%</u>	<u>No</u>	<u>FAC</u>	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
100% = Total Cover				
Woody Vine Stratum (Plot Size: 10' r or _____)	1. _____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>				

Remarks:
 *Assumed FAC.

Hydrophytic Vegetation Indicators:
 1 - Rapid Test for Hydrophytic Vegetation
 X 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 5 - Wetland Non-Vascular Plants¹
 Problematic Hydrophytic Vegetation (Explain)¹
¹Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

SOIL							Sampling Point:	3
Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 3/3	100					SiL	Gravels throughout
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):						Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
<input type="checkbox"/>			<input type="checkbox"/>					
Restrictive Layer (if present):						Hydric Soil Present?		
Type: _____						Yes _____ No <u> X </u>		
Depth (inches): _____								
Remarks:								
Likely fill material.								
HYDROLOGY								
Wetland Hydrology Indicators:								
<u>Primary Indicators (minimum of one required; check all that apply)</u>						<u>Secondary Indicators (2 or more required)</u>		
<input type="checkbox"/> Surface Water (A1)			<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)			<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)		
<input type="checkbox"/> High Water Table (A2)			<input type="checkbox"/> Salt Crust (B11)			<input type="checkbox"/> Drainage Patterns (B10)		
<input type="checkbox"/> Saturation (A3)			<input type="checkbox"/> Aquatic Invertebrates (B13)			<input type="checkbox"/> Dry-Season Water Table (C2)		
<input type="checkbox"/> Water Marks (B1)			<input type="checkbox"/> Hydrogen Sulfide Odor (C1)			<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)		
<input type="checkbox"/> Sediment Deposits (B2)			<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)			<input type="checkbox"/> Geomorphic Position (D2)		
<input type="checkbox"/> Drift Deposits (B3)			<input type="checkbox"/> Presence of Reduced Iron (C4)			<input type="checkbox"/> Shallow Aquitard (D3)		
<input type="checkbox"/> Algal Mat or Crust (B4)			<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)			<input type="checkbox"/> FAC-Neutral Test (D5)		
<input type="checkbox"/> Iron Deposits (B5)			<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)			<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)		
<input type="checkbox"/> Surface Soil Cracks (B6)			<input type="checkbox"/> Other (Explain in Remarks)			<input type="checkbox"/> Frost-Heave Hummocks (D7)		
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			<input type="checkbox"/>			<input type="checkbox"/>		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			<input type="checkbox"/>			<input type="checkbox"/>		
Field Observations:						Wetland Hydrology Present?		
Surface Water Present?		Yes _____	No <u> X </u>	Depth (inches): _____		Yes _____ No <u> X </u>		
Water Table Present?		Yes _____	No <u> X </u>	Depth (inches): <u> >16 </u>				
Saturation Present? (includes capillary fringe)		Yes _____	No <u> X </u>	Depth (inches): <u> >16 </u>				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:								
Remarks:								
Soils dry throughout.								

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: JBMac Ventures City/County: Sherwood/ Washington County Sampling Date: 4/28/2022
 Applicant/Owner: AFP Systems Inc State: OR Sampling Point: 4
 Investigator(s): Lex Francis and Emma Eichhorn Section, Township, Range: Sec. 29, T.2S, R.1
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <3
 Subregion (LRR): A. Northwest Forests and Coast Lat: 45.36068602 Long: -122.82973248 Datum: NAD1983
 Soil Map Unit Name: Quatama Silt Loam (Unit 37A), 0 to 3 percent slopes; Non-Hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>	
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>	
Yes <u> </u> No <u>X</u>			

Precipitation:
 According to the AgACIS Aurora AP weather station, 0.04 inches of rainfall was received on the day of the site visit and 1.45 inches within the two weeks prior.

Remarks:
 Plot taken approximately 20' away from SW Oregon Street, within former wetland.

VEGETATION

Tree Stratum (Plot Size: 30' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>92</u> x 3 = <u>276</u> FACU species <u>9</u> x 4 = <u>36</u> UPL species <u>1</u> x 5 = <u>5</u> Column Totals: <u>102</u> (A) <u>317</u> (B) Prevalence Index = B/A = <u>3.11</u>
Sapling/Shrub Stratum (Plot Size: 10' r or _____)				
1. <u>Rubus armeniacus</u>	2%	No	FAC	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
2% = Total Cover				
Herb Stratum (Plot Size: 5' r or _____)				
1. <u>Alopecurus pratensis</u>	51%	Yes	FAC	
2. <u>Schedonorus arundinaceus</u>	20%	Yes	FAC	
3. <u>Vicia species</u>	15%	No	FAC*	
4. <u>Taraxacum officinale</u>	5%	No	FACU	
5. <u>Rumex crispus</u>	2%	No	FAC	
6. <u>Plantago lanceolata</u>	2%	No	FACU	
7. <u>Daucus carota</u>	2%	No	FACU	
8. <u>Cirsium arvense</u>	2%	No	FAC	
9. <u>Geranium dissectum</u>	1%	No	NOL	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
100% = Total Cover				
Woody Vine Stratum (Plot Size: 10' r or _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>				
Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation (Explain) ¹ ¹ Indicators of hydric soil and wetland hydrology must be present.				
Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>				

Remarks:
 *Assumed FAC.

Appendix D: Representative Site Photographs



Photo A. General site conditions, oriented south-east



Photo B. View of *Plot 1* oriented northeast.



Photo C. View of *Plot 3* oriented east.



Photo D. View of *Plot 4* oriented south.

Detailed Tree Inventory for AFP Systems Site Plan							
AKS Job No. 8627-03 - Evaluation Date: 5/18/2022 - Evaluated by: BRK							
Tree #	DBH (in.)	Avg. Crown Radius (ft)	Tree Species Common Name (<i>Scientific name</i>)	Comments	Health Rating*	Structure Rating**	Remove/Preserve
12554	8	0	Willow (<i>Salix sp.</i>)	Dead	3	3	Remove
12555	14	12	Black Cottonwood (<i>Populus trichocarpa</i>)	Dead primary stem; Broken top; One remaining leader; In significant decline	3	3	Remove
12556	28,14	0	Black Cottonwood (<i>Populus trichocarpa</i>)	Dead	3	3	Remove
<p>Total # of Existing Trees Inventoried = 3</p> <p>Total # of Existing Onsite Trees = 3 Total # of Existing Onsite Trees to be Preserved = 0 Total # of Existing Onsite Trees to be Removed = 3</p> <p>*Health Rating: 1 = Good Health - A tree that exhibits typical foliage, bark, and root characteristics, for its respective species, shows no signs of infection or infestation, and has a high level of vigor and vitality. 2 = Fair Health - A tree that exhibits some abnormal health characteristics and/or shows some signs of infection or infestation, but may be reversed or abated with supplemental treatment. 3 = Poor Health - A tree that is in significant decline, to the extent that supplemental treatment would not likely result in reversing or abating its decline.</p> <p>**Structure Rating: 1 = Good Structure - A tree that exhibits typical physical form characteristics, for its respective species, shows no signs of structural defects of the canopy, trunk, and/or root system. 2 = Fair Structure - A tree that exhibits some abnormal physical form characteristics and/or some signs of structural defects, which reduce the structural integrity of the tree, but are not indicative of imminent physical failure, and may be corrected using arboricultural abatement methods. 3 = Poor Structure - A tree that exhibits extensively abnormal physical form characteristics and/or significant structural defects that substantially reduces the structural viability of the tree, cannot feasibly be abated, and are indicative of imminent physical failure.</p> <p>Arborist Disclosure Statement: Arborists are tree specialists who use their education, knowledge, training, and experience to examine trees, recommend measures to enhance the health of trees, and attempt to reduce the risk of living near trees. The Client and Jurisdiction may choose to accept or disregard the recommendations of the arborist, or seek additional advice. Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like medicine, cannot be guaranteed. Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate all trees. Neither this author nor AKS Engineering & Forestry, LLC have assumed any responsibility for liability associated with the trees on or adjacent to this site.</p> <p>At the completion of construction, all trees should once again be reviewed. Land clearing and removal of adjacent trees can expose previously unseen defects and otherwise healthy trees can be damaged during construction.</p>							

Memorandum

To: **Brooks Bayne**
JBMAC Ventures, LLC

From: **Daniel Stumpf, PE**

Date: **April 14, 2022**

Subject: **Oregon Street Industrial Building**
Trip Generation Analysis



Introduction

This memorandum reports and evaluates the transportation impacts related to the proposed Oregon Street Industrial Building development to be located on two properties at/near 14843 SW Oregon Street in Sherwood, Oregon. The project will include the construction of a 20,000 square foot industrial building. Access to the site will be provided via a proposed driveway along SW Oregon Street, located opposite of SW Lower Roy Street.

The purpose of this memorandum is to examine the projected trip generation of the proposed development and to determine whether the preparation of a full Traffic Impact Analysis (TIA) is necessary per City of Sherwood code. Detailed information on trip generation calculations as well as supporting materials are included as an attachment to this memorandum.

Project Site/Location Description

The project site is located north of SW Oregon Street, approximately between SW Hall Street and SW Lower Roy Street, in Sherwood, Oregon. The site includes two properties (tax lots 2S129DC-00500 and 00600) which are zoned as Light Industrial and encompass an approximate total of 5.5 acres. The subject site is located in a developing industrial area of the City, with industrial/commercial service uses to the north and west, single-family detached houses to the south, and undeveloped land zoned as Light Industrial to the east.

The proposed development will include the construction of a 20,000 square foot industrial building, an outdoor, partially covered storage area, and off-street parking. The building, storage area, and parking will be located on tax lot 500. Access to the site will be provided via a proposed driveway along SW Oregon Street, located opposite of SW Lower Roy Street on tax lot 600.

Figure 1 below presents an aerial image of the nearby vicinity with the project site outlined in yellow.



Figure 1: Aerial Photo of Site Vicinity (Image from Google Earth)

Trip Generation

The proposed development will include the construction of a 20,000 square foot industrial building. To estimate the number of trips that will be generated by the proposed use, trip rates from the *Trip Generation Manual*¹ were used. Data from land use code 110, General Light Industrial, was used to estimate site trip generation based on the square footage of the gross building floor area.

The trip generation calculations show that the proposed project is projected to generate 15 morning peak hour trips, 13 evening peak hour trips, and 98 average weekday trips (inclusive of 6 daily truck trips). The trip generation estimates are summarized in a Table 1. Detailed trip generation calculations are included as an attachment to this memorandum.

Table 1: Trip Generation Summary

ITE Code		Size/Rate	Morning Peak Hour			Evening Peak Hour			Weekday Total
Name	Number		Enter	Exit	Total	Enter	Exit	Total	
Total Trips									
General Light Industrial	110	20,000 SF	13	2	15	2	11	13	98
Truck Trips									
General Light Industrial	110	20,000 SF	0	0	0	0	0	0	6

¹ Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 11th Edition, 2021.



In accordance with City of Sherwood code sections 16.106.040.K and 16.106.080.B², the preparation of a Transportation Impact Study (TIS) is necessary when the following criteria are met.

16.106.040.K – Traffic Controls

2. *For all other proposed developments including commercial, industrial or institutional uses with over an estimated 400 ADT, or as otherwise required by the City Engineer, the application must include a traffic impact analysis to determine the number and types of traffic controls necessary to accommodate anticipated traffic flow.*

16.106.080.B – Applicability

A traffic impact analysis (TIA) shall be required to be submitted to the City with a land use application at the request of the City Engineer or if the proposal is expected to involve one (1) or more of the following:

1. *An amendment to the Sherwood Comprehensive Plan or zoning map.*
2. *A new direct property approach road to Highway 99W is proposed.*
3. *The proposed development generates fifty (50) or more PM peak-hour trips on Highway 99W, or one hundred (100) PM peak-hour trips on the local transportation system.*
4. *An increase in use of any adjacent street or direct property approach road to Highway 99W by ten (10) vehicles or more per day that exceed the twenty thousand-pound gross vehicle weight.*
5. *The location of an existing or proposed access driveway does not meet minimum spacing or sight distance requirements, or is located where vehicles entering or leaving the property are restricted, or such vehicles are likely to queue or hesitate at an approach or access connection, thereby creating a safety hazard.*
6. *A change in internal traffic patterns that may cause safety problems, such as back up onto the highway or traffic crashes in the approach area.*

As detailed in the trip generation analysis, the proposed development is projected to generate less than the City's 50 evening peak hour trip and 400 daily trip thresholds and will not generate 10 or more heavy vehicle (truck) trips per day. Additionally, none of the other aforementioned criteria are met to require the preparation of a TIA. Therefore, preparation of a full TIA is not necessary to report the transportation impacts of the proposed development.

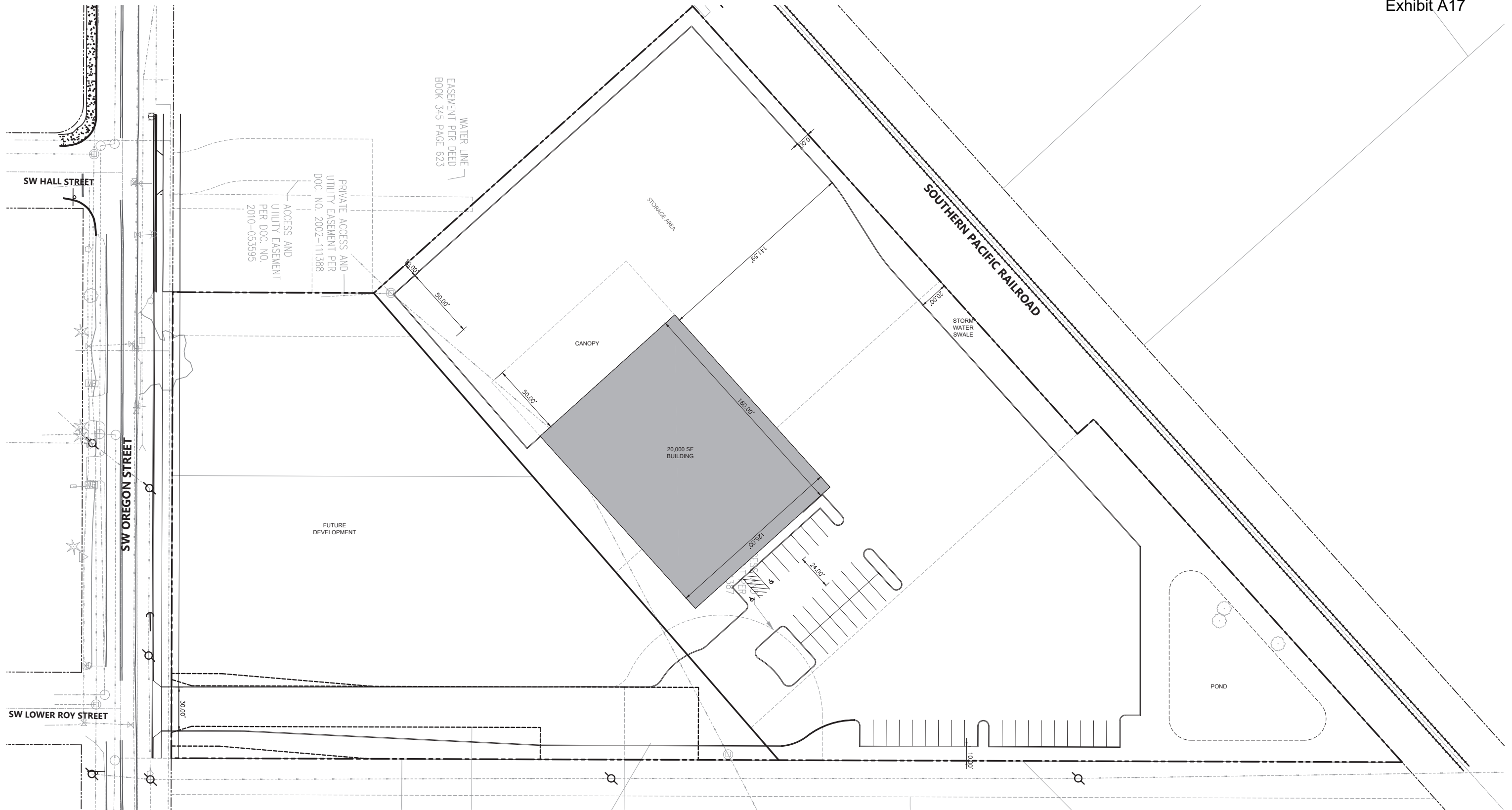
Conclusions

The proposed Oregon Street Industrial Building is projected to generate a 15 morning peak hour trips, 13 evening peak hour trips, and 98 average weekday trips (inclusive of 6 daily truck trips). Given the relatively low number of trips projected to be generated by the proposed development, the trip generation thresholds and other criteria in the City of Sherwood code for requiring the preparation of a full Traffic Impact Analysis are not met. Accordingly, the project is not expected to cause any significant traffic impacts to the transportation system within the site vicinity upon buildout and occupancy.

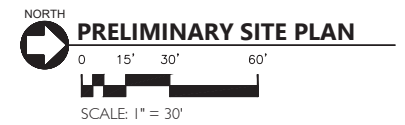
If you have any questions or concerns regarding this analysis or need further assistance, please don't hesitate to contact us.

² [Division VI. - PUBLIC INFRASTRUCTURE | Code of Ordinances | Sherwood, OR | Municode Library](#)





JB MAC - OREGON STREET
SHERWOOD, OREGON
 210129.01
 3/28/22
 15895 SW 72ND AVE SUITE 200
 PORTLAND, OREGON 97224
 TEL: 503.226.1285
 FAX: 503.226.1670





TRIP GENERATION CALCULATIONS
 Source: Trip Generation Manual, 11th Edition
 Total Trip Generation

Land Use: General Light Industrial
Land Use Code: 110
Land Use Subcategory: All Sites
Setting/Location: General Urban/Suburban
Variable: 1000 SF GFA
Trip Type: Vehicle
Variable Quantity: 20

AM PEAK HOUR

Trip Rate: 0.74

	Enter	Exit	Total
Directional Split	88%	12%	
Trip Ends	13	2	15

PM PEAK HOUR

Trip Rate: 0.65

	Enter	Exit	Total
Directional Split	14%	86%	
Trip Ends	2	11	13

WEEKDAY

Trip Rate: 4.87

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	49	49	98

SATURDAY

Trip Rate: 0.69

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	7	7	14



TRIP GENERATION CALCULATIONS
 Source: Trip Generation Manual, 11th Edition
 Truck Trip Generation

Land Use: General Light Industrial
 Land Use Code: 110
 Land Use Subcategory: All Sites
 Setting/Location: General Urban/Suburban
 Variable: 1000 SF GFA
 Trip Type: Truck
 Variable Quantity: 20

AM PEAK HOUR

Trip Rate: 0.01

	Enter	Exit	Total
Directional Split	60%	40%	
Trip Ends	0	0	0

PM PEAK HOUR

Trip Rate: 0.01

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	0	0	0

WEEKDAY

Trip Rate: 0.25

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	3	3	6

SATURDAY

Trip Rate: 0

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	NA	NA	NA

OREGON STREET JB MAC

SHERWOOD, OREGON

JB MAC VENTURES

OWNER

STREET ADDRESS
CITY, STATE, ZIP
(T): (555) 555-5555
(F): (555) 555-5555
CONTACT: --

TBD

CONTRACTOR

STREET ADDRESS
CITY, STATE, ZIP
(T): (555) 555-5555
(F): (555) 555-5555
CONTACT: --

CCB #:-----

CIDA, INC.

ARCHITECT/ STRUCTURAL ENGINEER

15895 SW 72ND AVE, SUITE 200
PORTLAND, OREGON 97224
(T): (503) 226-1285
(F): (503) 226-1670
CONTACT: --

AKS

CIVIL ENGINEER

12965 SW HERMAN ROAD, SUITE 100 |
TUALATIN, OR 97062
503.563.6151 EXT. 273 | C: 971.207.1556 |
CONTACT: TYLER JOKI

AKS

LANDSCAPE DESIGN

12965 SW HERMAN ROAD, SUITE 100 |
TUALATIN, OR 97062
503.563.6151 EXT. 273 | C: 971.207.1556 |
CONTACT:

LEGAL DESCRIPTION

TAX LOT: 25129DC00500
TAX MAP: --

ZONING CODE INFORMATION

ZONE: U

SITE AREA:
COVER: 20,000 SF, 11%
LANDSCAPE: 39,394 SF, 22%
HARDSCAPE: 114,839 SF, 67%
TOTAL SITE AREA: 174,233 SF

PARKING REQUIRED:
INDUSTRIAL : 17,500 SF @ 1.6 STALL/1000 SF = 28 STALLS
GENERAL OFFICE: 5,000 SF @ 2.7 STALL/1000 SF = 13.5 STALLS
TOTAL REQUIRED PARKING: 41.5 STALLS PROVIDED = 43 STALLS

PARKING PROVIDED:
TYPE SIZE # PROVIDED
STANDARD 9' X 20' 41 STALLS
H/C ACCESSIBLE 13' X 20' 02 STALLS
TOTAL PROVIDED PARKING: 43 STALLS

BUILDING SETBACKS REQUIRED:
FRONT 20 FT (22 FT PROVIDED)
SIDE NONE (100 FT PROVIDED)
REAR NONE (151 FT PROVIDED)

BUILDING HEIGHT LIMIT: 50 FT (29'-8" PROVIDED)

BUILDING CODE INFORMATION

DESIGN CODE: 2019 OREGON STRUCTURAL SPECIALTY CODE (OSSC)
OCCUPANCY: F-1, S-1, B (NON-SEPARATED)
CONSTRUCTION TYPE: II-B (SPRINKLERED)

BUILDING AREA:
1ST FLOOR: 20,000 SF
MEZZANINE: 2,500 SF
TOTAL BUILDING AREA: 22,500 SF

SEE FIRE AND LIFE SAFETY SHEET FOR FULL CODE SUMMARY

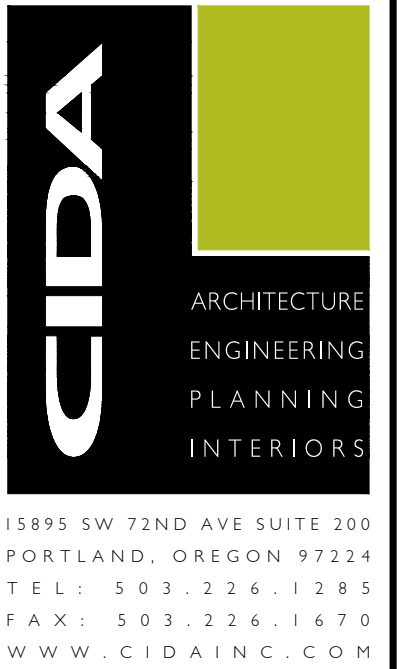
PROJECT DESCRIPTION

NEW 22,500 SF WAREHOUSE AND OFFICE DEVELOPMENT TWO DRIVE IN OVERHEAD DOORS, OFFICE MEZZANINE, AND OUTDOOR STORAGE TO BE SCREENED FROM VIEW.

NO.	DATE	DESCRIPTION
1	05/16/2022	1 - SITE PLAN REVIEW
2		
RELEASES		
COVER SHEET		
		CS1 COVER SHEET
CIVIL		
		C02 EXISTING CONDITIONS PLAN
		C20 GRADING, EROSION, & SEDIMENT CONTROL PLAN
		C30 STORMWATER DRAINAGE PLAN
		C40 UTILITY PLAN
LANDSCAPE		
		L1.0 LANDSCAPE PLAN
		L1.1 LANDSCAPE PLAN
SITE LIGHTING		
		SLO.1 SITE LIGHTING PLAN
ARCHITECTURAL		
		A0.1 ARCHITECTURAL SITE PLAN
		A0.3 SURROUNDING USE PLAN
		AT0.1 TRANSPORTATION PLAN
		A2.1 EXTERIOR ELEVATIONS
STRUCTURAL		



DATE: 05/16/2022
NO. 1 - SITE PLAN REVIEW



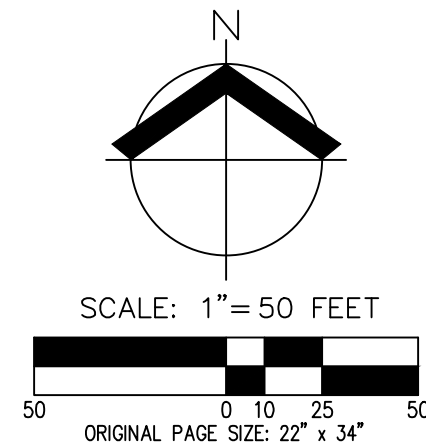
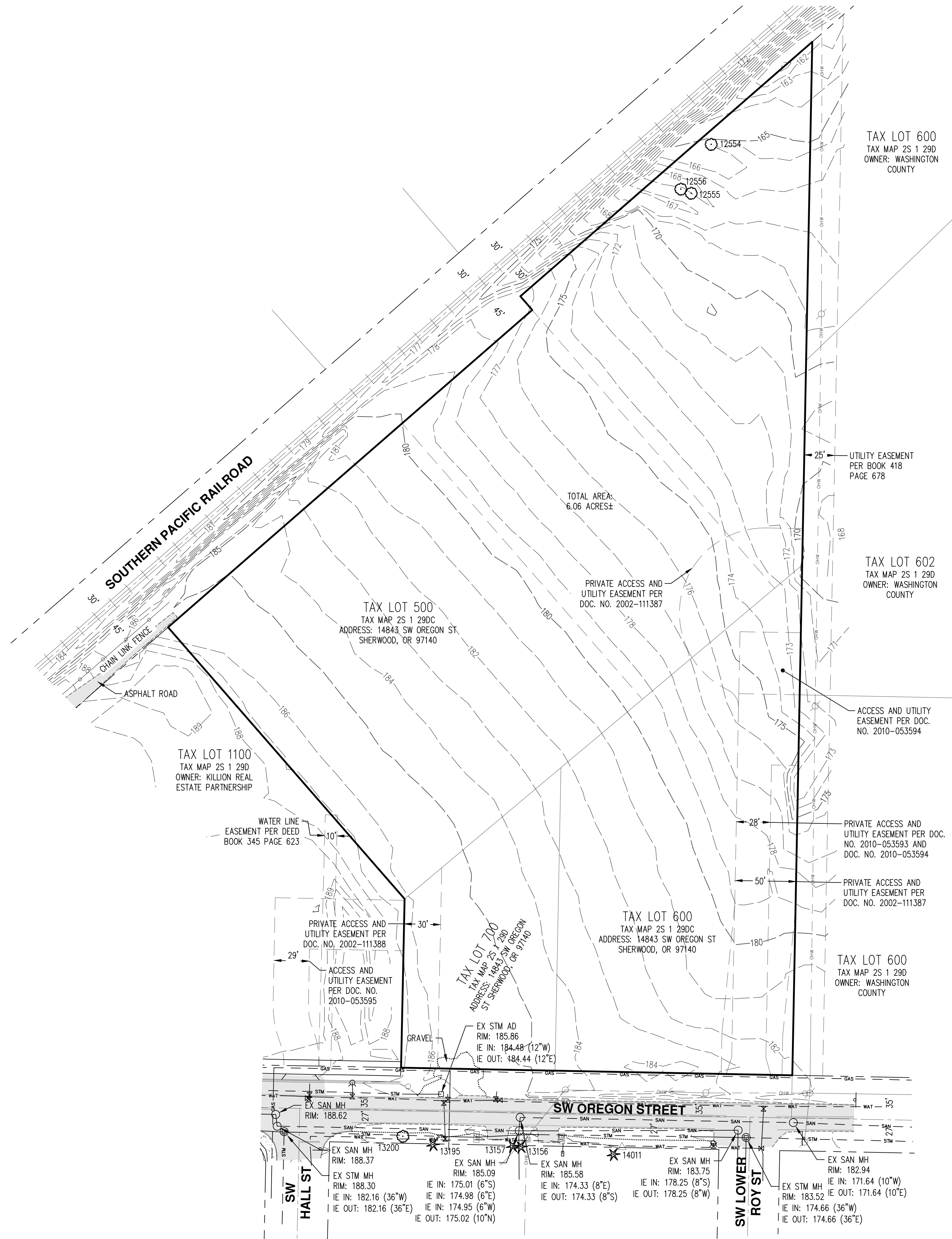
NEW CONSTRUCTION FOR:
OREGON STREET JBMAC
14843 SW OREGON STREET
SHERWOOD, OREGON

COVER SHEET

CS1

JOB NO. 21012901

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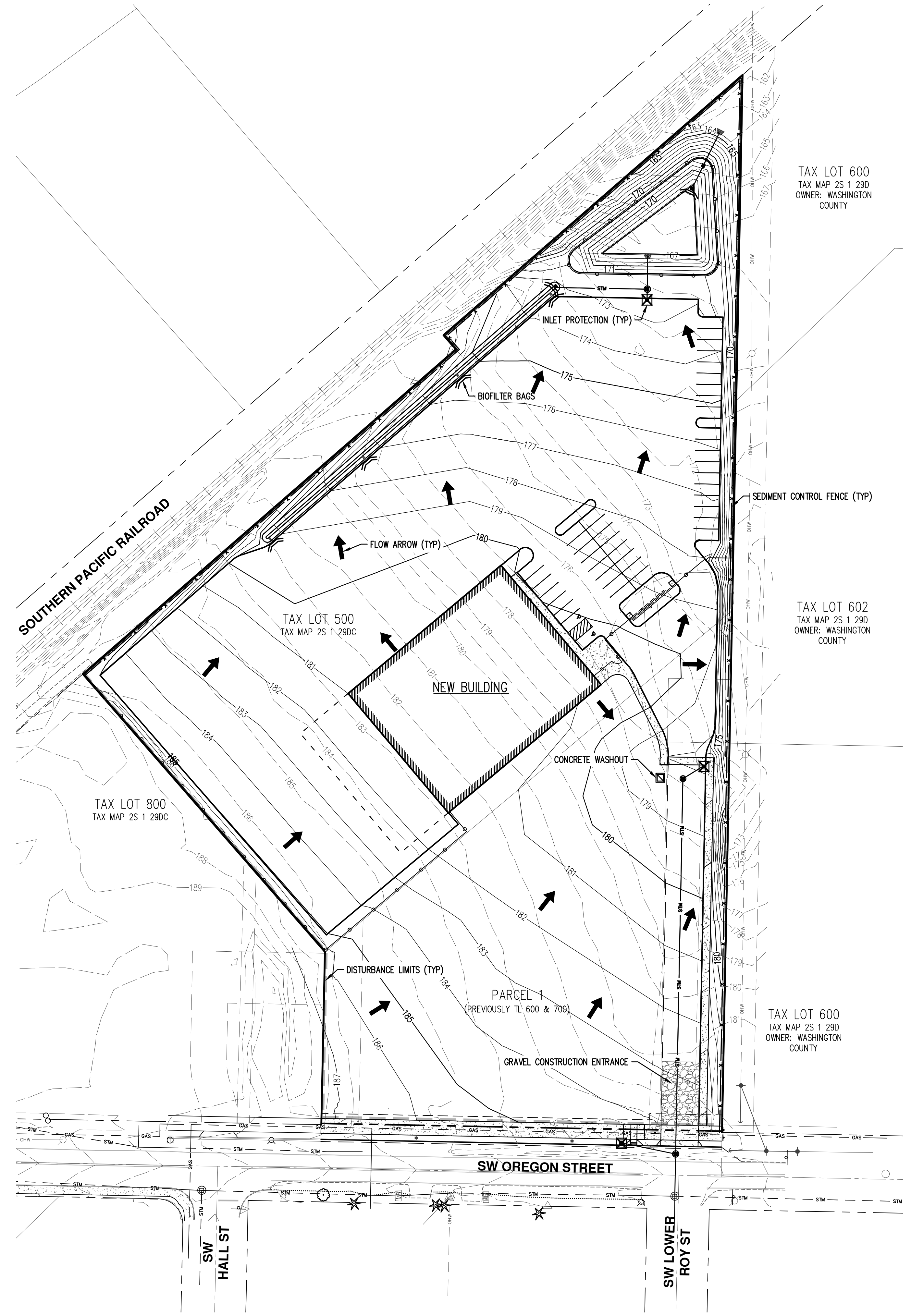
- NOTES:**
- UTILITIES SHOWN ARE BASED ON UNDERGROUND UTILITY LOCATE MARKINGS AS PROVIDED BY OTHERS, PROVIDED PER UTILITY LOCATE TICKET NUMBERS 21021448 AND 21021450. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND LOCATES REPRESENT THE ONLY UTILITIES IN THE AREA. CONTRACTORS ARE RESPONSIBLE FOR VERIFYING ALL EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION.
 - FIELD WORK WAS CONDUCTED FEBRUARY 3 - 4, 2021.
 - VERTICAL DATUM: ELEVATIONS ARE BASED ON A 2" DIAMETER BRASS CAP MARKED "NO. 1, 1988", IN A MONUMENT BOX NEAR THE SOUTH EDGE OF PAVEMENT OF HIGHWAY 99 WEST 300 FEET± SOUTHWEST OF SIX CORNERS. ELEVATION: 210.40 FEET (NGVD29).
 - 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.
 - CONTOUR INTERVAL IS 1 FOOT.
 - TREES WITH DIAMETER OF 6" AND GREATER ARE SHOWN. TREE DIAMETERS WERE DETERMINED BY VISUAL INSPECTION. TREE INFORMATION IS SUBJECT TO CHANGE UPON ARBORIST INSPECTION.

TREE TABLE		
TREE NUMBER	TYPE	DBH (IN.)
12554	DECIDUOUS	8
12555	DECIDUOUS	14
12556	DECIDUOUS	14,28

**EXISTING CONDITIONS PLAN
 OREGON STREET JBMAC
 SHERWOOD, OREGON**

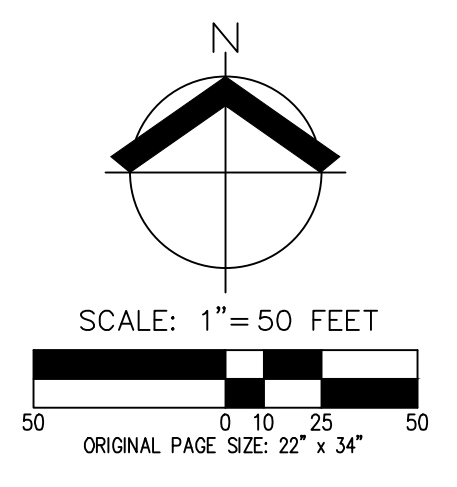
**PRELIMINARY
 NOT FOR
 CONSTRUCTION**

JOB NUMBER: 8627-03
 DATE: 05/19/2022
 DESIGNED BY: APC & TJ
 DRAWN BY: APC
 CHECKED BY: BGC

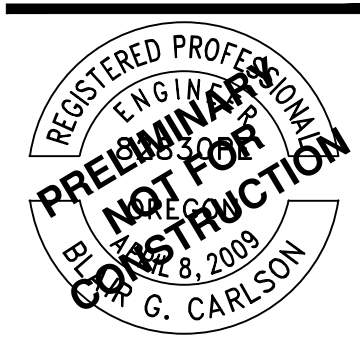


LEGEND

EXISTING GROUND CONTOUR (1 FT)	---	344
EXISTING GROUND CONTOUR (5 FT)	---	345
FINISHED GRADE CONTOUR (1 FT)	---	344
FINISHED GRADE CONTOUR (5 FT)	---	345
SEDIMENT FENCE	x	x
INLET PROTECTION	⊠	
BIOFILTER BAG	⊠	
CONCRETE WASHOUT AREA	⊠	
DRAINAGE FLOW DIRECTION	↓	
GRAVEL CONSTRUCTION ENTRANCE	⊠	
LIMITS OF DISTURBANCE	- - -	



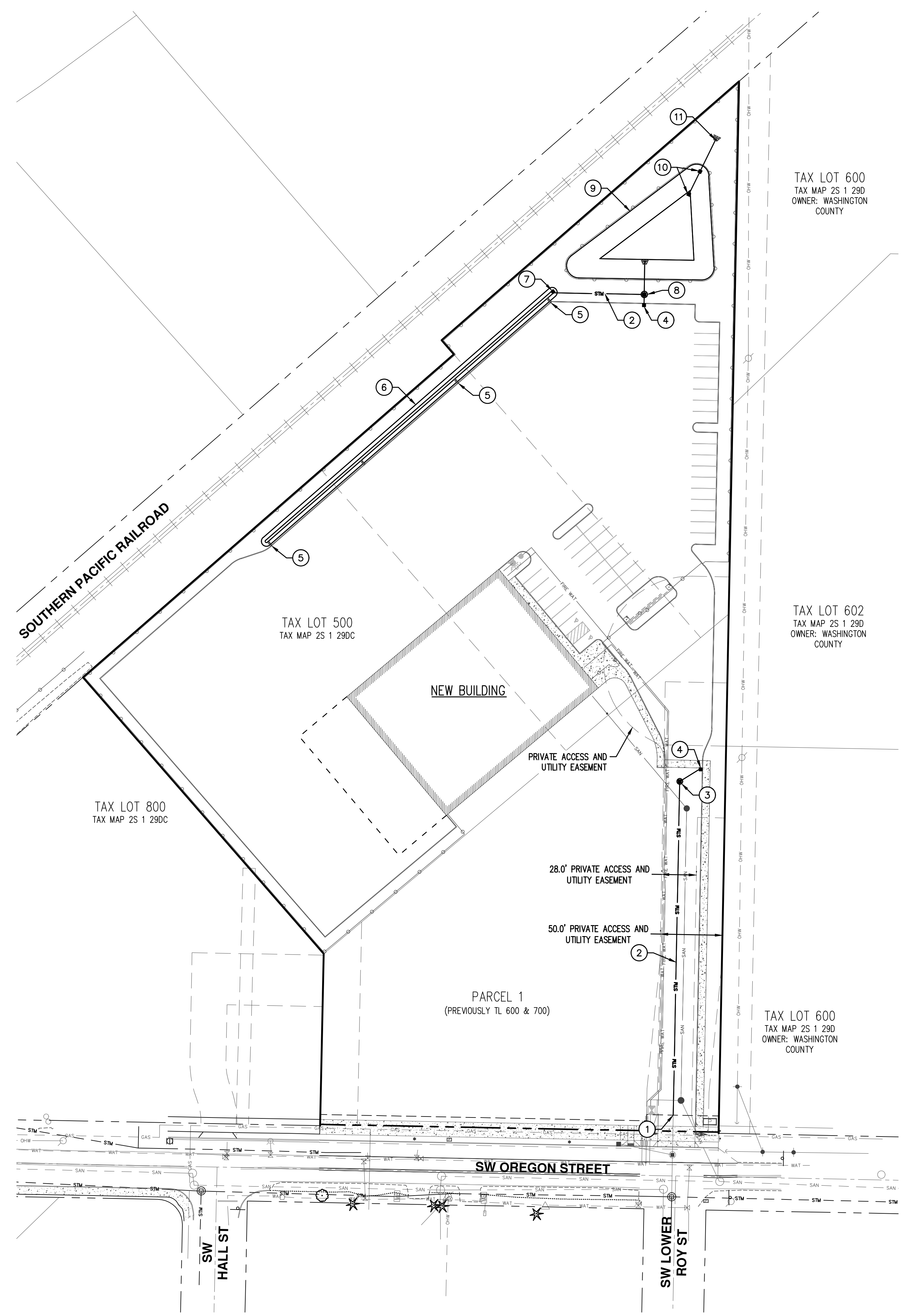
PRELIMINARY GRADING, EROSION, AND SEDIMENT CONTROL PLAN
OREGON STREET JBMAC
SHERWOOD, OREGON



RENEWALS:

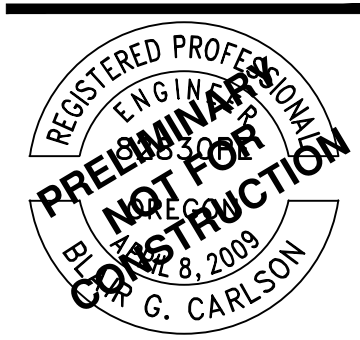
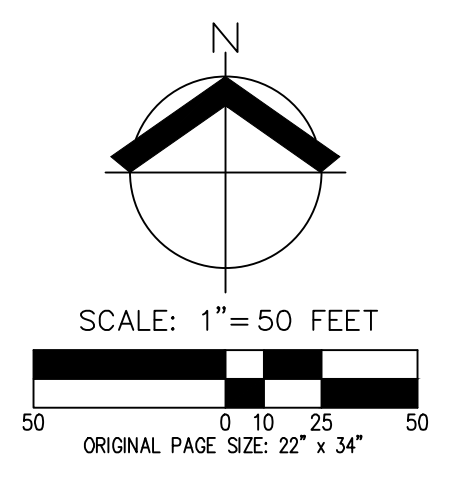
JOB NUMBER:	8827-03
DATE:	05/19/2022
DESIGNED BY:	APC & TJ
DRAWN BY:	APC
CHECKED BY:	BGC

C2.0



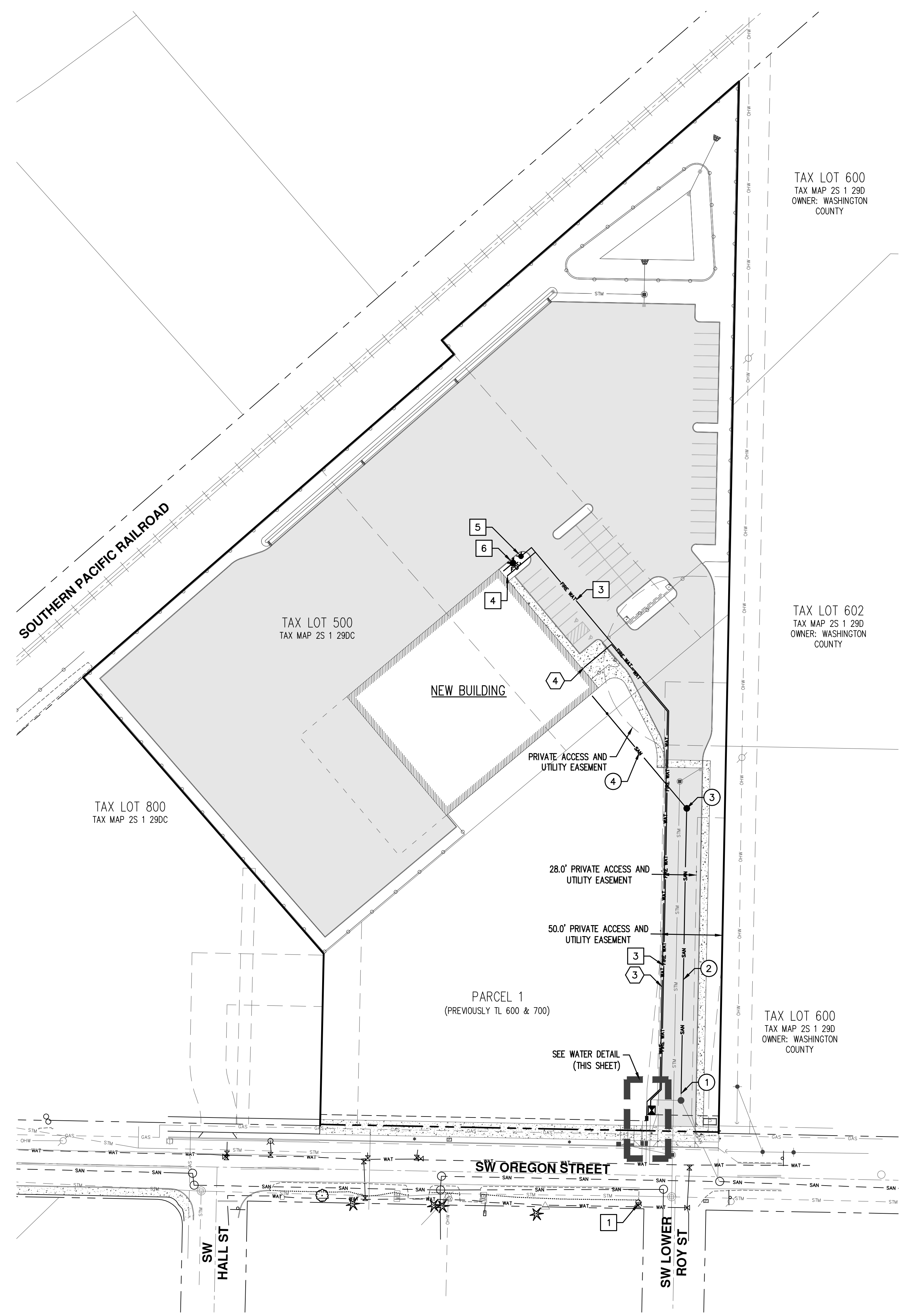
- # STORMWATER KEYED NOTES:**
1. CONNECTION TO NEW STORMWATER STUB TO BE INSTALLED WITH SW OREGON STREET FRONTAGE IMPROVEMENTS.
 2. NEW STORMWATER DRAINAGE PIPE.
 3. NEW STORMWATER MANHOLE.
 4. NEW STORMWATER AREA DRAIN.
 5. NEW CURB CUT WITH RIP RAP.
 6. NEW STORMWATER CONVEYANCE SWALE.
 7. NEW STORMWATER DITCH INLET.
 8. NEW WATER QUALITY MANHOLE.
 9. NEW VEGETATED STORMWATER DETENTION AND WATER QUALITY FACILITY.
 10. NEW STORMWATER FACILITY OVERFLOW STRUCTURE.
 11. NEW STORMWATER FACILITY OUTFALL LOCATION.

**PRELIMINARY STORMWATER DRAINAGE PLAN
 OREGON STREET JBMAC
 SHERWOOD, OREGON**



RENEWALS:	
JOB NUMBER:	8827-03
DATE:	05/19/2022
DESIGNED BY:	APC & TJ
DRAWN BY:	APC
CHECKED BY:	BGC

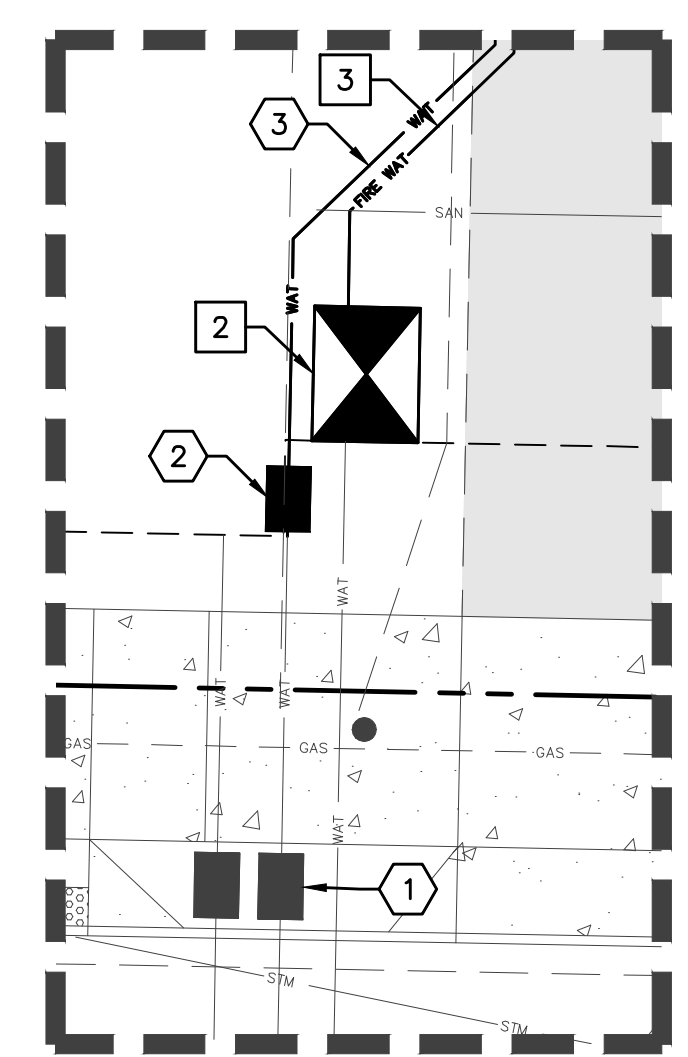
C3.0



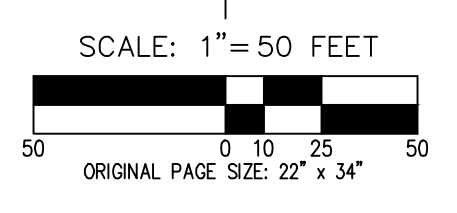
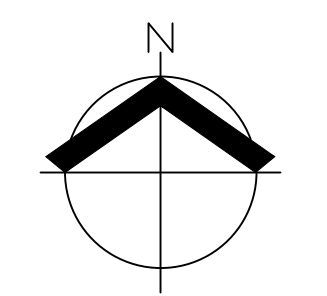
- 1. SANITARY SEWER KEYED NOTES:**
1. CONNECTION TO NEW SANITARY SEWER STUB TO BE INSTALLED WITH SW OREGON STREET FRONTAGE IMPROVEMENTS.
 2. NEW SANITARY SEWER PIPE.
 3. NEW SANITARY SEWER MANHOLE.
 4. NEW SANITARY SEWER SERVICE LATERAL.

