CITY OF ST. HELENS PLANNING DEPARTMENT
STAFF REPORT
Appeal AP.2.23 [Conditional Use Permit CUP.4.23
Sensitive Lands Permits SL.4.23 (floodplain) and SL.5.23 (wetlands)
Sign Permit S.14.23]

DATE: October 11, 2023
TO: City Council
FROM: Jacob A. Graichen, AICP, City Planner

APPLICANT: City of St. Helens
OWNER: same as applicant

ZONING: The site is predominately zoned Light Industrial, LI, with a small portion of General Residential, R5 along Old Portland Road
LOCATION: 4N1W-9AB-1500; east corner of the Old Portland Road/Kaster Road (S. 18th Street) intersection
PROPOSAL: New police station on undeveloped property

SITE INFORMATION / BACKGROUND

This is an appeal of the Planning Commission's unanimous denial of the applications listed herein. The Planning Commission held a public hearing on this matter on September 12, 2023. The City Administrator has appealed the denial. The City Council is the appellant authority.

PUBLIC HEARING & NOTICE

Public hearing before the City Council: October 18, 2023

Notice of this appealed proposal was sent to surrounding property owners within 300 feet of the subject property on September 28, 2023 via first class mail. Notice was sent to agencies by mail or e-mail on the same date.

Notice was published on October 4, 2023 in The Chronicle newspaper.

APPLICABLE CRITERIA, ANALYSIS & FINDINGS

Important: this report is not a stand-alone document and is meant to be reviewed with the original decision and other documents in the record.

The Planning Commission denied this proposal based on:

- SHMC 17.40.040(1) regarding significant wetland protection zone impacts.
- SHMC 17.46.050(6) regarding critical facilities in flood hazard areas.
- SHMC 17.100.040(1)(b) regarding Conditional Use Permit criterion:

The characteristics of the site are suitable for the proposed use considering size, shape, location, topography, and natural features.

- SHMC 17.100.040(1)(f) regarding Conditional Use Permit criterion:

The use will comply with the applicable policies of the comprehensive plan.

The details can be found in the Findings and Conclusions document (attached).

These issues are summarized as follows:

- **SHMC 17.40.040(1) regarding significant wetland protection zone impacts**.

Some wetland protection zone is impacted by the second access to the east, which is necessary given flood-prone areas and requirements that critical facilities such as police stations have elevated access. In this case, the second access avoids mapped flood areas.

These impacts can be justified if placement of a critical facility, such as a police station at this location, is justified (approved). A use that is not a critical facility does not need a second access and the protection impacts would not be necessary. Staff thinks this can be met as long as the Council concurs with all other issues and can approve the proposal.

- **SHMC 17.46.050(6) regarding critical facilities in flood hazard areas**.

In flood areas, critical facility uses, such as police stations, have a higher bar of scrutiny. There are several questions related to this which include:

  - Critical *facilities* shall be permissible within the 100-year flood area only if no feasible alternative exists. The *building* itself is generally outside of the 100-year flood, but portions of the site are within, and access is impacted, which is why a secondary access is proposed to enable avoiding flooded streets.

    "Structure" is defined by SHMC 17.46.020, specifically for floodplain regulation purposes and that definition incudes "building." Much floodplain regulation focuses on structures. "Critical facility" is defined by example (e.g., police stations, schools, hospitals, etc.), but "facility" itself is not.

    "Facility" is a much broader consideration. For example, one of the Marriam-Webster definitions of "facility" is: "*something (such as a hospital) that is built, installed, or established to serve a particular purpose.*" Being broad in definition and that the building and related site improvements facilitates a police station's ability to serve the community (its overall purpose), the site's inclusion of floodplain necessitates alternatives analysis as basis for allowance of the use.

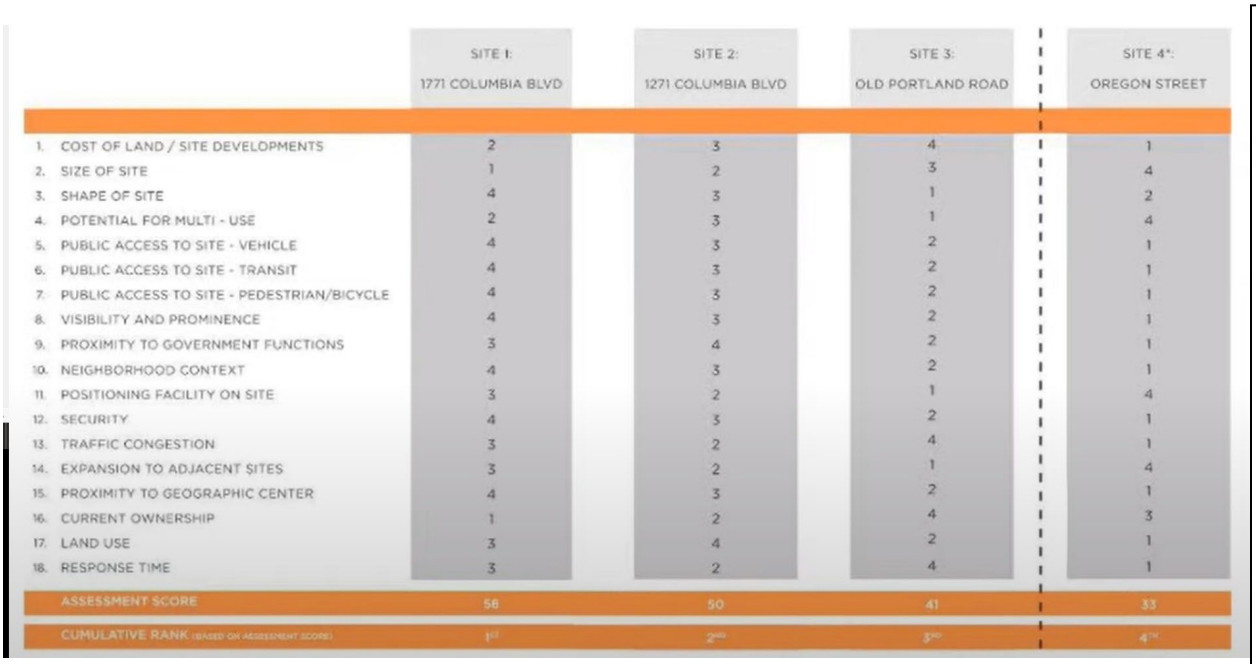
In other words, given site impact by floodwaters, it must be concluded that this site for the police station is superior to other potential sites to pass the alternatives test.

The Planning Commission was not convinced that this was met, including the site selection process.

The consultant firm who has assisted the city with this proposal including the site selection process, Mackenzie, included a brief description of the site selection process in the application narrative, though it is general in nature. It notes a scoring matrix but does not detail it.

However, this information was provided to the city previously. Attached to this report is an excerpt of the April 7, 2021 City Council Work Session packet that includes the 18 scoring criteria, a description of each, and the scoring results of potential properties for the police station now referred to as "Phase 2" of the selection process.

Note that the only criterion where natural hazards (or any hazards for that matter) are referenced is criterion #8. Floodplains are mentioned here but this is a *Visibility and Prominence* criterion and not really related to how hazards may impact public health, safety and welfare. The 18 scoring criteria were shown to the Planning Commission as a list as part of the staff presentation at their September 12, 2023 hearing, but the description of each, as attached, is new information for this appeal to help provide additional background information.



	SITE 1: 1771 COLUMBIA BLVD	SITE 2: 1271 COLUMBIA BLVD	SITE 3: OLD PORTLAND ROAD	SITE 4*: OREGON STREET
1. COST OF LAND / SITE DEVELOPMENTS	2	3	4	1
2. SIZE OF SITE	1	2	3	4
3. SHAPE OF SITE	4	3	1	2
4. POTENTIAL FOR MULTI - USE	2	3	1	4
5. PUBLIC ACCESS TO SITE - VEHICLE	4	3	2	1
6. PUBLIC ACCESS TO SITE - TRANSIT	4	3	2	1
7. PUBLIC ACCESS TO SITE - PEDESTRIAN/BICYCLE	4	3	2	1
8. VISIBILITY AND PROMINENCE	4	3	2	1
9. PROXIMITY TO GOVERNMENT FUNCTIONS	3	4	2	1
10. NEIGHBORHOOD CONTEXT	4	3	2	1
11. POSITIONING FACILITY ON SITE	3	2	1	4
12. SECURITY	4	3	2	1
13. TRAFFIC CONGESTION	3	2	4	1
14. EXPANSION TO ADJACENT SITES	3	2	1	4
15. PROXIMITY TO GEOGRAPHIC CENTER	4	3	2	1
16. CURRENT OWNERSHIP	1	2	4	3
17. LAND USE	3	4	2	1
18. RESPONSE TIME	3	2	4	1
ASSESSMENT SCORE	58	50	41	33
CUMULATIVE RANK (BASED ON ASSESSMENT SCORE)	1st	2nd	3rd	4th

Left: scoring as presented to the City Council at the April 7, 2021 Work Session.

A score of 1 is least suited and 4 is most suited.

The subject property is Site 3 listed here, ranked 3rd out of 4.

One potential finding the Council could make is that the reason for selecting the subject property for continued study over the other sites in contention, outweigh the potential impacts of flood events. As a reminder, the basis for selecting the subject property was 1) already city owned as a cost savings, 2/3) access advantages (no abutting one-way streets and ease of US30 access considering railroad blockages), and 4) ability to expand.

There is value emphasizing the ability to expand as a motive for selection of the subject property. Note that the original score that the subject property received for this was a 1 (lowest score, which means "least suited"). See score criteria #4 and 14. However, the original assumed area for this site was much smaller. As the site plan developed, expansion onto the southerly property became necessary. With inclusion of the additional property, there is now over an acre of practical expansion area along Kaster Road.

The only two other properties of the selection process that had comparable expansion area was the Millard Road property and 1810 Old Portland Road (Recreation Center) property. Neither the Millard Road nor 1810 Old Portland Road properties made it past Phase 1 of the selection process. The Millard Road property is on the edge of the city (illogical police station location) and 1810 Old Portland Road is much more encumbered by flood areas (unwise police station location). **No other property considered for this use can compete with the subject property as to its expansion area while meeting other aspects of importance for the police station**. Also note that the expansion area is almost entirely outside of both the 100- and 500-year mapped flood areas.

See attached exhibit comparing the boundary during site selection versus the expanded boundary that now constitutes the subject property.

- There is an elevation requirement for critical facilities if located in a 100-year flood area. The building itself is just outside the 100-year flood but is proposed to be elevated along with surrounding improvements as an extra risk mitigation measure. This elevation requirement applies to access too as an essential component of a police station critical facility. The secondary access avoids mapped flood areas and does not require elevating.

  The elevation issue itself was not a basis for denial but may help the Council find in favor of other issues. However, the Commission did express concern about the secondary access only being 20' wide and discussed widening it to 24 feet for more optimum use during an emergency, though, since they denied the proposal, did not make any formal conclusions about this. Note that 24' width is the normal requirement for two-way vehicular circulation within a property's boundary (i.e., not in the right-of-way) as well as a minimum pavement width for street accesses. See SHMC 17.80.050(3) and 17.84.080(1).

- The definition of critical facility per the city's floodplain policy includes language that states "*a facility for which even a slight chance of flooding might be too great.*" The Council needs to be able to conclude the chances of flooding are not too great in this case. The Council could find that the design including elevating the building and surrounding improvements even though such is not necessarily mandated by floodplain regulations and the secondary access to enable avoiding the more flood prone portion of the street network, offsets the risk of flooding.

- **SHMC 17.100.040(1)(b)** regarding the **Conditional Use Permit (CUP) criterion** that asks the decision maker if the characteristics of the site are suitable for the proposed use considering size, shape, location, topography, and natural features. Basically, this criterion asks the decision makers if a site makes sense for the use proposed.

  This is important as the Council could find the aspects of the floodplain issues on the property are technically met, but still find that this criterion is not met, since it is broader in scope.

  For example, if there was no flood area on the subject property at all, but there was still a flood prone area between the subject property and US30 on Old Portland Road, that alone could potentially be an issue, especially given the emphasis on ease of US30 access considering railroad crossing blockages for selecting the site. Moreover, an issue per this criterion does not need to pertain to floodwaters; it could be anything that suggests the site is not suitable for the use. Ultimately, the Council will need to determine that the site makes sense given all factors, but especially concerning the floodplain related issues since that was a key issue for the Commission's denial.

- **SHMC 17.100.040(1)(f)** regarding the **Conditional Use Permit criterion** that asks the decision maker if the use will comply with the applicable policies of the comprehensive plan. SHMC 19.08.030(3)(u) was identified:

  > Take necessary actions to help ensure the area maintains its current fire and police quality; specifically take into consideration the effects of fire and police protection in the siting and design of all new development.

  The Commission found that the proposal conflicts with this. The Council will need to find that this proposal does not conflict with this or any other Comprehensive Plan policy. If the Council finds all other issues are ok, this should be an easy finding to make.

Since appeals are *de novo* (from the beginning) every aspect, including things not discussed herein, are on the table. The explanations herein are not the only options necessarily but are intended to help with the context of the Commission's findings and decision.

Ultimately, the Council can affirm, reverse, or modify the Commission's decision. If approved, staff has a list of recommended conditions of approval, which are included in the Staff Report for the Commission at their September 2023 public hearing—these start on page 30 of 33 of the Staff Report (not to be confused with the Commission's Findings and Conclusions document).

These conditions may need to be modified depending on the ultimate decision of the City Council. Here is a general description of the conditions:

- The recommended conditions of approval provide some details necessary for final plans, which is typical since the land use planning stage is a pre-development (pre final plan) stage. Some of these are typically required details, with many final plan revisions related to the floodplain issue, and one noteworthy condition intended to preserve internal access between the developed portion closer to Old Portland Road and undeveloped future expansion portion of the site on the opposite side along Kaster Road.

- The conditions also list things that need to be done before development permits are issued to allow construction to commence. This includes the final plans as mentioned in the previous paragraph as well as addressing power line access, city-wide sanitary sewer deficiency impact fee, a notice on the deed records of the property identifying why there is extra land (expansion options) and wetland stuff, and identifying maintenance of restoration plantings offsetting wetland protection zone impacts.

- The conditions also specify what needs to be done before the project is completed (i.e., occupancy/use of the site) and some other general conditions.

CONCLUSION & RECOMMENDATION

The Council needs to consider the materials in the record and any testimony received both in support and opposition (or neutral) carefully when drawing your conclusion(s).

If approved, staff recommends approval with conditions as recommended by staff, or any new things that may come out of the public hearing.

Attachments:

- Scoring criteria defined
- Original Site Selection Site v. Expanded Area for Permitting exhibit
- St. Helens Public Safety Building Site Sections dated Oct. 11, 2023
- Sheet from St. Helens Public Safety Building Site Sections dated Oct. 11, 2023 with City Staff notes clarifying some National Flood Insurance Program data
- Milton Creek Cross Section from Flood Insurance Study, Columbia County, Oregon and Incorporated Areas, dated November 26, 2020 (with city staff notes)
- Planning Commission's Amended Findings and Conclusions (with denial findings called out in left margin)
- Staff's Public Hearing Presentation to the Planning Commission on September 12, 2023
- Staff Report to Planning Commission dated August 30, 2023 (including staff recommended conditions of approval)
- Applicant narrative (by Mackenzie)
- Renderings page
- Aerial and Zoning Map
- Preliminary Drainage Report

- Traffic Generation and Parking Analysis Letter
- Sensitive Lands Assessment Report
- Wetland Buffer Impacts Exbibit
- National Flood Hazard Layer FIRMette
- FIRM Flood Boundaries v. Actual Elevations exhibit
- St. Helens Wastewater Collection System New Sewer Connection Surcharge memo (excerpt)
- Proposed Trails exhibit from the 2015 Parks and Trails Master Plan
- Plan set (with revised sheet C1.21)

IMPORTANCE FACTOR SCORING CRITERIA

Through the progress of the project, four sites were ultimately identified for evaluation. Initially the City requested Mackenzie evaluate three sites for the possible development of a new police facility. These sites were Site 1 (1771 Columbia Blvd), Site 2 (1271 Columbia Blvd) and Site 3 (Old Portland Road). After site test fits were developed for the three subject sites, key St. Helens staff separately evaluated, scored and ranked each of the sites relative to each other. The City of St. Helens and Police Department added an additional Site 4 to be ranked that is located on the corner of Oregon Street and Deer Island Road in St. Helens. The sites were re-ranked based on the additional Site 4 and the following is the results from the re-rankings.

1. COST OF LAND/SITE DEVELOPMENT:

   Ranking evaluates the availability of property for purchase and assessed purchase price of each property. Ranking evaluates anticipated development costs of the property, including but not limited to existing infrastructure, hazardous material remediation, demolition of existing structures and topographical challenges.

2. SIZE OF SITE:

   Ranking evaluates the usable site acreage available for development within the property boundaries.

3. SHAPE OF SITE:

   Ranking evaluates the shape of the site, with particular emphasis on irregularities that present challenges to parking and building layout, access, visibility and general efficiencies.

4. POTENTIAL FOR MULTI-USE:

   Ranking evaluates multiple use opportunities for expansion of the Police facility, co-location of other city functions within the confines of the site, supported access, parking and general placement of a new Police facility.

5. PUBLIC ACCESS TO SITE – VEHICLE:

   Ranking evaluates vehicular access to and from the site for both the public and the Police Department. Vehicular access evaluations took into consideration proximity to major arterial streets and highways, visibility and way-finding and ease of circulation once on site.

6. PUBLIC ACCESS TO SITE – TRANSIT:

   Ranking evaluates proximity to public transit infrastructure including light rail stations and bus stops, as well as frequency of routes.

8. VISIBILITY AND PROMINENCE:

   Ranking evaluates the visibility and prominence the site offers for placement and development of a new civic structure for the City of St. Helens. Visibility and prominence can be impacted by alternative parameters such as size and shape of site, natural constraints such as terrain and floodplains and available positioning within the site for the building and parking.

7. PUBLIC ACCESS TO SITE – PEDESTRIAN/BICYCLE:

   Ranking evaluates the ease of access for pedestrians and bicycles to and from the site.

9. PROXIMITY TO GOVERNMENT FUNCTIONS:

Ranking evaluates the proximity of the site to other civic structures, functions and property owned by the City of St. Helens.

10. NEIGHBORHOOD CONTEXT:

Ranking evaluates the context of the site and surrounding property. Evaluations took into account the nature of a Police department and the scale of the facility as it relates to adjacent commercial, industrial or residential properties.

11. POSITIONING FACILITY ON SITE:

Ranking evaluates the flexibility of positioning the facility on the site to maximize visibility and prominence, security and potential for multi-use.

12. SECURITY:

Ranking evaluates the ability to appropriately locate the facility, public parking, secure parking and access to and from the site in a manner that supports the safety and security parameters associated with a Police facility.

13. TRAFFIC CONGESTION:

Ranking evaluates street infrastructure, signals, one-way and two-way streets and potential traffic impacts associated with development of a new Police facility.

14. EXPANSION TO ADJACENT SITES:

Ranking evaluated on the prospective site's direct adjacency to potential future property that could be acquired for either future expansion or development of alternative City functions.

15. PROXIMITY TO GEOGRAPHIC CENTER:

Ranking evaluates the property's proximity to St. Helens' city center. As a central headquarters, centralizing the facility within the service area is essential while coupling placement with close proximity to major vehicular streets, arterials and highways.

16. CURRENT OWNERSHIP:

Ranking evaluates the current ownership of the property, required purchase for multiple parcels and difficulties associated with land acquisition of property.

17. LAND USE:

Ranking evaluates the current use allowance (permitted outright or through a conditional use) and other general zoning regulations.

18. RESPONSE TIME:

Ranking evaluates the property's proximity to response areas.

IMPORTANCE FACTOR MATRIX

RANKED: 1 - 4

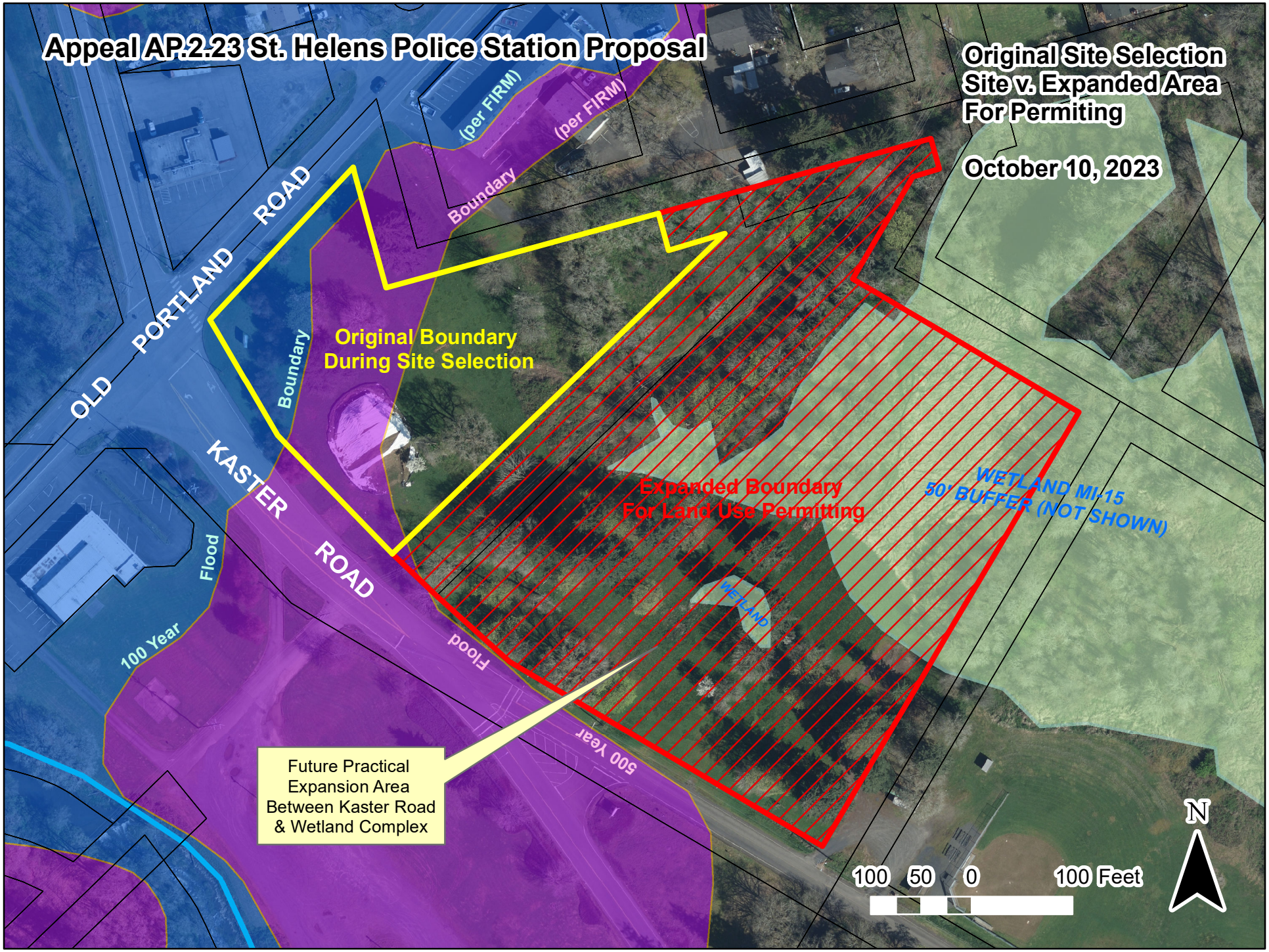
(1: LEAST SUITED; 4: MOST SUITED)

		SITE 1: 1771 COLUMBIA BLVD
1.	COST OF LAND / SITE DEVELOPMENTS	2
2.	SIZE OF SITE	1
3.	SHAPE OF SITE	4
4.	POTENTIAL FOR MULTI - USE	2
5.	PUBLIC ACCESS TO SITE - VEHICLE	4
6.	PUBLIC ACCESS TO SITE - TRANSIT	4
7.	PUBLIC ACCESS TO SITE - PEDESTRIAN/BICYCLE	4
8.	VISIBILITY AND PROMINENCE	4
9.	PROXIMITY TO GOVERNMENT FUNCTIONS	3
10.	NEIGHBORHOOD CONTEXT	4
11.	POSITIONING FACILITY ON SITE	3
12.	SECURITY	4
13.	TRAFFIC CONGESTION	3
14.	EXPANSION TO ADJACENT SITES	3
15.	PROXIMITY TO GEOGRAPHIC CENTER	4
16.	CURRENT OWNERSHIP	1
17.	LAND USE	3
18.	RESPONSE TIME	3
	ASSESSMENT SCORE	**56**
	CUMULATIVE RANK (BASED ON ASSESSMENT SCORE)	**1ST**

Site 3 is the CUP.4.23, et. al. subject property

SITE 2: 1271 COLUMBIA BLVD	SITE 3: OLD PORTLAND ROAD	SITE 4*: OREGON STREET
3	4	1
2	3	4
3	1	2
3	1	4
3	2	1
3	2	1
3	2	1
3	2	1
4	2	1
3	2	1
2	1	4
3	2	1
2	4	1
2	1	4
3	2	1
2	4	3
4	2	1
2	4	1
50	**41**	**33**
2ND	**3RD**	**4TH**

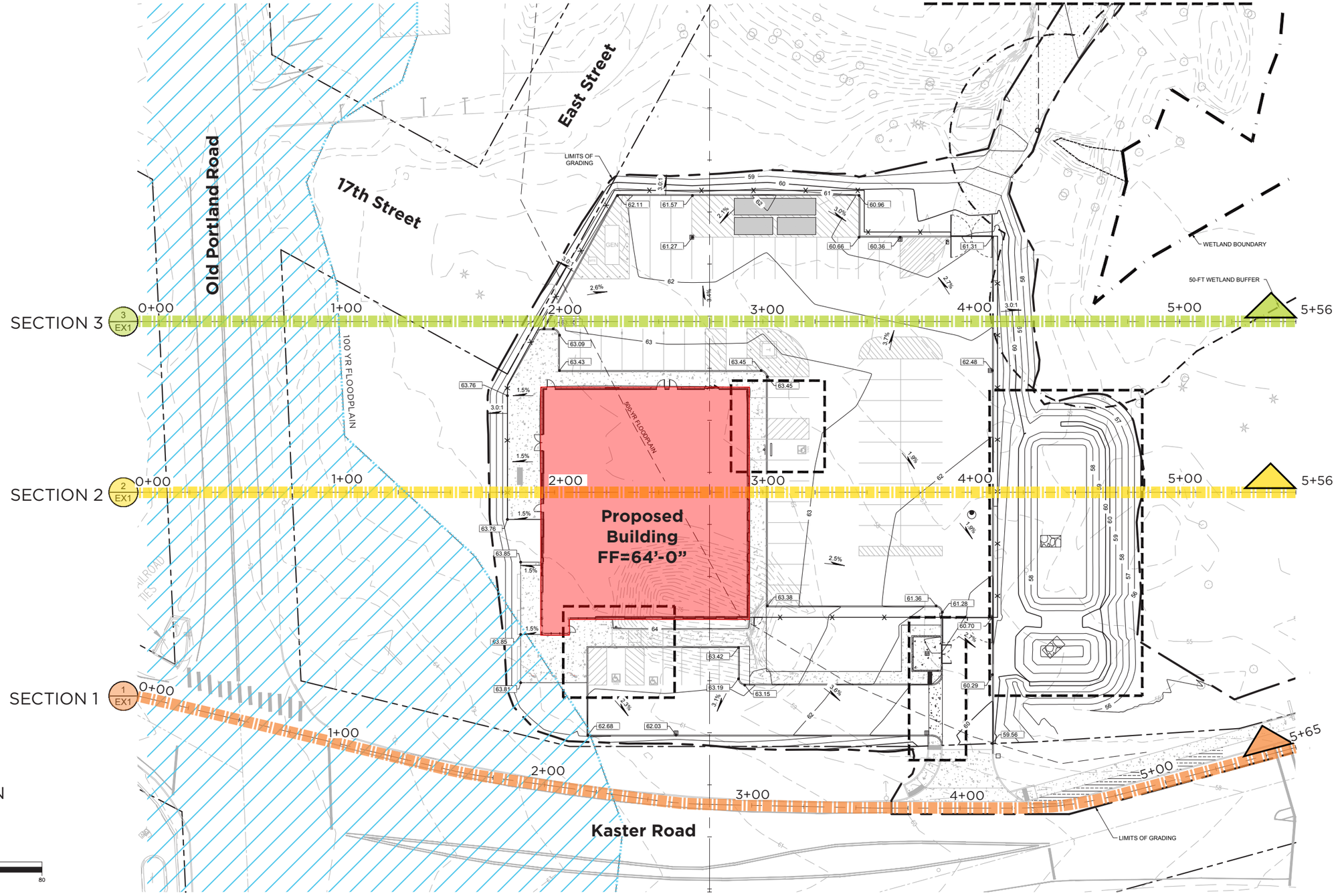
* the City ranked the site and due to its ranking elected not to have further evaluation on the site completed.

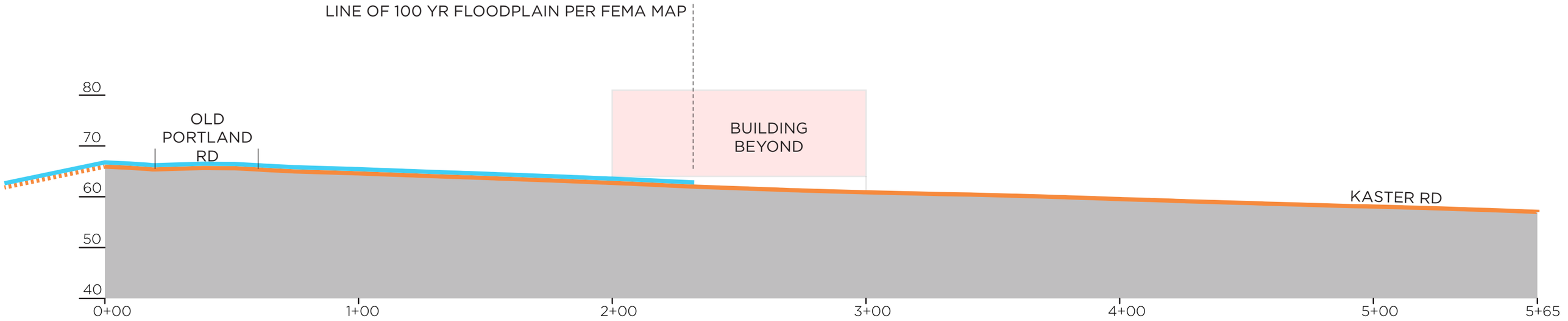

Appeal AP.2.23 St. Helens Police Station Proposal
Original Site Selection
Site v. Expanded Area
For Permiting
October 10, 2023
OLD PORTLAND ROAD
KASTER ROAD
Boundary
(per FIRM)
Boundary
(per FIRM)
Original Boundary
During Site Selection
Expanded Boundary
For Land Use Permitting
WETLAND MI-15
50' BUFFER (NOT SHOWN)
WETLAND
Flood
100 Year
Flood
500 Year
Future Practical
Expansion Area
Between Kaster Road
& Wetland Complex
N
100 50 0 100 Feet

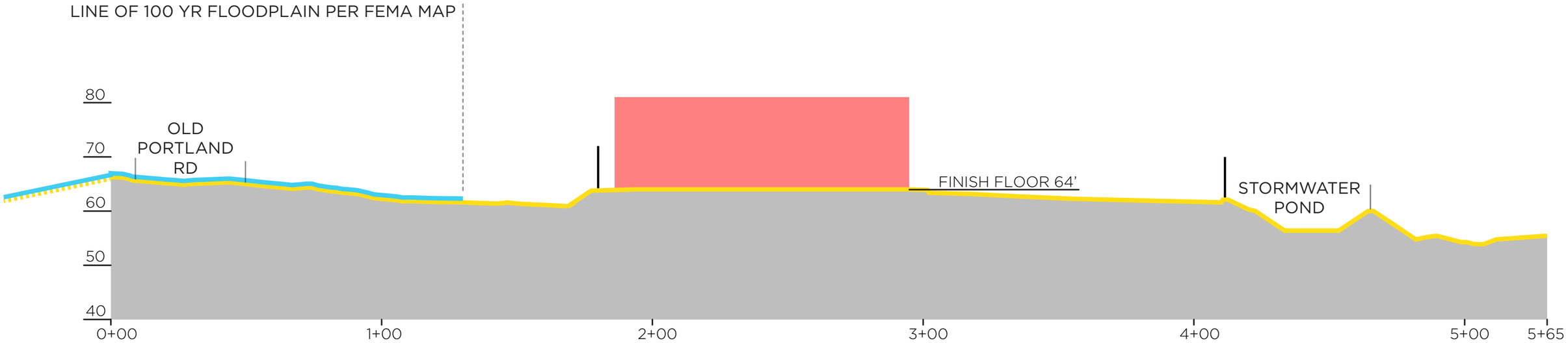
MACKENZIE.

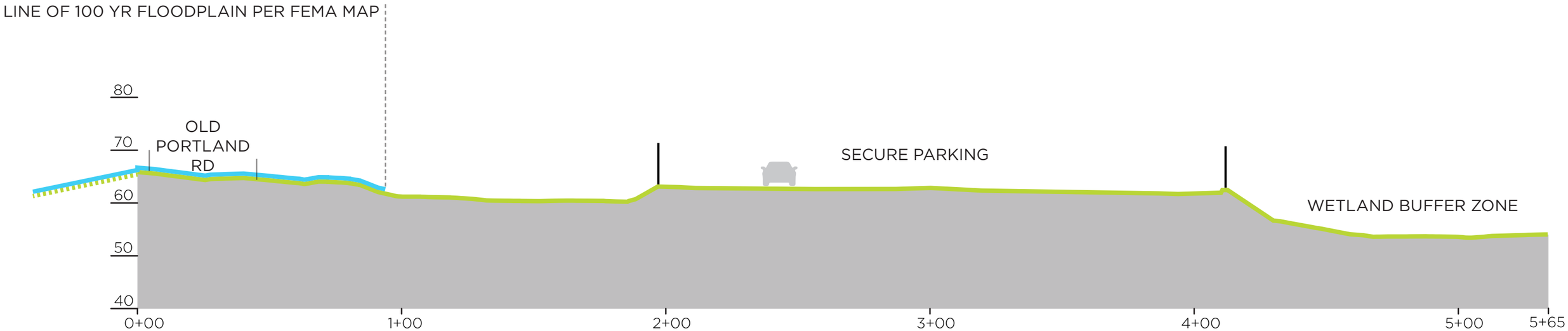
St. Helens Public Safety Building

Site Sections | 10.11.2023





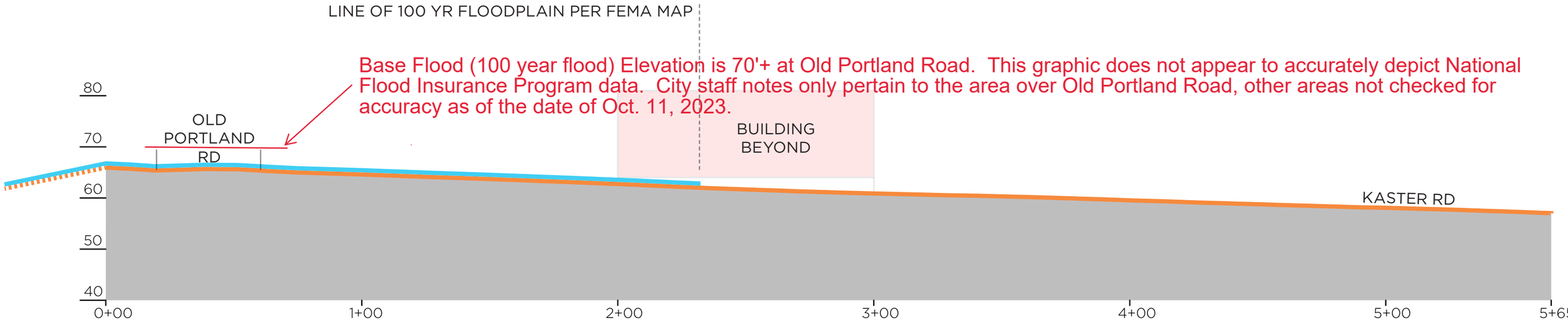




City Staff Notes Regarding Base Flood Elevation at Old Portland Road. RE Appeal AP.2.23. Oct. 11, 2023.

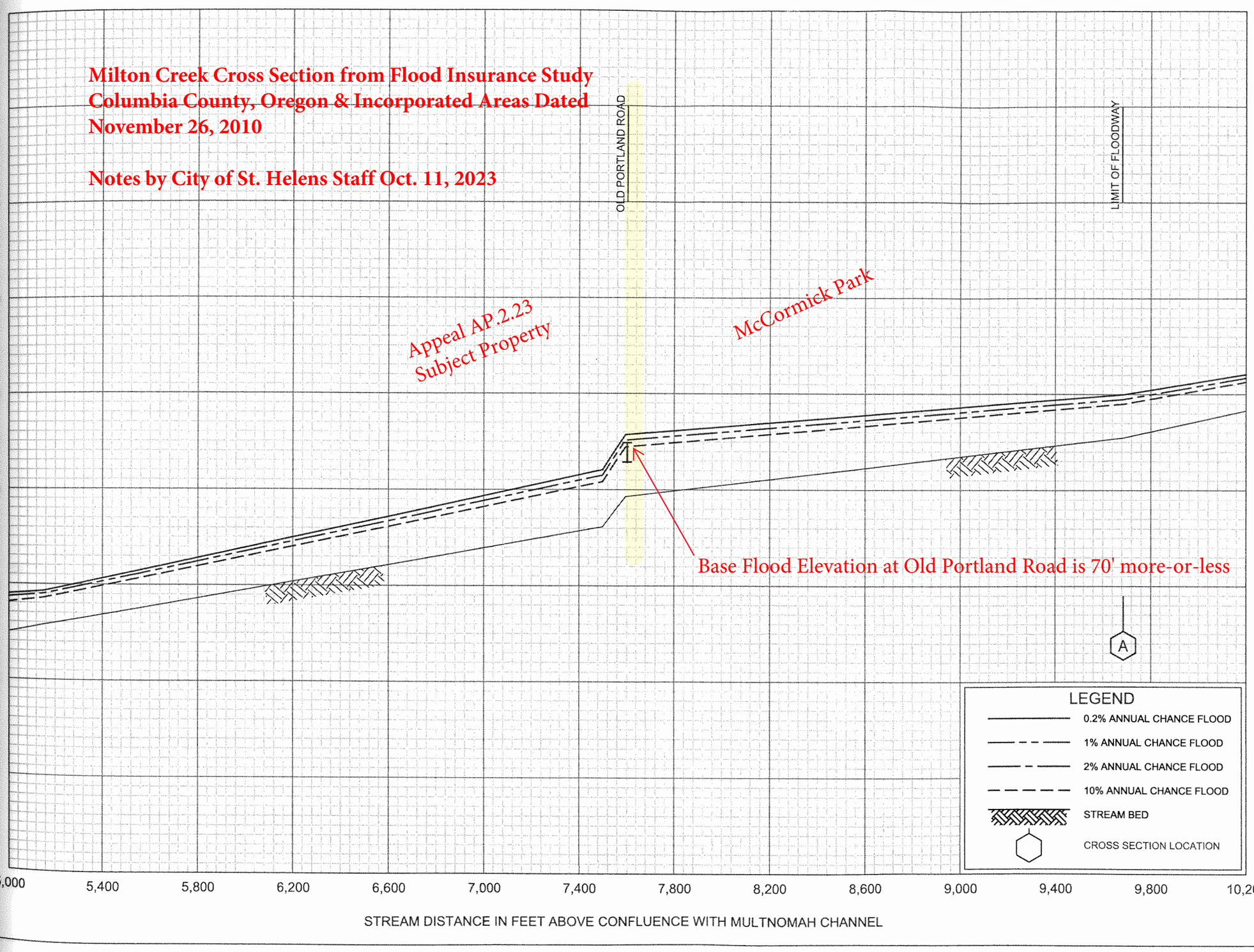
Per the National Flood Insurance Rate Map (NFIP), Panel No. 41009C0452D dated November 26, 2010, there is a Base Flood Elevation (BFE) of 70 feet along the south side of Old Portland Road. The next designated BFE upstream (in McCormick Park) is over 400' away and is 72 feet. Thus, over Old Portland Road, at least per National Flood Insurance Program data, the BFE is 70'+.

The next BFE downstream, less than 40' away and within the subject property is 63'. Progressing downstream the BFE decreases more gradually.



Milton Creek Cross Section from Flood Insurance Study Columbia County, Oregon & Incorporated Areas Dated November 26, 2010

Notes by City of St. Helens Staff Oct. 11, 2023



FLOOD PROFILES

MILTON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

COLUMBIA COUNTY, OR

AND INCORPORATED AREAS

13P

Denial basis identified in left margin, where applicable.

CITY OF ST. HELENS PLANNING DEPARTMENT
FINDINGS OF FACT AND CONCLUSIONS OF LAW
Conditional Use Permit CUP.4.23
Sensitive Lands Permits SL.4.23 (floodplain) and SL.5.23 (wetlands)
Sign Permit S.14.23
AMENDED DECISION

APPLICANT: City of St. Helens
OWNER: same as applicant

ZONING: The site is predominately zoned Light Industrial, LI, with a small portion of General Residential, R5 along Old Portland Road
LOCATION: 4N1W-9AB-1500; east corner of the Old Portland Road/Kaster Road (S. 18th Street) intersection
PROPOSAL: New police station on undeveloped property

PUBLIC HEARING & NOTICE

Public hearing before the Planning Commission: September 12, 2023

Notice of this proposal was sent to the Oregon Division of State Lands as required by ORS 227.350, Notice of proposed wetlands development, on August 11, 2023.

Notice of this proposal was sent to surrounding property owners within 300 feet of the subject property(ies) on August 14, 2023 via first class mail. Notice was sent to agencies by e-mail on August 11, 2023

Notice was published on August 23, 2023 in The Chronicle newspaper.

APPLICABLE CRITERIA, ANALYSIS & FINDINGS

Permitting History: In an aerial photo from 1983 at City Hall there are multiple buildings on the site. Google Earth imagery shows no buildings in 1990 and none have been built on the site since.

The city purchased the subject property from Boise White Paper, LLC in 2015 (inst. no. 2015-8180).

There is a sign at the intersection on this property with some history itself. Sign Permit S.28.02 from 2002 was to replace an existing sign here. It was added onto via a permit in 2003 (S.18.03 or S.19.03. That sign was replaced by a sign per permit S.3.19 while in city ownership. Sign does not comply with the sign permit and will need to be as part of this proposal.

Portions of the 7th Street and S. 16th Street rights-of-way were vacated via Ordinance No. 3283 in June 2022. This was done because the originally assumed parcel for this proposal was not large enough as was discovered during process of developing the plans. One of the requirements of this vacation included:

> A 50' wide easement shall be granted that follows the power line, as may be relocated due to development plans, between Kaster Road and S. 15th Street as a condition of land use approval to develop property that abuts the vacated right of way.

This proposal is development as contemplated in Ordinance No. 3283 and the easement shall be a condition of approval of this matter. The power lines were assumed to be moved as part of the Police Station development at the time the Vacation was processed and CRPUD was ok with the delay of the easement so the exact location could be determined based on the final power line location. An easement is needed even if the power lines do not need to be moved.

* * *

Zoning Compliance: The site is predominately zoned Light Industrial, LI, with a small, approximately 7,100 square foot area along Old Portland Road zoned General Residential, R5.

"Public safety facility" and "public facility, major" are listed as conditional uses in both zoning districts. "Public safety facility" is defined as:

> "Public safety facilities" means providing protection pursuant to fire, life, and safety code sections together with the incidental storage and maintenance of necessary vehicles. Typical uses include fire stations, police stations, and ambulance services.

Preliminary plans (prior to this application) included the municipal court, the council chambers, and staff offices for non-emergency personnel, where the "public facility" category applied as well. However, this proposal is strictly a police station, thus "public safety facility" is the proper use category.

Given the diminutive area of R5 zoning and its location, the key issues are the minimum front yard (setback) and 40% maximum building/structure coverage. No buildings or structures are proposed within the R5 zoned area, so no issues.

Standards specific to the LI zone include:

> (4) Standards.
> (a) The standards for the LI zone shall be determined by the proximity to residential zones and the anticipated off-site impacts.
> (b) The maximum height within 100 feet of any residential zone shall be 35 feet.

(a) The site is in close proximity to a residential zone to the north. This and the anticipated off-site impacts are for the Commission's consideration, but the Commission did not raise any issue in this regard.

(b) The proposed building is within 100 feet of residential zoning on the north side; thus the 35' maximum height applies. The building is approximately 17' in height.

* * *

Sensitive Lands: There are sensitive lands as identified in the Development Code. This includes:

- Wetlands, including upland protection zones associate with "significant" wetlands per Chapter 17.40 SHMC
- Area of Special Flood Hazard—Chapter 17.46 SHMC

Wetlands, including upland protection zones associate with "significant" wetlands per Chapter 17.40 SHMC

The city's local wetlands inventory identifies a wetland in close proximity to the site, wetland M-15 (or MI-15), which is a Type II wetland with a 50' upland protection zone.

The city completed an environmental assessment to determine the exact boundaries as required. The state approved these wetland delineations via DSL WD # 2019-0324 (Revised) and WD # 2022-0251. The wetland is also subject to the state Removal-Fill Law, and there is a waterway as identified in WD # 2022-0251 also subject to the state Removal-Fill Law.

Impacts to the wetland M-15 (or MI-15) protection zone are proposed for site grading for nearby improvements, emergency accessway (secondary site access), and fence/secure parking area. Note that due to existing utilities, sanitary sewer line and related road/berm in particular, which have been in place since before 2003 when the current wetland rules took effect, there is some preexisting impacts to the protection zone already. These are described in the wetlands assessment from Wetlands Solutions Northwest, LLC dated June 23, 2023.

The section that applies to allowing protection zone impacts is **SHMC 17.40.040(1)** pertaining to undeveloped properties:

> (1) Protection Zone Reduction (Up to 50 Percent for Undeveloped Properties). The protection zone may be reduced by the approval authority up to 50 percent where equal or better protection for identified resources will be ensured through restoration, enhancement and similar measures. Specifically the following criteria and conditions must be met to be eligible for a protection zone reduction; the applicant must demonstrate that:
>
> (a) The application of the protection zone to the lot or parcel, as evidenced by the environmental assessment, precludes all reasonable use of the lot or parcel under the applicable zone designation and renders it not buildable, after consideration of all applicable limitations and restrictions in this code; and

Finding(s): The site is not developable as a police station (a "critical facility") without impacts to the protection zone for access that avoids the mapped flood areas (i.e., the secondary access). Also, the storm water facility moved southerly in the preliminary design process to keep the building out of the mapped 100-year flood zone to honor floodplain rules.

Denial basis

Because the Commission finds that alternatives for police station were not adequately ruled out (see below) and the "critical facility" aspect of this proposal is the reason for protection zone impact due to the need for a secondary access, then this criterion (1)(a) cannot be met. Site selection is discussed below.

(b) The lot or parcel is a "legally created lot or parcel of record" as defined in this chapter (this exception is not available for land divisions); and

(c) The lot or parcel must be combined for development purposes with contiguous lots or parcels in the same ownership on the effective date of the ordinance codified in this chapter; and

Finding(s): The "original" site was the portion north of the now vacated 7th Street right-of-way. It now includes the property on the south side of that vacated right-of-way, including mitigation area for the proposed protection zone impacts. These two properties together are surrounded by rights-of-way and as bound together, will not impact any other lots of record. They must be bound by this provision (1)(b) & (c).

It is one taxlot now, which the County Assessor did after the 7th Street right-of-way was vacated (assessor staff contacted city staff about it). A notice on the deed that some or all of the unused portion is intended for future expansion and that a land division action or transfer of ownership must consider how much area is needed for future expansion. In other words, no land division or transfer should occur unless it is found that, it will not compromise future police station or related city facility expansion or the subject property.

(d) The proposed development shall minimize disturbance to the protection zone by utilizing design options to minimize or reduce impacts of development: (i) multistory construction shall be used; (ii) parking spaces shall be minimized to no more than that required as a minimum for the use; (iii) no accessory structures allowed; (iv) paving shall be pervious; (v) engineering solutions shall be used to minimize additional grading and/or fill; and

Finding(s): The consultant narrative describes how the intrusion is minimal.

Also, there are preexisting impacts. There is an old road base/berm that more-or-less aligns with a sanitary sewer main, which is in the area for the secondary access to the site. So, some of this protection zone has already been impacted. This is lawful preexisting impact as sewer line pre-dates the protection zone rules, which first came to be in 2003.

(e) The proposed use or activity is designed to minimize intrusion into the protection zone. Specifically the use or activity is designed using up to a 50 percent adjustment to any dimensional standard (e.g., front yard, side yard or other setbacks, including height or lot area) to permit development as far outside or upland of the protection zone as is possible. Design shall be to the adjustment; and

Finding(s): The applicant narrative describes how the intrusion is minimal.

Also, no dimensional standard adjustment is proposed.

(f) The protection of the significant riparian corridor and/or significant wetland can be assured through restoration, enhancement, and other similar measures in the protection zone and the resource area; and

Finding(s): Restoration by enhancing a portion of the protection zone with additional trees and plantings is proposed.

(g) All applicable general criteria in SHMC 17.40.055, including minimum restoration and enhancement requirements, shall be met.

Finding(s): SHMC 17.40.055 applies. See consultant narrative. Identifying the protection zone and trees for protection during construction is noted.

Ensuring restoration plantings and maintenance for at least 2 years to ensure survival will be necessary.

Note that enhanced protection zone south of the vacated 7th Street right-of-way is another basis for lot consolidation.

Area of Special Flood Hazard—Chapter 17.46 SHMC

The subject property is identified as being within a Special Flood Hazard Area (SFHA) as identified by Flood Insurance Rate Maps (FIRM) No. 41009C0456D and 41009C0452D. The subject property is partially covered by flood zone AE (100-year flood) zone X (500-year flood). These flood zones are along the sides of the property abutting Old Portland Road and Kaster Road, with those roads being largely covered by these flood zones. Old Portland Road is especially impacted by flood waters.

The Base Flood Elevation (BFE) is approximately 70' along Old Portland Road and continues to decrease southeasterly to 60' and below. The flood pattern raised question from the many consultants who worked on this, though, when updated in 2010, the Flood Insurance Study (FIS) notes that St. Helens has the most accurate flood boundary depiction of the communities within Columbia County. Despite this, the city hired West Consultants to model the hydrology in 2021, including use of FEMA's effective modeling, to see if a Letter of Map Change (LOMC) was warranted or if additional technical analysis was of any other value. Only preliminary modeling was done (no final study available) as it showed that the overall patters of floodwaters was generally accurate, actually worse and, though not necessarily deep on the subject property itself, the site is assumed to be directly impacted (greatly encompassed) by a 500-year flood event and at least partially impacted by a 100-year event. The preliminary study showed a greater impact of floodwaters within the site and beyond than the FIRMs.

Early plans (prior to this formal application) located the proposed building within the Area of Special Flood Hazard (100-year flood), but based on what the city discovered in 2021, the building's location is now outside of the 100-year flood boundary for this proposal; or at least the boundary shown on the FIRM, which as described below is strictly for insurance purposes.

Pursuant to SHMC 17.46.040(1)(a):

Development Permit Required. A development permit shall be obtained before construction or development begins within any area horizontally within the special flood hazard area established in SHMC 17.46.030(2). The development permit shall be required for all structures, including

manufactured dwellings, as set forth in the definitions (SHMC 17.46.020), and for all development including fill and other activities, also as set forth in the definitions (SHMC 17.46.020).

The building itself is not horizontally within the Area of Special Flood Hazard (100-year flood) per the FIRMs, assuming a margin of error as described below, but some development (e.g., fill, landscaping, flat work such as walkways, parking areas) is proposed in this area. This means that the flood development (100-year) standards for the building itself do not apply. And because the other improvements are far removed from where any floodway would be, they are generally inconsequential as to the site development's impact on floodwater patterns.

There are still necessary considerations for building/developing in the floodplain despite the building technically not being subject to the 100-year flood provisions (assuming a margin of error as described below) and being away from the floodway.

SHMC 17.46.050(1) – Provisions for flood hazard reduction (applicable general standards)

General Standards. In all areas of special flood hazard, the following standards are required:

(a) Alteration of Watercourses. Require that the flood carrying capacity within the altered or relocated portion of said watercourse is maintained. Require that maintenance is provided within the altered or relocated portion of said watercourse to ensure that the flood-carrying capacity is not diminished. Require compliance with SHMC 17.46.040(3)(d) and (e).

Finding(s): No watercourse is proposed to be impacted.

(b) Anchoring.
(i) All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
(ii) All manufactured dwellings shall be anchored per subsection (3)(c) of this section.

Finding(s): No structure is proposed to be located within the Area of Special Flood Hazard (100-year flood), assuming a margin of error as described below.

(c) Construction Materials and Methods.
(i) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
(ii) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

Finding(s): This shall be a condition of approval. Plans shall demonstrate compliance. Improvements proposed within the Area of Special Flood Hazard (100-year flood) that this would apply to includes but is not limited to: site lighting, site furnishings, planters, and water connection infrastructure.

The consultant narrative notes that these provisions will be further demonstrated at time of permitting.

(d) Water Supply, Sanitary Sewer, and On-Site Waste Disposal Systems.

(i) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system;

(ii) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharge from the systems into floodwaters; and

(iii) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding consistent with the Oregon Department of Environmental Quality.

Finding(s): An on-site sanitary sewer system is not involved or proposed. An on-site waste disposal system is only allowed in very limited circumstances in the city; this property or development does not fit within those circumstances.

Water infrastructure is proposed within the Area of Special Flood Hazard (100-year flood). This includes a Fire Department Connection (FDC) and hydrant.

The FDC and hydrant are located in an area (along Old Portland Road) that, based on the Fire District's comments about flood water depth and access (mentioned below regarding secondary access), would not be accessible by fire emergency vehicles in a flood event. Relocation will be necessary to be out of flood prone areas. Staff spoke to the Fire Marshall about this issue and the preferred location would be along Kaster Road. In fact, this is preferred regardless of any flood areas because its closer to the proposed building. The secondary access to the site, theoretically, would enable access to Kaster and the relocated FDC and hydrant away from more flood prone areas.

(e) Electric, Mechanical, Plumbing, and Other Equipment. Electrical, heating, ventilating, air-conditioning, plumbing, duct systems, and other equipment and service facilities shall be elevated at or above one foot above the base flood elevation (BFE) or shall be designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during conditions of flooding. In addition, if replaced as part of a substantial improvement, electrical, heating, ventilating, air-conditioning, plumbing, duct systems, and other equipment and service facilities shall meet all the requirements of this section.

Finding(s): There is no building involved, but lighting improvements are proposed within the Area of Special Flood Hazard (100-year flood), so electric components will need to comply.

(f) Tanks.

(i) Underground tanks shall be anchored to prevent flotation, collapse and lateral movement under conditions of the base flood.

(ii) Above-ground tanks shall be installed (elevated) at or above one foot above the base flood elevation (BFE) or shall be anchored to prevent flotation, collapse, and lateral movement under conditions of the base flood.

Finding(s): The only tank proposed is associated with a generator, which will be located outside of the Area of Special Flood Hazard (100-year flood).

(g) Subdivision Proposals and Other Proposed Developments.

(i) All new subdivision proposals and other proposed new developments (including proposals for manufactured home parks and subdivisions) greater than 50 lots or five acres, whichever is the lesser, shall include within such proposals, base flood elevation data.

(ii) All new subdivision proposals and other proposed new developments (including proposals for manufactured home parks and subdivisions) shall:

(A) Be consistent with the need to minimize flood damage.

(B) Have public utilities and facilities, such as sewer, gas, electrical, and water systems, located and constructed to minimize or eliminate flood damage;

(C) Have adequate drainage provided to reduce exposure to flood hazards.

Finding(s): This is not a subdivision but is an "other proposed development." The area to be developed is less than 5 acres, so additional base flood elevation data is not warranted. There is limited utilities/development within the Area of Special Flood Hazard (100-year flood). The site incorporates elevating the building and surrounding area above grade to minimize the acknowledged flood risk, though access is still anticipated to be affected in a flood event.

(h) Use of Other Base Flood Data.

(i) When base flood elevation data has not been provided in accordance with SHMC 17.46.030(2), the local floodplain administrator shall obtain, review, and reasonably utilize any base flood elevation data available from a federal, state, or other source in order to administer this section. All new subdivision proposals and other proposed new developments (including proposals for manufactured dwelling parks and subdivisions) must meet the requirements of subsection (1)(g) of this section.

(ii) Base flood elevations shall be determined for development proposals that are five acres or more in size or are 50 lots or more, whichever is lesser, in any A Zone that does not have an established base flood elevation. Development proposals located within a riverine unnumbered A Zone shall be reasonably safe from flooding; the test of reasonableness includes use of clear and objective information such as historical data, high water marks, FEMA-provided base level engineering data, and photographs of past flooding, etc., where available. Failure to elevate at least two feet above grade in these zones may result in higher insurance rates.

Finding(s): Base flood elevation data is known based on the FIRMs (AE zone). The developed area will be less than 5 acres.

(i) Structures Located in Multiple or Partial Flood Zones. In coordination with the State of Oregon Specialty Codes:

(i) When a structure is located in multiple flood zones on the community's flood insurance rate maps (FIRM) the provisions for the more restrictive flood zone shall apply.

(ii) When a structure is partially located in a special flood hazard area, the entire structure shall meet the requirements for new construction and substantial improvements.

Finding(s): There is only one Area of Special Flood Hazard (100-year flood) zone that applies, but the proposed structure is located within the 500-year flood, where critical facilities must be considered. This is discussed further below.

(j) AH Zone Drainage. Adequate drainage paths are required around structures on slopes to guide floodwaters around and away from proposed structures.

Finding(s): The site is not technically located within an AH zone (flood depths 1 to 3 feet) but based on the preliminary modeling done in 2021 as described above, shallow flooding on the site cannot be ruled out and could potentially impact the entire site, including secondary access. The design includes elevating the building and surrounding improvements, as is practical.

SHMC 17.46.050(2) – Provisions for flood hazard reduction (applicable specific standards)

Finding(s): The standards of this section focus on buildings within the Area of Special Flood Hazard (100-year flood). No buildings are proposed within the mapped 100-year flood area, assuming a margin of error as described below.

SHMC 17.46.050(3) – Provisions for flood hazard reduction (additional specific standards for special flood hazard areas with Base Flood Elevations)

Finding(s): The standards of this section addresses residential construction (structures), non-residential construction (structures), manufactured dwellings, recreational vehicles, and appurtenant (accessory) structures. None of these are proposed within the Area of Special Flood Hazard (100-year flood).

SHMC 17.46.050(6) – Critical facility.

> Construction of new critical facilities shall be, to the extent possible, located outside the limits of the special flood hazard area (SFHA). Construction of new critical facilities shall be permissible within the SFHA only if no feasible alternative site is available. Critical facilities construction within the SFHA shall have the lowest floor elevated at least three feet above the base flood elevation (BFE) or to the height of the 500-year flood, whichever is higher. Access to and from the critical facility shall also be protected to the height utilized above. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters.

SHMC 17.46.020 defines "critical facility as:

> "Critical facility" means a facility for which even a slight chance of flooding might be too great. Critical facilities include, but are not limited to, schools, nursing homes, hospitals, police, fire and emergency response installations, and installations which produce, use or store hazardous materials or hazardous waste.

Finding(s): The proposed use is a critical facility as defined. 17.46.050(6) specifies that critical facilities be outside the limits of the special flood hazard (100-year flood) to the extent possible and that they be permissible within this area only if no feasible alternative is available. There is extra stringent (compared to non-critical facility development) elevation, site access and toxic substance considerations.

Denial basis

"Facility" is not defined by Chapter 17.46 SHMC, but "building" and "structure" are. As such, a facility must include not only related buildings and structures, but the broader area of function. That access is included as a specific aspect to consider for critical facilities emphasizes this.

The building (assuming a margin of error as described below) and the bulk of the facility is located outside of the 100-year flood. Because the building is not necessarily within the 100-year flood, it is not required to be elevated per 17.46.050(6), even though it is within the 500-year flood. However, as a critical facility proposed in the immediate vicinity of the known and modeled natural hazard given the current Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRM) dated November 26, 2010 (revised from the original FIS and FIRM for St. Helens dated August 16, 1988) and the additional preliminary study from 2021 (described above), ignoring this hazard would be both foolish for the community's wellbeing and contrary to this Conditional Use Permit effort.

The consultant narrative mentions elevating the site and a proposed (and required) secondary access. These need to be examined further in additional to the site selection process where this site was selected over other potential sites.

Site elevation.

First, it is important to recognize the limitations of the Flood Insurance Rate Maps (FIRM). Per Section 3.2 of the Flood Insurance Study:

> Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of flood elevations for the selected recurrence intervals. Users should be aware that flood elevations shown on the Flood Insurance Rate Map (FIRM) represent rounded whole-foot elevations and may not exactly reflect elevations shown on the Flood Profiles or in the Floodway Data tables in the FIS report. **Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction of and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS in conjunction with data shown on the FIRM.**

The flood boundaries on the plans provided with this application are based on the FIRM. **Assuming this line is the actual flood line, given the disclaimer in the FIS and the 2021 preliminary study mentioned above, would not be comprehensive.**

Referencing the FIRM Boundaries v Actual Elevations exhibit attached to the original staff report, this shows the flood boundary lines (100 and 500-year) and the Base Flood Elevations from the FIRM. Extrapolating the BFE south of the 63' line based on the next southerly BFE (not shown on the attachment) and the FIS, assumed flood levels are compared with actual elevation. The elevation data is current as it was updated last year.