- 2. FIRE WATER KEYED NOTES:**
1. EXISTING FIRE HYDRANT.
 2. NEW FIRE WATER DOUBLE CHECK.
 3. NEW FIRE WATER MAIN.
 4. NEW FIRE WATER SERVICE FOR BUILDING CONNECTION.
 5. NEW FIRE HYDRANT.
 6. NEW FDC CONNECTION.

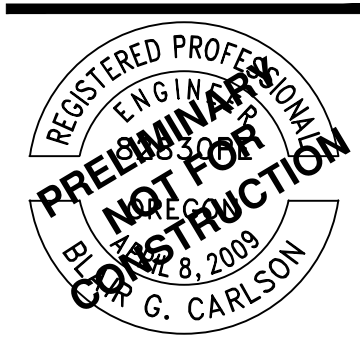
- 3. DOMESTIC WATER KEYED NOTES:**
1. NEW 1" METER IN VAULT INSTALLED WITH SW OREGON STREET FRONTAGE IMPROVEMENTS.
 2. NEW DOMESTIC WATER DOUBLE CHECK.
 3. NEW DOMESTIC WATER LINE.
 4. NEW WATER SERVICE FOR BUILDING CONNECTION.



WATER DETAIL
 1" = 10'



**PRELIMINARY COMPOSITE UTILITY PLAN
 OREGON STREET JBMAC
 SHERWOOD, OREGON**

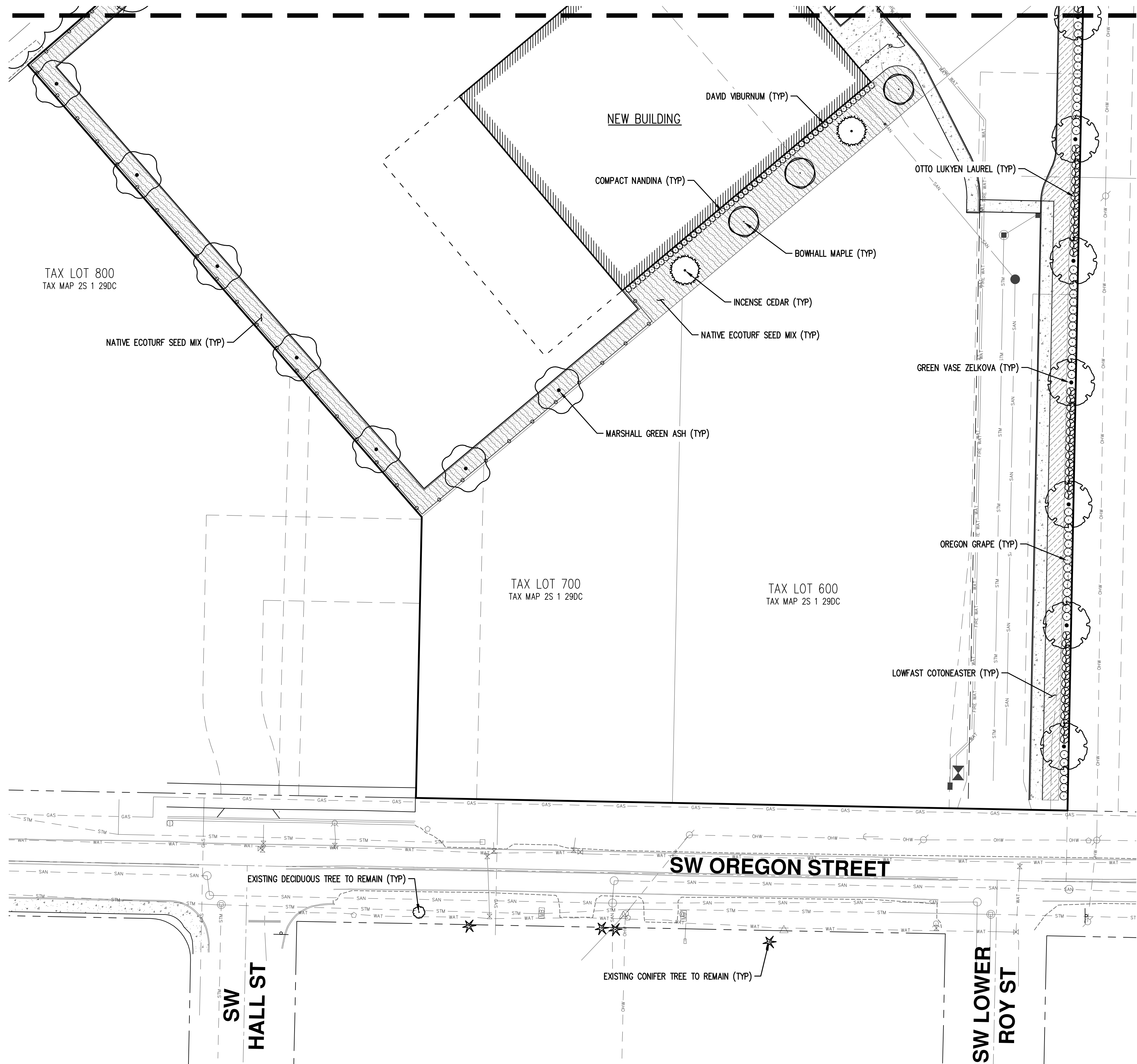


REVISIONS:

JOB NUMBER:	8827-03
DATE:	05/19/2022
DESIGNED BY:	APC & TJ
DRAWN BY:	APC
CHECKED BY:	BGC

C4.0

MATCH LINE - SEE SHEET L2.0



PRELIMINARY PLANT SCHEDULE

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE/CONTAINER	SPACING
	3	ACER RUBRUM 'BOWHALL' SMALL TREE (CANOPY FACTOR 15)	BOWHALL RED MAPLE	2" CAL. B&B	AS SHOWN
	2	CALOCEDRUS DECURRENS MEDIUM TREE (CANOPY FACTOR 60)	INCENSE CEDAR	6" HT. B&B	AS SHOWN
	15	FRAXINUS PENNSYLVANICA 'MARSHALL' LARGE TREE (CANOPY FACTOR 200)	MARSHALL GREEN ASH	2" CAL. B&B	AS SHOWN
	3	PINUS NIGRA LARGE TREE (CANOPY FACTOR 100)	AUSTRIAN PINE	6" HT. B&B	AS SHOWN
	10	QUERCUS COCCINEA LARGE TREE (CANOPY FACTOR 150)	SCARLET OAK	2" CAL. B&B	AS SHOWN
	15	ZELKOVA SERRATA 'GREEN VASE' LARGE TREE (CANOPY FACTOR 192)	GREEN VASE SAWLEAF ZELKOVA	2" CAL. B&B	AS SHOWN
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE/CONTAINER	SPACING
	78	MAHONIA AQUIFOLIUM	OREGON GRAPE	2 GAL. CONT.	48" o.c.
	28	MAHONIA AQUIFOLIUM 'COMPACTA'	COMPACT OREGON GRAPE	1 GAL. CONT.	36" o.c.
	38	NANDINA DOMESTICA 'COMPACTA'	COMPACT NANDINA	2 GAL. CONT.	36" o.c.
	76	PRUNUS LAUROCERASUS 'OTTO LUYKEN'	OTTO LUYKEN ENGLISH LAUREL	2 GAL. CONT.	48" o.c.
	73	VIBURNUM DAVIDII	DAVID VIBURNUM	1 GAL. CONT.	36" o.c.
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	SIZE/CONTAINER	SPACING
	342	COTONEASTER DAMMERI 'LOWFAST'	LOWFAST BEARBERRY COTONEASTER	1 GAL. CONT.	42" o.c.
	267	RUBUS CALYCINOIDES 'EMERALD CARPET'	EMERALD CARPET CREEPING BRAMBLE	1 GAL. CONT.	36" o.c.
	±22,086 SF	NATIVE ECOTURF SEED MIX			
	±9,320 SF	STORMWATER FACILITY - TO BE PLANTED PER CLEAN WATER SERVICES (CWS) STANDARDS			

GENERAL LANDSCAPE NOTES

- CONTRACTOR IS RESPONSIBLE FOR VERIFYING PLANT QUANTITIES. IF DISCREPANCIES OCCUR, DESIGN INTENT PREVAILS OVER QUANTITIES LISTED.
- PLANTING PLAN IS INTENDED TO SHOW DESIGN INTENT ONLY AND IS PRELIMINARY. PLANT SPECIES, SIZES, LOCATIONS, QUANTITIES, AND OTHER PLAN CHANGES MAY BE SUBSTITUTED OR REVISED PRIOR TO FINAL SUBMITTAL DUE TO SITE CONDITIONS AND PLANT AVAILABILITY WHERE ALLOWED BY SHERWOOD DESIGN STANDARDS.
- ALL TREES SHALL CONFORM TO APPLICABLE CITY OF SHERWOOD DESIGN STANDARDS AND MEET THE REQUIREMENTS OF THE AMERICAN ASSOCIATION OF NURSERYMEN (AAN) STANDARDS FOR NURSERY STOCK (ANSI Z60.2) FOR GRADE NO. 1 OR BETTER. PLANT IN ACCORDANCE WITH 'BEST-PRACTICE' INDUSTRY STANDARDS ADOPTED BY THE OREGON LANDSCAPE CONTRACTORS BOARD (OLCB).
- CONTRACTOR SHALL INSTALL ROOT BARRIER ADJACENT TO HARD SURFACE FOR TREES WITHIN 4' OF PAVING. ROOT BARRIER SHALL BE A MINIMUM OF 18" DEEP X 10' LONG AND CENTERED ON THE TREE TRUNK ADJACENT TO PAVING.
- DOUBLE STAKE ALL TREES. REFER TO CITY OF SHERWOOD STANDARD TREE PLANTING DETAIL.
- ALL TREES SHALL BE PLANTED A MINIMUM OF 3' O.C. FROM BACK OF PAVING. CONTRACTOR SHALL FIELD ADJUST IF NECESSARY TO AVOID CONFLICTS WITH UTILITIES, LIGHTS, VAULTS, BUILDING AND ROOF OVERHANGS, EXISTING VEGETATION AND TREE CANOPIES, ETC.
- SOIL PREPARATION: ALL TREE, SHRUB, AND GROUND COVER AREAS SHALL HAVE A MINIMUM OF 12" OF CLEAN TOPSOIL, PLUS AN ADDITIONAL 24" OF NON-COMPACTED SUBSOIL AVAILABLE. EXISTING NATIVE SOIL OR STOCKPILED TOPSOIL STRIPPING MAY BE USED. TOPSOIL SHALL BE RICH DARK BROWN IN COLOR AND VOID OF ROOTS, PLANTS, WEED SEEDS, SOD, STONES, CLAY LUMPS, ALKALI SALTS, DEBRIS, AND OTHER EXTRANEIOUS MATERIALS HARMFUL TO PLANT GROWTH. FINISH GRADE OF NEW PLANTING AREAS SHALL SEAMLESSLY MEET FINISH GRADE OF EXISTING LANDSCAPE AREAS TO REMAIN AND AS SHOWN ON GRADING PLANS. TOPSOIL SHALL BE PLACED AND WORKED IN FRIABLE (WORKABLE) CONDITION. BACKFILL ALL PLANTING HOLES WITH 1/3 ORGANIC MATERIALS, 1/3 TOPSOIL, AND 1/3 SANDY LOAM.
- MULCH: APPLY 3" DEEP MEDIUM GRIND OR SHREDDED DARK HEMLOCK OR FIR MULCH AROUND ALL PLANTINGS. DO NOT COVER FOLIAGE OR ROOT CROWNS OF PLANTS WITH BARK MULCH. TREES AND OTHER PLANTS SHALL BE SET TO ACCOMMODATE MULCH APPLICATION WITHOUT BURYING ROOT CROWNS.
- IRRIGATION: LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING A PERMANENT, UNDERGROUND 'DESIGN-BUILD' IRRIGATION SYSTEM TO WATER ALL NEW PLANTING BED AREAS. COORDINATE POINT-OF-CONNECTION (POC), CITY APPROVED DOUBLE-CHECK VALVE ASSEMBLY, AND SLEEVING LOCATIONS WITH GENERAL CONTRACTOR PRIOR TO INSTALLATION OF HARD SURFACING (SIDEWALKS, ROADWAYS, ETC.).

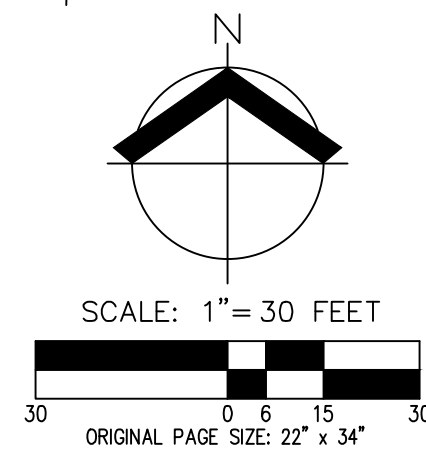
TREE CANOPY REQUIREMENT

SITE AREA = ±194,470 SF
 30% TREE CANOPY REQUIREMENT = 58,341 SF
 STANDARD HAS BEEN MET BY PROVIDING 69,883 SF TREE CANOPY CALCULATED AS FOLLOWS:

(3)	ACER RUBRUM 'BOWHALL'	= (3.14* 7.5X7.5)	= 176.6 SF X 3	= 529 SF
(2)	CALOCEDRUS DECURRENS	= (3.14* 15X15)	= 706.5 SF X 2	= 1,413 SF
(15)	FRAXINUS PENNSYLVANICA 'MARSHALL'	= (3.14* 20X20)	= 1,256 SF X 15	= 18,840 SF
(3)	PINUS NIGRA	= (3.14* 20X20)	= 1,256 SF X 3	= 3,768 SF
(10)	QUERCUS COCCINEA	= (3.14* 22.5X22.5)	= 1,589.6 SF X 10	= 15,896 SF
(15)	ZELKOVA SERRATA 'GREEN VASE'	= (3.14* 25X25)	= 1,962.5 SF X 15	= 29,437 SF
				TOTAL 69,883 SF

PARKING LOT LANDSCAPE DATA

TOTAL PARKING SPACES = 43
 PARKING LOT TREES REQUIRED = 1 LARGE TREE PER 4 PARKING SPACES;
 1 MEDIUM TREE PER 3 PARKING SPACES; 1 SMALL TREE PER 2 PARKING SPACES
 PARKING LOT TREES PROPOSED = 11 LARGE TREES (44 SPACES)
 TOTAL PARKING LOT SHRUBS REQUIRED = 86 SHRUBS
 TOTAL PARKING LOT SHRUBS PROPOSED = 86 SHRUBS

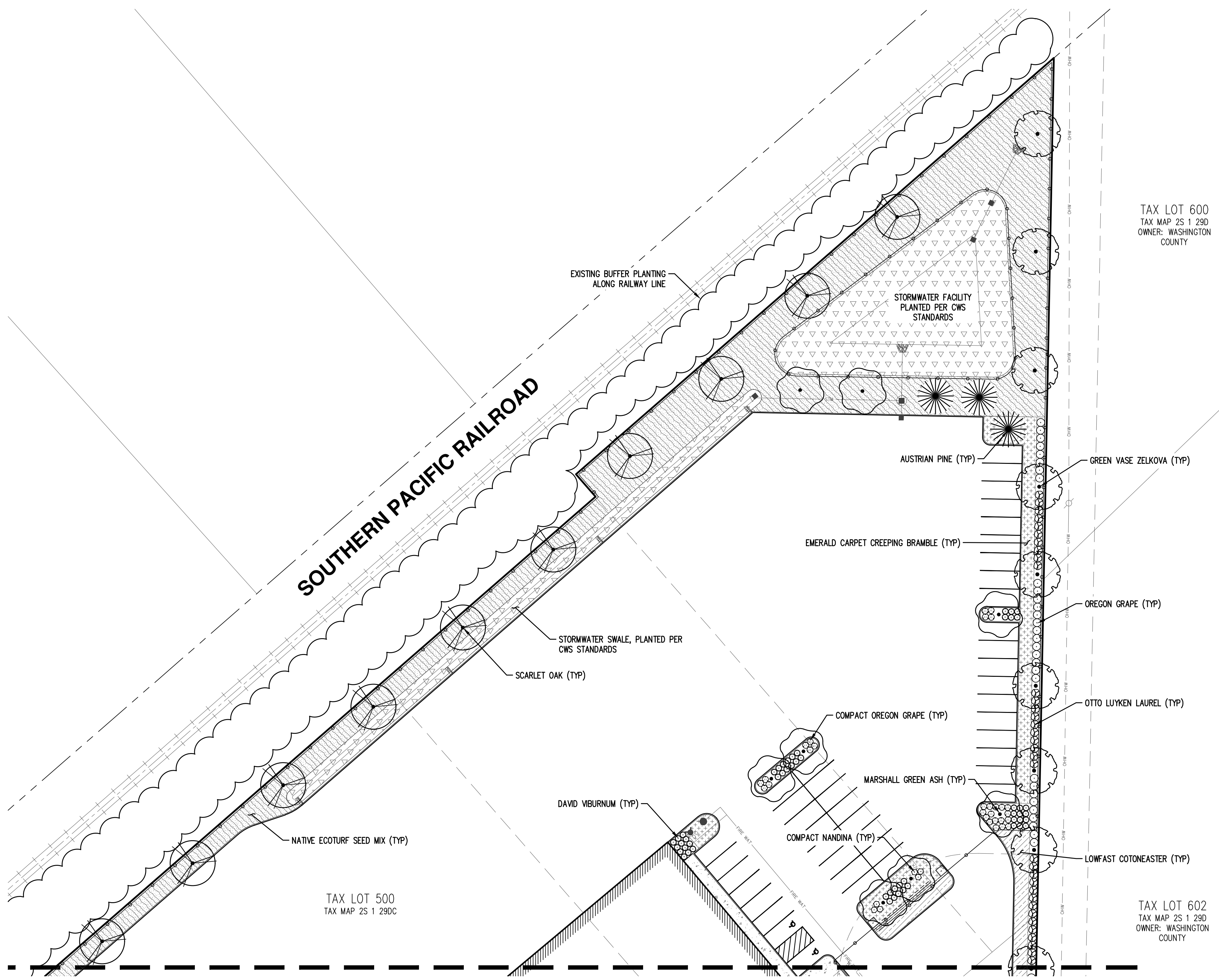


PRELIMINARY LANDSCAPE PLAN (SOUTH)
OREGON STREET JBMAC
SHERWOOD, OREGON



JOB NUMBER:	8827-03
DATE:	05/19/2022
DESIGNED BY:	TEB
DRAWN BY:	TEB
CHECKED BY:	BGC

L1.0



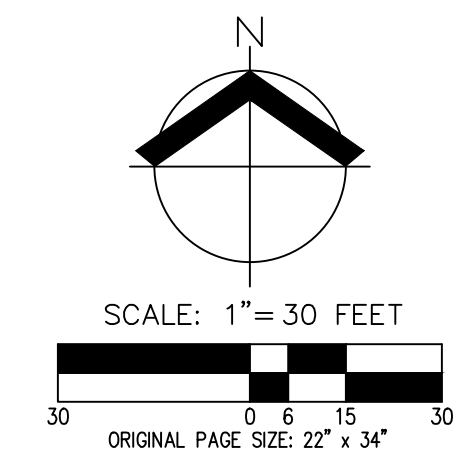
TAX LOT 600
 TAX MAP 2S 1 29D
 OWNER: WASHINGTON COUNTY

TAX LOT 500
 TAX MAP 2S 1 29DC

TAX LOT 602
 TAX MAP 2S 1 29D
 OWNER: WASHINGTON COUNTY

MATCH LINE - SEE SHEET L1.0

GENERAL NOTE
 REFER TO SHEET L1.0 FOR PLANTING SCHEDULE AND GENERAL LANDSCAPE NOTES.

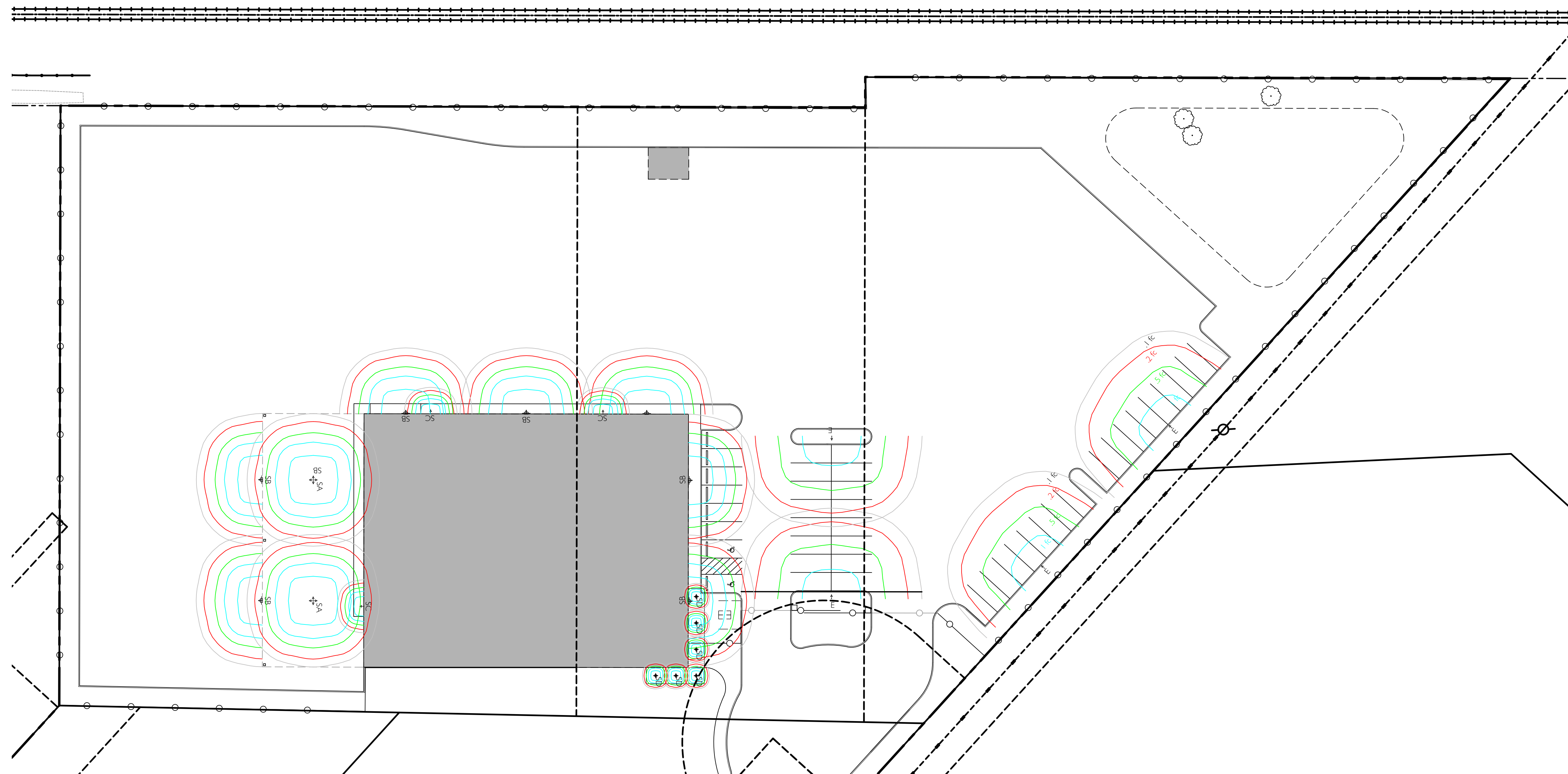


**PRELIMINARY LANDSCAPE PLAN (NORTH)
 OREGON STREET JBMAC
 SHERWOOD, OREGON**



JOB NUMBER:	8827-03
DATE:	05/19/2022
DESIGNED BY:	TEB
DRAWN BY:	TEB
CHECKED BY:	BGC

L1.1



1 LIGHTING SITE PLAN
SCALE: 1"=50'-0"

GENERAL NOTES

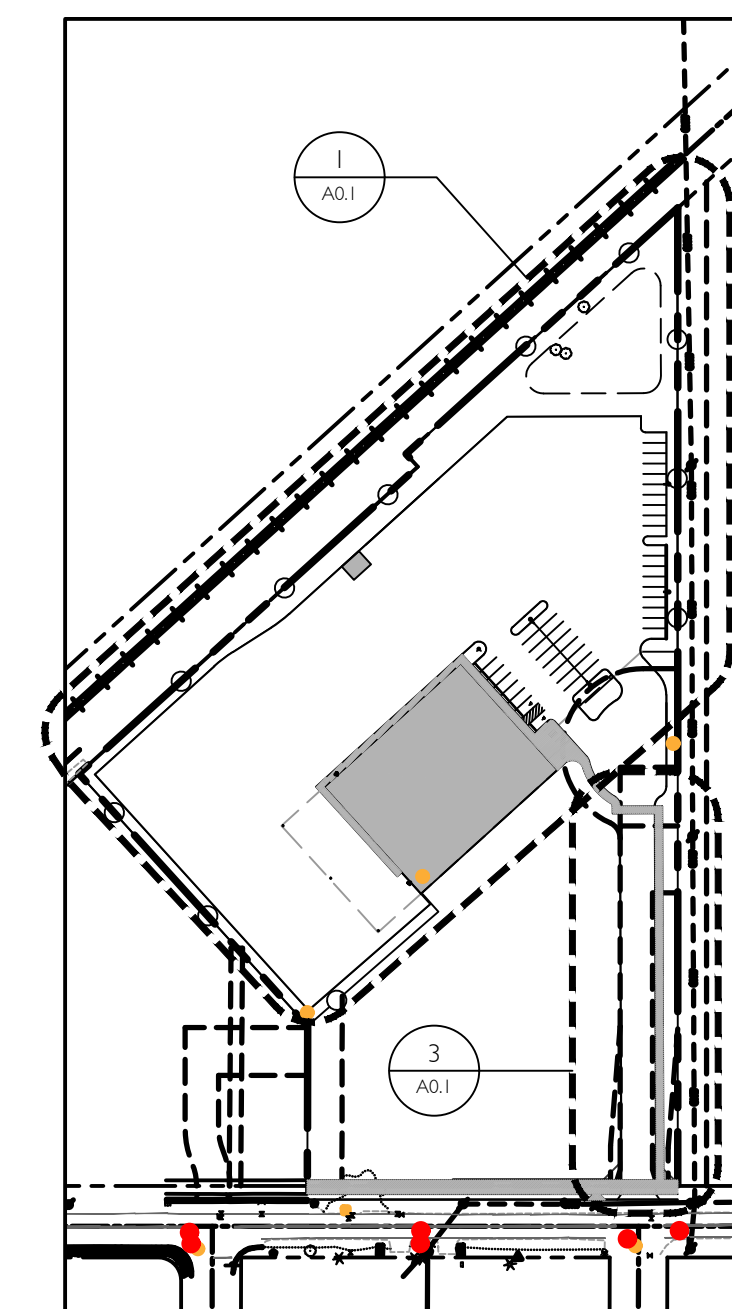
- CONTRACTOR SHALL VERIFY AND CONFIRM EXISTING CONDITIONS SHOWN OR IMPLIED ON DRAWINGS PRIOR TO START OF CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES.
- SITE LIGHTING IS DIAGRAMMATIC. FINAL DESIGN SHALL BE BY ELECTRICAL CONTRACTOR.
- ISOLUMS SHOWN ILLUSTRATE APPROXIMATE .5 FC RING IN PARKING AND ACCESSIBLE AREAS
- LIGHTING STANDARDS SHOWN IN PARKING AREAS SHALL BE ENCASED IN 1'-6" DIAMETER x 3'-0" TALL SOLID CONCRETE BASES
- ALL LIGHTING SHOWN SHALL BE MODIFIED WITH CUTOFF FIXTURES AS REQUIRED TO PREVENT LIGHT FROM SHINNING DIRECTLY OFF DEVELOPED AREA.
- FIXTURES AND POLES SHALL BE DARK BRONZE ANODIZED

LEGEND

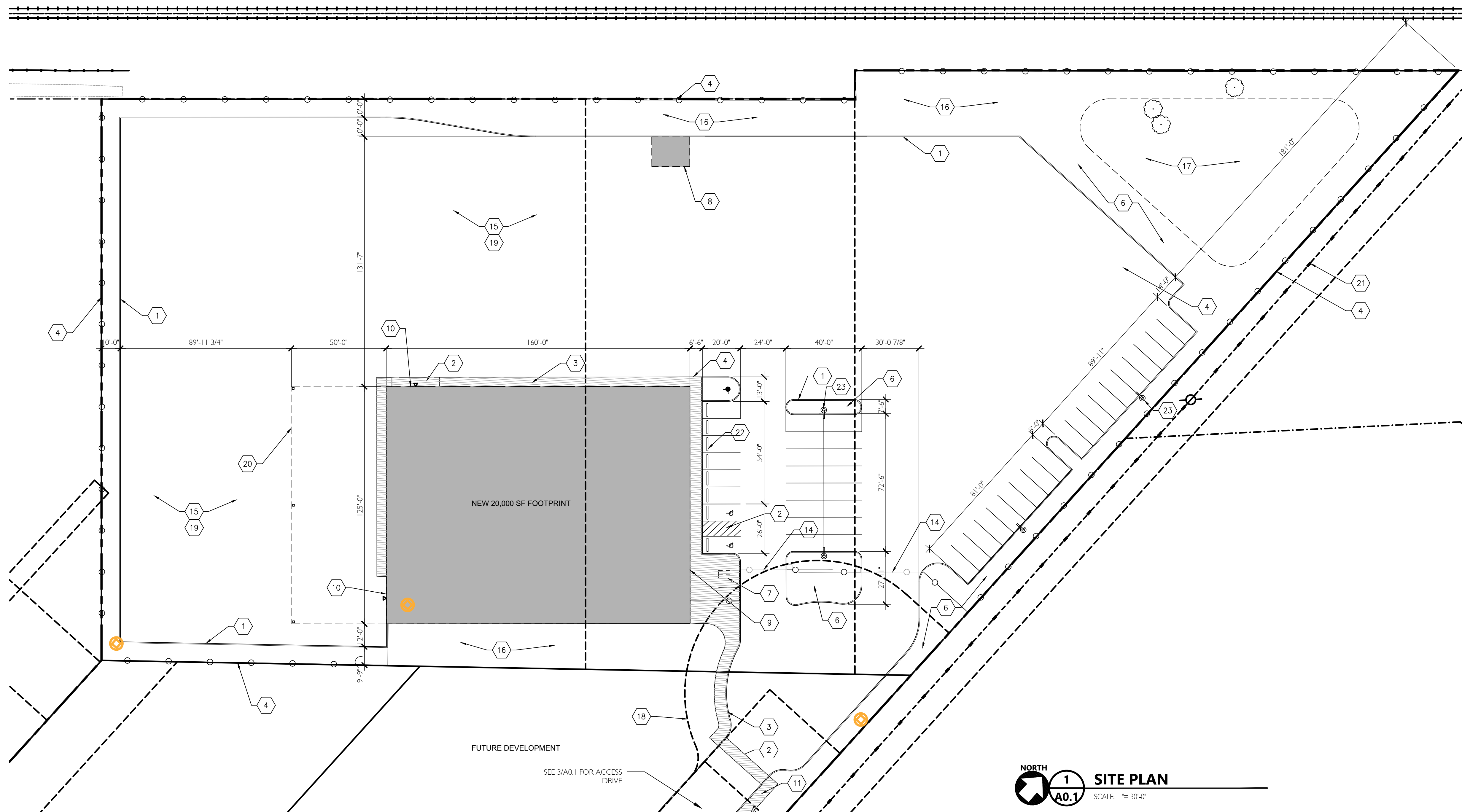
	SD HALO HC6 LED DOWNLIGHT CANOPY MOUNTED LIGHT FIXTURE @ 11'-0" A.F.F.
	SC OWL EM BZ MB BUILDING MOUNTED LIGHT FIXTURE @ 9'-0" A.F.F.
	SB LITHONIA WALL PACK 40K LED PDBXD BUILDING MOUNTED @ 22'-6" A.F.F.
	SA MCGRAW-EDISON TOPTIER D7 CANOPY MOUNTED LIGHT FIXTURE @ 18'-0" A.F.F.
	LIGHT POLE MOUNTED LIGHT - 25' HIGH POLE

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INTERIORS
15895 SW 72ND AVE SUITE 200
PORTLAND, OREGON 97224
TEL: 503.226.1285
FAX: 503.226.1670
WWW.CIDAINC.COM

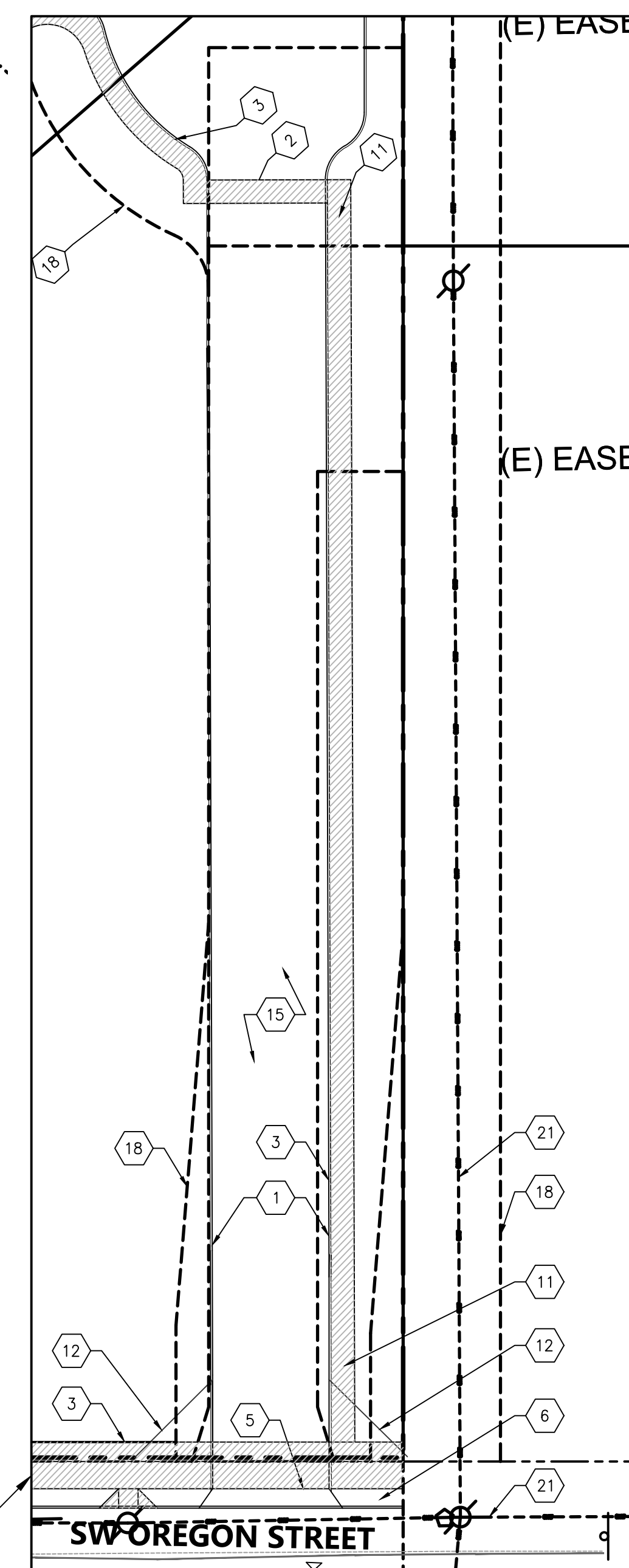
NEW CONSTRUCTION FOR:
OREGON STREET JBMAC
14843 SW OREGON STREET
SHERWOOD, OREGON



2 OVERALL KEY PLAN
SCALE: NOT TO SCALE



1 SITE PLAN
SCALE: 1" = 30'-0"



3 ACCESS SITE PLAN
SCALE: 1" = 30'-0"

LEGAL DESCRIPTION

TAX LOT: TAX LOT 500 25129D; FRONTAGE IMPROVEMENTS ON LOTS 900 AND 1000
 ADDRESS: 14843 SW OREGON STREET SHERWOOD, OR
 SITE AREA: 4.00 ACRES 0
 BUILDING AREA:
 FIRST FLOOR OFFICE: 2,500 SF
 SECOND FLOOR OFFICE: 2,500 SF
 WAREHOUSE: 17,500 SF
 TOTAL: 22,500 SF (20,000 SF FOOTPRINT)

LANDSCAPE AREA - PROPOSED: XXXX SF (XXX%)

PARKING PROVIDED:

TYPE	SIZE	# PROVIDED
STANDARD	9' X 20'	41 STALLS
H/C ACCESSIBLE	9' X 20'	2 STALLS
TOTAL PROVIDED PARKING:		43 STALLS

KEYNOTES

- | | |
|--|--|
| 1 CONCRETE CURB | 15 ASPHALT PAVEMENT PER CIVIL DOCUMENTS |
| 2 ACCESS STRIPING | 16 SWALE PER CIVIL DOCUMENTS |
| 3 CONCRETE SIDEWALK | 17 DETENTION POND PER CIVIL DOCUMENTS |
| 4 6'-0" BLACK VINYL CHAINLINK FENCE | 18 EXISTING ACCESS AND UTILITY EASEMENTS |
| 5 DRIVEWAY APRON PER CIVIL DOCUMENTS | 19 EXTERIOR STORAGE AREA |
| 6 LANDSCAPE AREA | 20 CANOPY ABOVE |
| 7 BIKE PARKING - 2 STALLS -- 22'x6'x7" CLR EACH - SEE 9/A0.2 | 21 EXISTING OVERHEAD POWERLINE |
| 8 TRASH ENCLOSURE W/ SCREENED CHAIN-LINK FENCING AND GATES | 22 CONCRETE WHEEL STOPS |
| 9 PRIMARY BUILDING ENTRANCE | 23 LIGHT POLES |
| 10 DRIVE-IN OVERHEAD DOORS | |
| 11 ACCESSIBLE ROUTE FROM PUBLIC RIGHT OF WAY | |
| 12 20'x20' CLEAR VISION TRIANGLE | |
| 13 NOT USED | |
| 14 SLIDING GATE | |

LEGEND

- ▲ HANDICAP PARKING STALL
- FIRE HYDRANT
- BOLLARD
- CATCH BASIN
- ▲ DRIVE-IN OVERHEAD DOOR
- ▲ DOCK-HIGH OVERHEAD DOOR
- WETLAND

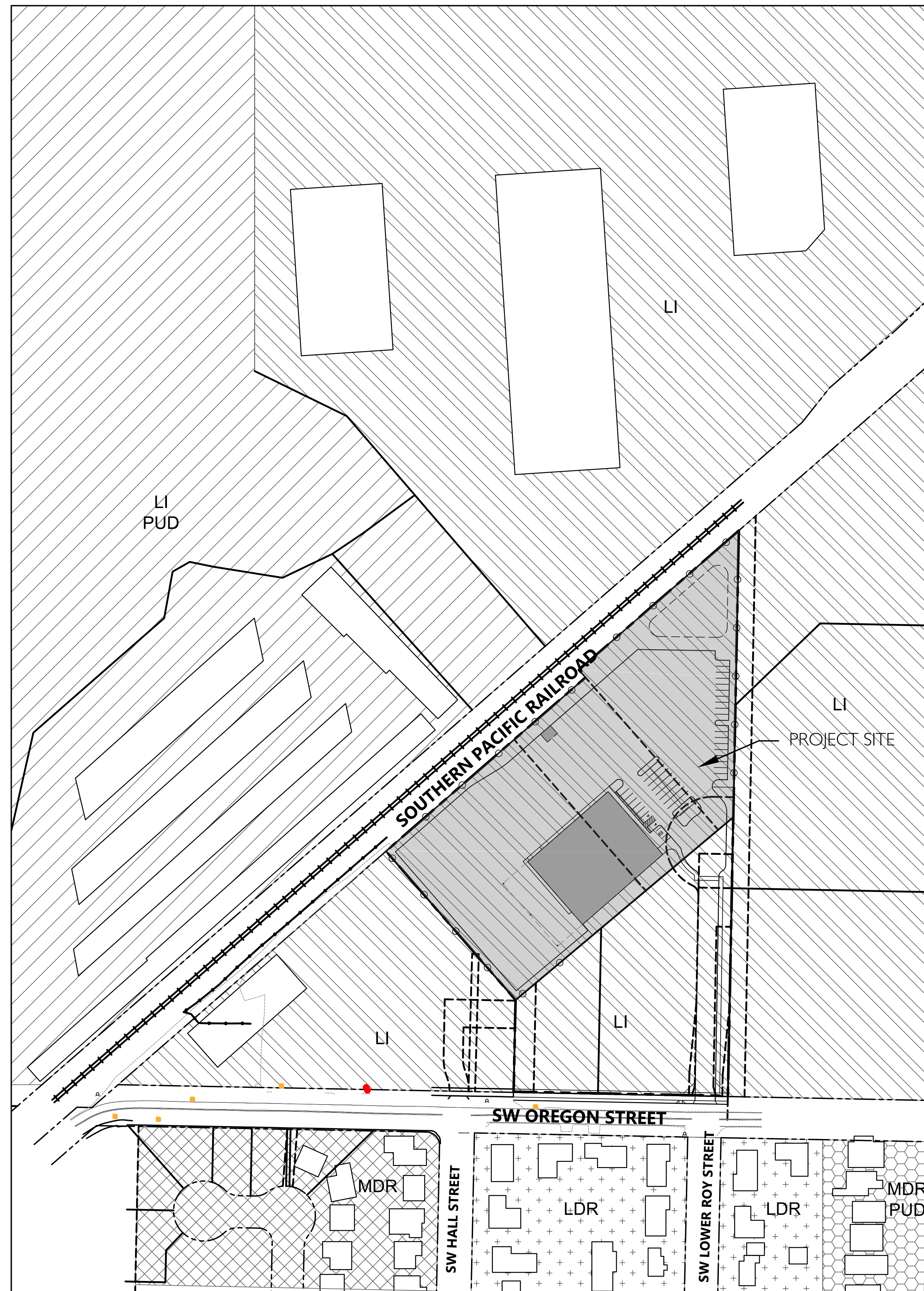
GENERAL NOTES

- CONTRACTOR SHALL VERIFY AND CONFIRM EXISTING CONDITIONS SHOWN OR IMPLIED ON DRAWINGS PRIOR TO START OF CONSTRUCTION. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES.
- PRIOR TO SITE CLEARING, GRADING OR CONSTRUCTION IN THE VEGETATED CORRIDOR, WATER QUALITY AND SENSITIVE AREAS SHALL BE SURVEYED, STAKED AND TEMPORARILY FENCED. VEGETATED CORRIDOR SHALL REMAIN FENCED AND UNDISTURBED DURING CONSTRUCTION.

SEE CIVIL PLANS FOR CONTINUATION OF STREET IMPROVEMENTS

NEW CONSTRUCTION FOR:
OREGON STREET JBMAC
 14843 SW OREGON STREET
 SHERWOOD, OREGON

SITE PLAN
A0.1
 JOB NO. 210129.01
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LEGEND

	LIGHT INDUSTRIAL (LI)
	LIGHT INDUSTRIAL PUD (LI PUD)
	MEDIUM DENSITY RESIDENTIAL LOW (MDR)
	MEDIUM DENSITY RESIDENTIAL LOW PUD (MDR PUD)
	LOW DENSITY RESIDENTIAL (LDR)

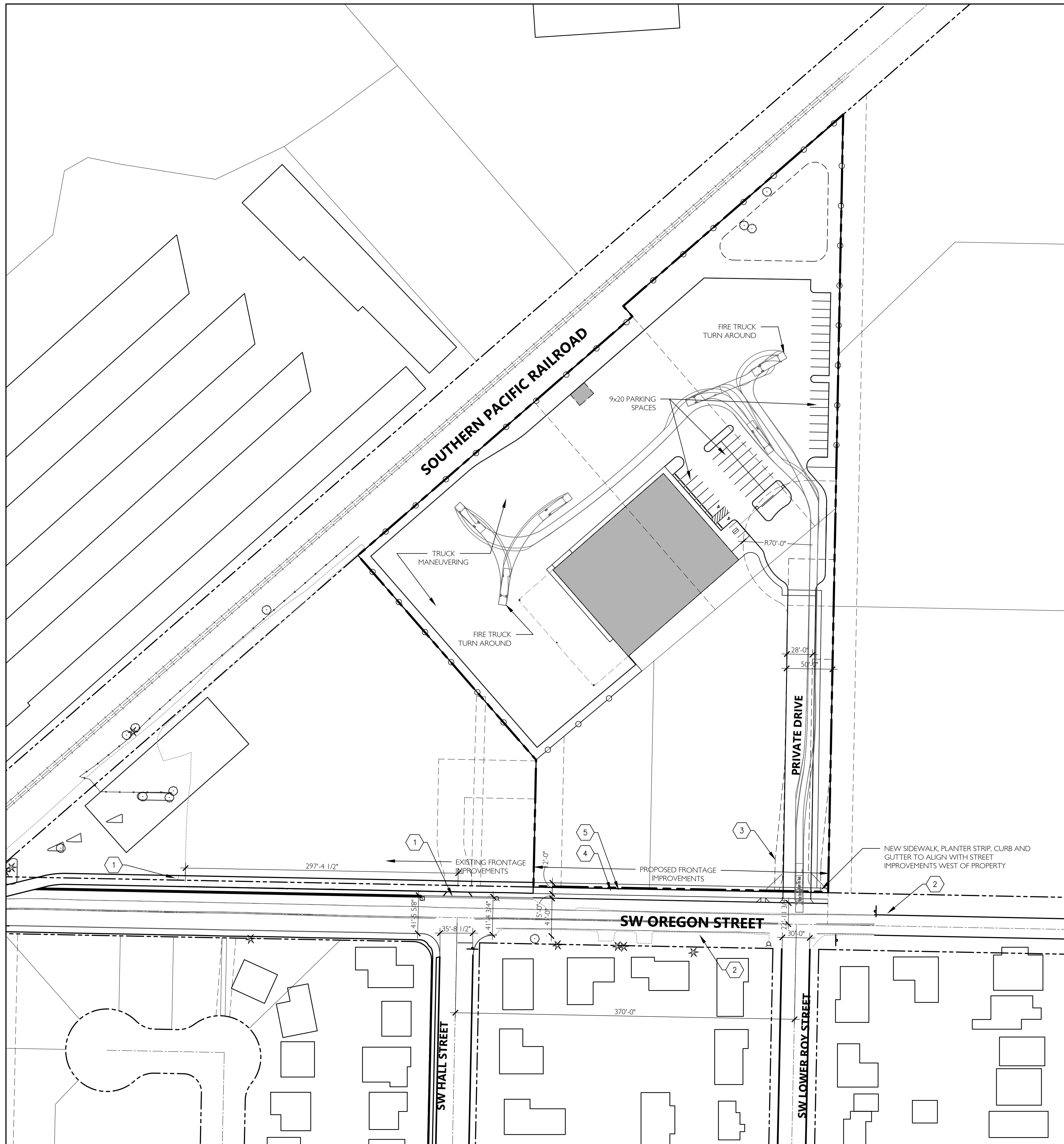
1 SURROUNDING LAND USE SITE PLAN
 SCALE: 1"=100'-0"

05/16/2022 - SITE PLAN REVIEW
 2

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 FAX: 503.226.1670
 WWW.CIDAINC.COM

NEW CONSTRUCTION FOR:
OREGON STREET JBMAC
 14843 SW OREGON STREET
 SHERWOOD, OREGON

SURROUNDING USE PLAN
A0.3
 JOB NO. 210129.01
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1 TRANSPORTATION PLAN
SCALE: 1" = 60'-0"



2 GENERAL CIRCULATION PLAN
SCALE: NTS

LEGEND

- BUS STOP
- 97 TUALATIN-SHERWOOD BUS ROUTE
- 94 PACIFIC-SHERWOOD BUS ROUTE
- ARTERIAL ROAD
- COLLECTOR ROAD

KEYNOTES

- 1 EXISTING CURB CUT
- 2 NO CURBS EAST OF PROPERTY OR ON SOUTH SIDE OF OREGON ST ACROSS FROM PROPERTY
- 3 EXISTING ACCESS EASEMENT
- 4 EXISTING PROPERTY LINE
- 5 NEW PROPERTY LINE AFTER DEDICATION

1 05/16/2022 - SITE PLAN REVIEW

2

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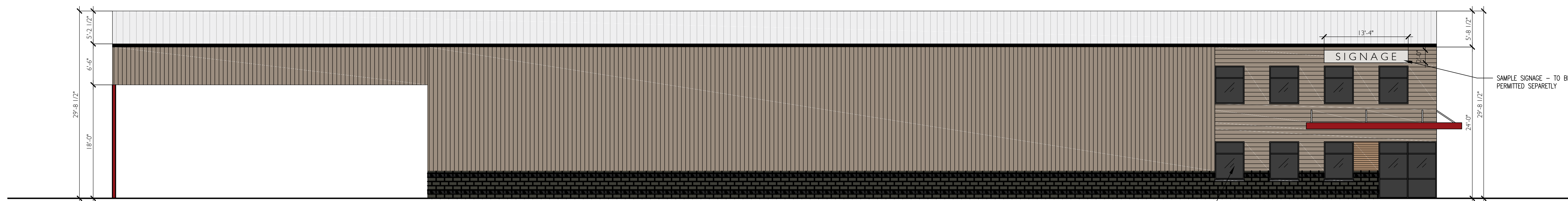
15895 SW 72ND AVE SUITE 300
PORTLAND, OREGON 97224
TEL: 503.226.1285
FAX: 503.226.1670
WWW.CIDAINC.COM

NEW CONSTRUCTION FOR:
OREGON STREET JBMAC
14843 SW OREGON STREET
SHERWOOD, OREGON

TRANSPORTATION
PLAN

AT0.1
JOB NO. 210129.01

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1 NW ELEVATION
A2.1 SCALE: 1/8"=1'-0"



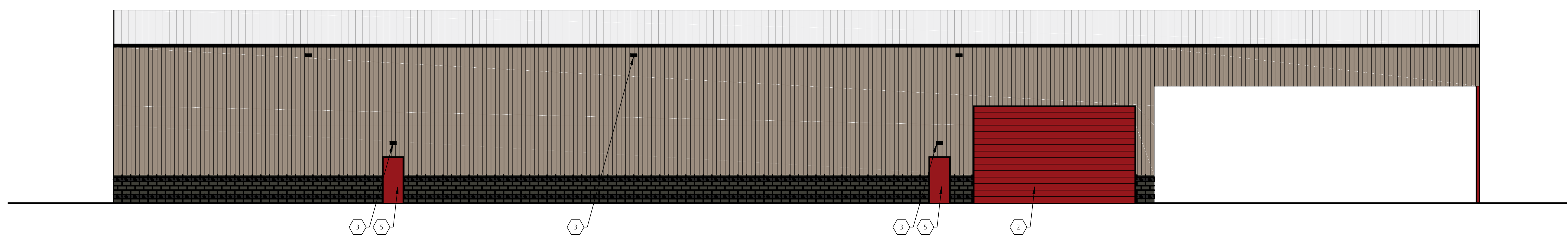
2 NE ELEVATION
A2.1 SCALE: 1/8"=1'-0"

LEGEND

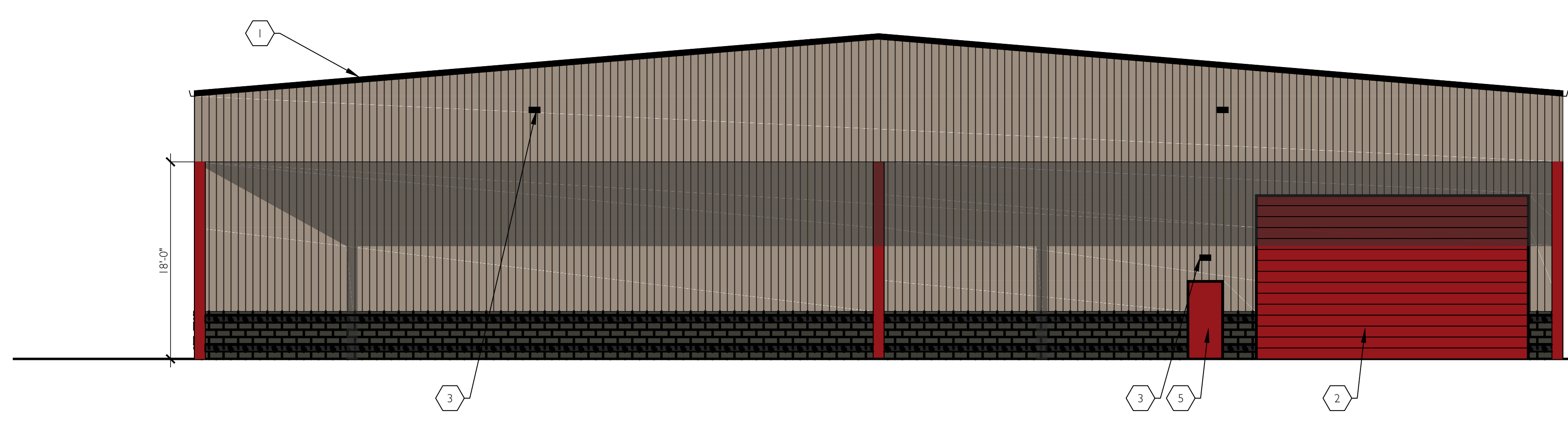
	WARM MEDIUM GREY VERTICAL METAL SIDING		GREYLIGHT GLASS
	WARM MEDIUM GREY HORIZONTAL METAL SIDING		RED METAL CANOPY/DOOR
	WOOD SIDING		
	DARK GREY/BROWN CMU		

KEYNOTES

- 1 PRE-FINISHED SHEET METAL COPING
- 2 25'-0" X 15'-0" DRIVE IN ROLL-UP DOOR FINISH: RED
- 3 EXTERIOR SURFACE MOUNTED LIGHT FIXTURE
- 4 STOREFRONT WINDOW FRAME WITH GRAYLITE WINDOWS FINISH: ANODIZED BLACK
- 5 EXTERIOR DOOR FINISH: RED TRIM FINISH: BLACK
- 6 STOREFRONT DOOR FINISH: ANODIZED BLACK



3 SE ELEVATION
A2.1 SCALE: 1/8"=1'-0"



4 SW ELEVATION
A2.1 SCALE: 1/8"=1'-0"

RESUBMIT 1 05/16/2022 - SITE PLAN REVIEW 2

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NEW CONSTRUCTION FOR:
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SHERWOOD, OREGON

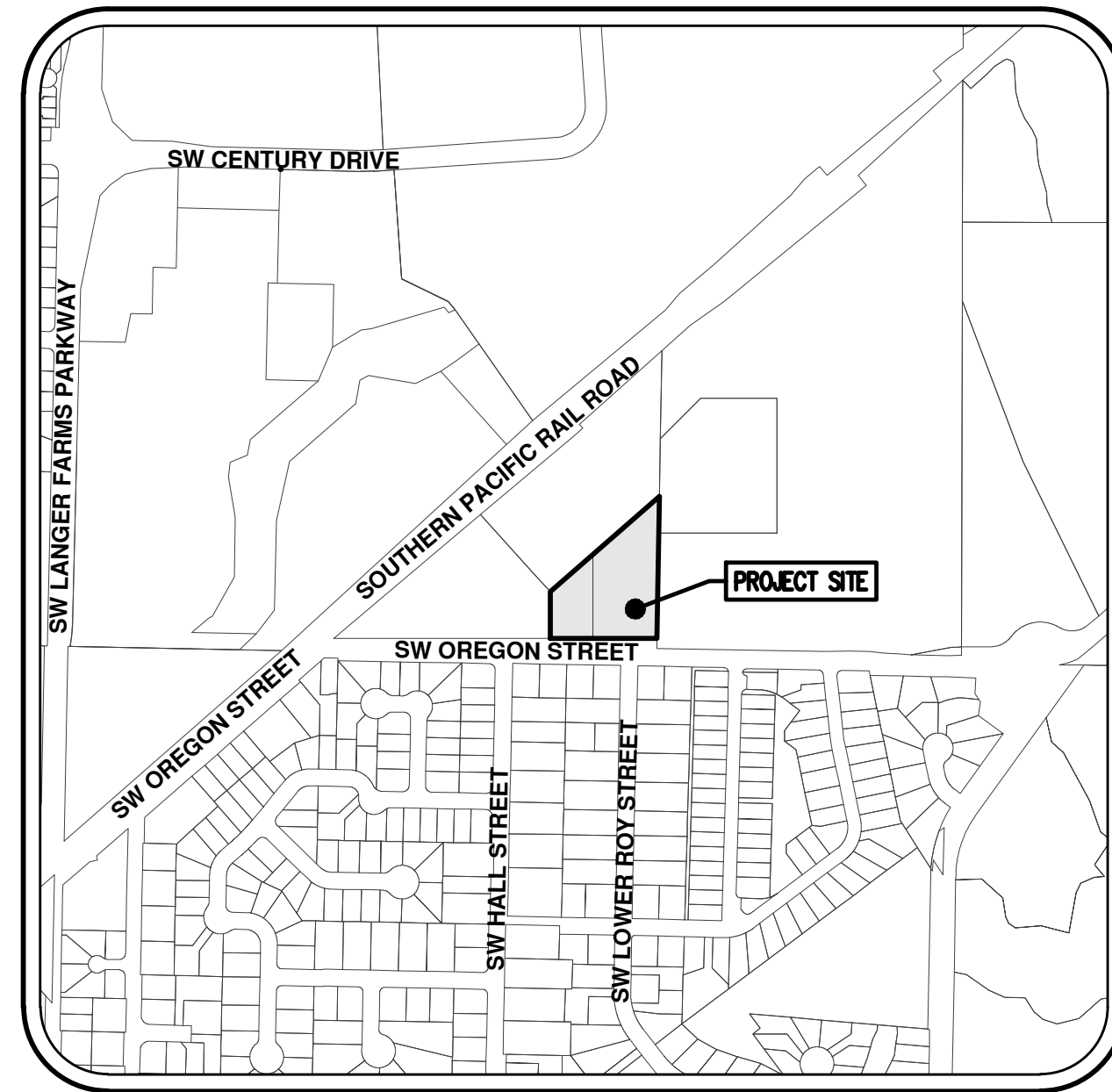
ELEVATIONS
A2.1
JOB NO. 210129.01
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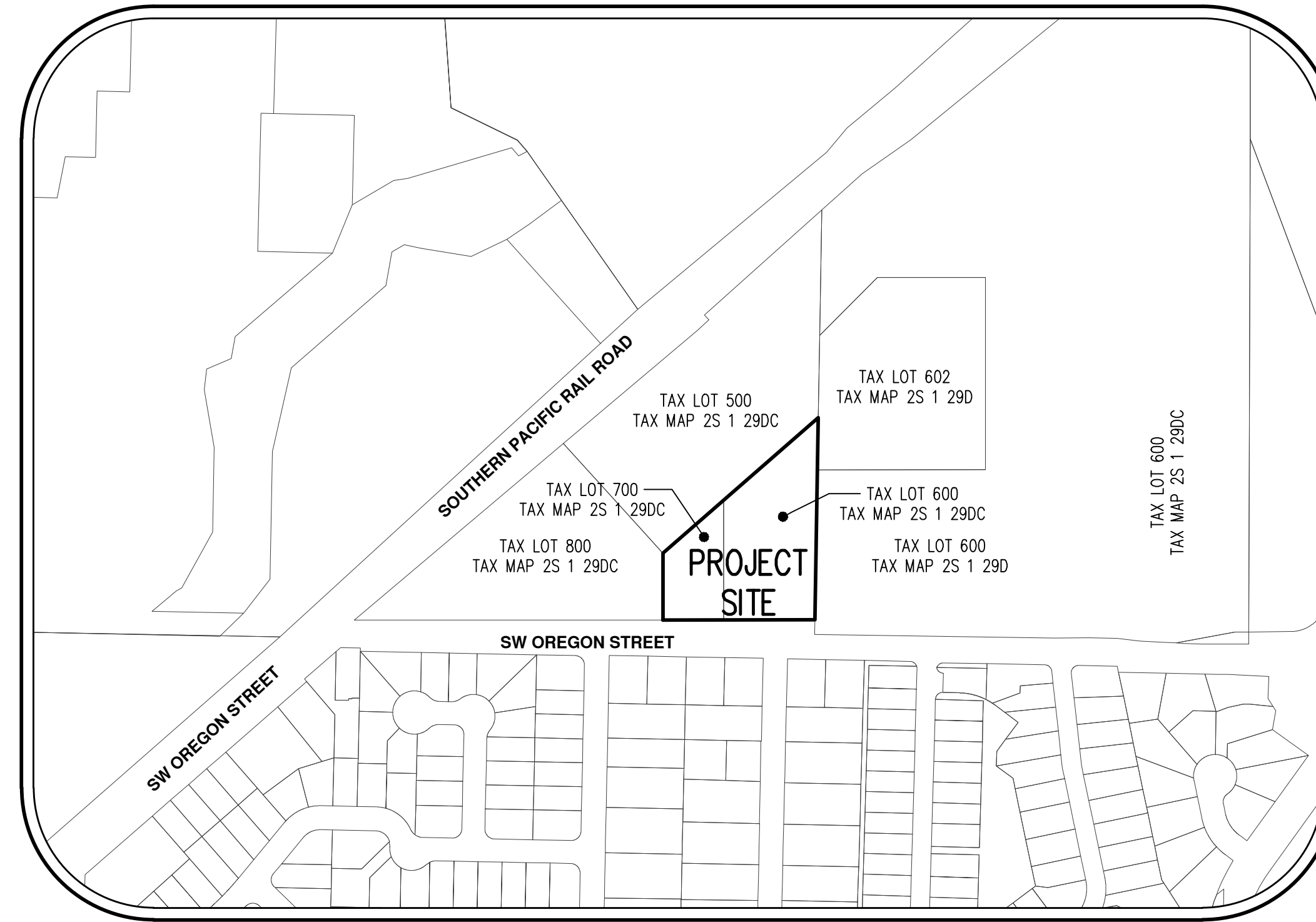
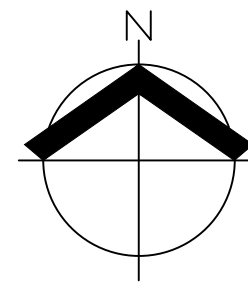
JBMAC VENTURES FRONTAGE IMPROVEMENTS

CONSTRUCTION PLANS

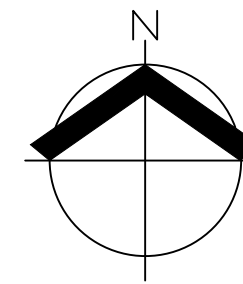
AKS
 AKS ENGINEERING & FORESTRY, LLC
 12965 SW HERMAN RD, STE 100
 TUALATIN, OR 97062
 503.563.6151
 WWW.AKS-ENG.COM
 ENGINEERING - SURVEYING - NATURAL RESOURCES
 FORESTRY - PLANNING - LANDSCAPE ARCHITECTURE



VICINITY MAP
 NTS



SITE MAP
 1"=250'



APPLICANT:

JBMAC VENTURES, LLC
 19435 SW 129TH AVE
 TUALATIN, OR 97062

**CIVIL ENGINEERING/
 SURVEYING FIRM:**

AKS ENGINEERING & FORESTRY, LLC.
 CONTACT: BLAIR CARLSON, PE, CH, PRINCIPAL
 12965 SW HERMAN RD, STE 100
 TUALATIN, OR 97062
 P: (503) 563-6151
 F: (503) 563-6152

PROJECT LOCATION:

TAX LOTS 600 AND 700 WASHINGTON COUNTY ASSESSOR'S MAP 2S 1 29DC, LOCATED IN THE SOUTHEAST 1/4 OF SECTION 29, TOWNSHIP 2 SOUTH, RANGE 1 WEST, WILLAMETTE MERIDIAN, WASHINGTON COUNTY, OREGON.

PROPERTY DESCRIPTION:

LOCATED AT THE INTERSECTION OF SW OREGON STREET AND SW LOWER ROY STREET IN SHERWOOD, OREGON.

PROJECT PURPOSE:

HALF STREET IMPROVEMENTS TO SW OREGON STREET.

VERTICAL DATUM:

VERTICAL DATUM: ELEVATIONS ARE BASED ON A 2" DIAMETER BRASS CAP MARKED "NO. 1, 1988", IN A MONUMENT BOX NEAR THE SOUTH EDGE OF PAVEMENT OF HIGHWAY 99 WEST 300 FEET± SOUTHWEST OF SIX CORNERS. ELEVATION: 210.40 FEET (NGVD29).

UTILITY CONTACTS

POWER

PORTLAND GENERAL ELECTRIC
 CONTACT: HENRY ENGLISH
 3700 SE 17TH AVENUE
 PORTLAND, OR 97202
 PH: 503-736-5450

GAS

NW NATURAL
 CONTACT: PETER CATHCART
 220 NW 2ND AVENUE
 PORTLAND, OR 97209
 PH: 503-226-4211

STREETS

CITY OF SHERWOOD, PUBLIC WORKS
 CONTACT: DARREN CANIPAROLI
 15527 SW WILLAMETTE ST
 SHERWOOD, OR 97140
 PH: 503-925-2334

STORM/SEWER/WATER

CITY OF SHERWOOD, PUBLIC WORKS
 CONTACT: RICH SATTLER
 15527 SW WILLAMETTE ST
 SHERWOOD, OR 97140
 PH: 503-925-2319

BUILDING DEPARTMENT

CITY OF SHERWOOD BUILDING DEPT.
 CONTACT: SCOTT MCKIE
 22560 SW PINE ST
 SHERWOOD, OR 97140
 PH: 503-625-4226

COMMUNICATIONS

COMCAST CABLE
 CONTACT: KENNETH PARIS
 10831 SW CASCADE AVENUE
 TIGARD, OR 97223
 PH: 503-596-3754

COMMUNICATIONS

VERIZON (FRONTIER)
 CONTACT: TAM NGUYEN
 4155 SW CEDAR HILLS BLVD
 BEAVERTON, OR 97005
 PH: 503-641-2004

CITY INSPECTOR

CITY OF SHERWOOD
 CONTACT: ANDREW STIRLING
 15527 SW WILLAMETTE ST
 SHERWOOD, OR 97140
 PH: 503-925-2307

ATTENTION EXCAVATORS:

OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THESE RULES FROM THE CENTER BY CALLING 503.232.1987. IF YOU HAVE ANY QUESTIONS ABOUT THE RULES, YOU MAY CONTACT THE CENTER. YOU MUST NOTIFY THE CENTER AT LEAST TWO BUSINESS DAYS, BUT NOT MORE THAN TEN BUSINESS DAYS, BEFORE COMMENCING ANY EXCAVATION. CALL 503.246.6699.



Know what's below.
 Call before you dig.

SHEET INDEX

- C000 COVER SHEET WITH SITE AND VICINITY MAPS
- C001 GENERAL NOTES
- C002 EXISTING CONDITIONS PLAN
- C050 EROSION AND SEDIMENT CONTROL PLAN
- C051 EROSION AND SEDIMENT CONTROL DETAILS
- C100 SW OREGON STREET CROSS SECTIONS
- C101 SW OREGON STREET PLAN AND PROFILE
- C102 ADA RAMP AND DRIVEWAY DETAIL
- C103 SW OREGON STREET STRIPING PLAN
- C150 STREET CONSTRUCTION DETAILS
- C200 PUBLIC STORMWATER PLAN - SW OREGON STREET
- C210 PUBLIC WATER AND SANITARY SEWER PLAN - SW OREGON STREET
- C250 UTILITY CONSTRUCTION DETAILS
- C251 UTILITY CONSTRUCTION DETAILS
- C300 SW OREGON STREET STREET LIGHT PHOTOMETRIC PLAN
- L100 SW OREGON STREET LANDSCAPE PLAN

JBMAC VENTURES
 FRONTAGE IMPROVEMENTS
 SHERWOOD
 OREGON
 TAX MAP 2S 1 29DC
 TAX LOT 600 & 700

COVER SHEET WITH SITE
 AND VICINITY MAPS

DESIGNED BY: APC
 DRAWN BY: APC
 MANAGED BY: TJ
 CHECKED BY: BGC
 DATE: 05/31/2022
 REGISTERED PROFESSIONAL ENGINEER
 PREPARED FOR
 JBMAC VENTURES
 12965 SW HERMAN RD, STE 100
 TUALATIN, OR 97062
 C. CARLSON
 RENEWS:
 REVISIONS:

JOB NUMBER
 8627-04
 SHEET
C000

CITY OF SHERWOOD STANDARD NOTES

- CONTRACTOR SHALL NOTIFY CITY OF SHERWOOD ENGINEERING DEPARTMENT (AT 503-925-2306) TWO BUSINESS DAYS PRIOR TO COMMENCEMENT OF WORK ON GRADING, PUBLIC IMPROVEMENTS, OR STORM WATER TREATMENT FACILITIES.
- ALL CONSTRUCTION WORK AND MATERIALS SHALL CONFORM TO APPLICABLE CITY OF SHERWOOD STANDARDS CONSTRUCTION SPECIFICATIONS, CLEAN WATER SERVICES (CWS) DESIGN AND CONSTRUCTION STANDARDS, UNIFORM PLUMBING CODE (UPC) AND UNIFORM BUILDING CODE (UBC). CONTRACTOR AND SUBCONTRACTOR(S) SHALL HAVE A MINIMUM OF ONE SET OF APPROVED PLANS AND CITY OF SHERWOOD STANDARD CONSTRUCTION SPECIFICATIONS ON THE JOB SITE AT ALL TIMES DURING CONSTRUCTION.
- APPLICANT(S) IS RESPONSIBLE FOR ALL COSTS OF CONSTRUCTION.
- CITY OF SHERWOOD BUILDING DEPARTMENT PERMITS ARE REQUIRED FOR PRIVATELY MAINTAINED SEWER, INLETS, INLET LEADS, AND SERVICE LATERALS CONSTRUCTED OUTSIDE OF PUBLIC RIGHT-OF-WAY OR PUBLIC EASEMENT. ALL WORK APPROVED UNDER PLUMBING PERMITS SHALL BE PRIVATELY OWNED AND MAINTAINED.
- ATTENTION EXCAVATORS:** OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THESE RULES FROM THE CENTER BY CALLING (503) 232-1987. IF YOU HAVE ANY QUESTIONS ABOUT THESE RULES, YOU MAY CONTACT THE CALL CENTER. **YOU MUST NOTIFY THE CENTER AT LEAST TWO BUSINESS DAYS, BUT NOT MORE THAN 10 BUSINESS DAYS, BEFORE COMMENCING EXCAVATION. CALL (503) 246-6699.**
- ALL TRENCH LINES AND EXCAVATIONS SHALL BE PROPERLY SHORED AND BRACED TO PREVENT CAVING. UNUSUALLY DEEP EXCAVATIONS MAY REQUIRE EXTRA SHORING AND BRACING. ALL SHEETING, SHORING, AND BRACING OF TRENCHES SHALL CONFORM TO OREGON OCCUPATIONAL SAFETY AND HEALTH DIVISION (OSHA) REGULATIONS AND CITY OF SHERWOOD STANDARD SPECIFICATIONS.
- CONTRACTOR IS TO FIELD VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION
- SITE EROSION CONTROL PLAN AND BMP'S MEETING CWS STANDARDS TO BE IN PLACE AND APPROVED PRIOR TO CONSTRUCTION
- A TEMPORARY USE PERMIT, SUBJECT TO SECTION 16.86 OF THE CITY OF SHERWOOD CODE, IS REQUIRED PRIOR TO ANY USE OF AN ON-SITE CONSTRUCTION TRAILER. UNDER NO CIRCUMSTANCE SHALL THE TRAILER BE LOCATED IN THE PUBLIC RIGHT-OF-WAY.
- THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS AND LICENSES BEFORE STARTING CONSTRUCTION. A COPY OF THE REQUIRED PERMITS AND ATTACHMENTS SHALL BE AT THE WORK SITE AND AVAILABLE DURING CONSTRUCTION.
- TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. TRAFFIC CONTROL PLAN SHALL BE SUBJECT TO THE APPROVAL OF THE CITY.
- ANY INSPECTION OR CONSTRUCTION OBSERVATION BY THE CITY, COUNTY, STATE, OR OTHER JURISDICTIONAL AGENCIES SHALL NOT, IN ANY WAY, RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM THE WORK IN COMPLIANCE WITH THE APPLICABLE CODES, REGULATIONS, CITY STANDARDS, AND PROJECT CONTRACT DOCUMENTS.
- CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING STRUCTURES AND UTILITIES NOT SHOWN TO BE REMOVED. CONTRACTOR SHALL REPLACE OR REPAIR ANY EXISTING STRUCTURES (SIDEWALKS, CURB, FENCE, STREET TREES, ETC.) DAMAGED DURING CONSTRUCTION, IN ACCORDANCE WITH CITY STANDARDS.
- NO TRENCHES OR PITS WILL BE ALLOWED TO REMAIN OPEN OVERNIGHT. ALL TRENCHES AND PITS SHALL BE COVERED WITH STEEL PLATES OR FILLED IN AT NIGHT.
- ANY ALTERATIONS OR VARIATIONS FROM THESE PLANS, EXCEPT MINOR FIELD ADJUSTMENTS NEEDED TO MEET EXISTING FIELD CONDITIONS, SHALL BE APPROVED BY THE ENGINEER AND APPLICABLE REGULATORY AGENCY REPRESENTATIVE.
- ANY PRIVATE UTILITIES TO BE INSTALLED WITHIN CITY OF SHERWOOD RIGHT-OF-WAY THAT IS NOT SHOWN ON THE APPROVED CONSTRUCTION PLANS (POWER, TELECOMMUNICATIONS, GAS, IRRIGATION, ETC.) SHALL HAVE PLANS SUBMITTED FOR A RIGHT-OF-WAY PERMIT PRIOR TO CONSTRUCTION OF UTILITY. ANY PRIVATE OR FRANCHISE UTILITIES INSTALLED WITHOUT A RIGHT OF WAY PERMIT IS SUBJECT TO REMOVAL.
- CONTRACTOR IS RESPONSIBLE FOR THE IMPLEMENTATION OF A TRAFFIC CONTROL PLAN AND ITS CONTINUED FUNCTIONING FOR THE PROTECTION OF CONSTRUCTION WORKERS, VEHICULAR TRAFFIC, BICYCLE TRAFFIC AND PEDESTRIANS. ALL TRAFFIC CONTROL DEVICES/SIGNAGE SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. APPROVAL OF THE TRAFFIC CONTROL PLAN BY THE CITY OF SHERWOOD DOES NOT NEGATE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN A SAFE WORK ZONE. THE CITY OF SHERWOOD BEARS NO LIABILITY FOR THE CONTRACTOR'S IMPLEMENTATION OF THIS TRAFFIC CONTROL PLAN.

SANITARY SEWER NOTES - GENERAL

- SANITARY SEWER PIPE MATERIAL SHALL BE AS NOTED ON PLANS AND CONFORM TO THE REQUIREMENTS BELOW.
- SANITARY SEWER MATERIALS AND TESTING SHALL MEET CLEAN WATER SERVICES (CWS) DESIGN AND CONSTRUCTION SPECIFICATIONS AND THE CITY OF SHERWOOD'S ENGINEERING DESIGN MANUAL.
- ALL SANITARY SERVICE STUB OUTS SHALL EXTEND A MINIMUM OF THREE FEET (3') BEYOND EASEMENT OR RIGHT-OF-WAY LINE AND BE MARKED WITH A PRESSURE TREATED 2 X 4. THE TOP 12" SHALL BE PAINTED GREEN AND LABELED "SS" FOR FUTURE LOCATION. THE 2 X 4 SHALL BE MARKED WITH DETECTABLE UNDERGROUND MAGNETIC TAPE GREEN IN COLOR AND BE MARKED "CAUTION SEWER BURIED BELOW". THE MAGNETIC TAPE SHALL BE PLACED FROM THE MAIN PIPELINE TO THE END OF THE SIDE LATERAL WITH 18" OF SEPARATION BETWEEN THE TAPE AND PIPE. THE SERVICE LATERAL SHALL ALSO HAVE TRACER WIRE INSTALLED. THE TRACER WIRE SHALL BE 12-GAGE STRANDED COPPER WIRE WITH GREEN HMW-PE INSULATION. TRACER WIRE SHALL RUN TO THE TOP OF THE 2 X 4 MARKER. STORM SERVICE STUB OUTS TO BE A MINIMUM OF 4-INCH DIAMETER PIPE AND HAVE A MINIMUM SLOPE OF 2%.
- ALL SANITARY SEWER LINES SHALL BE VIDEO INSPECTED BY THE CONTRACTOR AND HAVE A MANDREL PASSED THROUGH TO CHECK DEFLECTION. TESTING AND INSPECTION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CODES. THIS WILL BE WITNESSED BY THE CITY. MINIMUM 48 HR NOTICE IS REQUIRED. CITY WITNESSED VIDEO INSPECTION SHALL OCCUR AFTER THE PLACEMENT OF ASPHALT. CITY STRONGLY ENCOURAGES VIDEO INSPECTION BY THE DEVELOPER AND/OR CONTRACTOR PRIOR TO ASPHALT PLACEMENT. SHOULD CONTRACTOR OR DEVELOPER HAVE QUESTIONS REGARDING SPECIFIC SECTIONS OF PRE-ASPHALT VIDEO, CITY INSPECTOR SHALL PROVIDE A RECOMMENDATION UPON THE ACCEPTABILITY OF THE SECTION IN QUESTION.
- ALL SANITARY SEWER LINES SHALL BE AIR TESTED. ALL MANHOLES SHALL BE HYDROSTATICALLY TESTED OR VACUUM TESTED. TESTING AND INSPECTION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CODES. THIS WILL BE WITNESSED BY THE CITY. MINIMUM 48 HOUR NOTICE IS REQUIRED.
- ANY NEW LATERAL TAPS INTO AN EXISTING SANITARY SEWER WILL REQUIRE VIDEO INSPECTION OF THAT EXISTING SEWER.

STORM SEWER NOTES - GENERAL

- STORM SEWER PIPE SHALL BE AS NOTED ON PLANS AND CONFORM TO THE REQUIREMENTS BELOW.
- STORM SEWER MATERIALS AND TESTING SHALL MEET CLEAN WATER SERVICES (CWS) DESIGN AND CONSTRUCTION SPECIFICATIONS AND THE CITY OF SHERWOOD'S ENGINEERING DESIGN MANUAL.
- ALL STORM SERVICE STUB OUTS SHALL EXTEND A MINIMUM OF THREE FEET (3') BEYOND EASEMENT OR RIGHT-OF-WAY LINE AND BE MARKED WITH A PRESSURE TREATED 2" X 4". THE TOP 12" SHALL BE PAINTED WHITE AND LABELED "ST" FOR FUTURE LOCATION. THE 2" X 4" SHALL BE MARKED WITH DETECTABLE UNDERGROUND MAGNETIC TAPE GREEN IN COLOR AND BE MARKED "CAUTION STORM DRAIN BURIED BELOW". THE MAGNETIC TAPE SHALL BE PLACED FROM THE MAIN PIPELINE TO THE END OF THE SIDE LATERAL WITH 18" OF SEPARATION BETWEEN THE TAPE AND PIPE. THE SERVICE LATERAL SHALL ALSO HAVE TRACER WIRE INSTALLED. THE TRACER WIRE SHALL BE 12-GAGE STRANDED COPPER WIRE WITH WHITE HMW-PE INSULATION. TRACER WIRE SHALL RUN TO THE TOP OF THE 2 X 4 MARKER. STORM SERVICE STUB OUTS TO BE A MINIMUM OF 4-INCH DIAMETER PIPE AND HAVE A MINIMUM SLOPE OF 2%.
- ALL STORM SEWER LINES SHALL BE VIDEO INSPECTED BY THE CONTRACTOR. TESTING AND INSPECTION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CODES. THIS WILL BE WITNESSED BY THE CITY. MINIMUM 48 HOUR NOTICE IS REQUIRED. CITY WITNESSED VIDEO INSPECTION SHALL OCCUR AFTER THE PLACEMENT OF ASPHALT. CITY STRONGLY ENCOURAGES VIDEO INSPECTION BY THE DEVELOPER AND/OR CONTRACTOR PRIOR TO ASPHALT PLACEMENT. SHOULD CONTRACTOR OR DEVELOPER HAVE QUESTIONS REGARDING SPECIFIC SECTIONS OF PRE-ASPHALT VIDEO, CITY INSPECTOR SHALL PROVIDE A RECOMMENDATION UPON THE ACCEPTABILITY OF THE SECTION IN QUESTION.
- ALL STORM SEWER LINES SHALL HAVE A MANDREL PASSED THROUGH TO CHECK DEFLECTION. THIS WILL BE WITNESSED BY THE CITY. MINIMUM 48 HOUR NOTICE IS REQUIRED.
- ANY NEW LATERAL TAPS INTO AN EXISTING STORM SEWER WILL REQUIRE VIDEO INSPECTION OF THAT EXISTING SEWER.

WATER SYSTEM NOTES - GENERAL

- ALL WORK AND MATERIALS SHALL COMPLY WITH ALL APPLICABLE CITY CODES AND STANDARDS, THE OREGON STATE HEALTH DIVISION ADMINISTRATION RULES, A.W.W.A. STANDARDS, A.P.W.A. STANDARDS, AND CITY OF SHERWOOD ENGINEERING DESIGN AND DETAILS MANUAL.
- ALL PIPE SHALL HAVE MINIMUM COVER OF THREE-FOOT BELOW THE FUTURE FINISHED GRADES IN EASEMENTS AND STREET RIGHT-OF-WAYS.
- ALL VALVES SHALL BE PER CITY OF SHERWOOD WATER SYSTEM STANDARDS AND CITY CODES, STANDARD DETAILS, AND DRAWINGS.
- ALL FIRE HYDRANTS SHALL BE PER CITY WATER SYSTEM STANDARDS AND CITY CODES, STANDARD DETAILS, AND DRAWINGS.
- ALL TEES, ELBOWS, BENDS, AND BLOW-OFF LOCATIONS SHALL, UNLESS OTHERWISE NOTED, HAVE A POURED-IN-PLACE CONCRETE THRUST BLOCK PER CITY OF SHERWOOD STANDARDS.
- ALL SANITARY SEWER LINES WITHIN 10 FEET LATERALLY OR 18 INCHES VERTICALLY OF A WATER MAIN SHALL BE ENCASED IN CONCRETE, OR CONSTRUCTED OF DUCTILE IRON PIPE WITH WATERTIGHT JOINTS.
- ANY CROSSING OF WATER MAIN BY SANITARY SEWER SHALL BE MADE AT APPROXIMATELY 90 DEGREES AND HAVE 18 INCHES OF VERTICAL CLEARANCE OR SANITARY SEWER SHALL BE CONSTRUCTED OF DUCTILE IRON WATER PIPE WITH WATERTIGHT JOINTS FOR A DISTANCE OF 9 FEET FROM BOTH SIDES OF THE WATER LINE AND ENCASED IN CONCRETE.
- JOINT DEFLECTION ALLOWED ONLY WITH THE APPROVAL OF THE PROJECT ENGINEER AND INSPECTOR AND BE PER CITY OF SHERWOOD STANDARDS.
- OREGON HEALTH AUTHORITY BACTERIOLOGICAL TESTS SHALL BE TAKEN BY THE CITY OF SHERWOOD.
- HYDROSTATIC TESTS SHALL CONFORM WITH ALL APPLICABLE CODES AND BE MONITORED BY THE INSPECTOR OR PROJECT ENGINEER.
- DISINFECTION: PIPELINES SHALL BE FLUSHED AND DISINFECTED BEFORE PLACING INTO SERVICE, AFTER PERFORMING HYDROSTATIC TESTING. DISINFECTION SHALL CONFORM WITH ALL APPLICABLE CODES. DISCHARGING OF THE HIGHLY CHLORINATED WATER USED FOR DISINFECTION SHALL NOT BE DISCHARGED INTO SURFACE WATERS. APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS CONCERNING DISCHARGE SHALL BE FOLLOWED. TESTING AND INSPECTION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CODES.
- PRIOR TO TAPPING INTO EXISTING WATER MAINS, THE CONTRACTOR WILL CONTACT THE CITY OF SHERWOOD WATER DEPARTMENT INSPECTOR.
- OPERATION OF WATER VALVES BY CONTRACTOR IS PROHIBITED.
- CONTRACTOR SHALL NOT BACKFILL TRENCH UNTIL WATER LINE INSPECTION IS APPROVED.
- CONTACT RICH SATTLER AT (503) 925-2319, CITY OF SHERWOOD PUBLIC WORKS, A MINIMUM OF 48 HOURS IN ADVANCE TO SCHEDULE WATER LINE INSPECTIONS.
- NEW FIRE HYDRANTS TO HAVE STORZ QUICK ADAPTER ON 4 1/2" PORT.
- INSTALL BLUE REFLECTOR AT CENTER LINE OF ROADWAY(S) PERPENDICULAR TO FIRE HYDRANT.
- ALL WATER LINE JOINTS SHALL BE RESTRAINED.
- WATER METER TO HAVE 3' MINIMUM CLEARANCE TO LIGHT POLES, TREES, SIGNS, OTHER UTILITIES, ETC.

LEGEND

	EXISTING	PROPOSED	EXISTING	PROPOSED
DECIDUOUS TREE				
CONIFEROUS TREE				
FIRE HYDRANT				
WATER BLOWOFF				
WATER METER				
WATER VALVE				
DOUBLE CHECK VALVE				
AIR RELEASE VALVE				
SANITARY SEWER CLEAN OUT				
SANITARY SEWER MANHOLE				
SIGN				
STREET LIGHT				
MAILBOX				
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 SEWER LINE				
SANITARY SEWER LINE				
WATER LINE				

JBMAC VENTURES
FRONTAGE IMPROVEMENTS
SHERWOOD OREGON
 TAX LOT 600 & 700

GENERAL NOTES

DESIGNED BY: APC
 DRAWN BY: APC
 MANAGED BY: TJ
 CHECKED BY: BGC
 DATE: 05/31/2022

REGISTERED PROFESSIONAL ENGINEER
 PRELIMINARY DESIGN FOR CONSTRUCTION
 BY: G. CARLSON
 05/31/2022

REVISIONS:

JOB NUMBER
8627-04

SHEET
C001



AKS ENGINEERING & FORESTRY, LLC
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ENGINEERING - SURVEYING - NATURAL RESOURCES
FORESTRY - PLANNING - LANDSCAPE ARCHITECTURE

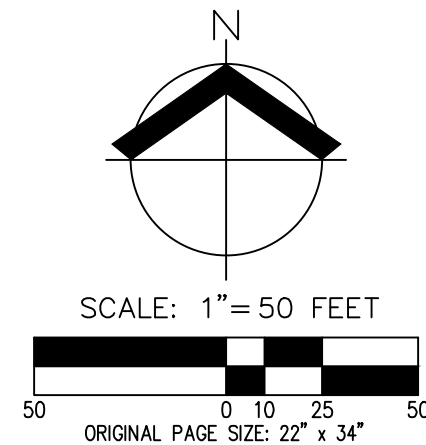
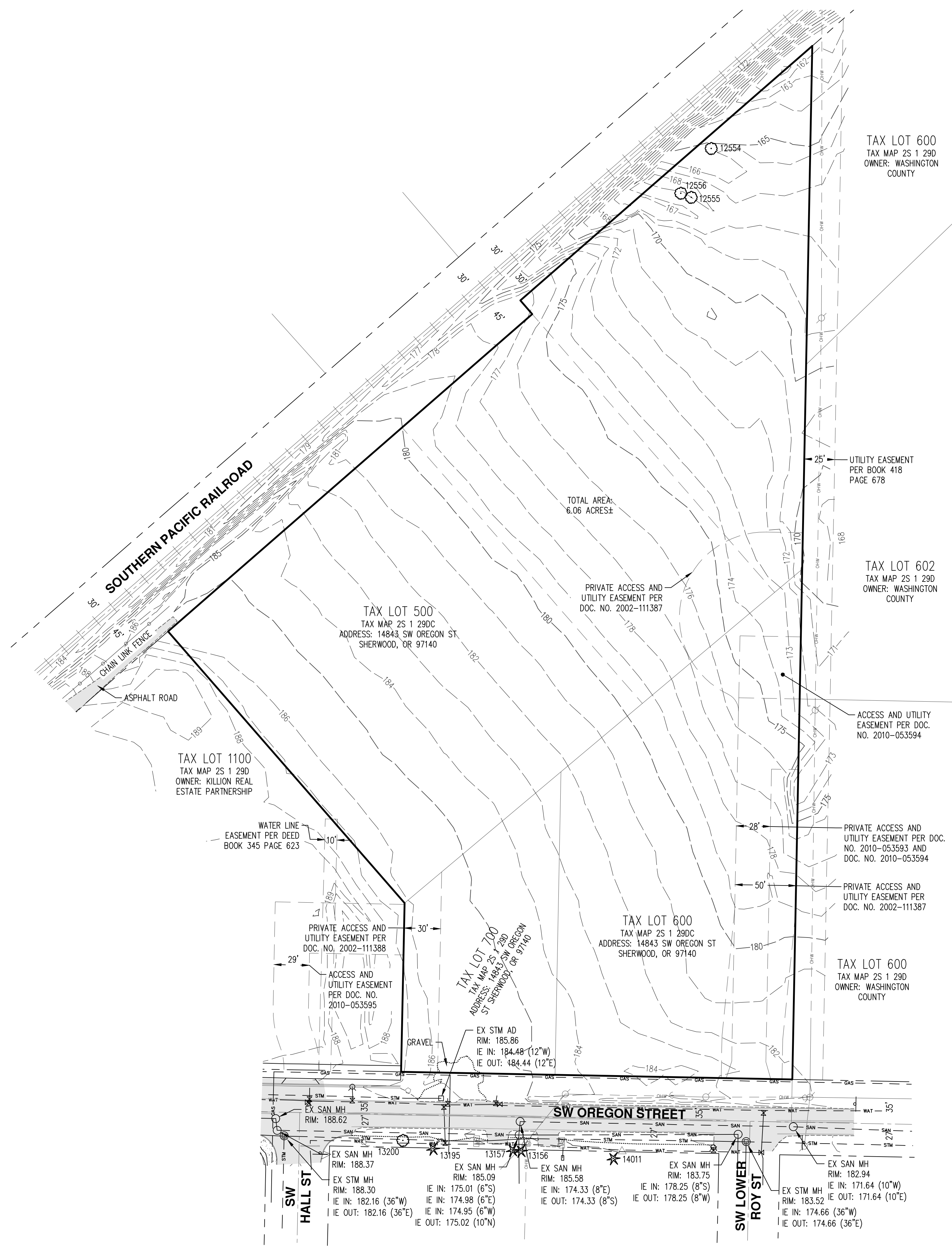
**JBMAC VENTURES
FRONTAGE IMPROVEMENTS
SHERWOOD OREGON**
TAX MAP 2S 1 29D

**EXISTING CONDITIONS
PLAN**

DESIGNED BY: APC
DRAWN BY: APC
MANAGED BY: TJ
CHECKED BY: BGC
DATE: 05/31/2022

**PRELIMINARY
NOT FOR
CONSTRUCTION**

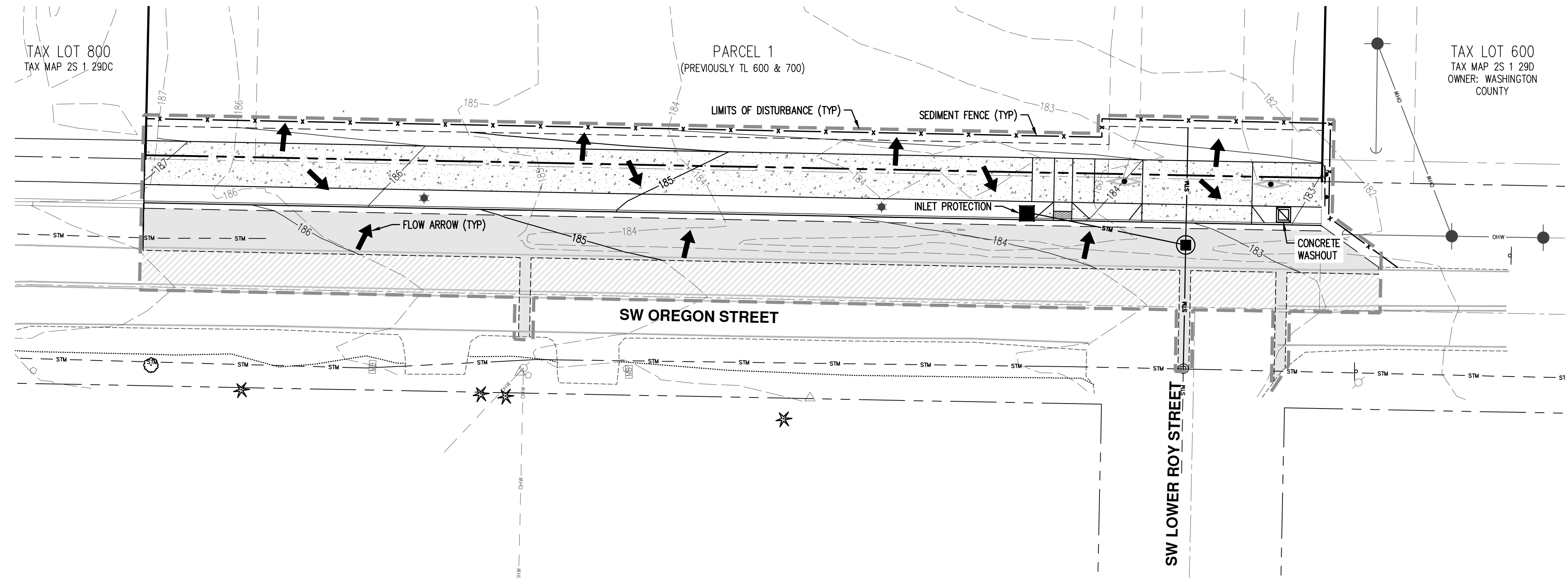
REVISIONS
JOB NUMBER
8627-04
SHEET
C002



- NOTES:**
- UTILITIES SHOWN ARE BASED ON UNDERGROUND UTILITY LOCATE MARKINGS AS PROVIDED BY OTHERS, PROVIDED PER UTILITY LOCATE TICKET NUMBERS 21021448 AND 21021450. 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 FEBRUARY 3 - 4, 2021.
 - VERTICAL DATUM: ELEVATIONS ARE BASED ON A 2" DIAMETER BRASS CAP MARKED "NO. 1, 1988", IN A MONUMENT BOX NEAR THE SOUTH EDGE OF PAVEMENT OF HIGHWAY 99 WEST 300 FEET± SOUTHWEST OF SIX CORNERS. ELEVATION: 210.40 FEET (NGVD29).
 - 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.
 - CONTOUR INTERVAL IS 1 FOOT.
 - TREES WITH DIAMETER OF 6" AND GREATER ARE SHOWN. TREE DIAMETERS WERE DETERMINED BY VISUAL INSPECTION. TREE INFORMATION IS SUBJECT TO CHANGE UPON ARBORIST INSPECTION.