Note that anticipated flood depths on/close to Old Portland Road are 5-6' deep for the 100-year event and 6-7' deep for the 500-year event. Depth decreases within the boundary of the subject moving away from Old Portland Road. However, based on the elevation assumptions and observations as shown on the FIRM Boundaries v Actual Elevations exhibit attached to the original staff report, portions of the proposed building footprint area could be subject to both 100-year and 500-year flooding events. To explain:

> Based on the location of the most westerly corner of the proposed building, which is probably the best point to use to evaluate this given the flood water patters on the FIRM:
>
> - The base flood elevation (height of 100-year flood) of this point: 61.8 feet
> - The 500-year flood is about 1-foot higher: 62.8 feet
> - The current elevation of this point is: 61.6 feet
> - Based on these numbers the westerly point is 0.2 feet (2.4 inches) in the 100-year flood
> - Based on the flood patters of the FIRM, we can consider the x-axis (W-E) as well as the normally used y-axis (N-S). A decrease in flood depths moving east (x-axis) can be considered and should provide enough margin of error (since it's a

matter of inches, not feet) to assume the proposed footprint it outside of the 100-year flood.

Per plans (sheet C1.20), the finished floor of the building is proposed to be 64 feet, with the immediate surrounding improved area above 63 feet. The site is proposed to be elevated with fill to help ensure resilience during hydrological events. The height will be increased such that the finished floor is about 2 feet above the highest estimated BFE within the building footprint (i.e., about 62 feet, rounded up).

Site access.

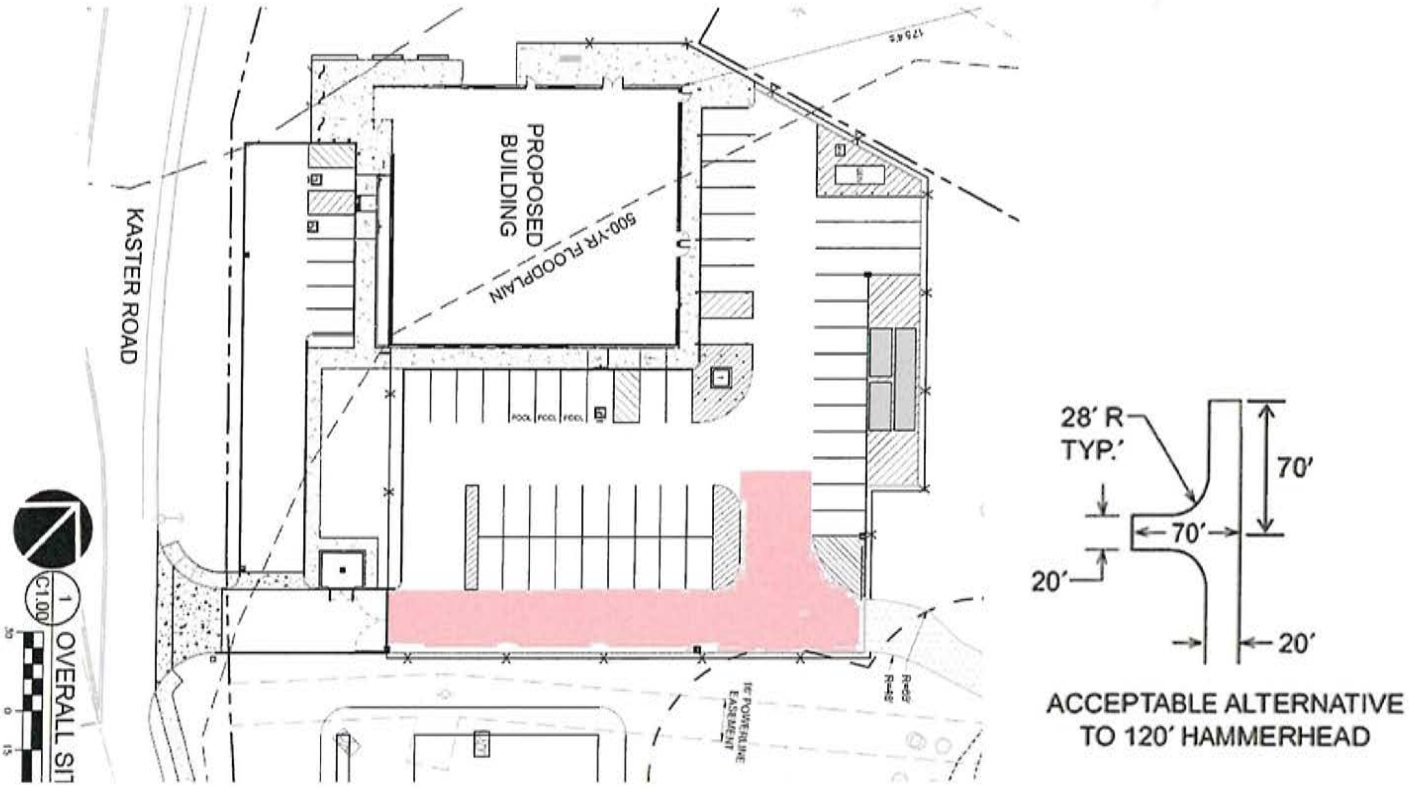
In addition to the development itself, access to the site is supposed to be elevated. In a major flood event, access using S. 18th or Old Portland Road is blocked by flood waters. The base flood elevation (100-year flood height) along the south side of Old Portland Road is 70 feet and per the 500-year flood level is about 1 foot above that. So based on the floodplain development requirements, the elevation of the access to the site would need to be about 73 feet. The actual elevation of Old Portland Road in this area is around 65 feet, thus it would require raising the road as much as approximately 8 feet to meet the elevation requirement, which is not practical. Thus, an alternative route needs to be considered.

There is currently no outlet to the city's street network from Kaster Road south, though the City's St. Helens Industrial Business Park Parcelization Framework and Funding Plan adopted by Resolution No. 1910 in January of 2021 contemplates an eventual connection to S. 10th Street. However, there is no timing or certainty of when or if this will occur. So Old Portland Road must be relied on.

The site does abut S. 15th Street and that is an available route outside of the mapped floodplain (100- and 500-year) to Old Portland Road and areas of the street grid not impacted by floodwaters. An emergency access road is proposed in this area, so there is an access that is hypothetically not impacted by floodwaters. Though as noted above, preliminary modeling done as part of this effort shows a broader impact of floodwaters than as mapped.

During the preliminary design process, staff reached out to the Fire Marshall about emergency vehicle access to the site. It was noted that the ability of fire related emergency vehicles to be able to drive through water differs based on the vehicle, but in no case should a vehicle be driven in water higher than the front axle. The lowest vehicles include ambulances and command vehicles, where the maximum water depth would be 6 inches. Since the difference between the actual elevation of Old Portland Road (approx. 65 feet) and the 100-year base flood (approx. 70 feet) is many feet, a drivable depth is exceeded. So, the emergency access is not just for the police to get from the site, but other emergency personal to get to the site. A hammer-head turnaround meeting Fire Code has been included in the design of the parking lot, because Kaster would be blocked in the major flood event as well. There are security gates amongst this emergency path, which must be approved by the Fire Marshall, with an approved method of emergency operation.

The turnaround and fire access withing the site is not depicted on the plans, but is here in this report:



A hammer-head type turnaround for fire apparatus (above right) is designed partly within the secure parking area. The secure parking area would also be the route to Kaster Road in the event of a 100-year flood event. Area within the secure parking area that needs to be marked "no parking fire access" or something similar is highlighted in pink.

Revised plans need to prove the final plans honor the proper turnaround area, and so the intent is clear for workers constructing the site. Approved method of operation (fire dept accessible locks, etc.) will also be necessary with final plans. Areas within the secure parking area needed for fire access shall be demarcated as such to ensure access is available.

The Commission discussed the secondary access and felt that when needed due to flood water inundation of Old Portland Road and Kaster Roads that its width should be more than the fire code minimum of 20' to maximize its use and limit time delays, because it would need to function as a principal access. They discussed 24'. However, because the Commission denies this permit, this was not incorporated into a final decision.

As elevated, the building and its immediate surroundings are designed to be above flood impacts. But, in a flood event, how the site interacts with its surroundings, transportation especially, will certainly be impacted. In a 500-year event, it is possible the secondary access will be impacted too, at least based on the preliminary study as mentioned. Other items like the Fire Department Connection location issue highlights some of design challenges of the proposal and the possible functionality challenges the site could face in a flood event.

Denial basis

Denial basis

Denial basis

The Commission needs to find these issues are acceptable, in conjunction with all other issues (e.g., basis for site selection) to approve this proposal, which they do not. The Commission finds that the site access circumstances of this site are unacceptable. The interruptions of flood events to the site's access functionality, an aspect of the facility, are too great for the purposes of a police station. Access was one of the key factors the Council chose this site based on comments from the Police Chief at the February 19, 2020 work session. The Commission finds that because access is so important and will be compromised based on the information available, that this site is inappropriate.

The Commission noted that anticipating a 50-year service life of a new police station (based on the service life of the current station), the chances that impactful flooding will occur are increased, especially given the climate change trends and related extreme weather of recent years. The Commission noted this is a "50-year mistake" and that even one community member having a slower response due to flooding impacts at the proposed police station is unacceptable for St. Helens. Allowance of this proposal contradicts the purpose of the city's flood regulations under SHMC 17.46.010 because placement of the police station next to known flood hazards that will impact the facility—at a minimum access—adversely affects public health, safety and welfare.

Site selection/alternative sites analysis.

A critical question for the Commission in its decision on this matter is if the site is acceptable for this use? The provision of the floodplain rules per SHMC 17.46.050(6),

> Construction of new critical facilities shall be, to the extent possible, located outside the limits of the special flood hazard area (SFHA). Construction of new critical facilities shall be permissible within the SFHA only if no feasible alternative site is available.

directly relates to the approval standards for conditional use per SHMC 17.100.040, such a (b) where the Commission must find that:

> The characteristics of the site are suitable for the proposed use considering size, shape, location, topography, and natural feature;

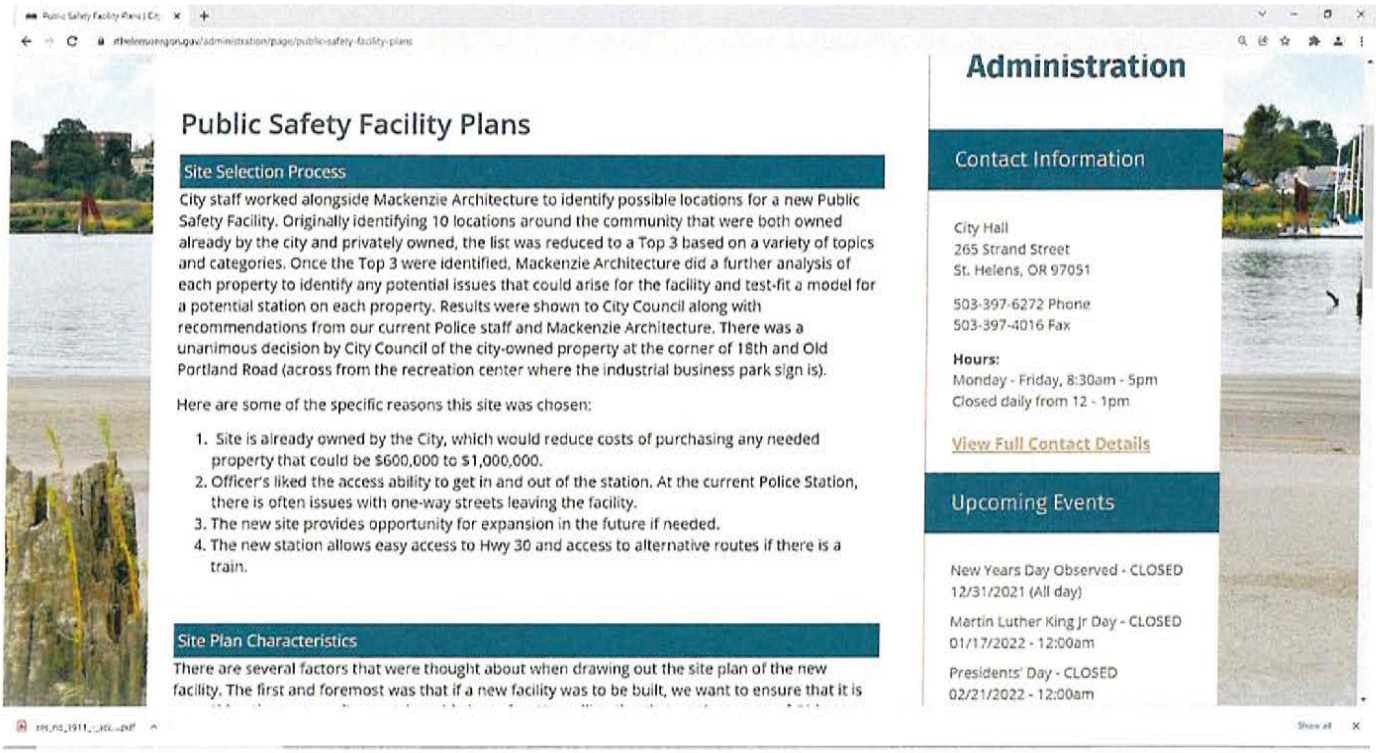
An alternative site analysis is warranted and the site selection process for the police station acts as that for the Commission's consideration.

One important characteristic is the site's proximity to Milton Creek, its floodplain and how that affects the site's access and operation during and after a flood event. The current flood map and study was adopted in 2010 so it is a known and inventoried natural hazard. 17.46.050(6) requires the facility to be located out of the 100-year flood as much as possible, and though the building is proposed to be elevated to help ensure it is safe from flood events, its site access is still anticipated to be significantly impacted. Site access impacts can result in operational impacts. Moreover, the very definition of critical facility includes this language: "a facility for which *even a slight chance of flooding* might be too great." The site selection process resulted in this site known to be affected by a long time inventoried natural hazard where there is a certain (as opposed to slight) chance of flooding.

Note that there are differences between what was on the website and the consultant materials prepared by Mackenzie as to the selection process.

The website link is here:
https://www.sthelensoregon.gov/administration/page/new-police-station

A screenshot from December 2021 is included (with an older link but same content):



Public Safety Facility Plans

Site Selection Process

City staff worked alongside Mackenzie Architecture to identify possible locations for a new Public Safety Facility. Originally identifying 10 locations around the community that were both owned already by the city and privately owned, the list was reduced to a Top 3 based on a variety of topics and categories. Once the Top 3 were identified, Mackenzie Architecture did a further analysis of each property to identify any potential issues that could arise for the facility and test-fit a model for a potential station on each property. Results were shown to City Council along with recommendations from our current Police staff and Mackenzie Architecture. There was a unanimous decision by City Council of the city-owned property at the corner of 18th and Old Portland Road (across from the recreation center where the industrial business park sign is).

Here are some of the specific reasons this site was chosen:

1. Site is already owned by the City, which would reduce costs of purchasing any needed property that could be $600,000 to $1,000,000.
2. Officer's liked the access ability to get in and out of the station. At the current Police Station, there is often issues with one-way streets leaving the facility.
3. The new site provides opportunity for expansion in the future if needed.
4. The new station allows easy access to Hwy 30 and access to alternative routes if there is a train.

Site Plan Characteristics

There are several factors that were thought about when drawing out the site plan of the new facility. The first and foremost was that if a new facility was to be built, we want to ensure that it is

Administration

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Hours:
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Closed daily from 12 - 1pm

View Full Contact Details

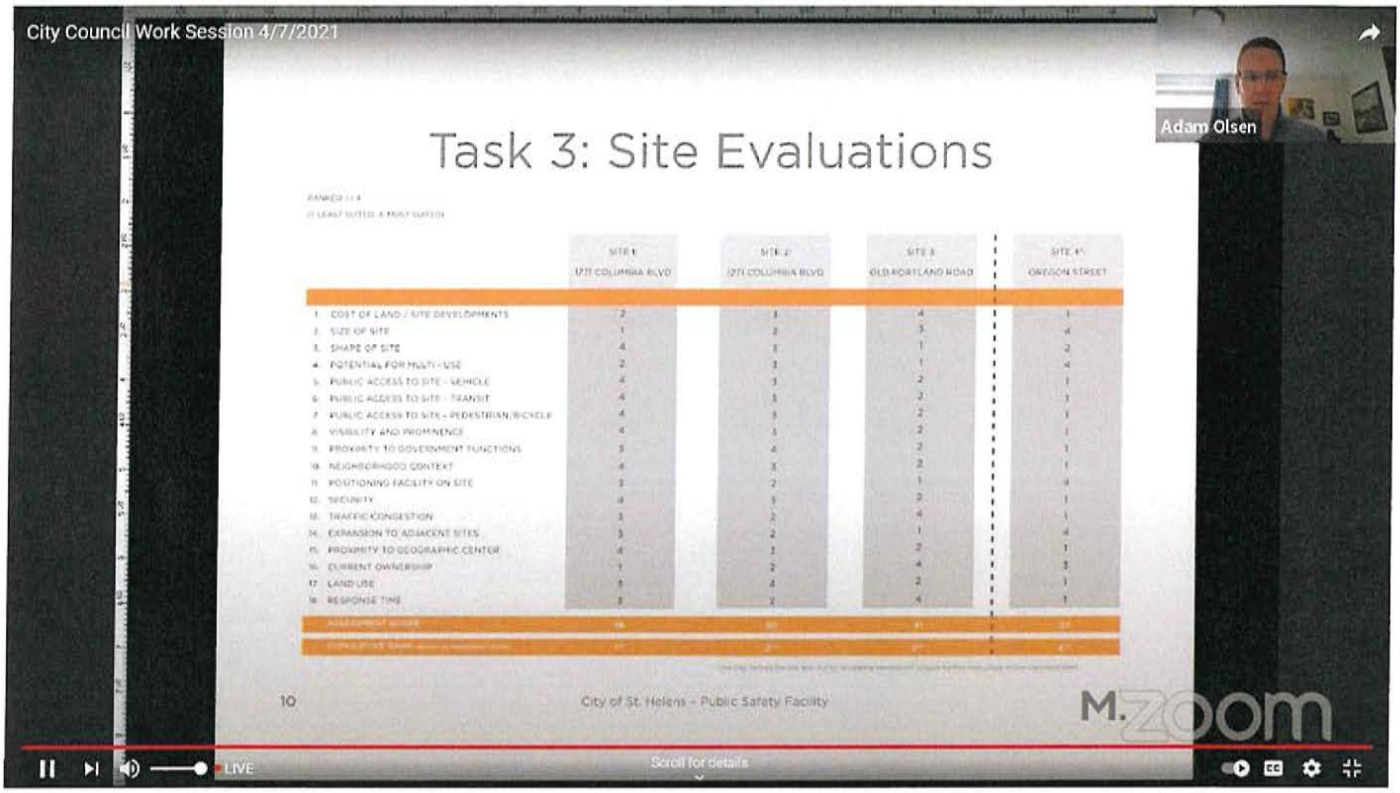
Upcoming Events

New Years Day Observed - CLOSED
12/31/2021 (All day)

Martin Luther King Jr Day - CLOSED
01/17/2022 - 12:00am

Presidents' Day - CLOSED
02/21/2022 - 12:00am

Both the website and consultant talk about an original 10 locations as **Phase 1 of the selection process**. The selection criteria or basis, such as if proximity to natural hazards was a consideration, is not disclosed; there is no evidence of this. Planning staff was not involved in this phase. The consultant narrative talks about the list of properties being narrowed down to five, whereas the website says three. Based on the screenshot of a virtual meeting (see below) there were four.



The screenshot shows that "land use" was included as a standard and this included floodplain considerations as planning staff identified this information as part of **Phase 2 of the selection process**. The subject property is Site 3: Old Portland Road.

Both the consultant narrative and website refer to using a scoring matrix for narrowing the sites down to two, which were considered by the City Council on February 19, 2020. At the work session, now **Phase 3 of the selectin process**, new consideration criteria were introduced. The Police Chief noted poling of officers for this. Ultimately, the City Council chose the subject property, but the standards for this final decision vary depending on the source:

City of St. Helens Website Final Selection Criteria	**Mackenzie Application Materials (Consultant Narrative) Selection Criteria**
Site is already owned by the City, which would reduce costs of purchasing any needed property that could be $600,000 to $1,000,000.	n/a
Officers liked the access ability to get in and out of the station. At the current Police Station, there is often issues with one-way streets leaving the facility.	No complexity of one-way streets.
The new site provides opportunity for expansion in the future if needed.	Accommodation for future growth to the North and East.
The new station allows easy access to Hwy 30 and access to alternative routes if there is a train.	Enhances access to the highway via Millard Road in the event of a train blocking Gable Road or Columbia Boulevard.

Denial basis Denial basis Denial basis Denial basis

The Commission finds that the statutorily mandated alternatives analysis for police station site selection is inadequate because:

1. Flood considerations were not adequately considered in selection process. There is no analysis that the flood issues were discussed with any specificity for selection of the subject property. In fact, street access which was one of the final four standards the Council considered, is compromised during a flood event, especially if the Old Portland road bridge over Milton Creek is damaged or destroyed. The "land use" category of Phase 2 of the selection process, which included floodplain considerations, was disregarded for final selection, despite statutory requirements that mandate otherwise.

   Some of the Commissioners were part of the Ad Hoc Committee for this project and noted that floodplain issues where not discussed as part of that effort.

2. Though there was a selection process, there is no comprehensive discussion or basis as to why there are no alternative sites. There are only four categories of the final site selection considered out of the original eighteen and they ignore any flood considerations whatsoever. The final selection criteria focus more on why it is liked only; this is not an alternatives analysis.

3. There is no evidence that the subject property is the only viable option for a new police station to serve the city of St. Helens.

4. The chance of flooding is too great for this critical facility at this location.

* * *

Building Height Limitations & Exceptions: Chapter 17.68 incudes height provisions in industrial zoning districts. 17' building height as proposed poses no conflict.

* * *

Landscaping/buffering/screening: Street trees will be required. Street trees are proposed along Kaster Road, but not along Old Portland Road because it lacks curb and gutter per SHMC 17.72.020(8). Also, as noted below, street frontage improvements are not proposed along Old Portland Road.

There are overhead utility lines along portions of the abutting Kaster Road, thus, street trees need to be "small" per this chapter. This requires a 20' spacing. Plans will need to be revised and there will likely be more due to the tighter 20' spacing (plans show 30' and 40' spacing).

Tree location shall also comply with requirements per 17.72.035(2)(d)-(l). This will be reviewed with revised plans.

This chapter requires buffering, but it is not required in this case because nearby uses are separated by rights-of-way and do not technically abut the subject property.

The normal fence height allowed is 6 feet, but a taller fence may be allowed as a condition of approval to mitigate against potential adverse effects. An 8' chain link (with sight obscuring slats) around the secure parking area is justifiable for law enforcement security reasons and is a justified condition of approval. Being 8' in height, topping with barbed wire is possible per SHMC 8.12.120.

Same for the 8' walls proposed for the trash enclosure.

This chapter requires screening (unrelated to buffering above). This applies in this case as follows:

Because the parking lot will be greater than three spaces, it is required to be screened. For screening in this case, the city usually requires landscaping along the perimeter that includes a balance of low lying and vertical shrubbery and trees. This is proposed for the general use parking area. An eight-foot-tall sight-obscuring fence is proposed for the secure parking area with landscaping proposed along much of that.

Service facilities and equipment (e.g., HVAC and other mechanical unit) visible from a public street, customer or residential parking area, any public facility or residential area are required to be screened whether they are ground, wall or roof mounted. In addition, rooftop facilities and equipment are required to be screened from street and adjacent properties.

Details are few at this point. Screening required in all cases.

Refuse container or collection area are required to be screened (e.g., trash enclosure). A trash enclosure is shown on the plans and includes an 8' CMU wall for screening which is part of the security wall.

Interior parking lot landscaping. When off-street parking lots have more than 20 spaces, landscape islands are required with trees.

This applies to the non-secure parking area, which is only 6 spaces. The secure parking area is considered to be excluded from this provision because it will be behind an 8' sight obscuring fence and not visible to the general public. This provision is illogical to apply to the secure parking area.

* * *

Visual Clearance: Chapter 17.76 SHMC requires proper sight distances at intersections to reduce traffic hazard potential. The required area to maintain clear vision is greater for arterial streets.

This pertains to the access proposed off Kaster Road. As the Kaster Road right-of-way is larger than the minimum the curb line may be used (i.e., edge of vehicle travel). This is not properly depicted on the plans and a proposed mailbox may conflict.

* * *

Off-Street Parking/Loading: Off street parking is required because this is new development with no parking exception.

Dimension and type. All proposes spaces not within the secure area are standard size and meet the normal dimensional requirements (min. size 9' x 18'). Larger spaces are proposed within the secure area.

Location. Parking spaces are required to be within 200' of the building served. All proposed spaces are within 100' of the proposed building.

Accessible (disabled person) spaces. Required to comply with State and Federal Standards. A total of 54 parking spaces are proposed. Per the 2022 Oregon Specialty Code, this requires at least 3 accessible spaces, one of which is required to be van-accessible. A pair of spaces, with one as van accessible is proposed for the general use parking area. A single van accessible space is proposed within the secure parking area.

Also, accessible parking spaces are required to be located on the shortest route to an accessible pedestrian entrance. Though this is a building code issue, it is relevant to site design. Location of these spaces appears to achieve this.

Bicycle parking. 1 lockable space is required at a rate of 20% of vehicle spaces for civic use. Bicycle spaces are required to be within 50' of primary entrances, under cover when possible, and not located in parking aisles, landscape areas, or pedestrian ways.

Based on the 6 spaces of the general use area (visitor parking), 2 bicycle spaces area required. Plans show 2 spaces under cover with a bike rack that permits locking.

Number of off-street parking spaces required. The use (per SHMC 17.80.030) is a "public safety service" which requires at least the amount of parking based on the largest shift. This is assumed to be 12 employees and will likely change (increase) during the life of the building. There is much "extra" secure parking to accommodate staff increases, which is inevitable over the life of the building.

6 public spaces are proposed to accommodate visitors: two disabled person and four standard spaces. As a Conditional Use Permit, the Commission could require more. This is a best guess amount. Staff asked the consultant to inquire with Police staff about what they felt was needed as they are suitable candidates to convey anticipated demand. This is not detailed in the consultant narrative but is important. At the current police station site (150 S. 13th Street) there is on-street parking available for overflow, but on-street parking is not available in the immediate vicinity and on the same side as Old Portland Road as the site. The only potential overflow

parking, at least currently, would be across Kaster Road from the subject property at 1810 Old Portland Road, which is city owned but requires crossing Kaster Road.

The Commission did not discuss this further, though their basis for denial did not include parking concerns.

Aisle width. Two-way traffic requires a minimum of 24'. 24' is proposed.

Markings. All interior drives and access aisles are required to be marked and signed to indicate direction flow. Plans demonstrate this.

Surface area. All areas used for parking, storage or maneuvering of vehicles (including things towed by vehicles) shall be paved. No vehicular gravel area is proposed.

Wheel stops. Wheel stops are required along the boundaries of a parking lot, adjacent to interior landscape area, and along pedestrian ways. Curbing or walls front the parking spaces. Walkways between parking spaces and the building exceed 7', which would be the minimum needed to maintain a 4' min. width walkway and accommodate assumed 3' overhang.

Drainage. Drainage plans will be required to prevent ponding, prevent water flow across pedestrian ways and to address pollutants from vehicles (e.g., oil/water separation).

A preliminary storm water report has been provided to explain how the proposed system, including a storm water pond, will address water quantity and quality. Final storm water plans will be necessary.

Lighting. Required to be directed to avoid glare from surrounding residences and roads/streets. Lighting plan has been submitted that demonstrates this will probably be the case.

Loading/unloading driveways. Uses such as a school or other meeting place designed to accommodate > 25 people at one time are required to have a driveway designed for continuous forward flow of passenger vehicles for the purpose of loading and unloading passengers.

Being strictly a police station, large meetings and such are not anticipated.

Off-street loading spaces. New or altered buildings or structures which receive and distribute material or merchandise by truck are required to maintain off-street loading and maneuvering area if they are at least 10,000 square feet in size.

This applies to commercial or industrial uses. As a civic use, this is not applicable.

* * *

Access/egress/circulation: Joint access and reciprocal access easements. Joint access via easement is allowed by the code provided there is satisfactory legal evidence of such (e.g., easements) and the legal means of allowing the shared access is provided to the City. In this

case, there are multiple lots of record (ORS Chapter 92) involved. The St. Helens Industrial Business Park Parcelization Framework and Funding Plan (Resolution No. 1910) includes use of the [now vacated] 7th Street right-of-way as a consolidated access point.

Public street access. All vehicular access and egress per Chapter 17.84 SHMC is required to directly connect to a public or private street approved by the City for public use. Moreover, vehicular access is required to be within 50' of principle entrances.

The site abuts the following streets:

Street/Road Name	Public or Private	Street Class (TSP)	Jurisdiction	Improved?
Old Portland Road	Public	Minor Arterial	City of St. Helens	partial; no curb or sidewalk
Kaster Road	Public	Collector	City of St. Helena	partial, no curb (except close to Old Portland Road) or sidewalk

The site utilizes these streets for access and brings vehicle access within the statutory distance of the primary entrance.

Vehicular access spacing, amount, etc. As an arterial classified street, direct access from Old Portland Road would not normally be allowed and is not proposed.

The main access drive is proposed using Kaster Road. This driveway is 300'+ away from Old Portland Road and there are no existing driveways on the same side of Kaster Road for the purpose of determining driveway spacing.

A second means of access to the property is proposed via S. 15th Street, which leads to Old Portland Road. As described above, this secondary access is necessary due to the floodplain issues.

For public/institutional developments, the number of access points is supposed to be minimized to protect the function, safety and operations of streets. Moreover, the number of driveway and private street intersections with public streets shall be minimized by the use of shared driveways with adjoining lots where feasible. How the expansion area will be designed is unknown, but ensuring the Kaster Road access point can be used for the southerly "expansion area" of the site is important to honor these code provisions and efficient use of the expansion area, which was one of the factors for choosing to place this critical facility in proximity of a known natural hazard. This is also supported in the St. Helens Industrial Business Park Parcelization Framework and Funding Plan (Resolution No. 1910) as mentioned above.

The current plans honor this somewhat, but the storm water pond, including related grading work, encroaches. Based on the current plan, a swath of land 36' wide along Kaster Road needs to be preserved from grading interruptions and other encroachments. This will require plan revisions.

LEFT: Area to be preserved for future internal access along the storm water pond and beyond. This will impact the storm water pond location.

Pedestrian access (interior walkways). Walkways shall extend from the ground floor entrances or from the ground floor landing of stairs, ramps, or elevators of all commercial, institutional, and industrial uses, to the streets which provide the required access and egress. Walkways shall provide convenient connections between buildings in multibuilding commercial, institutional, and industrial complexes. Walkways also shall provide access to existing and planned transit stops adjacent to the development site. Unless impractical, walkways should be constructed between a new development and neighboring developments.

A walkway is proposed on all sides of the building connecting all building man doors to a walkway leading to Kaster Road. A man gate is proposed for the secure parking area.

If enough space is reserved (36' from the Kaster Road property line) as described above, a walkway aligning with the proposed could be included with a future drive along and past the storm water pond.

Where a site for proposed commercial, institutional, or multifamily development is located within at least one-quarter mile of an existing or planned transit stop, the proposed pedestrian circulation system must include a safe and direct pedestrian walkway from building entrances to the transit stop or to a public right-of-way that provides access to the transit stop.

There is no transit stop within a quarter mile, but there could be as the St. Helens Industrial Business Park develops. Walkway connections to the surrounding streets, are anticipated to provide pedestrian access to nearby transit stops.

Wherever required walkways cross vehicle access driveways or parking lots, such crossings shall be designed and located for pedestrian safety. Required walkways shall be physically separated

from motor vehicle traffic and parking by either a minimum six-inch vertical separation (curbed) or a minimum three-foot horizontal separation, except that pedestrian crossings of traffic aisles are permitted for distances no greater than 36 feet if appropriate landscaping, pavement markings, or contrasting pavement materials are used. Walkways shall be a minimum of four feet in width, exclusive of vehicle overhangs and obstructions such as mailboxes, benches, bicycle racks, and sign posts, and shall be in compliance with ADA standards.

Proposed vehicle crossings are only 24' wide; consultant narrative notes concrete or pavement markings will be used. Plans show concrete to contrast with asphalt, but pavement marking would be acceptable too. All walkways exceed 4' in width.

Required walkways shall be paved with hard-surfaced materials such as concrete, asphalt, stone, brick, etc. Walkways shall be required to be lighted and/or signed as needed for safety purposes. Soft-surfaced public use pathways may be provided only if such pathways are provided in addition to required pathways.

No other paths are proposed. Some plan sheets indicate a potential future multi-use trail, but there is no finality to this in the plans or any mention in the consultant narrative.

Access requirements based on type and intensity of use. For uses with off-street parking lots up to 100 spaces, like this proposal, at least one access point with minimum 24' drive width is required. This is proposed via Kaster.

Director's authority to restrict access. Per SHMC 17.84.110(2) and (3):

> (2) In order to eliminate the need to use public streets for movements between commercial or industrial properties, parking areas shall be designed to connect with parking areas on adjacent properties unless not feasible. The director shall require access easements between properties where necessary to provide for parking area connections.
>
> (3) In order to facilitate pedestrian and bicycle traffic, access and parking area plans shall provide efficient sidewalk and/or pathway connections, as feasible, between neighboring developments or land uses.

Kaster Road, as it exists today (between Old Portland Road and the paper mill parking lot), is a Collector classified street. Once the St. Helens Industrial Business Park is built out, it will be a key route for many users and traffic function along this segment of Kaster Road will be critical.

A key aspect of honoring these standards has already been mentioned in this report, which is maintaining area for road and walkway extension by and past the storm water pond. This allows efficient use of a single access point for transportation function and allows for proper expansion—the ability to expand being a key issue in the site selection process. These criteria are further basis for this condition of approval.

* * *

Signs: New signs require permits per Chapter 17.88 SHMC. This sign permit has been incorporated into this decision.

Since the proposed sign is not in the small R5 zoned area along Old Portland Road, the applicable sign district is the commercial/industrial sign district. A monument sign is proposed and is possible for public facilities such as the proposed police station.

For public facilities, a monument or ground mounted sign is possible along each street frontage.

This is important considering two existing signs on the site. One near the intersection of Old Portland Road and Kaster Road, was approved in 2019 by Sign Permit S.3.19. This sign is out of compliance with the sign permit and that will need to be corrected. This sign was approved as a pole sign, a type of freestanding sign like monument signs. One pole is allowed per SHMC 17.88.060(1)(b) and only one freestanding sign is allowed per street frontage per 17.88.095(5).

The existing sign close to the intersection can be based on Old Portland Road frontage and the new one for the police station based on Kaster Road, two freestanding signs, one per street frontage. Note there is also a second existing freestanding sign, which appears to have been in place for years or decades along Kaster Road towards the midpoint between Old Portland Road and the Fir Street right-of-way. This is technically a separate property (though with this Conditional Use Permit, et. al. they will need to be considered one) and can stay (i.e., not mandated to move as a condition of approval).

For the proposed new sign, maximum sign area allowed is 40 square feet per face. Per SHMC 17.88.080(1) the sign area could be considered the metal plate behind the "St. Helens Police" letters. The plate area is 10" x 15'4" or approximately 13 square feet.

Maximum monument sign height is six feet. Sign is incorporated with a raised planter, with a total height of 4 feet.

Freestanding signs, such as the proposed monument sign, in commercial/industrial sign districts shall not be within 50 feet from the property line of any residential property as measured from the street frontage. The closest residential property at 1691 Old Portland Road is much more than 50' away.

The proposed sign will be illuminated by an external lighting source. Such lighting is required to be directed and shielded to limit direct illumination of any object other than sign.

* * *

Solid Waste/Recyclables: Chapter 17.92 SHMC includes provisions for functional and adequate space for on-site storage and efficient collection of mixed solid waste and recyclables subject to pick up and removal by haulers.

Proposed trash enclosure area exceeds the minimum approximate 55 square feet area requirement and is in a good location to be accessible by waste haulers. Minimum 10' wide gate is required; such is proposed. It will be enclosed by 8' tall CMU walls, exceeding the minimum 6'. The location combined with drive aisles, should enable a trash hauler vehicle to maneuver within the site, preventing maneuvering in the street.

Note that because it includes a sanitary sewer drain, it must be designed to prevent storm water infiltration, including but not limited to a roof. A roof is proposed and is mandatory as long as there is a sanitary sewer drain.

* * *

Site Development Review: See consultant narrative by Mackenzie.

* * *

Conditional Use: These are important considerations for the Commission. Pursuant to SHMC 17.100.040:

> (1) The planning commission shall approve, approve with conditions, or deny an application for a conditional use or to enlarge or alter a conditional use based on findings of fact with respect to each of the following criteria:
>
> (a) The site size and dimensions provide adequate area for the needs of the proposed use;
>
> (b) The characteristics of the site are suitable for the proposed use considering size, shape, location, topography, and natural features;
>
> (c) All required public facilities have adequate capacity to serve the proposal;
>
> (d) The applicable requirements of the zoning district are met except as modified by this chapter;
>
> (e) The supplementary requirements set forth in Chapter 17.88 SHMC, Signs; and Chapter 17.96 SHMC, Site Development Review, if applicable, are met; and
>
> (f) The use will comply with the applicable policies of the comprehensive plan.

Findings: **(a)** Due to surrounding wetlands, rock/topography, and the floodplain, fitting the proposal to the site took effort. Originally, the site was assumed to fit into the area between Old Portland Road and the now vacated 7th Street right-of-way.

Early plans included development east of the now proposed secure parking area, but using this area was scrapped due to rock features. As the site concept developed, the storm water pond needed to be fit in and the city vacated the 7th Street right-of-way. So now that it includes the original intended property, the vacated right-of-way, and the property lying south of the vacated right-of-way, there is more practical expansion area (expansion was a basis for site selection) since expanding east into rock may not be practical, and removal of the rock will be more challenging once the facility is built.

Denial basis

(b) The Commission finds that because long known and modeled flooding can impact the proposed police station facility, which includes its access, the site is inappropriate for this use. A police station is too important for the community and any chance of flooding that impacts the facility is too great given its purpose of maintaining, restoring, and advancing public health, safety and welfare. This is an inappropriate location for a police station.

(c) There is no evidence of public facility shortfalls, except for sanitary sewer, which is explained more below.

(d) There is no issue with zoning standards as noted elsewhere herein.

(e) Site Development and sign standards both apply and can be met or met with conditions.

(f) The following Comprehensive Plan policies are noteworthy:

> 19.08.030(3)(u). Take necessary actions to help ensure the area maintains its current fire and police quality; specifically take into consideration the effects of fire and police protection in the siting and design of all new development.

The existing police station at 150 S. 13th Street is dated and insufficient for current and future staff. The current St. Helens Police Station was built in 1971 to serve an approximate population of 6,200, less than half today's current population of around 14,355. The station has seen almost no change to the original 2,200 square feet of office space and garage. Notable limitations includes that current facility is not ADA accessible, its emergency and seismic standards are antiquated, digital data storage is poorly accommodated, not all of the police vehicle fleet can be stored securely, lack of private interview space, lack of space for officer training, insufficient lockers for staffing levels, lack of changing rooms for both male and female officers, and no armory. Police staff have noted the inability to get certain funding/grants based on the current station's inadequacy.

To help offset these deficiencies, a modular building donated by the school district was added around 2018 (file SDRm.9.18) to the site to increase floor area, generally for senior administrative staff work, but this building lacks running water or lavatory facilities. To use these facilities, someone would need to exist the modular building to the outside to enter the original 1971 building.

A new facility is needed *somewhere* to ensure a quality law enforcement program for St. Helens.

However, taking the impact of police protection for the community in the siting of this site within immediate proximity and impact of a known and modeled natural hazard is something the Commission needs to consider. Especially because nearly the entire Columbia County Sherriff's Office at 901 Port Avenue is located within a 500-year floodplain already. Having both the County and City law enforcement headquarters in St. Helens which is both the County seat and the largest community in Columbia County, put both under the influence of major flooding events when these agencies will be desperately needed.

> 19.08.060(3)(i). Development in a hazardous area is required to meet strict standards to reduce or eliminate public harm.

Finding(s): The existence of police (and a police station) is in part, an entity intended to alleviate public harm. The Commission finds that development of the police station in the immediate proximity of a known and modeled natural hazard (i.e., flood) could pose a public harm since it is a critical facility per floodplain policy. Even if only access is impacted, the facility is impacted. There is a chance of flood impacts and even a slight chance is too great in this case. The site is a poor candidate for a police station.

Denial basis

19.12.130(2)(a). Prohibit development on lands within the 100-year floodplain (i.e., special flood hazard areas subject to inundation by at least one percent annual flood probability), on slopes exceeding 20 percent, or with recognized drainage problems unless showing that design and construction techniques can minimize potential loss of life or property; specifically:

(i) All development within the 100-year floodplain (i.e., special flood hazard areas subject to inundation by at least one percent annual flood probability) shall conform to the standards set by FEMA;

(ii) All development plans on slopes greater than 20 percent shall be reviewed and approved by the city engineer;

(iii) All development plans on lands with recognized drainage problems shall be reviewed and approved by the city engineer.

For development on such designated lands, the city may impose whatever conditions it deems necessary to protect life and property.

Finding(s): The key part of this the Commission can consider is the last line about "whatever conditions it deems necessary." The Commission considered requiring a wider secondary access more suitable for two-way vehicular travel (i.e. 24') but ultimately decided the site is inappropriate for a police station.

* * *

Tree Removal/Preservation: Chapter 17.132 SHMC addresses the preservation of trees with a diameter at breast height (DBH) >12 inches. Protection is preferred over removal per this Chapter and Site Development Review Chapter 17.96 SHMC.

Tree plan is required because there are many trees (>10) on the subject property. Per the existing conditions plans, there are approximately 430 trees total on the subject property. Of these approximately 282 have a DBH $\geq$ 12 inches. Of these larger DBH trees, only 33 are proposed for removal. This could change slightly with final plans but, as more than 50% of trees with a DBH > 12 inches will be saved, replacement is necessary only at 1:1 ratio.

Plans submitted with this application show 47 new landscaping trees and 47 wetland buffer enhancement mitigation for almost 100 new trees. This number may change with final plans, but 1:1 replacement of larger DBH trees should be easily met.

Protection of trees will be required (as well as wetlands and related protection zones). This is explained in the Sensitive Lands Assessment conducted by Wetland Solutions Northwest, LLC and will need to be included on final plans to ensure contractors and others follow the protection plan during site development.

Note that extra tree plantings will also help with tree mitigation related to Partition PT.2.23 intended to create a new parcel for a new PGE electrical substation to serve the St. Helens Industrial Business Park.

* * *

Street/Right-of-Way Standards: Old Portland Road is classified as a minor arterial per the 2011 Transportation Systems Plan (TSP). It is also part of the 2019 Riverfront Connector Plan

(RCP), which is a refinement of the TSP. The RCP calls for 60' of right-of-way, which is already in place. However, it also calls for a roundabout at the Old Portland Road / Kaster Road (S. 18th Street) intersection.

This roundabout will require right-of-way dedication and improvements that have not been developed beyond planning level in the 2019 RCP. When and exactly how (i.e., final construction plans) are not known at this time. Generally, substantial improvements and significant landscaping are outside of the assumed roundabout area.

Because the roundabout is to-be-determined, the transition areas of frontage improvements (sidewalk, etc.) area also unknown at this time. As such, staff does not recommend street frontage improvements along most of the site close to Old Portland Road. The roundabout will be a city initiated project and will be able to install the improvements later.

However, the area of the subject property along Kaster Road south of the proposed driveway is outside the anticipated area of design impact for the roundabout. The driveway provides an opportunity for a transition to the normal collector street standard that applies to Kaster Road. This is a significant project that would normally require frontage improvements, and this is an appropriate area for improvements for this project.

The Kaster Road right-of-way meets or exceeds the minimum 60' width required, so no dedication anticipated.

* * *

Utility Standards:

Water: Water is available along both Old Portland Road and Kaster Road.

Sanitary Sewer: Sewer is available along a mainline within the site (within the vacated 7th Street right-if-way).

The city adopted a new **Wastewater Master Plan (WWMP)** in November 2021 that identifies undersized trunk lines already operating at or above capacity that this development would depend on. The WWMP can be found here:

https://www.sthelensoregon.gov/engineering/page/public-infrastructure-master-plans

Sewer pipes are considered "at capacity" when peak flows exceed 85% of the full depth of the pipe in accordance with industry standards. This depth is based on the maximum depth of flow ratio (d/D). where "d" is the depth of flow and "D" is the pipe diameter. The WWMP includes an exhibit—Figure 18—that shows that there is a potential overflow within Kaster Road by the subject property and that there is a segment of mainline between Kaster Road and the wastewater treatment pond that is over capacity now.

Pipeline surcharging occurs as flows exceed the capacity of a full pipe, causing wastewater to back up into manholes and services. In addition to potentially backing up into homes and health

risks associated with sanitary sewer overflows, Oregon DEQ prohibits all sanitary sewer overflows and can fine cities for allowing such and has done so to other jurisdictions. Examples of DEQ fines can be found here:

https://www.oregon.gov/deq/Pages/enforcement-actions.aspx

Given this issue, SHMC 17.152.090(4) must be considered:

> Permits Denied. Development permits may be restricted by the commission or council (i.e., the applicable approval authority) where a deficiency exists in the existing sewer system or portion thereof which cannot be rectified within the development and which if not rectified will result in a threat to public health or safety, surcharging of existing mains, or violations of state or federal standards pertaining to operation of the sewage treatment system.

There is a current deficiency (undersized pipes for existing demand) of a widespread scale within the city per the WWMP including infrastructure this development would need to utilize that could result in surcharging, fines (e.g., for violation of Oregon DEQ standards) and public health risks.

The Commission finds this development can still be approved under these circumstances given this criterion based on the following findings or conditions of approval:

- The deficient conveyance infrastructure this development depends on for sanitary sewer appears to be a priority 3 in the WWMP. Priority rankings include three categories. There is no priority 2 conveyance improvements. The difference between priority 1 and 3, is priority 1 includes areas that have been reported to have overflows or significant surcharging during wet weather events, whereas priority 3 areas are where there have been infrequent or no observations of historical overflows or surcharging.

- City Public Works and Engineering staff have already begun to address the necessary sanitary sewer infrastructure upgrades having already received a State Revolving Fund Program loan (for below market rate loans) from Oregon DEQ to fund both priority 1 projects (in basins 4 and 5) and priority 3 projects in basin 6. Basin 6 is applicable to this proposal. City Public Works and Engineering indicate an anticipated 4-year timeframe (from October 2022) for completion of these upgrades.

- A condition of approval to require a fee per equivalent dwelling unit will be included. This is not a System Development Charge pursuant to ORS 223.299(4)(b); it is a temporary charge by order for development and land divisions proposed under these circumstances until the infrastructure is in order per the WWMP. The nexus is clear as it relates to the sewer conveyance deficiency and an amount has been determined based on calculations to determine fair proportionality—see attached **St. Helens Wastewater Collection System New Sewer Connection Surcharge memo**.

  For this project, the fee per equivalent dwelling unit is $1,800, and this estimated amount is determined to be a fair share quantity for this proposal. It is based on October 2022 dollars, and inflation must be considered.

- Though denial of this proposal itself does not warrant a moratorium or public facilities strategy as there is no prior stoppage or restriction of permits, authorizations, or approvals*, the city recognizes that the sanitary sewer conveyance problems identified in the WWMP are widespread and denial could set a precedence of action that if continued for projects under similar circumstances, could be construed as a pattern or practice that at some point could warrant a moratorium or public facilities strategy.

  *Per ORS 197.524 a local government is required to adopt a public facilities strategy under ORS 197.768 or a moratorium on construction or land development under ORS 197.505 to 197.540 when it engages in a pattern or practice of delaying or stopping the issuance of permits, authorizations or approvals necessary for land divisions or construction due to the shortage of public facilities (like sanitary sewer).

Storm Sewer: There is an existing storm line through the site that will be incorporated for use. Stormwater is proposed to be managed via an on site via a stormwater pond in addition to conveyance infrastructure. Per the Geotech report infiltration is not feasible for the site.

A preliminary drainage report has been provided. Final drainage plans will be required.

Other: There is existing overhead utility along Old Portland Road and Kaster Road. O/h utility may remain as long as no new poles are needed.

* * *

Trails/bikeways: The secondary access via the S. 15th Street right-of-way will advance trail #7 in the 2015 Parks and Trails Master Plan, which intended to eventually provide a connection between McCormick Park and Nob Hill Nature Park. Though, earlier versions of plans included connecting this to Kaster Road via improved walkway along the developed site, this is not included on the current plans. Consultant narrative does not address this change, despite related past efforts and discussions.

The intersection of Kaster Road and Old Portland Road is one where the city has received comments about pedestrian crossings.

Bicycle lanes are contemplated in the 2019 Riverfront Connector Plan; when the roundabout and surrounding improvements are done, bicycle amenities will be considered.

There is nothing specific for Kaster Road beyond the design impact area of the 2019 Riverfront Connector Plan roundabout, except for bike lanes as part of collector streets as identified in the 2010 Transportation Systems Plan.

The Commission didn't discuss this matter in depth, focusing on issues that resulted in denial of this permit package.

* * *

Traffic Impact Analysis: An August 29, 2022, letter from the consultant addresses Traffic Impact Analysis (TIA) thresholds and demonstrates a TIA is not warranted.

* * *

Other Considerations: There is a turnaround built in the design of the secondary access, but it is behind the secure fence. If the fence is closed the secondary access is a >500' long narrow road with no outlet or turn-around. Plans show a means of restricting vehicular access including do not enter signage. This may solve this issue, but any blockage will need to be acceptable to the Fire Marshall to ensure emergency access.

Normal minimum width for minimum for fire apparatus access is 20'. A section of the secondary access is only 15' wide. This will need Fire Marshall ok as part of final plan approval.

The Commission considered a wider secondary access, but did not motion any related condition of approval, because they denied the proposal.

* * * * *

CONCLUSION & DECISION

Based on the facts and findings herein, the Planning Commission denies this Conditional Use Permit CUP.4.23, Sensitive Lands Permits SL.4.23 (floodplain) and SL.5.23 (wetlands), and Sign Permit S.14.23.

Dan Cary, Chairman, Planning Commission

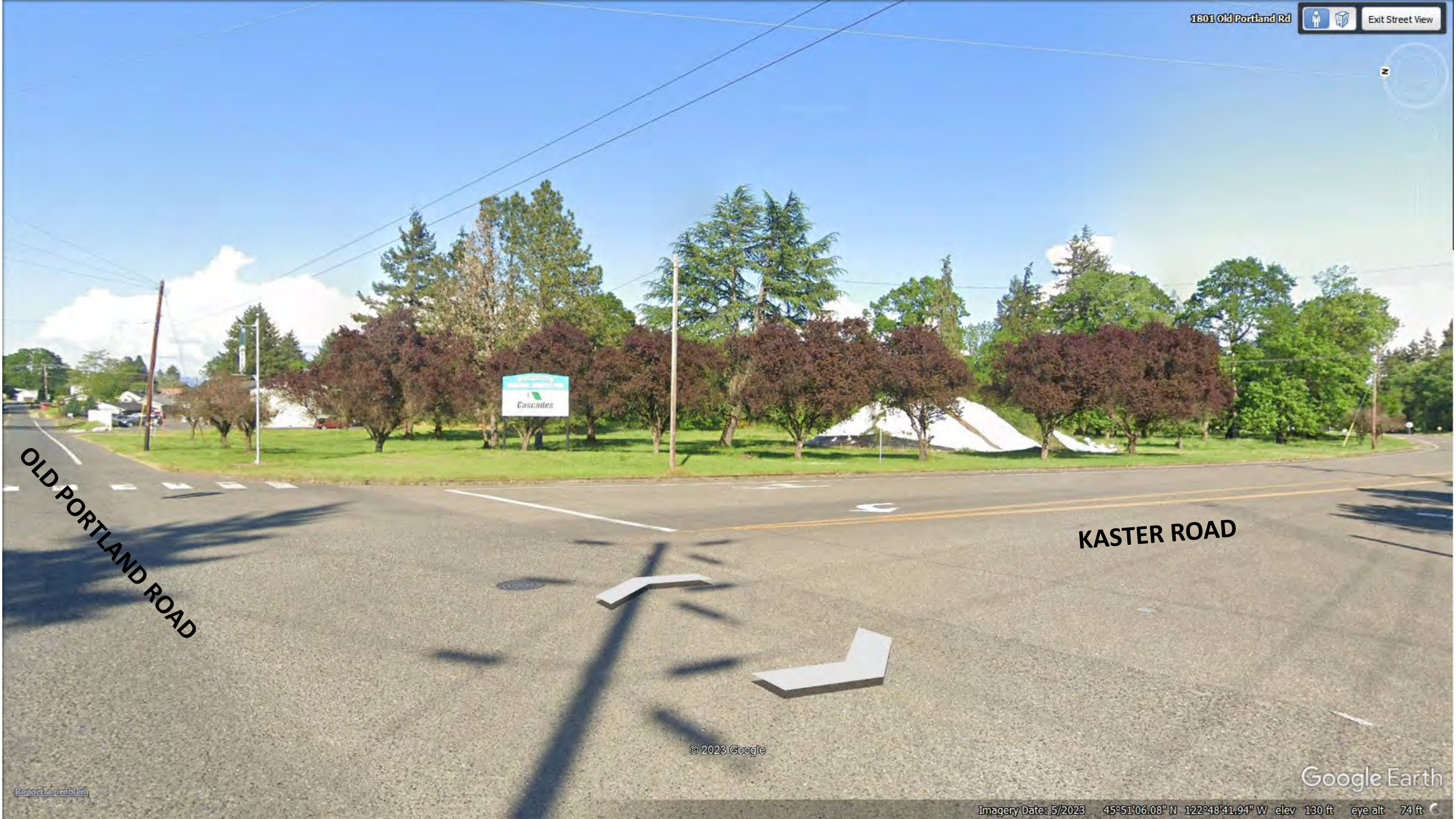
Sept. 26, 2023
Date

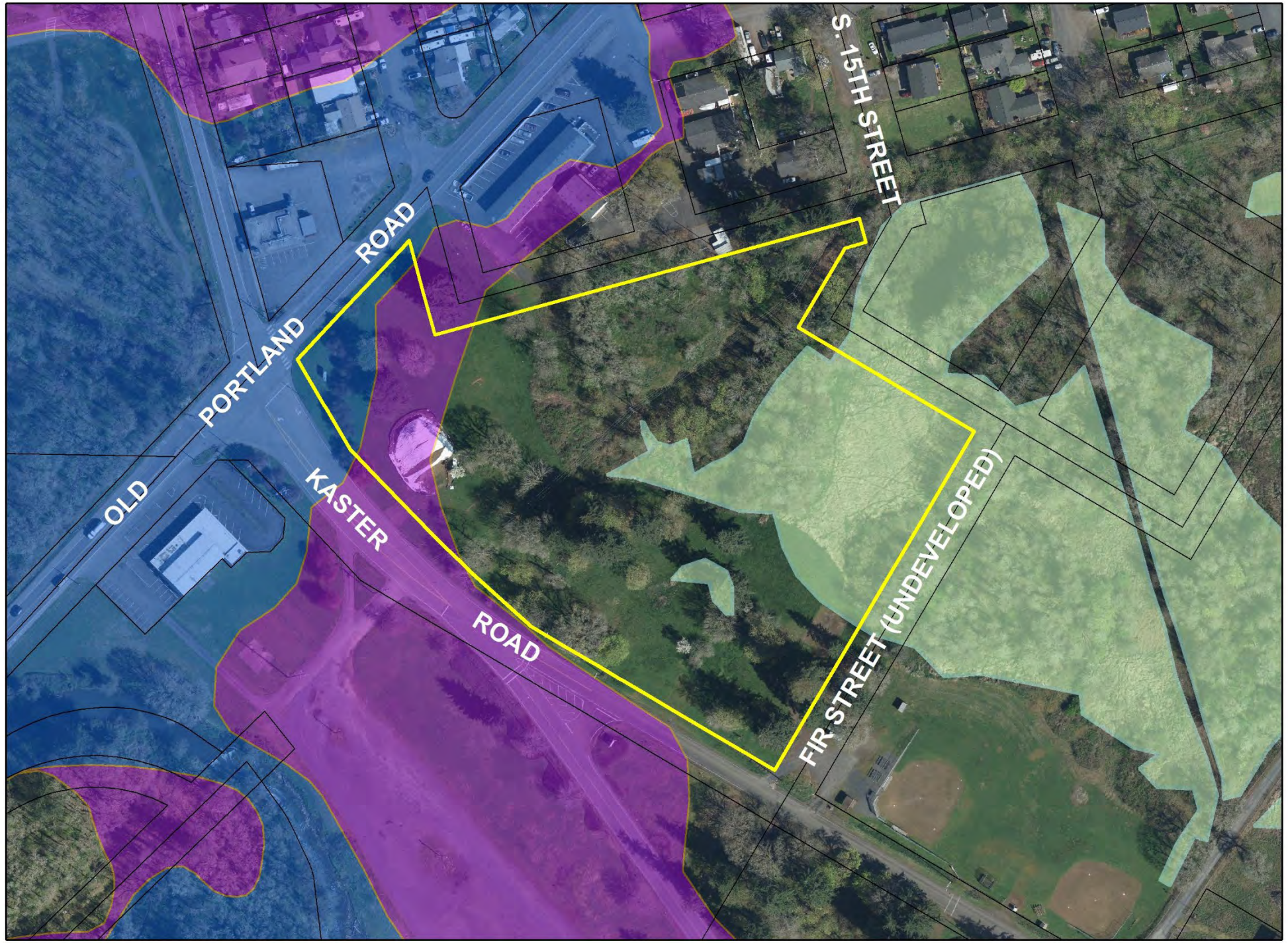
This is an amended decision from that signed on September 14, 2023 to correct errors.

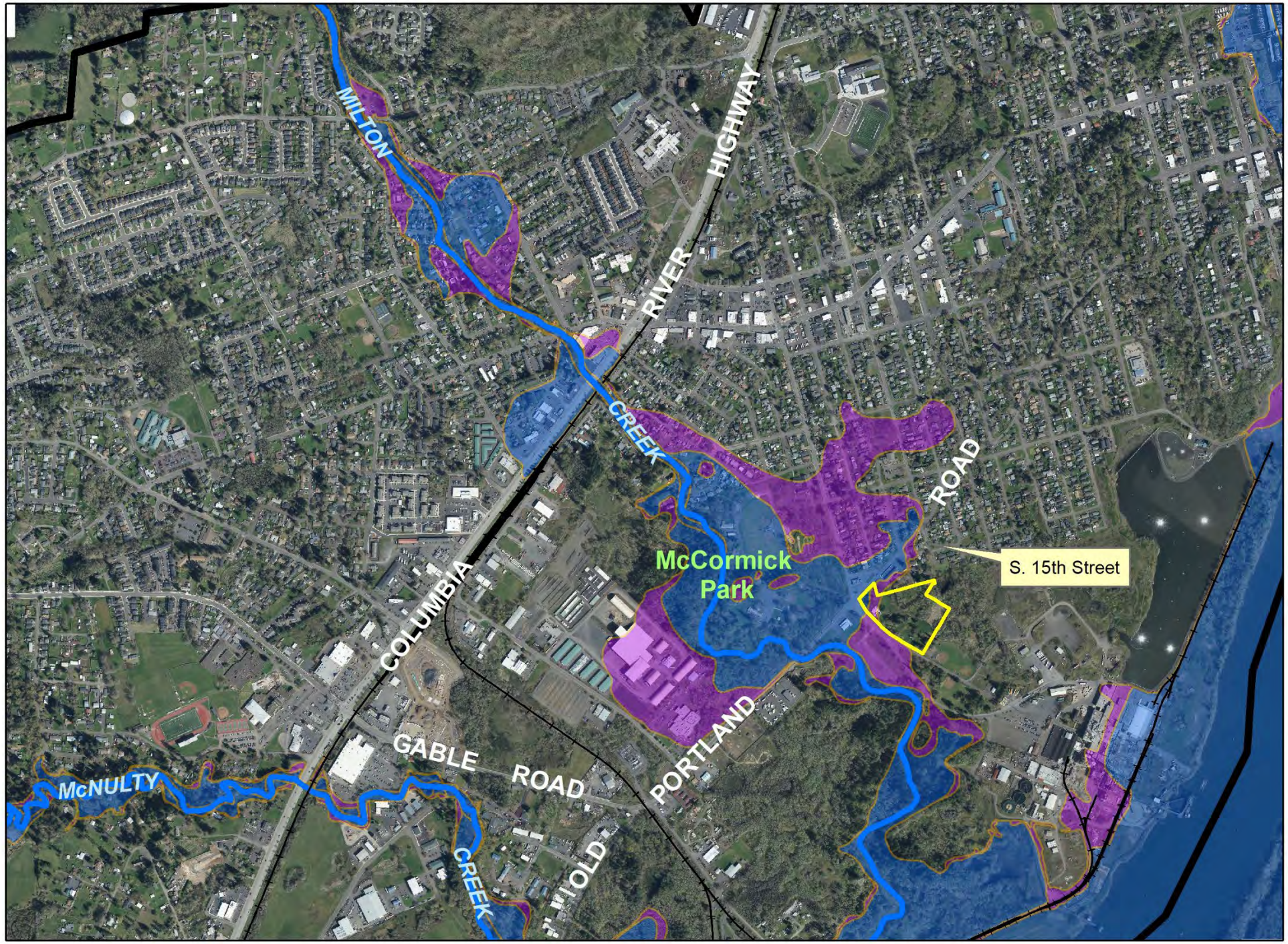

City of St. Helens
FOUNDED 1850
Existing Police Station
McCormick Park
Proposed new police station
IN VALOR THERE IS HOPE
ST. HELENS
POLICE
EST. 1889
ST. HELENS
POLICE

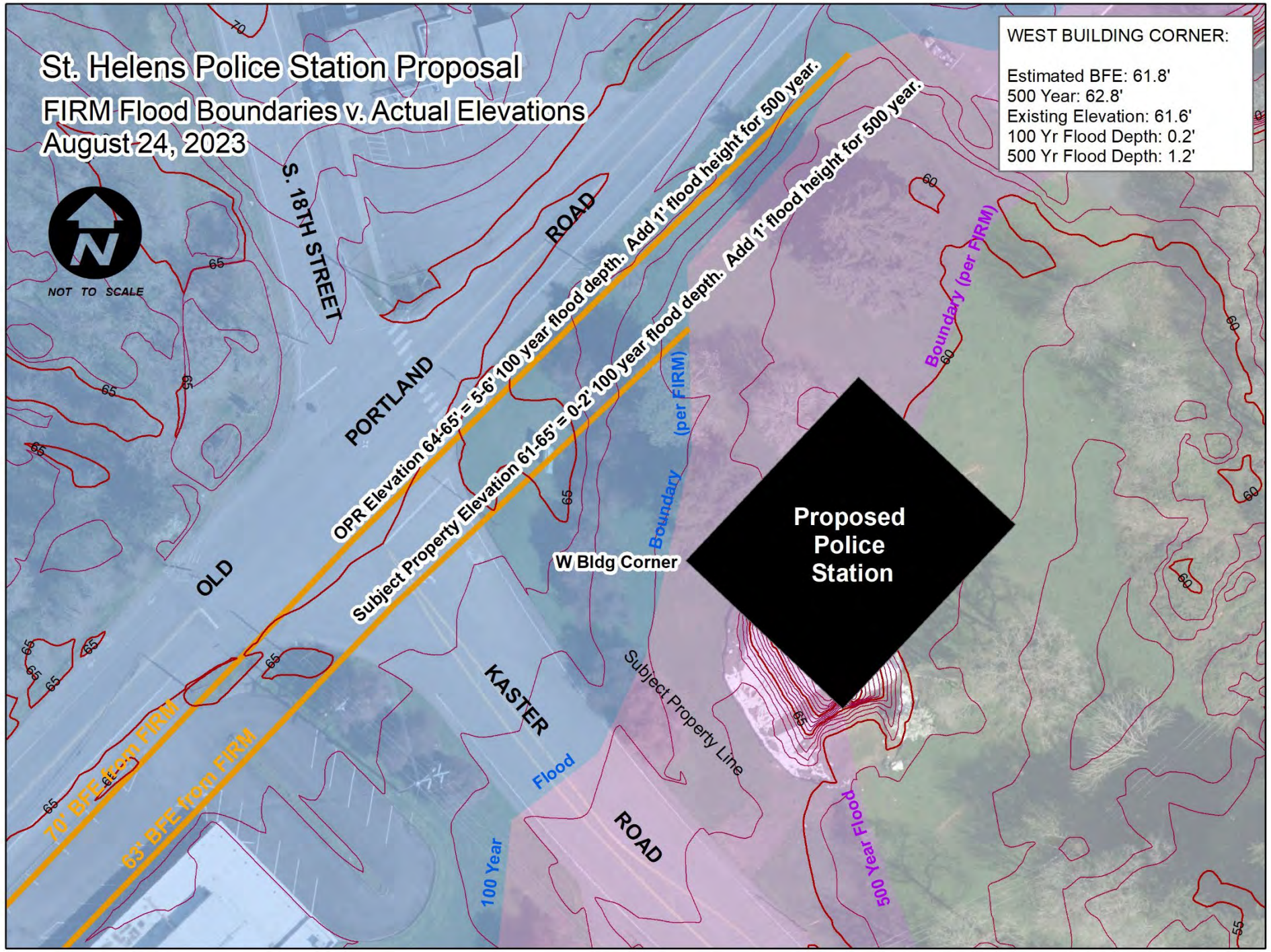
The existing police station at 150 S. 13th Street is dated and insufficient for current and future staff.