TREE TABLE		
TREE NUMBER	TYPE	DBH (IN.)
12554	DECIDUOUS	8
12555	DECIDUOUS	14
12556	DECIDUOUS	14,28

AKS DRAWING FILE: 8627-04ALTA-04-EXCOND.DWG | LAYOUT: 03



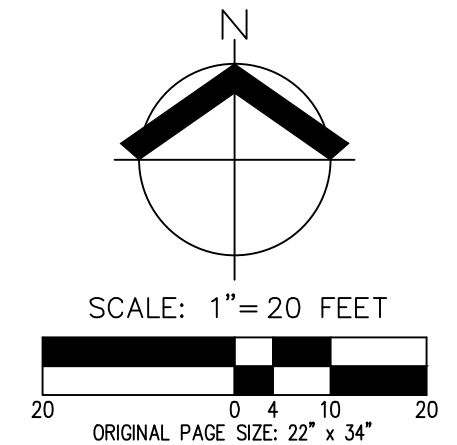
INLET PROTECTION NOTE:
CONTRACTOR SHALL PROVIDE INLET PROTECTION ON ANY ADDITIONAL INLETS ALONG SW OREGON STREET OBSERVED TO RECEIVE RUNOFF FROM THE PROJECT SITE.

SURFACING LEGEND:

- NEW AC PAVEMENT
- 1-1/2" GRIND AND OVERLAY
- NEW CONCRETE HARDSCAPE

EROSION CONTROL LEGEND

EXISTING GROUND CONTOUR (1 FT)	--- 184 ---
EXISTING GROUND CONTOUR (5 FT)	--- 185 ---
FINISHED GRADE CONTOUR (1 FT)	--- 184 ---
FINISHED GRADE CONTOUR (5 FT)	--- 185 ---
SEDIMENT FENCE (TO BE INSTALLED PRIOR TO GRADING)	- x - x -
CURB INLET PROTECTION	
CONCRETE WASHOUT AREA	
DRAINAGE FLOW DIRECTION	
LIMITS OF DISTURBANCE	- - - - -



AKS DRAWING FILE: 8627-04_ESG.DWG | LAYOUT: LAYOUT1

DESIGNED BY: APC
DRAWN BY: APC
MANAGED BY: TJ
CHECKED BY: BGC

DATE: 05/31/2022

REGISTERED PROFESSIONAL ENGINEER
G. CARLSON
NO. 12345
STATE OF OREGON
EXPIRES 12/31/2025

REVISIONS:

JOB NUMBER
8627-04

SHEET
C050

DESIGNED BY: APC

DRAWN BY: APC

MANAGED BY: TJ

CHECKED BY: BGC

DATE: 05/31/2022

REGISTERED PROFESSIONAL ENGINEER
PREPARED FOR
JBMAC VENTURES
C/O G. CARLSON
2008

REVISIONS:

REVISIONS:

REVISIONS:

REVISIONS:

REVISIONS:

REVISIONS:

REVISIONS:

REVISIONS:

REVISIONS:

REVISIONS:

JOB NUMBER
8627-04

SHEET

C051

SEDIMENT FENCE

DRAWING NO. 875 REVISED 10-31-19

CleanWater Services

PLAN VIEW
ANGLE FILTER FABRIC FENCE TO ASSURE SOIL IS TRAPPED
INTERLOCKED 2"x 2" POSTS AND ATTACH

PROFILE
USE STITCHED LOOPS OVER 2"x 2" POSTS
3" MIN FROM TOE SLOPE
2'-6" OVER 2"x 2" POSTS
4'-0" TOTAL WIDTH
6" FILTER FABRIC MATERIAL 36" WIDE ROLLS
1'-6" FROM TOE SLOPE

FRONT VIEW
2'-6" FILTER FABRIC MATERIAL 36" WIDE ROLLS
4'-0" TOTAL WIDTH
6" MAXIMUM SPACING
6" FILTER FABRIC MATERIAL 36" WIDE ROLLS

NOTES:

1. SEDIMENT FENCE TO HAVE STITCHED LOOPS AROUND 2" x 2" POSTS.
2. BURY BOTTOM OF FILTER FABRIC 6" VERTICALLY BELOW FINISHED GRADE.
3. 2" x 2" FIR, PINE OR STEEL FENCE POSTS.
4. POSTS TO BE INSTALLED ON UPHILL SIDE OF SLOPE.
5. COMPACT BOTH SIDES OF FILTER FABRIC TRENCH.
6. PANELS MUST BE PLACED ACCORDING TO SPACING ON DRAWING NO. 940.

FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.

CONCRETE WASHOUT

DRAWING NO. 900 REVISED 10-31-19

CleanWater Services

PLAN
MIN 1" HIGH BERM
EXISTING GRADE
3' BY 3' MIN AT BOTTOM OF WASHOUT TO CONTAIN CONCRETE
9' BY 9' MIN TO CONTAIN CONCRETE
RADIUS = 25' MIN

SECTION A-A
EXCAVATED MATERIAL MAY BE USED FOR PERIMETER BERM
3'-6" ROCK WITH A MINIMUM 8" DEPTH
2% SLOPE
EXISTING GRADE
3' BY 3' MIN TO CONTAIN CONCRETE
1' MIN
2' MIN

NOTES:

1. WASHOUT FACILITIES SHALL BE MAINTAINED TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM FREEBOARD OF 12 INCHES.
2. WASHOUT FACILITIES MUST BE CLEANED, OR NEW FACILITIES MUST BE CONSTRUCTED AND READY FOR USE ONCE THE WASHOUT IS 75% FULL.
3. IF THE WASHOUT IS NEARING CAPACITY, VACUUM AND DISPOSE OF THE WASTE MATERIAL IN AN APPROVED MANNER.
4. TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE LOCATED A MINIMUM OF 50 FT FROM SENSITIVE AREAS INCLUDING OPEN DRAINAGE FACILITIES AND WATER SOURCES.
5. CONCRETE WASHOUT FACILITIES SHALL BE CONSTRUCTED AND MAINTAINED IN SUFFICIENT QUANTITY AND SIZE TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.
6. INSTALL CONCRETE WASHOUT SIGN WITHIN 30 FEET OF TEMPORARY CONCRETE WASHOUT FACILITY.
7. TEMPORARY CONCRETE WASHOUTS MAY BE A PREFABRICATED CONTAINER THAT IS PORTABLE AND REUSABLE.

CURB AND GUTTER INLET PROTECTION

DRAWING NO. 905 REVISED 10-31-19

CleanWater Services

PERSPECTIVE VIEW SHOWING WATTLE ALONG GUTTER AT CURB INLET
TOP OF CURB
CO-30 OR CO-48 INLET
FACE OF CURB
INSTALL WATTLE TIGHT AGAINST FACE CURB
WHEAT STRAW, RYE GRASS STRAW, COCONUT OR EXCELSIOR WATTLES

NOTES:

1. ONLY ALLOWED USE OF APPLICATION IS ON CURB AND GUTTER INLETS.
2. INSTALL WATTLE ALONG INLET WITH WATTLE EXTENDING A MIN OF 36" BEYOND INLET OPENINGS IN EACH DIRECTION.
3. WATTLE MUST BE INSTALLED TIGHTLY AGAINST CURB. MAY REQUIRE ADDITIONAL MEASURES TO ENSURE WATTLE REMAINS TIGHT AGAINST CURB, SUCH AS USING ZIP TIES TO SECURE WATTLE TO INLET'S TRASH BARS OR USING SANDBAGS TO WEIGHT DOWN WATTLE.
4. REPLACE WATTLE AS NECESSARY TO PREVENT SEDIMENT FROM ENTERING THE STORM SYSTEM.

STANDARD EROSION CONTROL NOTES FOR SITES LESS THAN 1 ACRE

DRAWING NO. 945 REVISED 10-31-19

CleanWater Services

NOTES:

1. WHEN RAINFALL AND RUNOFF OCCURS, A KNOWLEDGEABLE AND EXPERIENCED PERSON IN THE PRINCIPLES, PRACTICES, INSTALLATION, AND MAINTENANCE OF EROSION AND SEDIMENT CONTROLS WHO WORKS FOR THE PERMITTEE MUST PROVIDE DAILY INSPECTIONS OF THE EROSION AND SEDIMENT CONTROLS AND DISCHARGE OUTFALLS.
2. CONSTRUCTION ACTIVITIES MUST AVOID OR MINIMIZE EXCAVATION AND CREATION OF BARE GROUND FROM OCTOBER 1 THROUGH MAY 31ST EACH YEAR.
3. DURING WET WEATHER PERIOD, TEMPORARY STABILIZATION OF THE SITE MUST OCCUR AT THE END OF EACH WORK DAY.
4. SEDIMENT CONTROLS MUST BE INSTALLED AND MAINTAINED ON ALL DOWN GRADIENT SIDES OF THE CONSTRUCTION SITE AT ALL TIMES DURING CONSTRUCTION. THEY MUST REMAIN IN PLACE UNTIL PERMANENT VEGETATION OR OTHER PERMANENT COVERING OF EXPOSED SOIL IS ESTABLISHED.
5. ALL ACTIVE INLETS MUST HAVE SEDIMENT CONTROLS INSTALLED AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
6. SIGNIFICANT AMOUNTS OF SEDIMENT THAT LEAVES THE SITE MUST BE CLEANED UP WITHIN 24 HOURS AND PLACED BACK ON THE SITE AND STABILIZED OR PROPERLY DISPOSED. THE CAUSE OF THE SEDIMENT RELEASE MUST BE FOUND AND PREVENTED FROM CAUSING A RECURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN-STREAM CLEAN UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE OREGON DEPARTMENT OF STATE LANDS REQUIRED TIME FRAME.
7. SEDIMENT MUST NOT BE INTENTIONALLY WASHED INTO STORM SEWERS, DRAINAGE WAYS, OR WATER BODIES.
8. SEDIMENT MUST BE REMOVED FROM BEHIND ALL SEDIMENT CONTROL MEASURES WHEN IT HAS REACHED A HEIGHT OF 1/3-RD THE BARRIER HEIGHT AND PRIOR TO THE CONTROL MEASURES REMOVAL.
9. CLEANING OF ALL STRUCTURES WITH SUMPS MUST OCCUR WHEN THE SEDIMENT RETENTION CAPACITY HAS BEEN REDUCED BY 50% AND AT COMPLETION OF PROJECT.
10. ANY USE OF TOXIC OR OTHER HAZARDOUS MATERIALS MUST INCLUDE PROPER STORAGE, APPLICATION, AND DISPOSAL.
11. THE PERMITTEE MUST PROPERLY MANAGE HAZARDOUS WASTES, USED OILS, CONTAMINATED SOILS, CONCRETE WASTE, SANITARY WASTE, LIQUID WASTE, OR OTHER TOXIC SUBSTANCES DISCOVERED OR GENERATED DURING CONSTRUCTION.
12. THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW MANUFACTURER'S RECOMMENDATIONS. NUTRIENT RELEASES FROM FERTILIZERS TO SURFACE WATERS MUST BE MINIMIZED. TIME RELEASE FERTILIZERS SHOULD BE USED AND CARE SHOULD BE MADE IN APPLICATION OF FERTILIZERS WITHIN ANY WATER WAY RIPARIAN ZONE.
13. OWNER OR DESIGNATED PERSON SHALL BE RESPONSIBLE FOR PROPER INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES, IN ACCORDANCE WITH CURRENT CLEAN WATER SERVICES STANDARDS AND STATE, AND FEDERAL REGULATIONS.
14. PRIOR TO ANY LAND DISTURBING ACTIVITIES, THE BOUNDARIES OF THE CLEARING LIMITS, VEGETATED BUFFERS, AND ANY SENSITIVE AREAS SHOWN ON THIS PLAN SHALL BE CLEARLY DELINEATED IN THE FIELD. UNLESS OTHERWISE APPROVED, NO DISTURBANCE IS PERMITTED BEYOND THE CLEARING LIMITS. THE OWNER/PERMITTEE MUST MAINTAIN THE DELINEATION FOR THE DURATION OF THE PROJECT. NOTE: VEGETATED CORRIDORS TO BE DELINEATED WITH ORANGE CONSTRUCTION FENCE OR APPROVED EQUAL.
15. PRIOR TO ANY LAND DISTURBING ACTIVITIES, THE BMPs THAT MUST BE INSTALLED ARE GRAVEL CONSTRUCTION ENTRANCE, PERIMETER SEDIMENT CONTROL, AND INLET PROTECTION. THESE BMPs MUST BE MAINTAINED FOR THE DURATION OF THE PROJECT.
16. IF VEGETATIVE SEED MIXES ARE SPECIFIED, SEEDINGS MUST TAKE PLACE NO LATER THAN SEPTEMBER 15; THE TYPE AND PERCENTAGES OF SEED IN THE MIX ARE AS IDENTIFIED ON THE PLANS OR AS SPECIFIED BY THE DESIGN ENGINEER.
17. WATERTIGHT TRUCKS MUST BE USED TO TRANSPORT SATURATED SOILS FROM THE CONSTRUCTION SITE. AN APPROVED EQUIVALENT IS TO DRAIN THE SOIL ON SITE AT A DESIGNATED LOCATION USING APPROPRIATE BMPs; SOIL MUST BE DRAINED SUFFICIENTLY FOR MINIMAL SPILLAGE.
18. ALL PUMPING OF SEDIMENT LADEN WATER MUST BE DISCHARGED OVER AN UNDISTURBED, PREFERABLY VEGETATED AREA, AND THROUGH A SEDIMENT CONTROL BMP (I.E. FILTER BAG).
19. THE ESC PLAN MUST BE KEPT ON-SITE. ALL MEASURES SHOWN ON THE PLAN MUST BE INSTALLED PROPERLY TO ENSURE THAT SEDIMENT LADEN WATER DOES NOT ENTER A SURFACE WATER SYSTEM, ROADWAY, OR OTHER PROPERTIES.
20. THE ESC MEASURES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE MEASURES SHALL BE UPGRADED AS NEEDED TO MAINTAIN COMPLIANCE WITH ALL REGULATIONS.
21. WRITTEN ESC LOGS ARE SUGGESTED TO BE MAINTAINED ON-SITE AND AVAILABLE TO DISTRICT INSPECTORS UPON REQUEST.
22. IN AREAS SUBJECT TO WIND EROSION, APPROPRIATE BMPs MUST BE USED, WHICH MAY INCLUDE THE APPLICATION OF FINE WATER SPRAYING, PLASTIC SHEETING, MULCHING, OR OTHER APPROVED MEASURES.
23. ALL EXPOSED SOILS MUST BE COVERED, AT END OF BUSINESS DAY, DURING WET WEATHER PERIOD, FROM OCTOBER 1 - MAY 31.

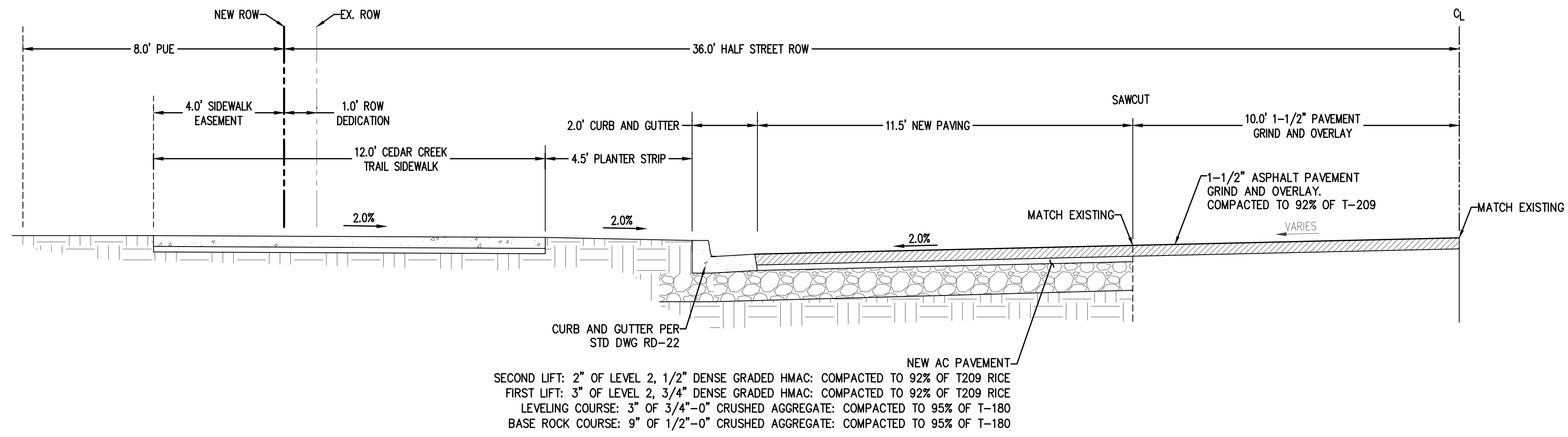


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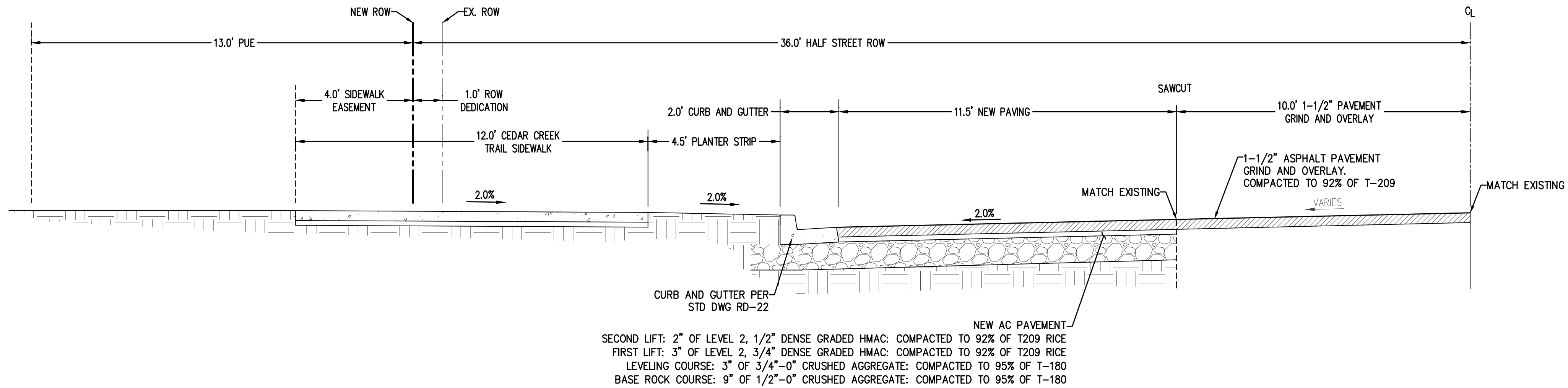
ENGINEERING - SURVEYING - NATURAL RESOURCES
FORESTRY - PLANNING - LANDSCAPE ARCHITECTURE

JBMAC VENTURES
FRONTAGE IMPROVEMENTS
SHERWOOD OREGON
TAX LOT 600 & 700

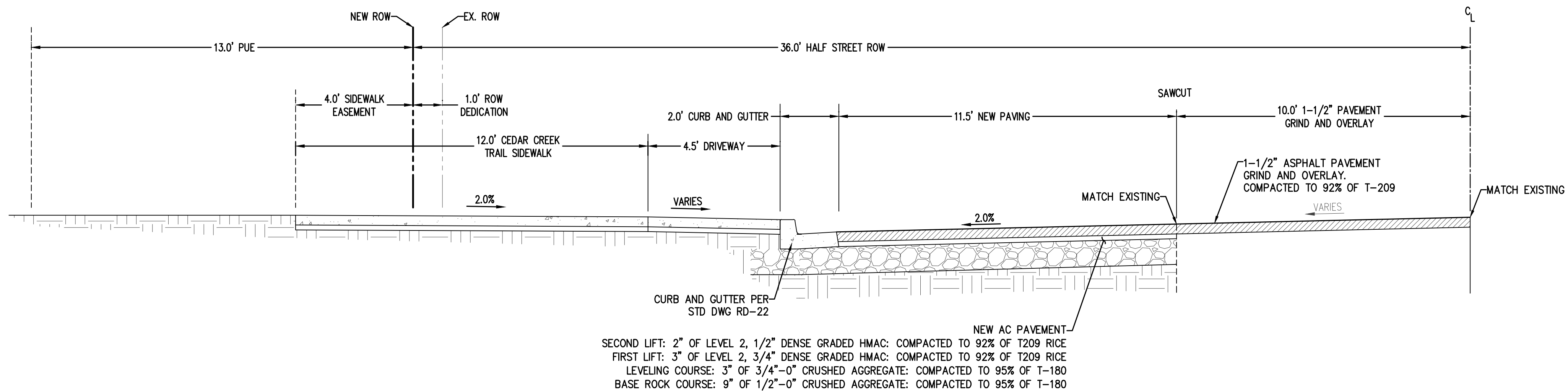
SW OREGON STREET
CROSS SECTIONS



SW OREGON STREET
HALF STREET IMPROVEMENTS
NTS
STA 16+24.60 - STA 18+87.91



SW OREGON STREET (WIDE PUE)
HALF STREET IMPROVEMENTS
NTS
STA 18+87.91 - STA 18+97.30
STA 19+27.30 - STA 19+46.31

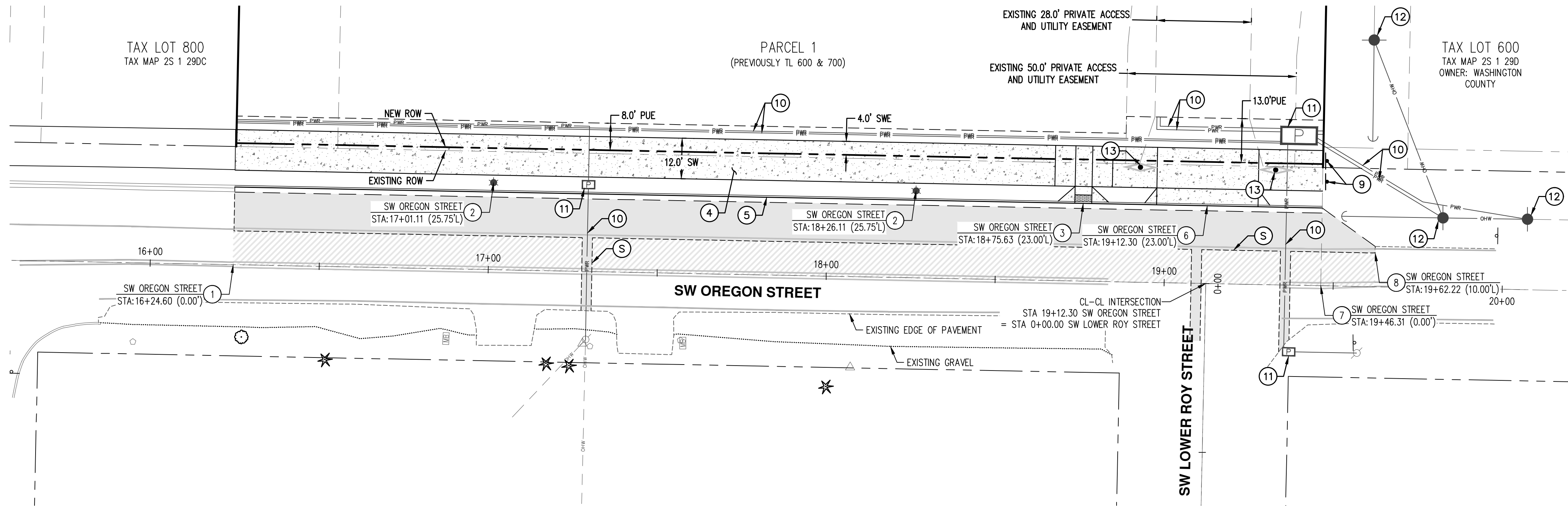


SW OREGON STREET (DRIVEWAY)
HALF STREET IMPROVEMENTS
NTS
STA 18+97.30 - STA 19+27.30

AKS DRAWING FILE: 8627-04_CROSS_SECTIONING_LAYOUT_LAYOUT

DESIGNED BY:	APC
DRAWN BY:	APC
MANAGED BY:	TJ
CHECKED BY:	BGC
DATE:	05/31/2022
REVISIONS:	

JOB NUMBER	8627-04
SHEET	C100



STREET CONSTRUCTION GENERAL NOTES:

1. DRY UTILITY CROSSINGS SHALL BE PLACED PRIOR TO PROOF ROLL TEST FOR CURB INSTALLATION. THE NUMBER OF CROSSINGS, EXACT LOCATION, DEPTH, CONDUIT TYPE, ETC. SHALL BE SPECIFIED BY THE PRIVATE UTILITY CARRIERS. CONTRACTOR SHALL COORDINATE.
2. CONTRACTOR SHALL INSTALL CENTERLINE SURVEY MONUMENT BOXES AT ALL INTERSECTIONS, PCS, AND PTS.
3. CONTRACTOR SHALL INSTALL CENTERLINE MONUMENT BOXES AT ALL INTERSECTIONS, PCS AND PTS.
4. CONTRACTOR SHALL CONTACT CITY INSPECTOR, PROJECT ENGINEER, AND/OR AKS INSPECTOR AFTER STRING LINE IS IN PLACE AND BEFORE CURB IS POURED TO CHECK CURB GRADES. (MINIMUM 48 HOUR NOTICE)

STREET CONSTRUCTION KEYED NOTES:

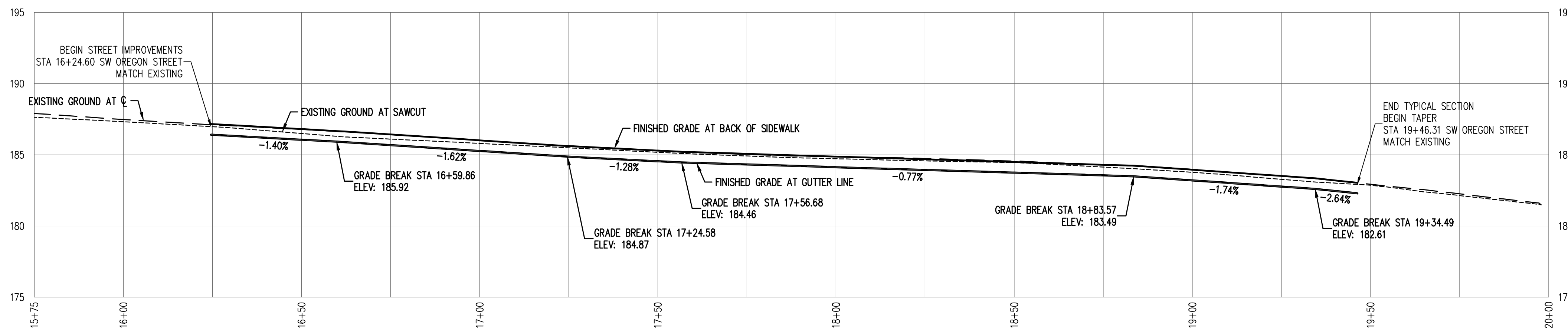
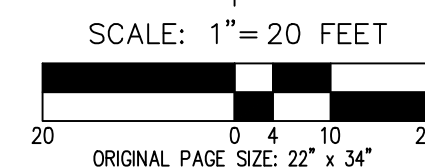
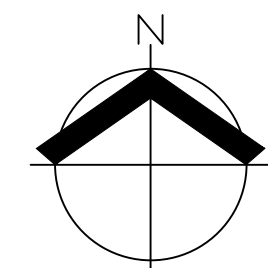
5. SAWCUT LINE, SAND AND SEAL JOINT (TYP). PAVEMENT RESTORATION PER CITY OF SHERWOOD STD DETAIL RD-45.
1. BEGIN STREET IMPROVEMENTS BEGIN TYPICAL SECTION MATCH EXISTING
2. INSTALL NEW STREET LIGHT. CONTRACTOR SHALL COORDINATE MATERIAL AND INSTALLATION WITH PGE. SEE SHEET C300 FOR ADDITIONAL INFORMATION.
3. ADA RAMP CENTERLINE. SEE SHEET C102 FOR DIMENSIONS AND ELEVATIONS.
4. CONSTRUCT MULTI USE PATHWAY PER CITY OF SHERWOOD STD DETAIL RD-26.
5. CONSTRUCT STANDARD CURB AND GUTTER PER CITY OF SHERWOOD STD DETAIL RD-22. STA 16+24.60 TO STA 19+46.31.
6. DRIVEWAY CENTERLINE. SEE SHEET C100 FOR ROADWAY SECTION AND SEE SHEET C102 FOR DIMENSIONS AND ELEVATIONS.
7. END TYPICAL SECTION BEGIN TAPER
8. END STREET IMPROVEMENTS. MATCH EXISTING
9. INSTALL END OF SIDEWALK BARRIER PER CITY OF SHERWOOD STD DETAIL RD-51.
10. NEW FRANCHISE UTILITY CONDUIT. LOCATION SHOWN IS APPROXIMATE AND FOR REFERENCE ONLY. SEE PLANS BY OTHERS FOR FINAL CONDUIT ROUTING.
11. NEW PGE VAULT. SEE PGE PLANS FOR FINAL LOCATION AND MATERIALS.
12. NEW PGE POWER POLE. SEE PGE PLANS FOR FINAL LOCATION AND MATERIALS.
13. INSTALL REMOVABLE BOLLARD PER DETAIL 1/SITE.

LEGEND:

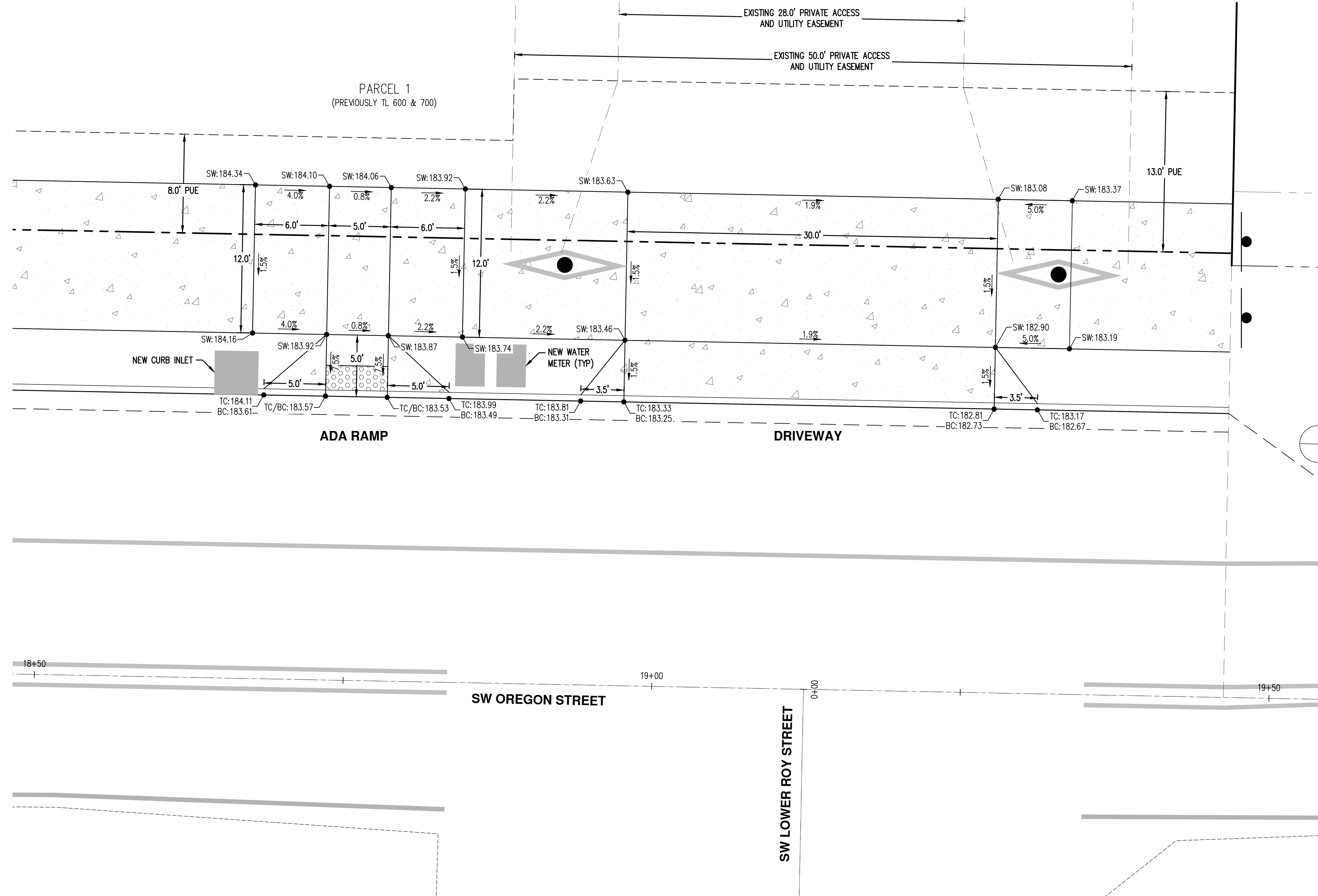
- NEW AC PAVEMENT
- 1-1/2" GRIND AND OVERLAY
- NEW CONCRETE HARDSCAPE

EASEMENT LEGEND

- SWE SIDEWALK EASEMENT
- PUE PUBLIC UTILITY EASEMENT



SW OREGON STREET
HORZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'



ADA RAMP NOTES:

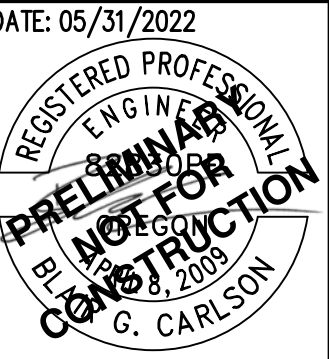
1. CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING ALL SIDEWALK TO MEET ADA AND JURISDICTIONAL REQUIREMENTS.
2. CONTRACTOR SHALL CONTACT PROJECT ENGINEER/INSPECTOR ONCE FORMS ARE IN PLACE, TO CHECK FORMS PRIOR TO POURING CONCRETE. CONTRACTOR SHALL ALLOW A 48 HOUR WINDOW FOR INSPECTION.
3. CONTRACTOR SHALL MAINTAIN CONSTRUCTED 1.5% MAXIMUM SLOPE IN ANY DIRECTION AT ADA LANDINGS AND A MAXIMUM CONSTRUCTED SLOPE OF 7.5% FOR A MAXIMUM OF 15 FEET FOR ADA RAMPS.
4. CONSTRUCTED CURB GRADE AT ADA RAMP TO BE MINIMUM 1% AND MAXIMUM 1.5%.
5. CONSTRUCTED GUTTER SLOPE AT ADA RAMP TO BE 5% MAXIMUM.
6. ALL SIDEWALKS SHALL HAVE A MAXIMUM CONSTRUCTED CROSS SLOPE OF 1.5%.
7. IF CONSTRUCTION STAKES FOR ADA RAMPS OR SIDEWALK ARE REQUESTED AFTER CURB IS POURED, CONTRACTOR SHALL COORDINATE WITH PROJECT SURVEYOR AND PROJECT ENGINEER TO VERIFY ADJACENT CURB ELEVATIONS AND CONFIRM AS-BUILT CURB ELEVATIONS MATCH DESIGN ELEVATIONS. IF AS-BUILT CURB ELEVATIONS DO NOT MATCH DESIGN ELEVATIONS, ADJUSTMENTS TO ADA RAMP(S) OR SIDEWALK ELEVATIONS MAY BE REQUIRED. CONTRACTOR SHALL ALLOT ADEQUATE TIME FOR PROJECT ENGINEER AND PROJECT SURVEYOR TO ENSURE ALL CONSTRUCTED ADA REQUIREMENTS SHALL BE MET.

ABBREVIATIONS:

- TC = TOP OF CURB ELEVATION
BC = BOTTOM OF CURB ELEVATION
SW = SIDEWALK ELEVATION
DOWNWARD SLOPE X.X%

AKS DRAWING FILE: 8627-04 ADA AND DRIVEWAY LAYOUT LAYOUT1

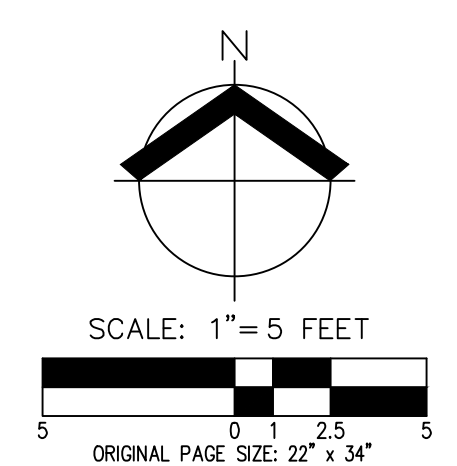
DESIGNED BY:	APC
DRAWN BY:	APC
MANAGED BY:	TJ
CHECKED BY:	BGC



DATE:	05/31/2022
REVISIONS:	

JOB NUMBER
8627-04

SHEET
C102



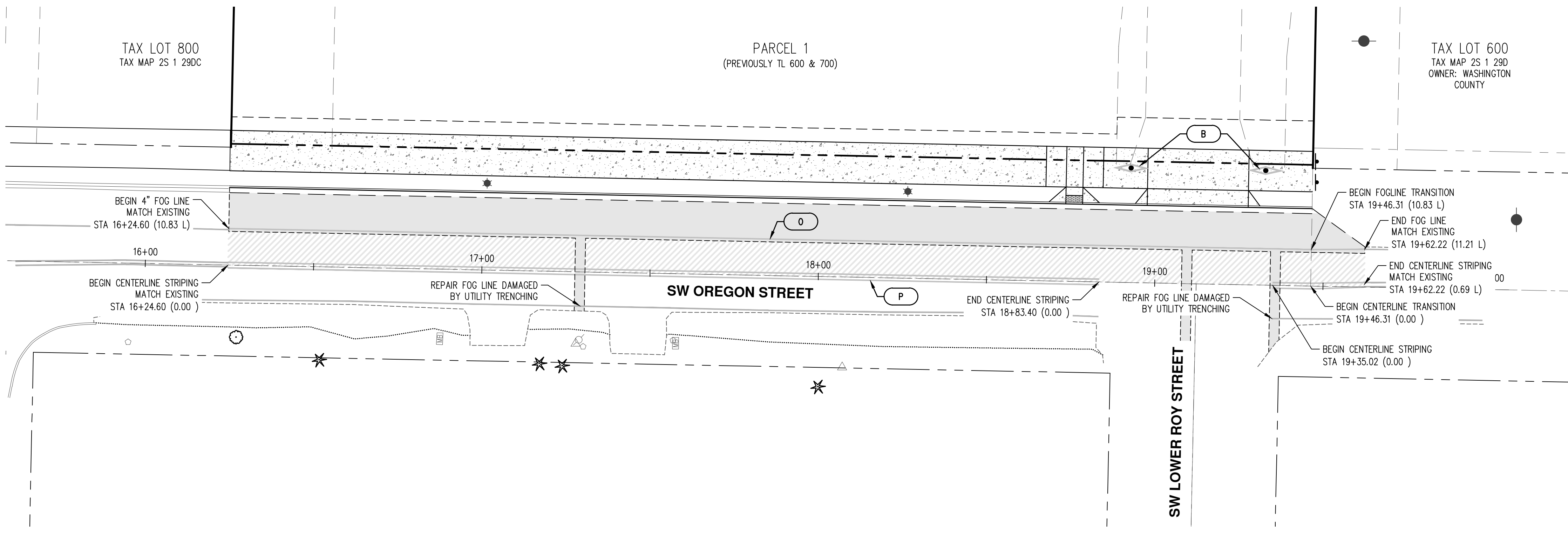


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ENGINEERING - SURVEYING - NATURAL RESOURCES
FORESTRY - PLANNING - LANDSCAPE ARCHITECTURE

JBMAC VENTURES
FRONTAGE IMPROVEMENTS
SHERWOOD
TAX MAP 25 1 290C
TAX LOT 600 & 700

SW OREGON STREET
STRIPING PLAN



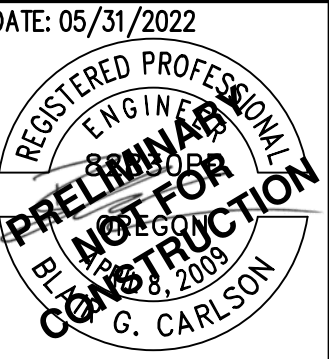
STREET STRIPING GENERAL NOTES:

1. STREET STRIPING PER CITY OF SHERWOOD STANDARDS.
2. STATIONING AND OFFSET FOR STRIPING IS ALONG CENTERLINE OF STRIPING DETAIL.
3. PROPOSED STRIPING LAYOUT SHALL BE INSPECTED BY CITY STAFF IN THE FIELD PRIOR TO FINAL STRIPING. THE CONTRACTOR IS REQUIRED TO ARRANGE FOR A LAYOUT INSPECTION PRIOR TO STRIPING.

STRIPING LEGEND

- (O) 4" WHITE FOG LINE. SEE CITY OF SHERWOOD STD DETAIL S-4.
- (P) DOUBLE YELLOW CENTERLINE. SEE CITY OF SHERWOOD STD DETAIL S-4.
- (B) YELLOW OBSTRUCTION MARKING. SEE DETAIL 2/SITE.

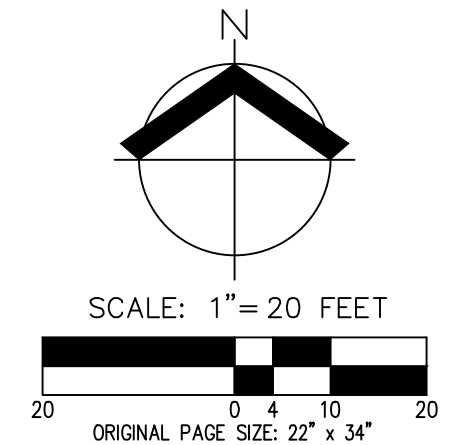
DESIGNED BY:	APC
DRAWN BY:	APC
MANAGED BY:	TJ
CHECKED BY:	BGC



REVISIONS:	

JOB NUMBER
8627-04

SHEET
C103



AKS DRAWING FILE: 8627-04_STRIPING.DWG | LAYOUT: LAYOUT1

**PAVEMENT SECTION CHART
COMPONENT THICKNESS (INCHES)**

FUNCTIONAL CLASSIFICATION	SECOND LIFT HMAC THICKNESS	FIRST LIFT HMAC THICKNESS	LEVELING COURSE THICKNESS	BASE ROCK COURSE THICKNESS
LOCAL	2"	2"	2"	8"
NEIGHBORHOOD	2"	2"	2"	9"
COMMERCIAL	2"	3"	3"	9"
COLLECTOR	2"	3"	3"	9"
ARTERIAL	2"	3"	4"	10"

NOTES:
1. MATERIALS AND PLACEMENT OF THE HOT MIXED ASPHALT CONCRETE PAVEMENT (ACP) SHALL CONFORM TO THE REQUIREMENTS DELINEATED IN SECTION 00744 - ASPHALT CONCRETE PAVEMENT (ACP), OF THE ODOT/APWA, OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION (LATEST EDITION), EXCEPT AS MODIFIED BY CITY AND NOTED IN THE CITY'S ENGINEERING DESIGN AND STANDARD DETAILS MANUAL (LATEST EDITION).
2. THE TOP LIFT OF HMAC SHALL BE PLACED PRIOR TO CITY FINAL ACCEPTANCE OF PUBLIC INFRASTRUCTURE IMPROVEMENTS.
3. CRUSHED AGGREGATE USED FOR BASE ROCK AND LEVELING COURSE SHALL CONFORM TO THE REQUIREMENTS DELINEATED IN SECTION 02630 - BASE AGGREGATE, OF THE ODOT/APWA, OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION (LATEST EDITION).
* FOR ARTERIAL CLASSIFICATION USE LEVEL 3.

STANDARD DRAWING TITLE	DRAWING NUMBER
PAVEMENT SECTION	RD-20
SCALE	DATE
N.T.S.	MAR '16

MONOLITHIC CURB AND GUTTER

NOTES:
1. MONOLITHIC CURB AND GUTTER SHALL BE USED ON ALL NEW ROADWAY SECTIONS, EXCEPT AT ROADWAY MEDIANS AND AT MOUNTABLE CURB SECTIONS (SEE STD DET RD-21 & RD-24 FOR THESE CONDITIONS).
2. CONCRETE SHALL BE COMMERCIAL MIX, WITH A 28-DAY COMPRESSIVE STRENGTH OF 3,300 PSI, WITH A 4" MAX SLUMP.
3. EXPANSION JOINTS TO BE PROVIDED AT EACH:
A. POINT OF TANGENCY.
B. COLD JOINT.
C. SIDE OF INLET STRUCTURES.
D. SIDE OF DRIVEWAYS.
4. EXPANSION JOINT MATERIAL SHALL BE PRE-MOLDED, ASPHALT IMPREGNATED, NON-EXTRUDING, WITH A THICKNESS OF 1/2".
5. CONTRACTION JOINTS SHALL HAVE:
A. SPACING OF NOT MORE THAN 15 FEET.
B. DEPTH OF JOINT OF AT LEAST 1/2".
6. BASE ROCK SHALL BE 3/4"-0", COMPACTED TO 95% OF MAXIMUM DENSITY PER AASHTO T-180. BASE ROCK SHALL BE TO SUBGRADE OF STREET STRUCTURES OR 6", WHICHEVER IS GREATER, AND SHALL EXTEND 12" BEHIND CURB.
7. FOR CURB AND GUTTER REQUIREMENTS ON SHED AND SUPERELEVATED ROAD SECTIONS, SEE STD DET RD-23
* COMMERCIAL DRIVEWAY DROPS SHALL BE 8" THICK, RE-BAR REINFORCED, AND 4,000 PSI AT 28 DAYS.

STANDARD DRAWING TITLE	DRAWING NUMBER
MONOLITHIC CURB AND GUTTER	RD-22
SCALE	DATE
N.T.S.	MAR '16

SIDEWALK DETAIL

NOTES:
1. CONCRETE SHALL BE COMMERCIAL MIX, MIN. COMPRESSIVE STRENGTH OF 3,300 PSI @ 28 DAYS, WITH A 4" MAX SLUMP.
2. SIDEWALK PANELS TO BE SQUARE (6' LONG x 6' WIDE TYP.).
3. EXPANSION JOINTS TO BE PLACED AT SIDES OF DRIVEWAY APPROACHES, UTILITY VAULTS, CURB RAMPS, AND/OR POINTS OF TANGENCY IN CURB AS SHOWN ON THE STANDARD DRAWINGS FOR SIDEWALK RAMPS, AND AT SPACING NOT TO EXCEED 45'.
4. FOR SIDEWALKS ADJACENT TO THE CURB AND POURED AT THE SAME TIME AS THE CURB, THE JOINT BETWEEN THEM SHALL BE A TROWELED JOINT WITH A MINIMUM 1/2" RADIUS.
5. SIDEWALKS SHALL HAVE A MINIMUM THICKNESS OF 4". IF MOUNTABLE CURB IS USED, OR IF SIDEWALK IS INTENDED AS PORTION OF A RESIDENTIAL DRIVEWAY IT SHALL HAVE A 6" MINIMUM THICKNESS, COMMERCIAL 8".
6. CONCRETE SHALL HAVE A BROOM FINISH, ALL JOINTS SHALL BE EDGED WITH 3" SHINE.
7. WIDTH OF PLANTER STRIP AND SIDEWALK IS MEASURED FROM FACE OF CURB.
8. IF DRAIN BLOCKOUTS IN CURBS ARE APPROVED, THEY SHALL BE EXTENDED PERPENDICULAR TO CURB TO 1' PAST BACK OF SIDEWALK WITH A 3" DIAMETER ADS PIPE. CONTRACTION JOINT SHALL BE PLACE OVER PIPE.

STANDARD DRAWING TITLE	DRAWING NUMBER
SIDEWALK DETAIL	RD-26
SCALE	DATE
N.T.S.	MAR '16

COMMERCIAL DRIVEWAY DETAIL

NOTES:
1. CONCRETE SHALL HAVE 8" MINIMUM DEPTH AND A COMPRESSIVE STRENGTH OF 4000 PSI @ 28 DAYS.
2. CURB JOINT SHALL BE A TROWELED JOINT WITH A MINIMUM 1/2" RADIUS ALONG BACK OF CURB.
3. EXPANSION JOINTS SHALL BE 1/2" PRE-MOLDED ASPHALT IMPREGNATED MATERIAL, CEDAR OR EQUIVALENT EXTENDING FROM TOP OF BASE TO FINISHED GRADE.
4. CONCRETE SHALL HAVE A BROOM FINISH AND EDGE ALL JOINTS.
5. WEEPHOLES ARE NOT TO BE PLACED IN WINGS.
6. IF CURBING IS BEING REMOVED TO INSTALL DRIVEWAY AND GUTTER SHOULD BECOME SEPARATED FROM THE DRIVING SURFACE IN EXCESS OF 1/6", THEN THE GUTTER SHALL ALSO BE REMOVED AND REPLACED.
7. WINGS OF THE COMMERCIAL DRIVEWAY WHICH ARE A PORTION OF THE SIDEWALK SHALL NOT EXCEED A SLOPE OF 8.33% (1:12).
8. ODOT STANDARD DRAWINGS FOR COMMERCIAL DRIVEWAYS MAY BE USED WHEN PRE-APPROVED BY CITY ENGINEER.
9. SLOPE OF THE DRIVEWAY MAY BE AWAY FROM THE CURB WHEN PRE-APPROVED BY THE CITY ENGINEER.

STANDARD DRAWING TITLE	DRAWING NUMBER
COMMERCIAL DRIVEWAY DETAIL	RD-42
SCALE	DATE
N.T.S.	MAR '16

CROSS-SECTION

NOTES:
1. T-CUT IS 12" MINIMUM FOR TRENCHES WIDER THAN 12".
2. IF NEW EDGE OF PAVEMENT IS LESS THAN 3' FROM ANOTHER PATCH, CURB, EDGE OF STREET OR LONGITUDINAL CRACK, REPLACE THE PAVEMENT IN BETWEEN.
3. IF MORE THAN ONE EXISTING PATCH EDGE IS WITHIN THE 3' ZONE, REMOVE PAVEMENT TO THE FAR EDGE OF THE PRE-EXISTING PATCH.
4. NEW EDGE OF PAVEMENT (EDGE LINE) SHALL NOT LIE IN A WHEEL PATH. WIDTH OF T-CUT SHALL BE WIDENED WHERE NECESSARY TO MOVE THE EDGE LINE OUT OF THE WHEEL PATH.
5. SEE STD DET RD-20 FOR TYPICAL STREET PAVEMENT SECTION.
6. SEE STD DET RD-47 FOR TYPICAL TRENCH BACKFILL REQUIREMENTS.

STANDARD DRAWING TITLE	DRAWING NUMBER
PIPE TRENCH RESTORATION	RD-45
SCALE	DATE
N.T.S.	MAR '16

STRIPING DETAILS II

NOTES:
1. LOCATE STOP BARS 10' BACK OF THE EXTENDED FOG LINE, EDGE OF PAVEMENT, OR CURB FACE. VERIFY SIGHT DISTANCE.
2. LOCATE CROSSWALKS AS PER WHEELCHAIR RAMP LOCATIONS OR 5' BACK OF EXTENDED FOG LINE, EDGE OF PAVEMENT OR CURB FACE.
3. REMOVAL OF EXISTING STRIPING IS TO BE DETERMINED IN THE FIELD AND IS CONSIDERED INCIDENTAL WORK. STRIPING SHALL BE GROUND OFF AS DIRECTED BY THE ENGINEER.
4. ALL THERMOPLASTIC PAVEMENT MARKING MATERIAL SHALL BE INSTALLED AS PER OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION, (LATEST EDITION).
5. ALL PAINTED LINES SHALL CONFORM TO THE MOST CURRENT ODOT SPECIFICATIONS FOR BEAD BINDER PAINT AS LISTED IN ODOT'S QPL.

* LANE MARKING DIMENSION LOCATION AT Q OF STRIPING UNLESS NOTED OTHERWISE.

STANDARD DRAWING TITLE	DRAWING NUMBER
STRIPING DETAILS II	S-4
SCALE	DATE
N.T.S.	MAR '16

REMOVABLE BOLLARD

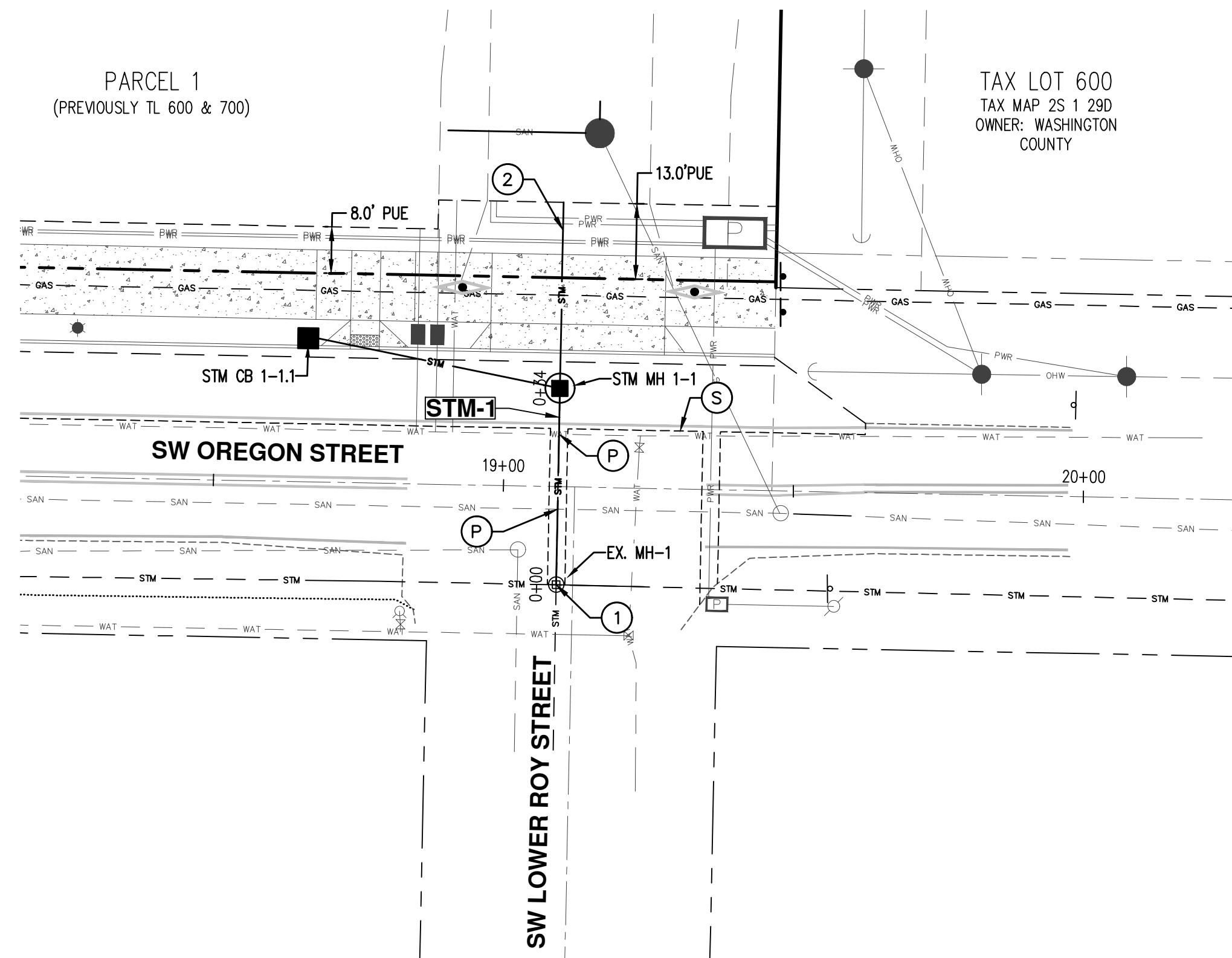
NOTES:
1. BOLLARD SHALL BE POWDER COATED BLACK.
2. CONCRETE SHALL BE MIN. 3300 PSI @ 28 DAYS.
3. VERIFY LOCATION OF UNDERGROUND UTILITIES BEFORE INSTALLING.

STANDARD DRAWING TITLE	DRAWING NUMBER
REMOVABLE BOLLARD	1 SITE
SCALE	DATE
N.T.S.	

OBSTRUCTION PAVEMENT MARKING

NOTES:
1. STRIPING TO MEET MUTCD FIGURE 9C-8 "OBSTRUCTION PAVEMENT MARKINGS"

STANDARD DRAWING TITLE	DRAWING NUMBER
OBSTRUCTION PAVEMENT MARKING	2 SITE
SCALE	DATE
N.T.S.	



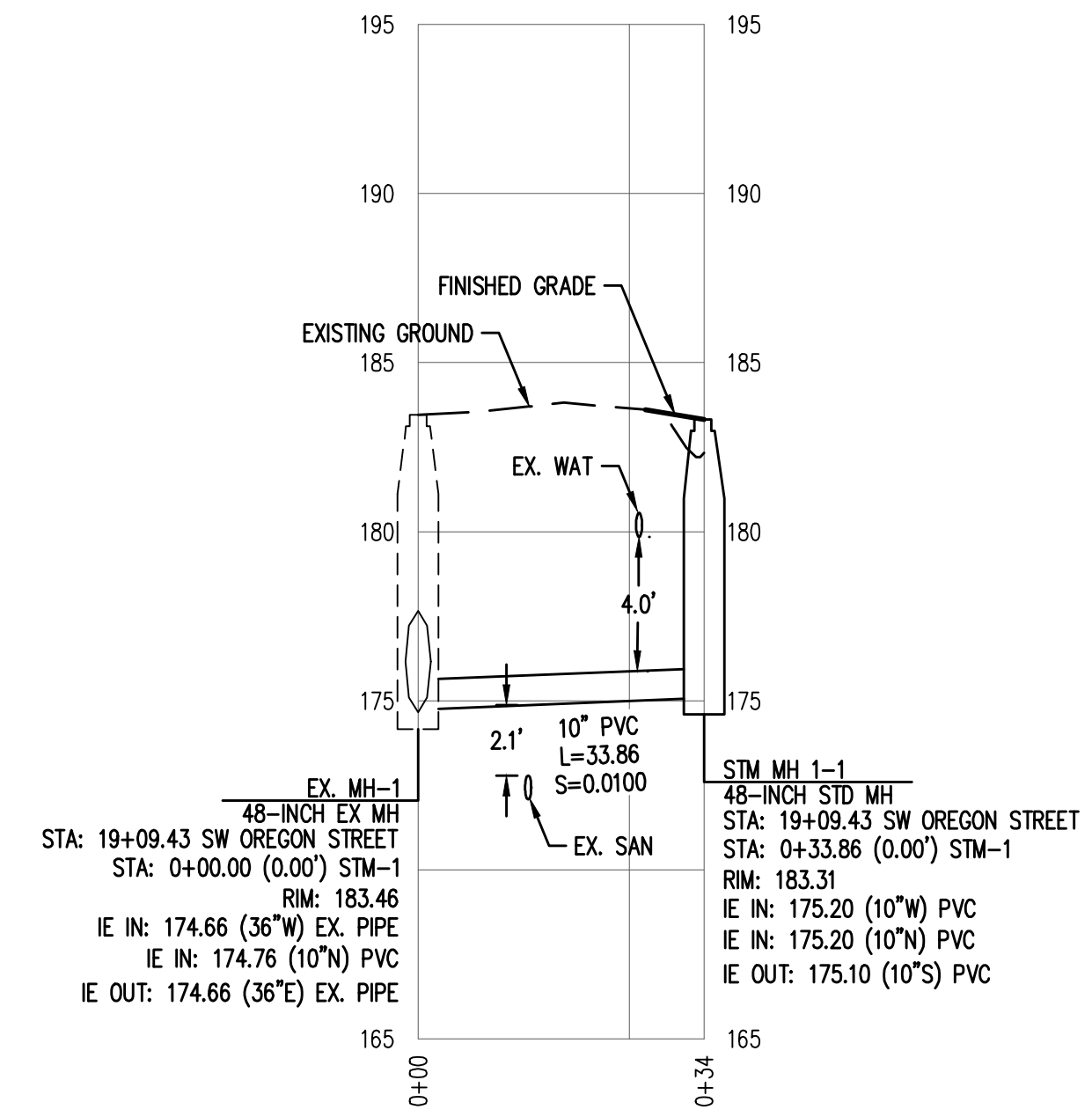
STORMWATER CONSTRUCTION GENERAL NOTES:

- ALL PUBLIC IMPROVEMENTS SHALL BE CONSTRUCTED PER CITY OF SHERWOOD STANDARDS.
- PIPE BEDDING AND BACKFILL FOR ALL UTILITIES SHALL BE DONE PER DETAIL RD47/ST400.
- STRUCTURE LOCATIONS ARE BASED ON CENTER OF STRUCTURE, UNLESS NOTED OTHERWISE.
- INLET CATCH BASINS TO BE INSTALLED FLUSH WITH FACE OF CURB.
- CONTRACTOR SHALL POTHOLE AND VERIFY EXISTING PIPE ELEVATIONS, SIZE, AND MATERIAL AT ALL PLANNED CROSSINGS AND POINTS OF CONNECTION PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY PROJECT ENGINEER OF ANY DISCREPANCIES.

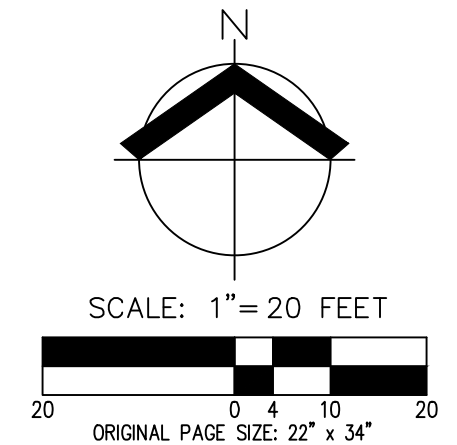
STORMWATER CONSTRUCTION KEYED NOTES:

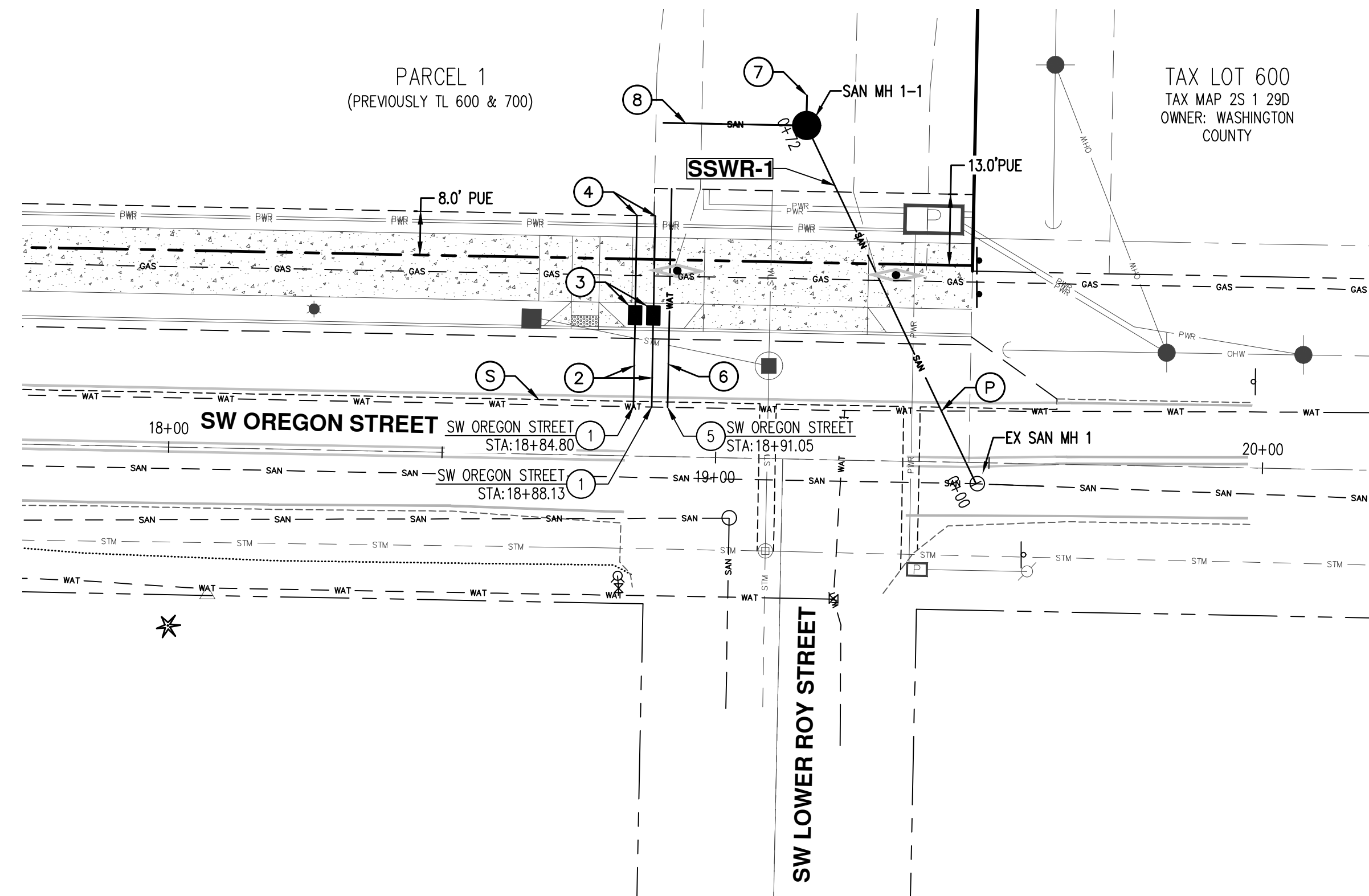
- POTHOLE AND VERIFY EXISTING PIPE ELEVATION, SIZE, AND MATERIAL PRIOR TO BEGINNING CONSTRUCTION. NOTIFY PROJECT ENGINEER OF ANY DISCREPANCIES.
- SAWCUT LINE (TYP). RESTORATION PER CITY OF SHERWOOD STD DETAIL RD-45.
- CONNECT TO EXISTING STORMWATER MANHOLE WITH KOR-N-SEAL BOOT PER CWS STANDARD DETAIL NO. 030.
- STUB 10" PVC STORM LINE TO BACK OF PUE. MARK WITH 8" PRESSURE TREATED 2"x4". TOP 12" TO BE PAINTED WHITE AND LABELED ST.
L = ±32.0 L.F.
S = 0.01 FT/FT

STORMWATER CATCH BASIN TABLE										
CB	TYPE	TOP OF CURB ELEV	IE OUT	SUMP	PIPE	SLOPE	LENGTH	DS MH	STATION & OFFSET	ALIGNMENT
STM CB 1-1.1	CG-30	184.13	180.24	1.50'	10" PVC	0.1145	44.04 LF	STM MH 1-1	18+65.88 23.50 L	SW OREGON STREET



STM-1
HORZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'





WATER AND SANITARY SEWER CONSTRUCTION GENERAL NOTES:

- ALL PUBLIC IMPROVEMENTS SHALL BE CONSTRUCTED PER CITY OF SHERWOOD STANDARDS.
- PIPE BEDDING AND BACKFILL FOR ALL UTILITIES SHALL BE DONE PER DETAIL RD47/ST400.
- STRUCTURE LOCATIONS ARE BASED ON CENTER OF STRUCTURE, UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL POTHOLE AND VERIFY EXISTING PIPE ELEVATIONS, SIZE, AND MATERIAL AT ALL PLANNED CROSSINGS AND POINTS OF CONNECTION PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY PROJECT ENGINEER OF ANY DISCREPANCIES.

UTILITY KEYED NOTES:

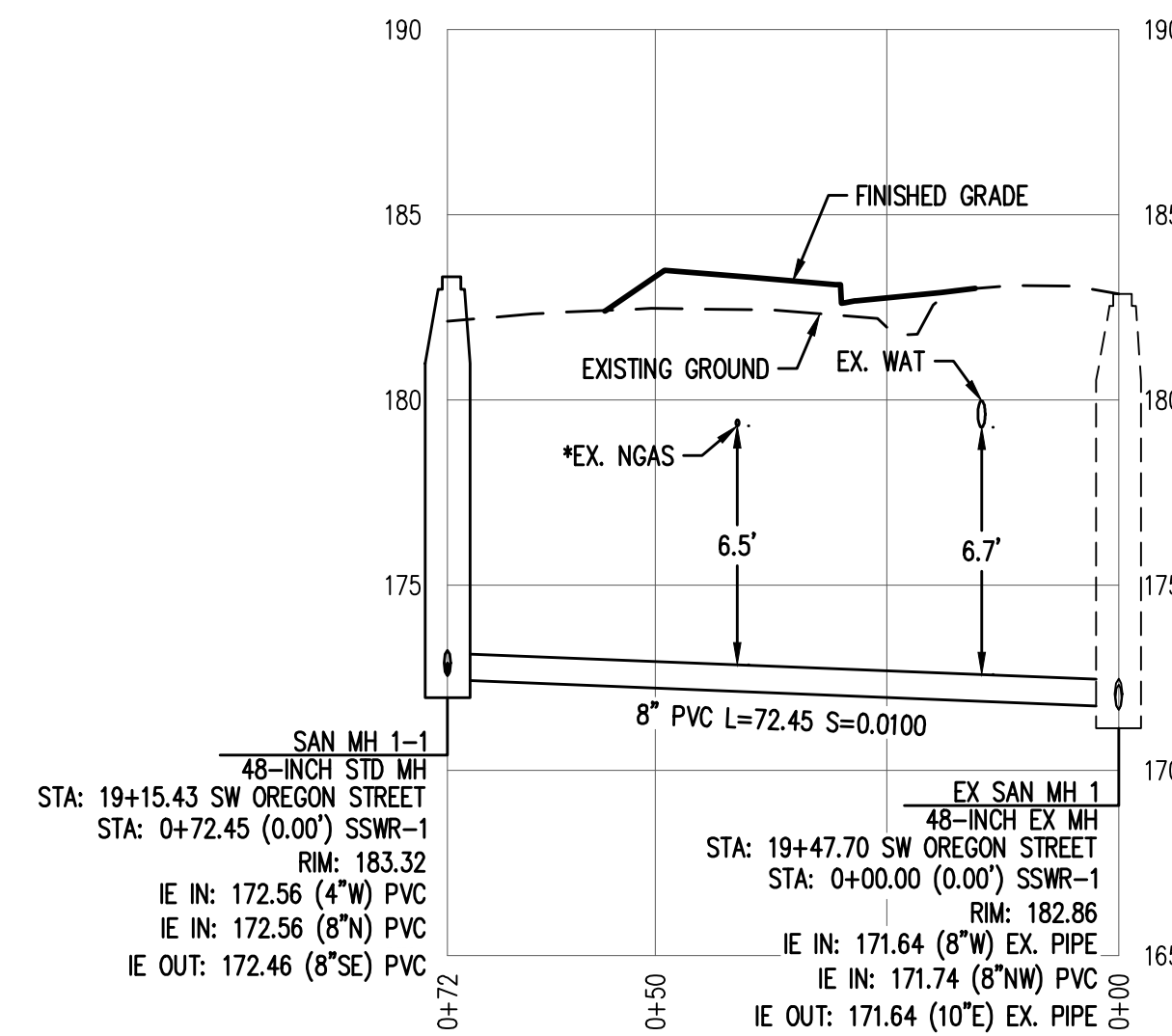
- POTHOLE AND VERIFY EXISTING PIPE ELEVATION, SIZE, AND MATERIAL PRIOR TO BEGINNING CONSTRUCTION. NOTIFY PROJECT ENGINEER OF ANY DISCREPANCIES.
- SAWCUT LINE (TYP). RESTORATION PER CITY OF SHERWOOD STD DETAIL RD-45.

WATER:

- INSTALL NEW 2" SERVICE TAP ON EXISTING WATER MAIN PER CITY OF SHERWOOD STD DETAIL W-60.
- INSTALL 2" TYPE "K" COPPER LINE.
L = ±15.0 L.F.
- INSTALL NEW 2" WATER METER VAULT PER CITY OF SHERWOOD STD DETAIL W-60. (EMPTY VAULT. NO METER)
- STUB 2" TYPE "K" COPPER WATER SERVICE LINE TO BACK OF PUE FOR FUTURE CONNECTION. MARK WITH 8" PRESSURE TREATED 2"x4". TOP 12" TO BE PAINTED BLUE AND LABELED WAT.
L = ±16.5 L.F.
- POTHOLE EXISTING WATER MAIN AND VERIFY ELEVATION PRIOR TO CONSTRUCTION. INSTALL 12"x6" TAPPING SADDLE, 6" GATE VALVE, AND THRUST BLOCK PER C.O.S STANDARDS.
- INSTALL 6" DIP WATER MAIN (FULLY RESTRAINED). STUB TO BACK OF PUE. MARK WITH 8" PRESSURE TREATED 2"x4". TOP 12" TO BE PAINTED BLUE AND LABELED WAT.
L = ±40.0 L.F.

SANITARY SEWER:

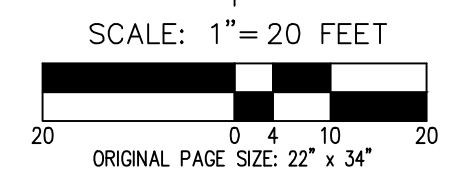
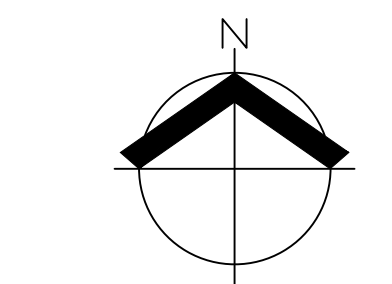
- INSTALL 8" PVC SSWR STUB FOR FUTURE EXTENSION. MARK END WITH 8" PRESSURE TREATED 2"x4". TOP 12" TO BE PAINTED GREEN AND LABELED SS.
L = ±5.0 L.F. S = 0.01 F1/FT
IE @ END: ±172.62
- INSTALL 4" PVC SANITARY SEWER LATERAL FOR PARCEL 1. MARK END WITH 8" PRESSURE TREATED 2"x4". TOP 12" TO BE PAINTED GREEN AND LABELED SS.
L = ±26.0 L.F. S = 0.02 F1/FT
IE @ END: ±173.09



*BASED ON ASSUMED 36" OF COVER

SSWR-1

HORZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'



STANDARD MANHOLE
DRAWING NO. 010 REVISED 10-31-19

CleanWater Services

PRE-CAST/POURED IN PLACE MANHOLE BASE
DRAWING NO. 020 REVISED 10-31-19

CleanWater Services

MANHOLE CONNECTIONS
DRAWING NO. 030 REVISED 10-31-19

CleanWater Services

MANHOLE STEP
DRAWING NO. 100 REVISED 10-31-19

CleanWater Services

SUBURBAN AND STANDARD MANHOLE FRAME AND COVER SANITARY
DRAWING NO. 110 REVISED 10-31-19

CleanWater Services

STORM WATER MANHOLE LID
DRAWING NO. 120 REVISED 10-31-19

CleanWater Services

INLET CATCH BASIN (CG-30)
DRAWING NO. 330 REVISED 10-31-19

CleanWater Services

AKS DRAWING FILE: 8627-04-DETAILS.DWG | LAYOUT: UTIL_1

NOTES:

1. VALVE BOX NOT TO REST ON OPERATING ASSEMBLY
2. OPERATOR EXTENSION REQUIRED WHEN VALVE NUT IS DEEPER THAN 3 FEET FROM FINISHED GRADE
3. CENTER VALVE BOX ON AXIS OF OPER NUT
4. PROVIDE 24" SQUARE BY 4" THICK CONCRETE PAD AROUND VALVE BOX OUTSIDE OF PAVED AREAS
5. VALVE BOX COVER SHALL BE A MINIMUM OF 2 1/2" IN LENGTH

STANDARD DRAWING TITLE		DRAWING NUMBER
TYPICAL GATE VALVE SETTING DETAIL		W-3
SCALE		DATE
N.T.S.		JUL '09

(HORIZONTAL)						VOLUME OF THRUST BLOCK IN CU YDS (VERTICAL)		
FITTING SIZE	BEARING AREA OF THRUST BLOCKS IN SQ FT					FITTING SIZE	BEND ANGLE	
	TEE	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND		45°	22.5°
4	1.3	1.8	1.0	1.0	1.0	4	1.1	0.4
6	2.8	4.0	2.2	1.1	1.0	6	2.7	1.0
8	5.0	7.1	3.8	2.0	1.0	8	4.0	1.5
12	11.3	16.0	8.7	4.4	2.2	12	8.5	3.2
16	20.1	28.4	15.4	7.8	3.9	16	14.8	5.6
20	31.1	44.4	24.0	12.3	6.2			
24	45.2	64.0	34.6	17.7	8.9			

VALUES BASED ON 200 PSI WATER PRESSURE AND 2000 PSF SOIL BEARING CAPACITY

FITTING SIZE	ROD SIZE	EMBEDMENT
14"-16"	#8	36"

NOTES:

- 1) THRUST BLOCKING AT ALL TEES, BENDS AND ENDS OF PIPING
- 2) CONCRETE BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH
- 3) ALL CONCRETE TO BE CLASS 3000
- 4) INSTALL 12 MIL TOTAL THICKNESS POLYTHENE SHEET AROUND FITTING. SECURE SHEET ENDS TO PREVENT INFILTRATION OF DIRT BETWEEN SHEET AND PIPE FITTING PRIOR TO POURING THRUST BLOCKING
- 5) PROTECT MECHANICAL JOINT FOLLOWERS AND BOLTS FROM CONCRETE WITH TEMPORARY FORMS AND POLYTHENE SHEETING SEE NOTE 3

STANDARD DRAWING TITLE		DRAWING NUMBER
THRUST BLOCKING DETAILS		W-12
SCALE		DATE
N.T.S.		JUL '09

NOTES:

1. DEVELOPER'S SURVEYOR SHALL SET A LATH AT THE INTERSECTION OF THE PROPERTY LINE AND THE PUBLIC UTILITY EASEMENT. DEVELOPER'S SURVEYOR SHALL ALSO MARK THE PROPERTY LINE AND LOT NUMBERS ON THE FACE OF CURB WITH WHITE PAINT.
2. IF PROPERTY CORNER MONUMENTS HAVE NOT BEEN SET AT THE TIME OF WATER SERVICE INSTALLATION, THE DEVELOPER'S SURVEYOR SHALL SET A LATH AT THE PROPERTY CORNER LOCATION ON THE RIGHT-OF-WAY LINE.
3. ORS 92.044(7) PROHIBITS LOCATING ANY UTILITY INFRASTRUCTURE WITHIN 1 FOOT OF A SURVEY MONUMENT. DEVELOPER SHALL PAY FOR ANY RELOCATION OF SERVICES AND/OR METER BOXES FOUND TO FALL WITHIN 1 FOOT OF A SURVEY MONUMENT LOCATION.
4. METER SHALL NOT BE INSTALLED WITHIN HARDSCAPE AREAS.

STANDARD DRAWING TITLE		DRAWING NUMBER
1-1/2" & 2" METER INSTALLATION		W-60
SCALE		DATE
N.T.S.		MAR '16

NOTES:

1. THESE TRENCH BACKFILL REQUIREMENTS APPLY TO ALL PUBLIC UTILITY PIPES. FOR ADDITIONAL REQUIREMENTS, SEE CITY STANDARD DESIGN MANUAL SECTION 210.19.
2. SAWCUT EXISTING HMA PAVEMENT FULL DEPTH. SAWCUT EXISTING PCC PAVEMENT ACCORDING TO CITY STANDARD DETAILS.
3. 12" FOR TRENCHES WIDER THAN 12". 6" FOR TRENCHES LESS THAN 12".
4. MATCH EXISTING PAVEMENT MATERIAL(S). THICKNESS SHALL BE AS FOLLOWS:
 - 4.1. FOR EXISTING HMA: RESURFACE TO A MINIMUM OF 3" OF LEVEL 2, 1/2" DENSE HMA OR EXISTING AC THICKNESS PLUS 2", WHICHEVER IS GREATER, BUT DO NOT EXCEED 6". COMPACT AC IN 2" MAX LIFTS TO 92% OF MAXIMUM DENSITY (RICE).
 - 4.2. FOR EXISTING PCC: EXISTING PAVEMENT THICKNESS PLUS 2", BUT NOT LESS THAN 8". ON ARTERIAL AND COLLECTOR STREETS, CONCRETE PATCHING MATERIAL SHALL BE HIGH EARLY STRENGTH CLASS 5000 PSI PCC APPROVED BY CITY ENGINEER.
5. ALL CUT EDGES OF AC SHALL BE SAND SEALED WITH CRS-1 OR CRS-2 EMULSIFIED ASPHALT OR EQUIVALENT.

STANDARD DRAWING TITLE		DRAWING NUMBER
PIPE TRENCH BACKFILL		RD-47
SCALE		DATE
N.T.S.		MAR '16



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

JBMAC VENTURES
FRONTAGE IMPROVEMENTS
SHERWOOD OREGON
TAX MAP 2S 1 29DC

SW OREGON STREET
STREET LIGHT
PHOTOMETRIC PLAN

DESIGNED BY: APC
DRAWN BY: APC
MANAGED BY: TJ
CHECKED BY: BGC
DATE: 05/31/2022
REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY
NO USE FOR CONSTRUCTION
C. CARLSON
REVISIONS:

JOB NUMBER
8627-04
SHEET
C300

GENERAL NOTES:

- ALL MATERIALS AND WORKMANSHIP SHALL CONFORM WITH P.G.E. OPTION "B" SPECIFICATIONS.
- ALL ELECTRICAL EQUIPMENT SHALL CONFORM TO THE CURRENT STANDARDS OF THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA) AND THE UNDERWRITERS LABORATORIES, INC. (U.L.). IN ADDITION TO THE REQUIREMENTS OF THE PLANS, STANDARD SPECIFICATIONS, AND THE SPECIAL PROVISIONS, ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE CURRENT REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) THE NATIONAL ELECTRICAL SAFETY CODE, STANDARDS OF THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), AND ANY LOCAL ORDINANCES WHICH MAY APPLY.
- NO UTILITY INFRASTRUCTURE IS TO BE LOCATED WITHIN ONE FOOT OF A SURVEY MONUMENT LOCATION SHOWN ON THE SUBDIVISION PLAT PER ORS 92.044 (7)

STREET LIGHTING NOTES:

- PROPOSED LUMINAIRES SHALL BE 133W GRAY LEOTEK COBRAHEAD:
133W LED
LEOTEK GREEN COBRA F-SERIES.
#GC1-80F-MV-NW-3-GY-530
- PROPOSED 35' MOUNTING HEIGHT POLES (ANCHOR BASE) SHALL BE SMOOTH FINISH 35' ALUMINUM WITH 8' DAVIT (UG):
VALMONT 3500-86108D4
HAPCO 41-339PGE
P&K POLES RTABH40AAD1832D

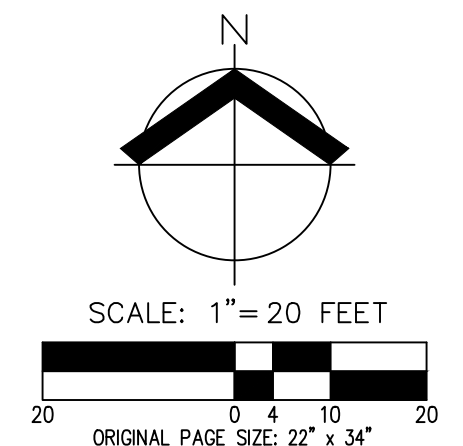
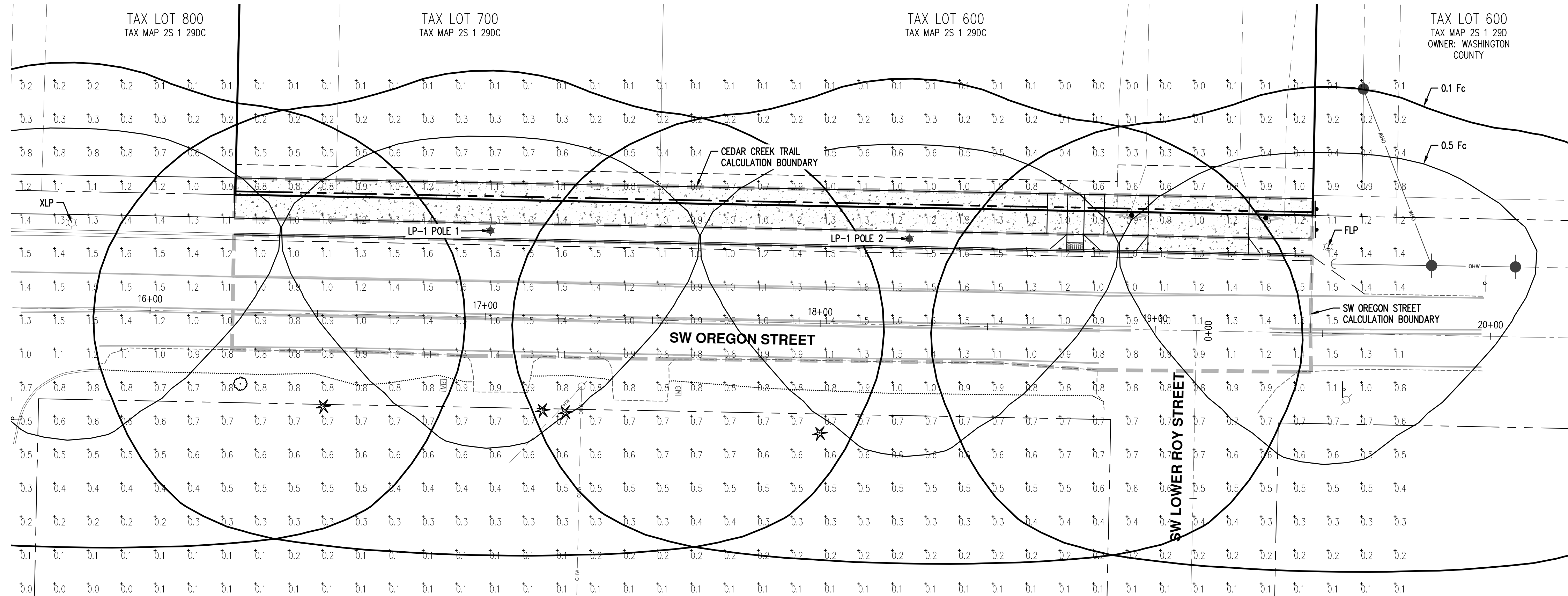
LUMINAIRE AND LIGHT POLE SCHEDULE										
SYMBOL	QUANTITY	LABEL	STYLE	LUMINAIRE				LIGHT POLE		
				TYPE	MODEL	INITIAL DELIVERED LUMENS	WATTS	LLF	DISTRIBUTION	POLE STYLE
☆	1	XLP	EXISTING	LED	EXISTING GREEN COBRA LED.	14,200	133W	1.0	TYPE III	35' M.H., 8' MAST ARM
★	2	LP-1	PROPOSED	LED	LEOTEK GREEN COBRA LED	14,200	133W	1.0	TYPE III	35' M.H., 8' MAST ARM
☆	1	FLP	FUTURE	LED	LEOTEK GREEN COBRA LED	14,200	133W	1.0	TYPE III	35' M.H., 8' MAST ARM

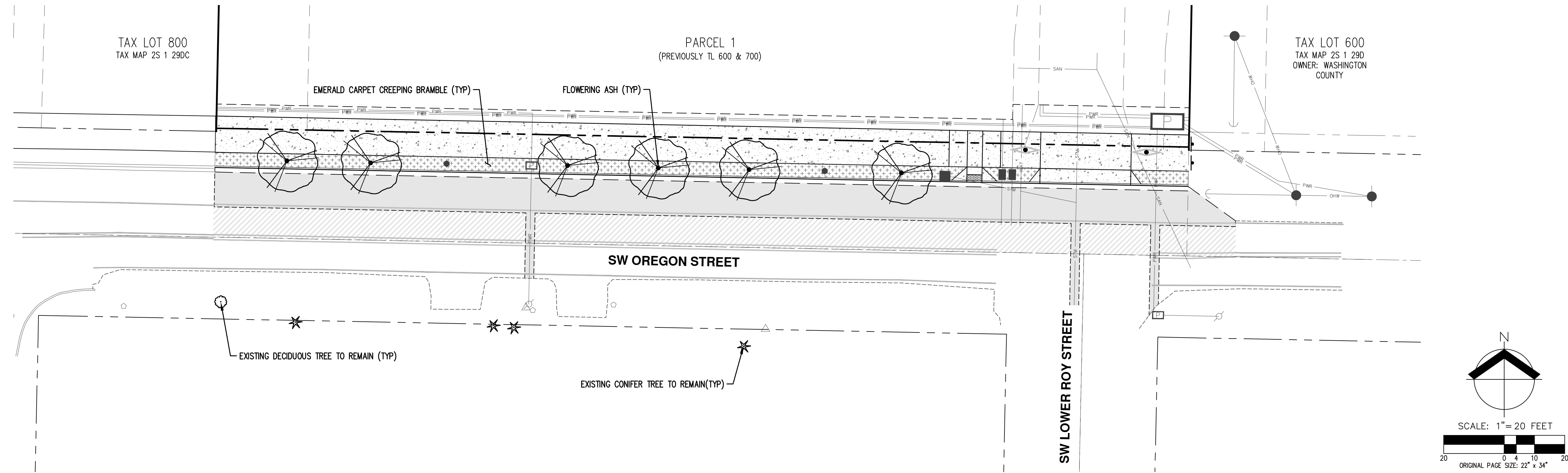
LIGHT POLE LOCATION TABLE			
POLE	STATION & OFFSET	ALIGNMENT	TYPE
POLE 1	17+01.11 (25.75'L)	SW OREGON STREET	LP-1
POLE 2	18+26.11 (25.75'L)	SW OREGON STREET	LP-1

ROADWAY LIGHT LEVEL SUMMARY									
ROADWAY	CLASSIFICATION	PEDESTRIAN CONFLICT	MATERIAL	LIGHT LEVEL		UNIFORMITY	MAX	MIN	MAX / MIN
				TARGET	≥ 0.9 Fc AVE				
SW OREGON STREET	COLLECTOR	MEDIUM	ASPHALT	ACHIEVED	1.21 Fc	1.5:1	1.6	0.8	2:1

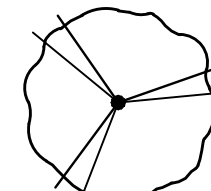
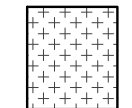
NOTE:
TARGET = CODE REQUIRED PER CITY OF SHERWOOD ROADWAY STANDARDS
ACHIEVED = DESIGN VALUE

PEDESTRIAN LIGHT LEVEL SUMMARY						
ROADWAY	MATERIAL	LIGHT LEVEL	UNIFORMITY	MAX	MIN	MAX / MIN



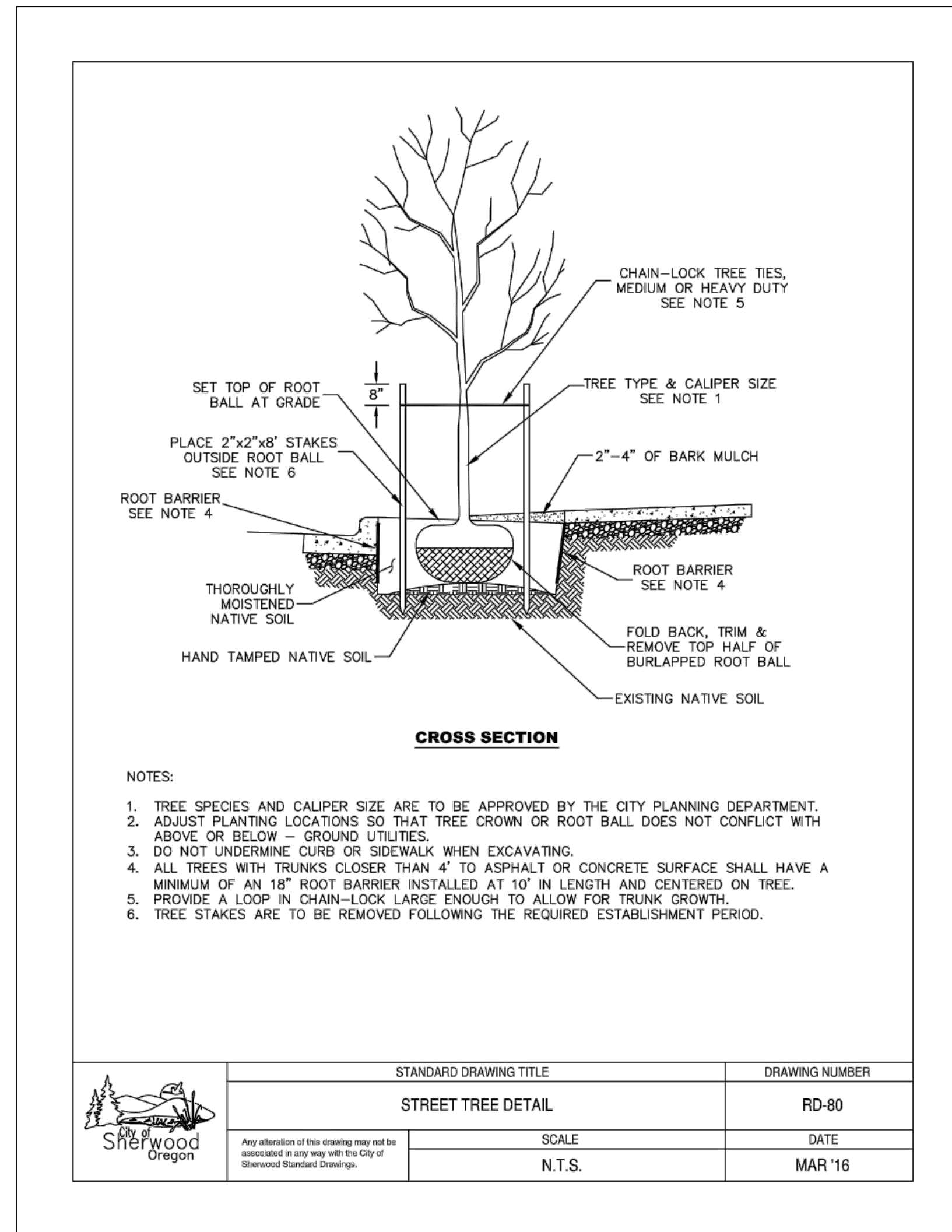


PLANT SCHEDULE

STREET TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE/CONTAINER	SPACING
	6	FRAXINUS ORNUS	FLOWERING ASH	2.5" CAL. B&B	AS SHOWN
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	SIZE/CONTAINER	SPACING
	146	RUBUS CALYCINOIDES 'EMERALD CARPET'	EMERALD CARPET CREEPING BRAMBLE	1 GAL CONT.	36" o.c.