- Built in 1971, when population was 6,200
- No change (other than modular building added in 2018) → today's population 14,400 → **130% increase!!!**
- Main building is 2,200 office space/garage → smaller than many homes!
- ADA deficient
- Antiquated seismic standards
- Poor digital storage accommodation → Not an issue in 1971
- Entire vehicle fleet cannot be securely stored
- Lack of private interview and training space
- No armory
- Conditions thwart grant efforts


1801 Old Portland Rd
Exit Street View
Cascades
OLD PORTLAND ROAD
KASTER ROAD
© 2023 Google
Google Earth
Report a problem
Imagery Date: 5/2023 45°51'06.08" N 122°48'41.94" W elev 130 ft eye alt 74 ft


S. 15TH STREET
OLD PORTLAND ROAD
KASTER ROAD
FIR STREET (UNDEVELOPED)


MILTON
RIVER
HIGHWAY
CREEK
ROAD
McCormick
Park
S. 15th Street
COLUMBIA
PORTLAND
GABLE
ROAD
McNULTY
CREEK
OLD


St. Helens Police Station Proposal
FIRM Flood Boundaries v. Actual Elevations
August 24, 2023
NOT TO SCALE
WEST BUILDING CORNER:
Estimated BFE: 61.8'
500 Year: 62.8'
Existing Elevation: 61.6'
100 Yr Flood Depth: 0.2'
500 Yr Flood Depth: 1.2'
S. 18TH STREET
ROAD
PORTLAND
OLD
KASTER
ROAD
OPR Elevation 64-65' = 5-6' 100 year flood depth. Add 1' flood height for 500 year.
Subject Property Elevation 61-65' = 0-2' 100 year flood depth. Add 1' flood height for 500 year.
Boundary (per FIRM)
Boundary (per FIRM)
W Bldg Corner
Proposed Police Station
Subject Property Line
70' BFE from FIRM
63' BFE from FIRM
100 Year Flood
500 Year Flood

USE PER ZONING: Public Safety Facility, *a conditional use*

> "Public safety facilities" means providing protection pursuant to fire, life, and safety code sections together with the incidental storage and maintenance of necessary vehicles. Typical uses include fire stations, police stations, and ambulance services.

CONDITIONAL USE CRITERIA includes:

> The characteristics of the site are suitable for the proposed use considering size, shape, location, topography, and natural features.

USE PER FLOOD POLICY: Critical facility

> "Critical facility" means a facility for which even a slight chance of flooding might be too great. Critical facilities include, but are not limited to, schools, nursing homes, hospitals, police, fire and emergency response installations, and installations which produce, use or store hazardous materials or hazardous waste.

CRITICAL FACILITY POLICY:

> Construction of new critical facilities shall be, to the extent possible, located outside the limits of the special flood hazard area (SFHA). Construction of new critical facilities shall be permissible within the SFHA only if no feasible alternative site is available. Critical facilities construction within the SFHA shall have the lowest floor elevated at least three feet above the base flood elevation (BFE) or to the height of the 500-year flood, whichever is higher. Access to and from the critical facility shall also be protected to the height utilized above. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters.

LOCATON AND ALTERNATIVES ANALYSIS MATTERS → Site is anticipated to be impacted by flood waters, *at least* access

St. Helens Public Safety Facility

- Planning and Building the Next 50 Years
  - Site Selection Process

This slide by Matt Brown 2020

What Makes a Great Location?

Site Characteristics

- Size of buildable land
- Planning/Zoning Issues?
- Engineering Issues?

Ownership of Property

- Potential cost of purchase
- 1 or more parcels to purchase
- City owned = lower cost

Location

- Ease of access to Hwy 30
- Ease of entrance/exit
- Traffic on surrounding streets
- Future growth opportunities
- Visible to community!!!
- Ease of access for community

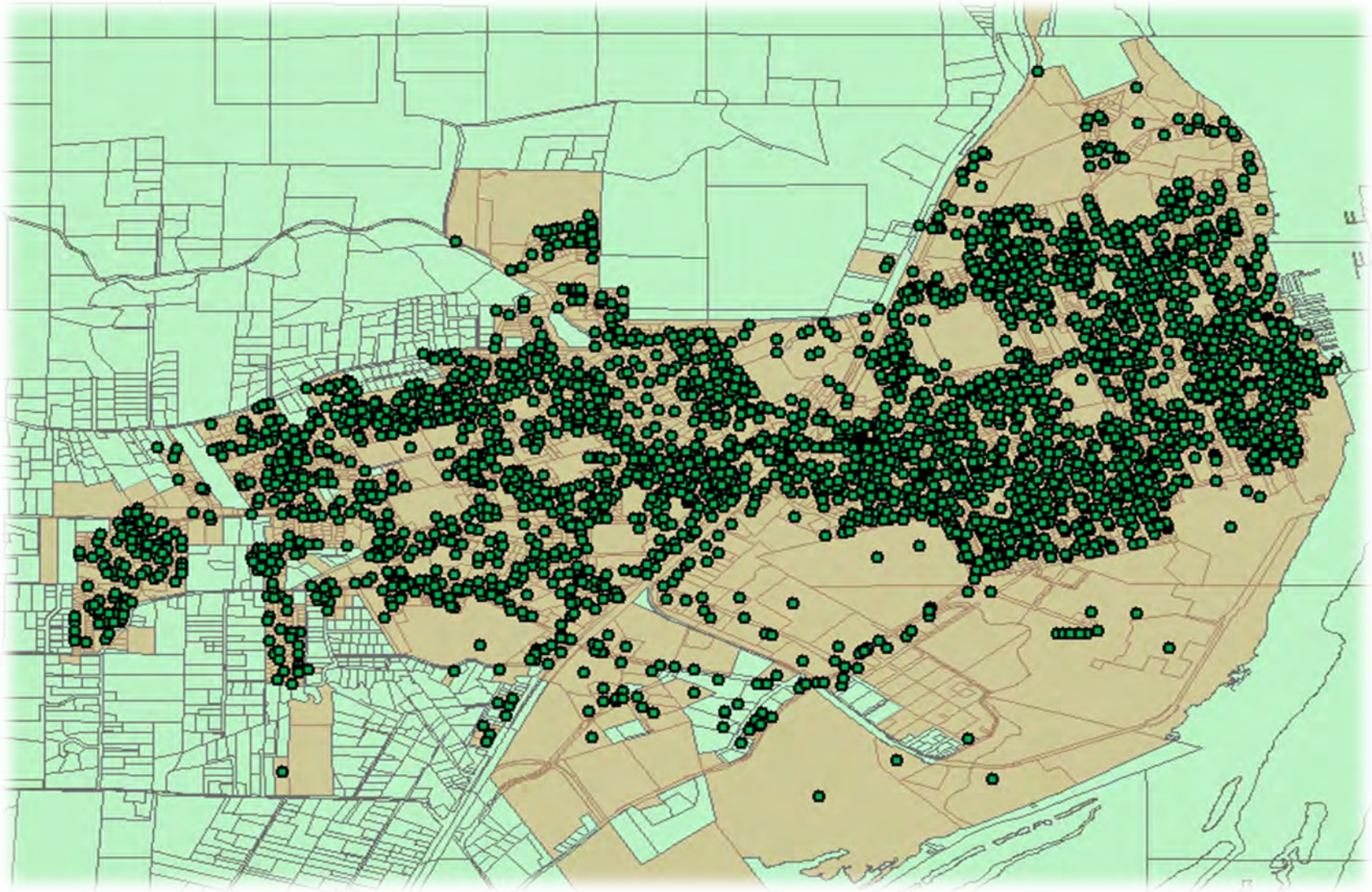
Phase 1:
Initial overview of property

Phase 2:
Finalist in-depth review internally

Phase 3:
Site plan review with Mackenzie

This slide by Matt Brown 2020

Calls for Service Data



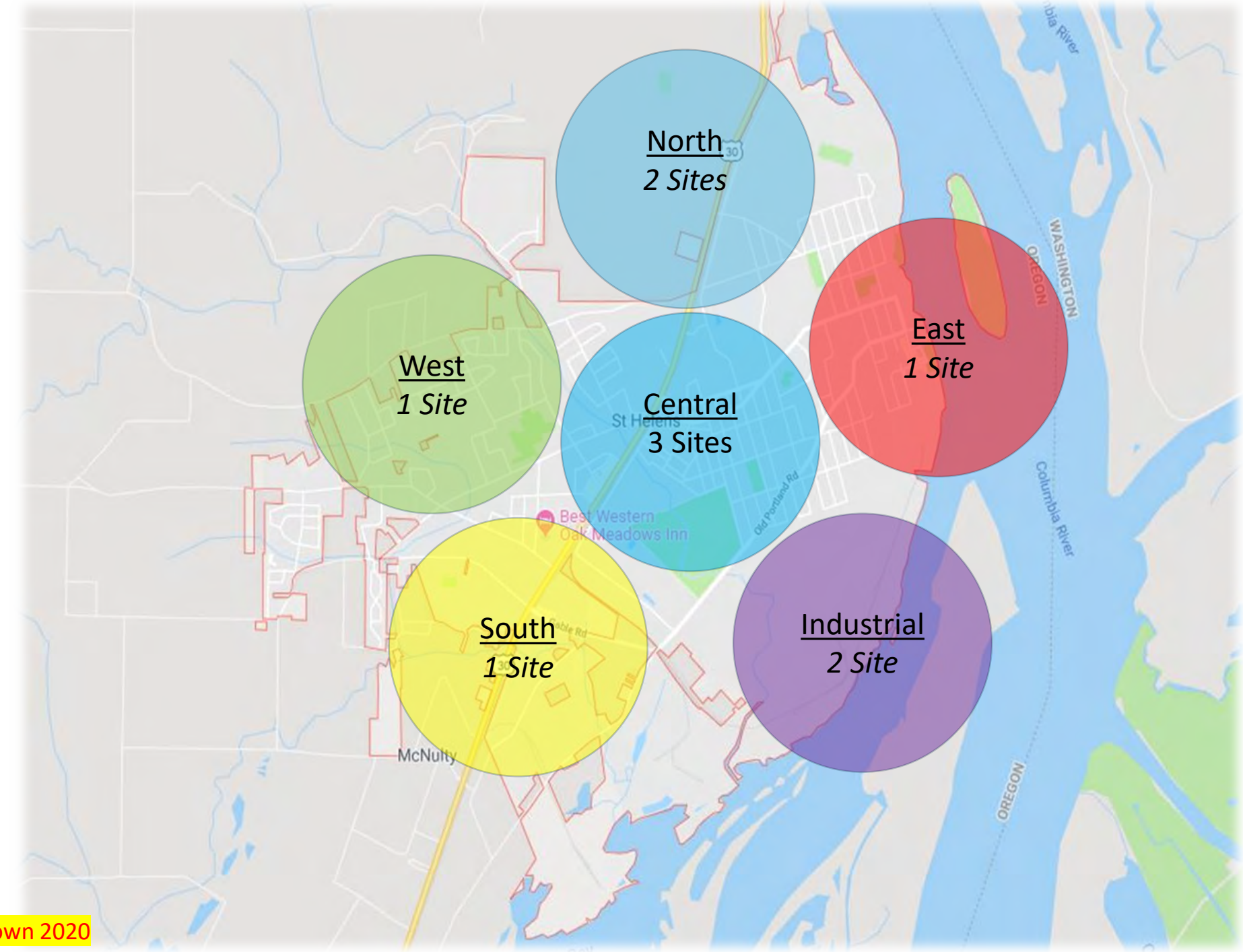
Top 3 Types of Calls

1. Traffic Stops
2. Assist Person
3. Suspicious Person

Top 3 Locations

1. Walmart area
2. Forest Park Apartments area
3. Motel 6 area

This slide by Matt Brown 2020



This slide by Matt Brown 2020

This slide by Matt Brown 2020

NORTH - Site 1
Next to CC Rider

Initial Facts:

- Not owned by City
- 1-Story Size Potential – 100,000 Sq. Ft

Decision – Not moving forward to Phase 2

Deciding Factors:

- Acquisition required
- Potential site problems underground

This slide by Matt Brown 2020

NORTH - Site 2
Next to CC Rider

Initial Facts:

- Not owned by City
- 1-Story Size Potential – 64,000 Sq. Ft

Decision – Not moving forward to Phase 2

Deciding Factors:

- Acquisition required
- Odd shape in rear (wasted space)

This slide by Matt Brown 2020

This slide by Matt Brown 2020

WEST - Site 3
Hwy 30 & Eilertson

Initial Facts:

- Not owned by city (multiple parcels)
- 1-Story Size Potential – 65,000 Sq. Ft

Decision – Not moving forward to Phase 2

Deciding Factors:

- Acquisition could be too expensive with multiple parcels/owners
- Direct traffic from Hwy 30 could prove problematic

This slide by Matt Brown 2020

This slide by Matt Brown 2020

SOUTH - Site 4
Millard Rd Property

Initial Facts:

- Owned by City
- 1-Story Size Potential – 562,000 Sq. Ft

Decision – Not moving forward to Phase 2

Deciding Factors:

- Distance away from center of city
- "Appearance" of moving PD to outskirts
- Could be developed for housing/ commercial (property tax potential)

This slide by Matt Brown 2020

This slide by Matt Brown 2020

INDUSTRIAL PARK - Site 5
Recreation Center

Initial Facts:

- Owned by City
- 1-Story Size Potential – 52,000 Sq. Ft.

Decision – Not moving forward to Phase 2

Deciding Factors:

- Future plans for Industrial Park, potential RV Park in initial planning phases.
- Future potential property tax revenue

This slide by Matt Brown 2020

INDUSTRIAL PARK - Site 6
Vacant Property

Initial Facts:

- Owned by City
- 1-Story Size Potential – 66,000 Sq. Ft.

Decision – MOVE TO PHASE 2

Deciding Factors:

- City ownership
- Potential space/expansion needs
- Wetlands *could* be an issue
- Access ease to Hwy 30
- No one-way streets

This slide by Matt Brown 2020

This slide by Matt Brown 2020

EAST – Site 7
The Old School

Initial Facts:

- Not Owned by City
- 3-Story Size Potential – 40,000+ Sq. Ft

Decision – Not moving forward to Phase 2

Deciding Factors:

- Acquisition cost with needed upgrades
- Multiple stories

This slide by Matt Brown 2020

This slide by Matt Brown 2020

CENTRAL – Site 8
Current Police Station

Initial Facts:

- Owned by City – Current PD
- Not owned by City – Option 2
- Option 1 – 34,000 Sq. Ft.
- Option 2 – 54,000 Sq. Ft.

Decision – MOVE TO PHASE 2

Deciding Factors:

- Already known location for residents
- Central location
- Option 2 Preference

This slide by Matt Brown 2020

CENTRAL - Site 9
18th & Columbia

Initial Facts:

- Not owned by City
- 1-Story Size Potential – 49,000 Sq. Ft

Decision – MOVE TO PHASE 2

Deciding Factors:

- Entire city block
- Central location
- Street parking

This slide by Matt Brown 2020

CENTRAL – Site 10
15th & Columbia Blvd

Initial Facts:

- Not Owned by City (up to 5 parcels)
- Up to 68,000 Sq. Ft.

Decision – Not moving forward to Phase 2

Deciding Factors:

- Acquisition of multiple parcels could be problematic

This slide by Matt Brown 2020

1.	Next to CC Rider (Option 1)	NORTH
2.	Next to CC Rider (Option 2)	NORTH
3.	Hwy 30 & Eilertson	WEST
4.	Millard Rd Property	SOUTH
5.	Recreation Center Site	INDUSTRIAL PARK
6.	Vacant Site	INDUSTRIAL PARK
7.	The Old School	EAST
8.	Current Police Station (2 Options)	CENTRAL
9.	18th & Columbia Square Block	CENTRAL
10.	15th & Columbia (Multiple Options)	CENTRAL

This slide by Matt Brown 2020

What Makes a Great Location?

Site Characteristics

- Size of buildable land
- Planning/Zoning Issues?
- Engineering Issues?

Ownership of Property

- Potential cost of purchase
- 1 or more parcels to purchase
- City owned = lower cost

Location

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- Ease of entrance/exit
- Traffic on surrounding streets
- Future growth opportunities
- Visible to community!!!
- Ease of access for community

Phase 1:
Initial overview of property

Phase 2:
Finalist in-depth review internally

Phase 3:
Site Plan, Floorplan, Rendering with Mackenzie

This slide by Matt Brown 2020

Site Scoring Characteristics

1. Cost of Land / Site Development	10. Neighborhood Context
2. Size of Site	11. Positing Facility on Site
3. Shape of Site	12. Security
4. Potential for Multi-Use	13. Traffic Congestion
5. Public Access to Site – Vehicle	14. Expansion to Adjacent Sites
6. Public Access to Site – Transit	15. Proximity to Geographic Center
7. Public Access to Site – Ped/Bike	16. Current Ownership
8. Visibility and Prominence	17. Land Use
9.Proximity to Gov't Functions	18. Response Time

This slide by Matt Brown 2020

City Council Work Session 4/7/2021

Adam Olsen

Task 3: Site Evaluations

RANKED: 1 - 4
(1: LEAST SUITED; 4: MOST SUITED)

	SITE 1: 1771 COLUMBIA BLVD	SITE 2: 1271 COLUMBIA BLVD	SITE 3: OLD PORTLAND ROAD	SITE 4*: OREGON STREET
1. COST OF LAND / SITE DEVELOPMENTS	2	3	4	1
2. SIZE OF SITE	1	2	3	4
3. SHAPE OF SITE	4	3	1	2
4. POTENTIAL FOR MULTI - USE	2	3	1	4
5. PUBLIC ACCESS TO SITE - VEHICLE	4	3	2	1
6. PUBLIC ACCESS TO SITE - TRANSIT	4	3	2	1
7. PUBLIC ACCESS TO SITE - PEDESTRIAN/BICYCLE	4	3	2	1
8. VISIBILITY AND PROMINENCE	4	3	2	1
9. PROXIMITY TO GOVERNMENT FUNCTIONS	3	4	2	1
10. NEIGHBORHOOD CONTEXT	4	3	2	1
11. POSITIONING FACILITY ON SITE	3	2	1	4
12. SECURITY	4	3	2	1
13. TRAFFIC CONGESTION	3	2	4	1
14. EXPANSION TO ADJACENT SITES	3	2	1	4
15. PROXIMITY TO GEOGRAPHIC CENTER	4	3	2	1
16. CURRENT OWNERSHIP	1	2	4	3
17. LAND USE	3	4	2	1
18. RESPONSE TIME	3	2	4	1
ASSESSMENT SCORE	56	50	41	33
CUMULATIVE RANK	1st	2nd	3rd	4th

LIVE

Scroll for details

Public Safety Facility Plans

Site Selection Process

City staff worked alongside Mackenzie Architecture to identify possible locations for a new Public Safety Facility. Originally identifying 10 locations around the community that were both owned already by the city and privately owned, the list was reduced to a Top 3 based on a variety of topics and categories. Once the Top 3 were identified, Mackenzie Architecture did a further analysis of each property to identify any potential issues that could arise for the facility and test-fit a model for a potential station on each property. Results were shown to City Council along with recommendations from our current Police staff and Mackenzie Architecture. There was a unanimous decision by City Council of the city-owned property at the corner of 18th and Old Portland Road (across from the recreation center where the industrial business park sign is).

Here are some of the specific reasons this site was chosen:

1. Site is already owned by the City, which would reduce costs of purchasing any needed property that could be $600,000 to $1,000,000.
2. Officer's liked the access ability to get in and out of the station. At the current Police Station, there is often issues with one-way streets leaving the facility.
3. The new site provides opportunity for expansion in the future if needed.
4. The new station allows easy access to Hwy 30 and access to alternative routes if there is a train.

Site Plan Characteristics

There are several factors that were thought about when drawing out the site plan of the new facility. The first and foremost was that if a new facility was to be built, we want to ensure that it is

Contact Information

City Hall
265 Strand Street
St. Helens, OR 97051

503-397-6272 Phone
503-397-4016 Fax

Hours:
Monday - Friday, 8:30am - 5pm
Closed daily from 12 - 1pm

View Full Contact Details

Upcoming Events

New Years Day Observed - CLOSED
12/31/2021 (All day)

Martin Luther King Jr Day - CLOSED
01/17/2022 - 12:00am

Presidents' Day - CLOSED
02/21/2022 - 12:00am

City Council selects: INDUSTRIAL PARK

Initial Facts:

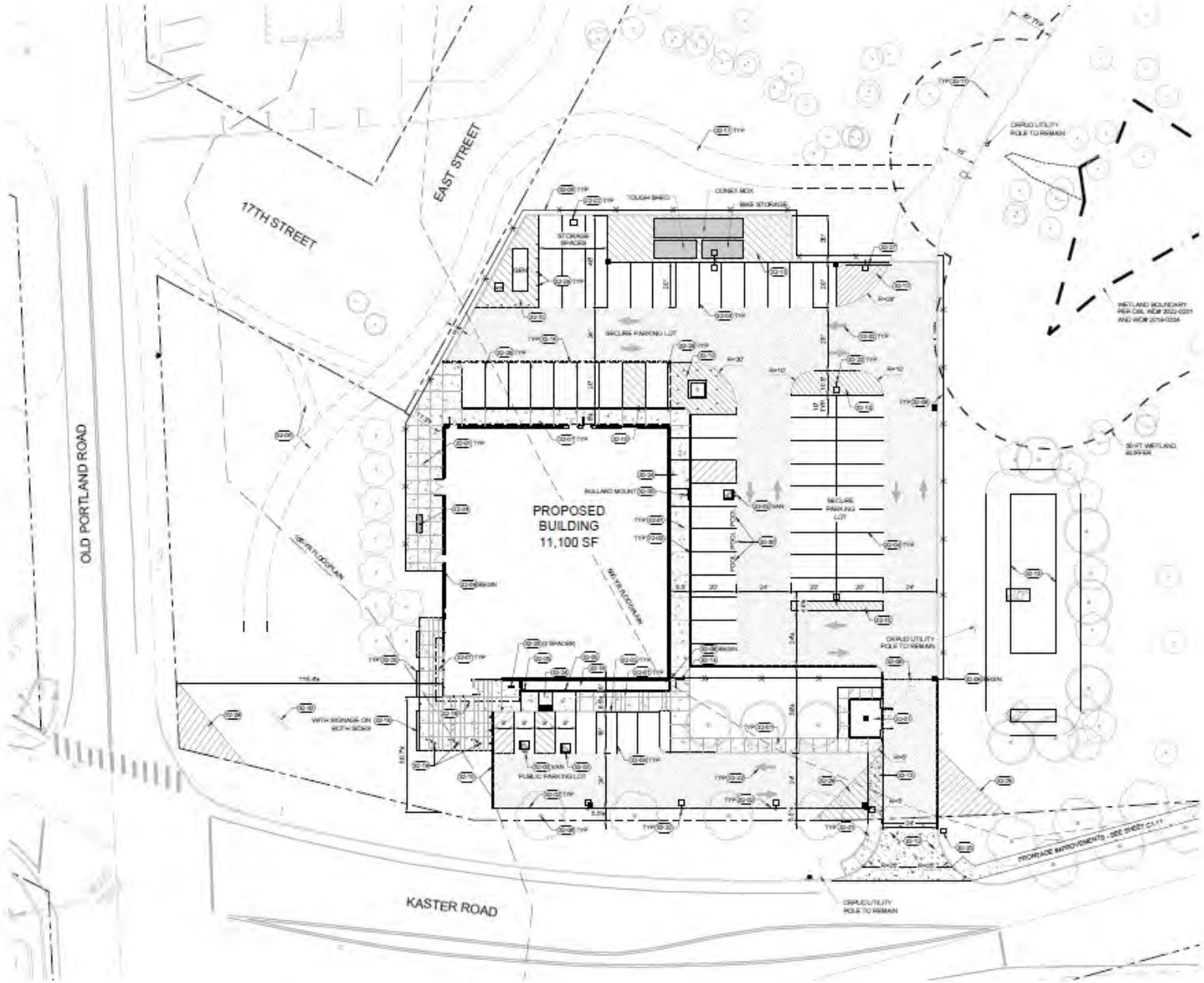
- Owned by City
- 1-Story Size Potential – 66,000 Sq. Ft.

Deciding Factors:

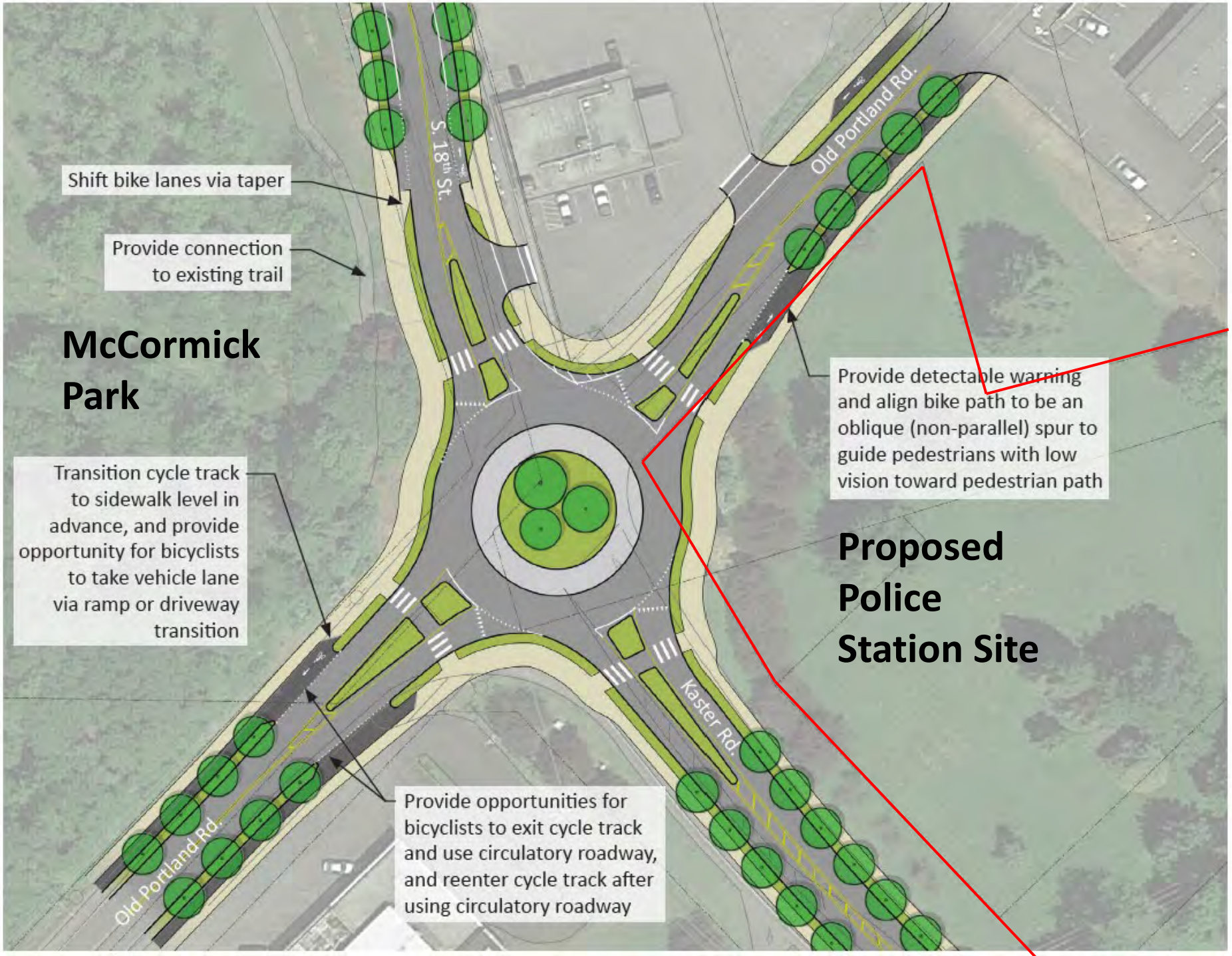
- City ownership
- Expansion Space
- Access ease to Hwy 30
- 1st Choice from Police Officers
- Staff Recommendation

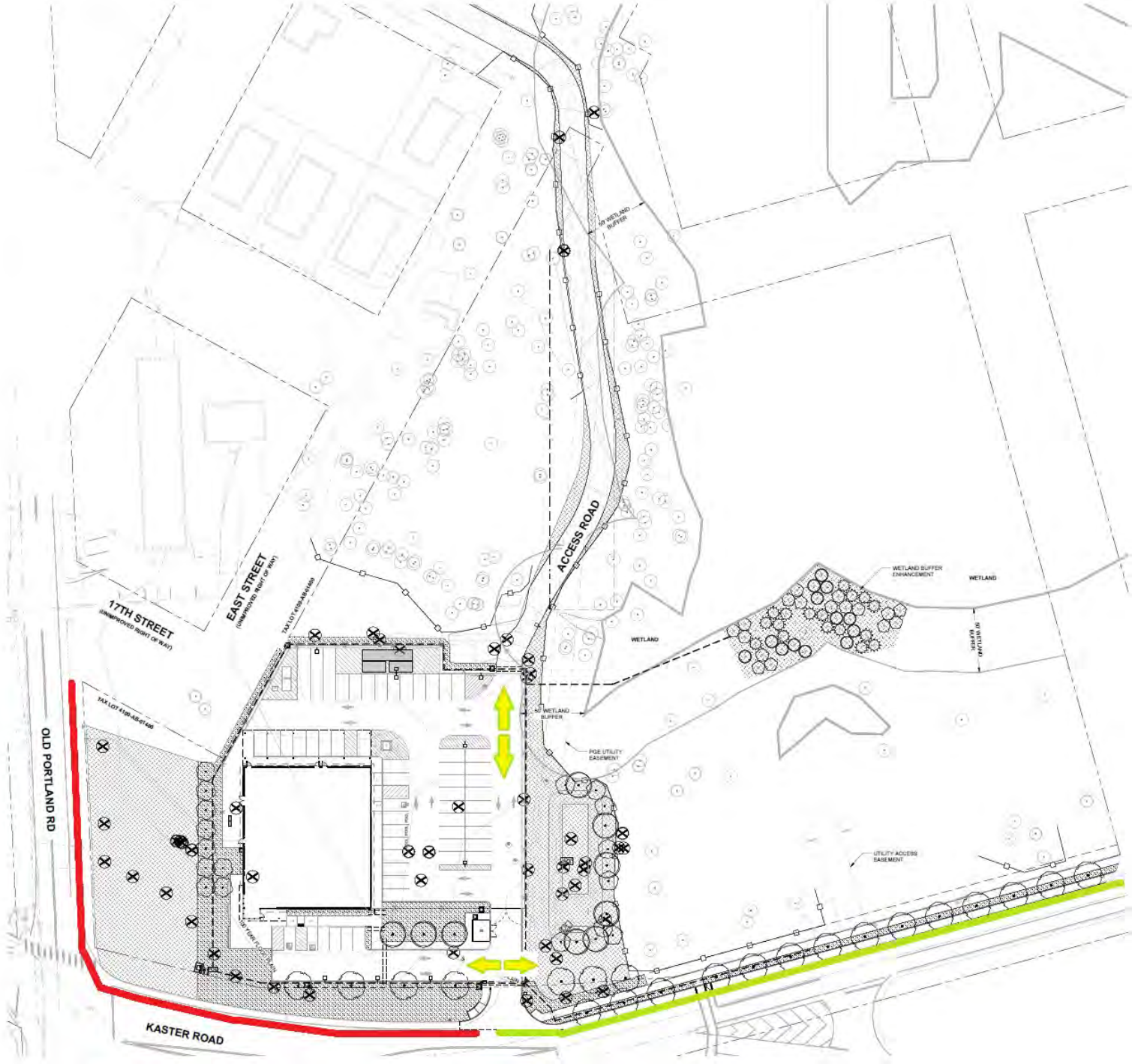
This slide by Matt Brown 2020

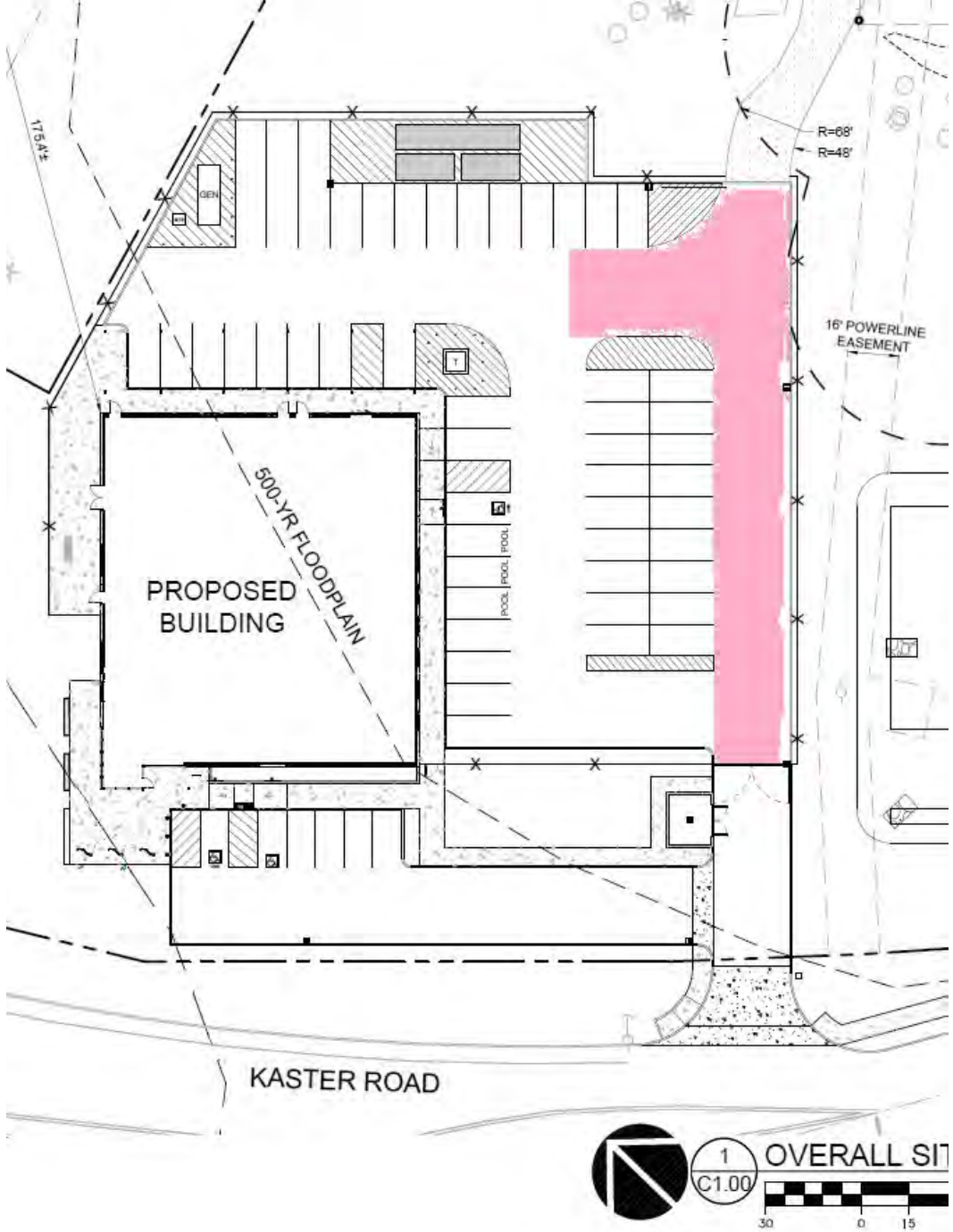

ST HELENS POLICE
1
2
3
4
5
6

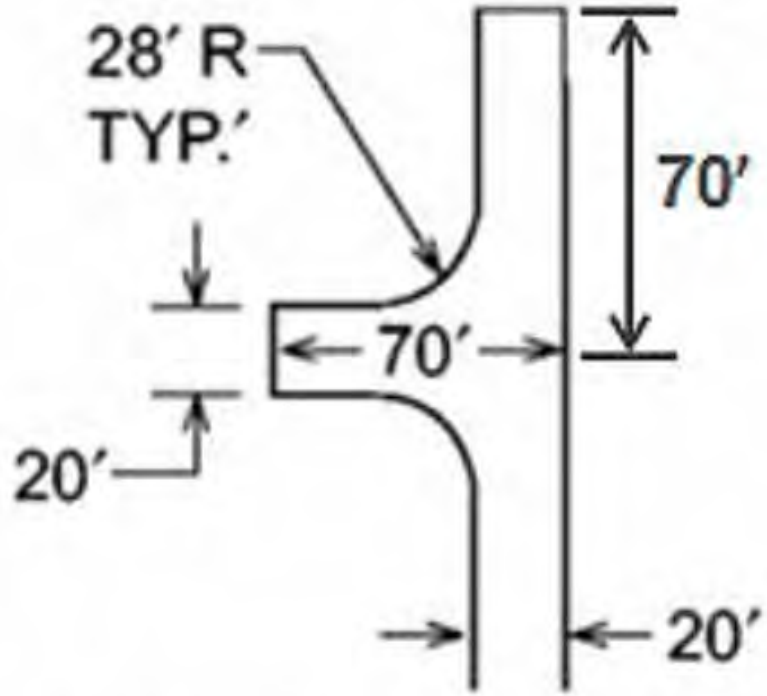


1 C1.10 SITE PLAN

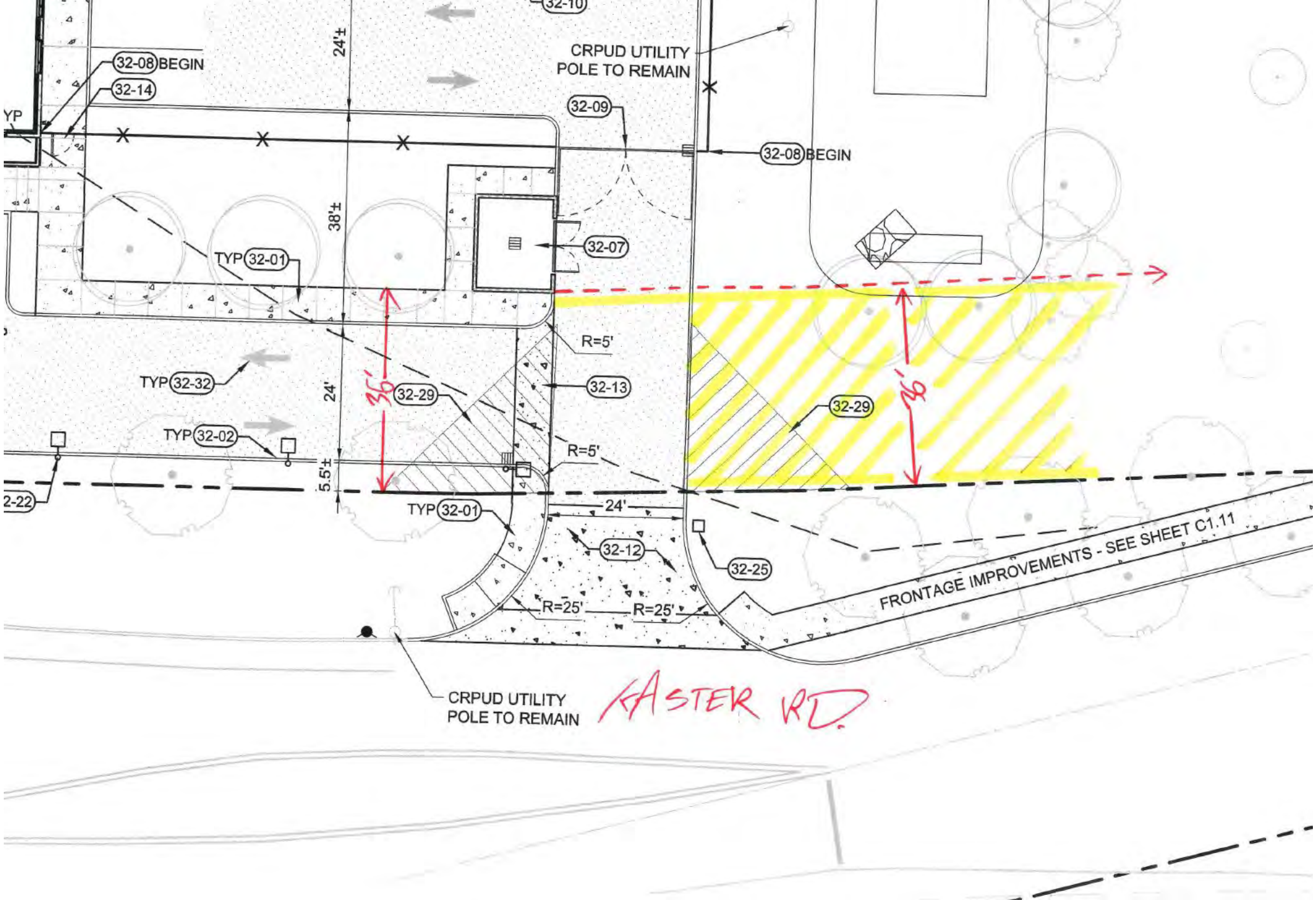

Shift bike lanes via taper
Provide connection to existing trail
McCormick Park
Transition cycle track to sidewalk level in advance, and provide opportunity for bicyclists to take vehicle lane via ramp or driveway transition
Provide opportunities for bicyclists to exit cycle track and use circulatory roadway, and reenter cycle track after using circulatory roadway
Provide detectable warning and align bike path to be an oblique (non-parallel) spur to guide pedestrians with low vision toward pedestrian path
Proposed Police Station Site
S. 18th St.
Old Portland Rd.
Old Portland Rd.
Kaster Rd.


EAST STREET
(UNIMPROVED RIGHT OF WAY)
17TH STREET
(UNIMPROVED RIGHT OF WAY)
ACCESS ROAD
OLD PORTLAND RD
KASTER ROAD
50' WETLAND BUFFER
WETLAND
WETLAND BUFFER ENHANCEMENT
PGE UTILITY EASEMENT
UTILITY ACCESS EASEMENT

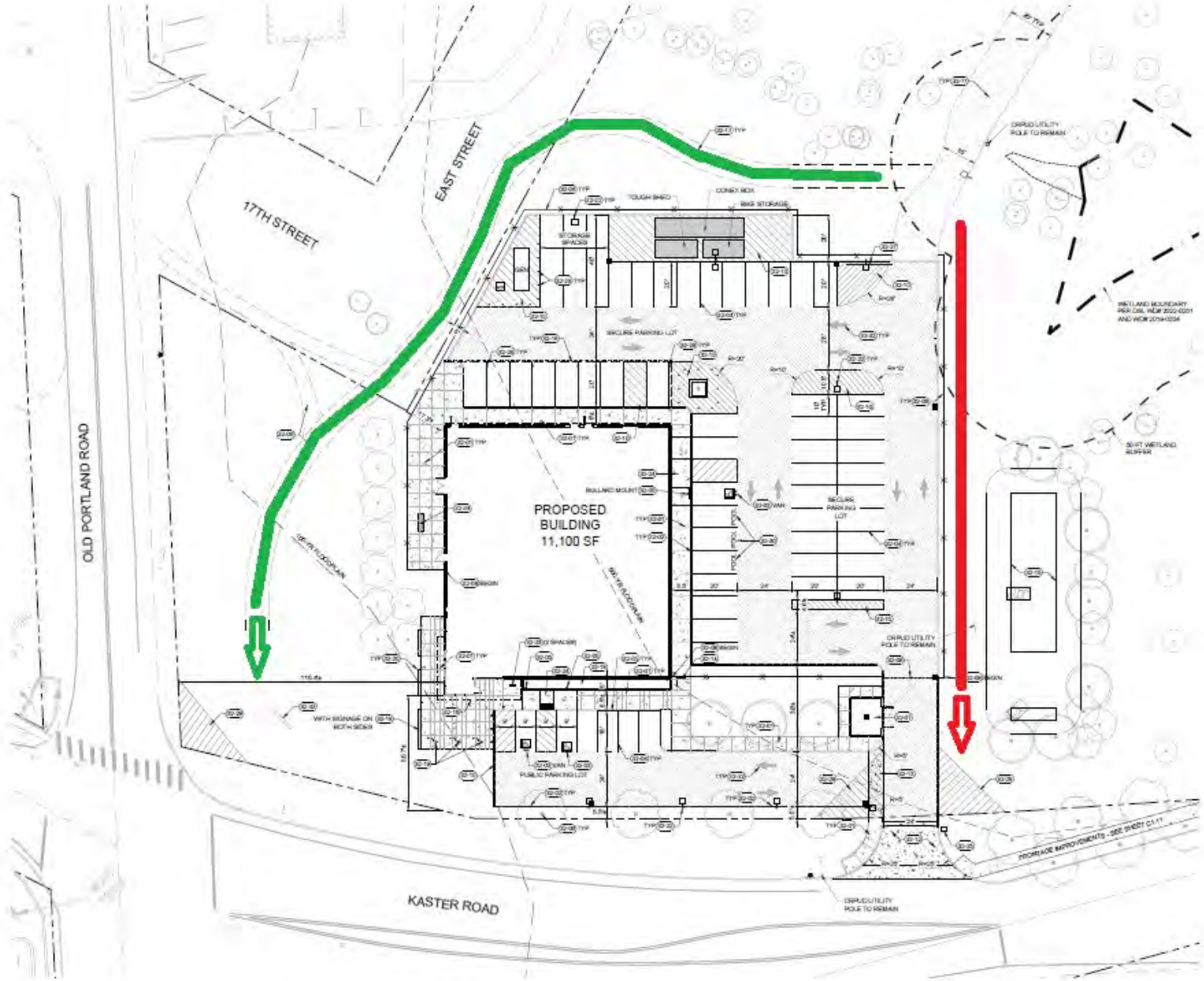




ACCEPTABLE ALTERNATIVE
TO 120' HAMMERHEAD

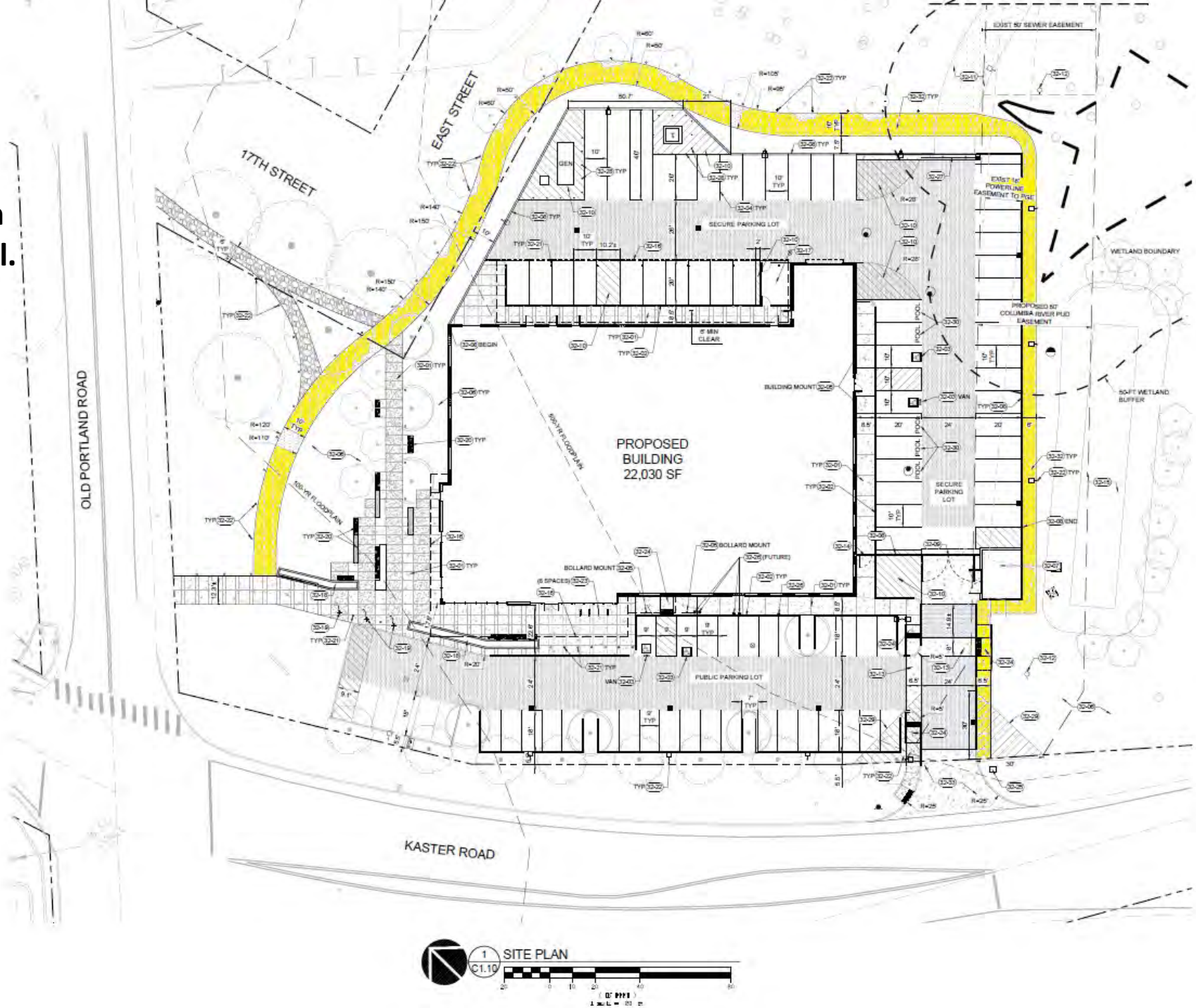

32-10
24'±
CRPUD UTILITY
POLE TO REMAIN
32-08 BEGIN
32-14
32-09
32-08 BEGIN
38'±
32-07
TYP 32-01
R=5'
TYP 32-32
32-29
32-13
24'
TYP 32-02
R=5'
5.5'±
32-22
TYP 32-01
24'
32-12
32-25
R=25'
R=25'
FRONTAGE IMPROVEMENTS - SEE SHEET C1.11
CRPUD UTILITY
POLE TO REMAIN
FASTER RD.


PROPOSED TRAILS
Proposed Trails
Off-Street Multi-Use Paths
Private Trails
Public Use Park Trails
City Limits
City UGB
City Parks
City Owned Property
NOTE: Trail proposals illustrate desired connectivity, not actual trail alignment.
To Columbia City
N
Dalton Lake
Botanical Gardens
Grey Cliffs
Godfrey
Columbia View
Civic Pride
Nob Hill
Henrie Huemann
McCormick
Campbell
Walnut Tree
Wastewater Treatment Facility
Milton Creek
McNulty Creek
HANKEY ROAD
PITTSBURG ROAD
COLUMBIA RIVER HIGHWAY
OREGON STREET
CANNAN
SKYLINE DR.
HILLTOP DRIVE
CRESENT DRIVE
HILLCREST ROAD
JAKOBI
SALAL STREET
SHORE DRIVE
OAKVIEW DRIVE
KELLY STREET
TWIN OAKS DRIVE
KIMMEL LANE
BARR AVENUE
OAKRIDGE STREET
SYKES ROAD
GLACIER AVENUE
SNOW STREET
COLUMBIA BOULEVARD
MCBRIDE STREET
LITTLE STREET
CEDAR OAK STREET
DUBOIS LANE
CROUSE WAY
MILTON WAY
GABLE ROAD
PORT AVENUE
KASTER ROAD
TUALATIN STREET
WARD DRIVE
MORTEN LANE
NORTH ROAD
CHILDS CO. ROAD
FIR STREET
FIRLOCK BOULEVARD
TAYLOR STREET
MAPLE STREET
THIRD STREET
INDUSTRIAL WAY
OLD PORTLAND ROAD
RAILROAD AVENUE
ROSS CO. ROAD
MILLARD ROAD
CHASE ROAD
DIVISION ROAD
McNULTY WAY
N 18TH STREET
N 16TH STREET
N 14TH STREET
N 12TH STREET
N 9TH STREET
N 8TH STREET
N 5TH STREET
N 3RD STREET
N 2ND STREET
5th Street
S 7TH STREET
S 6TH STREET
S 4TH STREET
S 2ND STREET
N 17TH STREET
S 19TH STREET
S 17TH STREET
S 14TH STREET
S 13TH STREET
S 11TH STREET
S 9TH STREET
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
0 0.2 0.4 0.6 Miles
Trail to Scappoose
PARKS AND TRAILS MASTER PLAN
CITY OF ST. HELENS
Map Created By: JD
May 2014



1 C1.10 SITE PLAN

Previous site plan when proposal was for a public safety facility and not just a police station, which is the current proposal.



CITY OF ST. HELENS PLANNING DEPARTMENT
STAFF REPORT
Conditional Use Permit CUP.4.23
Sensitive Lands Permits SL.4.23 (floodplain) and SL.5.23 (wetlands)
Sign Permit S.14.23

DATE: August 30, 2023
TO: Planning Commission
FROM: Jacob A. Graichen, AICP, City Planner

APPLICANT: City of St. Helens
OWNER: same as applicant

ZONING: The site is predominately zoned Light Industrial, LI, with a small portion of General Residential, R5 along Old Portland Road
LOCATION: 4N1W-9AB-1500; east corner of the Old Portland Road/Kaster Road (S. 18th Street) intersection
PROPOSAL: New public safety facility on undeveloped property

PUBLIC HEARING & NOTICE

Public hearing before the Planning Commission: September 12, 2023

Notice of this proposal was sent to the Oregon Division of State Lands as required by ORS 227.350, Notice of proposed wetlands development, on August 11, 2023.

Notice of this proposal was sent to surrounding property owners within 300 feet of the subject property(ies) on August 14, 2023 via first class mail. Notice was sent to agencies by e-mail on August 11, 2023

Notice was published on August 23, 2023 in The Chronicle newspaper.

AGENCY REFERRALS & COMMENTS

None received as of the date of this report.

APPLICABLE CRITERIA, ANALYSIS & FINDINGS

Permitting History: In an aerial photo from 1983 at City Hall there are multiple buildings on the site. Google Earth imagery shows no buildings in 1990 and none have been built on the site since.

The city purchased the subject property from Boise White Paper, LLC in 2015 (inst. no. 2015-8180).

There is a sign at the intersection on this property with some history itself. Sign Permit S.28.02 from 2002 was to replace an existing sign here. It was added onto via a permit in 2003 (S.18.03 or S.19.03. That sign was replaced by a sign per permit S.3.19 while in city ownership. Sign does not comply with the sign permit and will need to be as part of this proposal.

Portions of the 7th Street and S. 16th Street rights-of-way were vacated via Ordinance No. 3283 in June 2022. This was done because the originally assumed parcel for this proposal was not large enough as was discovered during process of developing the plans. One of the requirements of this vacation included:

> A 50' wide easement shall be granted that follows the power line, as may be relocated due to development plans, between Kaster Road and S. 15th Street as a condition of land use approval to develop property that abuts the vacated right of way.

This proposal is development as contemplated in Ordinance No. 3283 and the easement shall be a condition of approval of this matter. The power lines were assumed to be moved as part of the Police Station development at the time the Vacation was processed and CRPUD was ok with the delay of the easement so the exact location could be determined based on the final power line location. An easement is needed even if the power lines do not need to be moved.

* * *

Zoning Compliance: The site is predominately zoned Light Industrial, LI, with a small, approximately 7,100 square foot area along Old Portland Road zoned General Residential, R5.

"Public safety facility" and "public facility, major" are listed as conditional uses in both zoning districts. "Public safety facility" is defined as:

> "Public safety facilities" means providing protection pursuant to fire, life, and safety code sections together with the incidental storage and maintenance of necessary vehicles. Typical uses include fire stations, police stations, and ambulance services.

Preliminary plans (prior to this application) included the municipal court, the council chambers, and staff offices for non-emergency personnel, where the "public facility" category applied as well. However, this proposal is strictly a police station, thus "public safety facility" is the proper use category.

Given the diminutive area of R5 zoning and its location, the key issues are the minimum front yard (setback) and 40% maximum building/structure coverage. No buildings or structures are proposed within the R5 zoned area, so no issues.

Standards specific to the LI zone include:

> (4) Standards.

(a) The standards for the LI zone shall be determined by the proximity to residential zones and the anticipated off-site impacts.

(b) The maximum height within 100 feet of any residential zone shall be 35 feet.

(a) The site is in close proximity to a residential zone to the north. This and the anticipated off-site impacts are for the Commission's consideration, though staff has no specific recommendation.

(b) The proposed building is within 100 feet of residential zoning on the north side; thus the 35' maximum height applies. The building is approximately 17' in height.

* * *

Sensitive Lands: There are no known sensitive lands as identified in the Development Code. This includes:

- Wetlands, including upland protection zones associate with "significant" wetlands per Chapter 17.40 SHMC
- Area of Special Flood Hazard—Chapter 17.46 SHMC

Wetlands, including upland protection zones associate with "significant" wetlands per Chapter 17.40 SHMC

The city's local wetlands inventory identifies a wetland in close proximity to the site, wetland M-15 (or MI-15), which is a Type II wetland with a 50' upland protection zone.

The city completed an environmental assessment to determine the exact boundaries as required. The state approved these wetland delineations via DSL WD # 2019-0324 (Revised) and WD # 2022-0251. The wetland is also subject to the state Removal-Fill Law, and there is a waterway as identified in WD # 2022-0251 also subject to the state Removal-Fill Law.

Impacts to the wetland M-15 (or MI-15) protection zone are proposed for site grading for nearby improvements, emergency accessway (secondary site access), and fence/secure parking area. Note that due to existing utilities, sanitary sewer line and related road/berm in particular, which have been in place since before 2003 when the current wetland rules took effect, there is some preexisting impacts to the protection zone already. These are described in the wetlands assessment from Wetlands Solutions Northwest, LLC dated June 23, 2023.

The section that applies to allowing protection zone impacts is **SHMC 17.40.040(1)** pertaining to undeveloped properties:

(1) Protection Zone Reduction (Up to 50 Percent for Undeveloped Properties). The protection zone may be reduced by the approval authority up to 50 percent where equal or better protection for identified resources will be ensured through restoration, enhancement and similar measures. Specifically the following criteria and conditions must be met to be eligible for a protection zone reduction; the applicant must demonstrate that:

(a) The application of the protection zone to the lot or parcel, as evidenced by the environmental assessment, precludes all reasonable use of the lot or parcel under the applicable

zone designation and renders it not buildable, after consideration of all applicable limitations and restrictions in this code; and

Finding(s): The site is not developable as a police station (a "critical facility") without impacts to the protection zone for access that avoids the mapped flood areas (i.e., the secondary access). Also, the storm water facility moved southerly in the preliminary design process to keep the building out of the mapped 100-year flood zone to honor floodplain rules. If the Commission can agree that alternatives for police station were adequately ruled out since the "critical facility" aspect of this proposal is the reason for protection zone impact, then this criterion (1)(a) can be met. Site selection is discussed below.