GENERAL LANDSCAPE NOTES

- CONTRACTOR IS RESPONSIBLE FOR VERIFYING PLANT QUANTITIES. IF DISCREPANCIES OCCUR, DESIGN INTENT PREVAILS OVER QUANTITIES LISTED.
- PLANTING PLAN IS INTENDED TO SHOW DESIGN INTENT ONLY. PLANT SPECIES, SIZES, LOCATIONS, QUANTITIES, AND OTHER PLAN CHANGES MAY BE SUBSTITUTED OR REVISED PRIOR TO FINAL SUBMITTAL DUE TO SITE CONDITIONS AND PLANT AVAILABILITY WHERE ALLOWED BY SHERWOOD DESIGN STANDARDS.
- ALL TREES SHALL CONFORM TO APPLICABLE CITY OF SHERWOOD DESIGN STANDARDS AND MEET THE REQUIREMENTS OF THE AMERICAN ASSOCIATION OF NURSERYMEN (AAN) STANDARDS FOR NURSERY STOCK (ANSI Z60.2) FOR GRADE NO. 1 OR BETTER. PLANT IN ACCORDANCE WITH "BEST-PRACTICE" INDUSTRY STANDARDS ADOPTED BY THE OREGON LANDSCAPE CONTRACTORS BOARD (OLCB).
- CONTRACTOR SHALL INSTALL ROOT BARRIER ADJACENT TO HARD SURFACE FOR TREES WITHIN 4' OF PAVING. ROOT BARRIER SHALL BE A MINIMUM OF 18" DEEP X 10' LONG AND CENTERED ON THE TREE TRUNK ADJACENT TO PAVING.
- DOUBLE STAKE ALL TREES. REFER TO CITY OF SHERWOOD STANDARD STREET TREE PLANTING DETAIL ON THIS SHEET.
- ALL TREES SHALL BE PLANTED A MINIMUM OF 3' O.C. FROM BACK OF PAVING. CONTRACTOR SHALL FIELD ADJUST IF NECESSARY TO AVOID CONFLICTS WITH UTILITIES, LIGHTS, VAULTS, ETC. STREET TREES SHALL BE PLANTED AT A MINIMUM SPACING OF 25' FROM STREET LIGHTS.
- SOIL PREPARATION: ALL TREE, SHRUB, AND GROUND COVER AREAS SHALL HAVE A MINIMUM OF 12" OF CLEAN TOPSOIL, PLUS AN ADDITIONAL 24" OF NON-COMPACTED SUBSOIL AVAILABLE. EXISTING NATIVE SOIL OR STOCKPILED TOPSOIL STRIPPING MAY BE USED. TOPSOIL SHALL BE RICH DARK BROWN IN COLOR AND VOID OF ROOTS, PLANTS, WEED SEEDS, SOD, STONES, CLAY LUMPS, ALKALI SALTS, DEBRIS, AND OTHER EXTRANEOUS MATERIALS HARMFUL TO PLANT GROWTH. FINISH GRADE OF NEW PLANTING AREAS SHALL SEAMLESSLY MEET FINISH GRADE OF EXISTING LANDSCAPE AREAS TO REMAIN AND AS SHOWN ON GRADING PLANS. TOPSOIL SHALL BE PLACED AND WORKED IN FRIABLE (WORKABLE) CONDITION. BACKFILL ALL PLANTING HOLES WITH 1/3 ORGANIC MATERIALS, 1/3 TOPSOIL, AND 1/3 SANDY LOAM.
- MULCH: APPLY 3" DEEP MEDIUM GRIND OR SHREDDED DARK HEMLOCK OR FIR MULCH AROUND ALL PLANTINGS. DO NOT COVER FOLIAGE OR ROOT CROWNS OF PLANTS WITH BARK MULCH. TREES AND OTHER PLANTS SHALL BE SET TO ACCOMMODATE MULCH APPLICATION WITHOUT BURYING ROOT CROWNS.
- IRRIGATION: LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING A PERMANENT, UNDERGROUND 'DESIGN-BUILD' IRRIGATION SYSTEM TO WATER ALL NEW PLANTING BED AREAS. COORDINATE POINT-OF-CONNECTION (POC), CITY APPROVED DOUBLE-CHECK VALVE ASSEMBLY, AND SLEEVING LOCATIONS WITH GENERAL CONTRACTOR PRIOR TO INSTALLATION OF HARD SURFACING (SIDEWALKS, ROADWAYS, ETC.).

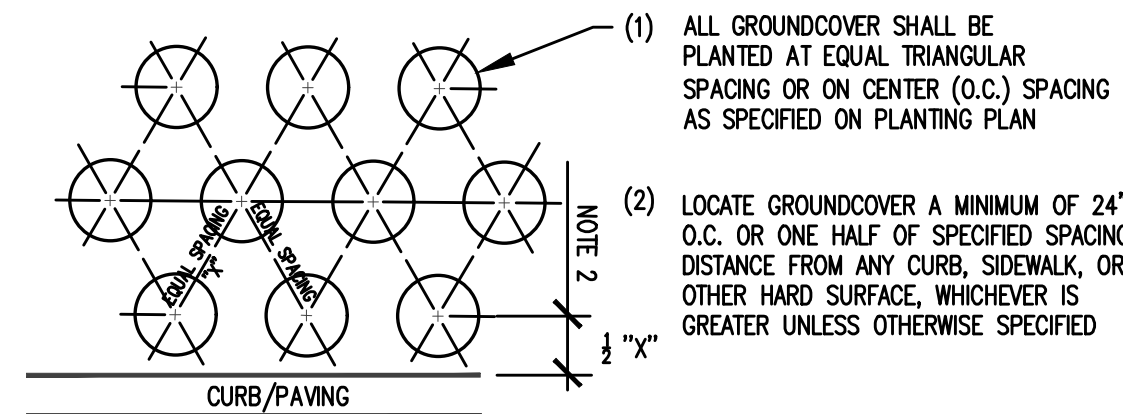


NOTES:

- TREE SPECIES AND CALIPER SIZE ARE TO BE APPROVED BY THE CITY PLANNING DEPARTMENT.
- ADJUST PLANTING LOCATIONS SO THAT TREE CROWN OR ROOT BALL DOES NOT CONFLICT WITH ABOVE OR BELOW - GROUND UTILITIES.
- DO NOT UNDERMINE CURB OR SIDEWALK WHEN EXCAVATING.
- ALL TREES WITH TRUNKS CLOSER THAN 4' TO ASPHALT OR CONCRETE SURFACE SHALL HAVE A MINIMUM OF AN 18" ROOT BARRIER INSTALLED AT 10' IN LENGTH AND CENTERED ON TREE.
- PROVIDE A LOOP IN CHAIN-LOCK LARGE ENOUGH TO ALLOW FOR TRUNK GROWTH.
- TREE STAKES ARE TO BE REMOVED FOLLOWING THE REQUIRED ESTABLISHMENT PERIOD.



STANDARD DRAWING TITLE		DRAWING NUMBER	
STREET TREE DETAIL		RD-80	
SCALE	DATE		
N.T.S.	MAR '16		



1 TYPICAL GROUND COVER PLANTING DETAIL

NTS

NOTES:

- BACKFILL SOIL MIX SHALL BE 1/3 ORGANIC MATERIALS, 1/3 TOPSOIL, AND 1/3 SANDY LOAM.
- REMOVE ALL CONTAINERS, METAL, TWINE, TAGS, AND OTHER NON-BIODEGRADABLE MATERIALS PRIOR TO PLANTING.
- ALL CONTAINERIZED PLANT STOCK SHALL BE VIGOROUS, FREE OF DISEASE AND PESTS, EVENLY FORMED, AND BE FULLY ROOTED IN THE CONTAINER IN WHICH THEY ARE DELIVERED. ALL PLANTS SHALL FOLLOW ANSI Z60.1 STANDARDS FOR NURSERY STOCK FOR CONTAINER SIZE, HEIGHT, ETC.
- CONTRACTOR SHALL WATER-SETTLE PLANTING HOLES TO REMOVE AIR POCKETS PRIOR TO SPREADING MULCH. DO NOT COVER FOLIAGE OR ROOT CROWN OF GROUND COVER PLANTS.

AKS DRAWING FILE: 8627-04 LANDSCAPE.DWG | LAYOUT: L100

DESIGNED BY:	TEB
DRAWN BY:	TEB
MANAGED BY:	TJ
CHECKED BY:	BCG
DATE:	5/18/2022

REVISIONS

JOB NUMBER
8627-04

SHEET
L100



Oregon

Theodore Kulongoski, Governor

Exhibit A18
file 116
comm

Department of Environmental Quality

Northwest Region Portland Office

2020 SW 4th Avenue, Suite 400

Portland, OR 97201-4987

(503) 229-5263

FAX (503) 229-6945

TTY (503) 229-5471

October 3, 2005

Mr. Patrick Lucas
Pacific III, L.L.C.
17400 SW Upper Boones Ferry Road
Suite 200
Durham, Oregon 97224

Re: No Further Action Determination
Lots 1 and 2, Tax Lot 400
Former Frontier Leather Site
Sherwood, Oregon
ECSI #116

Dear Mr. Lucas:

The Oregon Department of Environmental Quality (DEQ) has completed its evaluation of a portion of the former Frontier Leather Site, located at 1210 NE Oregon Street in Sherwood, Oregon. DEQ oversight and evaluation of remedial investigations and cleanup was conducted in accordance with the terms of a Prospective Purchaser Agreement (PPA) between DEQ and Pacific III LLC, dated January 31, 2002, and documented in a DEQ Staff Report, dated November 15, 2004. The Staff Report recommended no further action (NFA) for Lots 1 and 2 of Tax Lot 400 based on a review of a series of DEQ-approved work plans and their subsequent reports.

DEQ provided a public comment period from December 1 to December 30, 2004, to announce the proposed NFA determination. No comments were received by DEQ. Based on our review of available site information, no further action is required at Lots 1 or 2 of Tax Lot 400 under the Oregon Environmental Cleanup law, ORS 465.200 *et. seq.*, unless additional information becomes available that warrants further investigation. Additional work to address environmental issues on Lot 3 of Tax Lot 400 is required under terms of the PPA.

DEQ files and the Environmental Cleanup and Site Information (ECSI) database will be updated to reflect the NFA determination. DEQ looks forward to working with you towards completion of the remaining investigative and cleanup work on Tax Lot 400 under terms of the PPA.

If you have any questions or comments about the information presented in this letter, please contact me at 503) 667-8414, ext 55009, or Mark Pugh at (503) 229-5587.

Sincerely,

Bruce Gilles, Manager
Cleanup and Emergency Response

cc: Mark Pugh, DEQ C/ER
Mitchell Morgan, Romic





Oregon

Theodore Kulongoski, Governor

Department of Environmental Quality

Northwest Region Portland Office

2020 SW 4th Avenue, Suite 400

Portland, OR 97201-4987

(503) 229-5263

FAX (503) 229-6945

TTY (503) 229-5471

November 2, 2004

Mr. Patrick Lucas
Pacific III, L.L.C.
17400 SW Upper Boones Ferry Road
Suite 200
Durham, Oregon 97224

Re: No Further Action Determination
Parcel I, Tax Lot 500
Former Frontier Leather Site
Sherwood, Oregon
ECSI #116

Dear Mr. Lucas:

The Oregon Department of Environmental Quality (DEQ) has completed its evaluation of a portion of the former Frontier Leather Site, located at 1210 NE Oregon Street in Sherwood, Oregon. DEQ oversight and evaluation of remedial investigations and cleanup was conducted in accordance with the terms of a Prospective Purchaser Agreement (PPA) between DEQ and Pacific III LLC, dated January 31, 2002, and documented in a DEQ Staff Report, dated September 24, 2004. The Staff Report recommended no further action (NFA) for Tax Lot 500 based on a review of a series of DEQ-approved work plans and their subsequent reports.

DEQ provided a public comment period from October 1 to November 1, 2004, to announce the proposed NFA determination. No comments were received by DEQ. Based on our review of available site information, no further action is required at Tax Lot 500 under the Oregon Environmental Cleanup law, ORS 465.200 *et. seq.*, unless additional information becomes available that warrants further investigation.

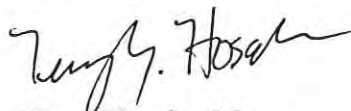
As a condition of this no further action determination, Pacific III LLC and/or its designated associate will be responsible for coordinating with DEQ for planning and installation of the storm drain line, and any other utilities that intersect the adjacent Tax Lot 600. DEQ will recover our costs for this oversight under terms of the existing PPA.

DEQ files and the Environmental Cleanup and Site Information (ECSI) database will be updated to reflect the NFA determination. DEQ looks forward to working with you towards completion of the remaining investigative and cleanup work on Tax Lot 400 under terms of the PPA.



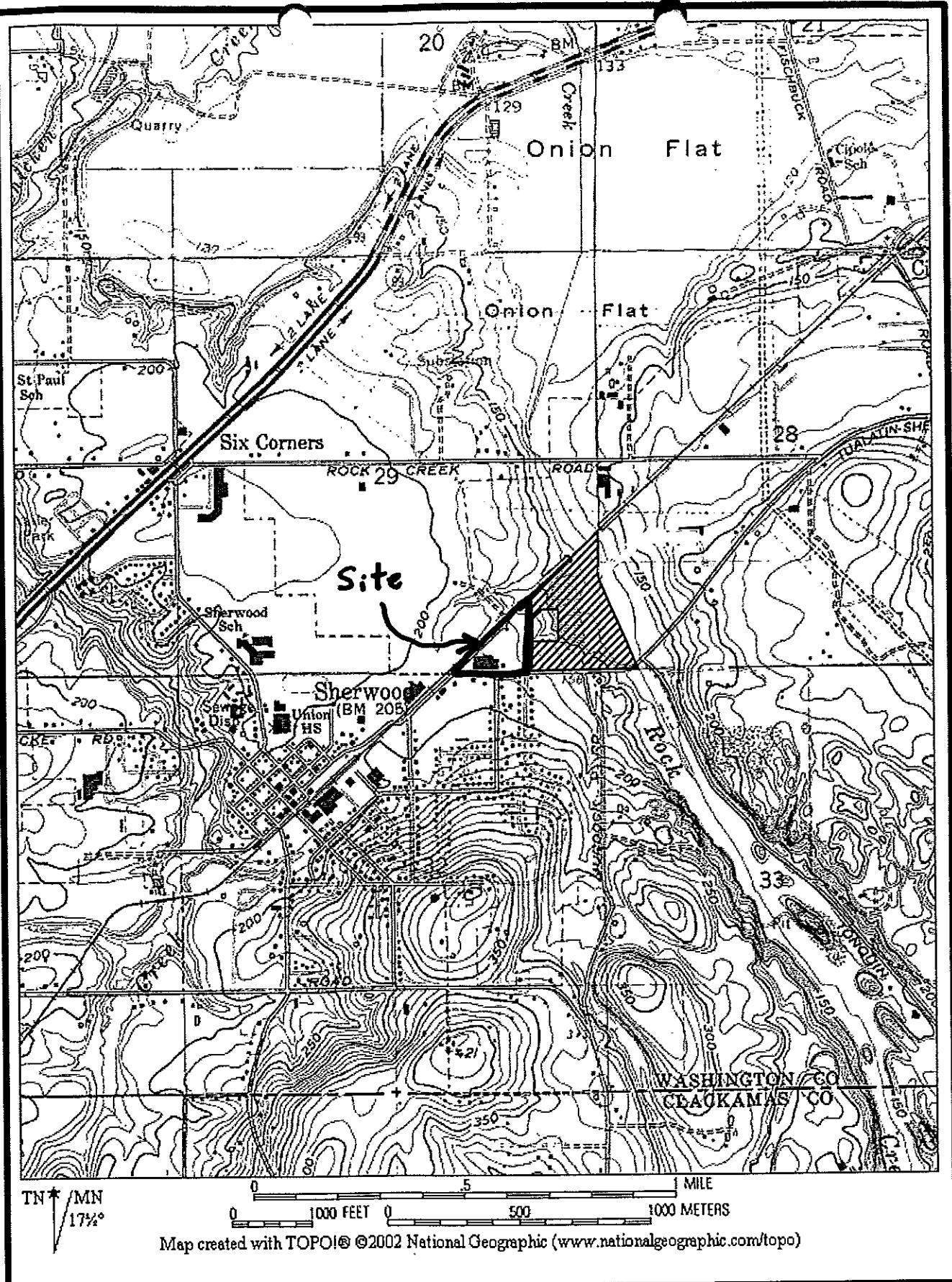
If you have any questions or comments about the information presented in this letter, please contact me at (503) 229-5532, or Mark Pugh at (503) 229-5587.

Sincerely,



Terry Hosaka, Manager
Cleanup and Emergency Response

cc: Mark Pugh, DEQ C/ER
Mitchell Morgan, ADT



Portland\p:\2\2787004\00\Cad\Task_8\Vicinity.dwg JPF:MWJ 04/27/04







VICINITY MAP
FRONTIER LEATHER, SHERWOOD, OREGON

FIGURE 1

EXPLANATION:

- B-1 ● OMNI MONITORING WELL LOCATION (1989)
- 11 ⊕ OMNI SOIL AND GROUNDWATER SAMPLING LOCATION
- 1 • OMNI SOIL SAMPLE LOCATION
- ⊙ USFW SOIL/SEDIMENT
- ⊗ USFW ROCK CREEK SOIL/SEDIMENT, WATER AND FISH TISSUE SAMPLE LOCATION
- RC-2 ⊙ TETRA-TECH SEDIMENT SAMPLE LOCATION
- FLMS-1 ⊕ TETRA-TECH SOIL SAMPLE LOCATION

-  FORMER LANDFILLING AREA
-  Approximate Hide Removal AREA
-  Approximate Lead Contaminated soil removal area
-  Approximate Arsenic contaminated soil removal area

== Tax Lot Boundary

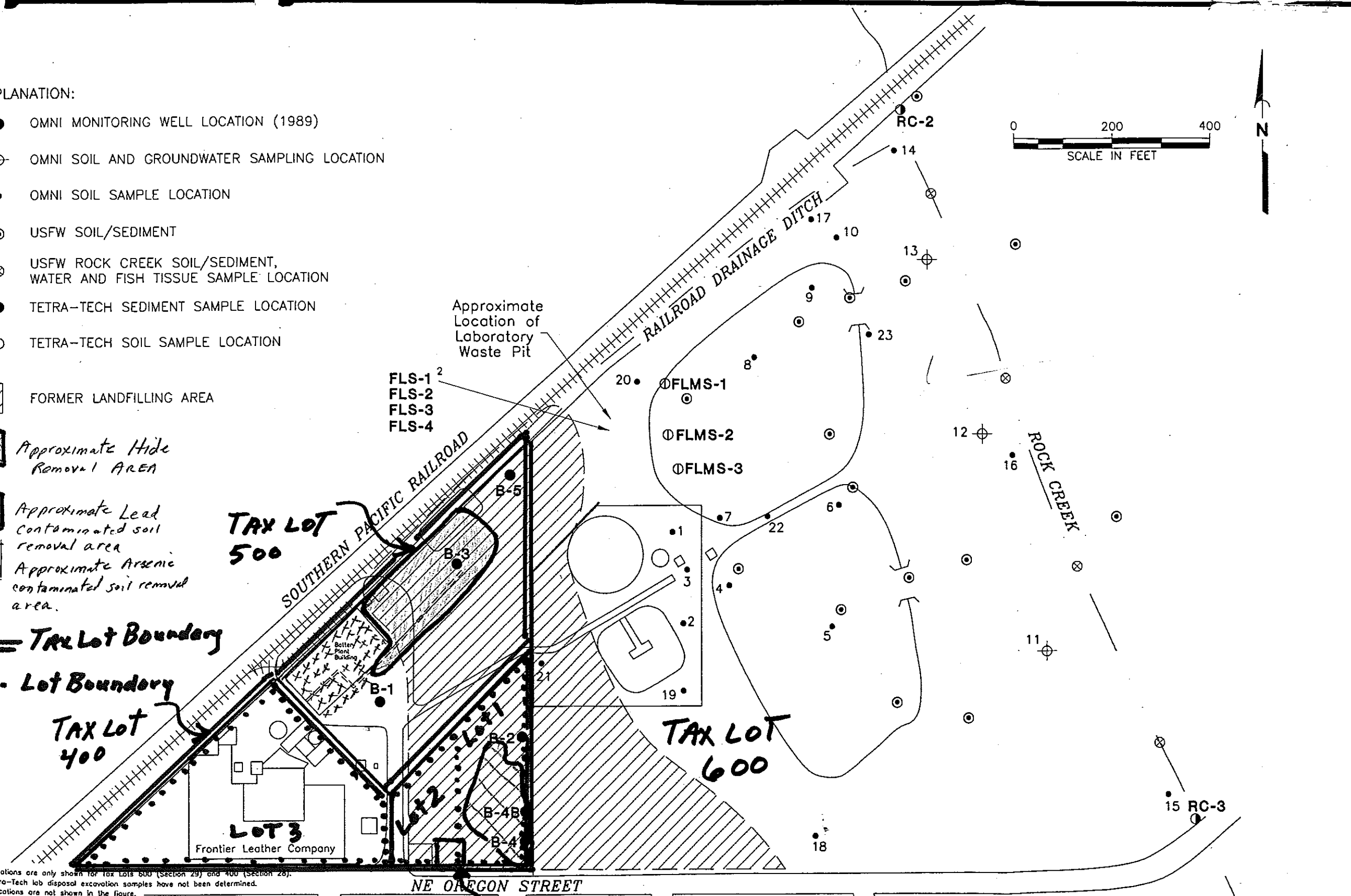
.... Lot Boundary

TAX LOT 400

TAX LOT 500

TAX LOT 600

TAX LOT 501



Notes: 1. Historical sampling locations are only shown for Tax Lots 600 (Section 29) and 400 (Section 26).
 2. Exact locations of Tetra-Tech lab disposal excavation samples have not been determined.
 3. Hide Spill sampling locations are not shown in the figure.
 4. The locations of all features shown are approximate.
 5. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

Reference: Base map produced based on drawings provided in OMNI Environmental Services April 7, 1989 Preliminary Assessment and Site Investigation Battery Manufacturing Facilities and Expanded Site Investigation report and County Assessor Maps.

Portland\p2\2737004\00\Cadd\Task_B\Figure2.dwg JPF:MWJ:04/27/04

GEOENGINEERS
 Earth Science + Technology

Soil Remediation Areas and Tax Lot Boundaries
 FRONTIER LEATHER, SHERWOOD, OREGON

FIGURE 2

EXPLANATION:

— DEQ RI SITE BOUNDARY (LINKE PARCEL)

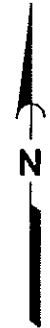
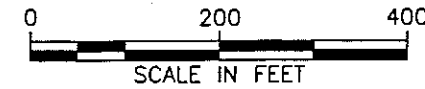
- - - TAX LOT LINES

▨ FORMER LANDFILLING AREA

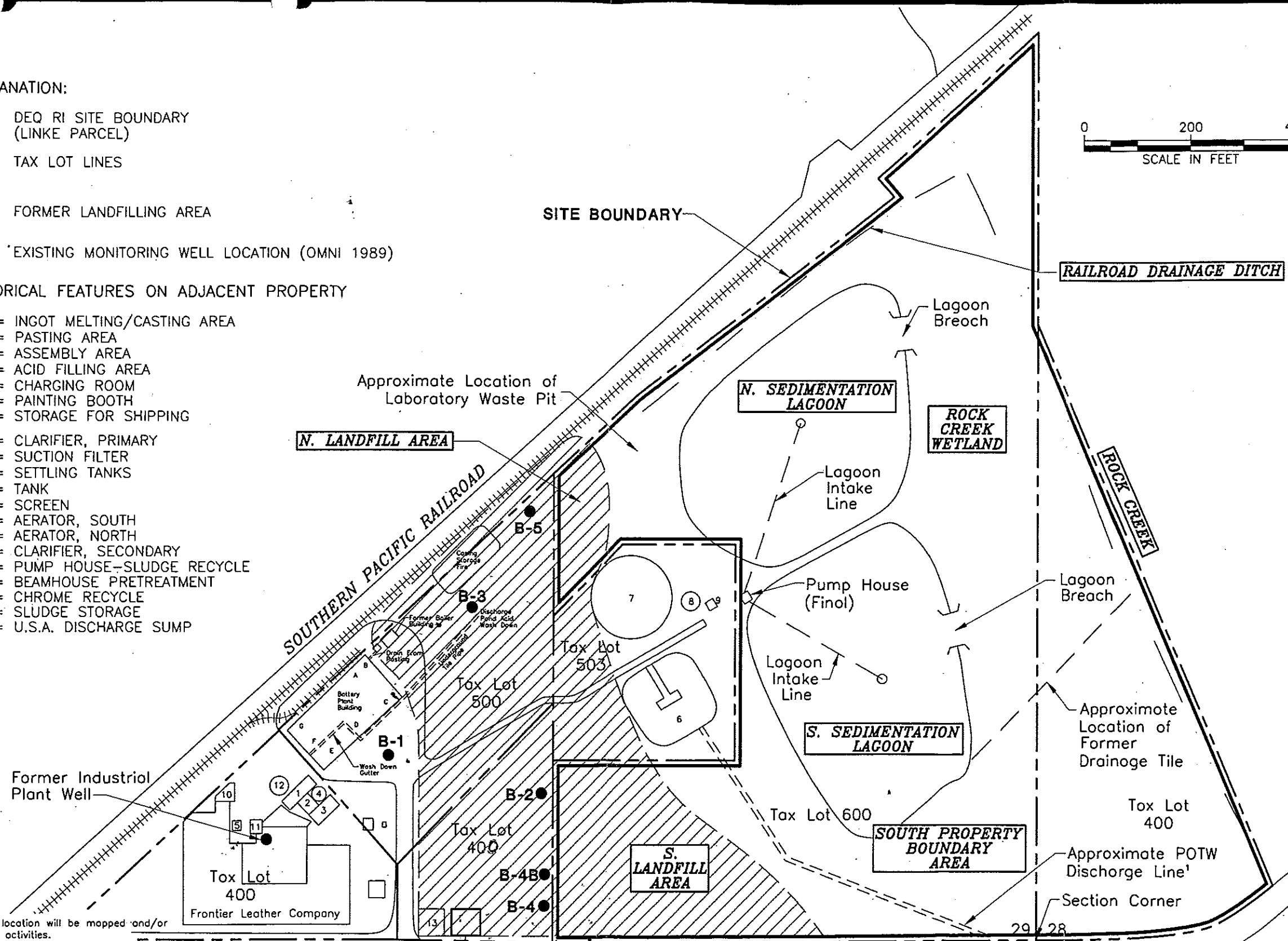
B-1 ● EXISTING MONITORING WELL LOCATION (OMNI 1989)

HISTORICAL FEATURES ON ADJACENT PROPERTY

- A = INGOT MELTING/CASTING AREA
- B = PASTING AREA
- C = ASSEMBLY AREA
- D = ACID FILLING AREA
- E = CHARGING ROOM
- F = PAINTING BOOTH
- G = STORAGE FOR SHIPPING
- 1 = CLARIFIER, PRIMARY
- 2 = SUCTION FILTER
- 3 = SETTLING TANKS
- 4 = TANK
- 5 = SCREEN
- 6 = AERATOR, SOUTH
- 7 = AERATOR, NORTH
- 8 = CLARIFIER, SECONDARY
- 9 = PUMP HOUSE-SLUDGE RECYCLE
- 10 = BEAMHOUSE PRETREATMENT
- 11 = CHROME RECYCLE
- 12 = SLUDGE STORAGE
- 13 = U.S.A. DISCHARGE SUMP



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Notes: 1. POTW discharge line location will be mapped and/or surveyed during field activities.
 2. The locations of all features shown are approximate.
 3. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

Reference: Base map produced based on drawings provided in OMNI Environmental Services April 7, 1989 Preliminary Assessment and Site Investigation Battery Manufacturing Facilities and Expanded Site Investigation report and County Assessor Maps.



SITE FEATURES
FRONTIER LEATHER, SHERWOOD, OREGON

FIGURE 3

FIG 4. HIDE Excavation Footprint and Sampling Locations.

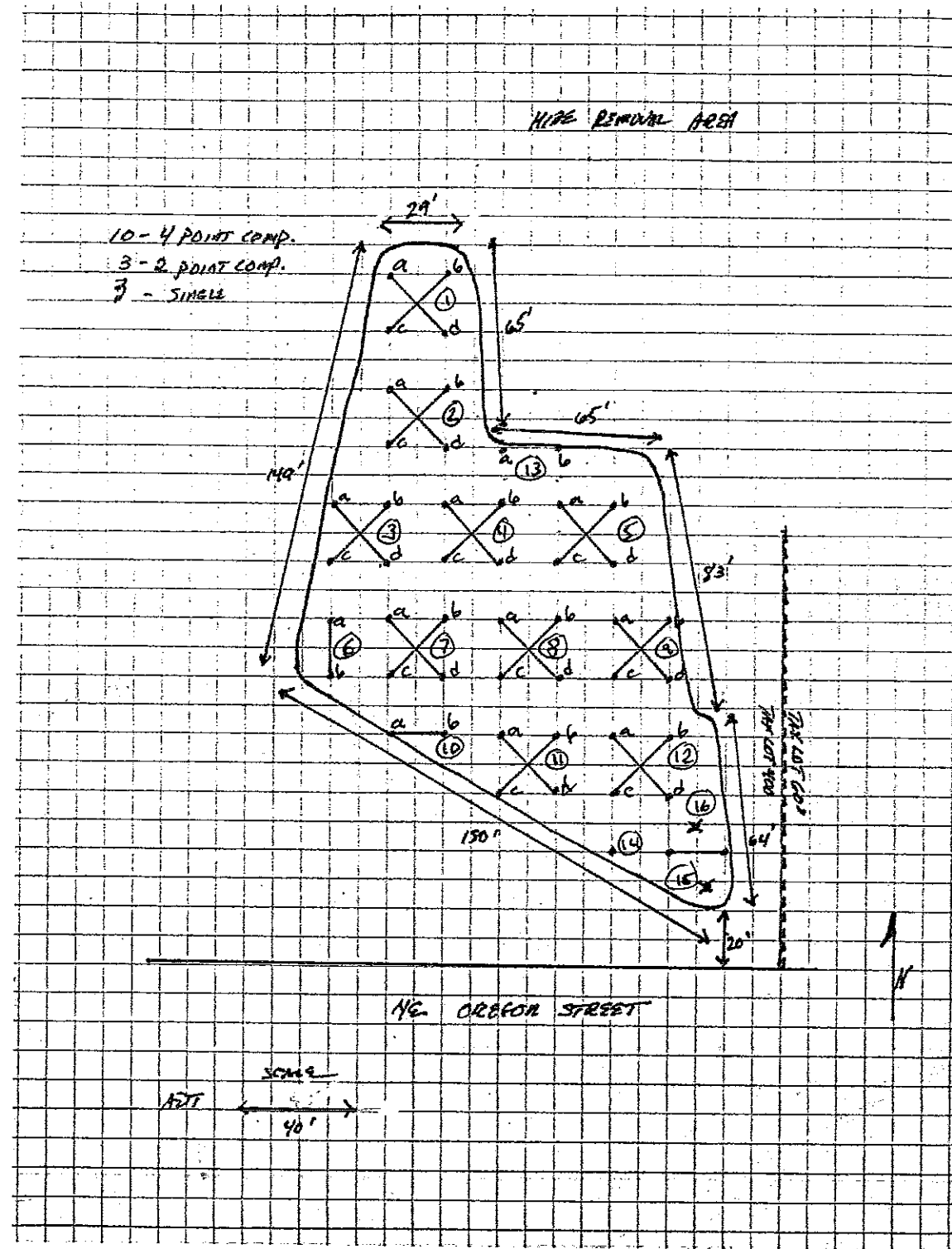


TABLE 1: Verification Test Results Summary Table

Hide Split Removal

HIDECON	HC 1a-d		HC 2a-d		PRG for Soil		IND	RES
Chromium +6	18.6	Chromium +6	3.58	Chromium +6	3.34	Chromium +6	64	30
Mercury	ND	Mercury	ND	Mercury	ND	Mercury	610	23
Arsenic	ND	Arsenic	ND	Arsenic	ND	Arsenic	1.6	7*
Cadmium	ND	Cadmium	0.589	Cadmium	0.534	Cadmium	74	37
Chromium	208	Chromium	251	Chromium	141	Chromium III	100000	100,000
Lead	4.63	Lead	1.50	Lead	6.53	Lead	750	400
Manganese	480	Manganese	450	Manganese	660	Manganese	19000	1,800
Silver	ND	Silver	ND	Silver	ND	Silver	5100	390

HC 3a-d	HC 4a-d		HC 5a-d		PRG for Soil		IND	RES
Chromium +6	3.23	Chromium +6	5.82	Chromium +6	3.84	Chromium +6	64	30
Mercury	ND	Mercury	ND	Mercury	ND	Mercury	610	23
Arsenic	ND	Arsenic	ND	Arsenic	ND	Arsenic	1.6	7*
Cadmium	0.580	Cadmium	0.406	Cadmium	0.564	Cadmium	74	37
Chromium	111	Chromium	359	Chromium	123	Chromium	100000	100,000
Lead	ND	Lead	6.49	Lead	ND	Lead	750	400
Manganese	440	Manganese	520	Manganese	350	Manganese	19000	1,800
Silver	ND	Silver	ND	Silver	ND	Silver	5100	390

HC 6a-b	HC 7a-d		HC 8a-d		PRG for Soil		IND	RES
Chromium +6	2.32	Chromium +6	4.86	Chromium +6	6.26	Chromium +6	64	30
Mercury	ND	Mercury	ND	Mercury	ND	Mercury	610	23
Arsenic	ND	Arsenic	ND	Arsenic	ND	Arsenic	1.6	7*
Cadmium	0.505	Cadmium	0.495	Cadmium	0.332	Cadmium	74	37
Chromium	32.8	Chromium	192	Chromium	539	Chromium	100000	100,000
Lead	ND	Lead	0.235	Lead	8.94	Lead	750	400
Manganese	410	Manganese	380	Manganese	370	Manganese	19000	1,800
Silver	ND	Silver	ND	Cyanide	ND	Silver	5100	390

Total Metals Results in part per million *Silver*

HC 9a-d	HC 10a-d		HC 11a-b		PRG for Soil		IND	RES
Chromium +6	1.07	Chromium +6	12.7	Chromium +6	10.6	Chromium +6	64	30
Mercury	ND	Mercury	ND	Mercury	ND	Mercury	610	23
Arsenic	ND	Arsenic	ND	Arsenic	ND	Arsenic	1.6	7*
Cadmium	0.420	Cadmium	0.535	Cadmium	0.612	Cadmium	74	37
Chromium	333	Chromium	208	Chromium	288	Chromium	100000	100,000
Lead	0.534	Lead	ND	Lead	ND	Lead	750	400
Manganese	900	Manganese	470	Manganese	540	Manganese	19000	1,800
Silver	ND	Silver	ND	Silver	ND	Silver	5100	390

IND = INDUSTRIAL USE
RES = RESIDENTIAL USE

HC 12a-d	HC 13a-b	HC 14	PRG for Soil	IND	RES			
Chromium +6	4.21	Chromium +6	2.65	Chromium +6	4.08	Chromium +6	64	30
Mercury	ND	Mercury	ND	Mercury	ND	Mercury	610	23*
Arsenic	ND	Arsenic	ND	Arsenic	ND	Arsenic	1.6-2.7	7*
Cadmium	0.363	Cadmium	0.415	Cadmium	0.497	Cadmium	74-37	37
Chromium	495	Chromium	80.6	Chromium	214	Chromium	100000	100,000
Lead	4.91	Lead	1.02	Lead	1.70	Lead	750	400
Manganese	430	Manganese	380	Manganese	600	Manganese	19000	1,900
Silver	ND	Silver	ND	Silver	ND	Silver	5100	390

HC 15	HC 16	PRG for Soil	IND	RES		
Chromium +6	2.00	Chromium +6	7.46	Chromium +6	64	30
Mercury	ND	Mercury	ND	Mercury	610	23*
Arsenic	ND	Arsenic	ND	Arsenic	1.6-2.7	7*
Cadmium	0.437	Cadmium	0.423	Cadmium	74-37	37
Chromium	50.9	Chromium	396	Chromium	100000	100,000
Lead	3.54	Lead	1.29	Lead	750	400
Manganese	490	Manganese	380	Manganese	19000	1,900
Silver	ND	Silver	ND	Silver	5100	390

Total Metals Results in part per million

IND = INDUSTRIAL USE

RES = RESIDENTIAL USE

* = DEFAULT BACKGROUND Concentration for Arsenic

Conclusions

The results of verification testing indicate the absence of contaminants of concern that could potentially impact human health.

Air monitoring records document the absence of migrating airborne contaminants during remediation.

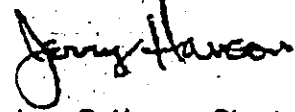
All hides and soils removed from site have been accounted for and disposed of in accordance with the requirements of the PPA.

Based on the above, ADT believes that the terms and conditions of the PPA relating to buried hides in tax lot 400 have been adequately addressed and we recommend that no further actions are warranted in association with this phase.

END REPORT

STATE OF OREGON }
County of Washington } SS

I, Jerry R. Hanson, Director of Assessment and Taxation and Ex-Officio County Clerk for said county, do hereby certify that the within instrument of writing was received and recorded in book of records of said county.



Jerry R. Hanson, Director of Assessment and Taxation, Ex-Officio County Clerk

Doc : 95055118
Rect: 148628 118.00
06/08/1995 01:15:30PM

AFTER RECORDING RETURN TO:

Michael P. Opton
Opton, Galton & Rosenthal
621 SW Morrison, Suite 1440
Portland, OR 97205

AUG 0 8 1995
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TA W107732T

PERMANENT EASEMENT AGREEMENT

THIS AGREEMENT is made and entered into this 7 day of AUG, 1995 by and between LINKE ENTERPRISES OF OREGON, INC., an Oregon corporation formerly known as FRONTIER LEATHER COMPANY, INC., (hereinafter referred to as ("Grantor") and TRANSPACIFIC INTERNATIONAL, INC., an Oregon corporation (hereinafter referred to as "Grantee"), this agreement is hereinafter referred to as the "Permanent Easement Agreement."

WITNESSETH:

WHEREAS, Grantor and Grantee have entered into a Purchase Agreement dated June 29, 1988 (the "Purchase Agreement"); and

WHEREAS, Grantee pursuant to the Purchase Agreement has purchased certain real property described in Exhibit PE-A attached hereto (the "Property") and certain other assets of the Grantor as specified in the Purchase Agreement; and

WHEREAS, Grantor is the owner of a certain parcel of real property described in Exhibit PE-B attached hereto and by this reference made a part hereof (the "Adjacent Property") which is adjacent to the Property; and

WHEREAS, pursuant to the Purchase Agreement Grantor granted an easement to the Grantee, allowing Grantee to use a portion of the Adjacent Property for the purpose of utilizing the aeration tanks thereon, as well as the plant, sewer lines, and other connecting or servicing lines, including but not limited to electrical power lines, attached to said tanks (the "five year Easement"); and

WHEREAS, by its terms the five year Easement was to expire at midnight August 18, 1993; and

WHEREAS, the parties have informally extended the five year Easement pending completion of a Settlement Agreement of like date herewith between the parties (the "Settlement Agreement") resolving certain claims, but specifically excepting certain claims from said Settlement Agreement; and

WHEREAS, the parties have entered into a Settlement Agreement, Option to Purchase and a Right of First Refusal of like date herewith; and

WHEREAS, the Grantor desires to grant a permanent easement to the Grantee over the property described in Exhibit PE-C hereto (the "Easement Property"), effective midnight August 18, 1993, on the Adjacent Property under the specific terms set forth herein in such a manner so as not to have any time gap in Grantee's right to use the Easement Property; and

WHEREAS, the Grantee desires to receive a permanent easement upon the Adjacent Property, under the specific terms set forth herein; and

WHEREAS, the Easement Property as described in Exhibit PE-C is described in two (2) parts, Part 1 being the subject of the Option to Purchase, covering approximately three (3) acres and Part 2, consisting of a portion of the Easement Property consisting of the underground sewer line crossing the Adjacent Property and an Easement 15' on both sides of the center line described in Exhibit PF-C hereof;

NOW, THEREFORE, in consideration of the promises contained herein and as an inducement to the parties to enter into the Settlement Agreement of even date herewith, it is agreed as follows:

1. Permanent Exclusive Use Easement.

The Grantor conveys to the Grantee, its successors, and assigns, for its permanent, unencumbered use and the use of its agents and invitees, a Permanent Easement described as follows:

A. To enter on and use the Easement Property described above for the treatment, discharge and disposal of Permitted Waste from the Property and to do all things consistent therewith including but not limited to utilizing the aeration tanks on the Easement Property.

B. To use, repair, improve, reconstruct, replace and maintain as provided herein the aeration tanks, sewer lines, electrical power lines serving the entire Easement Property for all

legal and permitted purposes including but not limited to the operation, repair, construction, maintenance and testing of the waste treatment and disposal equipment which is located on the Easement Property Part 1.

C. To use the Easement Property for environmental tests, clean-up and removal including but not limited to drilling and soil sampling without any limitation on the depth of such drilling or soil samples; provided, however, advance notice is given to Grantor and provided Grantee uses the services of a qualified environmental engineer as personnel to guide the work.

2. Easement Property Part 1 and Part 2.

A. The Easement Property is described in Exhibit PE-C hereto and is described as two (2) parts. Part 1 is approximately three (3) acres in size and contains structures including settlement ponds. Part 1 is the subject of the Option to Purchase. Part 2 of the Easement Property consists of the underground sewer line which exclusively serves the Property and the Easement Property Part 1. The parties agree that the use of the improvements on the Easement Property including, but not limited to, the sewer line shall be for the exclusive use of Grantee.

B. After the purchase of the Easement Property Part 1 by Grantee and the conveyance of the Deed to said parcel to Grantee and the completion of all necessary governmental approvals needed to complete that transfer which will make the Easement Property Part 1 part of the Property this Permanent Easement Agreement shall govern the use of the Easement Property Part 2 and shall no longer pertain to, cover or control the Easement Property Part 1.

3. Appurtenant.

The easement created by this Permanent Easement Agreement is appurtenant to the Property, and it shall also be appurtenant to the Easement Property Part 1 if and when the Easement Property Part 1 is purchased by Grantee.

4. Permitted Waste.

For purposes of this Permanent Easement Agreement, the term "Permitted Waste" shall mean waste or material that is not prohibited, or that is allowed by any law, statute, ordinance, agreement, permit, rule, regulation or that is otherwise legally allowed to be treated and/or disposed of on or through the Easement Property or using the equipment, materials and/or devices available thereon.

5. Charges For Use.

Grantee shall pay all charges related to the ongoing use of the aeration tanks and sewer lines (a) during the term of this Permanent Easement, or (b) during the time that Grantee owns Easement Property Part 1 and uses the Easement Property Part 2.

6. Early Termination.

A. The Grantee may terminate the Permanent Easement created hereunder at any time upon the recording by the Grantee of an acknowledged notice of the termination of Permanent Easement created by this Permanent Easement Agreement with the Washington County official responsible for the recording of deeds.

B. In the event that Grantee or its successors does not use the Permanent Easement for a continuous period of two (2) years or more, Grantor may give Grantee written notice that Grantor has elected to terminate the Permanent Easement within ninety (90) days, giving this provision as the reason. During said ninety (90) day period Grantee or its successors may commence use and cure the defect (or may commence proceedings to contest Grantor's assertion under this paragraph). Should the issue of use of the Permanent Easement be directly or indirectly the subject of governmental regulatory proceedings, hearings, or appeals or the subject of litigation (all hereinafter "proceedings"), the two (2) year non-use period shall be tolled until one hundred eighty (180) days after such proceedings are concluded.

7. Limited Obligation to Maintain.

The Grantee, during the term of the Permanent Easement shall, at the Grantee's expense, perform such maintenance and repairs to the tanks and sewer lines located on the Easement Property which are necessary to keep such tanks and sewer lines in good working order. However, the Grantee shall, in no event, be required to upgrade, replace or repair such tanks and sewer lines other than to make such repairs which prevent leakage or result from the normal wear and tear on such Easement Property.

8. Failure to Maintain Easement.

In the event that Grantee fails to maintain or repair the Easement Property as provided herein, Grantor shall not have the right to terminate the Permanent Easement, and Grantor's sole remedy shall be to compel Grantee to specifically perform Grantee's obligations hereunder, and/or to recover from Grantee any damages sustained. In the event that Grantor believes Grantee has breached Grantee's obligations to maintain or repair the Permanent Easement, Grantee shall not be in default under the terms of this Agreement until Grantor has provided to Grantee and Grantee's attorneys, Opton, Galton & Rosenthal c/o Michael Opton, with prior written notice of nonperformance fifteen (15) days prior to declaring the default, during which fifteen (15) day period Grantee may cure such nonperformance by completing any repair or maintenance or beginning the process of such repair or maintenance where completion of the task within fifteen (15) days would not be reasonable. In such circumstances, if Grantee begins the process of repair and/or maintenance within said fifteen (15) day period and continues its efforts at a prudent and reasonable pace thereafter until completion, Grantee shall not be in default of its obligations hereunder.

9. Cooperation.

Grantor and Grantor's successors in interest hereto agree not to remonstrate, resist, object to or otherwise oppose, directly or indirectly, Grantee's use of the Easement Property or

Grantee's use of the Property except that Grantor may object to a use of the Property which use is unrelated to the Property's use for tannery and related purposes.

10. Indemnification.

A. To the extent that third parties assert claims against Grantor, whether such claim or claims are asserted against Grantor separately or against Grantor with others, which claim or claims arise in whole or in part from the affirmative act, or omissions of the Grantee for the period after August 18, 1993, and arising out of Grantee's use of the real property and improvements, including the aeration tanks, on the property defined herein as the Permanent Easement, Grantee shall indemnify and hold harmless Grantor and its officers, directors, employees and agents from any and all damages of any kind or nature, from that portion of said claim or claims, which portion arises from the affirmative acts or omissions of the Grantee for the period after August 18, 1993, and which arise out of the Grantee's use of the real property and improvements, including the aeration tanks, on the property defined herein as the Permanent Easement, including, without limitation, arising from Grantee's use and maintenance of the aeration tanks, sewer lines and other connections. Should the damages not be caused solely by Grantee, Grantee shall indemnify and hold Grantor harmless for whatever damages Grantee is adjudged liable by any court in which judgment is entered against Grantee for the pro rata amount of damages caused by Grantee.

B. None of the provisions for indemnification under this Section 10 shall be applicable with respect to default judgments, confessions of judgment or settlements entered into by Grantor without the prior written consent of the Grantee. Provided, however, that should the Grantee refuse to consent to a settlement approved by the Grantor within thirty (30) calendar days of Grantee's receipt of the request for consent, the Grantor may affect such settlement, pay such amount in settlement as it shall deem reasonable and seek a judicial determination with respect to reimbursement by the Grantee of any loss, liability, damage, cost or expense incurred by the Grantor in connection with such settlement to the extent that such loss, liability, damage, cost or expense was based upon the indemnification set out here Section 10 hereof. Notwithstanding the foregoing, the Grantee shall at all times have the right to offer to settle any matter and if the Grantee successfully negotiates a settlement and tenders payment therefor to the Grantor, the Grantor must either use its best efforts to dispose of the matter in accordance with the terms and conditions of the proposed settlement, or the Grantor may refuse to settle the matter and continue its defense, and, in which latter event, the maximum liability of the Grantee to the Grantor under this indemnity shall be the amount of the proposed settlement. Grantor and Grantee shall act reasonably in so settling any claim.

C. Grantor shall give Grantee, within ^{thirty (30)} ~~thirty (30)~~ days of receiving notice of any claim, notice of any claim as to which Grantor believes it is entitled to indemnification hereunder. Said notice shall include all information regarding the claim available to Grantor, and Grantor's written request for indemnification hereunder.

D. The terms of this indemnity shall survive the termination of the Permanent Easement and the transfer of the Easement Property Part 1 to Grantee but the indemnity shall

only cover the period from August 18, 1993 to the date of such termination or transfer as to Easement Property Part 1.

11. Termination of Permanent Easement and Ejectment.

A. In the event that Grantee fails to pay, in full, all amounts owing to Grantor in accordance with paragraphs 1, 1.1, 1.2, and 1.3 of the Settlement Agreement between the parties hereto of like date herewith, Grantor shall have the right to terminate the Permanent Easement, sue for ejectment from the Permanent Easement, and/or seek to recover damages; provided, however, that Seller must, prior to having the ability to assert a default and prior to taking any remedy, give Grantee and his attorneys, Opton, Galton & Rosenthal (c/o Michael Opton) written notice of non-payment fifteen (15) days prior to declaring a default, during which fifteen (15) day time period, Grantee may cure the non-payment by making the past due payment. This subparagraph 11.A. shall terminate when Grantor has fully paid under paragraphs 1.1, 1.2 and 1.3 of the Settlement Agreement.