(b) The lot or parcel is a "legally created lot or parcel of record" as defined in this chapter (this exception is not available for land divisions); and

(c) The lot or parcel must be combined for development purposes with contiguous lots or parcels in the same ownership on the effective date of the ordinance codified in this chapter; and

Finding(s): The "original" site was the portion north of the now vacated 7th Street right-of-way. It now includes the property on the south side of that vacated right-of-way, including mitigation area for the proposed protection zone impacts. These two properties together are surrounded by rights-of-way and as bound together, will not impact any other lots of record. They must be bound by this provision (1)(b) & (c).

It is one taxlot now, which the County Assessor did after the 7th Street right-of-way was vacated (assessor staff contacted city staff about it). A notice on the deed that some or all of the unused portion is intended for future expansion and that a land division action or transfer of ownership must consider how much area is needed for future expansion. In other words, no land division or transfer should occur unless it is found that, it will not compromise future police station or related city facility expansion or the subject property.

(d) The proposed development shall minimize disturbance to the protection zone by utilizing design options to minimize or reduce impacts of development: (i) multistory construction shall be used; (ii) parking spaces shall be minimized to no more than that required as a minimum for the use; (iii) no accessory structures allowed; (iv) paving shall be pervious; (v) engineering solutions shall be used to minimize additional grading and/or fill; and

Finding(s): The consultant narrative describes how the intrusion is minimal.

Also, there are preexisting impacts. There is an old road base/berm that more-or-less aligns with a sanitary sewer main, which is in the area for the secondary access to the site. So, some of this protection zone has already been impacted. This is lawful preexisting impact as sewer line pre-dates the protection zone rules, which first came to be in 2003.

(e) The proposed use or activity is designed to minimize intrusion into the protection zone. Specifically the use or activity is designed using up to a 50 percent adjustment to any dimensional standard (e.g., front yard, side yard or other setbacks, including height or lot area) to permit development as far outside or upland of the protection zone as is possible. Design shall be to the adjustment; and

Finding(s): The applicant narrative describes how the intrusion is minimal.

Also, no dimensional standard adjustment is proposed.

(f) The protection of the significant riparian corridor and/or significant wetland can be assured through restoration, enhancement, and other similar measures in the protection zone and the resource area; and

Finding(s): Restoration by enhancing a portion of the protection zone with additional trees and plantings is proposed.

(g) All applicable general criteria in SHMC 17.40.055, including minimum restoration and enhancement requirements, shall be met.

Finding(s): SHMC 17.40.055 applies. See consultant narrative. Identifying the protection zone and trees for protection during construction is noted.

Ensuring restoration plantings and maintenance for at least 2 years to ensure survival will be necessary.

Note that enhanced protection zone south of the vacated 7th Street right-of-way is another basis for lot consolidation.

Area of Special Flood Hazard—Chapter 17.46 SHMC

The subject property is identified as being within a Special Flood Hazard Area (SFHA) as identified by Flood Insurance Rate Maps (FIRM) No. 41009C0456D and 41009C0452D. The subject property is partially covered by flood zone AE (100-year flood) zone X (500-year flood). These flood zones are along the sides of the property abutting Old Portland Road and Kaster Road, with those roads being largely covered by these flood zones. Old Portland Road is especially impacted by flood waters.

The Base Flood Elevation (BFE) is approximately 70' along Old Portland Road and continues to decrease southeasterly to 60' and below. The flood pattern raised question from the many consultants who worked on this, though, when updated in 2010, the Flood Insurance Study (FIS) notes that St. Helens has the most accurate flood boundary depiction of the communities within Columbia County. Despite this, the city hired West Consultants to model the hydrology in 2021, including use of FEMA's effective modeling, to see if a Letter of Map Change (LOMC) was warranted or if additional technical analysis was of any other value. Only preliminary modeling was done (no final study available) as it showed that the overall patters of floodwaters was generally accurate, actually worse and, though not necessarily deep on the subject property itself, the site is assumed to be directly impacted (greatly encompassed) by a 500-year flood event and at least partially impacted by a 100-year event. The preliminary study showed a greater impact of floodwaters within the site and beyond than the FIRMs.

Early plans (prior to this formal application) located the proposed building within the Area of Special Flood Hazard (100-year flood), but based on what the city discovered in 2021, the building's location is now outside of the 100-year flood boundary for this proposal; or at least the boundary shown on the FIRM, which as described below is strictly for insurance purposes.

Pursuant to SHMC 17.46.040(1)(a):

> Development Permit Required. A development permit shall be obtained before construction or development begins within any area horizontally within the special flood hazard area established in SHMC 17.46.030(2). The development permit shall be required for all structures, including manufactured dwellings, as set forth in the definitions (SHMC 17.46.020), and for all development including fill and other activities, also as set forth in the definitions (SHMC 17.46.020).

The building itself is not horizontally within the Area of Special Flood Hazard (100-year flood) per the FIRMs, assuming a margin of error as described below, but some development (e.g., fill, landscaping, flat work such as walkways, parking areas) is proposed in this area. This means that the flood development (100-year) standards for the building itself do not apply. And because the other improvements are far removed from where any floodway would be, they are generally inconsequential as to the site development's impact on floodwater patterns.

There are still necessary considerations for building/developing in the floodplain despite the building technically not being subject to the 100-year flood provisions (assuming a margin of error as described below) and being away from the floodway.

SHMC 17.46.050(1) – Provisions for flood hazard reduction (applicable general standards)

> **General Standards.** In all areas of special flood hazard, the following standards are required:
>
> (a) Alteration of Watercourses. Require that the flood carrying capacity within the altered or relocated portion of said watercourse is maintained. Require that maintenance is provided within the altered or relocated portion of said watercourse to ensure that the flood-carrying capacity is not diminished. Require compliance with SHMC 17.46.040(3)(d) and (e).

Finding(s): No watercourse is proposed to be impacted.

> (b) Anchoring.
> (i) All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
> (ii) All manufactured dwellings shall be anchored per subsection (3)(c) of this section.

Finding(s): No structure is proposed to be located within the Area of Special Flood Hazard (100-year flood), assuming a margin of error as described below.

> (c) Construction Materials and Methods.
> (i) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
> (ii) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

Finding(s): This shall be a condition of approval. Plans shall demonstrate compliance. Improvements proposed within the Area of Special Flood Hazard (100-year flood) that this would apply to includes but is not limited to: site lighting, site furnishings, planters, and water connection infrastructure.

The consultant narrative notes that these provisions will be further demonstrated at time of permitting.

(d) Water Supply, Sanitary Sewer, and On-Site Waste Disposal Systems.

(i) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system;

(ii) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharge from the systems into floodwaters; and

(iii) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding consistent with the Oregon Department of Environmental Quality.

Finding(s): An on-site sanitary sewer system is not involved or proposed. An on-site waste disposal system is only allowed in very limited circumstances in the city; this property or development does not fit within those circumstances.

Water infrastructure is proposed within the Area of Special Flood Hazard (100-year flood). This includes a Fire Department Connection (FDC) and hydrant.

The FDC and hydrant are located in an area (along Old Portland Road) that, based on the Fire District's comments about flood water depth and access (mentioned below regarding secondary access), would not be accessible by fire emergency vehicles in a flood event. Relocation will be necessary to be out of flood prone areas. Staff spoke to the Fire Marshall about this issue and the preferred location would be along Kaster Road. In fact, this is preferred regardless of any flood areas because its closer to the proposed building. The secondary access to the site, theoretically, would enable access to Kaster and the relocated FDC and hydrant away from more flood prone areas.

(e) Electric, Mechanical, Plumbing, and Other Equipment. Electrical, heating, ventilating, air-conditioning, plumbing, duct systems, and other equipment and service facilities shall be elevated at or above one foot above the base flood elevation (BFE) or shall be designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during conditions of flooding. In addition, if replaced as part of a substantial improvement, electrical, heating, ventilating, air-conditioning, plumbing, duct systems, and other equipment and service facilities shall meet all the requirements of this section.

Finding(s): There is no building involved, but lighting improvements are proposed within the Area of Special Flood Hazard (100-year flood), so electric components will need to comply.

(f) Tanks.

(i) Underground tanks shall be anchored to prevent flotation, collapse and lateral movement under conditions of the base flood.

(ii) Above-ground tanks shall be installed (elevated) at or above one foot above the base flood elevation (BFE) or shall be anchored to prevent flotation, collapse, and lateral movement under conditions of the base flood.

Finding(s): The only tank proposed is associated with a generator, which will be located outside of the Area of Special Flood Hazard (100-year flood).

(g) Subdivision Proposals and Other Proposed Developments.

(i) All new subdivision proposals and other proposed new developments (including proposals for manufactured home parks and subdivisions) greater than 50 lots or five acres, whichever is the lesser, shall include within such proposals, base flood elevation data.

(ii) All new subdivision proposals and other proposed new developments (including proposals for manufactured home parks and subdivisions) shall:

(A) Be consistent with the need to minimize flood damage.

(B) Have public utilities and facilities, such as sewer, gas, electrical, and water systems, located and constructed to minimize or eliminate flood damage;

(C) Have adequate drainage provided to reduce exposure to flood hazards.

Finding(s): This is not a subdivision but is an "other proposed development." The area to be developed is less than 5 acres, so additional base flood elevation data is not warranted. There is limited utilities/development within the Area of Special Flood Hazard (100-year flood). The site incorporates elevating the building and surrounding area above grade to minimize the acknowledged flood risk, though access is still anticipated to be affected in a flood event.

(h) Use of Other Base Flood Data.

(i) When base flood elevation data has not been provided in accordance with SHMC 17.46.030(2), the local floodplain administrator shall obtain, review, and reasonably utilize any base flood elevation data available from a federal, state, or other source in order to administer this section. All new subdivision proposals and other proposed new developments (including proposals for manufactured dwelling parks and subdivisions) must meet the requirements of subsection (1)(g) of this section.

(ii) Base flood elevations shall be determined for development proposals that are five acres or more in size or are 50 lots or more, whichever is lesser, in any A Zone that does not have an established base flood elevation. Development proposals located within a riverine unnumbered A Zone shall be reasonably safe from flooding; the test of reasonableness includes use of clear and objective information such as historical data, high water marks, FEMA-provided base level engineering data, and photographs of past flooding, etc., where available. Failure to elevate at least two feet above grade in these zones may result in higher insurance rates.

Finding(s): Base flood elevation data is known based on the FIRMs (AE zone). The developed area will be less than 5 acres.

(i) Structures Located in Multiple or Partial Flood Zones. In coordination with the State of Oregon Specialty Codes:

(i) When a structure is located in multiple flood zones on the community's flood insurance rate maps (FIRM) the provisions for the more restrictive flood zone shall apply.

(ii) When a structure is partially located in a special flood hazard area, the entire structure shall meet the requirements for new construction and substantial improvements.

Finding(s): There is only one Area of Special Flood Hazard (100-year flood) zone that applies, but the proposed structure is located within the 500-year flood, where critical facilities must be considered. This is discussed further below.

(j) AH Zone Drainage. Adequate drainage paths are required around structures on slopes to guide floodwaters around and away from proposed structures.

Finding(s): The site is not technically located within an AH zone (flood depths 1 to 3 feet) but based on the preliminary modeling done in 2021 as described above, shallow flooding on the site cannot be ruled out and could potentially impact the entire site, including secondary access. The design includes elevating the building and surrounding improvements, as is practical.

SHMC 17.46.050(2) – Provisions for flood hazard reduction (applicable specific standards)

Finding(s): The standards of this section focus on buildings within the Area of Special Flood Hazard (100-year flood). No buildings are proposed within the mapped 100-year flood area, assuming a margin of error as described below.

SHMC 17.46.050(3) – Provisions for flood hazard reduction (additional specific standards for special flood hazard areas with Base Flood Elevations)

Finding(s): The standards of this section addresses residential construction (structures), non-residential construction (structures), manufactured dwellings, recreational vehicles, and appurtenant (accessory) structures. None of these are proposed within the Area of Special Flood Hazard (100-year flood).

SHMC 17.46.050(6) – Critical facility.

> Construction of new critical facilities shall be, to the extent possible, located outside the limits of the special flood hazard area (SFHA). Construction of new critical facilities shall be permissible within the SFHA only if no feasible alternative site is available. Critical facilities construction within the SFHA shall have the lowest floor elevated at least three feet above the base flood elevation (BFE) or to the height of the 500-year flood, whichever is higher. Access to and from the critical facility shall also be protected to the height utilized above. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters.

SHMC 17.46.020 defines "critical facility as:

> "Critical facility" means a facility for which even a slight chance of flooding might be too great. Critical facilities include, but are not limited to, schools, nursing homes, hospitals, police, fire and emergency response installations, and installations which produce, use or store hazardous materials or hazardous waste.

Finding(s): The proposed use is a critical facility as defined. 17.46.050(6) specifies that critical facilities be outside the limits of the special flood hazard (100-year flood) to the extent possible and that they be permissible within this area only if no feasible alternative is available. There is extra stringent (compared to non-critical facility development) elevation, site access and toxic substance considerations.

The building (assuming a margin of error as described below) and the bulk of the facility is located outside of the 100-year flood. Because the building is not necessarily within the 100-year flood, it is not required to be elevated per 17.46.050(6), even though it is within the 500-year flood. However, as a critical facility proposed in the immediate vicinity of the known and modeled natural hazard given the current Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRM) dated November 26, 2010 (revised from the original FIS and FIRM for St. Helens dated August 16, 1988) and the additional preliminary study from 2021 (described above),

ignoring this hazard would be both foolish for the community's wellbeing and contrary to this Conditional Use Permit effort.

The consultant narrative mentions elevating the site and a proposed (and required) secondary access. These need to be examined further in additional to the site selection process where this site was selected over other potential sites.

Site elevation.

First, it is important to recognize the limitations of the Flood Insurance Rate Maps (FIRM). Per Section 3.2 of the Flood Insurance Study:

> Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of flood elevations for the selected recurrence intervals. Users should be aware that flood elevations shown on the Flood Insurance Rate Map (FIRM) represent rounded whole-foot elevations and may not exactly reflect elevations shown on the Flood Profiles or in the Floodway Data tables in the FIS report. **Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction of and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS in conjunction with data shown on the FIRM.**

The flood boundaries on the plans provided with this application are based on the FIRM. **Assuming this line is the actual flood line, given the disclaimer in the FIS and the 2021 preliminary study mentioned above, would not be comprehensive.**

See attached FIRM Boundaries v Actual Elevations exhibit. This shows the flood boundary lines (100 and 500-year) and the Base Flood Elevations from the FIRM. Extrapolating the BFE south of the 63' line based on the next southerly BFE (not shown on the attachment) and the FIS, assumed flood levels are compared with actual elevation. The elevation data is current as it was updated last year.

Note that anticipated flood depths on/close to Old Portland Road are 5-6' deep for the 100-year event and 6-7' deep for the 500-year event. Depth decreases within the boundary of the subject moving away from Old Portland Road. However, based on the elevation assumptions and observations as shown on the attached FIRM Boundaries v Actual Elevations exhibit, portions of the proposed building footprint area could be subject to both 100-year and 500-year flooding events. To explain:

> Based on the location of the most westerly corner of the proposed building, which is probably the best point to use to evaluate this given the flood water patters on the FIRM:
>
> - The base flood elevation (height of 100-year flood) of this point: 61.8 feet
> - The 500-year flood is about 1-foot higher: 62.8 feet
> - The current elevation of this point is: 61.6 feet
> - Based on these numbers the westerly point is 0.2 feet (2.4 inches) in the 100-year flood

- Based on the flood patters of the FIRM, we can consider the x-axis (W-E) as well as the normally used y-axis (N-S). A decrease in flood depths moving east (x-axis) can be considered and should provide enough margin -of error (since it's a matter of inches, not feet) to assume the proposed footprint it outside of the 100-year flood.

Per plans (sheet C1.20), the finished floor of the building is proposed to be 64 feet, with the immediate surrounding improved area above 63 feet. The site is proposed to be elevated with fill to help ensure resilience during hydrological events. The height will be increased such that the finished floor is about 2 feet above the highest estimated BFE within the building footprint (i.e., about 62 feet, rounded up).

Site access.

In addition to the development itself, access to the site is supposed to be elevated. In a major flood event, access using S. 18th or Old Portland Road is blocked by flood waters. The base flood elevation (100-year flood height) along the south side of Old Portland Road is 70 feet and per the 500-year flood level is about 1 foot above that. So based on the floodplain development requirements, the elevation of the access to the site would need to be about 73 feet. The actual elevation of Old Portland Road in this area is around 65 feet, thus it would require raising the road as much as approximately 8 feet to meet the elevation requirement, which is not practical. Thus, an alternative route needs to be considered.

There is currently no outlet to the city's street network from Kaster Road south, though the City's St. Helens Industrial Business Park Parcelization Framework and Funding Plan adopted by Resolution No. 1910 in January of 2021 contemplates an eventual connection to S. 10th Street. However, there is no timing or certainty of when or if this will occur. So Old Portland Road must be relied on.

The site does abut S. 15th Street and that is an available route outside of the mapped floodplain (100- and 500-year) to Old Portland Road and areas of the street grid not impacted by floodwaters. An emergency access road is proposed in this area, so there is an access that is hypothetically not impacted by floodwaters. Though as noted above, preliminary modeling done as part of this effort shows a broader impact of floodwaters than as mapped.

During the preliminary design process, staff reached out to the Fire Marshall about emergency vehicle access to the site. It was noted that the ability of fire related emergency vehicles to be able to drive through water differs based on the vehicle, but in no case should a vehicle be driven in water higher than the front axle. The lowest vehicles include ambulances and command vehicles, where the maximum water depth would be 6 inches. Since the difference between the actual elevation of Old Portland Road (approx. 65 feet) and the 100-year base flood (approx. 70 feet) is many feet, a drivable depth is exceeded. So, the emergency access is not just for the police to get from the site, but other emergency personal to get to the site. A hammer-head turnaround meeting Fire Code has been included in the design of the parking lot, because Kaster would be blocked in the major flood event as well. There are security gates amongst this

emergency path, which must be approved by the Fire Marshall, with an approved method of emergency operation.

The turnaround and fire access withing the site is not depicted on the plans, but is here in this report:

A hammer-head type turn-around for fire apparatus (above right) is designed partly within the secure parking area. The secure parking area would also be the route to Kaster Road in the event of a 100-year flood event. Area within the secure parking area that needs to be marked "no parking fire access" or something similar is highlighted in pink.

Revised plans need to prove the final plans honor the proper turnaround area, and so the intent is clear for workers constructing the site. Approved method of operation (fire dept accessible locks, etc.) will also be necessary with final plans. Areas within the secure parking area needed for fire access shall be demarcated as such to ensure access is available.

As elevated, the building and its immediate surroundings are designed to be above flood impacts. But, in a flood event, how the site interacts with its surroundings, transportation especially, will certainly be impacted. In a 500-year event, it is possible the secondary access will be impacted too, at least based on the preliminary study as mentioned. Other items like the Fire Department Connection location issue highlights some of design challenges of the proposal and the possible functionality challenges the site could face in a flood event. The Commission needs to find these issues are acceptable, in conjunction with all other issues (e.g., basis for site selection) to approve this proposal.

Site selection/alternative sites analysis.

A critical question for the Commission in its decision on this matter is if the site is acceptable for this use? The provision of the floodplain rules per SHMC 17.46.050(6),

> Construction of new critical facilities shall be, to the extent possible, located outside the limits of the special flood hazard area (SFHA). Construction of new critical facilities shall be permissible within the SFHA only if no feasible alternative site is available.

directly relates to the approval standards for conditional use per SHMC 17.100.040, such a (b) where the Commission must find that:

> The characteristics of the site are suitable for the proposed use considering size, shape, location, topography, and natural feature;

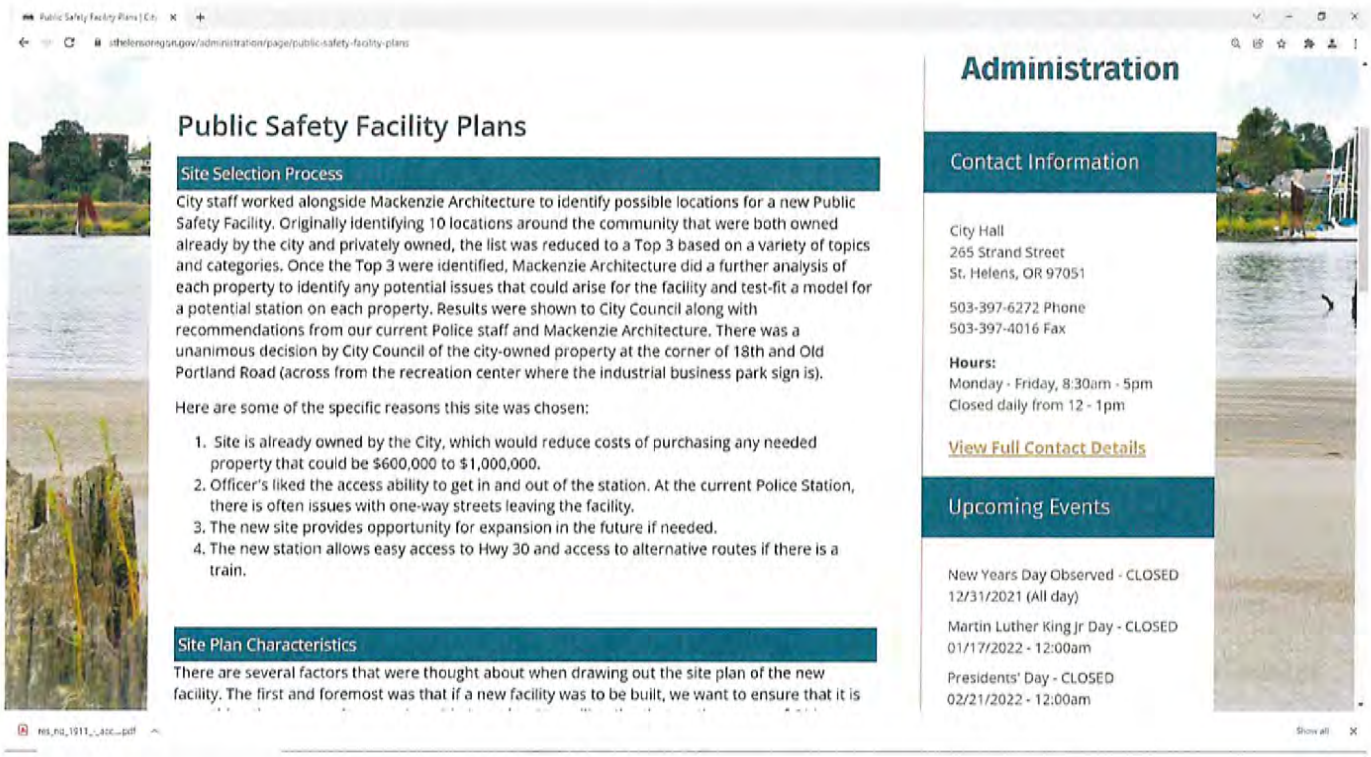
An alternative site analysis is warranted and the site selection process for the police station acts as that. Site selection would likely be a moot point for this land use matter if no floodplain impacts but given the floodplain issues associated with the selected site, it should be included for the overall consideration of the Commission.

One important characteristic is the site's proximity to Milton Creek, its floodplain and how that affects the site's access and operation during and after a flood event. The current flood map and study was adopted in 2010 so it is a known and inventoried natural hazard. 17.46.050(6) requires the facility to be located out of the 100-year flood as much as possible, and though the building is proposed to be elevated to help ensure it is safe from flood events, its site access is still anticipated to be significantly impacted. Site access impacts can result in operational impacts. Moreover, the very definition of critical facility includes this language: "a facility for which *even a slight chance of flooding* might be too great." The site selection process resulted in this site known to be affected by a long time inventoried natural hazard where there is a certain (as opposed to slight) chance of flooding.

Note that there are differences between what was on the website and the consultant materials prepared by Mackenzie as to the selection process.

The website link is here:
https://www.sthelensoregon.gov/administration/page/new-police-station

A screenshot from December 2021 is included (with an older link but same content):



Public Safety Facility Plans

Site Selection Process

City staff worked alongside Mackenzie Architecture to identify possible locations for a new Public Safety Facility. Originally identifying 10 locations around the community that were both owned already by the city and privately owned, the list was reduced to a Top 3 based on a variety of topics and categories. Once the Top 3 were identified, Mackenzie Architecture did a further analysis of each property to identify any potential issues that could arise for the facility and test-fit a model for a potential station on each property. Results were shown to City Council along with recommendations from our current Police staff and Mackenzie Architecture. There was a unanimous decision by City Council of the city-owned property at the corner of 18th and Old Portland Road (across from the recreation center where the industrial business park sign is).

Here are some of the specific reasons this site was chosen:

1. Site is already owned by the City, which would reduce costs of purchasing any needed property that could be $600,000 to $1,000,000.
2. Officer's liked the access ability to get in and out of the station. At the current Police Station, there is often issues with one-way streets leaving the facility.
3. The new site provides opportunity for expansion in the future if needed.
4. The new station allows easy access to Hwy 30 and access to alternative routes if there is a train.

Site Plan Characteristics

There are several factors that were thought about when drawing out the site plan of the new facility. The first and foremost was that if a new facility was to be built, we want to ensure that it is

Administration

Contact Information

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Hours:
Monday - Friday, 8:30am - 5pm
Closed daily from 12 - 1pm

View Full Contact Details

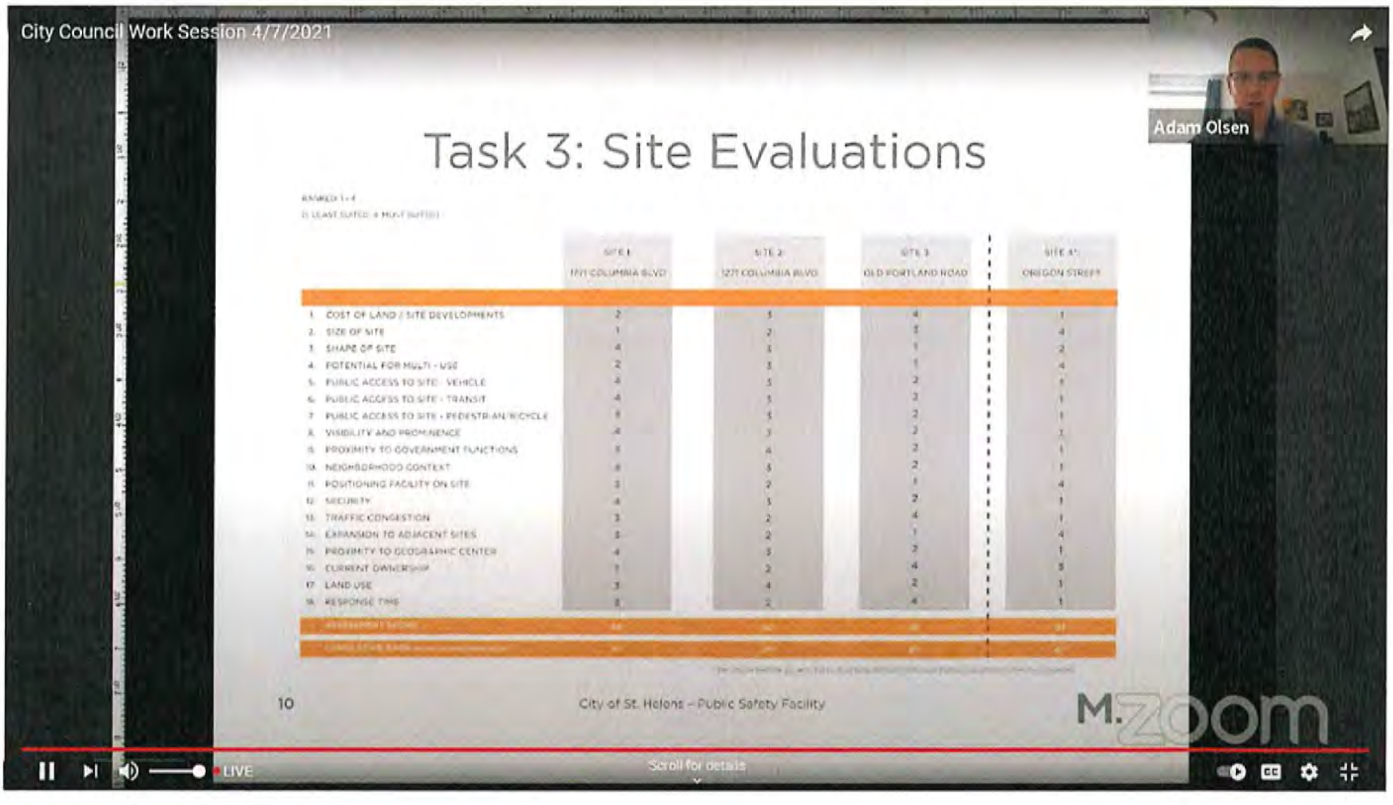
Upcoming Events

New Years Day Observed - CLOSED
12/31/2021 (All day)

Martin Luther King Jr Day - CLOSED
01/17/2022 - 12:00am

Presidents' Day - CLOSED
02/21/2022 - 12:00am

Both the website and consultant talk about an original 10 locations as **Phase 1 of the selection process**. The selection criteria or basis, such as if proximity to natural hazards was a consideration, is not disclosed; there is no evidence of this. Planning staff was not involved in this phase. The consultant narrative talks about the list of properties being narrowed down to five, whereas the website says three. Based on the screenshot of a virtual meeting (see below) there were four.



The screenshot shows that "land use" was included as a standard and this included floodplain considerations as planning staff identified this information as part of **Phase 2 of the selection process**. The subject property is Site 3: Old Portland Road.

Both the consultant narrative and website refer to using a scoring matrix for narrowing the sites down to two, which were considered by the City Council on February 19, 2020. At the work session, now **Phase 3 of the selectin process**, new consideration criteria were introduced. The Police Chief noted poling of officers for this. Ultimately, the City Council chose the subject property, but the standards for this final decision vary depending on the source:

City of St. Helens Website Final Selection Criteria	Mackenzie Application Materials (Consultant Narrative) Selection Criteria
Site is already owned by the City, which would reduce costs of purchasing any needed property that could be $600,000 to $1,000,000.	n/a
Officers liked the access ability to get in and out of the station. At the current Police Station, there is often issues with one-way streets leaving the facility.	No complexity of one-way streets.
The new site provides opportunity for expansion in the future if needed.	Accommodation for future growth to the North and East.
The new station allows easy access to Hwy 30 and access to alternative routes if there is a train.	Enhances access to the highway via Millard Road in the event of a train blocking Gable Road or Columbia Boulevard.

Things for the Commission's consideration. This includes observations of the final selection compared with the scoring matrix shown previously.

- Basically phase 3 of the selection process at the February 19, 2020 council meetings is based on four things:

  1-City ownership (cost savings of not needing to purchase land)
  2-Street access; away from couplet
  3-Abilty to expand so the SHPD is not in the same too-crowded position decades from now as the city grows
  4-Direct US30 access and alternatives to cross US30 and the RR when other intersections are blocked

- Specific to the ability to expand for future growth. This is a key one for this proposal as it relates to how the site is planned for future expansion. This affects site design.

  The subject property (Site 3: Old Portland Road) scored low in this category in phase 2 of the selection process. In fact, this site was originally assumed to be between Old Portland Road and the now vacated 7th Street right-of-way, but due to geometric, topographic and wetland

constraints, needed to include the 7th Street right-of-way and property lying on the opposite side of that right-of-way. This contributes more land to future expansion but only if land is reserved for that.

- Good US30 access considerations and options for alternative routes if a train is blocking US30 access points. During a major flood (100-year) event, access to US30 is blocked. This includes the route to Millard Road. It also depends on a bridge, which is a weak link at the beginning of this route from the site, which if damaged or destroyed in a flooding or other event, also blocks this direct US30 access, including Millard Road.

  The city has no over- or under-passes for streets that intersect with US30. So, train blockage due to RR switching yard operations is a concern. The following street accesses/RR crossings along the east side of US30 from north to south that are connected to the street network within the city's urban growth area:

  Deer Island Road
  Wyeth Street
  St. Helens Street (part of couplet)
  Columbia Boulevard (part of couplet)
  Gable Road
  Millard Road

  The 1771 Columbia Boulevard site (the other site considered in Phase 3 of the selection process) is approximately 4,500' as measured along streets (not as the crow flies) to the Deer Island Road access and 12,000 feet to Millard Road access. The subject property is approximately 7,500 feet to the Deer Island Road access and 9,000 feet via road to Millard Road access. The subject property is more equidistant from the most northly and southerly east side US30 access, though access to both the Gable Road and Millard Road US30 access points are compromised during a flood event.

- If the subject property is favored by police staff, which are in short supply and necessary for St. Helens to continue to be the only agency within Columbia County with 24-hour service, perhaps that is a consideration to outweigh some of the concerns, if any, of the Commission. In other words, if this site will be a catalyst to an enduring and fully staffed police force, which will benefit the city for decades to come, that may be considered a benefit that offsets any potential shorter-term impacts of flooding events.

* * *

Building Height Limitations & Exceptions: Chapter 17.68 incudes height provisions in industrial zoning districts. 17' building height as proposed poses no conflict.

* * *

Landscaping/buffering/screening: Street trees will be required. Street trees are proposed along Kaster Road, but not along Old Portland Road because it lacks curb and gutter per SHMC

17.72.020(8). Also, as noted below, street frontage improvements are not proposed along Old Portland Road.

There are overhead utility lines along portions of the abutting Kaster Road, thus, street trees need to be "small" per this chapter. This requires a 20' spacing. Plans will need to be revised and there will likely be more due to the tighter 20' spacing (plans show 30' and 40' spacing).

Tree location shall also comply with requirements per 17.72.035(2)(d)-(l). This will be reviewed with revised plans.

This chapter requires buffering, but it is not required in this case because nearby uses are separated by rights-of-way and do not technically abut the subject property.

The normal fence height allowed is 6 feet, but a taller fence may be allowed as a condition of approval to mitigate against potential adverse effects. An 8' chain link (with sight obscuring slats) around the secure parking area is justifiable for law enforcement security reasons and is a justified condition of approval. Being 8' in height, topping with barbed wire is possible per SHMC 8.12.120.

Same for the 8' walls proposed for the trash enclosure.

This chapter requires screening (unrelated to buffering above). This applies in this case as follows:

Because the parking lot will be greater than three spaces, it is required to be screened. For screening in this case, the city usually requires landscaping along the perimeter that includes a balance of low lying and vertical shrubbery and trees. This is proposed for the general use parking area. An eight-foot-tall sight-obscuring fence is proposed for the secure parking area with landscaping proposed along much of that.

Service facilities and equipment (e.g., HVAC and other mechanical unit) visible from a public street, customer or residential parking area, any public facility or residential area are required to be screened whether they are ground, wall or roof mounted. In addition, rooftop facilities and equipment are required to be screened from street and adjacent properties.

Details are few at this point. Screening required in all cases.

Refuse container or collection area are required to be screened (e.g., trash enclosure). A trash enclosure is shown on the plans and includes an 8' CMU wall for screening which is part of the security wall.

Interior parking lot landscaping. When off-street parking lots have more than 20 spaces, landscape islands are required with trees.

This applies to the non-secure parking area, which is only 6 spaces. The secure parking area is considered to be excluded from this provision because it will be behind an 8' sight obscuring

fence and not visible to the general public. This provision is illogical to apply to the secure parking area.

* * *

Visual Clearance: Chapter 17.76 SHMC requires proper sight distances at intersections to reduce traffic hazard potential. The required area to maintain clear vision is greater for arterial streets.

This pertains to the access proposed off Kaster Road. As the Kaster Road right-of-way is larger than the minimum the curb line may be used (i.e., edge of vehicle travel). This is not properly depicted on the plans and a proposed mailbox may conflict.

* * *

Off-Street Parking/Loading: Off street parking is required because this is new development with no parking exception.

Dimension and type. All proposes spaces not within the secure area are standard size and meet the normal dimensional requirements (min. size 9' x 18'). Larger spaces are proposed within the secure area.

Location. Parking spaces are required to be within 200' of the building served. All proposed spaces are within 100' of the proposed building.

Accessible (disabled person) spaces. Required to comply with State and Federal Standards. A total of 54 parking spaces are proposed. Per the 2022 Oregon Specialty Code, this requires at least 3 accessible spaces, one of which is required to be van-accessible. A pair of spaces, with one as van accessible is proposed for the general use parking area. A single van accessible space is proposed within the secure parking area.

Also, accessible parking spaces are required to be located on the shortest route to an accessible pedestrian entrance. Though this is a building code issue, it is relevant to site design. Location of these spaces appears to achieve this.

Bicycle parking. 1 lockable space is required at a rate of 20% of vehicle spaces for civic use. Bicycle spaces are required to be within 50' of primary entrances, under cover when possible, and not located in parking aisles, landscape areas, or pedestrian ways.

Based on the 6 spaces of the general use area (visitor parking), 2 bicycle spaces area required. Plans show 2 spaces under cover with a bike rack that permits locking.

Number of off-street parking spaces required. The use (per SHMC 17.80.030) is a "public safety service" which requires at least the amount of parking based on the largest shift. This is assumed to be 12 employees and will likely change (increase) during the life of the building.

There is much "extra" secure parking to accommodate staff increases, which is inevitable over the life of the building.

6 public spaces are proposed to accommodate visitors: two disabled person and four standard spaces. As a Conditional Use Permit, the Commission could require more. This is a best guess amount. Staff asked the consultant to inquire with Police staff about what they felt was needed as they are suitable candidates to convey anticipated demand. This is not detailed in the consultant narrative but is important. At the current police station site (150 S. 13th Street) there is on-street parking available for overflow, but on-street parking is not available in the immediate vicinity and on the same side as Old Portland Road as the site. The only potential overflow parking, at least currently, would be across Kaster Road from the subject property at 1810 Old Portland Road, which is city owned but requires crossing Kaster Road.

Aisle width. Two-way traffic requires a minimum of 24'. 24' is proposed.

Markings. All interior drives and access aisles are required to be marked and signed to indicate direction flow. Plans demonstrate this.

Surface area. All areas used for parking, storage or maneuvering of vehicles (including things towed by vehicles) shall be paved. No vehicular gravel area is proposed.

Wheel stops. Wheel stops are required along the boundaries of a parking lot, adjacent to interior landscape area, and along pedestrian ways. Curbing or walls front the parking spaces. Walkways between parking spaces and the building exceed 7', which would be the minimum needed to maintain a 4' min. width walkway and accommodate assumed 3' overhang.

Drainage. Drainage plans will be required to prevent ponding, prevent water flow across pedestrian ways and to address pollutants from vehicles (e.g., oil/water separation).

A preliminary storm water report has been provided to explain how the proposed system, including a storm water pond, will address water quantity and quality. Final storm water plans will be necessary.

Lighting. Required to be directed to avoid glare from surrounding residences and roads/streets. Lighting plan has been submitted that demonstrates this will probably be the case.

Loading/unloading driveways. Uses such as a school or other meeting place designed to accommodate > 25 people at one time are required to have a driveway designed for continuous forward flow of passenger vehicles for the purpose of loading and unloading passengers.

Being strictly a police station, large meetings and such are not anticipated.

Off-street loading spaces. New or altered buildings or structures which receive and distribute material or merchandise by truck are required to maintain off-street loading and maneuvering area if they are at least 10,000 square feet in size.

This applies to commercial or industrial uses. As a civic use, this is not applicable.

* * *

Access/egress/circulation: Joint access and reciprocal access easements. Joint access via easement is allowed by the code provided there is satisfactory legal evidence of such (e.g., easements) and the legal means of allowing the shared access is provided to the City. In this case, there are multiple lots of record (ORS Chapter 92) involved. The St. Helens Industrial Business Park Parcelization Framework and Funding Plan (Resolution No. 1910) includes use of the [now vacated] 7th Street right-of-way as a consolidated access point.

Public street access. All vehicular access and egress per Chapter 17.84 SHMC is required to directly connect to a public or private street approved by the City for public use. Moreover, vehicular access is required to be within 50' of principle entrances.

The site abuts the following streets:

Street/Road Name	Public or Private	Street Class (TSP)	Jurisdiction	Improved?
Old Portland Road	Public	Minor Arterial	City of St. Helens	partial; no curb or sidewalk
Kaster Road	Public	Collector	City of St. Helena	partial, no curb (except close to Old Portland Road) or sidewalk

The site utilizes these streets for access and brings vehicle access within the statutory distance of the primary entrance.

Vehicular access spacing, amount, etc. As an arterial classified street, direct access from Old Portland Road would not normally be allowed and is not proposed.

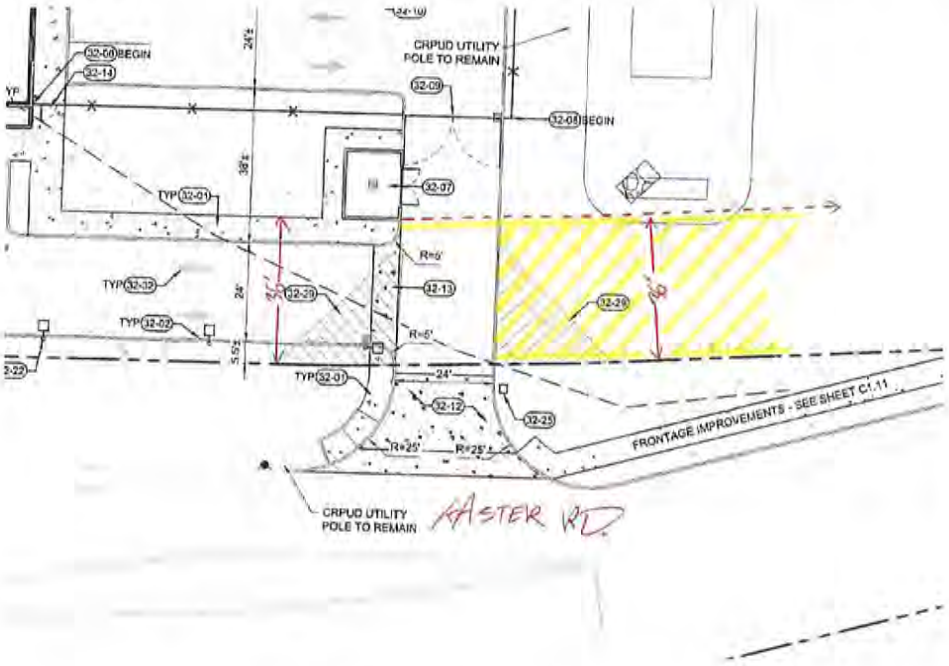
The main access drive is proposed using Kaster Road. This driveway is 300'+ away from Old Portland Road and there are no existing driveways on the same side of Kaster Road for the purpose of determining driveway spacing.

A second means of access to the property is proposed via S. 15th Street, which leads to Old Portland Road. As described above, this secondary access is necessary due to the floodplain issues.

For public/institutional developments, the number of access points is supposed to be minimized to protect the function, safety and operations of streets. Moreover, the number of driveway and private street intersections with public streets shall be minimized by the use of shared driveways with adjoining lots where feasible. How the expansion area will be designed is unknown, but ensuring the Kaster Road access point can be used for the southerly "expansion area" of the site is important to honor these code provisions and efficient use of the expansion area, which was one of the factors for choosing to place this critical facility in proximity of a known natural

hazard. This is also supported in the St. Helens Industrial Business Park Parcelization Framework and Funding Plan (Resolution No. 1910) as mentioned above.

The current plans honor this somewhat, but the storm water pond, including related grading work, encroaches. Based on the current plan, a swath of land 36' wide along Kaster Road needs to be preserved from grading interruptions and other encroachments. This will require plan revisions.



LEFT: Area to be preserved for future internal access along the storm water pond and beyond. This will impact the storm water pond location.

Pedestrian access (interior walkways). Walkways shall extend from the ground floor entrances or from the ground floor landing of stairs, ramps, or elevators of all commercial, institutional, and industrial uses, to the streets which provide the required access and egress. Walkways shall provide convenient connections between buildings in multibuilding commercial, institutional, and industrial complexes. Walkways also shall provide access to existing and planned transit stops adjacent to the development site. Unless impractical, walkways should be constructed between a new development and neighboring developments.

A walkway is proposed on all sides of the building connecting all building man doors to a walkway leading to Kaster Road. A man gate is proposed for the secure parking area.

If enough space is reserved (36' from the Kaster Road property line) as described above, a walkway aligning with the proposed could be included with a future drive along and past the storm water pond.

Where a site for proposed commercial, institutional, or multifamily development is located within at least one-quarter mile of an existing or planned transit stop, the proposed pedestrian circulation system must include a safe and direct pedestrian walkway from building entrances to the transit stop or to a public right-of-way that provides access to the transit stop.

There is no transit stop within a quarter mile, but there could be as the St. Helens Industrial Business Park develops. Walkway connections to the surrounding streets, are anticipated to provide pedestrian access to nearby transit stops.

Wherever required walkways cross vehicle access driveways or parking lots, such crossings shall be designed and located for pedestrian safety. Required walkways shall be physically separated from motor vehicle traffic and parking by either a minimum six-inch vertical separation (curbed) or a minimum three-foot horizontal separation, except that pedestrian crossings of traffic aisles are permitted for distances no greater than 36 feet if appropriate landscaping, pavement markings, or contrasting pavement materials are used. Walkways shall be a minimum of four feet in width, exclusive of vehicle overhangs and obstructions such as mailboxes, benches, bicycle racks, and sign posts, and shall be in compliance with ADA standards.

Proposed vehicle crossings are only 24' wide; consultant narrative notes concrete or pavement markings will be used. Plans show concrete to contrast with asphalt, but pavement marking would be acceptable too. All walkways exceed 4' in width.

Required walkways shall be paved with hard-surfaced materials such as concrete, asphalt, stone, brick, etc. Walkways shall be required to be lighted and/or signed as needed for safety purposes. Soft-surfaced public use pathways may be provided only if such pathways are provided in addition to required pathways.

No other paths are proposed. Some plan sheets indicate a potential future multi-use trail, but there is no finality to this in the plans or any mention in the consultant narrative.

Access requirements based on type and intensity of use. For uses with off-street parking lots up to 100 spaces, like this proposal, at least one access point with minimum 24' drive width is required. This is proposed via Kaster.

Director's authority to restrict access. Per SHMC 17.84.110(2) and (3):

> (2) In order to eliminate the need to use public streets for movements between commercial or industrial properties, parking areas shall be designed to connect with parking areas on adjacent properties unless not feasible. The director shall require access easements between properties where necessary to provide for parking area connections.
>
> (3) In order to facilitate pedestrian and bicycle traffic, access and parking area plans shall provide efficient sidewalk and/or pathway connections, as feasible, between neighboring developments or land uses.

Kaster Road, as it exists today (between Old Portland Road and the paper mill parking lot), is a Collector classified street. Once the St. Helens Industrial Business Park is built out, it will be a key route for many users and traffic function along this segment of Kaster Road will be critical.

A key aspect of honoring these standards has already been mentioned in this report, which is maintaining area for road and walkway extension by and past the storm water pond. This allows efficient use of a single access point for transportation function and allows for proper

expansion—the ability to expand being a key issue in the site selection process. These criteria are further basis for this condition of approval.

* * *

Signs: New signs require permits per Chapter 17.88 SHMC. This sign permit has been incorporated into this decision.

Since the proposed sign is not in the small R5 zoned area along Old Portland Road, the applicable sign district is the commercial/industrial sign district. A monument sign is proposed and is possible for public facilities such as the proposed police station.

For public facilities, a monument or ground mounted sign is possible along each street frontage.

This is important considering two existing signs on the site. One near the intersection of Old Portland Road and Kaster Road, was approved in 2019 by Sign Permit S.3.19. This sign is out of compliance with the sign permit and that will need to be corrected. This sign was approved as a pole sign, a type of freestanding sign like monument signs. One pole is allowed per SHMC 17.88.060(1)(b) and only one freestanding sign is allowed per street frontage per 17.88.095(5).

The existing sign close to the intersection can be based on Old Portland Road frontage and the new one for the police station based on Kaster Road, two freestanding signs, one per street frontage. Note there is also a second existing freestanding sign, which appears to have been in place for years or decades along Kaster Road towards the midpoint between Old Portland Road and the Fir Street right-of-way. This is technically a separate property (though with this Conditional Use Permit, et. al. they will need to be considered one) and can stay (i.e., not mandated to move as a condition of approval).

For the proposed new sign, maximum sign area allowed is 40 square feet per face. Per SHMC 17.88.080(1) the sign area could be considered the metal plate behind the "St. Helens Police" letters. The plate area is 10" x 15'4" or approximately 13 square feet.

Maximum monument sign height is six feet. Sign is incorporated with a raised planter, with a total height of 4 feet.

Freestanding signs, such as the proposed monument sign, in commercial/industrial sign districts shall not be within 50 feet from the property line of any residential property as measured from the street frontage. The closest residential property at 1691 Old Portland Road is much more than 50' away.

The proposed sign will be illuminated by an external lighting source. Such lighting is required to be directed and shielded to limit direct illumination of any object other than sign.

* * *

Solid Waste/Recyclables: Chapter 17.92 SHMC includes provisions for functional and adequate space for on-site storage and efficient collection of mixed solid waste and recyclables subject to pick up and removal by haulers.

Proposed trash enclosure area exceeds the minimum approximate 55 square feet area requirement and is in a good location to be accessible by waste haulers. Minimum 10' wide gate is required; such is proposed. It will be enclosed by 8' tall CMU walls, exceeding the minimum 6'. The location combined with drive aisles, should enable a trash hauler vehicle to maneuver within the site, preventing maneuvering in the street.

Note that because it includes a sanitary sewer drain, it must be designed to prevent storm water infiltration, including but not limited to a roof. A roof is proposed and is mandatory as long as there is a sanitary sewer drain.

* * *

Site Development Review: See consultant narrative by Mackenzie.

* * *

Conditional Use: These are important considerations for the Commission. Pursuant to SHMC 17.100.040:

> (1) The planning commission shall approve, approve with conditions, or deny an application for a conditional use or to enlarge or alter a conditional use based on findings of fact with respect to each of the following criteria:
>
> (a) The site size and dimensions provide adequate area for the needs of the proposed use;
>
> (b) The characteristics of the site are suitable for the proposed use considering size, shape, location, topography, and natural features;
>
> (c) All required public facilities have adequate capacity to serve the proposal;
>
> (d) The applicable requirements of the zoning district are met except as modified by this chapter;
>
> (e) The supplementary requirements set forth in Chapter 17.88 SHMC, Signs; and Chapter 17.96 SHMC, Site Development Review, if applicable, are met; and
>
> (f) The use will comply with the applicable policies of the comprehensive plan.

Findings: **(a)** Due to surrounding wetlands, rock/topography, and the floodplain, fitting the proposal to the site took effort. Originally, the site was assumed to fit into the area between Old Portland Road and the now vacated 7th Street right-of-way.

Early plans included development east of the now proposed secure parking area, but using this area was scrapped due to rock features. As the site concept developed, the storm water pond needed to be fit in and the city vacated the 7th Street right-of-way. So now that it includes the original intended property, the vacated right-of-way, and the property lying south of the vacated right-of-way, there is more practical expansion area (expansion was a basis for site selection) since expanding east into rock may not be practical, and removal of the rock will be more challenging once the facility is built.

(b) This depends on, at least in part, if the Planning Commission is content with the selection process and basis for proposing a site in the immediate proximity of a long known and modeled natural hazard, that will have an impact on the function of the site during flood events, at the very least due to inundating of the entire Old Portland Road frontage and some of Kaster Road frontage of flood waters.

The selection process is essentially the alternatives analysis to justify a critical facility on property in proximity of a flood prone area and inevitable impacts to the facility during and after a flood event.

(c) There is no evidence of public facility shortfalls, except for sanitary sewer, which is explained more below.

(d) There is no issue with zoning standards as noted elsewhere herein.

(e) Site Development and sign standards both apply and can be met or met with conditions.

(f) The following Comprehensive Plan policies are noteworthy:

> 19.08.030(3)(u). Take necessary actions to help ensure the area maintains its current fire and police quality; specifically take into consideration the effects of fire and police protection in the siting and design of all new development.

The existing police station at 150 S. 13th Street is dated and insufficient for current and future staff. The current St. Helens Police Station was built in 1971 to serve an approximate population of 6,200, less than half today's current population of around 14,355. The station has seen almost no change to the original 2,200 square feet of office space and garage. Notable limitations includes that current facility is not ADA accessible, its emergency and seismic standards are antiquated, digital data storage is poorly accommodated, not all of the police vehicle fleet can be stored securely, lack of private interview space, lack of space for officer training, insufficient lockers for staffing levels, lack of changing rooms for both male and female officers, and no armory. Police staff have noted the inability to get certain funding/grants based on the current station's inadequacy.

To help offset these deficiencies, a modular building donated by the school district was added around 2018 (file SDRm.9.18) to the site to increase floor area, generally for senior administrative staff work, but this building lacks running water or lavatory facilities. To use these facilities, someone would need to exist the modular building to the outside to enter the original 1971 building.

A new facility is needed *somewhere* to ensure a quality law enforcement program for St. Helens.

However, taking the impact of police protection for the community in the siting of this site within immediate proximity and impact of a known and modeled natural hazard is something the Commission needs to consider. Especially because nearly the entire Columbia County Sherriff's Office at 901 Port Avenue is located within a 500-year floodplain already. Having both the County and City law enforcement headquarters in St. Helens which is both the County seat and

the largest community in Columbia County, put both under the influence of major flooding events when these agencies will be desperately needed. Is the Commission comfortable with this scenario?

19.08.060(3)(i). Development in a hazardous area is required to meet strict standards to reduce or eliminate public harm.

Finding(s): The existence of police (and a police station) is in part, an entity intended to alleviate public harm. The Commission needs to consider if development of the police station in the immediate proximity of a known and modeled natural hazard (i.e., flood) could pose a public harm since it is a critical facility per floodplain policy. If the Commission is ok with this, it should determine if it feels the appropriate precautions in design and requirements will stifle public harm.

19.12.130(2)(a). Prohibit development on lands within the 100-year floodplain (i.e., special flood hazard areas subject to inundation by at least one percent annual flood probability), on slopes exceeding 20 percent, or with recognized drainage problems unless showing that design and construction techniques can minimize potential loss of life or property; specifically:

(i) All development within the 100-year floodplain (i.e., special flood hazard areas subject to inundation by at least one percent annual flood probability) shall conform to the standards set by FEMA;

(ii) All development plans on slopes greater than 20 percent shall be reviewed and approved by the city engineer;

(iii) All development plans on lands with recognized drainage problems shall be reviewed and approved by the city engineer.

For development on such designated lands, the city may impose whatever conditions it deems necessary to protect life and property.

Finding(s): The key part of this the Commission can consider is the last line about "whatever conditions it deems necessary." Do you think staff has missed anything in the potential decision (e.g., conditions of approval)?

* * *

Tree Removal/Preservation: Chapter 17.132 SHMC addresses the preservation of trees with a diameter at breast height (DBH) >12 inches. Protection is preferred over removal per this Chapter and Site Development Review Chapter 17.96 SHMC.

Tree plan is required because there are many trees (>10) on the subject property. Per the existing conditions plans, there are approximately 430 trees total on the subject property. Of these approximately 282 have a DBH $\geq$ 12 inches. Of these larger DBH trees, only 33 are proposed for removal. This could change slightly with final plans but, as more than 50% of trees with a DBH > 12 inches will be saved, replacement is necessary only at 1:1 ratio.

Plans submitted with this application show 47 new landscaping trees and 47 wetland buffer enhancement mitigation for almost 100 new trees. This number may change with final plans, but 1:1 replacement of larger DBH trees should be easily met.

Protection of trees will be required (as well as wetlands and related protection zones). This is explained in the Sensitive Lands Assessment conducted by Wetland Solutions Northwest, LLC and will need to be included on final plans to ensure contractors and others follow the protection plan during site development.

Note that extra tree plantings will also help with tree mitigation related to Partition PT.2.23 intended to create a new parcel for a new PGE electrical substation to serve the St. Helens Industrial Business Park.

* * *

Street/Right-of-Way Standards: Old Portland Road is classified as a minor arterial per the 2011 Transportation Systems Plan (TSP). It is also part of the 2019 Riverfront Connector Plan (RCP), which is a refinement of the TSP. The RCP calls for 60' of right-of-way, which is already in place. However, it also calls for a roundabout at the Old Portland Road / Kaster Road (S. 18th Street) intersection.

This roundabout will require right-of-way dedication and improvements that have not been developed beyond planning level in the 2019 RCP. When and exactly how (i.e., final construction plans) are not known at this time. Generally, substantial improvements and significant landscaping are outside of the assumed roundabout area.

Because the roundabout is to-be-determined, the transition areas of frontage improvements (sidewalk, etc.) area also unknown at this time. As such, staff does not recommend street frontage improvements along most of the site close to Old Portland Road. The roundabout will be a city initiated project and will be able to install the improvements later.

However, the area of the subject property along Kaster Road south of the proposed driveway is outside the anticipated area of design impact for the roundabout. The driveway provides an opportunity for a transition to the normal collector street standard that applies to Kaster Road. This is a significant project that would normally require frontage improvements, and this is an appropriate area for improvements for this project.

The Kaster Road right-of-way meets or exceeds the minimum 60' width required, so no dedication anticipated.

* * *

Utility Standards:

Water: Water is available along both Old Portland Road and Kaster Road.

Sanitary Sewer: Sewer is available along a mainline within the site (within the vacated 7th Street right-if-way).

The city adopted a new **Wastewater Master Plan (WWMP)** in November 2021 that identifies undersized trunk lines already operating at or above capacity that this development would depend on. The WWMP can be found here:

https://www.sthelensoregon.gov/engineering/page/public-infrastructure-master-plans

Sewer pipes are considered "at capacity" when peak flows exceed 85% of the full depth of the pipe in accordance with industry standards. This depth is based on the maximum depth of flow ratio (d/D). where "d" is the depth of flow and "D" is the pipe diameter. The WWMP includes an exhibit—Figure 18—that shows that there is a potential overflow within Kaster Road by the subject property and that there is a segment of mainline between Kaster Road and the wastewater treatment pond that is over capacity now.

Pipeline surcharging occurs as flows exceed the capacity of a full pipe, causing wastewater to back up into manholes and services. In addition to potentially backing up into homes and health risks associated with sanitary sewer overflows, Oregon DEQ prohibits all sanitary sewer overflows and can fine cities for allowing such and has done so to other jurisdictions. Examples of DEQ fines can be found here:

https://www.oregon.gov/deq/Pages/enforcement-actions.aspx

Given this issue, SHMC 17.152.090(4) must be considered:

> Permits Denied. Development permits may be restricted by the commission or council (i.e., the applicable approval authority) where a deficiency exists in the existing sewer system or portion thereof which cannot be rectified within the development and which if not rectified will result in a threat to public health or safety, surcharging of existing mains, or violations of state or federal standards pertaining to operation of the sewage treatment system.

There is a current deficiency (undersized pipes for existing demand) of a widespread scale within the city per the WWMP including infrastructure this development would need to utilize that could result in surcharging, fines (e.g., for violation of Oregon DEQ standards) and public health risks.

The Commission finds this development can still be approved under these circumstances given this criterion based on the following findings or conditions of approval:

- The deficient conveyance infrastructure this development depends on for sanitary sewer appears to be a priority 3 in the WWMP. Priority rankings include three categories. There is no priority 2 conveyance improvements. The difference between priority 1 and 3, is priority 1 includes areas that have been reported to have overflows or significant surcharging during wet weather events, whereas priority 3 areas are where there have been infrequent or no observations of historical overflows or surcharging.

- City Public Works and Engineering staff have already begun to address the necessary sanitary sewer infrastructure upgrades having already received a State Revolving Fund Program loan (for below market rate loans) from Oregon DEQ to fund both priority 1

projects (in basins 4 and 5) and priority 3 projects in basin 6. Basin 6 is applicable to this proposal. City Public Works and Engineering indicate an anticipated 4-year timeframe (from October 2022) for completion of these upgrades.

- A condition of approval to require a fee per equivalent dwelling unit will be included. This is not a System Development Charge pursuant to ORS 223.299(4)(b); it is a temporary charge by order for development and land divisions proposed under these circumstances until the infrastructure is in order per the WWMP. The nexus is clear as it relates to the sewer conveyance deficiency and an amount has been determined based on calculations to determine fair proportionality—see attached **St. Helens Wastewater Collection System New Sewer Connection Surcharge memo**.

  For this project, the fee per equivalent dwelling unit is $1,800, and this estimated amount is determined to be a fair share quantity for this proposal. It is based on October 2022 dollars, and inflation must be considered.

- Though denial of this proposal itself does not warrant a moratorium or public facilities strategy as there is no prior stoppage or restriction of permits, authorizations, or approvals*, the city recognizes that the sanitary sewer conveyance problems identified in the WWMP are widespread and denial could set a precedence of action that if continued for projects under similar circumstances, could be construed as a pattern or practice that at some point could warrant a moratorium or public facilities strategy.

  *Per ORS 197.524 a local government is required to adopt a public facilities strategy under ORS 197.768 or a moratorium on construction or land development under ORS 197.505 to 197.540 when it engages in a pattern or practice of delaying or stopping the issuance of permits, authorizations or approvals necessary for land divisions or construction due to the shortage of public facilities (like sanitary sewer).

Storm Sewer: There is an existing storm line through the site that will be incorporated for use. Stormwater is proposed to be managed via an on site via a stormwater pond in addition to conveyance infrastructure. Per the Geotech report infiltration is not feasible for the site.