B. In the event that Grantee fails to comply with the terms of this Permanent Easement regarding the treatment, disposal and/or discharge of only Permitted Waste, Grantor shall, subject to the terms of this paragraph, have the right to terminate the Permanent Easement established in this Permanent Easement Agreement, sue for ejectment from the easement, and/or seek to recover damages; provided, however, that Grantor may seek such relief and remedy only for the conduct of Grantee and its successors alone. Prior to seeking such relief, Grantor must give Grantee and its attorneys, Opton, Galton & Rosenthal, (c/o Michael P. Opton), ninety (90) days prior written notice before declaring the default or breach hereof. Said notice shall be served as provided herein and shall also be posted on the Easement Property. The notice shall contain a complete description of conduct alleged to be in violation of paragraph 11.B. of the Permanent Easement Agreement and all information available to Grantor regarding that violation. During said ninety (90) day period, Grantee shall have the opportunity to cure said violation by ceasing the violative conduct thereby avoiding the easement termination consequence and the consequences under this paragraph. Should Grantee commence and take the reasonable steps necessary to cease said conduct and should the cessation of the violative conduct reasonably require more than ninety (90) days, then the ninety (90) day time period shall be extended so long as Grantee continues to act reasonable to cure the violative conduct. Except as provided under normal discovery rights in litigation, Grantor shall have no access to Grantee's property or records.

12. Right to Relocate Easement Property Part 2.

A. The parties hereto expressly agree that, subject to the conditions stated in this paragraph 12., Grantor shall have the right to relocate the easement now located on the Easement Property Part 2, as described in Exhibit "PE-C" hereto.

B. In the event that Grantor desires to relocate the easement described above, Grantor shall first give notice to Grantee of Grantor's intention to relocate, which notice shall provide all specifications and time tables for the relocated sewer line and its construction, and evidence of Grantor's compliance with the terms of this Paragraph 12. Notice, as stated in this paragraph 12., shall be given ninety (90) days prior to the proposed commencement of relocation, and

Grantee shall have ninety (90) days from receipt of said notice within which to either grant approval or register its objections and its reasons therefor, to Grantor.

C. Grantor shall have the right to relocate said easement as described in its notice to Grantee referred to in Paragraph 12 B., at Grantor's sole expense, provided Grantor obtains Grantee's prior written approval. Grantee shall not unreasonably withhold approval if the proposed easement, and the sewer line thereon, is similar in function and capacity to that now in existence on the Easement Property Part 2. As used herein, "similar in function and capacity" includes, but is not limited to, materials, gravity of sewer grades, cleanouts, volume, flow, function of line, and access. Grantor's proposed change in the easement shall not subject Grantee to additional maintenance or other operating costs.

D. In the event Grantor desires to exercise its rights under paragraph 12., hereof, Grantor agrees to obtain, at its sole expense, all the proper permits and approvals, including but not limited to, environmental permits, wetlands permits and building permits. In addition, Grantor agrees to undertake, at its sole expense, any required environmental studies and surveys which may be required in connection therewith.

E. Grantor further agrees that no damaging interruption in sewer treatment or service shall be suffered by Grantee as a result of Grantor's planned relocation of the sewer line and easement.

F. Grantor expressly agrees that all costs, including but not limited to those set forth herein, to be incurred or suffered by Grantee and Grantor in connection with Grantor's exercise of its rights under this paragraph 12., shall be borne solely by Grantor and shall be paid in advance or with security satisfactory to Grantee. As used herein, "all costs" includes without limitation those reasonable costs suffered by Grantee and Grantor in reviewing and approving said proposed relocation including studies, surveys and attorneys fees, and all construction costs associated thereto.

G. Grantor further agrees that any proposed replacement line shall contain an easement thirty (30) feet in width, fifteen (15) feet on either side of the center of the proposed replacement line.

H. In the event that Easement Property Part 2 is relocated, all terms and provisions of this Permanent Easement shall remain in force and effect, and Grantor and Grantee agree to execute an amended Permanent Easement Agreement wherein the legal description of the replacement easement is substituted for the legal description now contained in Exhibit "PE-C" hereto.

13. Whereas Clauses.

The parties agree that the "WHEREAS" provisions hereof are incorporated herein and made part hereof and are not a mere recital.

14. Benefit.

This Permanent Easement Agreement inures to the benefit of Grantee, its officers, agents, successors, employees, invitees and governmental regulators involved with the operations on the Easement Property.

15. Attorney's Fees.

Should either party seek to enforce any provision of this Permanent Easement Agreement, the prevailing party in any suit, action or arbitration shall be entitled to recover their reasonable attorney's fees and costs as set by the arbitrator, trial judge or appeals court in which the matter is heard, decided or appealed.

16. Captions.

The captions and section headings in this Permanent Easement Agreement are for convenience only and shall not be construed to limit, define, or modify the meaning of the provisions of this Permanent Easement Agreement.

17. Cooperation.

The Grantor agrees to reasonably cooperate with Grantee's efforts to obtain all necessary approvals and agreements to allow Grantee to purchase the Easement Property Part I. Grantor and successors agree not to remonstrate, resist, object to or otherwise oppose directly or indirectly Grantee's efforts to acquire and utilize the Easement Property. Grantor shall provide all information in its control to assist Grantee in this approval seeking process after recording of the Easement Deed. Grantee shall do all things reasonably necessary to obtain the remaining approvals to complete transfer of the Easement Property Part I to Grantee.

18. Binding Agreement.

This Permanent Easement Agreement shall be binding upon and shall inure to the benefit of the parties hereto, their successors and assigns.

19. Future Assurances.

Each party hereto agrees to execute and deliver upon request any further documents that may be reasonably necessary to effect the terms, conditions and intent of this Permanent Easement Agreement.

20. Assignment.

This Permanent Easement Agreement may not be assigned by either party to anyone other than the successors in interest to the Property, the Easement Property, Part I and the Adjacent Property respectively.

08-07-1995 04:02PM FROM Opton, Galton & Rosenthal TO

92747972 P.02

21. Paragraph Headings.

The paragraph headings used herein are for convenience only, do not constitute part of this Permanent Easement Agreement and shall not be deemed to limit or effect any of the provisions hereof.

22. Severability.

The invalidity or un-enforceability of any particular section, subsection, or provision of this Permanent Easement Agreement shall not effect the other sections, subsections, or provisions hereof, and the Permanent Easement Agreement shall be construed in all respects as if such invalid or unenforceable sections, subsections, or provisions were omitted.

23. Amendment.

Other than changes in the address set out in paragraph 26 hereof, any modification hereof shall be in writing signed by the parties hereto in order to be binding.

24. Waiver.

No failure to insist in any one circumstance on full performance of any provision of this Permanent Easement Agreement shall be deemed or shall constitute a waiver of that provision or a waiver of any other provision of this Permanent Easement Agreement, whether or not similar, nor shall any failure to insist on full performance in any one or more circumstances constitute a continuing waiver.

25. Governing Law.

This Permanent Easement Agreement shall be construed pursuant to the laws of the State of Oregon, and each party agrees to be bound hereby and submit to the exclusive jurisdiction in the State Courts of the State of Oregon or the Federal District Court for Oregon for all purposes related to this Permanent Easement Agreement.

26. Notice.

All notices and other communication by the parties made pursuant to the terms hereof shall be made in writing and shall be deemed given to the opposing party three (3) days after deposit into the United States mails, postage prepaid, registered, return receipt requested addressed to the other party as follows:

To Grantor:	Linke Enterprises, Inc.	Copy to:	Tom Hooper
	P.O. Box 264		Hooper and Englund
	Portland, OR 97207		1507 Standard Plaza
			1100 SW Sixth Avenue
			Portland, OR 97204

To Grantee: Frontier Leather Co.
1210 E. Pacific St.
P.O. Box 548
Sherwood, OR 97140

Copy to: Michael P. Opton
Opton, Galton & Rosenthal
1440 American Bank Bldg.
621 SW Morrison Street
Portland, OR 97205

An address may be changed by that party with notice made pursuant hereto and recorded with the Washington County Recorder's Office.

27. Exhibits.

All exhibits hereto are incorporated herein.

28. Real Property Taxes on the Easement Property Part 1 after Purchased by Grantee.

After the purchase of the Easement Property Part 1 by Grantee, and for the period after recording of the Deed to the Easement Property Part 1 (the "Easement Deed"), Grantee shall pay for the benefit of the property and the protection of Grantor the real property taxes attributable to the Easement Property Part 1 until said Easement Property Part 1 is transferred to Grantee on the real property tax roles of Washington County.

29. Duplicate Originals.

This Agreement shall be executed in duplicate originals, each of which is deemed an original.

IN WITNESS WHEREOF, the parties have caused this Permanent Easement Agreement to be executed on the day and year first above written.

TRANSPACIFIC INTERNATIONAL,

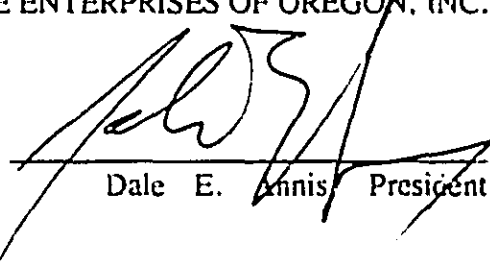
LINKE ENTERPRISES OF OREGON, INC.
INC.

By:



Jay S. Lee, President

By:



Dale E. Annis, President

STATE OF OREGON)
) ss.
County of Multnomah)

Personally appeared before me this 7th day of August, 1995, Dale E. Annis, being the president of Linke Enterprises of Oregon, Inc., and acknowledged the foregoing was signed in behalf of said corporation by authority of its board of directors, and acknowledged said instrument to be his voluntary act and deed.

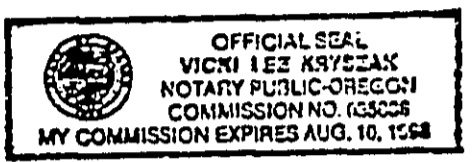


Vicki Lee Kryszak
Notary Public for Oregon
My Commission expires: 8/10/98

//

STATE OF OREGON)
) ss.
County of Multnomah)

Personally appeared before me this 7th day of August, 1995, Jay S. Lee, being the president of Transpacific International, Inc., and acknowledged the foregoing was signed in behalf of said corporation by authority of its board of directors and acknowledged said instrument to be his voluntary act and deed.



Vicki Lee Kryszak
Notary Public for Oregon
My Commission expires: 8/10/98

STATE OF OREGON)
) ss.
County of Multnomah)

Personally appeared before me this _____ day of _____, 1995, _____, being the _____ of United States National Bank, and acknowledged the foregoing was signed in behalf of said corporation by authority of its board of directors and acknowledged said instrument to be his/her voluntary act and deed.

[Handwritten signature]

Notary Public for Oregon
My Commission expires:

EXHIBIT LIST

- PE-A. The Property
- PE-B. Adjacent Property
- PE-C. Easement Property

EXHIBIT "PE-A"

THE "PROPERTY"
(PAGE ONE)PARCEL I:

A tract of land in the Southeast one-quarter of Section 29, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Sherwood, County of Washington and State of Oregon, described as follows:

Beginning at a point on the Section line in the center of the County Road, 772.8 feet East of the quarter-section corner between Sections 29 and 32 in Township 2 South of Range 1 West of the Willamette Meridian, and running thence North 47 42' East 417.9 feet; thence South 282 feet to the center of the County Road, and thence West 309 feet to the place of beginning.

PARCEL II:

A portion of the Southeast one-quarter of Section 29, Township 2 South of Range 1 West, Willamette Meridian, in the City of Sherwood, County of Washington and State of Oregon, which lies Southeast of the Southern Pacific Railway Company's right of way, and further described as follows:

Commencing at the South one-quarter corner of Section 29, Township 2 South of Range 1 West, Willamette Meridian; thence North 89 59' East along the South line of Section 29, Township 2 South of Range 1 West, of Willamette Meridian, a distance of 1351.8 feet to a point, said point being a spike set in the roadway and also being the true point of beginning of the following described property; thence North 0 01' West a distance of 232.32 feet to an iron pipe; thence North 89 59' East a distance of 85.5 feet to an iron pipe; thence South 0 01' East a distance of 232.32 feet to a spike driven in the roadway; thence South 89 59' West a distance of 85.5 feet to the point of beginning.

PARCEL III:

A portion of the Southeast one-quarter of Section 29, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Sherwood, County of Washington, State of Oregon, which lies Southeast of the Southern Pacific Railway Company's right of way, and further described as follows:

Commencing at the South one-quarter corner of Section 29, Township 2 South, Range 1 West of the Willamette Meridian; thence North 89 59' East along the South line of Section 29, Township 2 South, Range 1 West of the Willamette Meridian a distance of 1081.8 feet to a point, said point being a spike set in roadway, and also being the true point of beginning of the following described property; thence North 0 01' East a distance of 282.0 feet to an iron pipe; thence North 47 49' East a distance of

EXHIBIT "PE-A"

THE "PROPERTY"

(PAGE TWO)

363.5 feet to an iron pipe; thence South 0'01' East a distance of 524.2 feet to a spike set in roadway; thence South 89'59' West a distance of 270.0 feet to the point of beginning.

EXCEPTING THEREFROM that portion thereof lying within that tract of land conveyed to American Junior Aircraft Company, an Oregon corporation by Book 340, Page 297, Washington County Book of Records.

PARCEL IV:

That part of the Southeast one-quarter of Section 29, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Sherwood, County of Washington and State of Oregon, describe as follows:

Beginning at a point on the South line of Section 29, which is 1,437.3 feet East of the South one-quarter corner of said section; thence North 0'01' East 232.32 feet; thence South 89'59' West 85.5 feet to an iron pin; thence North 39'09' West 216.4 feet to a point on the Southeasterly right of way line of the railroad; thence North 47'49' East along said right of way line 384.5 feet to an iron pipe; thence North 39'09' West along said right of way line 15.0 feet; thence North 47'49' East 318.1 feet along said right of way line; thence South 0'01' East 885.50 feet to a point in the South line of said section; thence South 89'59' West 289.5 feet to the point of beginning.

EXCEPTING THEREFROM that portion thereof lying within that tract of land conveyed to City of Sherwood by Deed Book 512, Page 460 recorded May 11, 1964.

Exhibit PE-BPARCEL I*the adjacent property*

Beginning at the Southwest corner of Section 28, Township 2 South, Range 1 West of the Willamette Meridian, in the County of Washington and State of Oregon, running thence North on section line 16.41 chains to centerline ditch; thence up said ditch South $21^{\circ}30'$ East 7.92 chains; thence up said ditch South $26^{\circ}0'$ East 10.01 chains to the South line of Section 28; thence West on section line 7.32 chains to the place of beginning.

PARCEL II

Beginning at the Southeast corner of Section 29, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Sherwood, County of Washington and State of Oregon, and running thence North $0^{\circ}20'$ East on the East line of said Section 29 a distance of 1719.3 feet to a point on the Southerly line of a 60.0 foot railroad right of way described on Page 466, of Book "Q", of Washington County, Oregon Deed Records; thence South $47^{\circ}49'$ West on said right of way line 441.5 feet to a corner of a tract of land conveyed for railroad right of way and described on Page 212 of Book 50 of Washington County, Oregon Deed Records; thence South $42^{\circ}11'$ East along a line of said tract 38 feet to a point; thence South $47^{\circ}49'$ West 102 feet to a corner of said tract; thence Southwesterly along a line of said tract 440 feet to a point which bears South $42^{\circ}11'$ East 43 feet from the center line of railroad tract; thence Southwesterly 120 feet to a point on the right of way of said railroad South $42^{\circ}11'$ East 30.0 feet from the center line of said tract; thence South $47^{\circ}49'$ West parallel to the center line of said railroad 138.8 feet to the Northeast corner of a tract of land conveyed to the Sherwood Corporation and described on Page 733 of Volume 277 of Washington County, Oregon Deed Records; thence South $0^{\circ}01'$ East on the East line of said tract and the East line of a tract of land described on Page 319 of Volume 275 of said Deed Records a distance of 885.5 feet to the South line of said Section 29; thence North $89^{\circ}59'$ East 911.4 feet to the place of beginning.

PART 1:

Description:

AMENDED LEGAL DESCRIPTION:

A parcel of land in the Southeast one-quarter of Section 29, Township 2 South, Range 1 West, of the Willamette Meridian, in the City of Sherwood, County of Washington and State of Oregon, more particularly described as follows:

Beginning at the Southeast corner of said Section 29; thence South 89°59' West along the South line of said Section 29 to the point of intersection with the Southerly extension of the East line of a tract of land described on Page 319 of Volume 275 of Washington County, Oregon Deed Records; thence North 00°01'00" West along the Southerly extension of the above mentioned East line and the East line of that tract of land conveyed to the Sherwood Corporation as described on Page 733 of Volume 277 of Washington County, Oregon Deed Records, 347.41 feet to the true point of beginning; thence North 89°59'00" East 350.00 feet; thence North 00°01'00" West 400.00 feet; thence South 89°59'00" West 225.00 feet; thence South 44°59'00" West 176.78 feet to the said Sherwood Corporation East line; thence along said East line South 00°01'00" East 275.00 feet to the true point of beginning.

EXHIBIT PE-C

EASEMENT PROPERTY Part 2

A strip of land 30.00 feet in width located in Sections 28 and 29, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Sherwood, County of Washington and State of Oregon, and lying 15.00 feet on each side of the following described centerline:

beginning at a manhole which bears North 80°33'10" East 349.60 feet from the common corner of Sections 28, 29, 32 and 33, Township 2 South, Range 1 West of the Willamette Meridian, in the County of Washington and State of Oregon and running thence North 58°24'10" West 210.00 feet to a point; thence South 76°35'50" West 58.00 feet to a point; thence North 58°24'10" West 100.00 feet to a point; thence South 69°17'00" West 30.00 feet to a point; thence North 57°38'10" West 97.50 feet to a point; thence South 80°57'00" West 180.00 feet to a point; thence South 58°27'00" West 47.30 feet to a point; thence South 88°27'00" West 20.00 feet to a point; thence North 46°33'00" West 326.10 feet to a point; thence North 1°00'00" West 19.00 feet to a point; thence North 30°00'00" West toward the terminus of said centerline.

Exhibit PE-C

AC 103320
LAWYERS



01500674201000535930070072

I, Richard Hobemicht, Director of Assessment and Taxation and Ex-Officio County Clerk for Washington County, Oregon, do hereby certify that the within instrument of writing was received and recorded in the book of records of said county.



Richard Hobemicht, Director of Assessment and Taxation, Ex-Officio County Clerk

Grantor:
PACIFIC III, LLC
16004 S.W. Tualatin Sherwood Road, Suite 432
Sherwood, OR 97140

Grantee:

AFTER RECORDING RETURN TO:
Charles Taylor
P.O. Box 1452
Lake Oswego, OR 97035

ACCESS EASEMENT AGREEMENT

(Parcel 1 servient, Lot 600 dominant)

This ACCESS EASEMENT AGREEMENT (this "Agreement") is made this 12 day of May 2010, by PACIFIC III, LLC, an Oregon limited liability company, as "Grantor."

RECITALS

A. WHEREAS, Grantor owns certain real property located in the County of Washington, State of Oregon and more particularly described as Parcel 1, PARTITION PLAT 2003-030, in the City of Sherwood, County of Washington, State of Oregon ("Parcel 1");

B. WHEREAS, Grantor desires to provide and grant an easement over Parcel 1 for the benefit of that certain real property located in the County of Washington, State of Oregon and more particularly described as follows:

Parcel I.

Beginning at the Southwest corner of Section 28, Township 2 South, Range 1 West of the Willamette Meridian, in the County of Washington and State of Oregon, running thence North on section line 16.41 chains to centerline ditch; thence up said ditch South 21°30' East 7.92 chains; thence up said ditch South 26°0' East 10.01 chains to the South line of Section 28; thence West on section line 7.32 chains to the place of beginning.

THIS DOCUMENT IS A LEGAL INSTRUMENT. IT IS ACCEPTED FOR THE CONDITION OF TITLE OR FOR THE CONDITION OF INTEREST, AND THE SIGNATURES, CAPTION, OR EFFECT OF THIS DOCUMENT ARE NOT VALID UNLESS THE SIGNATURES ARE MADE BY THE PERSONS WHOSE NAMES ARE SET FORTH THEREIN.

Parcel II.

Beginning at the Southeast corner of Section 29, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Sherwood, County of Washington and State of Oregon, and running thence North 0°20' East on the East line of said Section 29 a distance of 1719.3 feet to a point on the Southerly line of a 60.0 foot railroad right of way described on Page 466, of Book "Q", of Washington County, Oregon Deed Records; thence South 47°49' West on said right of way line 441.5 feet to a corner of a tract of land conveyed for railroad right of way and described on Page 212 of Book 50 of Washington County, Oregon Deed Records; thence South 42°11' East along a line of said tract 38 feet to a point; thence South 47°49' West 102 feet to a corner of said tract; thence Southwesterly along a line of said tract 440 feet to a point which bears South 42°11' East 43 feet from the center line of railroad tract; thence Southwesterly 120 feet to a point on the right of way of said railroad South 42°11' East 30.0 feet from the center line of said tract; thence South 47°49' West parallel to the center line of said railroad 138.8 feet to the Northeast corner of a tract of land conveyed to the Sherwood Corporation and described on Page 733 of Volume 277 of Washington County, Oregon Deed Records; thence South 0°01' East on the East line of said tract and the East line of a tract of land described on Page 319 of Volume 275 of said Deed Records a distance of 885.5 feet to the South line of said Section 29; thence North 89°59' East 911.4 feet to the place of beginning.

Together, Parcel I and Parcel II are herein called ("Lot 600");

C. WHEREAS, Grantor desires to create the easement described herein for the purpose of ingress and egress over Grantor's Parcel 1 for the benefit of Lot 600 and the general public at large in accordance with City of Sherwood land use approval for SP 07-08.

D. WHEREAS, as of the date of the execution and recording of this Easement, the fee title owner of Lot 600 is undetermined; and

E. WHEREAS, upon the determination by Grantor or other party of the lawful fee title owner of Lot 600, such owner shall be required to participate in a tri-party maintenance agreement regarding the maintenance, repair and upkeep of the Easement.

AGREEMENT

NOW, THEREFORE, in consideration of the covenants contained herein and the consideration described herein, the parties agree as follows:

1. **Incorporation of Recitals.** The Recitals set forth above are true and accurate and are incorporated herein as though set forth in full.

///

2. Grant of Easement. Grantor grants to Lot 600 a nonexclusive, reciprocal easement to be used for ingress, egress and utility purposes over and across the land currently owned by Grantor as more specifically described in the legal description attached hereto as Exhibit A and by this reference incorporated herein and as illustrated on the map attached here to as Exhibit B and by this reference incorporated herein (the "Easement").

3. Use of Easement. Grantor grants this Easement for use by Lot 600 and the public at large, for the non-exclusive purpose of accessing Lot 600 in accordance with City of Sherwood land use approval for SP 07-08. Grantor reserves the right to engage in any use compatible with the full enjoyment of Lot 600's rights granted herein, including the right to grant other easements. Use of the Easement by Lot 600 and the public at large to access Lot 600 shall be secondary subject to principal access to Lot 600 being provided directly via Oregon Street.

4. Maintenance. At such time that the lawful fee-title owner of Lot 600 is determined, such owner shall be required to become a party to a tri-party maintenance agreement that provides for the maintenance, repair and upkeep of the Easement. The parties to such maintenance agreement shall be Grantor, the owner of Lot 600 and the owner of adjacent Lot 602, and such maintenance agreement shall generally provide that the three parties shall share equally in the costs and expenses for the maintenance, repair and upkeep of the Easement and that such maintenance agreement shall be recorded as an encumbrance against each of the affected properties.

5. Consideration. The true and actual consideration for this grant of easement is no money, but consists of other valuable consideration. As this instrument does not convey or contract to convey fee title, compliance with ORS 93.030 is not required.

6. Exceptions of Record. The Easement is granted subject to all prior easements or encumbrances of record.

7. Remedies. In the event the owner of Lot 600 breaches or fails to perform or observe any of the terms and conditions set forth in this Agreement or in such maintenance agreement as provided in Section 4 above, and the owner of Lot 600 fails to cure such breach or default within ninety (90) days of Grantor's giving the owner of Lot 600 written notice thereof, or, if the breach or default is not susceptible of cure within ninety (90) days, the owner of Lot 600 fails to commence to cure within such period and thereafter diligently proceed to complete such cure, then Grantor may seek any and all legal remedies available to Grantor except that Grantor may not terminate the owner of Lot 600's rights under this Agreement and Grantor may not terminate the Easement, except as provided in Section 8 below.

8. Termination of Easement. The Easement provided in this Agreement shall be permanent and irrevocable except upon the written consent of Grantor or Grantor's successor in interest, the current fee title owners of Lot 600 and adjacent Lot 602 and the City of Sherwood.

9. Severability. Any provision of this Agreement that is deemed invalid or unenforceable shall be ineffective to the extent of such invalidity or unenforceability, without rendering invalid or unenforceable the remaining provisions of this Agreement.

10. Notices. All notices or other communications required or permitted hereunder shall be in writing, and shall be personally delivered (including by means of professional messenger



service) or sent by registered or certified mail, postage prepaid, return receipt requested, and shall be deemed received three (3) days after deposit in the United States mail.

If to Grantor: Pacific III, LLC
16004 S.W. Tualatin Sherwood Road, Suite 432
Sherwood, OR 97140
Attn: J. Patrick Lucas

with a copy to: _____

If to Lot 600: _____

with a copy to: _____

11. Further Assurances. The parties each agree, at the request of the other party, at any time and from time to time after the date hereof, to execute and deliver all such further documents as may be reasonably necessary or appropriate in order to confirm, record or carry out the provisions of this Agreement.

12. Resolution by Arbitration. Any disagreements associated with this said Agreement or Easement are to be resolved via binding arbitration pursuant to the Washington County Circuit Court arbitration rules, with the presiding judge of the Washington County Circuit Court appointing one arbitrator whose decision will be binding and final. The non-prevailing party is to pay the cost of the arbitration.

13. Other Remedies Available. Any property owner is entitled to all remedies at law and equity associated with any breach of any term or condition of this Agreement or the Easement by any other property owner.

14. Attorney's Fees. If any suit or action arising out of or related to this Agreement is brought by any party, the prevailing party or parties shall be entitled to recover the costs and fees (including without limitation reasonable attorneys' fees, the fees and costs of experts and consultants, copying, courier and telecommunication costs, and deposition costs and all other costs of discovery) incurred by such party or parties in such suit or action, including without limitation any post-trial or appellate proceeding, or in the collection or enforcement of any judgment or award entered or made in such suit or action.

IN WITNESS WHEREOF, Pacific III, LLC has caused this instrument to be executed the day and year first written above.

GRANTOR:

Pacific III, LLC



By: J. Patrick Lucas

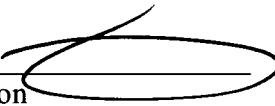
Its: Member

State of Oregon)

)

County of Clackamas)

The foregoing instrument was acknowledged before me on this 12th day of May, 2010, by J. Patrick Lucas, as Member of Pacific III, LLC, as Grantor, and who acknowledged the foregoing to be his voluntary act and deed.

92 
Notary Public for Oregon
My Commission expires: 1.2.12





T.L. 600
Easement Legal

A portion of land in the Southeast $\frac{1}{4}$ of Section 29, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Sherwood, Washington County, Oregon, more particularly described as follows:

Beginning at a point on the North right-of-way line of Oregon Street North $89^{\circ}59'00''$ East 267.22 feet from the Southwest corner of Parcel 2 of Partition Plat 2003-30, Washington County Plat Records; thence North $17^{\circ}00'02''$ East 14.63 feet; thence North $00^{\circ}01'00''$ West 298.50 feet; thence $89^{\circ}59'00''$ East 50.00 feet; thence South $00^{\circ}01'00''$ East 57.99 feet; thence South $89^{\circ}59'00''$ West 22.00 feet; thence South $00^{\circ}01'00''$ East 240.51 feet; thence South $17^{\circ}02'02''$ East 14.63 feet to a point on the North right-of-way line of Oregon Street; thence along said North right-of-way line South $89^{\circ}59'00''$ West 36.57 feet to the point of beginning.

AG1033701

CLERK'S OFFICE



01500675201000535940070079

I, Richard Hobernicht, Director of Assessment and Taxation and Ex-Officio County Clerk for Washington County, Oregon, do hereby certify that the within instrument of writing was received and recorded in the book of records of said county.

Richard Hobernicht, Director of Assessment and Taxation, Ex-Officio County Clerk



Grantor:
PACIFIC III, LLC
16004 S.W. Tualatin Sherwood Road, Suite 432
Sherwood, OR 97140

Grantee:

AFTER RECORDING RETURN TO:
Charles Taylor
P.O. Box 1452
Lake Oswego, OR 97035

ACCESS EASEMENT AGREEMENT

(Parcel 1 servient, Lot 602 dominant)

This ACCESS EASEMENT AGREEMENT (this "Agreement") is made this 12 day of May 2010, by and between PACIFIC III, LLC, an Oregon limited liability company, as "Grantor."

RECITALS

A. WHEREAS, Grantor owns certain real property located in the County of Washington, State of Oregon and more particularly described as Parcel 1, PARTITON PLAT 2003-030, in the City of Sherwood, County of Washington, State of Oregon ("Parcel 1").

B. WHEREAS, Grantor desires to provide and grant an easement over Parcel 1 for the benefit of that certain real property situated in the Southwest quarter of Section 29, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Sherwood, Washington County, Oregon being more particularly described as follows:

Commencing at the Southwest corner of the Southeast quarter of said Section 29; THENCE North 89°59'00" East along the South line of said Southeast quarter of Section 29 a distance of 1726.21 feet to the southerly extension of the West line of that parcel conveyed to Frontier Leather Company by document recorded in Book 467, Page 108 (dated July 2, 1962), Washington County Deed Records; THENCE North 00°01'00" West a distance of 20.00 feet to the Southwest corner of said Frontier Leather Company parcel and the TRUE POINT OF BEGINNING; THENCE North 00°01'00" West along the West line thereof a distance of 327.41 feet to the Southwest corner of that parcel conveyed to Transpacific International, Inc. by document 96082349 (dated September

THIS DOCUMENT IS ACCEPTED FOR THE RECORD FOR THE EFFECT OF THIS DOCUMENT.

13, 1996), Washington County Deed Records; THENCE North 89°59'00" East along the South line thereof a distance of 350.00 feet to the Southeast corner thereof; THENCE North 00°01'00" West along the East Line thereof a distance of 400.00 feet to the Northeast corner thereof; THENCE South 89°59'00" West along the North line thereof a distance of 225.00 feet to an angle point therein; THENCE South 44°59'00" West continuing along said North line a distance of 176.78 feet to a point on the West line of the aforementioned Frontier Leather Company parcel; THENCE South 00°01'00" East along said West line a distance of 168.36 feet; THENCE South 48°52'28" West a distance of 426.44 feet; THENCE North 42°10'49" West a distance of 295.85 feet to the Southeasterly right-of-way line of Southern Pacific Railroad, said point being 45.00 feet from, when measured at right angles to, the centerline of said railroad; THENCE South 47°49'15" West along said Southeasterly right-of-way line a distance of 545.21 feet to a point on the North right-of-way line of N.E. Oregon Street, said point being 27.00 feet from, when measured at right angles to, the centerline of said N.E. Oregon Street; THENCE North 89°59'00" East along said North right-of-way line a distance of 635.11 feet to an angle point therein; THENCE South 00°01'00" East continuing along said North right-of-way line a distance of 7.00 feet, to a point being 20.00 feet from, when measured at right angles to the centerline of said N.E. Oregon Street; THENCE North 89°59'00" East continuing along said North right-of-way line a distance of 39.00 feet to the Southwest corner of that parcel conveyed to the City of Sherwood by document recorded in Book 512, Page 460 (dated March 11, 1964), Washington County Deed Records; THENCE North 00°01'00" West along the West line thereof a distance of 50.00 feet to the Northwest corner thereof; THENCE North 89°59'00" East along the North line thereof a distance of 50.00 feet to the Northeast corner thereof; THENCE South 00°01'00" East along the East line thereof a distance of 50.00 feet to the Southeast corner thereof, said point being on the North right-of-way line of N.E. Oregon Street, being 20.00 feet from, when measured at right angles to the centerline; THENCE North 89°59'00" East along said North right-of-way line a distance of 199.92 feet to the TRUE POINT OF BEGINNING.

Herein called ("Lot 602");

C. WHEREAS, Grantor desires to create the easement described herein for the purpose of ingress and egress over Grantor's Parcel 1 for the benefit of Lot 602 and the general public at large in accordance with City of Sherwood land use approval for SP 07-08;

D. WHEREAS, as of the date of the execution and recording of this Easement, the fee title owner of Lot 602 is undetermined; and

E. WHEREAS, upon the determination by Grantor or other party of the lawful fee title owner of Lot 602, such owner shall be required to participate in a tri-party maintenance agreement regarding the maintenance, repair and upkeep of the Easement.

AGREEMENT

NOW, THEREFORE, in consideration of the covenants contained herein and the consideration described herein, the parties agree as follows:

1. **Incorporation of Recitals.** The Recitals set forth above are true and accurate and are incorporated herein as though set forth in full.
2. **Grant of Easement.** Grantor grants to Lot 602 a nonexclusive, reciprocal easement to be used for ingress, egress and utility purposes over and across the land currently owned by Grantor as more specifically described in the legal description attached hereto as Exhibit A and by this reference incorporated herein and as illustrated on the map attached here to as Exhibit B and by this reference incorporated herein (the "Easement").
3. **Use of Easement.** Grantor grants this Easement for use by Lot 602 and the public at large, for the non-exclusive purpose of accessing Lot 602 in accordance with City of Sherwood land use approval for SP 07-08. Grantor reserves the right to engage in any use compatible with the full enjoyment of Lot 602's rights granted herein, including the right to grant other easements. Use of the Easement by Lot 602 and the public at large to access Lot 602 shall be secondary subject to principal access to Lot 602 being provided directly via Oregon Street
4. **Maintenance.** At such time that the lawful fee-title owner of Lot 602 is determined, such owner shall be required to become a party to a tri-party maintenance agreement that provides for the maintenance, repair and upkeep of the Easement. The parties to such maintenance agreement shall be Grantor, the owner of Lot 602 and the owner of adjacent Lot 600, and such maintenance agreement shall generally provide that the three parties shall share equally in the costs and expenses for the maintenance, repair and upkeep of the Easement and that such maintenance agreement shall be recorded as an encumbrance against each of the affected properties.
5. **Consideration.** The true and actual consideration for this grant of easement is no money, but consists of other valuable consideration. As this instrument does not convey or contract to convey fee title, compliance with ORS 93.030 is not required.
6. **Exceptions of Record.** The Easement is granted subject to all prior easements or encumbrances of record.
7. **Remedies.** In the event the owner of Lot 602 breaches or fails to perform or observe any of the terms and conditions set forth in this Agreement or in such maintenance agreement as provided in Section 4 above, and the owner of Lot 602 fails to cure such breach or default within ninety (90) days of Grantor's giving the owner of Lot 602 written notice thereof, or, if the breach or default is not susceptible of cure within ninety (90) days, the owner of Lot 602 fails to commence to cure within such period and thereafter diligently proceed to complete such cure, then Grantor may seek any and all legal remedies available to Grantor except that Grantor may not terminate the owner of Lot 602's rights under this Agreement and Grantor may not terminate the Easement, except as provided in Section 8 below.

///

8. **Termination of Agreement.** The Easement provided in this Agreement shall be permanent and irrevocable except upon the written consent of Grantor or Grantor's successor in interest, the current fee title owners of Lot 602 and adjacent Lot 600 and the City of Sherwood.

9. **Severability.** Any provision of this Agreement that is deemed invalid or unenforceable shall be ineffective to the extent of such invalidity or unenforceability, without rendering invalid or unenforceable the remaining provisions of this Agreement.

10. **Notices.** All notices or other communications required or permitted hereunder shall be in writing, and shall be personally delivered (including by means of professional messenger service) or sent by registered or certified mail, postage prepaid, return receipt requested, and shall be deemed received three (3) days after deposit in the United States mail.

If to Grantor: Pacific III, LLC
16004 S.W. Tualatin Sherwood Road, Suite 432
Sherwood, OR 97140
Attn: J. Patrick Lucas

with a copy to: _____

If to Lot 602: _____

with a copy to: _____

11. **Further Assurances.** The parties each agree, at the request of the other party, at any time and from time to time after the date hereof, to execute and deliver all such further documents as may be reasonably necessary or appropriate in order to confirm, record or carry out the provisions of this Agreement.

12. **Resolution by Arbitration.** Any disagreements associated with this said Agreement or Easement are to be resolved via binding arbitration pursuant to the Washington County Circuit Court arbitration rules, with the presiding judge of the Washington County Circuit Court appointing one arbitrator whose decision will be binding and final. The non-prevailing party is to pay the cost of the arbitration.

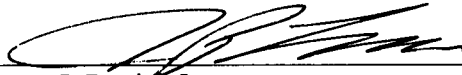
13. **Other Remedies Available.** Any property owner is entitled to all remedies at law and equity associated with any breach of any term or condition of this Agreement or the Easement by any other property owner.

14. **Attorney's Fees.** If any suit or action arising out of or related to this Agreement is brought by any party, the prevailing party or parties shall be entitled to recover the costs and fees (including without limitation reasonable attorneys' fees, the fees and costs of experts and consultants, copying, courier and telecommunication costs, and deposition costs and all other costs of discovery) incurred by such party or parties in such suit or action, including without limitation any post-trial or appellate proceeding, or in the collection or enforcement of any judgment or award entered or made in such suit or action.

IN WITNESS WHEREOF, Pacific III, LLC has caused this instrument to be executed the day and year first written above.

GRANTOR:

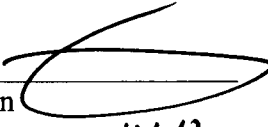
Pacific III, LLC



By: J. Patrick Lucas
Its: Member

State of Oregon)
)
County of Clatsop)

The foregoing instrument was acknowledged before me on this 12 day of May, 2010, by J. Patrick Lucas, as Member of Pacific III, LLC, as Grantor, and who acknowledged the foregoing to be his voluntary act and deed.

92. 
Notary Public for Oregon
My Commission expires: 1-2-12

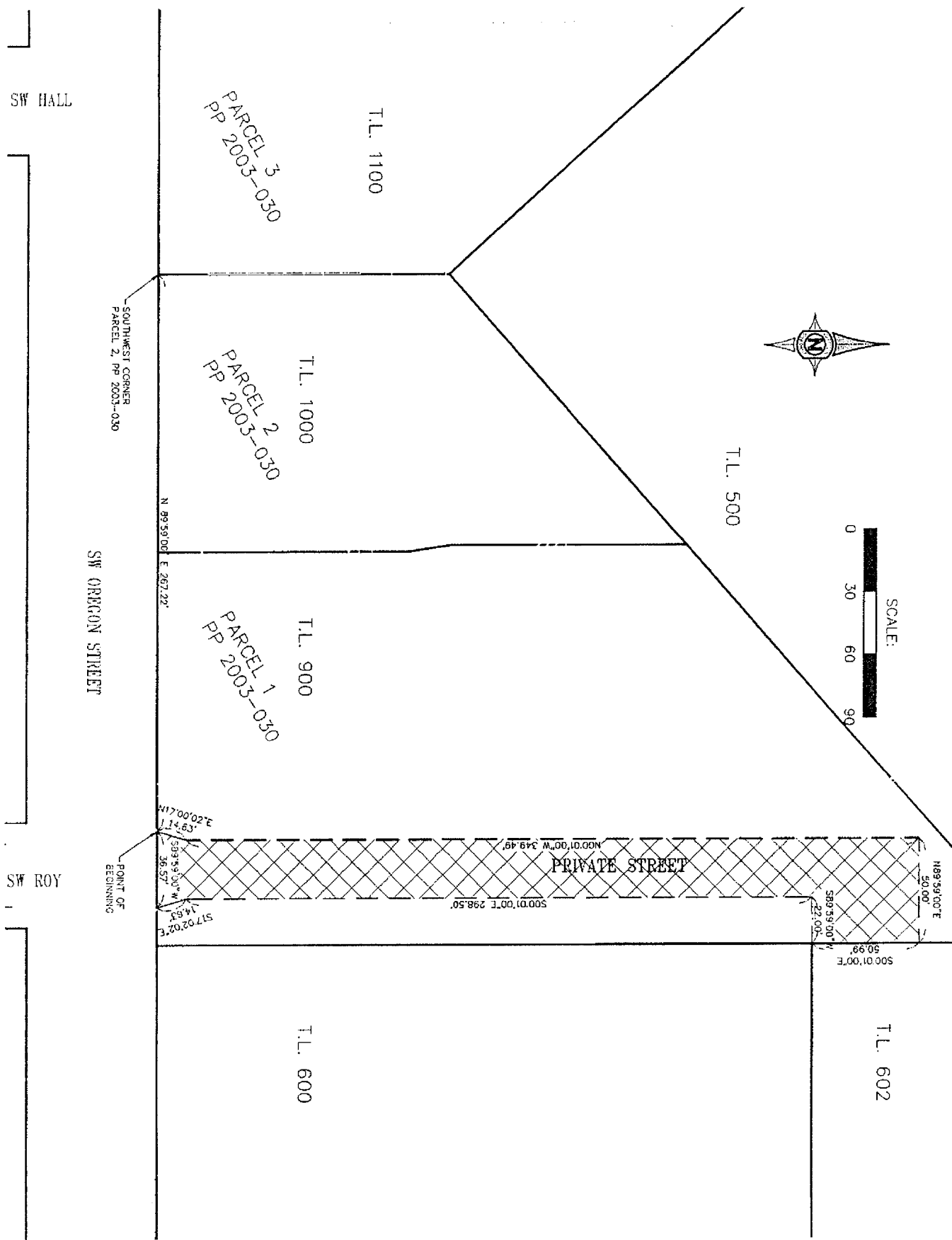


T.L. 602
Easement Legal

A portion of land in the Southeast $\frac{1}{4}$ of Section 29, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Sherwood, Washington County, Oregon, more particularly described as follows:

Beginning at a point on the North right-of-way line of Oregon Street North $89^{\circ}59'00''$ East 267.22 feet from the Southwest corner of Parcel 2 of Partition Plat 2003-30, Washington County Plat Records; thence North $17^{\circ}00'02''$ East 14.63 feet; thence North $00^{\circ}01'00''$ West 349.49 feet; thence $89^{\circ}59'00''$ East 50.00 feet; thence South $00^{\circ}01'00''$ East 50.99 feet; thence South $89^{\circ}59'00''$ West 22.00 feet; thence South $00^{\circ}01'00''$ East 298.50 feet; thence South $17^{\circ}02'02''$ East 14.63 feet to a point on the North right-of-way line of Oregon Street; thence along said North right-of-way line South $89^{\circ}59'00''$ West 36.57 feet to the point of beginning.

T.L. 602 EASEMENT EXHIBIT



16.146 – Noise*16.146.020 – Noise Sensitive Uses*

When proposed commercial and industrial uses do not adjoin land exclusively in commercial or industrial zones, or when said uses adjoin special care, institutional, or parks and recreational facilities, or other uses that are, in the City's determination, sensitive to noise impacts, then:

A. The applicant shall submit to the City a noise level study prepared by a professional acoustical engineer. Said study shall define noise levels at the boundaries of the site in all directions.

B. The applicant shall show that the use will not exceed the noise standards contained in OAR 340-35-035, based on accepted noise modeling procedures and worst case assumptions when all noise sources on the site are operating simultaneously.

C. If the use exceeds applicable noise standards as per subsection B of this Section, then the applicant shall submit a noise mitigation program prepared by a professional acoustical engineer that shows how and when the use will come into compliance with said standards.

Response: The parcel in question is entirely adjoined by commercial and industrial land uses and is offset from the road by another commercial use and is therefore completely surrounded by commercial and industrial uses and separated from Noise Sensitive Uses that would require a noise study.

Noise generators for the proposed use are limited to trucks loading and unloading, forklift traffic and from maneuvering of pipes. Pipe is loaded and unloaded pre-bundled on palettes, so noise from the pipe is not substantial. All fabrication will occur inside the structure. The hours of operations for the facility are typically 7:00am-3:30pm Monday-Friday. The activities noted above for exterior noise generation sources would occur only during these hours.

16.148 – Vibrations*16.148.010 – Generally*

All otherwise permitted commercial, industrial, and institutional uses shall not cause discernible vibrations that exceed a peak of 0.002 gravity at the property line of the originating use, except for vibrations that last five (5) minutes or less per day, based on a certification by a professional engineer.

16.148.020 – Exceptions

This Chapter does not apply to vibration caused by construction activities, including vehicles accessing construction sites, or to vibrations caused by automobiles trucks, trains, aircraft, and other similar vehicles when said vehicles are properly maintained and operated and are using properly designed rights-of-way, travelways, flight paths or other routes. Nothing in this Chapter shall preclude the City from abating any vibration problem as per applicable City nuisance and public safety ordinances.

Response: Discernable vibrations are not expected for the proposed use. No vibrations are generated beyond typical loading trucks as allowed per the Exception above. No equipment will be operating exterior of the building, beyond typical loading trucks and forklifts.

16.150 – Air Quality**16.150.010 - Generally**

All otherwise permitted commercial, industrial, and institutional uses shall comply with applicable State air quality rules and statutes:

- A. All such uses shall comply with standards for dust emissions as per OAR 340-21-060.
- B. Incinerators, if otherwise permitted by Section 16.140.020, shall comply with the standards set forth in OAR 340-25-850 through 340-25-905.
- C. Uses for which a State Air Contaminant Discharge Permit is required as per OAR 340-20-140 through 340-20-160 shall comply with the standards of OAR 340-220 through 340-20-276.

16.148.020 – Proof of Compliance

Proof of compliance with air quality standards as per [Section 16.150.010](#) shall be in the form of copies of all applicable State permits, or if permits have not been issued, submission by the applicant, and acceptance by the City, of a report certified by a professional engineer indicating that the proposed use will comply with State air quality standards. Depending on the nature and size of the use proposed, the applicant may, in the City's determination, be required to submit to the City a report or reports substantially identical to that required for issuance of State Air Contaminant Discharge Permits.

Response: The tenant's activities include pipe welding operations restricted to the interior of the building and supported by commercial exhaust to the exterior. The frequency and amount of exhaust is limited and not of a quantity that will be detectable by surrounding properties. The tenant will comply with any applicable State air quality rules and statutes.

16.152 – Odors**16.152.010 - Generally**

All otherwise permitted commercial, industrial, and institutional uses shall incorporate the best practicable design and operating measures so that odors produced by the use are not discernible at any point beyond the boundaries of the development site.

16.152.020 – Standards

The applicant shall submit a narrative explanation of the source, type and frequency of the odorous emissions produced by the proposed commercial, industrial, or institutional use. In evaluating the potential for adverse impacts from odors, the City shall consider the density and characteristics of surrounding populations and uses, the duration of any odorous emissions, and other relevant factors.

Response: The proposed use is not anticipated to generate any odors beyond the boundaries of the site. The current operation has not generated any concerns or odors of significance in the vicinity. All exterior operations are limited to maneuvering and storage of pipe. No odors are generated beyond the standard odors of loading trucks and forklifts. The only other odor producing activities are pipe-welding which is contained within the building.

From: [Matthew Bridegroom](#)
To: [Eric Rutledge](#)
Cc: [Dirk Otis](#)
Subject: RE: JBMAC - Height of Exterior Storage
Date: Wednesday, August 17, 2022 1:55:35 PM
Attachments: [image001.png](#)

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you are expecting this email and/or know the content is safe.

Maximum is 15'. Most storage racks will be 12'.

MATTHEW BRIDEGROOM

(HE / Him / His)

PROJECT ARCHITECT

PHONE: 503.226.1285X325 VOICEMAILS ARE FORWARDED TO MY EMAIL
WBE# 10209

VISIT OUR **NEW WEBSITE:** WWW.CIDAINC.COM

MATTHEWB@CIDAINC.COM

WWW.CIDAINC.COM

CIDA | ARCHITECTURE | ENGINEERING | PLANNING | INTERIORS

HONORED TO BE NAMED ONE OF OREGON BUSINESS 100 BEST COMPANIES.

HONORED TO BE A CULTURE OF CARE IMPACT CHAMPION.