A preliminary drainage report has been provided. Final drainage plans will be required.

Other: There is existing overhead utility along Old Portland Road and Kaster Road. O/h utility may remain as long as no new poles are needed.

* * *

Trails/bikeways: The secondary access via the S. 15th Street right-of-way will advance trail #7 in the 2015 Parks and Trails Master Plan (see attached exhibit from the 2015 Park and Trails Master Plan), which intended to eventually provide a connection between McCormick Park and Nob Hill Nature Park. Though, earlier versions of plans included connecting this to Kaster Road via improved walkway along the developed site, this is not included on the current plans. Consultant narrative does not address this change, despite related past efforts and discussions.

The intersection of Kaster Road and Old Portland Road is one where the city has received comments about pedestrian crossings. Does the Planning Commission think the secondary access should connect with a pedestrian passageway that connects to Kaster Road? It is possible if not, people will still use the secondary access and make their own way once they get to the secure parking area gate.

Bicycle lanes are contemplated in the 2019 Riverfront Connector Plan; when the roundabout and surrounding improvements are done, bicycle amenities will be considered.

There is nothing specific for Kaster Road beyond the design impact area of the 2019 Riverfront Connector Plan roundabout, except for bike lanes as part of collector streets as identified in the 2010 Transportation Systems Plan.

* * *

Traffic Impact Analysis: An August 29, 2022, letter from the consultant addresses Traffic Impact Analysis (TIA) thresholds and demonstrates a TIA is not warranted.

* * *

Other Considerations: There is a turnaround built in the design of the secondary access, but it is behind the secure fence. If the fence is closed the secondary access is a >500' long narrow road with no outlet or turn-around. Plans show a means of restricting vehicular access including do not enter signage. This may solve this issue, but any blockage will need to be acceptable to the Fire Marshall to ensure emergency access.

Normal minimum width for minimum for fire apparatus access is 20'. A section of the secondary access is only 15' wide. This will need Fire Marshall ok as part of final plan approval.

* * * * *

CONCLUSION & RECOMMENDATION

Based on the facts and findings herein, if the Planning Commission approves this Conditional Use Permit, et. al., staff recommends the following conditions:

1. This **Conditional Use Permit** approval is valid for a limited time (to establish the use) pursuant to SHMC 17.100.030. This Conditional Use Permit approval is valid for 1.5 years. A 1-year extension is possible but requires an application and fee. If the approval is not vested within the initial 1.5 year period or an extension (if approved), this is no longer valid and a new application would be required if the proposal is still desired. See SHMC 17.100.030.

2. The following shall be required prior to any development or building permit issuance:

    a. Final plans as submitted with any development or building permit(s) shall comply with the plans submitted with this Conditional Use Permit, et. al. with the following additions and/or corrections:

i. Proposed power line easement, as required by Ordinance No. 3283, shall be depicted on plans and any modifications to the plan to ensure no conflicts with said easement, per CRPUD, shall be included on the plans. See conditions 2.d and 3.b.

ii. Existing tree and wetland/protection buffer protection methods during construction shall be incorporated.

iii. For development within the Area of Special Flood Hazard (100-year flood), plans shall specify how improvements will be constructed with materials and utility equipment resistant to flood damage and methods and practices that minimize flood damage. Statements that state such, alone, would be insufficient in this regard.

iv. FDC and fire hydrant along Old Portland Road (and within a flood prone area) shall be moved to Kaster Road outside of a flood prone area and be accessible by the secondary access.

v. Fire apparatus turn-around as incorporated into the secure parking area and secondary access to the site shall be depicted on the plans. "No parking fire access" or comparable markings shall be included within the secure fenced area *as depicted in this report.*

vi. Fire Marshall shall approve the secondary access between S. 15th Street and Kaster Road including but not limited to fences, bollards and required locks necessary for access. Plans shall be modified as necessary. Fire Marshal requirements shall be incorporated into plans so final requirements (condition 3 of these conditions of approval) are clear.

vii. Street trees along Kaster Road shall be "small" per Chapter 17.72 SHMC. This requires a 20' spacing. Tree location shall also comply with requirements per 17.72.035(2)(d)-(l).

viii. As per condition 5.

ix. Vision clearance per Chapter 17.76 shall be properly depicted. Mailbox proposed may be a conflict, though details for that have been provided. In any case, plans shall omit conflicts with this.

x. Plans shall not have obstructions or constraints against allowing use of the Kaster Road access south (southeast) of the site. To continue the internal access design in this direction no improvements or grading, including the storm water pond and related grading work, shall occur within 36' of the Kaster Road property line. *See depiction of this in this report.*

xi. If trash enclosure will include a sanitary sewer drain, it must be designed to prevent the infiltration of stormwater, including but not limited to a roof.

xii. Tree and wetland (and related upland protection zone, as applicable) protection during construction.

xiii. Sign as approved by Sign Permit S.3.19 shall be brought into compliance with this Sign Permit and any subsequent permit necessary for any proposed alterations desired as part of this corrective action.

xiv. Does the Planning Commission think the secondary access should connect with a pedestrian passageway that connects to Kaster Road?

b. Engineering construction plans shall be submitted for review and approval addressing all public improvements including but not limited to:

Street frontage improvements along Kaster Road between the proposed Kaster Road access point (driveway) and Fir Street.

c. A final drainage plan certified by a registered professional engineer shall be reviewed and approved by City Engineering to address water quality to protect surrounding wetlands and/or riparian areas/streams), water quantity (e.g., to prevent ponding and for storm water retention if needed) and conveyance of storm water. Drainage plan shall comply with City, State and Federal standards.

d. If power lines within the subject property will not be relocated, a 50' wide easement shall be granted for them as required by Ordinance No. 3283. If said power lines will be relocated, see condition 3.

e. An additional "fair share" fee shall be paid per equivalent dwelling unit (EDU) based on the portions of the city wastewater collection system between the subject property and the wastewater treatment plant, that this development depends on, that are at or above capacity as identified in the 2021 Wastewater Master Plan. Estimated per EDU cost is $1,800 based on October 2022 dollars. Inflation adjustment to value at time of building permit issuance shall be included.

f. A Notice shall be recorded on the deed(s) of the subject property indicating that, in addition to other laws, no portion of the subject property shall be transferred to a different ownership unless the city finds that the remaining buildable area is sufficient for future expansion of the police station. This also includes maintaining shared access between the parcels on either side of the now vacated 7th Street right-of-way a required by the conditions herein. The Planning Commission, if one exists at the time, shall provide a recommendation as to this matter before any final decision is made.

Notice shall also note the presence of wetlands and associated uplands protection zones subject protection per city law and that some protection zone was enhanced as per this Conditional Use Permit, et.al. effort.

g. Ensuring restoration plantings and maintenance for at least 2 years to ensure survival is required. How this will be done shall be identified. See condition 3.c.

3. The following shall be required **prior to** Certificate of Occupancy by the City Building Official:

   a. All improvements necessary to address the requirements herein shall be in place.
   b. A 50' wide easement shall be granted for relocated power lines within the subject property, if any. Note condition 2.d.
   c. If minimum 2-year planting maintenance will be ensured by a private third party (e.g., landscape contractor) for wetland/buffer enhancement, contract shall be in place.
   d. As per condition 5.

4. 8' high fencing and walls shall be allowed. Topping with barbed wire is possible per SHMC 8.12.120.

5. Service facilities such as gas meters and air conditioners which would otherwise be visible from a public street, customer or resident parking area, any public facility or any residential area shall be screened, **regardless if such screening is absent on any plan reviewed by the City. This includes but is not limited to ground mounted, roof mounted or building mounted units.** See SHMC 17.72.110(2).

6. This Conditional Use Permit, et. al., is for allowance of a public safety facility only. It does not address and is not a substitute for approval of non-police function at the site such a public facility.

7. No plan submitted to the City for approval shall contradict another.

8. Owner/applicant and their successors are still responsible to comply with the City Development Code (SHMC Title 17).

Attachment(s):

- Plans
- National Flood Hazard Layer FIRMette
- FIRM Flood Boundaries v. Actual Elevations exhibit
- Renderings page
- Consultant (Group Machenzie) narrative
- Preliminary Drainage Report (except appendices)
- Sensitive Lands Assessment Report (except Attachment A)
- St. Heles Wastewater Collection System New Sewer Connection Surcharge memo (excerpt)
- Proposed Trails exhibit from the 2015 Parks and Trails Master Plan

MACKENZIE.

CONDITIONAL USE PERMIT, FLOODPLAIN DEVELOPMENT PERMIT, AND SIGN PERMIT

RECEIVED
JUN 29 2023
CITY OF ST. HELENS

WITH CITY PLANNER COMMENTS AUG. 2023

To
City of St. Helens

For
City of St. Helens Public Safety Building

Dated
June 28, 2023

Project Number
2210310.05

MACKENZIE
Since 1960

RiverEast Center | 1515 SE Water Avenue, Suite 100, Portland, OR 97214
PO Box 14310, Portland, OR 97293 | T 503.224.9560 | www.mcknze.com

M.

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EXHIBITS

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A. Application Forms
B. Plans
C. Renderings
D. Aerial and Zoning Map
E. Preliminary Stormwater Report
F. Trip Generation and Parking Analysis Letter
G. Sensitive Lands Assessment Report
H. Local Wetland Inventory (LWI) Map
I. Wetland Delineation Concurrence from DSL, dated November 3, 2022
J. Wetland Delineation Map WD # 2019-0324, approved February 6, 2020
K. Wetland Buffer Impact Diagrams
L. Floodplain Map (FEMA FIRMette)

I. PROJECT SUMMARY

Applicant:	City of St. Helens Attention: John Walsh, City Administrator 265 Strand Street St. Helens, OR 97051 (503) 397-6272
Owner:	Same as applicant
Site Address:	East of the Intersection of Old Portland Road and Kaster Road
Assessor Site Acreage:	7.47 AC (4109-AB-01500)
Zoning:	General Residential (R-5) and Light Industrial (LI)
Comprehensive Plan:	General Residential (GR) and Light Industrial (LI)
Adjacent Zoning:	North: Mixed Use (MU), Apartment Residential (AR), General Residential (R-5) South: Light Industrial (LI) East: Heavy Industrial (HI) West: Mixed Use (MU), Public Lands (PL)
Existing Structures:	None
Request:	Conditional Use Permit, Floodplain Development Permit, and Sign Permit
Project Contact:	Brian Varricchione Mackenzie 1515 SE Water Avenue, Suite #100 Portland, OR 97214 bvarricchione@mcknze.com (971) 346-3742

II. INTRODUCTION

Existing Site and Surrounding Land Use

The subject site is located on the east side of Old Portland Road and the north side of Kaster Road. The site is zoned Light Industrial (LI) and General Residential (R-5) by the City of St. Helens and is identified as Columbia County tax lot 4109-AB-01500, which contains portions of the former 7th Street and S 16th Street as vacated by Ordinance # 3283. The property currently stands free of any structures or buildings; it has been identified as containing wetlands and sensitive lands (Appendix E of Exhibit G), and it is partially within "100-Year" and "500-Year" floodplain areas designated by the Federal Emergency Management Agency (FEMA) as shown in Exhibit L. As shown in Figure 1, the Flood Hazard Area is in the western corner of the site. The proposed structure is located outside of the 100-Year floodplain. As explained in the Wetland and Water Delineation Report (Exhibit G) and shown on the Local Wetland Inventory Map (Exhibit H), a locally significant wetland (MI-15) is located at the eastern corner of the site. The site has over 230 trees greater than 12" DBH. The site generally slopes down to the south and east. Elevation is 65' above sea level in the western portion of the property adjacent to Old Portland Road and slopes down to approximately 48' above sea level at the wetland boundary in the eastern portion of the site.

The adjacent zoning is:

- North: Mixed Use (MU), Apartment Residential (AR), General Residential (R5)
- South: Light Industrial (LI)
- East: Heavy Industrial (HI)
- West: Mixed Use (MU), Public Lands (PL)

Nearby land uses include residential dwellings, a restaurant, and a park.

As identified in the 2019 Riverfront Connector Plan, the City of St. Helens has plans to construct a roundabout at the intersection of Old Portland Road and Kaster Road. The timing and funding source for the improvements have not been identified.

Figure 1: Aerial Image – Project Site

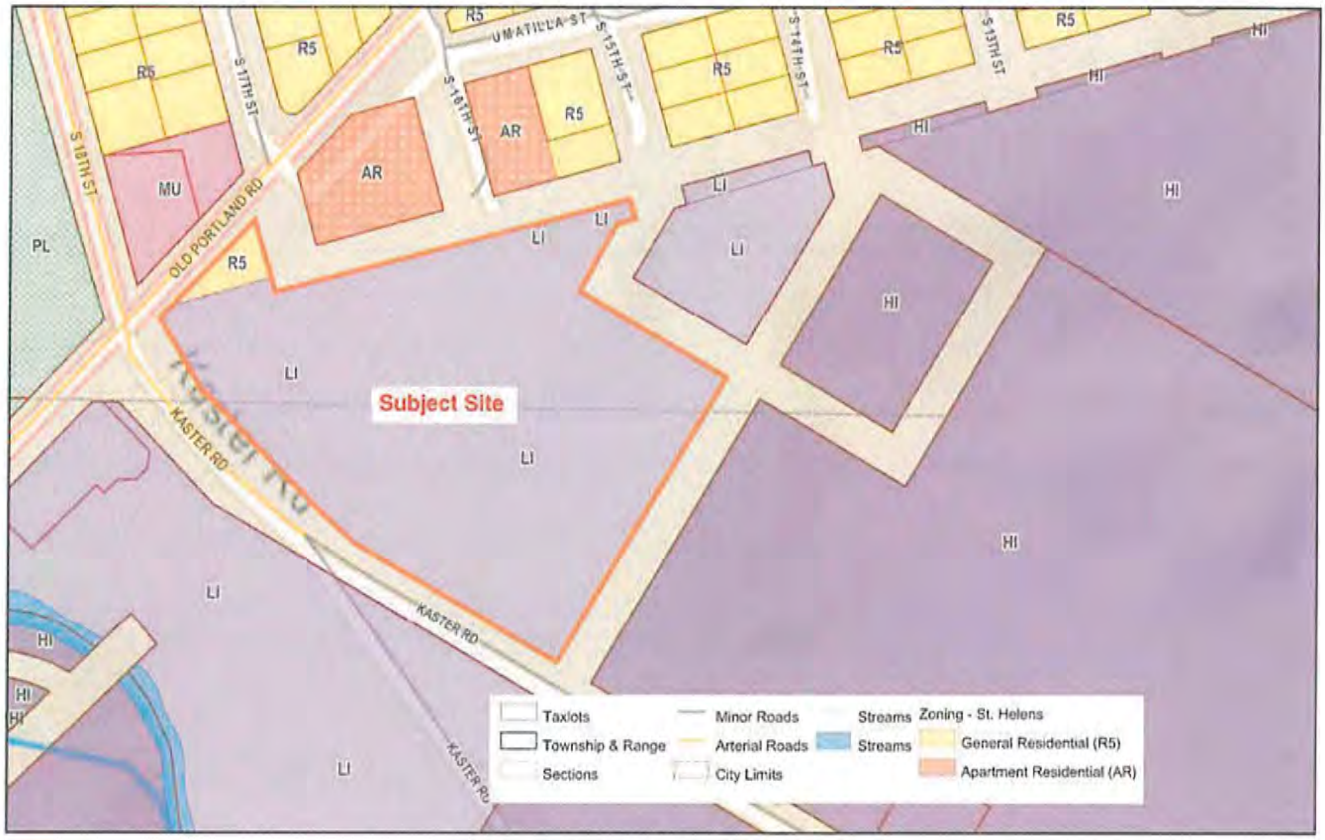


Figure 2: Zoning Map
Source: Columbia County

Description of Proposed Development

The City of St. Helens (City) is proposing a new, one-story Public Safety Building on a City-owned property at the intersection of Kaster Road and Old Portland Road. The approximately 11,000 SF building (which will be used solely by the Police Department) will be accompanied by site improvements including visitor parking, secure parking for police fleet and staff vehicles, landscaping, and frontage improvements. The main building access is located from Kaster Road, with an additional paved emergency vehicle access road from S 15th Street to the north. A small area of the site is zoned residential (R-5) while the rest of the site is zoned Light Industrial (LI), as shown in Figure 2 above and on the enclosed Zoning Map (Exhibit D). The proposed building will be wholly located within the LI zone. No development is proposed within the locally significant wetland, although ground disturbance is proposed within the 50' protection zone (wetland buffer). The site contains over 230 trees, 33 of which are proposed to be removed as part of this development. Most trees located on the northern portion of the site will be retained.

This application package includes a narrative, graphics, and additional documentation in support of applications for a conditional use permit, floodplain development permit, and sign permit for a new Public Safety Building at northeast corner of the Kaster Road/Old Portland Road intersection. The St. Helens Public Safety project went through a comprehensive site selection process which included a three-phase selection process as described below:

- Phase 1 included 10 properties across the City. At the culmination of Phase 1, the list of sites was narrowed to five (5) sites.

CONFLICTS W/ WEBSITE

- Phase 2 involved utilizing a scoring matrix to identify the most suitable sites. At the culmination of Phase 2, the list of sites was narrowed to two (2).
- Phase 3 involved the application of a selection criteria to the two (2) sites identified in Phase 2. At the February 19, 2020 City Council Work Session, the two remaining identified locations were discussed. One proposed site was in the LI zone at the corner of Old Portland Road and Kaster Road (subject site), and the other proposed site was the block between Columbia Boulevard and Cowlitz Street and between S 17th Street and S 18th Street. At the Work Session, it was noted that the Old Portland Road/Kaster Road subject site offers:
  - Enhanced access to the highway via Milliard Road in the event of a train blocking Gable Road or Columbia Avenue.
  - Accommodation for future growth to the north and east.
  - No complexity of one-way streets.

Portions of the site contain 100-year floodplain, while other portions contain 500-year floodplain. The Public Safety Building has been designed to remain operational in a 100-year and 500-year flood event.

The subject property, located in the R-5 and LI zones, is suitable for a wide variety of uses. The proposed building is designed to accommodate the City of St. Helens Police Department operations, complementary to other commercial, industrial, and residential uses in the vicinity. The proposed development is therefore consistent and compatible with nearby land uses. Nearby land uses include industrial operations, a community recreation center, restaurant, and residential uses. None of the nearby uses should be negatively impacted by noise from the proposed facility (there are no abutting land uses to the north, west, or south based on the Community Development Code's definition of "abut"). The City's Economic Opportunity Analysis shows that the City has a surplus of industrial land inventory and lacks commercial land inventory. The Public Safety Building will utilize industrial land, preserving the limited available commercial land inventory.

The subject property contains wetlands that have been designated as significant by the City. The applicant has retained Wetland Solutions Northwest, LLC to prepare an expert inventory of wetland resource values within the subject property and make recommendations for resource conservation. As a result, development as proposed in the upland areas of the subject property will not adversely affect sensitive wildlife species or significant wetland natural resource features.

EXCEPT ACCESS TO OLD PORTLAND ROAD, KASTER ROAD & N. 18TH STREET ARE COMPROMISED IN A FLOOD EVENT.

III. NARRATIVE AND COMPLIANCE

The following narrative addresses the specific approval criteria and development guidelines and standards which apply to this application. In the sections below, applicable approval standards from the St. Helens Community Development Code (CDC) are shown in *italics,* while responses are shown in a standard typeface.

Chapter 17.32 Zones and Uses

17.32.070 General residential zone – R-5.

(3) Conditional Uses (See Chapter 17.100 SHMC). In an R-5 zone, the following conditional uses may be permitted upon application:

...

(i) Public Facilities, major.

(j) Public safety facilities.

Response: The northern portion of the subject site is zoned General Residential (R-5), as shown in Exhibit D, and is subject to R-5 use and development standards. The proposed building is located wholly outside of the R-5 zone. This section is not applicable as the proposed use is not located within the R-5 zone.

(4) Standards. In the R-5 zone, the following standards shall apply:

(e) The minimum lot depth shall be 85 feet.

Response: The subject site is a corner lot; therefore, the front lot line is the site's frontage separating the narrowest frontage of the lot from the street. The front lot line is the site's frontage on Old Portland Road. The overall lot depth is approximately 770', while the depth of the portion in the R-5 zone is approximately 90'. This standard is met.

(f) The minimum front yard shall be 20 feet.

Response: The subject site's front lot line is the site's narrowest frontage as the site is a corner lot. The front lot line is the site's frontage on Old Portland Road. A portion of the subject site along Old Portland Road is zoned R-5 as shown in Exhibit D. The proposed building is set back approximately 116' from Old Portland Road and located entirely outside of the R-5 zone as shown on Sheet C1.10 of Exhibit B. The minimum front yard requirement is met.

(k) Buildings and structures shall not occupy more than 40 percent of the lot area except for single attached and multidwelling units, which cand be up to 50 percent.

Response: No building or structure is proposed to be built on the portion of the site zoned R-5. The public safety building is proposed to be built entirely on Light Industrial (LI) zoned land. This standard is met.

(l) No lot, parcel, or otherwise lawfully established unit of land per ORS Chapter 92 shall have more than one principal building constructed thereon, except for multidwelling structures and as otherwise allowed in this section.

Response: No principal building or structure is proposed to be built on the portion of the site zoned R-5. This standard is met.

17.32.130 Light Industrial – LI.

(3) Conditional Uses. In the LI zone, in addition to the buildings and uses permitted outright, a conditional use permit can be granted for the following buildings and uses:

...

~~*(k) Public facilities, major.*~~

(m) Public safety and support facilities.

Response: The proposed development will contain police operations, and is classified as ~~both~~ a ~~Public Facility (Major) and a~~ Public Safety and Support Facility. The proposed use is a Conditional Use in the Light Industrial (LI) zone.

(4) Standards.

(a) The standards for the LI zone shall be determined by the proximity to residential zones and the anticipated off-site impacts.

(b) The maximum height within 100 feet of any residential zone shall be 35 feet.

Response: The subject site is a split-zoned parcel with a small portion of the site (at the north) zoned General Residential (R-5). Additionally, property zoned Apartment Residential (AR) and General residential (R-5) is across East Steet to the north of the subject site as shown in the enclosed Zoning map (Exhibit D). As the proposed building is within 100' of a residential zone, the maximum allowable height of the building is 35'. The proposed building is 23' in height, which includes mechanical screening, as shown on Sheet A2.10 in Exhibit B. This standard is met.

← A2.10 SHOWS NO MECH SCREENING

Chapter 17.40 Protective Measures for Significant Wetlands, Riparian Corridors, and Protection Zones

17.40.015 Establishment of significant wetlands, riparian corridors and protection zones.

(1) Wetlands. Ordinance 2807, adopted in November 1999, established, and listed significant wetland areas within the city of St. Helens. Such areas were added to the comprehensive plan.

(a) The following significant wetlands are hereby established as Type I:

D-6	J-3	MC-1
D-10	M-7	MC-9
D-11	M-8	MC-25
D-16	M-10	UA-2
D-17	M-11	UB-5A
D-18	M-12	UB-5B

(b) The following significant wetlands are hereby established as Type II:

D-1	D-21	MC-2	MC-20
D-2	D-22	MC-3	MC-21
D-4	F-2	MC-5	MC-22
D-7	J-6	MC-8	MC-26
D-8	M-3	MC-10	UB-6
D-19	M-5	MC-16	
D-20	M-15	MC-17	

Response: According to the Wetland Delineation Reports, WD2022-0251 (Attachment A of Exhibit G) and WD2019-0324 (Exhibit J), two (2) wetlands are inventoried on site: Wetland "R" and "Q". Wetland "Q" is not identified on the City's Local Wetland Inventory (LWI). Wetland "R" is identified as Wetland MI-15 per the City's LWI. Per conversation with City staff, the identified wetland (MI-15) is the same as Wetland M-15 for purposes of Chapter 17.40. Wetland M-15 is identified as a Type II significant wetland. The Wetland Delineation Report (Attachment A of Exhibit G) also identified two (2) short sections of an unnamed drainage through the western portion of the study area. The unnamed drainage features are not classified as wetlands. This standard is applicable.

(3) *Protection Zone. There is hereby established a wetland/riparian protection zone (hereinafter "protection zone" or "PZ") adjacent to all significant wetlands and all significant riparian corridors to protect their integrity, function and value. The protection zone shall be measured from the wetland edge, the riparian corridor edge, or the top of the bank of the waterway when no riparian area is included in the corridor. The width of the protection zone shall vary according to the type of wetland/riparian corridor as listed below:*

(b) The required protection zone for Type II wetland shall extend 50 feet upland from the delineated wetland edge.

Response: As explained in the response to 17.40.015(1), Wetland "R" is equivalent to Wetland M-15, a Type II significant wetland. Accordingly, a 50' protection zone extends upland from the M-15 delineated wetland edge, as shown on Sheet C1.10 of Exhibit B. Wetland "Q" and the identified sections of the unnamed drainage do not have a protection zone as these are not classified as a significant wetland or waterway. This standard is met.

17.40.020 Applicability of chapter – Site specific determination of significant wetland, significant riparian corridor and protection zone boundaries.

(1) *All those contemplating land purchase for development are urged to obtain environmental professional field delineations of wetlands and riparian corridors prior to decisions on land use and project design. The burden is on the property owner to demonstrate that the requirements of this chapter are met or are not applicable to development activity or other proposed use or alteration on the owner's land. Accordingly, as part of any application involving land clearing, alteration or use on a site within 200 feet of a resource, an environmental assessment, prepared and certified by a qualified environmental professional showing the boundaries of the significant wetland, significant riparian corridor and protection zones on the property, is required. The EA shall be prepared at the applicant's sole expense. Assistance from state and federal agencies is encouraged. Alternatively, the property owner may submit a sworn statement from a qualified*

environmental professional that no significant wetlands, significant riparian corridors or protection zones exist on the site. Environmental assessments must comply with minimum requirements in SHMC 17.40.065.

(4) Precise wetland and riparian corridor boundaries may vary from those shown in the comprehensive plan exhibit if an EA is performed and accepted by the city, applicable state agencies and verified with on-site inspection. The more precise boundaries can be mapped, staked, and used for review and development without a change in the comprehensive plan wetlands map exhibit.

Response: The majority of the wetland area on the site was delineated in 2019 for the City's industrial park project on the former Boise White Paper site (Boise site). A copy of the 2019 delineation is included as Exhibit J. This delineation identified two (2) wetlands on site: Wetland "R" and "Q". Wetland "Q" is not identified on the City's Local Wetland Inventory (LWI). Wetland "R" is identified as Wetland MI-15 per the City's LWI.

Additionally, a wetland delineation was conducted in support of the public safety building project to delineate the northernmost edges of the wetland that were not previously investigated due to being in the road right-of-way. A copy of the 2022 delineation (WD2022-0251) is included as Attachment A of Exhibit G. A copy of the Oregon Department of State Land's concurrence with WD2022-0251 is included as Exhibit I. WD2022-0251 identified one wetland (Wetland 1 (MI-15)), and one waterway (Water 1). Per conversation with City staff, the identified wetland (MI-15) is the same as Wetland M-15 for purposes of Chapter 17.40 and is identified as a Type II significant wetland. WD2022-0251 also identified two (2) short sections of an unnamed drainage, which together make up Water 1, through the western portion of the study area. The waterway (Water 1) is not regulated by the City.

17.40.025 Prohibitions within significant wetlands, significant riparian corridors and protection zones.

(1) All significant wetlands, significant riparian corridors and protection zones shall be protected from alteration or development activities, except as specifically provided herein.

(2) Except as set forth in the exemption, exception, or other approval authorized in this chapter, no person or entity shall alter or allow, or permit or cause to be altered, any real property designated as a significant wetland, significant riparian corridor, or a wetland/riparian protection zone.

(3) Except as set forth in the exemption, exception, or other approval authorized in this chapter, no person or entity shall use or allow, or permit or cause to be used, property designated as a significant wetland, significant riparian corridor, or wetland/riparian protection zone.

Response: Alteration within the 50' protection zone of wetland M-15, as shown on Sheet C1.10 of Exhibit B is proposed. The proposed alteration consists of minor paving, installation of an emergency vehicle access road, and installation of a security fence. No development is proposed within the identified significant wetland itself (M-15). The proposed alterations are exempted from the prohibition as explained in the applicant's response to Section 17.40.040. This standard is met.

17.40.030 Sworn statement, verification of federal, state and local permit compliance.

Prior to any land clearing, alteration, or physical construction (other than survey work or environmental testing) on a site, the property owner and developer, if any, shall execute a sworn statement, under penalty of perjury and false swearing, that owner/developer has obtained all required federal, state, and local authorizations, permits and approvals for the proposed development, including any proposed use, or alteration of the site, including also any off-site improvements. Owner/developer shall be solely responsible for obtaining all approvals, permits, licenses, insurance, and authorizations from the responsible federal, state and local authorities, or other entities, necessary to use the property in the

manner contemplated, including all authorizations necessary to perform land clearing, construction and improvement of property in the location and manner contemplated. This provision includes, specifically, a permit or statement from the National Marine Fisheries Service and/or Fish and Wildlife Service that owner's proposed use and/or development will not take or harm any endangered or threatened species as that term is defined in applicable federal statutes and administrative rules. The city of St. Helens has no duty, responsibility or liability for requesting, obtaining, ensuring, or verifying owner/developer's compliance with the applicable state and federal agency permit or approval requirements. Any permit or authorization granted by the city, including any exemption, exception, permit, approval or variance pursuant to the Community Development Code shall not in any way be interpreted as a waiver, modification, or grant of any state or federal agency permits or authorizations or permission to violate any state or federal law or regulation. Owner/developer shall be held strictly liable, and shall hold the city of St. Helens harmless for administrative, civil and criminal penalties for any violation of federal and state statutes, including but not limited to the Clean Water Act, Endangered Species Act and regulations implementing such laws. Nothing herein shall be interpreted as restricting or limiting the city from bringing an enforcement action under Chapter 17.12 SHMC.

Response: No impact is proposed within the wetland area so no Federal or state wetland permits are required. Impacts are proposed within the wetland protection zone as shown on Sheet C1.10 of Exhibit B. The property owner intends to obtain all required permits.

17.40.035 Exempt activities and uses within a significant wetland, riparian corridor and protection zone.

(1) The following activities do not require a permit or authorization from the city to be conducted or to continue in a significant wetland, riparian corridor or protection zone:

[detailed provisions omitted for brevity]

Response: The exemptions under Section 17.40.035 are not applicable as no impacts are proposed within a significant wetland or riparian corridor. The applicant is seeking approval under Section 17.40.040 for the proposed alterations within the protection zone. This standard is not applicable.

17.40.040 Protection zone exceptions – Limited activities and uses within the protection zone.

Unless otherwise specified, findings by the approval authority concerning whether a proposed use or activity meets the exception criteria shall be incorporated into the underlying decision on the application. If the application concerns only an exception or is part of a building permit process, it shall be made as a director's decision in accordance with the procedures in SHMC 17.24.090, unless otherwise specified.

(1) Protection Zone Reduction (Up to 50 Percent for Undeveloped Properties). The protection zone may be reduced by the approval authority up to 50 percent where equal or better protection for identified resources will be ensured through restoration, enhancement and similar measures. Specifically the following criteria and conditions must be met to be eligible for a protection zone reduction; the applicant must demonstrate that:

- *(a) The application of the protection zone to the lot or parcel, as evidenced by the environmental assessment, precludes all reasonable use of the lot or parcel under the applicable zone designation and renders it not buildable, after consideration of all applicable limitations and restrictions in this code; and*
- *(b) The lot or parcel is a "legally created lot or parcel of record" as defined in this chapter (this exception is not available for land divisions); and*
- *(c) The lot or parcel must be combined for development purposes with contiguous lots or parcels in the same ownership on the effective date of the ordinance codified in this chapter; and*

(d) *The proposed development shall minimize disturbance to the protection zone by utilizing design options to minimize or reduce impacts of development: (i) multistory construction shall be used; (ii) parking spaces shall be minimized to no more than that required as a minimum for the use; (iii) no accessory structures allowed; (iv) paving shall be pervious; (v) engineering solutions shall be used to minimize additional grading and/or fill; and*

(e) *The proposed use or activity is designed to minimize intrusion into the protection zone. Specifically the use or activity is designed using up to a 50 percent adjustment to any dimensional standard (e.g., front yard, side yard or other setbacks, including height or lot area) to permit development as far outside or upland of the protection zone as is possible. Design shall be to the adjustment; and*

(f) *The protection of the significant riparian corridor and/or significant wetland can be assured through restoration, enhancement, and other similar measures in the protection zone and the resource area; and*

(g) *All applicable general criteria in SHMC 17.40.055, including minimum restoration and enhancement requirements, shall be met.*

Response: As shown on the wetland impact buffer diagram (Exhibit K), the proposed emergency vehicle access road will impact the 50' protection zone of Wetland MI-15. The building, parking, and other site improvements are located outside of the wetland and outside the protection zone, in part to site the building close to Old Portland Road for visibility and in part to minimize the environmental impacts on the wetland.

NOT JUST VEHICLE ACCESS IMPACTS

Without viable emergency access located outside the Special Flood Hazard Area, much of the parcel becomes unusable for the City's intended Police Station use, an essential facility serving a critical need for the public. Thus, some protection zone impacts for the emergency access road were unavoidable as a way to utilize the site to its maximum potential.

Grading in the protection zone has been minimized by placing the stormwater facility outside the buffer and siting the paved parking area as far west as feasible.

The applicant's wetland consultant has prepared a sensitive lands assessment report which discusses the mitigation required for this project's impacts to the protection zone (Exhibit G). Per the wetland consultant's recommendation, mitigation plantings are proposed as shown on Sheet L0.04 of Exhibit B. As discussed in the applicant's response to Section 17.40.055, restoration and enhancement requirements are met.

The City has evidence (title report/deed) that the lot is a legally created lot as defined in Chapter 17.40. There are no contiguous lots or parcels as the site is bordered on all sides by right-of-way.

This standard is met.

(4) *Encroachment, Where Necessary for Access to Upland Property. In conjunction with a development request, an exception shall be granted to permit access to property when the owner of the property demonstrates that encroachment of the protection zone is necessary for access to the site and no reasonable upland alternative exists. The approval authority must find that (a) the encroachment is the least damaging alternative, and (b) the encroachment is the minimum encroachment capable of providing the required access, and (c) the applicant submits an acceptable proposal for mitigation which will minimize damage to the protection zone such that there is no net loss of functions or spatial extent of the protection zone. In addition, design*

techniques, including but not limited to box culverts or piling support bridges, shall be used to minimize impacts on adjacent wetland and riparian resources. All applicable general criteria in SHMC 17.40.055, including minimum restoration and enhancement requirements, shall be met.

Response: The applicant explored multiple alignments for an emergency vehicle access road to identify a location that would provide access to the public safety center at an elevation higher than the Base Flood Elevation:

- A roadway to Old Portland Road would have passed through the Special Flood Hazard Area.
- A roadway directly to the east would have passed through significant wetland MI-15.
- A roadway to the north (e.g., connecting to 16th Street) would have required removal of multiple sizable trees and potentially impacted existing off-site structures.
- A roadway to the northeast connecting to 15th Street was deemed the optimal route because it avoided the Special Flood Hazard Area, it did not pass through any wetlands, it avoided most trees, and it had relatively small impacts on the protection zone around Wetland MI-15.

Due to the unique site topography and effort to preserve trees and provide passage at an existing culvert, the emergency vehicle access road is necessary for access to the site and no reasonable upland alternative exists. Intrusions into the protection zone are minimized by placing the entirety of the building and the majority of site improvements to the west, outside the protection zone. Mitigation plantings are further discussed in Section 17.40.055 and detailed in Exhibit G. This standard is met.

(6) Other Authorized Activities in the Protection Zone. The following uses, alteration and development activity shall be permitted in a protection zone provided the approval authority finds that proposed development uses or alterations are designed and constructed in a manner to minimize intrusion into the protection zone, and the applicant demonstrates compliance with specific requirements listed, and all applicable general criteria in SHMC 17.40.055, including minimum restoration and enhancement requirements, are met.

(a) Construction of new streets, roads and paths in public rights-of-way or easements.

(b) Construction of new drainage facilities, utilities and irrigation pumps in public rights-of-way or easements, existing or herein accepted by the city thereafter.

(c) Construction of water-related and water-dependent uses, provided removal of vegetation is limited to that necessary for the development of the water-related or water-dependent use.

(i) Water Access. Within the protection zone no development shall be permitted except to provide the property owner reasonable access to the water. Development shall be restricted to accessways running generally perpendicular to the shoreline, and such accessways shall represent the minimum alteration required for access, and shall be no greater than six feet in width. The use of heavy equipment shall be prohibited, and there shall be no temporary filling of any protection zone for access purposes.

(ii) For those properties that are designated and zoned for marine commercial use and/or industrial use, development associated with access to the water through the protection zone must be accomplished in a manner that is least disruptive to the protection zone and generally shall not exceed a width of 30 feet. The access must be accepted by the director and be for water-dependent or water-related use or an industrial development need. Where vehicle turnaround and maneuver are needed, the area of alteration shall likewise be limited to 30 feet in width. Boat entry and retrieval facilities shall be allowed. This exception shall be used only to the extent necessary to provide commercial or industrial access to the water.

(iii) *For those properties that are designated and zoned for public lands and used for parks, public boat ramps, docking facilities, fishing piers, and related facilities providing benefits which exceed those lost as a result of protection zone alterations, an accessway running generally perpendicular to the shoreline shall be no greater than 30 feet in width. Where vehicle turnaround and maneuver are needed, the area of alteration shall likewise be limited to 30 feet in width. Boat entry and retrieval facilities shall be allowed. Public use shall demonstrate the need for direct water access in any proposal for protection zone clearing under this subsection. This exception shall be used only to the extent necessary to provide public access to the water.*

(d) *Alteration or removal of noxious, invasive and/or nonnative vegetation with power-assisted equipment or machinery, or chemical control, provided any chemicals used are authorized and approved for such use by the Oregon Department of Agriculture or DEQ, upon a finding that the noxious plant infestation is extensive.*

(e) *Planting of native vegetation when planted with power-assisted equipment or machinery.*

(f) *Nonemergency Activities. Repair or other remedial actions performed by governmental or public utility workers or their agents when it is necessary to:*

(i) *Prevent a threat to public health or safety; or*

(ii) *Prevent danger to public or private property; or*

(iii) *Prevent a threat of serious environmental degradation; or*

(iv) *Complete cleanup of contaminated properties.*

(g) *Tree Removal for Hazard Prevention. Remedial action to remove a tree or portion thereof by a property owner which must be undertaken to:*

(i) *Prevent a threat to public health or safety; or*

(ii) *Prevent danger to public or private property; or*

(iii) *Prevent a threat of serious environmental degradation.*

(h) *Construction of new accessory uses or structure(s) or expansion of existing uses or primary structure shall:*

(i) *Strictly comply with applicable standards of the Community Development Code, including specifically Chapter 17.124 SHMC; and*

(ii) *Strictly comply with all applicable general criteria in SHMC 17.40.055, including restoration and enhancement requirements at three-to-one area ratio.*

Response: As shown on Sheets C1.10, L1.20, E0.10A, and E0.10B of Exhibit B, the applicant is proposing the following within the wetland protection zone: paving for accessway, mitigation plantings, lighting, and installation of fencing as authorized under criteria (a), (b), and (e). The emergency vehicle access roadway alignment largely coincides with existing utility easements (see Sheet C1.00 of Exhibit B). Due to the unique site topography and effort to preserve trees, the access roadway location is necessary for access to the site and no reasonable upland alternative exists. Intrusions into the protection zone are minimized by placing the entirety of the building and the majority of site improvements to the west, outside the protection zone. Mitigation plantings are further discussed in Section 17.40.055 and detailed in Exhibit G. This standard is met. ASSUMES NO ALTERNATIVE SITE

17.40.055 General criteria for exceptions and other approvals. (SITE SELECTION CONSIDERATION)

The appropriate approval authority shall approve or approve with conditions an application request within a significant wetland, significant riparian corridor or protection zone based upon findings that all of the following criteria have been satisfied and the conditions herein are imposed:

(1) *The extent and nature of the proposed alteration or development will not create site disturbances to an extent greater than the minimum required for the use;*

Response: As discussed in Exhibit G, the site plan has been designed to avoid any wetland impact, and the development footprint is located in the north and west portions of the site, as far as possible from natural resource areas. The project proposes to impact 6,961 SF of protection zone (wetland buffer) to construct a portion of the parking lot, site grading and access road. Much of the buffer impact area is located within the former 7th Street right-of-way. There is an existing berm that extends east to west through the wetland buffer, generally adjacent to an existing powerline corridor. The existing berm is a legally established non-conforming use. This standard is met.

L PREEXISTING IMPACT

(2) *No loss of wetland/riparian area and function:*

(a) *Any wetland or riparian area alteration permitted through an exception or other approval shall be mitigated to ensure that there is no net loss of functions or the spatial extent of wetlands or riparian area within the city of St. Helens;*

(b) *Any encroachment or change in on-site or off-site drainage which would adversely impact wetland or riparian characteristics have been mitigated;*

Response: As discussed in Exhibit G, the project will mitigate for impacts to the wetland buffer by enhancing an adjacent section of the wetland buffer that lacks a tree canopy as shown on Sheet L0.04 of Exhibit B. Native trees and shrubs will be planted in a 6,961 SF area of the wetland buffer located in the south portion of the site as shown on Sheet L0.04 of Exhibit G. The enhancement area will be planted with 47 trees and 279 shrubs. Additional information regarding the mitigation plan is provided in Exhibit G. Mitigation is proposed at a 1:1 ratio to mitigate for the proposed impacts of 6,961 SF. The enhancement of the remaining wetland buffer will compensate for the proposed impacts to a portion of the wetland buffer by improving the function of the remaining wetland buffer closest to the wetland. This standard is met.

1:1 GIVEN PREEXISTING BERM IMPACT

(3) *Where natural vegetation has been removed due to alteration or development, erosion control provisions of the Community Development Code and "Engineering Department Public Facility Construction Standards Manual" shall be met;*

Response: During construction activities, erosion and sediment control best management practices, methods, and techniques will be implemented that meet the requirements identified in SHMC 18.36, the "Engineering Department Public Facility Construction Standards Manual," and Oregon Department of Environmental Quality standards. This standard is met.

(4) *All applicable sensitive lands requirements of Chapter 17.44 SHMC have been met;*

Response: The project does not propose to impact sensitive lands as defined in Chapter 17.44. This standard is not applicable.

(5) *Copies of all state and federal permit applications shall be submitted with development applications requiring compliance with this chapter. All required state and federal permits shall be obtained and copies provided to the city of St. Helens prior to alteration of the site;*

Response: The project does not propose any activities within state or federally regulated wetlands or waters; therefore, state and federal wetland permits are not required. The project will require a 1200-C stormwater permit from the Oregon Department of Environmental Quality. The permit will be provided to the City after it has been obtained. This standard is met.

(6) *The protection of the significant riparian corridor or significant wetland can be assured through restoration, enhancement, and other similar measures in the protection zone and the resource area. The following minimum restoration and enhancement shall be required as a condition of approval:*

(a) *The applicant shall enter into a two-year contract for installation and maintenance of plant materials with the city. Financial security in an amount not less than 110 percent of*

the cost estimate for installation shall be provided. Within the time specified in the contract, the applicant shall remove noxious vegetation and restore or enhance with native plant materials and other approved resource enhancements all required portions of the protection or resource zone on the site, as well as restoration and enhancement in any associated contiguous resource area under the applicant's ownership or control;

(b) Restoration and enhancement shall be on a 1:1 area basis or such greater ratios as specified in this chapter for the requested activity. Thus, at a minimum, for every 100 square feet of protection zone or resource area that is altered or used for development purposes, at least 100 square feet of the available remaining resource area and/or protection zone shall be enhanced or restored. Priority shall be given to removal of noxious vegetation and planting of native plant materials, including ground cover, under-story and canopy, in nonvegetated areas or areas where noxious plant species are removed. The number and type of plant materials shall be specified in the contract but shall at a minimum comply with the following requirements:

(i) Only plant materials approved by the director shall be installed in the protection zone or the resource areas. Plant materials shall be of high quality;

(ii) No noxious plants shall be installed and existing noxious materials shall be removed;

(iii) Plant materials shall consist of ground cover, under-story and canopy materials and shall be located in such a manner to maximize enhancement and restoration of the resource area and the protection zone, with particular emphasis on temperature reduction of watercourses, erosion control, and wildlife habitat enhancement;

(iv) Installation standards within the required enhancement area be as follows:

(A) Ground cover shall be hydro-seeded or planted at two-foot intervals or such other interval established by the approval authority as sufficient to attain coverage of the required area within the two-year contract period;

(B) Under-story shall be minimum one-gallon materials planted at six-foot intervals or such other interval approved by the approval authority as sufficient to attain adequate coverage within the two-year contract period;

(C) Canopy trees shall be planted at 20-foot intervals or such other interval as required to install all materials required for tree mitigation pursuant to the tree mitigation requirements of the Community Development Code;

(D) Additional materials or other habitat enhancements are encouraged;

(v) As a condition of approval the applicant shall implement a management plan for the entire protection zone and resource areas under the applicant's ownership or control, including the areas restored and enhanced. The management plan must be approved by the city and shall be attached to the approval document. The management plan shall contain the following requirements and statements:

(A) Identification of resource and protection zone management practices to be conducted and proposed intervals;

(B) Provisions for the perpetual maintenance of protection zone and resource areas by a responsible party;

(C) Provisions for the initial removal and ongoing management of exotic invasive vegetation and debris;

(D) Plans for the restoration and enhancement of any resource or protection areas with appropriate native plant material;

(E) *Provisions for the protection of protected plant and animal species in accordance with recommendations from applicable state and federal agencies;*

(F) *Provision for protective barriers around all trees and vegetation to be saved in accordance with minimum city standards, and prohibiting all activity within these areas during construction;*

(G) *Specific provisions for city enforcement of the management plan as contained in the city-approved sample management plan;*

(H) *Any additional measures deemed necessary to protect and maintain the functions and values of the wetlands, riparian corridors and protection zones (e.g., signage delineating preserve boundaries);*

(I) *The following statements:*

1. *"There shall be no alteration of significant wetlands, riparian corridors or protection zones as delineated and shown on the attached plan" [attach reduced plan];*
2. *"There shall be no alteration of the size, shape or design of an approved protection area or resource area without the approval by the City of St. Helens" (modification to original permit);*
3. *"There shall be no amendment or change to this Management Plan without the approval of the City of St. Helens" (modification to original permit);*

(c) *The exception or other approval document shall be recorded in the public records to give notice of the protection zone and resource area restrictions and maintenance obligations and to ensure no further encroachment into the protection zone and resource area occurs;*

(d) *The applicant may dedicate a conservation easement or equivalent protection instrument to the city, homeowners association or a conservation organization, provided the form of the instrument is approved by the city attorney and accepted by the council, if offered. Applicants should consult with their legal counsel or tax professionals about the tax advantages of conservation easements;*

(e) *The director or approval authority may impose such additional reasonable conditions to mitigate other identified impacts resulting from development on the site.*

Response: As discussed in Exhibit G, the project includes enhancement of 6,961 SF of wetland buffer at a 1:1 ratio in accordance with City requirements. The wetland buffer mitigation area currently consists of mowed non-native grasses and lacks tree and shrub cover; as such, it provides low habitat function in its current condition. The wetland buffer mitigation area will be planted with native trees and shrubs in accordance with the mitigation plan later in this document. The wetland buffer enhancement area is shown on the buffer impact and mitigation drawing (Exhibit K). Plant materials will be installed, and the enhancement area will be managed and maintained in accordance with 17.40.055 (6)(b). The implementation of the mitigation plan and the ongoing maintenance and management of the mitigation area, the remaining wetland protection zone and the associated significant wetland, will be the responsibility of the City. Prior to the start of construction, the outer limits of the wetland protection zone to remain on the site will be demarcated with construction fencing to prevent any construction from occurring in the protection zone. In addition, all trees to be retained on the site will be protected with construction fencing along the edge of the tree canopy to avoid impacts to the root zone of protected trees during construction. In accordance with SHMC Chapter 17.40.055, the applicant is proposing no alteration of significant wetlands, riparian corridors, or protection zones as delineated and shown on Sheets C1.10 and L1.20 of Exhibit B. This standard is met.

17.40.065 Application requirements.

Application requirements shall be as set forth in Chapter 17.44 SHMC for other sensitive lands, except that an environmental assessment (EA), as defined below, shall be required in addition to other application requirements.

Response: According to the Wetland Report (Exhibit J), the inventoried wetland on site is identified as MI-15. Per conversation with City staff, the identified wetland (MI-15) is the same as Wetland M-15 for purposes of Chapter 17.40. This wetland is identified as a Type II significant wetland. This standard is applicable.

(1) Minimum Requirement for Environmental Assessment. The EA shall include the following information:

- *(a) Vicinity map;*
- *(b) Site designated on St. Helens local wetland inventory (LWI) map and/or riparian corridor map;*
- *(c) The wetland/riparian corridor boundary must be accurately drawn at an appropriate engineering scale of one inch equals 400 feet or larger. Existing features must be distinguished from proposed features. The map must show:*
  - *(i) Site boundary property lines and roads;*
  - *(ii) Property lines, rights-of-way, easements, etc.;*
  - *(iii) Existing physical features of the site including buildings, fences, and other structures, roads, parking lots, utilities, water bodies, etc.;*
  - *(iv) Contours at the smallest readily available intervals, preferably at two-foot intervals;*
  - *(v) Delineated boundaries of wetlands, tops-of-bank, steep slopes, and protection zone;*
  - *(vi) Hydrologic mapping showing patterns of surface water movement into, through, and out of the site area; and*
  - *(vii) Location of all test holes and vegetation sample sites, numbers to correspond with flagging in the field and field data sheets.*

Response: A vicinity map is included as Exhibit D. An excerpt map from the Local Wetland Inventory (LWI) showing the site and identified significant wetland is included as Exhibit H. A Wetland and Waters Delineation Report (Attachment A of Exhibit G) was prepared by a wetland professional. This standard is met.

(2) Where environmental impacts may be significant, an aerial photo with overlays displaying the site boundaries and wetland and protection zone/delineation may be required. Generally, an orthophotograph at a scale of one inch equals 400 feet or greater should be used. If an orthophotograph is not available a smaller scale aerial photograph enlarged to one inch equals 400 feet may be used.

The EA narrative shall describe the following:

- *(a) Location information including legal description and address;*
- *(b) Methodology used for delineation of wetlands, tops-of-bank, steep slopes, and protection zone;*
- *(c) General site conditions, including topography, acreage, and surface areas of wetlands and water bodies;*
- *(d) Specific descriptions of plant communities, soils, and hydrology; and*
- *(e) Wetland field data sheets, numbered to correspond with sample site locations as staked and flagged in the field.*

Response: The requirements of Section 17.40.065(2) are provided in the Wetland and Waters Delineation Report (Attachment A of Exhibit G). This standard is met.

(3) *Supplemental EA requirements for all new land division and vacant land development applications (excluding lot of record exceptions) and such other applications when such additional information is required by the director pursuant to SHMC 17.40.070.*

The EA report shall include an analysis of significant adverse impacts to the wetland and riparian corridor functions and values. The impact analysis is based on the resource functions and values identified in the local wetland inventory and riparian inventory reports. Potential impacts may include (but are not limited to) loss of flood storage potential, loss of wildlife habitat, loss of species diversity or quantity, changes in water quality, any increase in human intrusion, and impacts on associated wetland or water resources. To the extent that the wetlands and/or riparian corridors are part of a larger natural system such as a watershed, the evaluation must also consider the cumulative impacts on that system. An impact analysis shall include: identification, by characteristics and quantity, of the resources and the resource functions and values found on the site.

Response: The applicant has included a Sensitive Lands Assessment Report (Exhibit G) as part of this application. Supplemental information is not warranted. This standard is not applicable.

(4) *Evaluation of alternative locations, design modifications, or alternative methods of development that avoid significant adverse impacts to identified resource functions and values. Such measures to avoid or reduce impacts may include:*

- *(a) Limiting the degree or magnitude of the proposed activity;*
- *(b) Limiting the implementation of the proposed activity;*
- *(c) Using appropriate and best available technology;*
- *(d) Taking affirmative steps to avoid or minimize impacts; and*
- *(e) Design, siting, or construction of proposed activities so as to avoid potential impacts to wetlands, riparian corridors, and steep slopes.*

Response: As described in the applicant's response to Section 17.100.040, the subject site was selected after a thorough site selection process. Additionally, the proposed development design has taken affirmative steps to minimize risks during flood events, minimize impact to the wetland protection zone, and not affect the wetland. Potential site layouts that would have impacted the wetland itself or would have imposed greater impacts on the protection zone were not pursued as they could have further affected the resource function and values. The applicant is proposing mitigation plantings in a portion of the protection zone that currently lacks tree canopy (Exhibit G). This standard is met.

(5) *Determination of the alternative that best meets the applicable approval criteria and determination of unavoidable impacts.*

Response: Included as part of this application is a Sensitive Lands Assessment Report (Exhibit G) which discusses impacts of, and mitigation for, the proposed development. Potential site layouts that would have impacted the wetland itself or would have imposed greater impacts on the protection zone were not pursued as they could have further affected the resource function and values. This standard is met.

(6) *The report shall contain an analysis of recommended measures to avoid significant adverse impacts to wetlands/riparian corridors and their associated protection zones and an identification of impacts that cannot be avoided or reduced.*
The report shall contain:

(a) *Recommended measures to mitigate unavoidable adverse impacts to wetlands/riparian corridors and their associated protection zones;*

(b) *A mitigation plan shall include, at a minimum:*

(i) *A description of the resources and the resource functions and values to be restored, created, or enhanced on the mitigation site;*

(ii) *A plan showing proposed disturbance limits; location, species, and size of proposed plantings; location, size, and details of other proposed mitigation measures; storm water management and erosion control features; and construction management measures;*

(c) *Documentation of coordination with appropriate local, regional, special district, state, and federal regulatory agencies;*

(d) *Construction timetables;*

(e) *Operations and maintenance practices;*

(f) *Monitoring and evaluation procedures; and*

(g) *Remedial actions for unsuccessful mitigation*

Response: Included as part of this application is a Sensitive Lands Assessment Report (Exhibit G) which discusses impacts of, and mitigation for the proposed development. This standard is met.

Chapter 17.44 Sensitive Lands

17.44.010 Purpose.

(1) *Sensitive lands are lands potentially unsuitable for development because of their location within:*

(a) *The 100-year floodplain per the Federal Emergency Management Agency (FEMA) map;*

(b) *Natural drainageways;*

(c) *Wetland areas which are regulated by the other agencies including the U.S. Army Corps of Engineers and the Division of State Lands, and/or are designated as significant wetland on the St. Helens comprehensive plan floodplain and local wetlands inventory maps;*

(d) *Steep slopes of 25 percent or greater and unstable ground;*

(e) *Fish and wildlife habitats as listed in acknowledged comprehensive plan;*

(f) *Archaeologically designated sites or culturally designated sites as listed in acknowledged comprehensive plan;*

(g) *State and federal threatened/endangered species habitats as listed by the applicable authority; and*

(h) *Open space/open space design review areas shown on the comprehensive plan map.*

(2) *Sensitive land areas are designated as such to protect the public health, safety, and welfare of the community through the regulation of these sensitive land areas.*

(3) *Sensitive land regulations contained in this chapter are intended to maintain the integrity of the rivers, streams, and creeks in St. Helens by minimizing erosion, promoting bank stability, maintaining and enhancing water quality and fish and wildlife habitats, and preserving scenic quality and recreation potential.*

(4) *The regulations of this chapter are intended to implement the comprehensive plan and the city's floodplain management program as required by the National Flood Insurance Program, and help to preserve natural sensitive land areas from encroaching use.*

All development within a floodplain or floodway or that may directly impact a floodplain or floodway shall follow the rules as stated in Chapter 17.46 SHMC.

Response: The western portion of the site is within the 100-year floodplain as depicted on Sheet C1.10 of Exhibit B and in Exhibit L. As detailed in the applicant's responses to Chapter 17.40, one of the on-site wetlands (M-15) is identified as a Type II significant wetland as identified in Exhibit E.

17.44.015 Permitted and conditional use – Permit requirements.

(1) All uses are conditioned on obtaining a permit except:
The following listed uses are outright permitted uses within slopes that are 25 percent or greater, and unstable ground when the use does not involve paving. No permit is required for permitted use. For the purposes of this chapter, the word "structure" shall exclude: children's play equipment, picnic tables, sand boxes, grills, basketball hoops and similar recreational equipment.
(a) Public and private conservation areas for water, soil, open space, forest, and wildlife resources; and
(b) Removal of invasive/exotic/nonnative vegetation (e.g., poison oak, tansy ragwort, blackberry) as determined by the director.

Response: No uses are proposed within the Sensitive Lands on site. No exceptions under Section 17.44.015(1) are sought. This standard is not applicable.

(2) Administrative Sensitive Lands Permit.
(a) Administrative sensitive lands permits in drainageways, slopes that are 25 percent or greater, and unstable ground shall be obtained from the appropriate authority for the following:
(i) The city engineer shall review the installation of public support facilities such as underground utilities and construction of roadway improvements including sidewalks, curbs, streetlights, and driveway aprons;
(ii) The city engineer shall review minimal ground disturbance(s) or landform alterations involving zero to 50 cubic yards of material for land that is within public easements and rights-of-way;
(iii) The director shall review minimal ground disturbance(s) or landform alterations involving zero to 50 cubic yards of material;
(iv) The director shall review the repair, reconstruction, or improvement of an existing structure or utility in sensitive lands, the cost of which is less than 50 percent of the market value of the structure prior to the improvement or the damage requiring reconstruction;
(v) The director shall review all building permits for any construction in sensitive lands; see Chapter 17.116 SHMC, Temporary Uses; and
(vi) The director shall review applications for paving on private property in sensitive lands.
(b) The responsible authority shall approve, approve with conditians, or deny an application for a development permit, as described in subsection (2)(a) of this section, based on the standards set forth in SHMC 17.44.040.

Response: No site alterations or development are proposed in drainageways, slopes that are 25 percent or greater, or unstable ground. This standard does not apply.

(3) Jurisdictional Wetlands. See Chapter 17.40 SHMC.
Response: According to the Wetland Delineation Reports (Attachment A of Exhibit G and Exhibit J), two (2) wetlands are inventoried on site: Wetland "R" and "Q". Wetland "Q" is not identified on the City's Local Wetland Inventory (LWI). Wetland "R" is identified as Wetland MI-15 per the City's LWI. Per conversation with City staff, the identified wetland (MI-15) is the same as Wetland M-15 for purposes of Chapter 17.40. Wetland M-15 is identified as a Type II significant wetland. This standard is applicable.

(4) Sensitive Lands Permits Issued by the Director.
(a) The director shall have the authority to issue a sensitive lands permit in the following areas:

(i) *Drainageways;*
(ii) *Slopes that are 25 percent or greater or unstable ground; and*
(iii) *Wetland areas.*

(b) *Sensitive lands permits shall be required for the areas in subsection (4)(a) of this section when any of the following circumstances apply:*
(i) *Ground disturbance(s) or landform alterations;*
(ii) *Repair, reconstruction, or improvement of an existing structure or utility, the cost of which equals or exceeds 50 percent of the market value of the structure prior to the improvement or the damage requiring reconstruction;*
(iii) *Residential and nonresidential structures intended for human habitation; and*
(iv) *Accessory structures.*

(c) *Cultural sites.*

Response: No site alterations or development are proposed in drainageways, slopes that are 25 percent or greater or unstable ground, wetland areas, or cultural sites. This standard does not apply.

(5) *Sensitive Lands Permits Issued by the Planning Commission.*
(a) *Fish and wildlife habitats as listed.*
(b) *State and federal threatened/endangered species habitats as listed.*
(c) *Open space design review.*

Response: No site alterations are proposed in listed fish and wildlife habitats, threatened/endangered species habitat, or designated open spaces. This standard does not apply.

(6) *Except as explicitly authorized by other provisions of this chapter, all other uses are prohibited on sensitive land areas.*

Response: No prohibited uses on sensitive land areas are proposed as part of this development. This standard is not applicable.

(7) *A use established prior to the adoption of the ordinance codified in this code, which would be prohibited by this chapter or which would be subject to the limitations and controls imposed by this chapter, shall be considered a nonconforming use. Nonconforming uses shall be subject to the provisions of Chapter 17.104 SHMC.*

Response: The proposed use is a new use. This standard is not applicable.

(8) *Threatened and endangered species habitats and areas also need permission of appropriate agency(ies).*

Response: The applicant has not identified any threatened and/or endangered species habitants and areas. If any are identified, the applicant will obtain appropriate permits in accordance with local, state, and federal regulations. This standard is met.

17.44.020 Administration and approval process.

(1) *The applicant for a sensitive lands permit shall be the recorded owner of the property or an agent authorized in writing by the owner.*
(2) *A preapplication conference with city staff is required. (See SHMC 17.24.040.) If uncertainty exists in regards to the location or configuration of wetland areas, staff shall make an on-site inspection prior to an application being initiated to review the nature and extent of the resource. If necessary, assistance from state and federal agencies shall be sought to provide the applicant additional information.*
(3) *Due to possible changes in state statutes, or regional or local policy, information given by staff to the applicant during the preapplication conference is valid for not more than six months:*

(a) *Another preapplication conference is required if any variance application is submitted more than six months after the preapplication conference; and*

(b) *Failure of the director to provide any of the information required by this chapter shall not constitute a waiver of the standards, criteria or requirements of the application.*

(4) *The appropriate authority shall approve, approve with conditions, or deny an application for an administrative sensitive lands permit within drainageways, slopes that are 25 percent or greater, and unstable ground as set forth in SHMC 17.44.015(2).*

(5) *The director shall approve, approve with conditions, or deny an application for a sensitive lands permit as set forth in SHMC 17.44.015(4). The decision made by the director may be appealed to the planning commission as provided by SHMC 17.24.310.*

(6) *The appropriate approval authority shall review all sensitive lands permit applications to determine that all necessary permits shall be obtained from those federal, state, or local governmental agencies from which prior approval is also required.*

(7) *The appropriate approval authority shall apply the standards set forth in SHMC 17.44.040 and Chapter 17.46 SHMC when reviewing an application for a sensitive lands permit.*

(8) *The director shall give notice of applications to be heard by the planning commission as provided by SHMC 17.24.130.*

(9) *The director shall mail notice of sensitive lands application decisions in SHMC 17.44.015(4) and (5) to the persons entitled to notice under SHMC 17.24.120.*

Response: A pre-application conference was held on May 1, 2023, but the applicant is not applying for a sensitive lands permit under this chapter. No Federal or state permits are required for the proposed floodplain alterations, and the standards of Chapter 17.46 are met as detailed in the response to that chapter. This standard is not applicable.