CIDA CAN BE TRUSTED TO CREATE SIMPLE, INNOVATIVE AND PROFITABLE DESIGN SOLUTIONS FOR PEOPLE.

From: Eric Rutledge <RutledgeE@SherwoodOregon.gov>

Sent: Wednesday, August 17, 2022 12:42 PM

To: Matthew Bridegroom <matthewb@cidainc.com>

Cc: Dirk Otis <dirk@stratusdevelopers.com>

Subject: JBMAC - Height of Exterior Storage

Hi Matthew,

Do you know the maximum height of the proposed exterior storage? This would be any equipment, racks, material in the yard.

Thx,

Eric Rutledge

City of Sherwood

Associate Planner

rutledgee@sherwoodoregon.gov

Desk 503.625.4242

Work Cell 971.979.2315



This email may contain confidential information or privileged material and is intended for use solely by the above referenced recipient. Any review, copying, printing, disclosure, distribution, or other use by any other person or entity is strictly prohibited and may be illegal. If you are not the named recipient, or believe you have received this email in error, please immediately notify the City of Sherwood at (503) 625-5522 and delete the copy you received.

Engineering Department Land Use Application Review Comments & Conditions



Home of the Tualatin River National Wildlife Refuge

To: Eric Rutledge, Associate Planner, Planning Department
From: Bob Galati P.E., City Engineer, Engineering Department
Project: AFP Fire Systems/JB Mac Ventures (LU 2022-017)
Date: August 24, 2022

Engineering staff has reviewed the information provided for the above referenced private development project. Final construction plans will need to meet the standards established by the City of Sherwood Engineering Department and Public Works Department, Clean Water Services (CWS) and Tualatin Valley Fire & Rescue (TVF&R), in addition to requirements established by other jurisdictional agencies providing land use comments. City of Sherwood Engineering Department comments are as follows:

General Information

The subject property is located at 14843 SW Oregon Street and includes three separate tax lots (2S129C00500 with 4.0 acres, 2S129C00600 with 1.5 acres, and 2S129C00500 with 0.56 acres), for a total site development area of 6.06 acres (263,973.60 sq.ft.).

The plans indicate that more of the site development will occur over Tax Lot 500 with site access from SW Oregon Street being provided through Tax Lot 600 via a 50-foot wide private access and utility easement.

Transportation

The proposed site development (inclusive of all 3 tax lots) includes frontage along SW Oregon Street for Tax Lots 600 and 700. SW Oregon Street is functionally classified as a collector street by the City's TSP. The existing street section conditions on SW Oregon Street along the frontage of Tax Lot 600 and 700 include two 12-foot wide paved travel lanes with a gravel shoulder along the south side being used for on-street parking.

Frontage improvements through Tax Lots 600 and 700 will be a design match and extend the improvements constructed as part of the Zenport site development project (SP 16-02) defined as follows:

- 1) A 41-foot curb to curb pavement width consisting of:
 - a. Two 11-foot wide travel lanes
 - b. One 13-foot wide turn lane
 - c. One 6-foot wide bicycle lane on the south side of SW Oregon Street
 - d. One 12-foot wide multi-use sidewalk on the north side of SW Oregon Street
 - e. One 5-foot wide planter strip along the north side of SW Oregon Street
- 2) Since all these improvements will not fit within the existing 35-foot wide half street right-of-way section:
 - a. A 1-foot right-of-way dedication is required to provide the minimum 36-foot of the half street right-of-way for a collector status street
 - b. A 4-foot wide public sidewalk easement to encompassing the portion of the 12-foot wide multi-use sidewalk that extends outside the City standard right-of-way limits.

The applicant has submitted a Trip Generation Analysis (TGA) performed by Lancaster-Mobley, dated April 14, 2022. For classification of the site development usage, the TGA is using General Light Industrial (ITE 110) for estimating trip counts. The results indicate that the proposed site development use will generate 98 daily trips, 13 PM peak hour trips, and 6 daily truck trips. City Municipal Code standards state that 400 average daily trips, 50 PM peak hour trips, and 10 or more daily truck trips are required before a formal Traffic Impact Analysis (TIA) is required. Therefore a TIA is not required for this site development submittal.

~~**CONDITION:** Prior to Issuance of an Engineering Compliance Agreement, a recorded 1-foot of public right of way shall be dedicated across Tax Lots 600 and 700 fronting SW Oregon Street.~~

~~**CONDITION:** Prior to Issuance of an Engineering Compliance Agreement, a recorded 4-foot wide public sidewalk easement shall be provided across Tax Lots 600 and 700 fronting SW Oregon Street.~~

~~**CONDITION:** Prior to Approval of Public Improvement Plans, street frontage improvements along the north side of SW Oregon Street shall include the following:~~

- ~~a. Minimum half-street pavement section improvements for a collector street section in conformance with Section 210.2.1 and 210.2.2 of the City's Engineering Design and Standard Details Manual~~
- ~~b. Standard curb and gutter~~
- ~~c. A 5-foot planter strip with street trees and public irrigation system~~
- ~~d. A 12-foot wide concrete multi-use sidewalk~~
- ~~e. Street lighting meeting City of Sherwood standards and matching the existing street lighting system from the adjacent Zenport development.~~

~~**CONDITION:** Prior to Approval of Public Improvement Plans, the private access drive pavement width and section thickness and materials composition shall at a minimum conform to TVF&R standards for driveways.~~

~~**CONDITION:** Prior to Approval of the Public Improvement Plans, the location of the private access drive to SW Oregon Street for Tax Lot 500 shall align centerline to centerline with SW Lower Roy Street intersection with SW Oregon Street.~~

~~**CONDITION:** Prior to Issuance of Building Permits, the City Transportation SDG fee and WACO TDT fee shall be based on use classification Light Industrial (ITE 110), and shall apply even for building shell permits.~~

Sanitary Sewer

~~The proposed site sanitary sewer service lateral is shown connecting to the public sanitary sewer system within SW Oregon Street at manhole 1370NSAN. The private sanitary sewer lateral will then run through the 50-foot wide private access and utility easement to the on-site building. Since the sanitary lateral runs across a separate parcel (Tax Lot 600), specific design and construction requirements established by Clean Water Services (CWS) must be followed.~~

~~No extension of the public sanitary sewer mainline system is required.~~

~~**CONDITION:** Prior to Approval of Public Improvement Plans, the plans shall include details for connection into a public sanitary sewer manhole in conformance with city and CWS standards.~~

~~**CONDITION:** Prior to Issuance of Grant of Occupancy, private sanitary sewer service laterals shall be designed and installed in compliance with current Oregon Plumbing Specialty Code and CWS standards.~~

Storm Sewer

The proposed site stormwater collection, conveyance, treatment and discharge plans indicate that all on-site stormwater runoff to be collected, conveyed, and treated in on-site facilities meeting CWS standards. Discharge of treated stormwater runoff is shown as being to an existing stormwater drainage channel along the north side of the subject property.

The submitted plans shows a stormwater manhole and catchbasin being installed to collect stormwater runoff from the SW Oregon Street improvements and connecting this catchbasin to the existing public stormwater system located at the intersection of SW Lower Roy Street. The plans do not show stormwater quality treatment for the stormwater runoff from the SW Oregon Street public improvements.

The applicant has submitted a stormwater report prepared by AKS Engineering dated March 2022, with an additional review response letter prepared by AKS Engineering dated July 2022.

The stormwater report analysis is based on CWS criteria for treatment, detention, and hydromodification. Indicates that an on-site stormwater treatment system meets CWS stormwater treatment, detention and hydromodification requirements.

A Service Provider Letter (SPL) has been issued by CWS (CWS File No. 22-001413) for the proposed site development improvements.

Discharge of treated on-site stormwater runoff into the existing drainage path across the adjacent parcel (2S129D000600) has been discussed and was determined to be lawful in meeting Oregon Drainage Laws.

CONDITION: Prior to Approval of Public Improvement Plans, the conditions and requirements of CWS SPL File No. 22-001413 will be incorporated into the plan set for review and acceptance by the City.

CONDITION: Prior to Approval of Public Improvement Plans, the plans shall provide specific details for stormwater runoff treatment due to the SW Oregon Street frontage improvements, in compliance with CWS standards.

CONDITION: Prior to Acceptance of Public Improvements, the conditions and requirements of CWS SPL File No. 22-001413 shall be complied with and installed.

CONDITION: Prior to Issuance of the Engineering Compliance Agreement a stormwater connection permit must be obtained from CWS.

Water

The proposed site development plan indicate that a water service lateral shall be installed off the existing 12-inch diameter public water mainline located on the north side of SW Oregon Street, and extended on-site through the 50-foot wide private access and utility easement. No extension of a public water mainline is required.

CONDITION: Prior to Approval of Public Improvement Plans, the plans shall include private water service lateral details for domestic water, landscaping irrigation, and fire water systems, and shall include appropriate meter set and reduced pressure backflow prevention details meeting city and TVF&R standards.

CONDITION: Prior to Approval of Public Improvement Plans, applicant shall provide water flow calculations for domestic, fire and irrigation water usage.

~~**CONDITION:** Prior to Issuance of Grant of Occupancy, private water lines shall be designed and installed in compliance with current Oregon Plumbing Specialty Code.~~

Grading and Erosion Control

City policy requires that prior to grading, a permit is obtained from the Building Department for all grading on the private portion of the site.

The Engineering Department requires a grading permit for all areas graded as part of the public improvements. The Engineering permit for grading of the public improvements is reviewed, approved and released as part of the public improvement plans.

An erosion control plan and permit is required from the City of Sherwood Engineering Department for all public and private improvements. The erosion control permit is reviewed, approved and released as part of the public improvement plans.

CONDITION: Prior to Issuance of an Engineering Compliance Agreement, applicant is required to obtain a DEQ NPDES 1200-CN permit. This permit may be obtain by submittal through the City Building Department.

Other Engineering Conditions

~~**CONDITION:** Prior to issuance of any building permits, the developer shall execute an Engineering Compliance Agreement for the public improvements related to the project.~~

~~**CONDITION:** Prior to Grant of Occupancy, final acceptance of the constructed public improvements shall be obtained from the Engineering Department.~~

~~**CONDITION:** Prior to Issuance of an Engineering Compliance Agreement, final engineering plan approval by the Engineering Department is required.~~

CONDITION: Per City of Sherwood standards, all new utilities shall be placed underground.

CONDITION: Prior to Grant of Occupancy for the building, Sherwood Broadband utilities (vaults and conduit) shall be installed along the subject properties frontage per requirements set forth in City Ordinance 2005-017 and City Resolution 2005-074.

From: [PUGH Mark * DEQ](#)
To: [Eric Rutledge](#)
Subject: RE: Frontier Leather Site
Date: Wednesday, August 17, 2022 8:33:29 AM
Attachments: [image001.png](#)
[2008 Easement and Equitable Servitudes-Pacific III LLC.pdf](#)
[FACT Sheet Tax Lot 500 600 700 Site Status UpdateFINAL.pdf](#)

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you are expecting this email and/or know the content is safe.

Your attachments have been security checked by Mimecast Attachment Protection. Files where no threat or malware was detected are attached.

Hi Eric,

Thanks for coordinating. They failed to note that there is an Easement and Equitable Servitudes (ESS) recorded on the deed for these lots that dictates what environmental controls are required (see attached). This goes along with the NFA. One requirement is that DEQ is to be notified when property ownership changes. This was not done by the two previous owners so technically they are out of compliance with the EES.

Also attached is a Fact Sheet that summarizes environmental conditions and restrictions that must be followed during development. The most significant is that any soil removed from the site needs to go to a permitted landfill and is not acceptable for use as clean fill. It can be reused on site property. This should be specifically noted in their plan or in the City approval. The other restrictions are no groundwater use and no agricultural land use, which don't seem to be an issue for their development.

TL501 was managed as part of TL500 (which then changed to 700) so it is fine. I note the utility easement on adjacent TL800. The EES and same rules apply for TL800.

Let me know if you need any additional information. Thanks again!

From: Eric Rutledge <RutledgeE@SherwoodOregon.gov>
Sent: Tuesday, August 16, 2022 8:57 PM
To: PUGH Mark * DEQ <Mark.PUGH@deq.oregon.gov>
Subject: Frontier Leather Site

Hi Mark,

The City of Sherwood is processing an application for an industrial development on the former Frontier Leather site. We received the attached information from the applicant (DEQ NFA). Development will occur on all three lots shown on the second attachment (Tax Map) – either for the site, site driveway access, or frontage improvements. I wanted to confirm that all of current Tax Lots 500, 600, and 700 have a NFA letter or can otherwise be developed?

The only issue I'm seeing is where the map in the "DEQ NFA" attachment references Tax Lot 501

which is now part of Tax Lot 700. The letters do not mention Tax Lot 501 as being cleaned up. The southern end of the lot is proposed to be dedicated and improved for right-of-way.

Full project proposal: <https://www.sherwoodoregon.gov/planning/project/lu-2022-017-sp-afp-systemsjb-mac>

Thanks,

Eric Rutledge
City of Sherwood
Associate Planner
rutledgee@sherwoodoregon.gov
Desk 503.625.4242
Work Cell 971.979.2315



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Site Status Update, Tax Lots 500, 600, 700, SW Oregon Street, Sherwood, Oregon



State of Oregon
Department of
Environmental
Quality

Purpose

The purpose of this fact sheet is to provide a summary of environmental cleanup completed at the subject properties, restrictions on site use, and obligations for potential purchasers of the properties for development.

Summary

Tax lots 500, 600, 700, and 800, collectively known as the site, were once the location of a leather tannery that operated from 1947 to 1998. A series of cleanup actions have taken place across the site to remediate contamination. There are also restrictions regarding use of the site in accordance with the level of remediation that has taken place. Tax lots 500, 600, and 700 are vacant and ready for light industrial or commercial redevelopment. Tax lot 800 has been redeveloped for light industrial use under DEQ oversight.

Site Description

Tax lots 500, 600 and 700 are identified in Washington County records as tax lots 2S129DC00500, 2S129DC00600, and 2S129DC00700, respectively.



Site History

While the leather tannery was in operation from 1947 to 1998, the main features included the main tannery building and associated water treatment plant (on tax lot 800) and a hide storage building (on tax lot 500). During tannery operations undesirable hides and other tannery waste were landfilled on tax lot 600 and land further east.

From 1956 to 1972 a portion of tax lot 500 was leased to a battery manufacturer that reclaimed lead from used batteries. Empty battery casings were stockpiled and eventually included an estimated 300,000 casings. In the early 1960s, a fire consumed the casings. High

concentrations of lead subsequently were detected in the residual ash and underlying soil. In the early 1990s an initial cleanup by a previous owner removed about 750 tons of lead-contaminated soil.

On Jan. 31, 2002, DEQ entered into a Prospective Purchaser Agreement with Pacific III LLC for investigation and cleanup of the site. The PPA is recorded on the deed and runs with the land. The PPA restricts groundwater use, residential development unless approved by DEQ, and agricultural use.

DEQ Testing in 2014

Because of regulatory changes to hexavalent chromium standards for human health, DEQ conducted soil sampling in Sept. 2014 to complete an updated risk evaluation. The testing showed that the site is protective for commercial or industrial development. Site conditions are not presently suitable for residential development without additional investigation and/or remedial action.

Site Cleanup

Tax Lot 500

Between January 2003 and March 2004, about 3,000 tons of lead-contaminated soil was removed from tax lot 500 and disposed off-site at the Hillsboro Landfill. Lead dust was removed from the interior of the hide storage building and it was demolished in July 2004. Elevated levels of arsenic also were found in soil, and an additional 800 tons of soil scraped from the upper 8- to 10-inches of soil around the former building on tax lot 500. Approximately 400 tons of this soil was sent to the landfill, and 400 tons was placed on tax lot 800 and capped with three feet of clean soil.

Testing of remaining soil showed the property was safe for industrial/commercial use. DEQ determined environmental work was complete and issued a no further action determination for tax lot 500 on November 2, 2004. As a condition of this determination, coordination with DEQ is required should future utilities transect adjacent property to the east of tax lot 600.

DEQ Northwest Region
700 NE Multnomah St., Suite
600
Portland, OR 97232
Phone: 503-229-5696
800-452-4011
Fax: 503-229-6762
Contact: Mark Pugh
www.oregon.gov/DEQ

DEQ is a leader in restoring, maintaining and enhancing the quality of Oregon's air, land and water.

Tax Lot 600 and 700

Tannery waste from the disposed undesirable hides and the associated soil contained elevated chromium concentrations. From Sept. 9 through Nov. 11, 2002, approximately 2,200 tons of hides and associated soil were removed from tax lot 600. Hides were not present on tax lot 700. Testing of remaining soil showed the property was protective of workers for industrial and commercial uses. DEQ determined environmental work was complete and issued a no further action determination on Oct. 3, 2005.

Tax lots 500, 600, 700 are vacant. Tax lot 800 has been redeveloped for light industrial use under DEQ oversight.

DEQ Requirements for Future Development

No additional testing, cleanup or DEQ oversight is needed at tax lots 500, 600 or 700 provided that:

- 1) They are developed for commercial, light industrial or industrial use as allowed under site zoning.
- 2) If any soil, crushed rock, or other non-organic material is removed from the site property, it will be disposed of at an appropriate landfill approved by the DEQ. Material could also be tested to evaluate whether other disposal options, such for use as construction fill, are appropriate.

This is required due to elevated concentrations of chromium in the soil that do not present a concern for site workers, but cannot be taken off-site and used as “clean fill” at other properties. Removed soil would need to go to a landfill unless tests show that it meets clean fill standards for unrestricted use. Soil can, however, be re-used on site.

Additionally, if trees, shrubs, stumps or other organic material generated during the process of clearing a lot is to be moved off-site, it can be taken to a composting facility provided associated soil is separated to the extent practical prior to transport. This would require mechanical shaking and sieving to separate out the organics to be composted. Soil must be deposited of separately.

As described above, the PPA runs with the site and the restrictions on groundwater use, residential development, and agricultural use remain in effect.

Alternative formats

Documents can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request a document in another format or language, call DEQ in Portland at 503-229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696; or email deqinfo@deq.state.or.us.

Washington County, Oregon
04/03/2008 01:14:45 PM 2008-029679
D-E Cnt=1 Str=20 RECORDS1
\$40.00 \$5.00 \$11.00 \$20.00 - Total = \$76.00



01235053200800296790080085

I, Richard Hobemicht, Director of Assessment and Taxation and Ex-Officio County Clerk for Washington County, Oregon, do hereby certify that the within instrument of writing was received and recorded in the book of records of said county.
Richard Hobemicht, Director of Assessment and Taxation, Ex-Officio County Clerk



46
S
11
20NS

After Recording, return to:
Security Title Guaranty Co.

Space above this line for Recorder's Use

After recording, return certified copies to:

Grantor
Pacific III, LLC
Mr. Patrick Lucas
20512 SW Roy Rogers Rd.
Suite 150
Sherwood, OR 97140

Grantee
Oregon DEQ
2020 SW 4th Avenue, Suite 400
Portland, Oregon 972010
Attention: Mark Pugh

EASEMENT AND EQUITABLE SERVITUDE

This grant of Easement and acceptance of Equitable Servitude is made April 2, 2008, between Pacific III LLC ("Grantor") and the State of Oregon, acting by and through the Oregon Department of Environmental Quality ("DEQ" or "Grantee").

RECITALS

A. Grantor is the owner of certain real property located in Section 28C of Township 2 North, 1 West of the Willamette Meridian within Washington County, identified as tax lot (TL) 1100 with a street address of 15104 SW Oregon Street (formerly 1210 NE Oregon Street) in Sherwood, Oregon (the "Property"). The Property is shown on Attachment A to this Easement and Equitable Servitudes, and more particularly described by the City of Sherwood as tax lot ID #2S129D001100, with a legal description of Parcel 3, PARTITION PLAT No. 2003-030, in the City of Sherwood, County of Washington and State of Oregon. The Property is referenced under the name Frontier Leather PPA, ECSI #116 in the files of the Oregon Department of Environmental Quality (DEQ) Environmental Cleanup Program at the Northwest Region office located at 2020 SW 4th Avenue, Suite 400 Portland, Oregon 97201.

B. In January 31, 2002, DEQ entered into a Prospective Purchaser Agreement (PPA) with Pacific III LLC (Pacific) for investigation and cleanup of TLs 400 (now TL 900, 1000 and 1100) and 500 that contained the main operational areas of the Frontier Leather Site. DEQ previously issued NFA determinations for TL 500 in November 2004, and TL 900 and TL 1000 in October 2005.

Elements of the PPA specific to TL 1100 included: assessing the extent of contaminated soil beneath and around the tannery building, waste water treatment pits, former

underground storage tank area, appropriate disposition of tannery demolition debris, and removing contaminated soil as needed to meet protective standards.

The PPA also required a groundwater investigation of TL 400, although under terms of the PPA Pacific III was not held responsible for remedial action if needed. The groundwater investigation task was approved by DEQ prior to issuance of the NFA for TL 900 and TL 1000.

The PPA prevents future use of groundwater for water supply purposes, precludes residential development without written approval from DEQ, and prohibits agricultural use of any kind. These restrictions are incorporated into this E&ES as described below.

DEQ has prepared a Staff Memorandum, dated February 26, 2008, that summarizes the results of the site investigations, remedial actions, human health risk screening, and residual risks posed by contamination remaining at the Property. It also identifies appropriate institutional and engineering controls to ensure that any residual risk is managed to an acceptable risk level.

C. On March 3, 2008, DEQ issued a public notice of its preliminary decision to issue a conditional No Further Action (NFA) remedial action decision for the site. No public comments were received on DEQ's proposed remedial action decision. Among other things, the conditional NFA decision requires the institutional and engineering controls that are set forth in Section 3 of this E&ES.

D. The provisions of this E&ES are intended to further the implementation of the selected remedial action and thereby protect human health and the environment.

1. DEFINITIONS

- 1.1 "Acceptable risk level" has the meaning set forth in Oregon Revised Statute (ORS) 465.315 and Oregon Administrative Rule (OAR) 340-122-0115.
- 1.2 "Beneficial use" has the meaning set forth in OAR 340-122-0115.
- 1.3 "DEQ" means the Oregon Department of Environmental Quality, and its employees, agents, and authorized representatives. "DEQ" also means any successor or assign of DEQ under the laws of Oregon, including but not limited to any entity or instrumentality of the State of Oregon authorized to perform any of the functions or to exercise any of the powers currently performed or exercised by DEQ.
- 1.4 "Ecological receptor" has the meaning set forth in OAR 340-122-0115.
- 1.5 "Engineering control" has the meaning set forth in OAR 340-122-0115.
- 1.6 "Hazardous substance" has the meaning set forth in ORS 465.200
- 1.7 "Owner" means any person or entity, including Grantor, who at any time owns, occupies, or acquires any right, title, or interest in or to any portion of the Property or a vendee's interest of record to any portion of the

Property, including any successor, heir, assign or holder of title or a vendee's interest of record to any portion of the Property, excluding any entity or person who holds such interest solely for the security for the payment of an obligation and does not possess or control use of the Property.

- 1.8 "Property" means the real property described in Section A under RECITALS (see above) and shown on Attachment A to this E&ES.

2. GENERAL DECLARATION

Grantor, in consideration of Grantee's approval of the Prospective Purchaser Agreement described above, grants to DEQ an Easement for access and accepts the Equitable Servitude described in this instrument and, in so doing, declares that the Property illustrated in Attachment A to this E&ES, is now subject to and shall in the future be conveyed, transferred, leased, encumbered, occupied, built upon, or otherwise used or improved, in whole or in part, subject to this Easement and Equitable Servitude. Each condition and restriction set forth in this Easement and Equitable Servitude touches and concerns the Property and the equitable servitude granted in Section 3 and easement granted in Section 4 below, shall run with the land for all purposes, shall be binding upon all current and future owners of the Property as set forth in this Easement and Equitable Servitude, and shall inure to the benefit of the State of Oregon. Grantor further conveys to DEQ the perpetual right to enforce the conditions and restrictions set forth in this Easement and Equitable Servitude.

3. EQUITABLE SERVITUDE (RESTRICTIONS ON USE)

3.1 **Soil Cap Engineering Control Use Restrictions:** With DEQ approval, soil containing concentrations of arsenic above human health risk-based concentrations and expected naturally occurring concentrations were entombed at two locations and capped with a minimum of 3 feet of clean fill. A total of 200 cubic yards of soil was placed in the treatment pits, and approximately 30 cubic yards was placed in the UST removal excavation. Attachment A shows the location of these areas where maintenance of a cap is required to ensure these areas are not disturbed. The latitude and longitude coordinates defining these areas also are shown on Attachment A.

Except upon prior written approval from DEQ, Owner shall not conduct operations on the Property or use the Property in any way that will or likely will penetrate the soil cap (i.e., existing site pavement, gravel and structures) in those areas noted on Attachment A or jeopardize the soil cap's protective function as an engineering control that prevents exposure to contaminated soil, including without limitation any excavation, drilling, scraping, or erosion. In the event the Owner desires to develop the site or conduct activities that could affect the cap integrity, a site development plan will be required that describes the intended activity, the impacts to the protective cap, and how the cap will be restored to ensure protective site conditions. Any soil excavated or otherwise disturbed,

whether currently located beneath a cap or not, shall be characterized, managed and disposed in accordance with a DEQ-approved Soil Management Plan (SMP) that also will be recorded on the property deed.

3.2 Groundwater Use Restrictions: Owner shall not extract through wells or by other means or use the groundwater at the Property for consumption or other beneficial use, as long as the contaminant concentrations exceed risk-based cleanup levels for such use. This prohibition shall not apply to extraction of groundwater associated with groundwater treatment or monitoring activities approved by DEQ or to temporary dewatering activities related to construction, development, or the installation of sewer or utilities at the Property. Owner shall properly characterize and manage any groundwater that is generated during such monitoring, treatment, or dewatering activities, and shall handle, store and manage waste water according to applicable laws. Owner may request that DEQ remove or limit the groundwater use restriction by demonstrating to DEQ's satisfaction (1) that contaminant concentrations no longer exceed risk-based levels for the beneficial use, or (2) that full or partial removal of restrictions will not pose an unacceptable risk to human health or the environment. Such demonstration may include, but is not limited to, site-specific modeling and/or sampling and analysis.

3.3 Land Use Restrictions: The following operations and uses are prohibited on the Property:

- a. Residential use of any type
- b. Agricultural use of any type.

3.4 Use of the Property. Owner shall not occupy or allow other parties to occupy the Property unless the controls listed in this Paragraph 3 are maintained. Reports, including photo-documentation, as applicable, shall be submitted to DEQ documenting that the restrictions and prohibitions of this Easement and Equitable Servitude are intact and continue to protect public health and the environment. The reports shall be submitted annually for the first 10 years after completion of source control measures, and every five years thereafter.

3.5 Notice of Transfer. Owner shall notify DEQ on or before the effective date (generally the closing date) of any conveyance, grant, gift, or other transfer, in whole or in part, of Owner's interest in or occupancy of the Property. Owner may, but is not required to, provide such notice before the effective date of any conveyance, grant, gift, or other transfer. If Owner elects to do so, Owner may assert a claim of confidentiality under the Oregon Public Records Law with respect to documents submitted with its notice. Upon written request by Owner, DEQ will treat documents for which a claim of confidentiality had been made in accordance with ORS 192.410 through 192.505 until the effective date of the conveyance, grant, gift, or other transfer. Owner shall also notify DEQ at least 10 days before the start of any development activities or change in use of the Property that might expose human or ecological receptors to hazardous substances at the Property. Notwithstanding the foregoing, Owner shall not commence any

development inconsistent with the conditions or restrictions in this Paragraph 3 without prior written approval from DEQ as provided in Paragraph 3.1 or removal of the condition or restriction as provided in Paragraph 5.1 below.

3.6 Zoning Changes. Owner shall notify DEQ no less than thirty (30) days before petitioning for or filing of any document initiating a rezoning of the Property that would change the base zone of the Property under the Multnomah County zoning code or any successor code. As of the date of this Easement and Equitable Servitude, the base zone of the Property is IHIS. The IHIS zone is intended to provide for heavy industrial uses. The "is" denotes River Industrial Greenway and Scenic zoning overlays. The greenway overlay is to implement the land uses identified in the Willamette Greenway Plan and the water quality requirements of Metro to the extent they are applicable. The purpose of the scenic overlay is to protect Portland's significant scenic resources to the extent they are applicable.

3.7 Cost Recovery. Owner shall pay DEQ's costs for review and oversight of implementation of and compliance with the provisions in this E&ES. This E&ES shall constitute the binding agreement by the Owner and DEQ to reimburse DEQ for all such eligible review and oversight costs. These costs may include, but is not limited to, DEQ costs incurred for review of site development or SMPs and related oversight activities. As needed DEQ will establish a cost recovery account for tracking and invoicing DEQ project costs. DEQ will provide Owner with a monthly statement and direct labor summary. DEQ costs will include direct and indirect costs. Direct costs include site-specific expenses and legal costs. Indirect costs are those general management and support costs of the State of Oregon and DEQ allocable to DEQ oversight of this E&ES and not charged as direct site-specific costs. Indirect charges are based on actual costs and are applied as a percentage of direct personal services costs.

4. EASEMENT (RIGHT OF ENTRY)

During reasonable hours and subject to reasonable security requirements, DEQ shall have the right to enter upon and inspect any portion of the Property to determine whether the requirements of this Easement and Equitable Servitude have been or are being complied with. DEQ shall have the right, privilege, and license to enter upon the Property at any time to abate, mitigate, or cure at the expense of the Owner the violation of any condition or restriction contained in this Easement and Equitable Servitude, provided DEQ first gives written notice of the violation to Owner describing what is necessary to correct the violation and Owner fails to cure the violation within the time specified in such notice, which time to cure shall equal or exceed fourteen (14) days. Any such entry by DEQ shall not be deemed a trespass, and DEQ shall not be subject to liability to Owner for such entry and any action taken to abate, mitigate, or cure a violation.

5. GENERAL PROVISIONS

5.1 Each condition and restriction contained in this Easement and Equitable Servitude shall be recited in any deed conveying the Property or any portion of the Property, and shall run with the land so burdened until such time as the condition or restriction is removed by written certification from DEQ, recorded in the Deed Records of the County in which the Property is located, certifying that the condition or restriction is no longer required in order to protect human health or the environment.

5.2 Upon the recording of this Easement and Equitable Servitude, all future Owners, as defined above, shall be conclusively deemed to have consented and agreed to every condition and restriction contained in this Easement and Equitable Servitude, whether or not any reference to this Easement and Equitable Servitude is contained in an instrument by which such person or entity occupies or acquires an interest in the Property.

5.3 Upon any violation of any condition or restriction contained in this Easement and Equitable Servitude, DEQ, in addition to the source control measures described above, may enforce this Easement and Equitable Servitude as provided in the Consent Judgment, or may seek any other available legal or equitable remedy to enforce this Easement and Equitable Servitude.

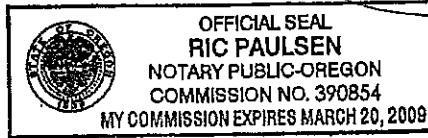
IN WITNESS WHEREOF Grantor and Grantee have executed this Easement and Equitable Servitude as of the date and year first set forth above.

GRANTOR: Pacific III LLC

By: [Signature] Date: 4-3-08
Patrick Lucas, Pacific III LLC

STATE OF OREGON)
County of Washington) ss.

The foregoing instrument is acknowledged before me this 3rd day of April, 2008, by Patrick Lucas, Pacific III LLC on its behalf.



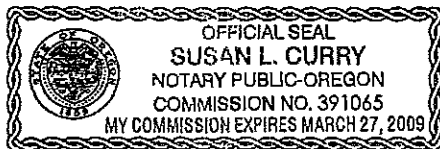
[Signature]
NOTARY PUBLIC FOR OREGON
My commission expires: March 20, 2009

GRANTEE: State of Oregon, Department of Environmental Quality

By: [Signature] Date: April 2, 2008
Nina DeConcini, Administrator, Northwest Region

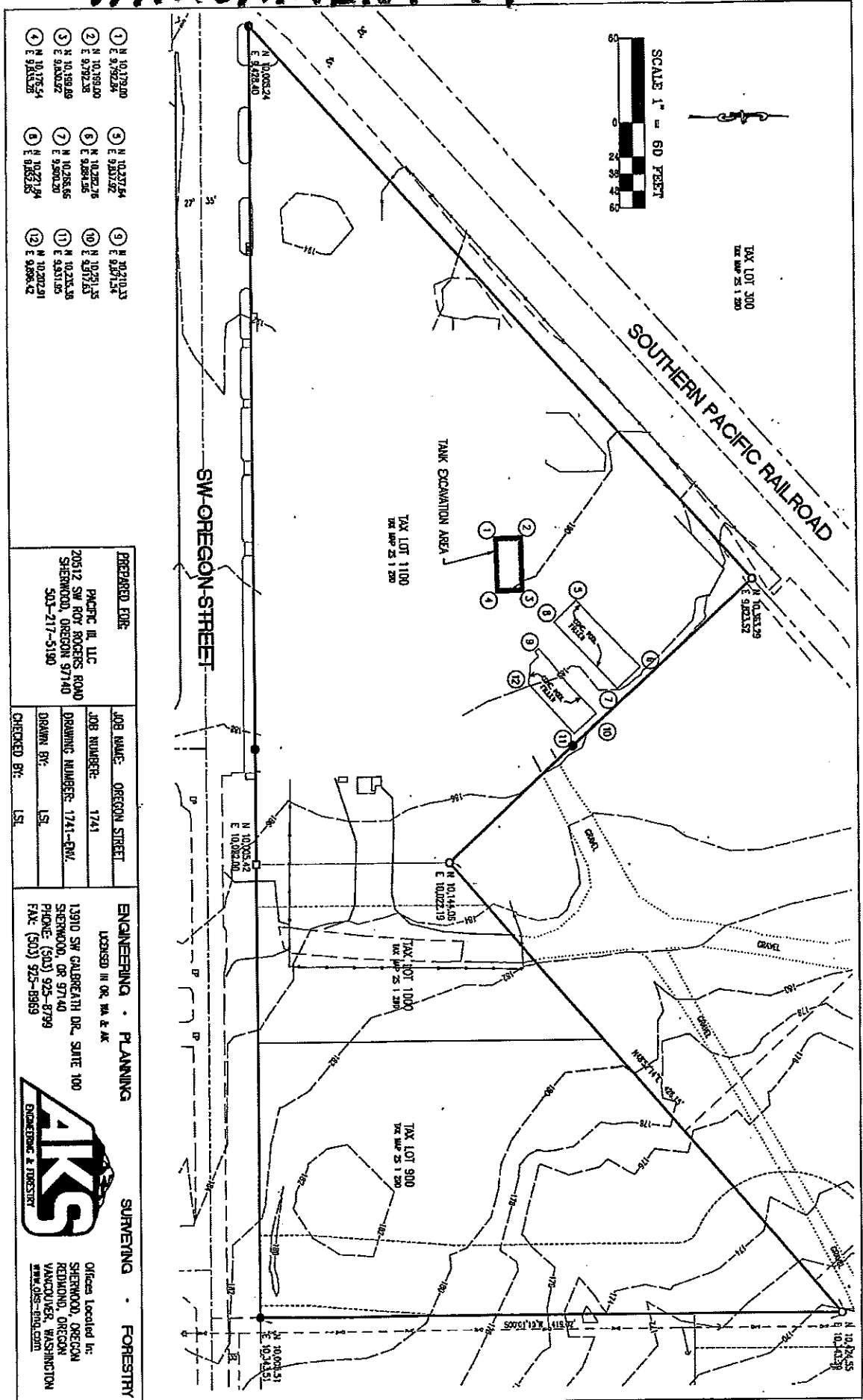
STATE OF OREGON)
County of Multnomah) ss.

The foregoing instrument is acknowledged before me this 2 day of April, 2008, by Nina DeConcini, Administrator of the Oregon Department of Environmental Quality, Northwest Region, on its behalf.



[Signature]
NOTARY PUBLIC FOR OREGON
My commission expires: Mar 27, 2009

ATTACHMENT A



- ① N 10.179.00
E 9.792.28
- ② N 10.189.00
E 9.292.28
- ③ N 10.189.00
E 9.808.22
- ④ N 10.175.54
E 9.843.25
- ⑤ N 10.237.54
E 9.801.22
- ⑥ N 10.237.56
E 9.808.25
- ⑦ N 10.238.56
E 9.800.20
- ⑧ N 10.271.54
E 9.162.25
- ⑨ N 10.210.33
E 9.871.24
- ⑩ N 10.251.35
E 9.172.23
- ⑪ N 10.233.38
E 9.831.23
- ⑫ N 10.202.91
E 9.898.42

<p>PREPARED EDGE:</p> <p>PACIFIC RL. LLC 20512 SW ROY ROGERS ROAD SHERWOOD, OREGON 97140 503-217-5190</p>	<p>JOB NAME: OREGON STREET</p> <p>JOB NUMBER: 1741</p> <p>DRAWING NUMBER: 1741-ENV</p> <p>DRAWN BY: LST</p> <p>CHECKED BY: LST</p>	<p>ENGINEERING • PLANNING</p> <p>LICENSED IN OR, WA & AK</p> <p>13910 SW GALBREATH DR., SUITE 100 SHERWOOD, OR 97140 PHONE: (503) 925-8799 FAX: (503) 925-8969</p>	<p>SURVEYING • FORESTRY</p> <p>Offices Located In: SHERWOOD, OREGON REDMOND, OREGON VANCOUVER, WASHINGTON WWW.AKS-ENGINEERING.COM</p>
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From: [MARTIN Carrie A](#)
To: [Eric Rutledge](#)
Cc: jsims@gwrr.com
Subject: FW: LU 2022-017 SP - AFP Systems / JB MAC - Opportunity to Comment
Date: Wednesday, August 10, 2022 12:16:42 PM
Attachments: [We sent you safe versions of your files.msg](#)
[LU 2022-017 Public Notice.pdf](#)
[Fence details.pdf](#)

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you are expecting this email and/or know the content is safe.

Mimecast Attachment Protection has deemed this file to be safe, but always exercise caution when opening files.

Hello,

Thank you for the opportunity to review this development which is directly adjacent to the rail tracks 14843 SW Oregon St. in Sherwood. Please install fencing on the developers property for the safety of the public to separate the rail tracks from private property with no gates for access. See attached fencing drawing.

It also looks like there might be a swale built near the tracks. Please ensure water collected is not released onto railroad property as this may damage the tracks, ballast, ties.

While reviewing the documents and links to documents we saw there was a zero setback. While the building is not at a zero setback currently, having a zero setback in general may cause trespassing on railroad property and could cause a risk to the safety of the public if something were to be eventually built on the developers property. Please provide a setback so that the developer can maintain and build on their own property in a safe manor from the railroad tracks.

Thank you,

Carrie Martin

ODOT Rail
Crossing Compliance Specialist
Carrie.A.Martin@odot.oregon.gov
(Cell) 971-719-0906

From: Eric Rutledge <RutledgeE@SherwoodOregon.gov>
Sent: Tuesday, August 9, 2022 2:10 PM
To: Eric Rutledge <RutledgeE@SherwoodOregon.gov>
Subject: LU 2022-017 SP - AFP Systems / JB MAC - Opportunity to Comment

This message was sent from outside the organization. Treat attachments, links and requests with caution. Be conscious of the information you share if you respond.

Hi Agency Partners:

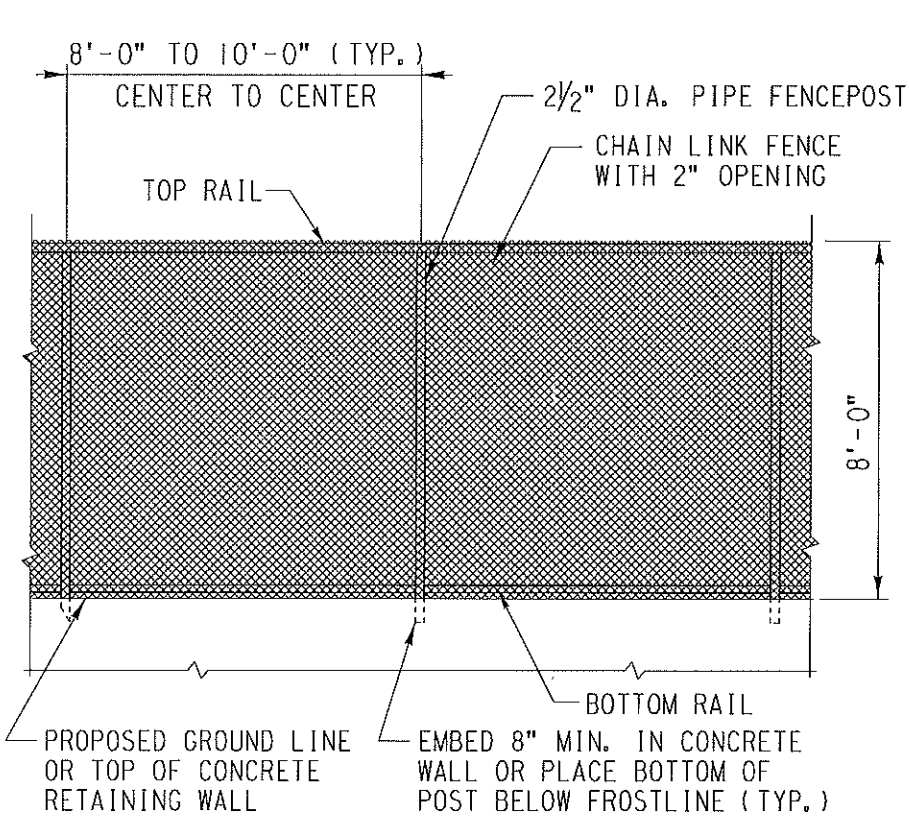
The City of Sherwood Planning Department is requesting agency comments on the following land use application:

- **Proposal:** The applicant is proposing a new 20,000 SF industrial building and associated site improvements on a 4.0-acre site located on the north side of SW Oregon St. The property is zoned Light Industrial and is currently vacant. Access to the site is proposed from a new driveway located opposite of SW Lower Roy St. The site will be occupied by AFP Systems for manufacturing and storing fire sprinkler products. Approximately 5,000 SF of the building will be used as office space for the company.
- **Location:** 14843 SW Oregon St.
- **Comment Deadline:** Tues August 23, 2022 for consideration in the staff report
- **Hearing Date:** Hybrid In-Person / Virtual Sherwood Hearings Officer on September 1, 2022 at 6pm. Agencies impacted by the proposal are welcome to participate.
- **Applicable code criteria:** SZCDC Chapter 16.31 Industrial Land Use Districts; Chapter 16.58 Vision Clearance and Fence Standard; Chapter 16.72 Procedures for Processing Development Permits; Chapter 16.90 Site Planning; Chapter 16.92 Landscaping; Chapter 16.94 Off-Street Parking and Loading; Chapter 16.96 On-Site Circulation; Chapter 16.98 On-Site Storage; Chapter 16.106 Transportation Facilities; Chapter 16.108 Improvement Plan Review; Chapter 16.110 Sanitary Sewers; Chapter 16.112 Water Supply; Chapter 16.114 Storm Water; Chapter 16.116 Fire Protection; Chapter 16.118 Public and Private Utilities; Chapter 16.142 Parks, Trees, and Open Spaces; Chapter 16.144 Wetland, Habitat, Natural Areas; Chapter 16.146 Noise; Chapter 16.148 Vibrations; Chapter 16.150 Air Quality; Chapter 16.152 Odors; Chapter 16.154 Heat and Glare; Chapter 16.156 Energy Conservation
- **Application materials (City website):** <https://www.sherwoodoregon.gov/planning/project/lu-2022-017-sp-afp-systemsjb-mac>

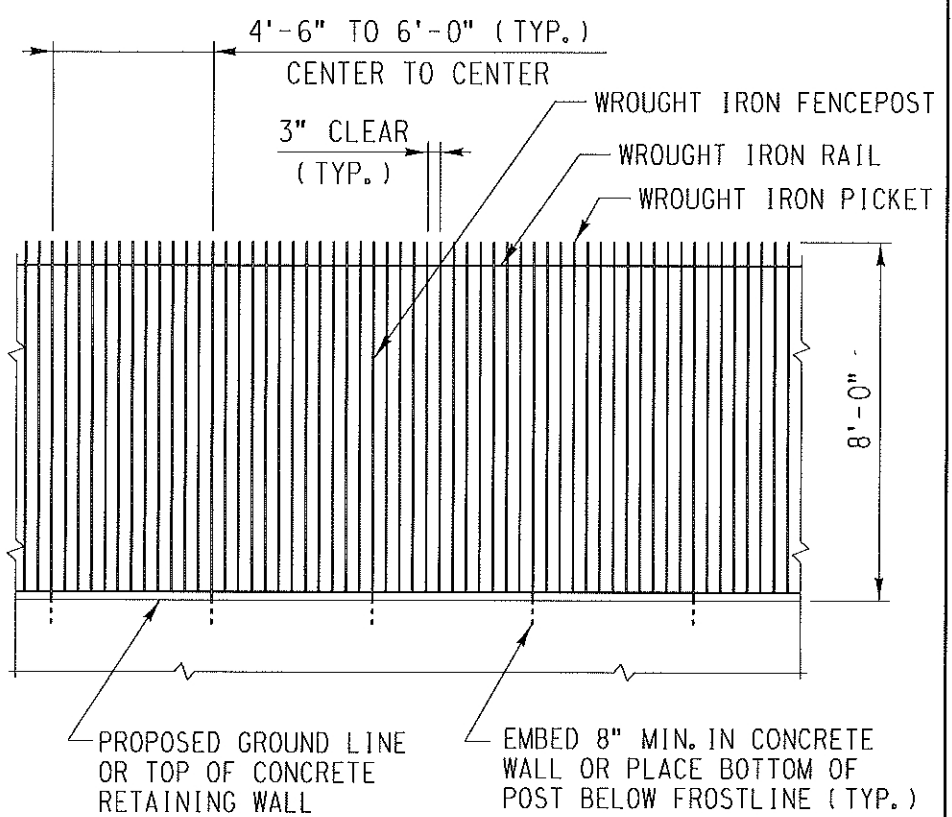
Eric Rutledge
City of Sherwood
Associate Planner
rutledgee@sherwoodoregon.gov
Desk 503.625.4242
Work Cell 971.979.2315



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CHAIN LINK FENCE



WROUGHT IRON PICKET FENCE

FENCE ELEVATION

SCALE: $\frac{3}{16}'' = 1'-0''$

FILE NAME: P:\ustation\dgn\std\pp-guidelines.dgn



REVISIONS		
DATE	LTR.	DESCRIPTION
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/		

DESIGN BY: RAF DRAWN BY: FJS CHECKED BY: KHJ

APPROVED:

K.H. Jennison
BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN

George J. Moyn
UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN

BRIDGE STANDARDS
RIGHT-OF-WAY FENCING

FENCE DETAILS

FILE OWNER: UPRR DATE: 1/24/07
PLAN NO.: 711000 SHEET: 1

PLOTTED: 3/30/2007 2:53:20 PM

LAND USE REVIEW

Contact	Agency	E-Mail
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Tri-Met Development Review	Trimet	DevelopmentReview@trimet.org
Rebecca Smalls	Metro	
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Jill Hendrickson	ODOT Signage	Jill.M.HENDRICKSON@odot.state.or.us
ODOT Region 1 Review	ODOT	ODOT_R1_DevRev@odot.state.or.us
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Bryan Robb	WA CO LRP	Bryan_Robb@co.washington.or.us
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Brad Crawford	Sherwood Broadband	CrawfordB@sherwoodoregon.gov
Richard Sattler	Public Works	sattlerr@sherwoodoregon.gov

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Andy Stirling	Sherwood Engineering	stirlinga@sherwoodoregon.gov
Colleen Resch	Planning	reschc@sherwoodoregon.gov
Scott McKie	Building	Mckies@sherwoodoregon.gov
Ty Hanlon	Sherwood Police	hanlont@sherwoodoregon.gov
Jon Carlson	Sherwood Police	CarlsonJ@SherwoodOregon.gov
Hoon Choe	Postmaster	hoon.choe@USPS.gov
Land Use Notice	Oregon Department of Geology & Mineral Industries	mlrr.info@oregon.gov