17.44.028 General provisions for wetlands.

See Chapter 17.40 SHMC.

Response: According to the Wetland Delineation Report (Exhibit J), two (2) wetlands are inventoried on site: Wetland "R" and "Q". Wetland "Q" is not identified on the City's Local Wetland Inventory (LWI). Wetland "R" is identified as Wetland MI-15 per the City's LWI. Per conversation with City staff, the identified wetland (MI-15) is the same as Wetland M-15 for purposes of Chapter 17.40. Wetland M-15 is identified as a Type II significant wetland. Based on the submitted evidence, the proposal complies with the City's general provisions for wetlands, as detailed in the responses to Chapter 17.40. This standard is met.

Chapter 17.46 Floodplains and Floodways

17.46.030 General provisions.

(1) *Lands to Which This Chapter Applies. This chapter shall apply to all areas of special flood hazards within the jurisdiction of the city of St. Helens.*

(2) *Basis for Establishing the Areas of Special Flood Hazard. The areas of special flood hazard identified by the Federal Insurance Administrator in a scientific and engineering report entitled "The Flood Insurance Study (FIS) for Columbia County, Oregon and Incorporated Areas," dated November 26, 2010, with accompanying flood insurance rate maps (FIRMs) including panels 41009C0345D, 41009C0451D, 41009C0452D, 41009C0454D, 41009C0456D and 41009C0458D are hereby adopted by reference and declared to be a part of this chapter. The FIS and FIRMs are on file with the planning department at City Hall.*

Response: The western portion of the site is within the Special Flood Hazard Area ("100-Year" floodplain) as depicted in Exhibit L, and the applicable FEMA flood insurance rate maps for this site are 41009C0452D and 41009C0456D, both effective November 26, 2010.

(3) Coordination with State of Oregon Specialty Codes. Pursuant to the requirement established in ORS Chapter 455 that the city of St. Helens administers and enforces the State of Oregon Specialty Codes, the city of St. Helens does hereby acknowledge that the Oregon Specialty Codes contain certain provisions that apply to the design and construction of buildings and structures located in special flood hazard areas. Therefore, this chapter is intended to be administered and enforced in conjunction with the Oregon Specialty Codes.

Response: This provision directs staff charged with implementing City of St. Helens building regulations. No evidence submittal is required from the applicant.

(4) Compliance. All development within special flood hazard areas is subject to the terms of this chapter and required to comply with its provisions and all other applicable regulations.

Response: As shown on Sheet C1.10 of Exhibit B, development is proposed within the Special Flood Hazard Area. The applicant's responses to Chapter 17.46, and the accompanying plans and reports, demonstrate compliance with applicable standards of this Chapter. This standard is met.

(7) Interpretation. In the interpretation and application of this chapter, all provisions shall be:
- *(a) Considered as minimum requirements;*
- *(b) Liberally construed in favor of the governing body; and*
- *(c) Deemed neither to limit nor repeal any other powers granted under state statutes.*

Response: The applicant has designed the proposed development considering the provisions of this chapter as minimum requirements.

(8) Warning and Disclaimer of Liability. The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur. Flood heights may be increased by manmade or natural causes. This chapter does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This chapter shall not create liability on the part of the city of St. Helens, an officer or employee thereof, or the Federal Insurance Administrator for any flood damages that result from reliance on this chapter or any administrative decision lawfully made hereunder.

Response: Given the inherent uncertainty associated with flood maps, the applicant has designed the proposed development based on the flood protection provisions of this chapter.

17.46.040 Administration.

(1) Establishment of Development Permit.

(a) Development Permit Required. A development permit shall be obtained before construction or development begins within any area horizontally within the special flood hazard area established in SHMC 17.46.030 (2). The development permit shall be required for all structures, including manufactured dwellings, as set forth in the definitions (SHMC 17.46.020), and for all development including fill and other activities, also as set forth in the definitions (SHMC 17.46.020).

Response: No buildings are proposed in the Special Flood Hazard Area. Grading, paving, and landscaping proposed within the Special Flood Hazard Area are shown on Sheet C1.20 of Exhibit B. This standard is met.

(b) *Application for Development Permit. Application for a development permit shall be made on forms furnished by the floodplain administrator and may include but not be limited to plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing. Specifically, the following information is required:*

(i) *Elevation (based on the North American Vertical Datum of 1988 (NAVD 88)) in relation to mean sea level of the lowest floor (including basement) and all attendant utilities of all new and substantially improved structures, in accordance with the requirements of subsection (3)(b) of this section;*

(ii) *Elevation (based on the North American Vertical Datum of 1988 (NAVD 88)) in relation to mean sea level to which any nonresidential structure will be floodproofed;*

(iii) *Certification by a registered professional engineer or architect licensed in the state of Oregon that the floodproofing methods for any nonresidential structure meet the floodproofing criteria in SHMC 17.46.050(3)(b);*

(iv) *Description of the extent to which a watercourse will be altered or relocated as a result of proposed development;*

(v) *Base flood elevation data for subdivision proposals or other development when required per subsection (3) of this section and SHMC 17.46.050(1)(g);*

(vi) *Substantial improvement calculation for any improvement, addition, reconstruction, renovation, or rehabilitation of an existing structure;*

(vii) *The amount and location of any fill or excavation activities proposed.*

Response: The western portion of the site is within the Special Flood Hazard Area ("100-Year" floodplain) as depicted in Exhibit L; the applicable FEMA flood insurance rate maps for this site are 41009C0452D and 41009C0456D, both effective November 26, 2010. A Floodplain Development Permit application is included with this application in Exhibit A. This standard is met.

17.46.050 Provisions for flood hazard reduction.

(1) *General Standards. In all areas of special flood hazards, the following standards are required:*

(a) *Alteration of Watercourses. Require that the flood carrying capacity within the altered or relocated portion of said watercourse is maintained. Require that maintenance is provided within the altered or relocated portion of said watercourse to ensure that the flood-carrying capacity is not diminished. Require compliance with SHMC 17.46.040(3)(d) and (e).*

Response: No alteration of a watercourse is proposed as part of this development. This standard is met.

(b) *Anchoring.*

(i) *All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.*

(ii) *All manufactured dwellings shall be anchored per subsection (3)(c) of this section.*

Response: No building or structure is proposed in the Special Flood Hazard Area. This standard is not applicable.

(c) *Construction Materials and Methods.*

(i) *All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.*

(ii) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

Response: As shown on Sheet C1.10 of Exhibit B, the monument sign will be in the 100-year floodplain. The monument sign will have uplighting (by floodlights) as shown on Sheet E0.02 and E0.10A. The electrical connections will be floodproofed in line with best practices. The monument sign and site furnishings located in the 100-year floodplain will be designed to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during conditions of flooding and to prevent infiltration of floodwaters. Compliance with this provision will be further demonstrated at time of permitting.

(d) Water Supply, Sanitary Sewer, and On-Site Waste Disposal Systems.

(i) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system;

(ii) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharge from the systems into floodwaters; and

(iii) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding consistent with the Oregon Department of Environmental Quality.

Response: As shown on Sheet C1.30 of Exhibit B, the water supply connection is located within the 100-year floodplain. The water supply system will be designed to remain watertight as to eliminate infiltration of floodwaters into the water system. No sanitary sewer or on-site waste disposal systems are proposed within the 100-year floodplain. This standard is met.

(e) Electric, Mechanical, Plumbing, and Other Equipment. Electrical, heating, ventilating, air-conditioning, plumbing, duct systems, and other equipment and service facilities shall be elevated at or above one foot above the base flood elevation (BFE) or shall be designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during conditions of flooding. In addition, if replaced as part of a substantial improvement, electrical, heating, ventilating, air-conditioning, plumbing, duct systems, and other equipment and service facilities shall meet all the requirements of this section.

Response: As shown on Sheet C1.30 of Exhibit B, the water supply connection is located within the 100-year floodplain. The water connection located in the 100-year floodplain will be designed to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during conditions of flooding and to prevent infiltration of floodwaters. Compliance with this provision will be further demonstrated at time of permitting.

(f) Tanks.

(i) Underground tanks shall be anchored to prevent flotation, collapse and lateral movement under conditions of the base flood.

(ii) Above-ground tanks shall be installed (elevated) at or above one foot above the base flood elevation (BFE) or shall be anchored to prevent flotation, collapse, and lateral movement under conditions of the base flood.

Response: The proposed generator, as shown on Sheet C1.30 of Exhibit B, has a belly tank within the generator body. The tank is wholly located outside the 100-year and 500-year floodplain. This standard is not applicable.

(i) Structures Located in Multiple or Partial Flood Zones. In coordination with the State of Oregon Specialty Codes:

(i) *When a structure is located in multiple flood zones on the community's flood insurance rate maps (FIRM) the provisions for the more restrictive flood zone shall apply.*

(ii) *When a structure is partially located in a special flood hazard area, the entire structure shall meet the requirements for new construction and substantial improvements.*

Response: The proposed building is located outside the Special Flood Hazard Area as shown on Sheet C1.10 of Exhibit B. The proposed design elevates the building and building adjacent site area, as shown on Sheet C1.20 of Exhibit B to minimize flood risk. This standard is not applicable.

(j) *AH Zone Drainage. Adequate drainage paths are required around structures on slopes to guide floodwaters around and away from proposed structures.*

Response: The proposed structure is not located in the AH Zone. Although this standard is not applicable, the proposed site grading is designed to guide water around and away from the proposed structure during a flood event.

(6) *Critical Facility. Construction of new critical facilities shall be, to the extent possible, located outside the limits of the special flood hazard area (SFHA). Construction of new critical facilities shall be permissible within the SFHA only if no feasible alternative site is available. Critical facilities construction within the SFHA shall have the lowest floor elevated at least three feet above the base flood elevation (BFE) or to the height of the 500-year flood, whichever is higher. Access to and from the critical facility shall also be protected to the height utilized above. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters.*

Response: The subject site is classified as a Critical Facility per FEMA. In accordance with this provision, the structure is located outside of the Special Flood Hazard Area. As explained in the applicant's response to Section 17.100.040, the subject site was selected through a thorough site selection process as detailed in the Introduction (Section II). Site grading has been provided in a manner to guide water around and away from the proposed structure during a flood event. In the occurrence of a flood event, an emergency vehicle access road is located outside of both the 100-year and 500-year flood zones. The base flood elevation (BFE) of the 100-year floodplain is ~~61~~ 61.8' and the 500-year flood elevation is ~~70~~". The finished floor elevation (FFE) is 64' as shown on Sheet C1.20 of Exhibit B, which is ~~3'~~ 62.8' above the BFE. This standard is met.

61' BFE NOT INFO PROVIDED PER MARCH 15 2022 E-MAIL

Chapter 17.52 Environmental Performance Standards

17.52.020 General Provisions.

(1) *In addition to the regulations adopted in this chapter, each use, activity, or operation within the city of St. Helens shall comply with the applicable state and federal standards pertaining to noise, odor, and discharge of matter into the atmosphere, ground, sewer system, or stream.*

(a) *Regulations adopted by the State Environmental Quality Commission pertaining to nonpoint source pollution control and contained in the Oregon Administrative Rules shall by this reference be made a part of this chapter.*

(2) *Prior to issuance of a building permit, the director may require submission of evidence demonstrating compliance with state, federal, and local environmental regulations and receipt of necessary permits, e.g., air contaminant discharge permits (ACDP) or indirect source construction permits (ISCP).*

(3) *Compliance with state, federal, and local environmental regulations is the continuing obligation of the property owner and operator.*

Response: The applicant acknowledges its legal obligation to comply with applicable state and federal standards and will provide copies of applicable permits to City staff as required. This standard is met.

17.52.030 Noise.

For the purposes of noise regulation, the provisions of St. Helens Ordinance 2405 (Chapter 8.16 SHMC), or successive ordinances governing noise, shall apply as the standard.
Response: The applicant is aware that the development is subject to the City's nuisance ordinance. *Chapter 8.16.040(2)* provides an exception for sound caused by emergency vehicles and apparatus, as may occur as part of the proposed use of a public safety facility. This standard is met.

17.52.040 Visible emissions.

Within the commercial and industrial park zoning districts, there shall be no use, operation, or activity which results in a stack or other point source emission, other than an emission from space heating, or the emission of pure uncombined water (steam) which is visible from a property line except where permits have been obtained from the Department of Environmental Quality.
Response: The operations that will occur in this facility do not create visible emissions. This standard is met.

17.52.050 Vibration.

No vibration longer than 30 continuous seconds or a frequency of greater than once per hour other than that caused by highway vehicles, trains, and aircraft is permitted in any given zoning district which is discernible without instruments at the property line of the use concerned.
Response: The public safety facility not anticipated to generate detectable vibration at the property line based on the type of mechanical equipment used. This standard is met.

17.52.060 Odors.

The emission of odorous gases or other matter in such quantities as to be readily detectable at any point beyond the property line of the use creating the odors is prohibited. DEQ rules for odors (OAR 340-028-090) apply.
Response: The public safety facility is not anticipated to emit odorous gases or particulates. This standard is met.

17.52.070 Glare and heat.

No direct or sky-reflected glare, whether from floodlights or from high temperature processes such as combustion or welding or otherwise, which is visible at the lot line shall be permitted, and:

(1) There shall be no emission or transmission of heat or heated air which is discernible at the lot line of the source; and
(2) These regulations shall not apply to signs or floodlights in parking areas or construction equipment at the time of construction or excavation work otherwise permitted by this code.

Response: All operations will be completed indoors and will not create direct or sky-reflected glare from floodlights or from high temperature processes. This standard is met.

17.52.080 Insects and rodents.

All materials including wastes shall be stored and all grounds shall be maintained in a manner which will not attract or aid the propagation of insects or rodents or create a health hazard.
Response: Waste materials will be properly stored in a trash enclosure, in compliance with Chapter 17.92, to discourage insects and rodents as shown on page A2.10 of Exhibit B. This standard is met.

Chapter 17.64 Additional Yard Setback Requirements and Exceptions

17.64.020 Additional setback from centerline required.

(1) To ensure improved light, air, and sight distance and to protect the public health, safety, and welfare, structures in any zoning district which abut certain arterial and collector streets shall be set back a minimum distance from the centerline of the street.

(2) Where the street is not partially or fully improved, the measurement shall be made at right angles from the centerline or general extension of the street right-of-way:

(a) Arterial Streets. The required setback distance for buildings on arterial streets is the setback distance required by the zoning district plus the following distances measured from the centerline of the street:

TSP Street Classification	Additional Centerline Setback Requirement
Major Arterials	50 feet
Minor Arterials	30 feet

(b) Collector Streets. The required setback distance for buildings on collector streets as classified by the transportation system plan is the setback distance required by the zoning district plus 25 feet measured from the centerline of the street.

Response: Figure 7-1 of the City of St. Helens Transportation System Plan (TSP) identifies Old Portland Road as a Minor Arterial. Therefore, the proposed public safety building is required to be set back 30' (measured from street centerline) since the LI zone does not specify a minimum setback. The TSP designates Kaster Road as a Collector Street. Therefore, the proposed public safety building is required to be set back 25' (measured from street centerline) since the LI zone does not specify a minimum setback. As shown on Sheet C1.10 of Exhibit B, the proposed building is set back 116' from Old Portland Road and approximately 50' from Kaster Road. This standard is met.17.64.030 No yard required – Structure not on property line.

In zoning districts where a side yard or a rear yard setback is not required, a structure which is not to be built on the property line shall be set back from the property line by a distance in accordance with the applicable building code (as administered by the building official) requirements.
Response: The building has been designed to be compliant with applicable yard setbacks and applicable building code provisions. This standard is met.

Chapter 17.68 Building Height Limitations – Exceptions

17.68.010 Projections not used for human habitation.

Projections such as chimneys, spires, domes, elevator shaft housings, towers excluding TV dish receivers, aerials, flag poles, and other similar objects not used for human occupancy are not considered buildings.

Response: As shown on Sheet C1.10 of Exhibit B, three (3) flagpoles are proposed. Flagpoles are not considered buildings and are not subject to the building height limitations. This standard is met.

Chapter 17.72 Landscaping and Screening

17.72.020 General Provisions.

(1) Unless otherwise provided by the lease agreement, the owner, tenant, and their agent, if any, shall be jointly and severally responsible for the maintenance of all landscaping which shall be maintained in good condition so as to present a healthy, neat and orderly appearance and shall be kept free from refuse and debris.

Response: The applicant acknowledges its ongoing responsibility to maintain landscaping to achieve a healthy, neat, and orderly appearance. This standard is met.

← How?

(2) All plant growth in landscaped areas of developments shall be controlled by pruning, trimming or otherwise so that:

(a) It will not interfere with the maintenance or repair of any public utility;

(b) It will not restrict pedestrian or vehicular access; and

(c) It will not constitute a traffic hazard because of reduced visibility.

Response: The applicant acknowledges its ongoing responsibility to maintain landscaping to allow utility and pedestrian access and to allow for visual clearance at the driveway intersection. Sheets C1.10 and L1.20 of Exhibit B illustrate the visual clearance area in which plantings shall be pruned appropriately. This standard is met.

(3) The installation of all landscaping shall be as follows:

(a) All landscaping shall be installed according to accepted planting procedures;

(b) The plant materials shall be of high grade; and

(c) Landscaping shall be installed in accordance with the provisions of this code.

Response: These planting instructions will be included in planting plans or specifications submitted for construction permitting. Compliance can be achieved by a condition of approval.

(4) Certificates of occupancy shall not be issued unless the landscaping requirements have been met or other arrangements have been made and approved by the director such as the posting of a bond.

Response: The applicant anticipates installing landscaping as part of the overall site development. This standard is met.

← How?

(5) Existing plant materials on a site shall be protected as much as possible:

(a) The developer shall provide methods for the protection of existing plant material to remain during the construction process; and

(b) The plants to be saved shall be noted on the landscape plans (e.g., areas not to be disturbed can be fenced, as in snow fencing which can be placed around individual trees).

Response: Development of the site for the public safety facility requires substantial site preparation and grading, which in this case are largely incompatible with the locations of existing plant specimens, except for some trees as noted on the tree plan (Sheets L0.02 and L0.03 of Exhibit B). The proposed development plan will mitigate for tree removal impacts by plantings in perimeter areas and visitor parking lot landscape islands to provide screening, shade, and visual relief, as shown on Sheet L1.20 of Exhibit B.

(6) *Appropriate methods for the care and maintenance of street trees and landscaping materials shall be provided by the owner of the property abutting the rights-of-way unless otherwise required for emergency conditions and the safety of the general public.*

Response: The applicant acknowledges its responsibility to maintain street trees and landscaping on an ongoing basis. This standard is met.

How?

(7) *The review procedures and standards for required landscaping and screening shall be specified in the conditions of approval during development review and in no instance shall be less than that required for conventional development.*

Response: This provision contains procedural guidance and requires no evidence from the applicant.

(8) *No trees, shrubs, or plantings more than 18 inches in height shall be planted in the public right-of-way abutting roadways having no established curb and gutter.*

Response: Kaster Road has an established curb and gutter. Old Portland Road does not have an established curb and gutter. As shown on Sheet L1.20 of Exhibit B, no plantings greater than 18" in height are proposed in the public right-of-way abutting Old Portland Road and Kaster Road. The City of St. Helens has plans to construct a roundabout at the intersection of Old Portland Road and Kaster Road; therefore, the applicant has designed the plantings to avoid removal of trees in the future for the roundabout project.

17.72.030 Street Trees.

(1) *All development projects fronting on a public or private street, or a private driveway more than 100 feet in length approved after the adoption of the ordinance codified in this code shall be required to plant street trees in accordance with the standards in SHMC 17.72.035.*

Response: The proposed development plans include plantings along the Kaster Road right-of-way. The canopies of these trees are anticipated to extend over the right-of-way. The City of St. Helens has plans to construct a roundabout at the intersection of Old Portland Road and Kaster Road; therefore, the applicant has designed the plantings, along both frontages, to avoid removal of trees in the future for the roundabout project.

(2) *Certain trees can severely damage utilities, streets, and sidewalks or can cause personal injury. Approval of any planting list shall be subject to review by the director. A list of suggested appropriate tree species is located at the end of this chapter. Additional or alternative tree species also may be recommended by the applicant or determined by the director based on information provided in adopted city plans, policies, ordinances, studies or resolutions. Proposals by the applicant shall require approval by the director.*

Response: Proposed species for tree plantings have been based on the Landscape Architect's experience providing tree planting specifications for projects in multiple Oregon communities. With approval of the recommended tree plantings, this standard will be met.

17.72.035 Location of street trees.

(1) *Landscaping in the front and exterior side yards shall include trees with a minimum caliper of two inches at four feet in height as specified in the requirements stated in subsection (2) of this section.*

Response: Planting specifications in construction plans will include this specification. The proposed trees in the front and side yard will have a minimum caliper of 2" (see Sheet L0.01 in Exhibit B).

(2) *The specific spacing of street trees by size of tree shall be as follows:*

(a) *Small or narrow stature trees (under 25 feet tall and less than 16 feet wide branching) shall be spaced no greater than 20 feet apart;*

(b) *Medium sized trees (25 to 40 feet tall, 16 to 35 feet wide branching) shall be spaced no greater than 30 feet apart;*

(c) *Large trees (over 40 feet tall and more than 35 feet wide branching) shall be spaced no greater than 40 feet apart;*

(d) *Except for signalized intersections as provided in SHMC 17.72.060(3), trees shall not be planted closer than 20 feet from a street intersection, nor closer than two feet from private driveways (measured at the back edge of the sidewalk), fire hydrants, or utility poles in order to maintain visual clearance;*

(e) *No new utility pole location shall be established closer than five feet to any existing street tree;*

(f) *Tree pits shall be located so as not to include services (water and gas meters, etc.) in the tree well;*

(g) *On-premises services (water and gas meters, etc.) shall not be installed within existing tree well areas;*

(h) *Street trees shall not be planted closer than 20 feet to light standards;*

(i) *New light standards shall not be positioned closer than 20 feet to existing street trees except when public safety dictates, then they may be positioned no closer than 10 feet;*

(j) *Trees shall be planted at least two feet from the face of the curb;*

(k) *Where there are overhead power lines, the street tree species selected shall be of a type which, at full maturity, will not interfere with the lines; and*

(l) *Trees shall not be planted within two feet of any permanent hard surface paving or walkway:*

  (i) *Space between the tree and the hard surface may be covered by a nonpermanent hard surface such as grates, bricks on sand, paver blocks, and cobblestones; and*

  (ii) *Sidewalk cuts in concrete for tree planting shall be at least four feet by four feet to allow for air and water into the root area.*

Response: As shown on Sheet L0.01 of Exhibit B, the proposed tree plantings that are intended to be street trees will measure 40' tall and 25' wide when mature. These trees are classified as medium sized trees per Section 17.72.035(2). The proposed street trees are generally spaced under 30', except for a few instances where slightly greater spacing is required to accommodate for parking lot landscaping tree growth, site lighting, and routine utility maintenance. As shown on Sheet L1.20 of Exhibit B, adequate spacing has been provided between street trees and site lighting per Section 17.72.035(2)(h). This standard is met.

TREES TOO BIG ONE TO O/H UTILITY

(3) *Trees, as they grow, shall be pruned to provide at least eight feet of clearance above sidewalks and 13 feet above local street, 15 feet above collector street, and 18 feet above arterial street roadway surfaces.*

Response: The applicant acknowledges its responsibility to maintain street trees and landscaping on an ongoing basis, consistent with this requirement. This standard is met.

17.72.050 Replacement of street trees.

L HOW?

(1) *Existing street trees removed by development projects or other construction shall be replaced by the developer with those types of trees approved by the director.*

Response: As shown on Sheet L0.02 of Exhibit B, four (4) street trees along Kaster Road are proposed to be removed as part of the public safety building development.

(2) *The replacement trees shall be of a size and species similar to the trees that are being removed unless lesser sized alternatives are approved by the director.*

Response: As shown on Sheet L0.02 of Exhibit B, four (4) deciduous street trees are proposed to be removed. The trees measure, at maximum, 20-25' in height and 15-20' wide. The replacement street trees are deciduous as shown on Sheets L0.04 and L1.20 of Exhibit B and will be 40' in height and 25' wide at maturity. This standard is met.

w/ CONDITIONS

↑ TOO BIG

17.72.060 Exemptions.

(1) *Modifications to the street tree requirements or exemptions to the requirements may be granted by the director on a case-by-case basis.*

Response: The applicant seeks a modification to the street tree requirement as outlined below in Section 17.72.060(2).

(2) *Exemptions shall be granted if it can be documented that one or more of the following applies to the site:*

(a) *The location of a proposed tree would cause potential problems with existing utility lines;*

(b) *The tree would cause visual clearance problems;*

(c) *There is not adequate space in which to plant street trees within the public right-of-way; or*

(d) *The ground conditions within the public right-of-way are unable to support street trees.*

Response: The City of St. Helens has plans to construct a roundabout at the intersection of Old Portland Road and Kaster Road; therefore, the applicant has designed the street tree plantings to avoid removal of trees in the future for the roundabout project by locating proposed street trees along the site's property line with Kaster Road. Additionally, the applicant proposes street trees along Kaster Road between the site's driveway and Fir Street as shown on Sheet L0.03 of Exhibit B.

The site's frontage along the portion of the site that is proposed to be developed along Kaster Road and Old Portland Road is approximately 530 lineal feet. The applicant proposes approximately 470 lineal feet of frontage improvements as shown on Sheet C1.11 of Exhibit B to Kaster Road. The proposed frontage improvements are roughly proportional to the impact of the portion of the site that is intended for this development. As no development is proposed in the eastern portion of the site, improvements to the Fir Street frontage would not be proportional. This standard is met.

(3) *The director may allow trees closer to specified intersections which are signalized, provided the provisions of Chapter 17.76 SHMC, Visual Clearance Areas, are satisfied.*

Response: No street trees are requested to be closer to a signalized intersection than allowed by the Community Development Code. This standard is not applicable.

(4) *If one or more conditions described in subsection (2) of this section are shown to exist on the site, the director may require the following to fulfill the street tree requirements of this chapter:*

(a) *A landscaping easement outside the public right-of-way for the purposes of accommodating street trees. The location of the landscaping easement shall be located on site. A public utility easement may be used for this purpose.*

(b) *An applicant may, with the consent of the director, elect to compensate the city for costs commensurate with the number of street trees that would have otherwise been required for the site. The fee, established by resolution of the city council, will be generally based on the city's street tree list in this chapter and market value of the tree(s).*

Response: The applicant proposes street trees on-site, with the canopy of the tree extending over right-of-way along Kaster Road as shown on Sheet L1.20 of Exhibit B. If warranted, the applicant can provide a

landscaping easement for the portion of the site where on-site street trees will be planted. The applicant also proposes street trees along Kaster Road between the site's driveway and Fir Street as shown on Sheet L0.03 of Exhibit B. This standard is met.

THIS IS A STANDARD?

17.72.070 Buffering and screening – General provisions.

(2) Buffering and screening are required to reduce the impacts on adjacent uses which are of a different type in accordance with the matrix in this chapter. The owner of each proposed development is responsible for the installation and effective maintenance of buffering and screening.

Response: The proposed development is not adjacent, nor abutting any other use as the subject site does not physically touch or border upon or share a common property line with any other use based on the Community Development Code's definition of "abut".[1] This standard is not applicable.

17.72.080 Buffering and screening requirements.

(1) A buffer consists of an area within a required yard adjacent to a shared property line and having a depth equal to the amount specified in the buffering and screening matrix and containing a length equal to the length of the property line of the abutting use or uses.

(2) A buffer area may only be occupied by utilities, screening, sidewalks and bikeways, and landscaping. No buildings, accessways, or parking areas shall be allowed in a buffer area except where an accessway has been previously approved by the city.

Response: The buffer and screening matrix in Figure 13 does not require a buffer for the proposed use due to the intervening right-of-way. This standard does not apply.

(3) A fence, hedge, or wall, or any combination of such elements which is located in any yard is subject to the conditions and requirements of this section.

Response: Vegetative screening is proposed around the secure parking area and the visitor parking area as shown on Sheet L1.20 of Exhibit B. The proposed vegetation is subject to the conditions and requirements of this section. The proposed 8' security chain link fence which surrounds the secured parking area is also subject to the conditions and requirements of this section. This standard is met.

(5) Where screening is required, the following standards shall apply in addition to those required for buffering:

(a) A hedge of narrow or broadleaf evergreen shrubs shall be planted which will form a four-foot continuous screen within two years of planting; or

(b) An earthen berm planted with evergreen plant materials shall be provided which will form a continuous screen six feet in height within two years. The unplanted portion of the berm shall be planted in lawn, ground cover or bark mulch; or

(c) A five-foot or taller fence or wall shall be constructed to provide a continuous sight-obscuring screen.

Response: The buffer and screening matrix in Figure 13 does not require buffering and screening due to intervening right-of-way; however, parking lot screening is required by 17.72.110(1). Compliance with parking lot screening is demonstrated in the applicant's response to Section 17.72.110.

[1] The City of St. Helens Development Code defines "abut/abutting" as "adjacent/adjoining or contiguous; to physically touch or border upon; or to share a common property line."

(6) *Buffering and screening provisions shall be superseded by the vision clearance requirements as set forth in Chapter 17.76 SHMC.*

Response: Sheets C1.10 and L1.20 of Exhibit B demonstrate vision clearance requirements are met.

(8) *Fences and Walls.*

- (a) *Fences and walls shall be constructed of any materials commonly used in the construction of fences and walls such as wood or brick, or otherwise acceptable by the director;*
- (b) *Such fence or wall construction shall be in compliance with other city regulations; and*
- (c) *Chain link fences with slats shall qualify for screening. However, chain link fences without slats shall require the planting of a continuous evergreen hedge to be considered screening.*

Response: An 8' chain link fence with a continuous evergreen hedge is provided along the perimeter of the secure parking area as shown on Sheet L1.20 of Exhibit B. The proposed fence is largely intended for security purposes. A concrete masonry unit (CMU) wall for the proposed trash enclosure is primarily intended for screening. This standard is met.

(9) *Hedges.*

- (a) *An evergreen hedge or other dense evergreen landscaping may satisfy a requirement for a sight-obscuring fence where required subject to the height requirement in SHMC 17.72.090(2)(a) and (b);*
- (b) *Such hedge or other dense landscaping shall be properly maintained and shall be replaced with another hedge, other dense evergreen landscaping, or a fence or wall when it ceases to serve the purpose of obscuring view; and*
- (c) *No hedge shall be grown or maintained at a height greater than that permitted by these regulations for a fence or wall in a vision clearance area as set forth in Chapter 17.76 SHMC.*

Response: An 8' security chain link fence with a continuous evergreen hedge is provided along the perimeter of the secure parking area as shown on Sheet L1.20 of Exhibit B. The hedge will be maintained in accordance with requirements (a), (b), and (c) above. This standard is met.

17.72.090 Setbacks for fences and walls. ← How?

(1) *No fence or wall shall be constructed which exceeds the standards in subsection (2) of this section except when the approval authority, as a condition of approval, allows that a fence or wall be constructed to a height greater than otherwise permitted in order to mitigate against potential adverse effects. For residential uses, a fence may only exceed the height standards if approved by a variance.*

Response: An 8' security chain link fence with a continuous evergreen hedge is provided along the perimeter of the secure parking area as shown on Sheet L1.20 of Exhibit B. The proposed fence exceeds the maximum height allowable in subsection (2) of this section. The purpose of an 8' high fence with hedging is to provide security and enhanced screening for public safety operations.

(2) *Fences or walls:*

- (a) *May not exceed four feet in height in a required front yard along local or collector streets or six feet in all other yards and, in all other cases, shall meet vision clearance area requirements (Chapter 17.76 SHMC);*
- (b) *Are permitted up to six feet in height in front yards adjacent to any designated arterial or street. For any fence over three feet in height in the required front yard area, permission shall be subject to review of the location of the fence or wall;*
- (c) *All fences or walls shall meet vision clearance area requirements (Chapter 17.76 SHMC);*

(d) *All fences or walls greater than six feet in height shall be subject to building official approval.*

Response: The proposed 8' security chain link fence with a continuous evergreen hedge is not located within a required front yard and meets vision clearance area requirements as shown on Sheet L1.20 of Exhibit B. The purpose of the proposed fence is to provide a secure area for public safety operations. The applicant understands the proposed 8' fence is subject to building official approval.

17.72.100 Height restrictions.

(1) *The prescribed heights of required fences, walls, or landscaping shall be measured from the actual adjoining level of finished grade, except that where parking, loading, storage, or similar areas are located above finished grade, the height of fences, walls, or landscaping required to screen such areas or space shall be measured from the level of such improvements.*

Response: The methodology specified in this provision has been used in calculating the heights of required fences, walls, and landscaping. This standard is met.

(2) *An earthen berm and fence or wall combination shall not exceed the six-foot height limitation for screening.*

Response: The proposed 8' high chain link fence is intended for security purposes and not for screening; therefore, the screening standards do not apply to this proposed fence.

17.72.110 Screening – Special provisions.

(1) *Screening of Parking and Loading Areas.*
- (a) *Screening of parking for single and duplex attached and detached dwellings is not required.*
- (b) *Screening of parking (larger than three spaces) and loading areas (larger than 400 square feet) is required. The specifications for this screening are as follows:*
  - (i) *Landscaped parking areas shall include special design features which effectively screen the parking lot areas from view. These design features may include the use of landscaped berms, decorative walls, and raised planters. Berms, planters, and other forms of vegetative landscaping are permitted for screening that fronts US 30. Walls are prohibited for screening that fronts US 30;*
  - (ii) *Landscape planters may be used to define or screen the appearance of off-street parking areas from the public right-of-way; and*
  - (iii) *Materials to be installed should achieve a balance between low-lying and vertical shrubbery and trees.*

Response: Both parking areas (secured and visitor) exceed three (3) parking spaces; therefore, screening is required. The visitor parking area utilizes a mix of trees, shrubs, and groundcovers as shown on Sheet L1.20 of Exhibit B. Additionally, the secure parking area is surrounded by an 8' chain link fence with a continuous evergreen hedge for security and screening purposes, which has the secondary benefit of interrupting sightlines as shown on Sheet C1.10 of Exhibit B. This standard is met.

(2) *Screening of Service Facilities. Except for single-dwelling units and duplexes, service facilities such as gas meters and air conditioners which would otherwise be visible from a public street, customer or resident parking area, any public facility or any residential area shall be screened from view by placement of a solid wood fence or masonry wall between five and eight feet in height or evergreens already to correct height minimums. All refuse materials shall be contained within the screened area. Rooftop service facilities and equipment shall be screened from view from adjacent streets and adjacent properties in one of the following ways:*

(a) *A parapet wall of adequate height;*

(b) *A screen around the equipment that is made of a primary exterior finish material used on other portions of the building; or*

(c) *Set back such that it is not visible from the public street(s) and adjacent properties.*

Response: Along the west side of the building, sightlines to the ground mounted mechanical equipment will be interrupted by the 8' high chain link fence with layers of vegetated screening as shown on Sheet L1.20 of Exhibit B. Along the north side of the building, sightlines to the generator and transformer will be interrupted by the 8' high chain link fence with a continuous evergreen hedge so no additional screening is merited. The refuse materials area will be screened by an 8' high CMU wall as shown on Sheet A2.10 of Exhibit B. Compliance for the screening of all other service facilities has not yet been finalized; compliance with the screening provisions contained in this section can be assured by a condition of approval. This standard is met. ✓ WITH CONDITION OF APPROVAL

(4) *Screening of Refuse Containers Required. Except for one- and two-unit dwellings, any refuse container or refuse collection area which would be visible from a public street, parking lot, residential or commercial area, or any public facility such as a school or park shall be screened or enclosed from view by placement of a solid wood fence, masonry wall or evergreen hedge.*

Response: Refuse containers are illustrated on Sheets C1.10 of Exhibit B, and the proposed enclosures are illustrated on Sheet A2.10 of Exhibit B. This standard is met.

(5) *Outdoor storage areas shall be landscaped and screened in accordance with SHMC 17.72.080(5)(a) through (c).*

Response: The proposed development includes a shed, CONEX box, bike, and miscellaneous items outdoor storage areas at the north end of the site, which will be screened by hedging as shown on Sheet L1.20 of Exhibit B. The standard is met. ✓ NOT OUTDOOR IF IN BUILDING

17.72.120 Revegetation.

(1) *Where natural vegetation has been removed through grading in areas not affected by the landscaping requirements and that are not to be occupied by structures, such areas are to be replanted as set forth in this section to prevent erosion after construction activities are completed.*

Response: The site will be developed with buildings, parking, access/circulation, and landscaping consistent with this requirement.

(2) *Methods of Revegetation. Acceptable methods of revegetation include hydromulching or the planting of rye grass, barley, or other seed with equivalent germination rates, and:*

(a) *Where lawn or turf grass is to be established, lawn grass seed or other appropriate landscape cover is to be sown at not less than four pounds to each 1,000 square feet of land area;*

(b) *Other revegetation methods offering equivalent protection may be approved by the approval authority;*

(c) *Plant materials are to be watered at intervals sufficient to ensure survival and growth; and*

(d) *The use of native plant materials is encouraged to reduce irrigation and maintenance demands.*

Response: The planting plan specifications (L-Series sheets in Exhibit B) provide plant varieties and planting and maintenance instructions that meet or exceed these standards. This requirement is met.

17.72.130 Buffer matrix.

(1) The buffer matrix (Figure 13) shall be used in calculating widths of buffering and screening to be installed between proposed uses and abutting zoning districts or specified types of streets.

Response: Based on the abutting uses, the buffer and screening matrix in Figure 13 does not require a buffer or screening at this site. This standard does not apply.

(2) An application for a variance to the standards required in Figure 13 shall be processed in accordance with Chapter 17.108 SHMC.

Response: This application does not include a request for a variance; this provision is not applicable.

FIGURE 13: BUFFERS (EXCERPT)			
Existing Abutting Use of Zoning District	Proposed Uses		
	Commercial Uses	Light Industrial Use *	Any Parking Lot, 4 – 50 spaces
Detached Single-Family R-10, R-7, R-5	20' S	30' S	10' S
Attached Dwelling Units 1 story	20' S	30' S	10' S
Attached Dwelling Units 2 or more stories	20' S	30' S	10' S
Arterial Street (except US 30)	0'	0'	0'
Commercial Uses	0'	0'	0'
Industrial Park	10'	0'	0'
Light Industrial	10'	0'	0'

"S" indicates screening required

** May require up to 150 ft. buffer if off-site impacts are significant*

17.72.140 Interior parking lot landscaping.

(1) All parking areas with more than 20 spaces shall provide landscape islands with trees that provide a canopy effect and break up the parking area into rows of not more than seven contiguous parking spaces.

Response: As shown on Sheet C1.10 of Exhibit B, the visitor parking area has fewer than 20 parking spaces, therefore this standard is not applicable to the visitor parking area.

For the secured fleet/staff vehicle area, site security is key for the Police Department, a component of which is secure parking for police fleet vehicles and commuting vehicles of officers and staff. The proposed on-site secure parking area associated with the Police Facility site features a remotely operated access gate, an 8' tall perimeter security fence, and restricted access to authorized personnel only. To support site security and limit access, no interior parking lot landscaping is proposed because frequent or unsupervised access by maintenance crews would create a security risk. The secure parking area is internal to the site, obscured from view by the proposed 8' perimeter fence, with hedge plantings (see Sheet L1.20 of Exhibit B) and is not open to use by the general public; therefore, presence of interior parking lot landscaping will not provide benefit to the general public, and the security fence and site perimeter landscaping provide the appropriate screening. The applicant requests that the Planning Commission deem this standard inapplicable to the secure parking area.

(2) *Landscape islands and planters shall have dimensions of not less than 48 square feet of area and no dimension of less than six feet, to ensure adequate soil, water, and space for healthy plant growth.*

Response: The proposed development provides six (6) visitor parking spaces and therefore is not required to have landscaped islands per criterion (1) above. This standard is not applicable.

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

Response: The area around the visitor parking lot is planted with trees, shrubs, and groundcover as shown on Sheet L1.20 of Exhibit B. This standard is met for the visitor parking area. The applicant requests that the Planning Commission deem this standard inapplicable to the secure parking area for the reasons outlined in the response to item (1).

(4) *The landscaping shall be protected from vehicular damage by some form of wheel guard or curb permanently fixed to the ground.*

Response: As shown on Sheet C1.10 and C5.10 of Exhibit B, vertical curbs protect landscaping from vehicular damage. This standard is met for the visitor parking area. The applicant requests that the Planning Commission deem this standard inapplicable to the secure parking area for the reasons outlined in the response to item (1).

Chapter 17.76 Visual Clearances

17.76.020 Visual clearance – Required.

(1) *A visual clearance area shall be maintained on the corners of all property adjacent to the intersection of two streets, a street and a railroad, or a driveway providing access to a public or private street.*

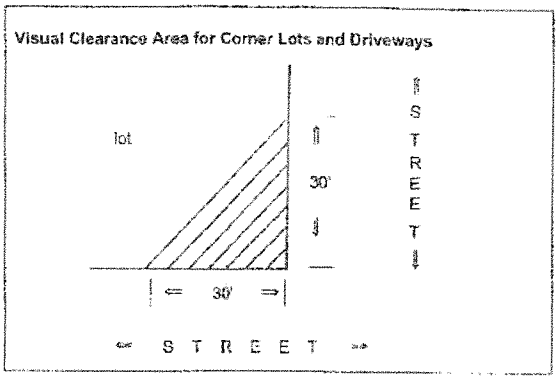
Response: Visual clearance areas at the proposed driveway are shown on Sheets C1.10 and L1.20 of Exhibit B. This standard is met.

(2) *A clear vision area shall contain no vehicle, hedge, planting, fence, wall structure, or temporary or permanent obstruction (except for an occasional utility pole or tree), exceeding three feet in height, measured from the top of the curb, or where no curb exists, from the street centerline grade, except that trees exceeding this height may be located in this area, provided all branches below eight feet are removed.*

Response: As shown on the attached plans (Sheets C1.10 and L1.20 of Exhibit B), visual clearance areas will be maintained on both sides of the driveway entrance. As shown on Sheet C1.10 of Exhibit B, one tree is in the vision clearance area of the Kaster Road driveway. The tree located in the vision clearance area will be maintained to have all branches below 8' removed. All other landscaping in the vision clearance areas will be covered in low-growing shrubs and groundcover. This standard is met.

(3) *Where the crest of a hill or vertical curve conditions contribute to the obstruction of clear vision areas at a street or driveway intersection, hedges, plantings, fences, walls, wall structures and temporary or permanent obstructions shall be further reduced in height or eliminated to comply with the intent of the required clear vision area.*

Response: No crests of hills or vertical curves are present on Kaster Road in the immediate vicinity of the proposed driveway location. This standard does not apply.



17.76.030 Computation – Nonarterial street and all accessways.

A visual clearance area for all street intersections, street and accessway intersections, and street or accessway and railroad track intersections shall be that triangular area formed by the right-of-way or property lines along such lots and a straight line joining the right-of-way or property line at points which are 30 feet distance from the intersection of the right-of-way line and measured along such lines. (see figure above).

Response: Visual clearance areas at the proposed driveway locations are shown on Sheets C1.10 and L1.20 of Exhibit B consistent with the figure above. This standard is met.

17.76.040 Exceptions.

Where a right-of-way is greater than what is required, the actual street, railroad, or driveway intersections may be used in lieu of the property lines for computing the visual clearance area.

Response: The Kaster Road right-of-way is wider than what is required. Although the proposed development qualifies for this exception, to be conservative (due to future street improvements associated with the roundabout), the applicant does not request this exception.

17.76.050 Computation – Arterial.

On all designated arterial streets the visual clearance area shall not be less than 35 feet on each side of the intersection.

Response: Kaster Road is designated a Collector in the TSP. Old Portland Road is designated as a Minor Arterial in the TSP. As shown on Sheets C1.10 and L1.10 of Exhibit B, the 35' vision clearance area at the intersection of Old Portland Road and Kaster Road is satisfied. This standard is met.

Chapter 17.80 Off-Street Parking and Loading Requirement

17.80.020 General provisions.

(1) Parking Dimensions. The minimum dimensions for parking spaces are:

- *(a) Nine feet wide and 18 feet long for a standard space;*
- *(b) Eight feet wide and 15 feet long for a compact space;*
- *(c) Eight feet wide and 22 feet long for parallel spaces;*
- *(d) As required by applicable state of Oregon and federal standards for designated disabled person parking spaces; and*

(e) *Special provisions for side-by-side parking for single-family dwellings (attached and detached) and duplexes:*

(i) *The total unobstructed area for side-by-side parking spaces for single-family dwellings (attached and detached) and duplexes shall still be 18 feet by 18 feet (two nine-foot by 18-foot standard spaces together), but the improved portion may be 16 feet in width centered within the 18 feet for the purposes of the surface (paving) requirements of this chapter and, if the spaces are adjacent or close to the street, driveway approach width.*

(ii) *This does not apply to single parking spaces by themselves or rows of parking spaces that exceed two spaces. This only applies to two standard space parking areas where the spaces are adjacent to each other along the long side.*

Response: As shown on Sheet C1.10 of Exhibit B, all vehicle spaces in the secure parking area measure 20' long and 10' wide. As shown on Sheet C1.10 of Exhibit B, all parking spaces in the visitor parking area measure 18' long and 9' wide. Accessible parking spaces are located near building entrances and meet the dimensions as outlined in the Oregon Structural Specialty Code as indicated on Sheet C1.10 of Exhibit B. This standard is met.

(2) *Building Permit Conditions. The provision and maintenance of off-street parking and loading spaces are the continuing obligations of the property owner:*

(a) *No building or other permit shall be issued until plans are presented to the director to show that property is and will remain available for exclusive use as off-street parking and loading space; and*

(b) *The subsequent use of property for which the building permit is issued shall be conditional upon the unqualified continuance and availability of the amount of parking and loading space required by this code.*

Response: The applicant acknowledges ongoing responsibility to maintain the parking areas. This standard is met.

How?

(8) *Location of Required Parking.*

(a) *Off-street parking spaces for single-dwelling unit – detached, duplex dwellings and single-dwelling – attached dwellings shall be located on the same lot with the dwelling; and*

(b) *Off-street parking lots for uses not listed above shall be located not further than 200 feet from the building or use they are required to serve, measured in a straight line from the building with the following exceptions:*

(i) *Shared parking areas, as provided by subsection (6) of this section, for commercial uses which require more than 40 parking spaces may provide for the spaces in excess of the required 40 spaces up to a distance of 300 feet from the commercial building or use; and*

(ii) *Industrial and manufacturing uses which require in excess of 40 spaces may locate the required spaces in excess of the 40 spaces up to a distance of 300 feet from the building.*

Response: The parking areas are designed to meet the standards of this code and are located within 200' of the building the parking area serves, as shown on Sheet C1.10 of Exhibit B. This standard is met.

(11) *Availability of Parking Spaces. Required parking spaces shall:*

(a) *Be available for the parking of operable passenger automobiles of residents, customers, patrons, and employees only;*

(b) *Not be used for storage of vehicles or materials or for the parking of trucks used in conducting the business or use; and*

(c) *Not be rented, leased, or assigned to any other person or organization.*

Response: Due to the nature of the public safety building, both a visitor parking lot and a secure staff/fleet vehicle parking area are provided. The secure lot will be used for public safety vehicles and personal vehicles for Police staff, while a visitor parking lot will be available for the parking of operable passenger automobiles of visitors. The applicant does not propose to store inoperable vehicles or rent, lease, or assign the required off-street parking spaces. This standard is met. ← How?

(12) Parking Lot Landscaping. Parking lots shall be landscaped in accordance with the requirements in Chapter 17.72 SHMC.

Response: As shown on the landscape plans in Exhibit B, the proposed visitor parking lot is landscaped to the applicable standards in Section 17.72. This standard is met for the visitor parking area. The applicant requests that the Planning Commission deem this standard inapplicable to the secure parking area for the reasons outlined in the response to Section 17.72.140(1).

(13) Designated Parking for the Handicapped. All parking areas shall be provided with the required numbers and sizes of disabled person parking spaces as specified by applicable state of Oregon and federal standards. All disabled person parking spaces shall be signed and marked on the pavement as required by these standards.

Response: As shown on Sheet C1.10 of Exhibit B, the applicant proposes one (1) accessible parking space in the secure vehicle area and two (2) accessible parking spaces in the visitor parking area. One (1) accessible parking space in each area is designated as a van-accessible parking space. All accessible spaces are located near a building entrance. The accessible spaces are signed and marked on the pavement as shown on Sheet C1.10 of Exhibit B. This standard is met.

(15) Bicycle Parking.

(a) One lockable bicycle parking space shall be provided within a rack for the following:

(i) Four or more dwelling units in one building: one space per dwelling unit;

(ii) Commercial development: 10 percent of vehicular parking spaces;

(iii) Civic uses: 20 percent of vehicular parking spaces; and

(iv) Industrial development: five percent of vehicular parking spaces;

(b) Bicycle parking areas shall be provided at locations within 50 feet of primary entrances to structures. Where possible, bicycle parking facilities shall be placed under cover. Bicycle parking areas shall not be located within parking aisles, landscape areas, or pedestrian ways; and

(c) Residential complexes with less than four dwelling units do not need bicycle racks.

Response: Bicycle parking spaces are based on the total vehicle parking proposed. Per discussion with City staff, the applicant understands that the bicycle parking requirement for the Public Safety Building is based on the proposed number of visitor parking spaces and is not affected by the capacity of the secure vehicle area. As six (6) parking spaces are proposed in the visitor parking area, two (2) bicycle parking spaces are required. As shown on Sheet C1.10 of Exhibit B, two (2) bicycle parking spaces are located within 50' of the primary building entrance. The bicycle parking spaces are located within 50' of the primary entrance to the building as shown on Sheet L1.11 of Exhibit B. This standard is met.

(16) Lighting. Any lights provided to illuminate any public or private parking area or vehicle sales area shall be so arranged as to direct the light away from any adjacent residential district, and shall not create a hazard for drivers in public streets.

Response: As shown in the lighting plans (Sheet E0.12 of Exhibit B), the lighting proposed in vehicle areas will be directed internally to the subject site and away from abutting uses. As shown in the lighting plans (Sheet E0.12 of Exhibit B), the lighting has been arranged as to direct the light away from nearby residential areas and away from public streets. This standard is met.

(17) *Final Building Inspection. Required parking spaces shall be completely improved to city standards and available for use at the time of the final building inspection.*

Response: Site development will include sufficient on-site parking for the building as it is constructed. The construction permitting process can review plans for compliance with this standard.

(21) *Fractions. Fractional space requirements shall be counted as a whole space.*

Response: Fractional space calculations have been rounded up to a whole space. This standard is met.

(22) *On-Street Parking. Parking spaces in a public street or alley shall not be eligible as fulfilling any part of the parking requirement except as otherwise provided in this code.*

Response: The applicant does not propose to use any parking spaces in the public right-of-way to meet the minimum parking space requirements. This standard is met.

(23) *Preferential Long-Term Carpool/Vanpool Parking. Parking lots providing in excess of 20 long-term parking spaces shall provide preferential long-term carpool and vanpool parking for employees, students, or other regular visitors to the site. At least five percent of total long-term parking spaces shall be reserved for carpool/vanpool use. Preferential parking for carpools/vanpools shall be closer to the main entrances of the building than any other employee or student parking, other than disabled person parking spaces. Preferential carpool/vanpool parking spaces shall be full size parking spaces. Preferential carpool/vanpool spaces shall be clearly designated for use only by carpools or vanpools between 7:00 a.m. and 5:30 p.m.*

Response: The visitor parking lot has six (6) spaces, and the secured parking lot has 46 spaces, totaling 52 spaces; therefore, this standard is applicable. Three (3) parking carpool/vanpool use parking spaces are required. As shown on Sheet C1.10 of Exhibit B, three (3) carpool/vanpool parking spaces are provided in the secured parking lot area. This standard is met.

17.80.030 Minimum off-street parking requirements.

Note: some use classifications listed below indicate additional bicycle parking requirements beyond the requirements of SHMC 17.80.020(15).

(2) *Civic.*

~~*(g) Public agency administrative service – one space for every 350 square feet of service gross floor area.*~~

(h) Public safety services – one space for every employee of the largest shift.

Response: The proposed development is classified as a public safety service and also has an administrative service component. For public safety services, one (1) space for every employee of the largest shift is required. As explained in the Trip Generation and Parking Analysis Letter (Exhibit F), the weekday day shift is expected to have the highest employee count for the police station and is assumed to be 12 of the 27 total employees. Therefore, 12 spaces are required in the secure lot. Additionally, the proposed Public Safety Building will have limited public serving functions (651 SF, requiring two (2) spaces based on one ~~(1) space per 350 SF);~~ therefore, the six (6) provided visitor parking spaces are sufficient to meet the anticipated demand. This standard is met.

17.80.050 Parking dimension standards.

(1) *Accessibility.*

(a) *Each parking space shall be accessible from a street or right-of-way, and the access shall be of a width and location as described by SHMC 17.84.070 and 17.84.080 as applicable.*

BASED ON ANTICIPATED NEED AS A CONDITIONAL USE

ANTICIPATED NEED FOR PARKING CAN BE CONSIDERED BY THE COMMISSION

AT LEAST (# OF OFFICERS WILL INCREASE)

(b) *All parking spaces shall be independently functional. This means the vehicle in the parking space is not dependent on another vehicle moving to get to the street or right-of-way from the parking space. For example, a two-vehicle garage with a garage opening and driveway, both 18 feet in width, can only count as two parking spaces (not four), since the vehicles in the garage cannot get to the street without the ones in the driveway moving out of the way.*

Response: The site is accessed from Kaster Road via a driveway meeting the standards published in SHMC 17.84.080, as shown on Sheet C1.10 of Exhibit B. All parking spaces are independently functional.

(2) *Table of Standards.*

(a) *Minimum standards for a standard parking stall's length and width, aisle width, and maneuvering space shall be determined from the Table of Standards for Parking Spaces, Figure 14, below. Figure 14 includes the spaces identified by SHMC 17.80.020(1)(a) through (1)(c) and other spaces if spaces larger than the minimum required are desired.*

Response: The proposed development has two (2) parking areas, a secure staff/fleet vehicle parking area with 46 parking spaces, and a visitor parking area with six (6) parking spaces. As shown on Sheet C1.10 of Exhibit B, vehicle spaces in the secure parking area measure 10' x 20', and parking spaces in the visitor parking area measure 9' x 18'. This standard is met.

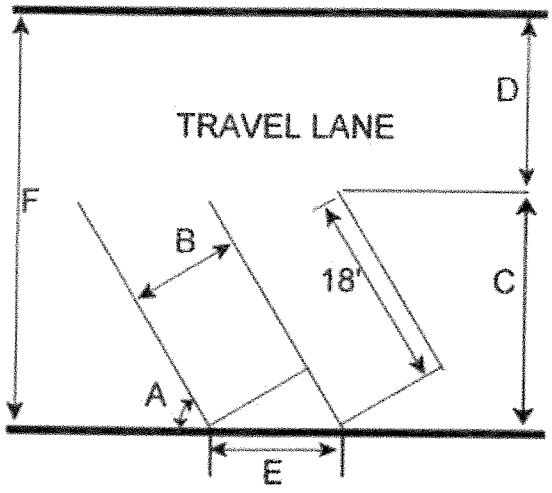
(b) *The width of each parking space includes the striping which separates each space as measured from the center of any shared stripe.*

Response: The parking layout and striping have been designed to meet or exceed the requirements of Figure 14 and associated standards. This requirement is met.

FIGURE 14: TABLE OF STANDARDS FOR PARKING SPACES (EXCERPT)

A	B	C	D	E	F
90°	8'0"	18.0	26.0	8.0	44.0
	8'6"	18.0	25.0	8.0	43.0
	9'0"	18.0	24.0	9.0	42.0
	9'6"	18.0	24.0	9.5	42.0
	10'0"	18.0	24.0	10.0	42.0

PARKING DIAGRAM



The above table provides the minimum dimensions of public or private parking areas, based on the diagram, where:
"A" equals the parking angle,
"B" equals the clear stall width,
"C" equals the minimum stall depth,
"D" equals the minimum clear aisle width,
"E" equals the stall distance at bay side, and
"F" equals the minimum clear bay width.
All parking facilities shall meet these minimum standards.

(3) Aisle Width. Aisles accommodating two-direction traffic, or allowing access from both ends shall be a minimum of 24 feet in width.

Response: In both the visitor parking area and the secure staff/fleet vehicle area, drive aisles are designed to meet or exceed the minimum 24' aisle width for two-way circulation as shown on Sheet C1.10 of Exhibit B. This standard is met.

(6) Service Drive.
(a) Excluding single-dwelling units and duplex residences, except as provided by Chapter 17.84 SHMC and SHMC 17.152.030(16), groups of more than two parking spaces shall be served by a service drive so that no backing movements or other maneuvering within a street or other public right-of-way would be required; and
(b) Service drives shall be designed and constructed to facilitate the flow of traffic, provide maximum safety of traffic access and egress, and maximum safety of pedestrians and vehicular traffic on the site.

Response: All of the proposed drive aisles meet these requirements to serve as service drives. This standard is met.

(7) Street Access. Each parking or loading space shall be accessible from a street and the access shall be of a width and location as described in this code.

Response: As noted above and shown on Sheet C1.10 of Exhibit B, both the proposed public and secure parking areas are accessible from one (1) proposed driveway on Kaster Road. Additionally, an emergency vehicle access road is proposed from the north side of the facility, connecting to S 15th Street for emergency access purposes. The emergency vehicle access road will be paved and have a width of 20', except for a small portion which will be 15' wide to minimize impact to the existing culvert. The emergency vehicle access road has been designed based on feedback from City staff and Columbia River Fire & Rescue. All proposed vehicle spaces and accesses meet applicable dimensional standards. This standard is met.

FIRE MARSHALL WILL NEED TO APPROVE 15'

(8) Parking Space Configuration. Parking space configuration, stall, and access aisle size shall be in accordance with the minimum standard.

Response: As noted above and shown on Sheet C1.10 of Exhibit B, all proposed spaces meet applicable dimensional standards. This standard is met.

20' IS NORMAL MINIMUM

(9) Parking Space Markings.
(a) Except for single-dwelling units and duplexes, any area intended to be used to meet the off-street parking requirements as contained in this chapter shall have all parking spaces clearly marked; and
(b) All interior drives and access aisles shall be clearly marked and signed to show direction of flow and maintain vehicular and pedestrian safety.

Response: As shown on Sheets C1.10 of Exhibit B, all proposed spaces will be striped in accordance with this standard. This standard is met.

(10) Parking and Load Area Surface Requirements.

(a) Except for uses as authorized in subsections (10)(b) and (c) of this section, all areas used for the parking or storage or maneuvering of any vehicle, boat, or trailer shall be improved with asphalt or concrete surfaces or other similar type materials approved by the city.

(b) Nonresidential parking areas to be used primarily for nonpublic uses such as employee parking, business vehicles, and construction equipment may be gravel-surfaced when authorized by the approval authority at the time the site development approval is given. The director may require that the property owner enter into an agreement to pave the parking area: (1) within a specified period of time after establishment of the parking area; or (2) if there is a change in the types or weights of vehicles utilizing the parking area; or (3) if there is evidence of adverse effects upon adjacent roadways, watercourses, or properties. Such an agreement shall be executed as a condition of approval of the plan to establish the gravel parking area. Gravel-surfaced parking areas may only be permitted consistent with the following:

(i) Gravel parking areas shall not be permitted within 20 feet of any residentially zoned area;

(ii) Gravel parking areas shall not be allowed within 25 feet of any improved public right-of-way;

(iii) A paved driveway of at least 25 feet in length shall connect a gravel parking area with any public street providing access to the gravel area; and

(iv) Gravel parking areas shall not be allowed within 50 feet of any significant wetland or riparian corridor.

(c) Parking areas to be used in conjunction with a temporary use may be gravel when authorized by the approval authority at the time the permit is approved. The approval authority shall consider the following in determining whether or not the gravel parking is warranted:

(i) The request for consideration to allow a parking area in conjunction with the temporary use shall be made in writing concurrently with the temporary use application;

(ii) The applicant shall provide documentation that the type of temporary use requested will not be financially viable if the parking space surface area requirement is imposed; and

(iii) Approval of the gravel parking area will not create adverse conditions affecting safe ingress and egress when combined with other uses of the property.

(d) Any area where harmful soil contamination could reasonably be expected shall be protected with appropriate surface cover and collection devices.

Response: All public and secure parking, circulation, and pedestrian areas will be hard-surface paved as indicated on Sheet C1.10 of Exhibit B. This standard is met.

(11) Access Drives.

(a) Access drives from the street to off-street parking or loading areas shall be designed and constructed to facilitate the flow of traffic and provide maximum safety for pedestrian and vehicular traffic on the site;

(b) The number and size of access drives shall be in accordance with the requirements of Chapter 17.84 SHMC, Access, Egress, and Circulation;

(c) *Access drives shall be clearly and permanently marked and defined through use of rails, fences, walls, or other barriers or markers on frontage not occupied by service drives;*

(d) *Access drives shall have a minimum vision clearance as provided in Chapter 17.76 SHMC, Visual Clearance Areas;*

(e) *Access drives shall normally be improved with an asphalt or concrete surface or other similar type material approved by the city; and*

(f) *Where more public harm would occur than good, the director can waive some hard surface requirements on access drives.*

Response: As shown on Sheet C1.10 of Exhibit B, the site will be accessed from Kaster Road. The access is designed to comply with the public works design standards. As 52 total vehicle spaces are provided, per Figure 17, one (1) driveway is required. The drive aisle from Kaster Road will be generally flat, hard-paved, and of sufficient width to accommodate passenger vehicles and fire trucks as shown on Sheet C1.10 and C1.20 of Exhibit B. Compliant Visual Clearance Areas are shown on Sheets C1.10 and L1.20 of Exhibit B. A paved, gated, limited use access road for emergency use connecting the secure parking area to S 15th Street is also proposed. This standard is met.

(12) *Wheel Stops. 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 inches high located three feet back from the front of the parking stall. The front three feet of the parking stall may be concrete, asphalt or low-lying landscape material that does not exceed the height of the wheel stop. This area cannot be calculated to meet landscaping or sidewalk requirements.*

Response: As depicted on Sheets C1.10 of Exhibit B, curbs are provided to prevent vehicles from impacting landscaping or blocking sidewalks. With a 3' overhang, the walkway remains 5' wide. This standard is met.

(13) *Drainage. Hard surface off-street parking and loading areas shall be drained in accordance with specifications approved by the city engineer to ensure that ponding does not occur:*

(a) *Except for single-dwelling units and duplexes, off-street parking and loading facilities shall be designed to avoid flow of water across public sidewalks.*

(b) *In most cases oil/water separators will be required as part of a parking lot drainage system.*

Response: As shown on Sheet C1.30 of Exhibit B and explained in the preliminary stormwater report (Exhibit E), stormwater will flow into catch basins in the parking area and then discharge to a stormwater pond. The preliminary stormwater report (Exhibit E) demonstrates compliance with applicable City stormwater management regulations. This standard is met.

MET W/ PRELIM REPT.?!?

(14) *Lighting. Artificial lighting on all off-street parking facilities shall be designed to direct all light away from surrounding residences and so as not to create a hazard to the public use of any road or street.*

Response: The lighting proposed in vehicle areas will be directed internally to the subject site and away from abutting residential uses. See Sheet E0.11A of Exhibit B. This standard is met.

(15) *Signs. Signs which are placed on parking lots shall be as prescribed in Chapter 17.88 SHMC, Signs.*

Response: No signs are proposed on the proposed developments' parking lots. This standard is not applicable.

(16) *Maintenance of Parking Areas. All parking lots shall be kept clean and in good repair at all times. Breaks in paved surfaces shall be repaired promptly and broken or splintered wheel stops shall be replaced so that their function will not be impaired.*

Response: The property owner will be required to comply with this performance standard for ongoing property maintenance. This standard is met.

(17) *Grade Separation Protection. Where a parking area or other vehicle area has a drop-off grade separation, the property owner shall install a wall, railing, or other barrier which will prevent a slow-moving vehicle or driverless vehicle from escaping such area and which will prevent pedestrians from walking over drop-off edges.*

Response: The subject property and vicinity are relatively flat; no drop-off grade separation is anticipated. This provision is not applicable.

17.80.080 Off-street loading spaces.

Buildings or structures to be built or altered which receive and distribute material or merchandise by truck shall provide and maintain off-street loading and maneuvering space as follows:

(1) *Every commercial or industrial use having floor area of 10,000 square feet or more shall have at least one off-street loading space on site; and*

(2) *If loading dock is proposed, it must meet the standards in SHMC 17.80.090, Off-street loading dimensions.*

Response: The proposed public safety center does not regularly receive or distribute material or merchandise by truck. The proposed building is not classified as a commercial or industrial use, nor is a loading dock proposed. Therefore, no off-street loading spaces are required. This standard is not applicable.

Chapter 17.84 Access, Egress, and Circulation

17.84.020 Applicability and general provisions.

(2) *The provisions and maintenance of access and egress stipulated in this code are continuing requirements for the use of any structure or parcel of real property in the city.*

Response: The applicant will be responsible for providing and maintaining the access and egress for the site. This standard is met.

← HOW?

(3) *No building or other permit shall be issued until scaled plans are presented and approved as provided by this chapter that show how access, egress, and circulation requirements are to be fulfilled.*

Response: Scaled plans showing access, egress, and circulation requirements are included on Sheet C1.10 of Exhibit B. The applicant will submit further detailed, scaled plans as part of the applicant's building permit application. This standard is met. CAN BE W/ PROPER FINAL PLANS

(4) *Should the owner or occupant of a lot or building change or enlarge the use to which the lot or building is put, thereby increasing access and egress requirements, it is unlawful and is a violation of this code to begin or maintain such altered use until the provisions of this chapter have been met if required or until the appropriate approval authority has approved the change.*

Response: This is a new development proposal for a previously unimproved site. The layout of the building, access, utilities, and circulation areas have been designed to accommodate future development to the north and east. This standard is met.

17.84.040 Public street access.

(1) *All vehicular access and egress as required in SHMC 17.84.070 and 17.84.080 shall connect directly with a public or private street approved by the city for public use and shall be maintained at the required standards on a continuous basis.*

Response: The proposed development connects directly with Kaster Road, a public street. The Applicant understands its responsibility to maintain the access on a continuous basis. Additionally, a gated, limited-use emergency vehicle access road use connects to S 15th Street, also a public road. This standard is met.

(5) Spacing Standards for Access to City Streets. The following are the minimum spacing requirements for access points and intersections for streets under the jurisdiction of the city of St. Helens.

TABLE 17.84.040-2: ACCESS SPACING STANDARDS ON CITY STREETS

Functional Classification	*Public Street (street-to-street) (feet)*	*Public Access Drive (street-to-drive or drive-to-drive) (feet)*
Local Street	*150*	*50[1]*
Collector	*300*	*100*
Minor Arterial	*350 or block length*	*200 or block length*
Major Arterial[2]	*350 or block length*	*350 or block length*

[1]This applies to street-to-drive spacing only. There is no minimum spacing standard for access points (drive-to-drive) on local streets.
[2]Access standards identified in the Oregon Highway Plan supersede this table on all state highways.

Response: Kaster Road is classified as a Collector. Table 17.84.040-2 indicates that the private access spacing standard for a collector is 100', and subsection (6) of the same code states that spacing shall be measured from centerline to centerline of the nearest adjacent street or driveway.

As explained in the Trip Generation and Parking Analysis Letter (Exhibit F), the nearest adjacent driveways are across Kaster Road and provide access to a gravel lot behind the St. Helens Recreation Center. The west driveway appears to be used for inbound vehicles only, and the east driveway appears to be used for full movements. In addition to these driveways, the Recreation Center has two (2) driveways on Old Portland Road at the main parking lot. Centerline to centerline measurements from survey data indicate spacing between the nearest adjacent driveway to the west is 21' and 107' to the second driveway further west. Due to the width of the of the proposed site driveway and the eastern driveway for the Recreation Center, the two would overlap by approximately 7'.

While the spacing is not met to the nearest driveway, the driveways do overlap slightly and the driveways for the gravel lot appear to be used infrequently. Given the low volumes on the driveways and along Kaster Road, especially for left turns from the roadway, the spacing is not expected to create any safety concerns. Further, the driveway is not able to be located closer to the intersection with Old Portland Road, nor would it be desirable.

(7) Development Fronting onto an Arterial Street.

(b) Nonresidential projects proposed on arterials shall include a frontage or service road and shall take access from the frontage or service road rather than the arterial. Frontage or service road design shall conform to applicable jurisdictional design standards. This access requirement may be met through the use of interconnecting parking lots that abut the arterial provided the necessary easements and agreements are obtained.

Response: Old Portland Road is designated as a Minor Arterial per Figure 7-1 of the TSP. The proposed development does not directly access Old Portland Road as the driveway is provided on Kaster Road. This standard is met.

(8) *Number of Access Points. All access points, including additional ones as noted below, are subject to the access spacing standards in subsection (5) of this section and all other provisions of this chapter. Specific standards based on use are as follows:*

(a) For single-family dwellings, detached and duplexes, one street access point is permitted per lot/parcel except an additional (second) access point may be allowed when:

(i) The property is a corner lot/parcel and the additional access point is on the other street (i.e., one access per street).

(ii) The lot/parcel does not abut a street that provides any on-street parking on either side.

(b) For single-family dwellings, attached, one street access point is permitted per lot/parcel.

(c) The number of street access points for multiple dwelling unit residential, commercial, industrial, and public/institutional developments shall be minimized to protect the function, safety and operation of the streets, bikeways, sidewalks, etc. for all users. Shared access may be required, in conformance with subsection (9) of this section, in order to maintain the required access spacing, and minimize the number of access points.

Response: One (1) primary access point on Kaster Road is proposed as part of this development. To accommodate potential future development, the location of the primary driveway would allow for access to the east via internal circulation without necessitating an additional access point. An additional, limited use, gated access road connecting to S 15th Street is also proposed. As explained in Subsection (5) of this section, access spacing standards are met. The number of provided driveways is minimized to protect function, safety, and operation of the streets, bikeways, sidewalks, etc. for all users. This standard is met.

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

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

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

(c) Exception. Shared driveways are not required when existing development patterns or physical constraints (e.g., topography, parcel configuration, and similar conditions) prevent extending the street/driveway in the future.

Response: The site is bounded to the north and east by wetlands, to the west by Old Portland Road, and to the south by Kaster Road. The site has no property boundary where a shared driveway would be feasible. This provision is not applicable.

17.84.050 Required walkway location.

(1) *Walkways shall extend from the ground floor entrances or from the ground floor landing of stairs, ramps, or elevators of all commercial, institutional, and industrial uses, to the streets which provide the required access and egress. Walkways shall provide convenient connections between buildings in multibuilding commercial, institutional, and industrial complexes. Walkways also shall provide access to existing and planned transit stops adjacent to the development site. Unless*

impractical, walkways should be constructed between a new development and neighboring developments.

Response: As shown on Sheets C1.10 and L1.10 of Exhibit B, the main building entrance (only entrance that is publicly accessible) connects to a walkway system providing access to Kaster Road. For security and programmatic purposes, access doors on the north, south, and west sides of the building do not connect directly to the pedestrian-accessible walkways. As shown on Sheets C1.10 and C1.11 of Exhibit B, as applicant will construct frontage improvements along Kaster Road, between the proposed driveway and Fir Street, as part of this development. The frontage improvements include a 6' wide walkway as shown on Sheet C1.11 of Exhibit B. The adjacent sites are predominantly undeveloped and public walkways do not exist along Old Portland Road or Kaster Road so making connections to neighboring development is impractical. This standard is met.

(5) *Wherever required walkways cross vehicle access driveways or parking lots, such crossings shall be designed and located for pedestrian safety. Required walkways shall be physically separated from motor vehicle traffic and parking by either a minimum six-inch vertical separation (curbed) or a minimum three-foot horizontal separation, except that pedestrian crossings of traffic aisles are permitted for distances no greater than 36 feet if appropriate landscaping, pavement markings, or contrasting pavement materials are used. Walkways shall be a minimum of four feet in width, exclusive of vehicle overhangs and obstructions such as mailboxes, benches, bicycle racks, and sign posts, and shall be in compliance with ADA standards.*

Response: As shown in the attached site plan (Sheet C1.10 of Exhibit B), pedestrian walkways will be separated from parking areas by 6" vertical curbs. All walkways will have a width of over 4', with larger widths at key locations to result in at least 4' of clear width, such as near parking spaces. Grades have been designed to accommodate ADA standards, including provision of necessary ramps. Walkways crossing traffic aisles will be denoted with concrete or pavement markings and have lengths of 36' or less. This standard is met.

(6) *Required walkways shall be paved with hard-surfaced materials such as concrete, asphalt, stone, brick, etc. Walkways shall be required to be lighted and/or signed as needed for safety purposes. Soft-surfaced public use pathways may be provided only if such pathways are provided in addition to required pathways.*

Response: The proposed walkways will be constructed of concrete as shown on Sheet C1.10 of Exhibit B. The walkway will be illuminated as shown on Sheet E0.10A of Exhibit B. This standard is met.

17.84.060 Inadequate or hazardous access.

(1) *Applications for building permits shall be referred to the commission for review when, in the opinion of the director, the access proposed:*
   - (a) *Would cause or increase existing hazardous traffic conditions; or*
   - (b) *Would provide inadequate access for emergency vehicles; or*
   - (c) *Would in any other way cause hazardous conditions to exist which would constitute a clear and present danger to the public health, safety, and general welfare.*

Response: The proposed development plans demonstrate that site access and on-site circulation are well organized and will not cause a dangerous situation. This provision is not applicable.

(2) *Direct individual access to minor arterial streets from single detached or attached dwelling units and duplexes shall be discouraged. Direct access to major arterial streets shall be considered only if there is no practical alternative way to access the site.*

Response: No direct access to an arterial street is proposed. This provision is not applicable.

(3) *In no case shall the design of the service drive or drives require or facilitate the backward movement or other maneuvering of a vehicle within a street, other than an alley or local street.*

Response: As shown on Sheet C1.10 of Exhibit B, the proposed access and circulation plan ensures that no vehicle needs to make a backward movement within a street at any time. This requirement is satisfied.

17.84.080 Minimum requirements – Commercial and industrial use.

(1) *Vehicle access, egress and circulation for commercial and industrial use shall comply with the following:*

FIGURE 17: COMMERCIAL AND INDUSTRIAL USE			
Required Parking Spaces	*Minimum Number of Driveways Required*	*Minimum/Maximum Access Width*	*Minimum Pavement*
0 to 100	*1*	*30'/40'*	*24' curbs required*
Over 100	*2*	*30'/40'*	*24' curbs required*
Over 100	*1*	*40'/50'*	*40' curbs required*

Response: As noted on Sheet C1.10 of Exhibit B, the site will provide fewer than 100 parking spaces. Therefore, Table 18.920.2 requires one (1) 30' driveway for the development. The site plan (Sheet C1.10 of Exhibit B) illustrates one (1) 30' driveway which is at least 24' curb-to-curb as shown on Sheet C1.10 of Exhibit B. This standard is met.

(2) *Additional requirements for truck traffic or traffic control may be placed as conditions of site development review or conditional use permit.*

Response: No additional requirements are warranted because the proposed public safety center is a police station and not a truck traffic generator.

17.84.090 Width and location of curb cuts.

Curb cuts shall be in accordance with SHMC 17.152.030(14).

Response: The proposed driveway is at a right angle to Kaster Road and will be constructed of concrete in compliance with SHMC 17.152.030(14). This requirement is met.

17.84.110 Director's authority to restrict access.

(1) *In order to provide for increased traffic movement on congested streets and to eliminate turning movement problems, the director may restrict the location of driveways on streets and require the location of driveways be placed on adjacent streets, upon the finding that the proposed access would:*

- *(a) Cause or increase existing hazardous traffic conditions; or*
- *(b) Provide inadequate access for emergency vehicles; or*
- *(c) Cause hazardous conditions to exist which would constitute a clear and present danger to the public health, safety, and general welfare.*

Response: The proposed development has primary access via a driveway from Kaster Road, with an additional gated, paved emergency vehicle access road connecting the secure parking area to S 15th Street. The proposed access points on Kaster Road and S 15th Street have been assessed for safety as discussed in the applicant's response to Chapter 17.156. Consequently, no additional access restrictions are warranted. This standard does not apply.

GROUP M. IS THE "DIRECTOR"?

(2) *In order to eliminate the need to use public streets for movements between commercial or industrial properties, parking areas shall be designed to connect with parking areas on adjacent properties unless not feasible. The director shall require access easements between properties where necessary to provide for parking area connections.*

Response: ~~The proposed development is not a commercial or industrial property. This standard is not applicable.~~ IT IS INDUSTRIAL PROPERTY

(3) *In order to facilitate pedestrian and bicycle traffic, access and parking area plans shall provide efficient sidewalk and/or pathway connections, as feasible, between neighboring developments or land uses.*

Response: As shown on Sheet C1.10 of Exhibit B, pedestrian walkways will connect the public entrance of the building to Kaster Road. This standard is met.

NOTE REQUIREMENTS FOR SHARED ACCESS TO "EXPANSION AREA" IN STAFF REPT

Chapter 17.88 Signs

17.88.020 General requirements.

(1) *Except as provided in SHMC 17.88.025, no person shall erect, construct, enlarge, alter, repair, move, improve, remove, convert, demolish, equip, use or maintain any sign, or cause or permit the same to be done, contrary to or in violation of any of the provisions of this code.*

Response: The applicant proposes a single monument style sign, as shown on Sheet L5.10 of Exhibit B. No changes are proposed to the existing sign located near the intersection of Kaster Road and Old Portland Road as shown on Sheet C1.10 of Exhibit B. A sign permit application is included as part of Exhibit A.

(2) *Except as provided in SHMC 17.88.025, no person shall erect, construct or alter a sign, or permit the same to be done, unless a sign permit has been issued by the city. A sign permit for the construction and continued use of a sign is subject to the terms and conditions stated in the permit and this code.*

Response: The applicant will obtain a sign permit prior to erection of signage. This standard is met.

(3) *An application for sign permit approval is also subject to the procedures set forth in SHMC 17.88.130.*

Response: The applicant has included a sign permit application as part of Exhibit A. This standard is met.

(4) *No owner shall erect or construct a sign on a site that contains unlawful signs.*

Response: The applicant will obtain sign permits prior to installation of signage. This standard will be met.

17.88.050 Sign districts – General.

(1) *The following sign districts are created and applied to designated land. No permit shall be issued for any sign unless specifically allowed as an allowed sign under the terms of the applicable sign district or otherwise allowed as a nonconforming sign under this chapter or exempted under this chapter. Any particular limitation in a sign district regulation shall not be construed to exclude the applicability of other restrictions imposed under this chapter.*

(2) *The sign districts shall be as follows:*

- (a) *The residential sign district includes all land within the R-10, R-7, R-5, AR, and MHR zoning districts, and pursuant to subsections (2)(c) and (d) of this section.*
- (b) *The commercial/industrial sign district includes all land within the HC, GC, MC, HI, and LI zoning districts, and pursuant to subsections (2)(c) and (d) of this section.*

(c) *For mixed use zoning districts such as the MU, HBD and RD zoning districts, the following shall apply:*

(i) *The residential sign district shall include those properties where residential use is greater than 50 percent by gross property area and the commercial/industrial sign district shall include those properties where residential use is equal to or less than 50 percent by gross property area; or*

(ii) *For properties with multistory and multi-use buildings, sign districts shall include a vertical element such that each story of said building shall be based on its use as determined by subsection (2)(c)(i) of this section for any sign placed on the building, and the grounds (i.e., area of property with no building) of said property shall be based on the use as determined by subsection (2)(c)(i) of this section of the property at street level.*

(d) *Signs in other zones not otherwise mentioned in subsection (2)(a), (b), or (c) of this section shall be treated under the same rules as the abutting sign district closest to the sign.*

Response: The subject site is located in the R-5 and LI zones. The proposed building and signage are located wholly in the LI zone. The proposed signage is therefore in the commercial/industrial sign district. This standard is met.

17.88.060 Commercial/industrial sign district.

In addition to the temporary and permanent signage allowed without permits, the following signage is allowed subject to the requirements of this chapter:

(1) *Permitted Sign Types, Number, and Area. Signs within the commercial/industrial sign district are limited as follows and require the issuance of permits under SHMC 17.88.130.*

(a) *Monument or Ground-Mounted Signs.*

(i) *For principal uses, one single- or double-faced monument or ground-mounted sign shall be permitted for each lot along the primary street frontage. Where a use has multiple street frontages, this signage may be permitted along each building frontage that abuts a TSP designated arterial or collector street. Sign area shall not exceed 40 square feet for each sign face.*

(ii) *For churches, schools, and public/semi-public facilities, one single- or double-faced monument sign shall be permitted for each such facility. Where such a facility has multiple street frontages, this signage may be permitted on each frontage. Sign area shall not exceed 40 square feet for each sign face.*

Response: The site has frontage on both Kaster Road (Collector) and Old Portland Road (Minor Arterial). Accordingly, the proposed development is permitted to have one single- or double-faced monument or ground-mounted sign along each building frontage that abuts Kaster Road and Old Portland Road.

There is an existing sign located near the intersection of Kaster Road and Old Portland Road as shown on Sheet C1.10 of Exhibit B. The existing sign will remain as part of the site's development. This sign is oriented towards those traveling on Old Portland Road.

The applicant proposes a new, double-faced monument sign located near the southwest corner of the proposed building as shown on Sheet C1.10 of Exhibit B. As the sign face will be recessed into a larger wall, per Section 17.88.080(1)(a) the measured sign area is the recessed portion of the wall which measures approximately ~~12~~ 13 SF (see Sheet L5.10 of Exhibit B). As the proposed sign

area is less than the maximum allowable 40 SF of sign face area, this standard is met. This sign is oriented towards those traveling on Kaster Road. This standard is met.

(e) Numeric Information Signs. For principal uses, one single- or double-faced time, numeric information sign with a maximum of six square feet shall be permitted.

Response: No numeric information signage is proposed at this time. This standard is not applicable.

(2) Maximum Sign Height.

(a) Monument signs shall be no more than six feet in height.

(b) Ground-mounted signs shall be no more than 12 feet in height.

(c) Pole signs permitted in the commercial/industrial sign district shall not exceed 24 feet in height, except such signs located along Milton Way between Port Avenue and Milton Creek shall not exceed 45 feet in height.

Response: The proposed monument sign measures 4' in height as shown on Sheets L1.10 and L5.10 of Exhibit B. This standard is met.

(3) Illumination. Illumination of signs within the commercial/industrial sign district shall meet the standards contained in this chapter.

Response: The proposed sign will be illuminated through the use of up lighting as shown on Sheets E0.02 and E0.10A of Exhibit B. Compliance with illumination standards is demonstrated in the applicant's response to Section 17.88.125.

17.88.080 Measurements.

The following shall be used in measuring a sign to determine compliance with this chapter:

(1) Sign Area.

(a) Sign area shall be measured within lines drawn between the outermost dimensions of the frame or cabinet surrounding the display area containing the sign copy. When signs are not framed or on a base material and are inscribed, painted, printed, projected or otherwise placed upon or attached to a building, canopy, awning or part thereof, the sign area is the smallest possible space enclosing the sign copy that can be constructed with straight lines at 90-degree angles. Where a sign is of a three-dimensional, round, or irregular solid shape, the largest cross-section shall be used in a flat projection for the purpose of determining sign area.

(b) The area of all signs in existence at the time of enactment of the ordinance codified in this chapter, whether conforming or nonconforming, shall be counted in establishing the permitted sign area.

(c) When signs are constructed in multiple separate pieces containing sign copy, sign face area is determined by a perimeter drawn in straight lines, as small as possible, around all pieces, in accordance with subsection (1)(a) of this section.

Response: This method was used in measuring the proposed signage as explained in the applicant's response to Section 17.88.060(1)(a). This standard is met.

(2) Height. Height is measured from the average level of the grade below the sign to the topmost point of the sign including the supporting structure.

Response: This method was used in measuring the proposed signage. This standard is met.

(3) *Clearance. Clearance is measured from the average grade below the sign to the lowermost point of the sign.*

Response: This method was used in measuring the proposed signage. This standard is met.

(4) *Spacing.*

(a) For the purpose of applying spacing requirements to signs, distances shall be measured parallel to the centerline of the adjacent street or highway.

(b) The sign or sign location under consideration shall be included as one sign.

(c) A back-to-back sign is counted as a single sign for the purpose of spacing distances.

Response: This method was used in measuring the proposed signage. This standard is met.

17.88.095 Freestanding signs.

(1) *No part of a freestanding sign shall be erected or maintained within three feet of a street front property line, or within five feet of a side lot line, unless the application for the permit has been reviewed by the fire marshal and the fire marshal has determined that the location of the sign does not interfere with adequate fire access to any property.*

Response: As shown on Sheet L1.10 of Exhibit B, the proposed freestanding sign and existing signage are not located within 3' of a street front property line, or within 5' of a side lot line. This standard is met.

(2) *No part of a freestanding sign shall project or extend into any public right-of-way.*

Response: As shown on Sheet L1.10 of Exhibit B, the freestanding sign and existing sign do not project into the public right-of-way. This standard is met.

(3) *Except as provided in this section, no freestanding sign shall project or extend into any vision clearance area. One or two sign poles supporting a freestanding sign may be located within the vision clearance area if they are necessary for the support of the sign, and if no other portion of the sign is located within the vision clearance area between two feet and 10 feet overgrade.*

Response: As shown on Sheets C1.10 and L1.10 of Exhibit B, the freestanding sign is located near the southwestern corner of the building and not near the driveway access to Kaster Road. The proposed sign does not project or extend into any vision clearance area. Additionally, the existing sign is not located within the vision clearance area as well. This standard is met.

(4) *A freestanding sign shall be directly supported by poles or foundation supports in or upon the ground. No external cross braces, guy wires, "T" frames, "A" frames, trusses, or similar bracing systems shall be used to buttress, balance, or support a freestanding sign.*

Response: The proposed sign will be directly supported by foundation support(s) in the ground as shown on Sheet L5.10 of Exhibit B. No external bracing is proposed. The existing signage utilizes poles/columns for support without utilizing the prohibited bracing techniques. This standard is met.

(5) *Only one freestanding sign is allowed for each street frontage, unless multiple signs are approved through a comprehensive sign plan.*

Response: The subject site has two (2) frontages: Kaster Road and Old Portland Road. Two (2) freestanding signs (one new and one existing) will be located on the site as permitted by Section 17.88.060(1)(a). This standard is met. THERE IS A SECOND EXISTING SIGN FURTHER DOWN KASTER ROAD TOO.

(6) *A minimum of 14 feet of clearance is required in areas accessible to vehicles. The lowest point of these signs may be less than 14 feet above grade in areas not accessible to vehicles when the signs are protected from physical damage by the installation of bumper poles or other ground protections.*

Response: The proposed monument signage is located at ground level and is in an area of the site which is curb protected and inaccessible to vehicles. The existing signage is in an area of the site which is curb protected and inaccessible to vehicles. This standard is met.

(7) Freestanding signs permitted in a commercial/industrial sign district shall not be located closer than 50 linear feet from the property line of any residential zoned property as measured along the street frontage.

Response: The proposed freestanding sign is located approximately 200' from the nearest property line of a residentially zoned property as measured along the Old Portland Road Street frontage. The existing sign appears to be within 50' of the R5 zone but the sign will not be moved from its current location as part of the site's development, so there is no increase in the degree of nonconformity. This standard is met.

(8) Sign permits for ground-mounted signs greater than six feet in height and all pole signs shall include footing or foundation details and certification from an engineer registered in the state of Oregon that the sign will not be a falling or other hazard.

Response: As shown on Sheet L5.10 of Exhibit B, the freestanding sign will be 4' high. This standard does not apply.

17.88.120 Construction and maintenance standards.

(1) All permanent signs shall be constructed and erected in accordance with the requirements of the applicable building code as administered by the building official.

Response: Compliance with applicable building code standards will be demonstrated in the applicant's building permit signage application following land use approval.

(2) All illuminated signs must be installed by a state-licensed sign contractor, subject to the requirements of the State Electrical Code. All electrically illuminated signs shall be listed, labeled, and tested by a testing agency recognized by the state of Oregon.

Response: The illuminated sign will be installed by a state-licensed sign contractor in accordance with the requirements of the Oregon Electrical Specialty Code. Compliance with this standard will be assured through future permit review.

(3) Building and electrical permits shall be the responsibility of the applicant. Prior to obtaining building and electrical permits, the applicant shall obtain a sign permit or demonstrate an exception from the permit requirements of this chapter.

Response: The applicant has enclosed a sign permit application (Exhibit A) as part of this application package. This standard will be met.

(4) All signs, together with all of their supports, braces, guys, and anchors, shall be kept in good repair and be maintained in a safe condition. All signs and the site upon which they are located shall be maintained in a neat, clean, and attractive condition. Signs shall be kept free from excessive rust, corrosion, peeling paint or other surface deterioration. The display surfaces of all signs shall be kept neatly painted or posted.

Response: The applicant will keep all signs in good repair and maintained in a safe condition. This standard is met. How?

(5) No person required to obtain a sign permit under this chapter shall scatter, daub, or leave any paint, paste, glue, or other substances used for painting or affixing advertising matter or scatter

or throw or permit to be scattered or thrown any bills, waste matter, paper, cloth, or materials of whatsoever kind removed from signs on any public street, sidewalk, or private property.

Response: All signage will be installed in a clean manor, with no residue or waste left behind. This standard is met.

(6) No sign shall be erected or maintained in such a manner that any portion of its surface or supports will interfere in any way with the free use of any fire escape, exit, or standpipe. No signs shall be erected or maintained so as to obstruct any building opening to such an extent that light or ventilation is reduced below minimums required by any applicable law or provisions of this code.

Response: The location of the signage has been carefully selected to not interfere with the use of any fire escape, exit, or standpipe. The signage location also does not obstruct building openings to an extent that light and ventilation are reduced below minimums required by applicable law. This standard is met.

17.88.125 Illumination – General restrictions.

(1) No sign, light, lamp, bulb, tube, or device shall be used or displayed in violation of this section.

Response: The illumination of the signage will follow this section of the St. Helens Community Development Code. This standard is met.

(2) Regardless of the maximum wattages or milliamphere rating capacities allowable under this chapter, no light source shall create an unduly distracting or hazardous condition to a motorist, pedestrian or the general public. Lighted signs shall be placed, shielded or deflected so as not to shine into residential dwelling units or structures, or impair the road vision of the driver of any vehicle.

Response: The signage will be illuminated by up lighting. This lighting is directed at the monument sign and will not spill over to not impair the road vision of drivers. A photometrics plan is included as Sheet E0.11A of Exhibit B. This standard is met.

(3) External light sources for a sign shall be directed and shielded to limit direct illumination of any object other than the sign.

Response: The signage will be illuminated by up lighting. This lighting is directed at the monument sign. A photometrics plan is included as Sheet E0.11A of Exhibit B. This standard is met.

(4) Except as may be approved under a comprehensive sign plan, temporary signs shall not be illuminated.

Response: No temporary sign(s) are proposed. This standard is not applicable.

(5) The illumination of signs shall comply with the following standards:

- *(a) No exposed reflective type bulb, PAR spot or incandescent lamp, which incandescent lamp exceeds 25 watts, shall be exposed to direct view from a public street or highway, but may be used for indirect light illumination of the display surface of a sign.*
- *(b) When neon tubing is employed on the exterior or interior of a sign, the capacity of such tubing shall not exceed 300 milliamperes rating for white tubing or 100 milliamperes rating for any colored tubing.*
- *(c) When fluorescent tubes are used for interior illumination of a sign such illumination shall not exceed:*
  - *(i) Within residential sign districts, illumination equivalent to 425 milliampere rating tubing behind a sign face with tubes spaced at least seven inches, center to center.*

(ii) *Within commercial or industrial sign districts, illumination equivalent to 800 milliampere rating tubing behind a sign face spaced at least nine inches, center to center.*

Response: The signage will be illuminated by up lighting. A detail of the proposing light fixture is included on Sheet E0.02 of Exhibit B. The sign lighting is directed at the signage and is rated at 21 watts. As shown on Sheet E0.11A of Exhibit B, the sign lighting will not be directly viewable from a public street. This standard is met.

17.88.130 Sign permit application.

(1) *Except as provided in this chapter, a permit is required to erect, construct, repair or alter a sign. If a sign is for a new development that requires development review under the St. Helens Community Development Code, then the sign shall be reviewed as part of the development review process prior to approval of a sign permit.*

Response: The applicant has enclosed a sign permit application (Exhibit A) as part of this application package. This standard will be met.

Chapter 17.92 Mixed solid waste and recyclables storage in new multi-unit Residential and Nonresidential buildings

17.92.040 Materials accepted.

The storage area must be able to accept at least all "principle recyclable materials" designated by the Oregon Environmental Quality Commission and other source-separated recyclables the local government identifies by regulation.

Response: As shown on Sheets C1.10 and A2.10 of Exhibit B, a single, covered trash enclosure is located adjacent to the secure parking area. The covered trash enclosure is designed to have capacity for solid waste disposal and to accept designated principal recyclable materials. This standard is met.

17.92.050 Methods of demonstrating compliance.

(1) *An applicant shall choose one of the following four methods to demonstrate compliance:*
- (a) *Minimum standards;*
- (b) *Waste assessment;*
- (c) *Comprehensive recycling plan; or*
- (d) *Franchised hauler review and sign-off.*

Response: The proposed development complies with the minimum standards method, as detailed below.

(2) *The following provisions apply to all four methods of demonstrating compliance:*
- (a) *SHMC 17.92.060 (location, design and access standards), except as provided in subsection (7) of this section;*
- (b) *The floor area of an interior or exterior storage area required by this code shall be excluded from the calculation of lot coverage and from the calculation of building floor area for purposes of determining minimum storage requirements.*

Response: All waste/recycling facilities are proposed in exterior enclosures proximate to the building. No adjustments to building floor area calculations are needed.

(3) *Minimum Standards Method.*
- (a) *Description of Method. This method specifies a minimum storage area requirement based on the size and general use category of the new construction.*

(b) *Typical Application of Method. This method is most appropriate when the specific use of a new building is not known. It provides specific dimensions for the minimum size of storage areas by general use category.*

(c) *Application Requirements and Review Procedure. The size and location of the storage area(s) shall be indicated on the site plan of any construction subject to this code. Through the site plan review process, compliance with the general and specific requirements set forth below is verified.*

Response: As shown on Sheets C1.10 and A2.10 of Exhibit B, a single, covered trash enclosure is located just outside the gate for the secure staff/fleet parking area, where it can be accessed by service vehicles. The sizing of the enclosure and receptacles is based on the size and use of the public safety facility. This standard is met.

(4) *General Requirements.*

(a) *The storage area requirement is based on the predominant use(s) of the building (e.g., residential, office, retail, wholesale/warehouse/manufacturing, educational/institutional, or other). If a building has more than one of the uses listed herein and that use occupies 20 percent or less of the floor area of the building, the floor area occupied by that use shall be counted toward the floor area of the predominant use(s). If a building has more than one of the uses listed herein and that use occupies more than 20 percent of the floor area of the building, then the storage area requirement for the whole building shall be the sum of the requirement for the area of each use;*

(b) *Storage areas for multiple uses on a single site may be combined and shared; and*

(c) *The specific requirements are based on an assumed storage height of four feet for solid waste/recyclables. Vertical storage higher than four feet but no higher than seven feet may be used to accommodate the same volume of storage in a reduced floor space (potential reduction of 43 percent of specific requirements). Where vertical or stacked storage is proposed, the site plan shall include drawings to illustrate the layout of the storage area and dimensions of containers.*

Response: Traditional, horizontal storage of solid waste and recyclable receptacles is proposed. This standard is met.

(5) *Specific Requirements.*

(b) *Nonresidential buildings shall provide a minimum storage area of 10 square feet, plus:*

(i) *Office: four square feet/1,000 square feet gross floor area (GFA).*

(ii) *Retail: 10 square feet/1,000 square feet GFA.*

(iii) *Wholesale / warehouse / manufacturing: six square feet/1,000 square feet GFA.*

(iv) *Educational and institutional: four square feet/1,000 square feet GFA.*

(v) *Other: four square feet/1,000 square feet GFA.*

Response: This application proposes 11,230 SF of new "other" floor area. To serve that floor area, a minimum of ~~44~~ 55 SF of storage area is required. As shown on Sheet A1.10 of Exhibit B, 213 SF of storage area is provided in a trash and recycling enclosure. This standard is met.

17.92.060 Location, design and access standards for storage areas.

(1) *The following location, design and access standards for storage areas are applicable to all four methods of compliance:*

(a) *Minimum standards;*

(b) *Waste assessment;*

(c) *Comprehensive recycling plan; and*

(d) *Franchised hauler review.*

Response: The proposed development complies with the minimum standards method. Findings addressing compliance with the applicable standards are included below.

(2) Location Standards.

(a) To encourage its use, the storage area for source-separated recyclables shall be collocated with the storage area for residual mixed solid waste;

Response: The applicant proposes to collocate the recyclables and mixed solid waste storage area, in conformance with this standard. This standard is met.

(b) Indoor and outdoor storage areas shall comply with Uniform Building and Fire Code requirements;

Response: The mixed solid waste and recycling storage areas are designed by a licensed architect, in conformance with Oregon Building and Fire Code requirements. The enclosure will be included in the building permit submittal, which will confirm compliance with the Building Code. This standard is met.

(c) Storage area space requirements can be satisfied with a single location or multiple locations, and can combine both interior and exterior locations;

Response: The applicant is proposing one waste storage area for the site, for the storage of both mixed solid waste and recyclables, consistent with the standards of this subsection. This standard is met.

(d) Exterior storage areas can be located within side yard or rear yard areas, but not within exterior side yards (on corner lots). Exterior storage areas shall not be located within a required front yard setback or in a yard adjacent to a public or private street;

Response: The proposed waste and recycling enclosure is not located within a required front setback or in a yard adjacent to a street. This standard is met.

(e) Exterior storage areas shall be located in central and visible locations on a site to enhance security for users;

Response: The mixed solid waste and recycling storage enclosure is located outside the secure staff/fleet vehicle parking area. Due to the security needs of the proposed development, the mixed solid waste and recycling storage enclosure will be continuously monitored via cameras. This standard is met.

(f) Exterior storage areas can be located in a parking area, if the proposed use provides at least the minimum number of parking spaces required for the use after deducting the area used for storage. Storage areas shall be appropriately screened according to the provisions in subsection (3) of this section, Design Standards; and

Response: The proposed trash enclosure, as shown on Sheets C1.10 and A2.10 of Exhibit B, is located adjacent to a paved vehicle area. This standard is met.

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

Response: The proposed mixed solid waste and recycling storage enclosure can be accessed by service vehicles without obstructing on and off-site vehicle and pedestrian movement. This standard is met.

(3) Design Standards.

(a) *The dimensions of the storage area shall accommodate containers consistent with current methods of local collection;*

Response: The proposed mixed solid waste and recyclables enclosures will have minimum dimensions of approximately 16' by 13' (not including exterior walls), making them capable of housing the proposed 2-yard commercial dumpster and two (2) 1-yard recycle bins. This standard is met.

(b) *Storage containers shall meet Uniform Fire Code standards and be made and covered with waterproof materials or situated in a covered area;*

Response: The mixed solid waste and recycling storage enclosure is designed by a licensed architect, in conformance with Oregon Building and Fire Code requirements. The enclosure will be included in the building permit submittal, which will confirm compliance with the Building Code. This standard is met.

(c) *Exterior storage areas shall be enclosed by a sight-obscuring fence, wall, or hedge at least six feet in height. Gate openings which allow access to users and haulers shall be provided. Gate openings for haulers shall be a minimum of 10 feet wide and shall be capable of being secured in a closed and open position; and*

Response: The mixed solid waste and recycling storage enclosures will have 8' tall CMU walls, and a sight-obscuring metal gate on the side facing the vehicular access. Architectural details of the proposed enclosure are on Sheet A2.10LU of Exhibit B. This standard is met.

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

Response: The waste enclosures will be labeled to indicate acceptable materials, in conformance with this subsection. This standard is met.

(4) *Access Standards.*

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

Response: The applicant is proposing limited access for security reasons. Access to the facilities will be maintained for its users consistent with this requirement. This standard is met.

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

Response: As reflected in the scaled site plan submitted with this application (Sheets C1.10, A1.10, and A1.20 of Exhibit B) the gate opening is a minimum of 10' wide. The proposed gate is capable of both being locked and propped open. The standards of this section are met.

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

Response: As noted above, the enclosure is located outside the secure staff/fleet vehicle parking area, with an access orientation that supports collection by front-loading equipment with minimal need for reverse-direction travel. All movement to and from the public right-of-way will be in the forward direction. This standard is met.

Chapter 17.96 Site Development

17.96.180 Approval standards.

The director shall make a finding with respect to each of the following criteria when approving, approving with conditions, or denying an application:

(1) Provisions of all applicable chapters of the Community Development Code per SHMC 17.04.010.
Response: This narrative demonstrates that the proposed development meets the standards of all applicable chapters of the Community Development Code. This standard is met.

(2) Relationship to the Natural and Physical Environment.
- *(a) Buildings shall be:*
  - *(i) Located to preserve existing trees, topography, and natural drainage in accordance with other sections of this code;*
  - *(ii) Located in areas not subject to ground slumping or sliding;*
  - *(iii) Located to provide adequate distance between adjoining buildings for adequate light, air circulation, and fire fighting; and*
  - *(iv) Oriented with consideration for sun and wind; and*

Response: The building has been intentionally located outside of the 100-year floodplain and sensitive lands area so as to preserve existing trees, sensitive lands, wetlands, and natural drainage patterns. The selection of the building location considered geotechnical characteristics of the site, topography, drainage, ability for future expansion, and site access. The southwest-facing building will have extensive sun exposure throughout the year. This standard is met.

- *(b) Trees having a six-inch DBH (as defined by Chapter 17.132 SHMC) or greater shall be preserved or replaced by new plantings of equal character;*

Response: Multiple trees on site are over 6" DBH, 33 of which are proposed for removal (see Sheets L0.02 and L0.04 of Exhibit B). 33 mitigation trees are proposed to be planted. This standard is met.

(4) Buffering, Screening, and Compatibility between Adjoining Uses (See Figure 13, Chapter 17.72 SHMC).
- *(a) Buffering shall be provided between different types of land uses (for example, between single-dwelling units and multidwelling units residential, and residential and commercial), and the following factors shall be considered in determining the adequacy of the type and extent of the buffer:*
  - *(i) The purpose of the buffer, for example to decrease noise levels, absorb air pollution, filter dust, or to provide a visual barrier;*
  - *(ii) The size of the buffer required to achieve the purpose in terms of width and height;*
  - *(iii) The direction(s) from which buffering is needed;*
  - *(iv) The required density of the buffering; and*
  - *(v) Whether the viewer is stationary or mobile;*
- *(b) On-site screening from view from adjoining properties of such things as service areas, storage areas, parking lots, and mechanical devices on rooftops (e.g., air cooling and heating systems) shall be provided and the following factors will be considered in determining the adequacy of the type and extent of the screening:*
  - *(i) What needs to be screened;*
  - *(ii) The direction from which it is needed;*
  - *(iii) How dense the screen needs to be;*

(iv) *Whether the viewer is stationary or mobile; and*
(v) *Whether the screening needs to be year-round;*

Response: As discussed in the response to Chapter 17.72, Figure 13 does not require buffering at this location due to the intervening right-of-way. As explained in the applicant's responses to Chapter 17.72, the rooftop mechanical equipment, surface level mechanical equipment and parking lots are screened as required. This standard is met.

(5) Privacy and Noise.
- *(a) Structures which include residential dwelling units shall provide private outdoor areas for each ground floor unit which is screened from view by adjoining units as provided in subsection (6)(a) of this section;*
- *(b) The buildings shall be oriented in a manner which protects private spaces on adjoining properties from view and noise;*
- *(c) Residential buildings should be located on the portion of the site having the lowest noise levels; and*
- *(d) On-site uses which create noise, lights, or glare shall be buffered from adjoining residential uses (see subsection (4) of this section);*

Response: No residential dwelling units are proposed as part of the proposed development. Residences are located north of the subject site, approximately 176' from the north side of the public safety building. The main entrance of the public safety building is centrally located on its southwest wall, facing Kaster Road and the visitor parking lot. The secured staff/fleet vehicle parking area has an 8' high chain link fence with a continuous evergreen hedge to provide security while also screening vehicles and mechanical equipment from the adjacent residential properties, visually as well as acoustically. This standard is met.

(8) Demarcation of Public, Semipublic, and Private Spaces – Crime Prevention.
- *(a) The structures and site improvements shall be designed so that public areas such as streets or public gathering places, semipublic areas and private outdoor areas are clearly defined in order to establish persons having a right to be in the space, in order to provide for crime prevention and to establish maintenance responsibility; and*
- *(b) These areas may be defined by:*
  - *(i) A deck, patio, low wall, hedge, or draping vine;*
  - *(ii) A trellis or arbor;*
  - *(iii) A change in level;*
  - *(iv) A change in the texture of the path material;*
  - *(v) Sign; or*
  - *(vi) Landscaping;*

Response: Extensive perimeter landscaping will be provided along Kaster Road to separate the site from the street (see Sheet L1.20 of Exhibit B). As shown on Sheet L1.10 of Exhibit B, a small outdoor public plaza is located adjacent to the public entrance at the southwestern corner of the building. The public plaza is defined by a change in paving material (concrete instead of asphalt/ground cover) and a low wall as shown on Sheets C1.10, L1.10, and L5.10 of Exhibit B. This standard is met.

(9) Crime Prevention and Safety.
- *(a) Windows shall be located so that areas vulnerable to crime can be surveyed by the occupants;*
- *(b) Interior laundry and service areas shall be located in a way that they can be observed by others;*
- *(c) Mail boxes shall be located in lighted areas having vehicular or pedestrian traffic;*
- *(d) The exterior lighting levels shall be selected and the angles shall be oriented towards areas vulnerable to crime; and*

(e) *Light fixtures shall be provided in areas having heavy pedestrian or vehicular traffic and in potentially dangerous areas such as parking lots, stairs, ramps, and abrupt grade changes:*

(i) *Fixtures shall be placed at a height so that light patterns overlap at a height of seven feet, which is sufficient to illuminate a person;*

Response: Crime prevention and safety measures have been incorporated into the building and site design, including windows, exterior lighting, and illumination. The mailbox location shown on Sheet C1.10 of Exhibit B is being coordinated with the post office. This standard is met.

(10) *Access and Circulation.*

(a) *The number of allowed access points for a development shall be as provided in SHMC 17.84.070;*

(b) *All circulation patterns within a development shall be designed to accommodate emergency vehicles; and*

(c) *Provisions shall be made for pedestrianways and bicycleways if such facilities are shown on an adopted plan;*

Response: As shown on Sheet C1.10 of Exhibit B, the site will have primary access from Kaster Road, with a secondary, paved emergency vehicle access road accessing the secured parking area from S 15th Street. The number of access points was previously addressed in the response to Section 17.84.070. The access point and drive aisles provide circulation throughout the site and access to the trash enclosures and building entrances. The drive aisles are of a sufficient width to provide adequate access for emergency response vehicles. Bicycles can utilize the parking lot drive aisle or sidewalk to access the bike parking area. Pedestrian walkways are designed to comply with ADA standards. This standard is met.

(11) *Distance between Multiple-Family Residential Structure and Other.*

(a) *To provide privacy, light, air, and access to the multiple and attached residential dwellings within a development, the following separations shall apply:*

(i) *Buildings with windowed walls facing buildings with windowed walls shall have a 25-foot separation;*

(ii) *Buildings with windowed walls facing buildings with a blank wall shall have a 15-foot separation;*

(iii) *Buildings with opposing blank walls shall have a 10-foot separation;*

(iv) *Building separation shall also apply to buildings having projections such as balconies, bay windows, and room projections; and*

(v) *Buildings with courtyards shall maintain separation of opposing walls as listed in subsections (11)(a)(i), (ii) and (iii) of this section for walls in separate buildings;*

(b) *Where buildings exceed a horizontal dimension of 60 feet or exceed 30 feet in height, the minimum wall separation shall be one foot for each 15 feet of building length over 50 feet and two feet for each 10 feet of building height over 30 feet;*

(c) *Driveways, parking lots, and common or public walkways shall maintain the following separation for dwelling units within eight feet of the ground level:*

(i) *Driveways and parking lots shall be separated from windowed walls by at least eight feet; walkways running parallel to the face of the structures shall be separated by at least five feet; and*

(ii) *Driveways and parking lots shall be separated from living room windows by at least 10 feet; walkways running parallel to the face of the structure shall be separated by at least seven feet;*

Response: No multiple-family residences are proposed. Across the 17th Street/East Street right-of-way is a two-story multiple-family residential structure, which is approximately 176' from the proposed public

NOT APPLICABLE

safety building. The parking area is approximately 110' from the multiple-family residential structure. The proposed development meets all applicable distance standards in Section 17.96.180(11).

(12) Parking. All parking and loading areas shall be designed in accordance with the requirements set forth in SHMC 17.80.050 and 17.80.090; Chapter 17.76 SHMC, Visual Clearance Areas; and Chapter 17.84 SHMC, Access, Egress, and Circulation;

Response: As described in the responses to Chapters 17.80, 17.76, and 17.84, all parking and loading areas comply with City standards. This standard is met.

(13) Landscaping.

a) All landscaping shall be designed in accordance with the requirements set forth in Chapter 17.72 SHMC; and

b) For residential use, in addition to the open space and recreation area requirements of subsections (6) and (7) of this section, a minimum of 15 percent of the gross area including parking, loading and service areas shall be landscaped;

Response: As shown on the landscape plans in Exhibit B and in the responses to applicable standards in Chapter 17.72 of this narrative, proposed landscaping complies with applicable City standards. No residential use is proposed. This standard is met.

(14) Drainage. All drainage plans shall be designed in accordance with the criteria in the most current adopted St. Helens master drainage plan;

Response: Drainage plans and reports complying with the most current adopted City of St. Helens master drainage plan are included as Exhibit B and Exhibit E of this application. This standard is met.

(15) Provision for the Handicapped. All facilities for the handicapped shall be designed in accordance with the requirements pursuant to applicable federal, state and local law;

Response: As shown on the plans in Exhibit B, the proposed parking areas have been designed to meet ADA requirements. Accessibility compliance of the structure will be evaluated at the time of building permit application. This standard is met.

(16) Signs. All sign placement and construction shall be designed in accordance with requirements set forth in Chapter 17.88 SHMC;

Response: The applicant has enclosed a sign permit application (Exhibit A) as part of this application package. This standard will be met.

(17) All of the provisions and regulations of the underlying zone shall apply unless modified by other sections of this code (e.g., the planned development, Chapter 17.148 SHMC; or a variance granted under Chapter 17.108 SHMC; etc.).

Response: As described in the responses to Chapter 17.32 of this narrative, the proposed development complies with the provisions and regulations of the underlying R-5 and LI zones. This standard is met.

Chapter 17.100 Conditional Use

17.100.020 Administration and approval process.

(2) A preapplication conference with city staff is required. (See SHMC 17.24.040.)

Response: A preapplication conference with City staff was held on July 27, 2022. This standard is met.

(3) Due to possible changes in state statutes, or regional or local policy, information given by staff to the applicant during the preapplication conference is valid for no more than six months:

(a) *Another preapplication conference is required if any development application for this site is submitted six months or later after the preapplication conference; and*

(b) *Failure of the director to provide any of the information required by this section shall not constitute a waiver of the standards, criteria or requirements of the applications.*

(4) *The director shall mail notice of any conditional use proposal to the persons who are entitled to notice in accordance with SHMC 17.24.130.*

Response: A pre-application conference was held on May 1, 2023. This application is submitted within six (6) months of the pre-application conference. This standard is met.

17.100.040 Approval standards and conditions.

(1) *The planning commission shall approve, approve with conditions, or deny an application for a conditional use or to enlarge or alter a conditional use based on findings of fact with respect to each of the following criteria:*

(a) The site size and dimensions provide adequate area for the needs of the proposed use;

Response: The proposed use of a public safety facility is a Conditional Use in the R-5 and LI zone. As shown on Sheet C1.10 of Exhibit B, the subject site provides adequate area for the proposed use, including the building, public and secure parking meeting the minimum parking standard, and landscaping. This criterion is met.

(b) The characteristics of the site are suitable for the proposed use considering size, shape, location, topography, and natural features;

Response: The St. Helens Public Safety project went through a comprehensive site selection process which included a three-phase selection process.

- Phase 1 included 10 properties across the City. At the culmination of Phase 1, the list of sites was narrowed to five (5) sites.
- Phase 2 involved utilizing a scoring matrix to identify the most suitable sites. At the culmination of Phase 2, the list of sites was narrowed to two (2).
- Phase 3 involved the application of a selection criteria to the two (2) sites identified in Phase 2. At the February 19, 2020, City Council Work Session, the two (2) remaining identified locations were discussed. One proposed site was in the LI zone at the corner of Old Portland Road and Kaster Road (subject site) and the other proposed site was the block between Columbia Boulevard and Cowlitz Street and between S 17th Street and S 18th Street. At the Work Session, it was noted that the Old Portland Road/Kaster Road subject site offers:
  - Enhanced access to the highway via Milliard Road in the event of a train blocking Gable Road or Columbia Avenue.
  - Accommodation for future growth.
  - No complexity of one-way streets.

Portions of the site contain 100-year floodplain, while other portions contain 500-year floodplain. The Public Safety Building has been designed to remain operational in a 100-year or 500-year flood event. BUT TRANSPORTATION IMPACTS PROBABLE!

The subject property, located in the R-5 and LI zones, is suitable for a wide variety of uses. The proposed building is designed to public safety and government office functions, complementary to other commercial, industrial, and residential uses in the vicinity. The proposed development is therefore consistent and compatible with nearby land uses. Nearby land uses include a community recreation center, residential structures, and a restaurant, none of which should be

negatively impacted by noise from the proposed facility (there are no abutting land uses to the north, west, or south based on the Community Development Code's definition of "abut"). The City's Economic Opportunity Analysis shows that the City has a surplus of industrial land inventory and lacks commercial land inventory. The Public Safety Building will utilize industrial land, preserving the limited available commercial land inventory.

The subject property contains wetlands that have been designated as significant by the City. The applicant has retained Wetland Solutions Northwest, LLC to prepare an expert inventory of wetland resource values within the subject property and make recommendations for resource conservation. As a result, development as proposed in the upland areas of the subject property will not adversely affect sensitive wildlife species or significant wetland natural resource features.

The proposed development avoids development within the wetland, and locates the building outside of the Special Flood Hazard Area to minimize risk during a flood event. The proposed development provides an emergency accessway in the event of a flood event. The subject site is proximate to Highway 30 and Old Town, thereby allowing efficient response of public safety personnel.

Based on the above findings, this criterion is met.

(c) All required public facilities have adequate capacity to serve the proposal;
Response: As explained in responses to Chapter 17.152, all required public facilities have adequate capacity to serve this proposal. This criterion is met.

(d) The applicable requirements of the zoning district are met except as modified by this chapter;
Response: As explained in the applicant's response to Chapter 17.32, the applicable requirements of the zoning districts are met. This criterion is met.

(e) The supplementary requirements set forth in Chapter 17.88 SHMC, Signs; and Chapter 17.96 SHMC, Site Development Review, if applicable, are met; and
Response: As explained in the applicant's responses to Chapters 17.88 and 17.96, the applicable requirements set forth in these sections are met. This criterion is met.

(f) The use will comply with the applicable policies of the comprehensive plan.
Response: To implement comprehensive plan policies, the City of St. Helens has adopted zoning provisions governing land use and development that include public safety facility as a Conditional Use in both the R-5 and LI zones. The selection of the subject property (which is in those zones) for public safety facility use, and this application for Conditional Use approval, are the specific processes anticipated by the comprehensive plan for siting such facilities in the implementation phase of the planning process. This criterion is met by this review/approval procedure.

(3) The planning commission may impose conditions on its approval of a conditional use, which it finds are necessary to ensure the use is compatible with other use in the vicinity. These conditions may include, but are not limited to, the following:
- *(a) Limiting the hours, days, place, and manner of operation;*
- *(b) Requiring design features which minimize environmental impacts such as noise, vibration, air pollution, glare, odor, and dust;*
- *(c) Requiring additional setback areas, lot area, or lot depth or width;*
- *(d) Limiting the building height, size or lot coverage, or location on the site;*

(e) *Designating the size, number, location, and design of vehicle access points;*
(f) *Requiring street right-of-way to be dedicated and the street to be improved;*
(g) *Requiring landscaping, screening, drainage and surfacing of parking and loading areas;*
(h) *Limiting the number, size, location, height, and lighting of signs;*
(i) *Limiting or setting standards for the location and intensity of outdoor lighting;*
(j) *Requiring berming, screening or landscaping and the establishment of standards for their installation and maintenance;*
(k) *Requiring and designating the size, height, location, and materials for fences; and*
(l) *Requiring the protection and preservation of existing trees, soils, vegetation, watercourses, habitat areas, and drainage areas.*

Response: The applicant understands the authority of the planning commission to impose reasonable conditions, specifically to the following as the applicant has noted throughout this narrative:

- Public facility improvements to be constructed to the satisfaction of the City.
- Installation of landscaping.
- Screening of service facilities.

This ~~standard~~ is met. ← THIS IS NOT A STANDARD

17.100.150 Additional requirements for conditional use types.

(1) *A conditional use proposal shall comply with the standards of the zoning district in which it is located and the applicable provisions of this code, or as otherwise provided in standards that follow.*

Response: The proposed public safety building complies with the standards of the underlying zoning districts (R-5 and LI) as explained in the applicant's responses in Chapter 17.32. This standard is met.

(2) *A conditional use permit shall not grant variances to the regulations otherwise prescribed by this code. A variance application may be filed in conjunction with the conditional use application and both applications may be heard at the same hearing.*

Response: No variances are requested as part of this application. This standard does not apply.

(3) *The additional dimensional requirements and approval standards for conditional use are as follows:*

Response: The proposed use of public safety building is not listed in Section 17.100.150(3). This section is not applicable.

Chapter 17.132 Tree Removal

17.132.025 Tree plan requirement.

(1) *A tree plan for the planting, removal, and protection of trees prepared by a certified arborist or other capable professional as allowed by the director (for property or site with more than 10 trees or any tree over two feet DBH) shall be provided for any lot, parcel or combination of lots or parcels for which a development application for a land division, site development review, planned development or conditional use is filed. Protection is preferred over removal where possible.*

Response: A tree plan prepared by Mackenzie landscape architects is included as Sheets L0.01-L0.04 of Exhibit B. This standard is met.

ALSO SEE EXISTING CONDITIONS SHEETS BY AKS

(2) *The tree plan shall include the following:*

(a) *Identification of the location, size, DBH and species of all existing trees including trees designated as significant by the city;*

(b) *Identification of a program to save existing trees or mitigate tree removal over 12 inches DBH. Mitigation must follow the replacement guidelines of SHMC 17.132.070(4) according to the following standards:*

(i) *Retainage of less than 50 percent of existing trees over 12 inches DBH requires a mitigation program according to SHMC 17.132.070(4) with a ratio of two minimum two-inch DBH trees for each 12-inch or greater DBH tree to be removed.*

(ii) *Retainage of over 50 percent of existing trees over 12 inches DBH requires the trees to be mitigated according to SHMC 17.132.070(4) with a ratio of one minimum two-inch DBH tree for each 12-inch or greater DBH tree to be removed.*

(c) *Identification of all trees which are proposed to be removed; and*

(d) *A protection program defining standards and methods that will be used by the applicant to protect trees during and after construction.*

Response: The provided tree plan (Sheets L0.02-L0.04 of Exhibit B) identifies species, size, and location of existing trees, and specifies which trees are proposed for removal and which are proposed for retention. Fewer than 50% of the trees over 12" DBH will be removed, so mitigation is required is required at the rate of 1:1. As shown on Sheet L0.04 of Exhibit B, 33 mitigation trees will be provided on site for the 33 trees proposed for removal, a rate of 1:1. Tree protection fencing, as illustrated on Sheet L0.02 of Exhibit B, is proposed where construction activities are near existing trees that will be retained. This standard is met. SEE STAFF REPT & EXISTING CONDITIONS SHEETS FOR FULL TREE COUNT

(3) *Trees removed within the period of one year prior to a development application listed above will be inventoried as part of the tree plan above and will be replaced per this chapter.*

Response: No trees have been removed within one (1) year prior to this proposed development application. This standard is not applicable.

17.132.030 Permit requirement.

(1) *Tree removal permits shall be required only for the removal of any tree which is located on or in a sensitive land area as defined by Chapter 17.44 SHMC.*

Response: As shown on Sheet L0.02 of Exhibit B, nine (9) trees within a sensitive land area (100-year flood zone) and five (5) trees from the 50' wetland protection zone are proposed for removal. The applicant is therefore requesting approval to remove these trees; however, per direction from City staff, the applicant understands that a separate tree removal permit is not required. This standard is met.

17.132.040 Permit criteria. ✓ REVIEWED AS PART OF CONDITIONAL USE PERMIT

(1) *The following approval standards shall be used by the director or designee for the issuance of a tree removal permit on sensitive lands:*

(a) *Removal of the tree must not have a measurable negative impact on erosion, soil stability, flow of surface waters, or water quality as evidenced by an erosion control plan which precludes:*

(i) *Deposits of mud, dirt, sediment or similar material exceeding one-half cubic foot in volume on public or private streets, adjacent property, or into the storm and surface water system, either by direct deposit, dropping, discharge or as a result of the action of erosion; and*

(ii) *Evidence of concentrated flows of water over bare soils; turbid or sediment-laden flows; or evidence of on-site erosion such as rivulets on bare soil slopes where the flow of water is not filtered or captured on site.*

Response: Per direction from City staff, the applicant understands that a separate tree removal permit is not required. This standard is not applicable.

(2) Within stream or wetland corridors, tree removal must maintain no less than a 75 percent canopy cover or no less than the existing canopy cover if the existing canopy cover is less than 75 percent.

Response: No trees within stream or wetland corridors are proposed for removal. As explained in the Sensitive Lands Assessment (Exhibit G), proposed tree removal will not reduce the tree canopy below the City requirement to maintain no less than 75% canopy cover. This standard is not applicable.

17.132.060 Application submission requirements.

(1) Application for a tree removal permit shall be on a form provided by the director. Completed applications shall consist of this form, two copies of the supplemental data and narrative set out in subsection (2) of this section, and the required fee. Applications shall not be accepted unless they are complete as defined herein.

(2) The supplemental data and narrative shall include:

- *(a) The specific location of the property by address, assessor's map number, and tax lot;*
- *(b) The number, size, type and location of the tree(s) to be cut;*
- *(c) The time and method of cutting or removing the tree(s);*
- *(d) Information concerning any proposed landscaping or planting of new trees; and*
- *(e) A narrative as to how the applicable criteria of this chapter, for example, SHMC 17.132.040(1), are satisfied.*

(3) In accordance with SHMC 17.24.080, the director may waive any of the requirements in subsection (2) of this section or request additional information.

Response: The applicant is requesting approval to remove trees; however, per direction from City staff, the applicant understands that a separate tree removal permit is not required. The tree plan (Sheets L0.02-L0.04 of Exhibit B) show the location of the site and the number, size, type, and location of trees to be removed. The planting plan and tree mitigation plan (Sheets L1.20 and L0.04 of Exhibit B) shows the proposed landscaping and planting of new trees. As noted on Sheet L0.02 of Exhibit B, trees will be removed by directional felling and stumps within the tree protection zone will be retained or carefully ground. Compliance with the provisions of the Tree Removal chapter of the SHMC are demonstrated by the applicant's responses in this narrative. This standard is met.

17.132.070 Illegal tree removal – Violation – Replacement of trees.

(4) Replacement of a tree shall take place according to the following guidelines:

- *(a) A replacement tree shall be a substantially similar species considering site characteristics;*
- *(b) If a replacement tree of the species of the tree removed or damaged is not reasonably available, the director may allow replacement with a different species of equivalent natural resource value;*
- *(c) The director may permit one or more replacement trees to be planted on other property within the city, either public property or, with the consent of the owner, private property whenever it is not viable to place the trees on the site;*
- *(d) The planting of a replacement tree shall take place in a manner reasonably calculated to allow growth to maturity.*

Response: Greater than 50% of the trees over 12" DBH will be retained on site. Therefore, the mitigation requirement is a ratio of one minimum 2" DBH tree to be planted for each 12" or greater DBH tree to be removed. A total of 33 trees require mitigation; the site plan includes planting 33 mitigation trees, minimum 2" DBH, around the edge of the site development area, to compensate for the 33 trees to be removed as shown on Sheet L0.04 of Exhibit B. In addition, 47 trees are also proposed to be planted in the wetland buffer enhancement area as mitigation for the 6,961 SF of wetland buffer impact. Per recommendation of the Sensitive Lands Assessment Report (Exhibit G), trees to be planted in the buffer mitigation will be 1" DBH, as this size tree would be expected to have a higher likelihood of successful establishment in the unirrigated wetland buffer than would larger DBH trees. Trees to be planted for the buffer mitigation will be similar species to the trees being removed and remaining trees commonly found on the site. Mitigation trees will include a mix of coniferous and deciduous trees including Douglas fir, big-leaf maple and cascara and are appropriate for the habitat of the wetland buffer. This standard is met.

Chapter 17.152 Street and Utility Improvement Standards

17.152.030 Streets.

(1) Improvements. No development shall occur unless the development has frontage or approved access to a public street:

(a) Streets within a development and streets adjacent shall be improved in accordance with this code;

(b) Development on site adjacent to nonstandard street shall require improvement of street to applicable city standards;

Response: The site has frontage on Kaster Road. Improvements to the frontage between the western edge of the proposed driveway and the Old Portland Road/Kaster Road intersection are proposed to be deferred due to the future roundabout project. As shown on Sheets C1.10 and C1.11 of Exhibit B, the applicant will construct frontage improvements along Kaster Road between the proposed driveway and Fir Street as part of this development. The frontage improvements include a 6' wide walkway, 5' landscape strip, curb, 6' painted bike lane, and 12' travel lane as shown on Sheet C1.11 of Exhibit B. The applicant proposes to construct the driveway approach to Kaster Road in compliance with the City's public works standards. This standard is met.

(c) Any new street or additional street width planned as a portion of an existing dedicated/public street shall be dedicated and improved in accordance with this code; and

Response: No right-of-way dedication is required to serve the development. Old Portland Road is designated as a Minor Arterial, which requires a 60' right-of-way (ROW) per the City of St. Helens Transportation System Plan (TSP). Old Portland Road's ROW measures 60', which satisfies the requirement. Kaster Road is designated as a Collector in the City of St. Helens TSP, which requires a 60' ROW per the City of St. Helens TSP. Kaster Road's ROW, along the site's frontage, measures 111'. Both abutting streets have adequate right-of-way widths, so no additional dedication or setback is required as shown on the existing conditions sheets in Exhibit B. This standard is not applicable.

(d) The director may accept a future improvement guarantee in lieu of street improvements if one or more of the following conditions exist:

(i) A partial improvement is not feasible due to the inability to achieve proper design standards;

(ii) A partial improvement may create a potential safety hazard to motorists or pedestrians;

(iii) *Due to the nature of existing development on adjacent properties it is unlikely that street improvements would be extended in the foreseeable future and the improvement associated with the project under review does not, by itself, provide a significant improvement to street safety or capacity;*

(iv) *The improvement would be in conflict with an adopted capital improvement plan;*

(v) *The improvement is associated with an approved land partition on property zoned residential and the proposed land partition does not create any new streets; or*

(vi *Additional planning work is required to define the appropriate design standards for the street and the application is for a project which would contribute only a minor portion of the anticipated future traffic on the street.*

Response: As shown on Sheets C1.10 and C1.11 of Exhibit B, the applicant will construct frontage improvements along Kaster Road between the eastern edge of the proposed driveway and Fir Street, as part of this development. The City's proposed roundabout project at the intersection of Old Portland Road and Kaster Road is anticipated to affect the frontage of the subject site, both along the site's Old Portland Road frontage and between the western edge of the proposed driveway and the Old Portland Road/Kaster Road intersection; therefore, the applicant proposes deferral of street improvements along this segment of the frontage to avoid construction of improvements that may later need to be removed following design of the roundabout.

(4) *Street Location, Width and Grade. The location, width and grade of all streets shall conform to an approved street plan and shall be considered in their relation to existing and planned streets, to topographic conditions, to public convenience and safety, and in their appropriate relation to the proposed use of the land to be served by such streets:*

(a) *Street grades shall be approved by the city engineer in accordance with subsection (13) of this section; and*

(b) *Where the location of a street is not shown in an approved street plan, the arrangement of streets in a development shall either:*

(i) *Provide for the continuation or appropriate projection of existing streets in the surrounding areas; or*

(ii) *Conform to a plan adopted by the commission, if it is impractical to conform to existing street patterns because of particular topographical or other existing conditions of the land. Such a plan shall be based on the type of land use to be served, the volume of traffic, the capacity of adjoining streets and the need for public convenience and safety.*

Response: No new streets are proposed as part of this application. Kaster Road is designated as a Collector in the TSP. Collectors have a minimum right-of-way width of 60' and the existing right-of-way width is 111' along the site's frontage. Old Portland Road is designated as a Minor Arterial in the TSP. Minor Arterials have a minimum ROW width of 60' and the existing ROW is 60' along the site's frontage. All existing adjacent streets conform to the minimum right-of-way widths specified by the City of St. Helens TSP. Improvements to the frontage between the western edge of the proposed driveway and the Old Portland Road/Kaster Road intersection are proposed to be deferred due to the City's future roundabout project. As shown on Sheets C1.10 and C1.11 of Exhibit B, as applicant will construct frontage improvements along Kaster Road, between the proposed driveway and Fir Street, as part of this development. This standard is met.

WIDTH VARIES FROM 60' TO > 100'

(5) *Minimum Rights-of-Way and Street Widths. Unless otherwise indicated on an approved street plan or adopted corridor plan, or as needed to continue an existing improved street, street right-of-way and roadway widths shall not be less than the minimum width described in Figure 19. Where a range is indicated, the width shall be determined by the approval authority based upon anticipated*

average daily traffic (ADT) on the new street segment. (The city council may adopt, by resolution, design standards for street construction and other public improvements. The design standards will provide guidance for determining improvement requirements within the specified ranges.) (See "City of St. Helens Engineering Department Public Facilities Construction Standards Manual.")

(a) The planning director shall recommend, to the decision-making body, desired right-of-way width and pavement width of the various street types within the subdivision or development after consideration of the following:

(i) The type of road as set forth in Figure 19, Road Standards;

FIGURE 19: ROAD STANDARDS (EXCERPT)				
Type of Street	Right-of-Way Width	Roadway Width	Moving Lanes	Bicycle Lanes*
Minor Arterial (Typical)	60'	36'	2	2 @ 6'
Collector	60'	36'	2	2 @ 6'

(ii) Anticipated traffic generation;
(iii) On-street parking needs;
(iv) Sidewalk and bikeway requirements;
(v) Requirements for placement of utilities;
(vi) Street lighting;
(vii) Drainage and slope impacts;
(viii) Street tree location;
(ix) Planting and landscape areas;
(x) Safety for motorists, bicyclists, and pedestrians; and
(xi) Access needs for emergency vehicles;

WIDTH VARIES FROM 60' TO > 100'

(b) Improvements to streets shall be made according to adopted city standards, unless the approval authority determines that the standards will result in an unacceptable adverse impact on existing development or on the proposed development or on natural features such as wetlands, steep slopes or existing mature trees. In approving an exception to the standards, the approval authority shall determine that the potential adverse impacts exceed the public benefits of the standards. In evaluating the public benefits, the approval authority shall consider the criteria listed in subsection (5)(a) of this section.

Response: Kaster Road is designated as a Collector in the TSP. Collectors have a minimum right-of-way width of 60' and the existing right-of-way width is 111' along the site's frontage. Old Portland Road is designated as a Minor Arterial in the TSP. Minor Arterials have a minimum ROW width of 60' and the existing ROW is 60' along the site's frontage. Improvements to the frontage between the western edge of the proposed driveway and the Old Portland Road/Kaster Road intersection are proposed to be deferred due to the City's future roundabout project. As shown on Sheets C1.10 and C1.11 of Exhibit B, as applicant will construct frontage improvements along Kaster Road, between the proposed driveway and Fir Street, as part of this development. This standard is met.

(9) Existing Rights-of-Way. Whenever existing rights-of-way adjacent to or within a tract are of less than standard width, additional rights-of-way shall be provided at the time of land division or development.

Response: The existing right-of-way meets or exceeds Figure 19's minimum requirements for a Minor Arterial (Old Portland Road) and Collector (Kaster Road), so no additional right-of-way is required. This standard does not apply.

(13) *Grades and Curves. Grades shall not exceed 10 percent on arterials, 12 percent on collector streets, or 12 percent on any other street (except that local or residential access streets may have segments with grades up to 15 percent for distances of no greater than 250 feet), and:*

(a) Centerline radii of curves shall not be less than 700 feet on arterials, 500 feet on collectors, or 100 feet on other streets; and

(b) Streets intersecting with a collector functional classification street, or streets intended to be posted with a stop sign or signalization, shall provide a landing averaging five percent or less. Landings are that portion of the street within 20 feet of the edge of the intersecting street at full improvement.

Response: No changes in street grades and no new streets are proposed. This standard does not apply.

(14) *Curbs, Curb Cuts, Ramps, and Driveway Approaches. Concrete curbs, curb cuts, wheelchair/bicycle ramps and driveway approaches shall be constructed in accordance with standards specified in the "City of St. Helens Engineering Department Public Facilities Construction Standards Manual," and:*

(a) Concrete curbs and driveway approaches are required; except where no sidewalk is planned, an asphalt approach may be constructed with city engineer approval;

(b) Asphalt and concrete driveway approaches to the property line shall be built to city configuration standards; and

(c) All driveways shall be at right angle to public or private street for at least 20 feet.

Response: The proposed driveway approach is at a right angle to Kaster Road and will be constructed of concrete per the City's standards. This requirement is met.

(16) *Access to Arterials and Collectors.*

(a) Where a development abuts or is traversed by an existing or proposed arterial or collector street, the development design) shall provide adequate protection for residential properties and shall separate residential access and through traffic, or if separation is not feasible, the design shall minimize the traffic conflicts. The design shall include any of the following:

(i) A parallel access street along the arterial or collector;

(ii) Lots of suitable depth abutting the arterial or collector to provide adequate buffering with frontage along another street;

(iii) Screen planting at the rear or side property line to be contained in a nonaccess reservation along the arterial or collector; or

(iv) Other treatment suitable to meet the objectives of this subsection;

(b) See "City of St. Helens Engineering Department Public Facilities Construction Standards Manual."

Response: Old Portland Road is classified as a Minor Arterial and Kaster Road is classified as a Collector. The proposed development accesses Kaster Road. No residential properties exist, or are proposed, along the site's vicinity on Kaster Road. This standard is met.

(17) *Alleys, Public or Private. Alleys, 20 feet in width, shall be provided in commercial and industrial districts, unless other permanent provisions for access to off-street parking and loading facilities are made, and:*

(a) While alley intersections and sharp changes in alignment shall be avoided, the corners of necessary alley intersections shall have a radius of not less than 12 feet.

Response: No alleys are proposed; however, the proposed on-site circulation network depicted on Sheets C1.00 and C1.10 of Exhibit B accommodates on-site connection from parking facilities to Kaster Road. The intent of this standard is met.

(18) *Survey Monuments. Upon completion of a street improvement and prior to acceptance by the city, it shall be the responsibility of the developer's registered professional land surveyor to provide certification to the city that all boundary and interior monuments shall be reestablished and protected.*

Response: No survey monumentation is required as no new lots are proposed and no right-of-way dedication is proposed. This standard does not apply.

(19) *Private Streets.*

(a) Design standards for private streets shall be established by the city engineer;

(b) The city shall require legal assurances for the continued maintenance of private streets, such as:

(i) A bonded maintenance agreement; and

(ii) The creation of a homeowners association.

Response: As the site is a single parcel, the project proposes the use of drive aisles through the site rather than private streets. This standard does not apply.

(22) *Mailboxes. Joint mailbox facilities shall be provided in all residential developments, with each joint mailbox serving at least two dwelling units or as required by the Postmaster.*

(a) Joint mailbox structures shall be placed adjacent to roadway curbs;

(b) Proposed locations of joint mailboxes shall be designated on a copy of the preliminary plat or development plan, and shall be approved by the city engineer/U.S. Post Office prior to final plan approval;

(c) Plans for the joint mailbox structures to be used shall be submitted for approval by the city engineer/U.S. Post Office prior to final approval; and

(d) There shall be at least one accessible route from the principal use(s) to the respective joint mailbox which:

(i) As located on private property, shall comply with SHMC 17.84.050 and the applicable building code as administered by the building official; and

(ii) As located within a public right-of-way or public street, shall comply with SHMC 18.12.110 or as required by the city engineer.

Response: The proposed development will install mailboxes as directed by the Postmaster and City staff. The mailbox location shown on Sheet C1.10 of Exhibit B is being coordinated with the post office. This standard is met.

(23) *Traffic Signals. The location of traffic signals shall be noted on approved street plans, and:*

(a) Where a proposed street intersection will result in an immediate need for a traffic signal, a signal meeting approved specifications shall be installed. The cost shall be included as a condition of development.

Response: The Kaster Road and Old Portland Road intersection is signalized. No new traffic signal is necessary. This standard is not applicable.

(24) *Street Light Standards. Street lights shall be installed in accordance with regulations adopted by the city's direction. At the very least, there shall be a street light at each street intersection. In addition, lighting within the Columbia Boulevard/St. Helens Street corridor master plan area shall be installed in accordance with the US 30 and Columbia Boulevard/St. Helens Street corridor master plan and shall be:*

(a) Pedestrian-scale lighting between 12 to 18 feet in height;

(b) Uniform in design;

(c) Placed in the planter/landscape strip or curb extension (e.g., at street corners) when possible; and

(d) Spaced no more than 100 feet apart along the block face.

Response: No new streetlights are proposed as part of this development. The City's proposed roundabout project at the intersection of Old Portland Road and Kaster Road is anticipated to affect the frontage of the subject site. Therefore, the applicant proposes deferral of street lighting that may later need to be relocated following design of the roundabout. A streetlight exists at the Old Portland Road and Kaster Road intersection. The subject site is not located within the Columbia Boulevard/St. Helens Street corridor master plan area. This standard is met.

(26) Street Cross-Sections. The cross-section of streets in inches shall not be less than the minimum shown in the "City of St. Helens Engineering Department Public Facilities Construction Standards Manual":

FIGURE 20: CROSS SECTION OF STREETS IN INCHES

Type of Street	Subbase	Leveling Course	Surface
Minor Arterial	12"	4"	4"
Commercial and Collectors	12"	3"	4"
Local	8"	2"	3"
Residential Access	8"	2"	3"

Response: The existing street cross-section of Old Portland Road or Kaster Road is not proposed to be altered as part of this project. The City's proposed roundabout project at the intersection of Old Portland Road and Kaster Road is anticipated to affect the frontage of the subject site. Improvements to the frontage between the western edge of the proposed driveway and the Old Portland Road/Kaster Road intersection are proposed to be deferred due to the City's future roundabout project. As shown on Sheets C1.10 and C1.11 of Exhibit B, as applicant will construct frontage improvements along Kaster Road, between the proposed driveway and Fir Street, as part of this development. The applicant will demonstrate compliance with this standard during the permitting phase.

17.152.040 Blocks.

(1) Block Design. The length, width and shape of blocks shall be designed with due regard to providing adequate building sites for the use contemplated, consideration of needs for convenient access, circulation, control and safety of street traffic and recognition of limitations and opportunities of topography.

(2) Sizes.

(a) The perimeter of blocks formed by streets shall not exceed 1,800 feet measured along the right-of-way line except:

(i) Where street location is precluded by natural topography, wetlands or other bodies of water, or preexisting development;

(ii) For blocks adjacent to arterial streets, limited access highways, collectors or railroads; or

(iii) For nonresidential blocks in which internal public circulation provides equivalent access;

(b) When block lengths greater than 600 feet are permitted, pedestrian/bikeways shall be provided through the block.

Response: The proposed site design does not alter the existing block structure. This standard is not applicable.

17.152.050 Easements.

(1) Easements. Easements for sewers, drainage, water mains, electric lines or other public utilities shall be either dedicated or provided for in the deed restrictions, and:

(a) Where a development is traversed by a watercourse, or drainageway, there shall be provided a storm water easement or drainage right-of-way conforming substantially with the lines of the watercourse.

(2) Utility Easements. A property owner proposing a development shall make arrangements with the city, the applicable district and each utility franchise for the provision and dedication of utility easements necessary to provide full services to the development.

Response: Ordinance # 3283 (Adopted June 1, 2022) granted a 50' wide easement to the Columbia River People's Utility District (CRPUD). No additional easements are required for public utilities as the City owns the subject site. This standard does not apply.

WRONG! EASEMENT T.B.D. REQUIRED W/ DEVELOPMENT PROPOSAL

17.152.060 Sidewalks and other frontage improvements.

(1) Sidewalks and frontage improvements shall be constructed, replaced or repaired to city design standards as set forth in the standard specifications manual and located as follows:

(a) On both sides of arterial and collector streets to be built at the time of street construction;

(b) On both sides of all other streets and in pedestrian easements and rights-of-way, except as provided further in this section or per SHMC 17.152.030(1)(d), to be constructed along all portions of the property designated for pedestrian ways in conjunction with development of the property.

Response: Improvements to the frontage between the western edge of the proposed driveway and the Old Portland Road/Kaster Road intersection are proposed to be deferred due to the City's future roundabout project. As shown on Sheets C1.10 and C1.11 of Exhibit B, applicant will construct frontage improvements along Kaster Road, between the proposed driveway and Fir Street, as part of this development. Compliance with city standards for development of the public improvements will be demonstrated at time of permitting.

(2) A planter/landscape strip separation of at least five feet between the curb and the sidewalk shall be required in the design of any arterial or collector street, except where the following conditions exist: there is inadequate right-of-way; the curbside sidewalks already exist on predominant portions of the street; it would conflict with the utilities; or as indicated otherwise by the transportation systems plan (TSP) (see TSP Figures 7-2 and 7-3) or an adopted street plan.

Response: Improvements to the frontage between the western edge of the proposed driveway and the Old Portland Road/Kaster Road intersection are proposed to be deferred due to the City's future roundabout project. As shown on Sheets C1.10 and C1.11 of Exhibit B, as applicant will construct frontage improvements along Kaster Road, between the proposed driveway and Fir Street, as part of this development. The landscape/planter strip measures 5' in width and is located between the curb and the sidewalk. This standard is met.

(3) Maintenance. Maintenance of sidewalks, curbs, and planter/landscape strips is the continuing obligation of the adjacent property owner.

Response: The applicant acknowledges its ongoing responsibility to maintain sidewalks. This standard is met.

HOW?

(4) Application for Permit and Inspection. If the construction of a sidewalk and frontage improvements is not included in a performance bond of an approved subdivision or the performance bond has lapsed, then every person, firm or corporation desiring to construct sidewalks and frontage

improvements as provided by this chapter shall, before entering upon the work or improvement, apply for a street opening permit to the engineering department to so build or construct:

(a) An occupancy permit shall not be issued for a development until the provisions of this section are satisfied or a fee in lieu has been paid to the city pursuant to subsection (6) of this section;

(b) The city engineer may issue a permit and certificate allowing temporary noncompliance with the provisions of this section to the owner, builder or contractor when, in his or her opinion, the construction of the sidewalk or frontage improvements is impractical for one or more of the following reasons:

(i) Sidewalk grades have not and cannot be established for the property in question within a reasonable length of time;

(ii) Forthcoming installation of public utilities or street paving would be likely to cause severe damage to the new sidewalk and frontage improvements;

(iii) Street right-of-way is insufficient to accommodate a sidewalk on one or both sides of the street; or

(iv) Topography or elevation of the sidewalk base area makes construction of a sidewalk impractical or economically infeasible;

(c) The city engineer shall inspect the construction of sidewalks and frontage improvements for compliance with the provision set forth in the standard specifications manual.

Response: The applicant will obtain required permits and provide appropriate performance guarantees as specified by City code. This standard is met.

(5) Council Initiation of Construction. In the event one or more of the following situations are found by the council to exist, the council may adopt a resolution to initiate construction of a sidewalk and other frontage improvements in accordance with city ordinances:

(a) A safety hazard exists for children walking to or from school and sidewalks are necessary to eliminate the hazard;

(b) A safety hazard exists for pedestrians walking to or from a public building, commercial area, place of assembly or other general pedestrian traffic, and sidewalks are necessary to eliminate the hazard;

(c) Fifty percent or more of the area in a given block has been improved by the construction of dwellings, multiple dwellings, commercial buildings or public buildings and/or parks; and

(d) A criterion which allowed noncompliance under subsection (4)(b) of this section no longer exists and a sidewalk could be constructed in conformance with city standards.

Response: This application does not warrant a Council Initiation of Construction as the conditions outlined above are not present with the proposed development.

(6) Fee in Lieu Option. An applicant may request or the city may require the applicant to pay a fee in lieu of constructing sidewalks and frontage improvements to be approved by the city engineer.

(a) A fee in lieu may be approved given conditions including but not limited to the following:

(i) There is no existing or planned sidewalk network in the area.

(ii) There is a planned sidewalk or multi-use pathway in the vicinity of the site, or an existing multi-use pathway stubbing into the site, that would provide better pedestrian connectivity.

(iii) When physical improvements are present along an existing or proposed street that would prevent a reasonable installation within the right-of-way.

(iv) *When sidewalks and other frontage improvements would be located on land with cross slopes greater than nine percent, or other conditions that would create a potential hazard.*

(v) *Other situations unique to the site.*

(b) *The fee shall be not less than 125 percent of the cost to perform the work, as determined by the city engineer, based on the applicable city standards in effect at the time of application. Or the city engineer may require the applicant's engineer to provide a cost estimate, subject to review and approval by the city, to determine the cost to perform the work. The fee shall be paid prior to plat recording or issuance of a building or development permit.*

(c) *All fees paid shall be used for construction of a sidewalk and/or other related frontage improvements or multi-use pathway, or repair and maintenance of an existing sidewalk and/or related frontage improvements or pathway within the city of St. Helens.*

Response: Improvements to the frontage between the western edge of the proposed driveway and the Old Portland Road/Kaster Road intersection are proposed to be deferred due to the City's future roundabout project. As shown on Sheets C1.10 and C1.11 of Exhibit B, as applicant will construct frontage improvements along Kaster Road, between the proposed driveway and Fir Street, as part of this development.

The site's frontage along the portion of the site that is proposed to be developed along Kaster Road and Old Portland Road is approximately 530 lineal feet. The applicant proposes approximately 470 lineal feet of frontage improvements as shown on Sheet C1.11 of Exhibit B to Kaster Road. The proposed frontage improvements are roughly proportional to the impact of the portion of the site that is intended for this development. As no development is proposed in the eastern portion of the site, improvements to the Fir Street frontage would not be proportional.

As proportional frontage improvements are included as part of this proposal, no fee in lieu option is merited.

17.152.070 Public use areas.

(1) *Indicated in Development Plan – Dedication Requirements. Where a proposed park, playground, transit stop or other public use shown in a development plan adopted by the city is located in whole or in part in a subdivision, the commission may require the dedication or reservation of such area within the subdivision.*

Response: The site is not the location of a planned park, playground, transit stop, or other public use shown in an adopted development plan. This standard does not apply.

(2) *Not Indicated in Development Plan – Dedication Requirements. Where considered desirable by the commission in accordance with adopted comprehensive plan policies, and where a development plan of the city does not indicate proposed public use areas, the commission may require the offer of a dedication or reservation of areas within the subdivision or sites of a character, extent and location suitable for the development of parks and other public use.*

Response: The subject site is located primarily in the Light Industrial Zone. Due to the zone, proposed use, and security concerns, the area of the subject site is not appropriate for a park use. This standard does not apply.

(4) *Transit Improvements. Development proposals for sites that include existing or planned transit facilities, as shown in the adopted St. Helens transportation systems plan or adopted county transit*

plan, shall be required to provide any of the following, as applicable, if the approval authority determines such is necessary for public health, safety, and welfare:

(a) A reasonably direct pedestrian connection between the transit facility and building entrances of the site. For the purpose of this section "reasonably direct" means a route that does not deviate unnecessarily from a straight line or a route that does not involve a significant amount of out-of-direction travel for likely users.

(b) A transit passenger landing pad accessible to disabled persons.

(c) An easement or dedication for a passenger shelter or bench if such facility is identified in the St. Helens transportation systems plan or adopted county transit plan.

(d) Lighting at the transit facility.

Response: No transit facilities are planned for this site. This standard does not apply.

17.152.080 Water services.

(1) Water Supply (Required). Municipal water system shall be installed to serve each new development and to connect development to existing mains in accordance with the provisions set forth in the standard specification manual and the adopted policies of the St. Helens comprehensive plan.

Response: A public water main is present in Kaster Road. No public main extension is proposed. Private domestic water connection to the main in Kaster Road is proposed as illustrated on Sheet C1.30 of Exhibit B. A fire water connection is also proposed to the water main in Kaster Road as shown on Sheet C1.30 of Exhibit B. This standard is met.

(2) Water Supply Plan Approval. The city engineer shall approve all water supply plans and proposed systems prior to issuance of development permits involving water service. Such plans and systems shall be designed by a registered professional engineer.

Response: As illustrated on Sheet C1.30 of Exhibit B, water connections are proposed to the public main in Kaster Road. Construction drawings will be submitted to the City's Building and Engineering staff for review prior to construction to ensure compliance with applicable design standards. This standard is met.

(3) Oversizing. Proposed water systems shall include consideration of additional development within the area as projected by the St. Helens comprehensive plan.

Response: The proposed development is connecting to a public water main in Kaster Road. No new public water system is proposed as part of this application. This standard does not apply.

(4) Permits Denied. Development permits may be restricted by the commission or council (i.e., the applicable approval authority) where a deficiency exists in the existing water system or portion thereof which cannot be rectified within the development and which if not rectified will result in a threat to public health or safety, surcharging of existing mains, or violations of state or federal standards pertaining to operation of the water system.

Response: No public water system deficiency has been identified by City staff, so there is no need to withhold development permit approval. This standard does not apply.

(5) In some cases, a municipal water system may not be required, such as for nonconsumption purposes like landscape irrigation or industrial processing. The city engineer and building official shall decide when this exception is to be allowed.

Response: No public water main extension is proposed, as none is needed to serve the site or nearby properties. This standard does not apply.

(6) *Extension of water mains shall be public (i.e., under control of a public authority) except where a variance is approved per Chapter 17.108 SHMC.*

Response: No public water main extension is proposed, as none is needed to serve the site or nearby properties. This standard does not apply.

17.152.090 Sanitary sewers.

(1) *Sewers (Required).*

(a) *Public sanitary sewers shall be installed to serve all properties being developed and having to comply with plumbing codes adopted by the city of St. Helens except where a variance is approved per Chapter 17.108 SHMC.*

(b) *Any proposed installation of sanitary sewers shall comply with this section.*

Response: As illustrated on Sheet C1.30 of Exhibit B, a sewer main is in the vacated 7th Street right-of-way. As shown on Sheets C1.30 of Exhibit B, the proposed development will connect to the sewer main in the vacated 7th Street right-of-way. This standard is met.

(2) *Sewer Plan Approval. The city engineer shall approve all sanitary sewer plans and proposed systems prior to issuance of development permits involving sewer service. Such plans and systems shall be designed by a registered professional engineer.*

Response: As part of the building permit submittal, the applicant will submit sanitary sewer plans and proposed systems prior to issuance of the development permits involving sewer service to ensure compliance with applicable design standards. This standard is met.

(3) *Oversizing. Proposed sewer systems shall include consideration of additional development within the area as projected by the St. Helens comprehensive plan.*

Response: No new public sanitary sewer is proposed as part of this development. The sanitary sewer will connect to an existing, appropriately sized, sanitary sewer main that runs through the subject site. Additionally, based on the site's location and nearby constraints (wetlands and floodplain), there are no nearby properties which would benefit from construction of an oversized public sanitary sewer line. This standard does not apply.

(4) *Permits Denied. Development permits may be restricted by the commission or council (i.e., the applicable approval authority) where a deficiency exists in the existing sewer system or portion thereof which cannot be rectified within the development and which if not rectified will result in a threat to public health or safety, surcharging of existing mains, or violations of state or federal standards pertaining to operation of the sewage treatment system.*

Response: No public sanitary sewer system deficiency has been identified by City staff, so there is no need to withhold development permit approval. This standard does not apply.

WRONG! SEE STAFF REPT.

(5) *For the purpose of this section "public sanitary sewer" means a sewer in which all owners of abutting properties have equal rights, and is controlled by the city.*

Response: This definition has been utilized in analyzing the area's public sanitary sewer needs. This standard is met.

17.152.100 Storm drainage.

(1) *Storm Drainage – General Provisions. The director and city engineer shall issue a development permit only where adequate provisions for storm water and floodwater runoff have been made, which may require storm water facilities, and:*

(a) *The storm water drainage system or storm water facilities shall be separate and independent of any sanitary sewerage system;*

(b) *Where possible, inlets shall be provided so surface water is not carried across any intersection or allowed to flood any street; and*

(c) *Surface water drainage patterns shall be shown on every development proposal plan.*

Response: As shown on Sheet C1.30 of Exhibit B, stormwater from the parking areas will flow into catch basins in the parking areas, after which it will be detained in the stormwater pond. The stormwater captured by the building's collection system will be routed directly to the stormwater pond. The proposed stormwater system is separate from sanitary sewers. The preliminary stormwater report (Exhibit E) demonstrates compliance with applicable City stormwater management regulations. This standard is met.

(2) Easements. Where a subdivision is traversed by a watercourse, drainageway, channel or stream, there shall be provided a storm water easement or drainage right-of-way conforming substantially with the lines of such watercourse and such further width as will be adequate for conveyance and maintenance.
Response: No subdivision is proposed. This standard does not apply.

(3) Accommodation of Upstream Drainage (Must Comply with State and Federal Requirements). A culvert or other drainage or storm water facility shall be large enough to accommodate potential runoff from its entire upstream drainage area, whether inside or outside the development, and:

(a) The city engineer shall approve the necessary size of the storm water facility, based on the provisions of the city's adopted master drainage plan.

Response: No new culverts or other additions to existing public conveyance systems are necessary to accommodate development of the site or nearby properties. This standard does not apply.

(4) Effect on Downstream Drainage. Where it is anticipated by the city engineer that the additional runoff resulting from the development will overload an existing drainage or storm water facility, the director and engineer shall withhold approval of the development until provisions have been made for improvement of the potential condition or until provisions have been made for storage of additional runoff caused by the development in accordance with the city's current master drainage plan.

Response: As shown on Sheet C1.30 of Exhibit B, stormwater will flow into filtered catch basins in the parking areas, after which it will be detained in the stormwater pond. The proposed stormwater system is separate from sanitary sewers. The preliminary stormwater report (Exhibit E) demonstrates compliance with applicable City stormwater management regulations. No effect on downstream drainage is anticipated as a result of this development. This standard is met.

(5) Any storm water facility shall be designed by a registered professional engineer.
Response: The proposed stormwater facilities have been designed by Bailey Currier, a civil engineer at Mackenzie. This standard is met.

(6) Any storm water facility shall be public (i.e., under control of a public authority) and located on city owned property, city right-of-way or city easement except where a variance is approved per Chapter 17.108 SHMC or where such facility is determined to be private by the city engineer (e.g., private detention ponds for commercial or industrial development).

Response: The proposed stormwater facilities will manage on-site stormwater flows from a single site rather than runoff from public streets or from multiple properties. Therefore, the stormwater facilities will be privately managed. This standard does not apply.

(7) For the purpose of this section, "storm water facility" means any structure(s) or configuration of the ground that is used or by its location becomes a place where storm water flows or is

accumulated including, but not limited to, pipes, sewers, street gutters, manholes, catch basins, ponds, open drainageways and their appurtenances. Milton Creek, McNulty Creek, and the Columbia River are not storm drain facilities.

Response: This definition has been utilized in analyzing the area's public storm water facility needs.

17.152.110 Bikeways and off-street trails.

(1) Developments adjoining or containing proposed bikeways and off-street trails identified within adopted city plans, including but not limited to the Transportation Systems Plan (2011) and the Parks and Trails Master Plan (2015), shall include provisions for the future extension of such bikeways and off-street trails through the dedication of easements or rights-of-way (subject to constitutional limitations).

Response: The proposed development does not adjoin or contain any proposed bikeway or off-street trail identified within adopted City plans, including the TSP (2011) and the Parks and Trails Master Plan (2015); therefore, no dedications of easements or rights-of-way for bikeways and off-street trails are appropriate. This standard is not applicable.

WRONG! SEE STAFF REPT.

(2) Development permits issued for planned unit developments, conditional use permits, subdivisions, and other developments which will principally benefit from such bikeways and/or off-street trails shall be conditioned to include the cost of construction of bikeway and/or off-street trail improvements (subject to constitutional limitations).

Response: The proposed development will not principally benefit from a bikeway or off-street trail; therefore, no condition to include the cost of construction of a bikeway and/or off-street trail improvements is merited.

(3) Minimum width for bikeways within the roadway is six feet per bicycle travel lane. Minimum width for two-way bikeways separated from the road is eight feet.

Response: No new bikeways are proposed as part of this development. This standard is not applicable.

(4) Minimum off-street trail width is determined by the trail function and classification from Chapter 6 of the Parks and Trails Master Plan attached to Ordinance No. 3191 as Attachment A.

Response: No off-street trail as identified in the Parks and Trails Master Plan is proposed. This standard is not applicable.

17.152.120 Utilities.

(1) Underground Utilities. All utility lines including, but not limited to, those required for electric, communication, lighting and cable television services and related facilities shall be placed underground, except for surface-mounted transformers, surface-mounted connection boxes and meter cabinets which may be placed above ground, temporary utility service facilities during construction, high capacity electric lines operating at 50,000 volts or above, and:

- *(a) The subdivider shall make all necessary arrangements with the serving utility to provide the underground services;*
- *(b) The city reserves the right to approve location of all surface-mounted facilities;*
- *(c) All underground utilities, including sanitary sewers and storm drains installed in streets by the subdivider, shall be constructed prior to the surfacing of the streets; and*
- *(d) Stubs for service connections shall be long enough to avoid disturbing the street improvements when service connections are made.*

Response: Existing utilities are underground, but for the electrical service. The applicant seeks an exception to the undergrounding requirement for the electrical service, as detailed in response to Section

17.152.120(3). With the granting to the requested exception to undergrounding for electrical service, this standard is met.

(2) Information on Development Plans. The applicant for a subdivision shall show on the development plan, or in the explanatory information, easements for all underground utility facilities, and:

(a) Plans showing the location of all underground facilities as described herein shall be submitted to the city engineer for review and approval; and

(b) Care shall be taken in all cases to ensure that above ground equipment does not obstruct vision clearance areas for vehicular traffic.

Response: No subdivision is proposed as part of this application. This standard does not apply.

(3) Exception to Undergrounding Requirement.

(a) The applicant shall pay a fee in lieu of undergrounding costs when the development is proposed to take place on a street where existing utilities which are not underground will serve the development and the approval authority determines that the cost and technical difficulty of undergrounding the utilities outweigh the benefit of undergrounding in conjunction with the development. The determination shall be on a case-by-case basis. The most common, but not the only, such situation is a short frontage development for which undergrounding would result in the placement of additional poles, rather than the removal of above ground utilities facilities;

(b) An applicant for a development which is served by utilities which are not underground and which are located across a public right-of-way from the applicant's property shall pay the fee in lieu of undergrounding; and

(c) The exceptions in subsections (3)(a) and (b) of this section shall apply only to existing utility lines. All new utility lines shall be placed underground.

Response: As shown on the Utility Plan (Sheet C1.30 of Exhibit B), an overheard power line runs through the site. Undergrounding the power line would involve extensive work within a City-designated significant wetland (M-15). Therefore, the interference to the wetland, cost, and difficulty of undergrounding the power line would outweigh the benefit and the applicant requests an exception to the undergrounding requirement. This standard is met.

(4) Fee in Lieu of Undergrounding.

(a) The city engineer shall establish utility service areas in the city. All development which occurs within a utility service area shall pay a fee in lieu of undergrounding for utilities if the development does not provide underground utilities, unless exempted by this code;

(b) The city engineer shall establish the fee by utility service area which shall be determined based upon the estimated cost to underground utilities within each service area. The total estimated cost for undergrounding in a service area shall be allocated on a front-foot basis to each party within the service area. The fee due from any applicant shall be calculated based on a front-foot basis;

(c) An applicant shall receive a credit against the fee for costs incurred in the undergrounding of existing overhead utilities. The city engineer shall determine the amount of the credit, after review of cost information submitted by the applicant with the request for credit; and

(d) The funds collected in each service area shall be used for undergrounding utilities within the city at large. The city engineer shall prepare and maintain a list of proposed undergrounding projects which may be funded with the fees collected by the city. The list shall indicate the estimated timing and cost of each project. The list shall be submitted to the city council for their review and approval annually.

Response: The applicant has requested an exemption from the undergrounding requirement for the power line as described in the applicant's response to Section 17.152.120(3). Therefore, no fee-in-lieu is warranted pursuant to Section 17.152.120(4)(a). This standard is met.

17.152.130 Cash or bond required.

(1) All public improvements installed by the land divider shall be guaranteed as to workmanship and material for a period of one year following acceptance by the city council.

Response: No subdivision is proposed as part of this application. This standard does not apply.

(2) Such guarantee shall be secured by cash deposit or bond in the amount of the value of the improvements as set by the city engineer.

Response: No guarantee is required as no land division is proposed as explained above in the applicant's response to 17.152.130(1). This standard is not applicable.

(3) The cash or bond shall comply with the terms and conditions of SHMC 17.136.180.

Response: No subdivision is proposed as part of this application. The applicant will obtain required permits and provide appropriate performance guarantees as specified by City code. This standard is met.

17.152.140 Monuments.

Any monuments that are disturbed before all improvements are completed by the land divider shall be replaced prior to final acceptance of the improvements.

Response: No survey monumentation is required as no new lots are proposed and no right-of-way dedication is required. If any survey monuments are disturbed, the disturbed monuments will be reset in accordance with state law. This standard does not apply.

17.152.150 Installation – Prerequisite/permit fee.

(1) No land division public facility improvements, including sanitary sewers, storm sewers, streets, sidewalks, curbs, lighting or other requirements, shall be undertaken except after the plans have been approved by the city, permit fee paid (if any), and permit issued (if required).

Response: The applicant will only begin improvements after appropriate permits are issued. Compliance with this provision will be demonstrated during permitting. This standard is met.

(2) A permit fee may be required to defray the costs and expenses incurred by the city for construction and other services in connection with the public facility improvement. The permit fee shall be determined by the city engineer based upon estimates.

Response: The applicant will obtain required permits and provide appropriate performance guarantees as specified by City code. This standard is met.

17.152.160 Installation – Conformation required.

(1) In addition to other requirements, public facility improvements installed by the land divider, either as a requirement of these regulations or at his own option, shall conform to the requirements of this chapter and to improvement standards and specifications followed by the city.

Response: No land division is proposed. This standard is not applicable.

(2) The Standard Specifications for Public Works Construction, Oregon Chapter APWA, shall be a part of the city's adopted installation standard(s); other standards may also be required upon recommendation of the city engineer.

Response: No land division is proposed as part of this application. The applicant will obtain required permits and provide appropriate performance guarantees as specified by City code. This standard is met.

17.152.170 Plan checking required.

(1) Work shall not begin until four (for city engineer, applicant, public works, and file) sets of construction and construction estimate plans have been submitted and checked for adequacy and approved by the city in writing.

Response: This applicant will not commence work until the construction plans have been approved by the City in writing. This standard will be met.

(2) All such plans shall be prepared in accordance with requirements of the city.

Response: The applicant will obtain required permits and provide sufficient plans as specified by City code. This standard is met.

17.152.180 Notice to city required.

(1) Work shall not begin until the city has been notified in advance.

Response: The applicant will notify the City prior to the commencement of work. This standard will be met.

(2) If work is discontinued for any reason, it shall not be resumed until the city is notified.

Response: The applicant will obtain required permits and provide sufficient notice to staff as specified by City code. This standard is met.

17.152.190 City inspection required.

Public facility improvements shall be constructed to the satisfaction of the city. The city may require changes in typical sections and details if unusual conditions arising during construction warrant such changes in the public interest.

Response: The applicant intends all public facility improvements to be constructed to the satisfaction of the City. The applicant understands the City's authority to request changes in typical sections and details if unusual conditions arise during construction which warrant changes in the public interest.

17.152.200 Engineer's certification required.

The land divider's engineer shall provide written certification on a form provided by the city that all public facility improvements, workmanship and materials are in accord with current and standard engineering and construction practices, and are of high grade, prior to city acceptance of the subdivision's public improvements or any portion thereof for operation and maintenance. In most cases, "as-built" drawings are required prior to acceptance by the city of any public facilities.

Response: No land division is proposed as part of this application. The applicant will obtain required permits and coordinate with staff for public facility certifications as specified by City code. This standard is met.

Chapter 17.156 Traffic Impact Analysis

Response: As stated in the applicant's response to Section 17.156.030, and the enclosed Trip Generation and Parking Analysis Letter (Exhibit F), a traffic impact analysis is not required as part of this proposed development. This standard is not applicable.

17.156.020 Typical average daily trips and level-of-service standards.

(1) The latest edition of the trip generation manual published by the Institute of Transportation Engineers (ITE) shall be used as standards by which to gauge average daily vehicle trips.

Response: The traffic impact analysis (Exhibit F) indicates that vehicle trip generation characteristics of a police station are not documented in the ITE *Trip Generation Manual;* therefore, historical trip surveys have been conducted by Mackenzie and by Kittelson & Associates for police facilities. These surveys were taken in Beaverton, Oregon, and east and west Vancouver, Washington. All surveyed police facilities operate 24 hours a day.

17.156.030 Applicability.

A traffic impact analysis shall be required to be submitted to the city with a land use application when the application involves one or more of the following actions:

(1) A change in zoning or a comprehensive plan amendment designation, except when the change will result in a zone or plan designation that will result in less vehicle trips based on permitted uses (e.g., from a high density residential district to a lower density residential district or from a commercial district to a residential district);

Response: No change in zoning or comprehensive plan amendment designation is proposed. This standard is not applicable.

(2) The site proposes to take access on Highway 30 or on an approach to Highway 30; or

Response: Access to the site is from Kaster Road, which is not an approach to Highway 30. This standard is not applicable.

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

- *(a) The proposed action is estimated to generate 2501 average daily trips (ADT) or more or 25 or more weekday a.m. or p.m. peak hour trips (or as required by the city engineer);*
- *(b) The proposed action is projected to further degrade mobility at the Deer Island Road/Highway 30, Pittsburg Road/Highway 30, Wyeth Street/Highway 30, Gable Road/Highway 30, or Millard Road/Highway 30 intersections;*
- *(c) An increase in use of adjacent streets by vehicles exceeding the 20,000 pound gross vehicle weights by 10 vehicles or more per day;*
- *(d) The location of the access driveway does not meet minimum intersection sight distance requirements, or is located where vehicles entering or leaving the property are restricted, or such vehicles queue or hesitate, creating a safety hazard;*
- *(e) The location of the access driveway does not meet the access spacing standard of the roadway on which the driveway is located; or*
- *(f) A change in internal traffic patterns that may cause safety problems, such as backup onto the highway or traffic crashes in the approach area.*

Response: As discussed in the Trip Generation and Parking Analysis (Exhibit F), a Traffic Impact Analysis is not warranted as the development does not cause one or more of the effects outlined in Section 17.156.030(3). The standards in this section are therefore not applicable.

17.156.090 Conditions of approval.

The city may deny, approve, or approve a development proposal with appropriate conditions needed to meet operations and safety standards and provide the necessary right-of-way and improvements to develop the future planned transportation system. Conditions of approval that should be evaluated as part of land divisions, conditional use permits, and site development reviews include:

(1) Crossover or reciprocal easement agreements for all adjoining parcels to facilitate future access between parcels.

Response: The use of the site has specific security concerns in order to maintain safety and efficient operation of public safety activities. A crossover or reciprocal easement for the adjoining parcels is not practicable as it could reduce emergency response times and degrade safety precautions.

(2) Access for new developments that have proposed access points that do not meet the designated access spacing policy and/or have the ability to align with opposing access driveways.

Response: As noted in the Trip Generation and Parking Analysis Letter (Exhibit F), access spacing is not met for the nearest driveway (Recreation Center east driveway). The Recreation Center's east driveway appears to be used infrequently as the Recreation Center is permanently closed. In the professional opinion of the applicant's traffic engineer, the access spacing is not expected to create any safety concern. This standard is not applicable.

(3) Right-of-way dedications for future planned roadway improvements.

Response: No right-of-way dedications are warranted for this development as the right-of-way width is met for both Kaster Road and Old Portland Road as further described in Section 17.152.030. This standard is not applicable.

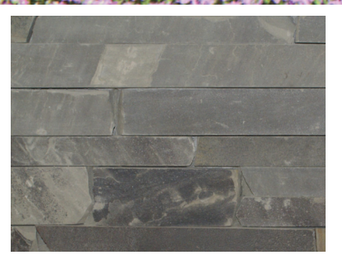
(4) Half-street improvements along site frontages that do not have full-buildout improvements in place at the time of development.

Response: The City of St. Helens has plans to construct a roundabout at the intersection of Old Portland Road and Kaster Road. Therefore, half-street improvements along the western edge of the proposed driveway to the Kaster Road and Old Portland Road intersection would be impracticable as a design for the roundabout has not yet been established.

The proposed development impact area is approximately one-half of the subject site as shown on Sheet C1.00 of Exhibit B, with frontage on both Kaster Road and Old Portland Road. The proposed frontage improvements (see Sheet C1.11 of Exhibit B) are proportional to the impact of the development as the linear distance of the proposed half-street frontage improvements is approximately half of the total linear distance of Kaster Road and Old Portland Road combined. As proportional frontage improvements are included as part of this proposal, no condition of approval requiring additional improvements is merited.

IV. CONCLUSION

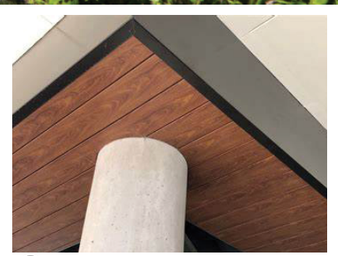
Based on the information presented and discussed in this narrative and the attached supporting plans and documentation, this application meets applicable standards necessary for land use approval. The proposed development complies with all applicable standards of the Community Development Code. The applicant respectfully requests approval by the City.



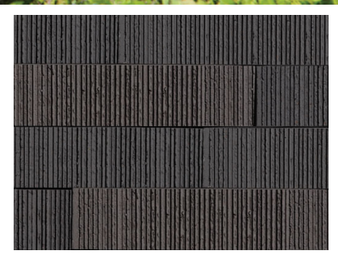
1 BLACK HORSE
ALPINE LEDGESTONE

2 ATLAS STRUCTURAL
BRICK - BLACK OPAL

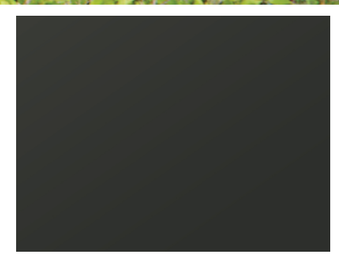
3 GLASS -
SOLARBAN 60



4 WOOD **COLOR** SOFFIT



5 ATLAS STRUCTURAL
BRICK - OBSIDIAN



6 FLASHING/FASCIA -
BLACK ANODIZED

MACKENZIE.

City of St. Helens

St. Helens Public Safety Building
2210310.04

SW Perspective

6.28.2023

City of St. Helens Public Safety Building St. Helens, Oregon

LEGEND

- Subject Site
- Tax Lots

Flood Hazard Zones

- 1% Annual Chance Flood Hazard
- 0.2% Annual Chance Flood Hazard

0 75 150 300 Feet

N

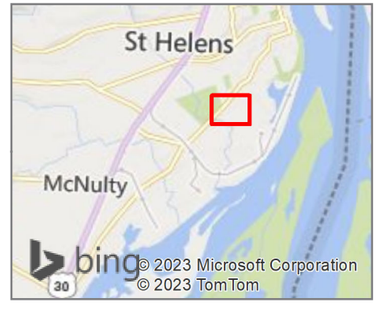
1 inch = 150 feet

SOURCE DATA:
Columbia County 2020
City of St. Helens 2019

GEOGRAPHIC PROJECTION:
NAD 83 HARN, Oregon North
Lambert Conformal Conic

Date: 6/15/2023
File: Aerial Map

Map Created By: JBM
Project No: 2210310.00



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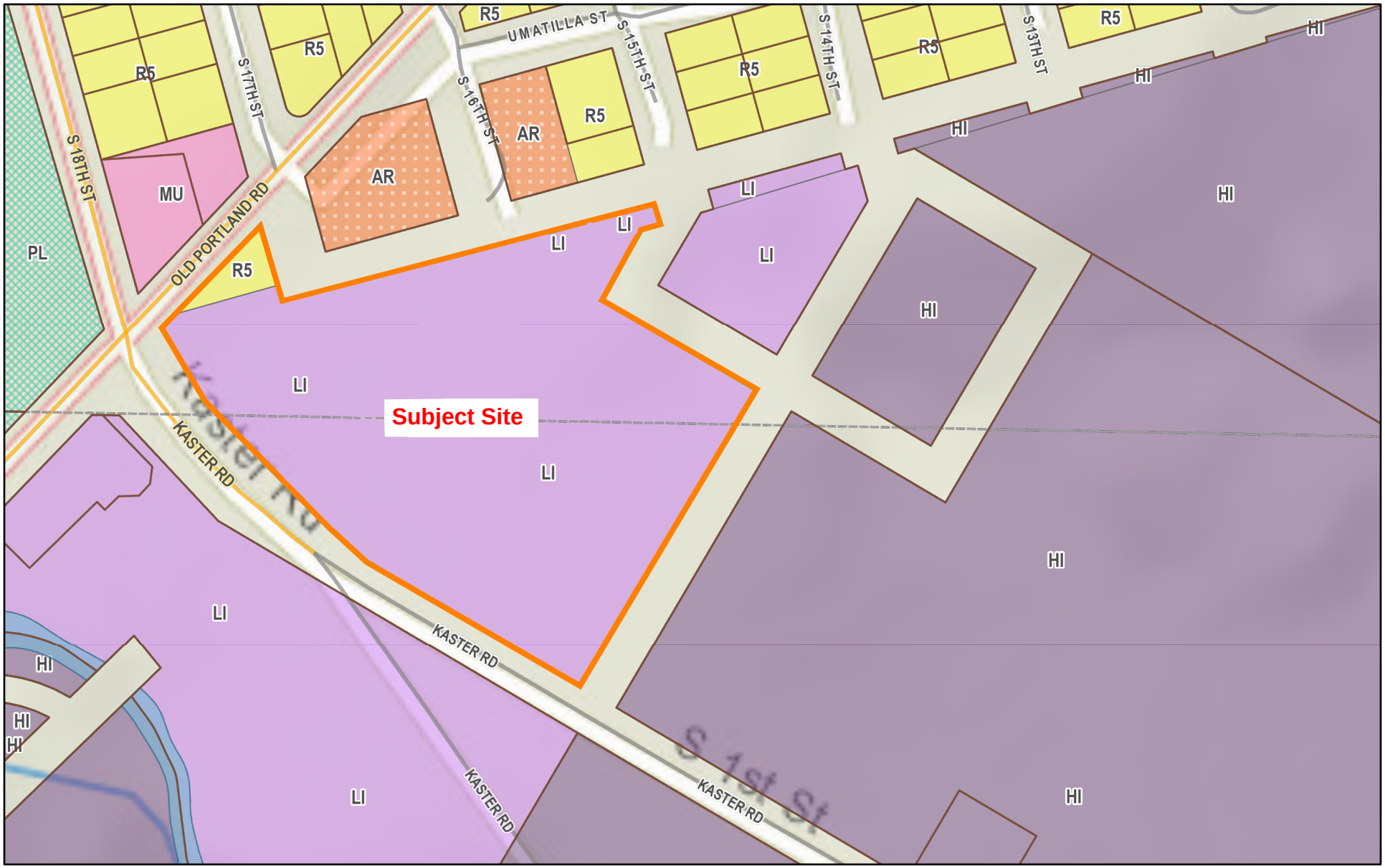
P 503.224.9560 ▪ F 503.228.1285 ▪ W MCKNZE.COM
RiverEast Center, 1515 SE Water Avenue, #100, Portland, OR 97214

Portland, Oregon ▪ Vancouver, Washington ▪ Seattle, Washington

St. Helens Public Safety Building

Source Data: Columbia County GIS



8/24/2022, 5:04:39 PM

1:2,400

0 112.5 225 450 ft

0 30 60 120 m

Taxlots
Township & Range
Sections
Minor Roads
Arterial Roads
City Limits
Streams
Streams
Zoning - St. Helens
General Residential (R5)
Apartment Residential (AR)

National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

Columbia County, OR

MACKENZIE.

PRELIMINARY DRAINAGE REPORT

To
City of St Helens

For
St Helens Public Safety
Kaster Road and
Old Portland Road
St Helens, OR 97051

Dated
June 28, 2023

Project Number
2210310.00

MACKENZIE
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RiverEast Center | 1515 SE Water Avenue, Suite 101, Portland, OR 97214
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Figures

Tables

Appendices

I. PROJECT OVERVIEW AND DESCRIPTION

The proposed St Helens Public Safety Building project is located at the intersection of Kaster Road and Old Portland Road in St Helens, Oregon. The land is currently zoned under Light Industrial (LI), and a small portion of the lot on Old Portland Road is General Residential (R5) and its proposed use is a police station. The project is adjacent to an existing wetland per report provided in Appendix E. The project consists of a new building, parking (public and secure), maneuvering space, landscaping and utility improvements.

Existing Conditions

The site is currently undeveloped and mostly grass covered with clusters of trees. Existing slopes are variable across the site but are generally less than 10% and falls from the intersection of Old Portland Road and Kaster Road toward the existing wetland east of the vacated 7th Street right-of-way, where the some of the site currently drains to an area drain through an existing 18" pipe, and ultimately to the adjacent wetland. Per the Geotechnical Report by Hart Crowser, the soil is identified as alluvial sandy silts and clays, the regional groundwater table is found at a depth of 20-32 feet below ground surface.

The 100-year floodplain overlaps the west corner of the site near the intersection of Kaster Road and Old Portland Road. There is also a wetland located near the NE corner of the improvements.

Figure 1: Vicinity Map

Proposed Improvements

The St Helens Public Safety Building will consist of a new 11,100 ft^2 building with public parking southwest of the building and secure parking on the south/southeast/east sides of the building. Site upgrades also include landscaping and supporting utilities. Stormwater from impervious areas of the site sheet flow to catch basins and are conveyed via pipe to a stormwater pond located south of the building and west of the existing wetlands. The proposed stormwater pond provides both water quality and detention. Stormwater discharges to an existing 18-inch public stormline near the SE corner of the site after passing through a control manhole, and outfalls to an existing natural drainage area east of the project.

Per the attached Geotechnical Report, infiltration is not feasible for this site.

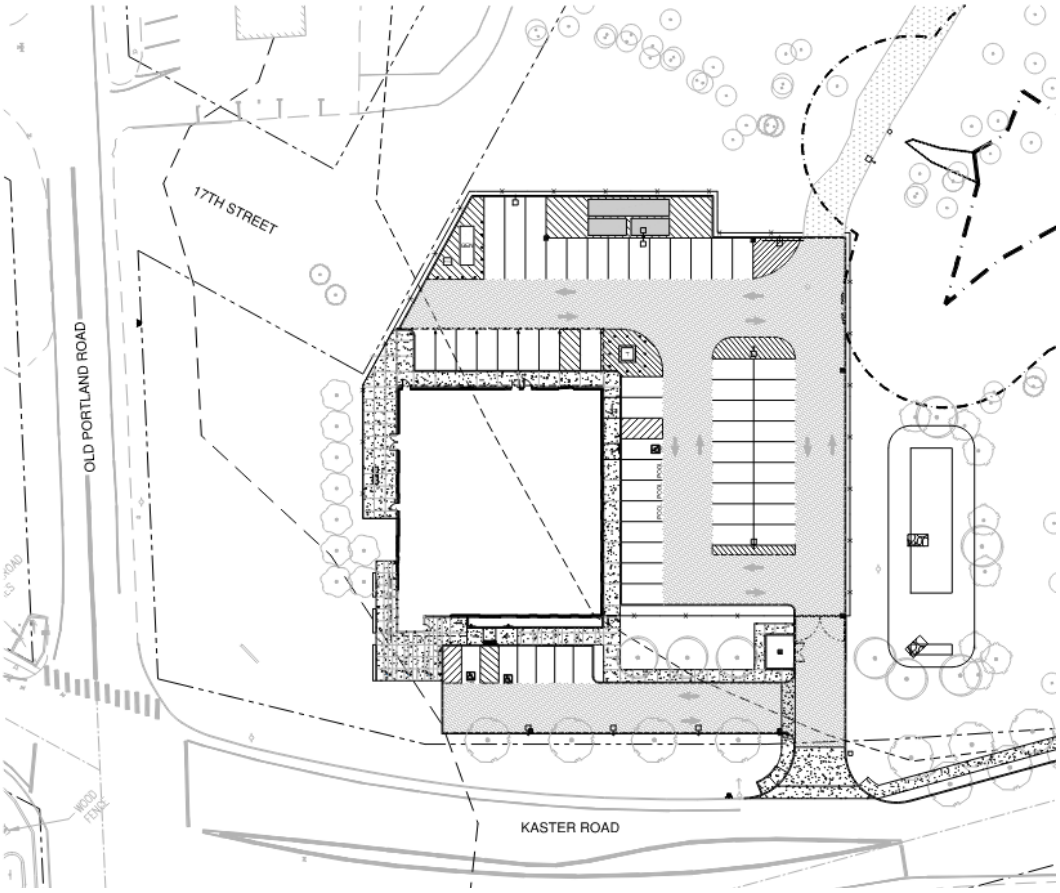


Figure 2: Site Plan

II. BASIS OF DESIGN

The Basis of Design for Stormwater Quality and Flow Control, as determined by the City of St Helens Municipal Code Chapter 18.16 in conjunction with the 2021 King County Surface Water Design Manual, is as follows:

Per City of St Helens Municipal Code, Article VII, infiltration facilities shall not be accepted in soils with a tested infiltration rate less than 0.5 inches/hour. Per the Geotechnical Report (Appendix D), design infiltration rates vary from 0.2 to 0.7 inches per hour depending on the test pit location. The test pit nearest the location of the pond (test pit #5) has a design infiltration rate of 0.2 inches/hour, thus infiltration is not feasible for this site.

The water quality design volume of runoff, per King County Surface Water Design Manual, can be predicated from a 24-hour storm with a 6-month return frequency (6-month, 24-hour storm), which may be assumed to be 72% of the 2-year, 24-hour event. Basic wetpond sizing methodology can be found in the KCSWDM chapter 6.4.1.1.

Water quantity, per City of St Helens Municipal Code Article VI, is required for sites within the Milton Creek Drainage Basin or other basins and shall provide detention when proposed development will cause increased flows that could overwhelm downstream facilities in a large storm event. Detention facilities should be designed to provide storage using a 25-year event, with peak release rates not exceeding predevelopment rates for the 10-year, 24-hour storm, and safe overflow of the 100-year storm. Detention facilities should be over excavated to allow one-half foot of dead storage for sediment deposition and a minimum 1-ft freeboard from the 25-year design water surface. The facility can be a combine water quality and quantity facility provided it meets all relevant criteria.

The Rational Method and Unit Hydrograph Methods are both acceptable hydrologic analysis methods per City of St Helens Municipal Code, Article VI. The Santa Barbara Urban Hydrograph (SBUH) will be the unit hydrograph method used.

III. ANALYSIS

Methodology

Per the Geotechnical Report (Appendix D), infiltration is not feasible for this site due to the design infiltration rate in the area where the pond is located being less than 0.5 inches/hour. Table 1 below describes a summary of areas and curve numbers used for the SBUH analysis. The resulting hybrid CN is calculated to be 90.

Table 1: Area Summary

Cover Type	Pre-Development Conditions			Post Development Conditions		
	Area (ft^2)	Hydrologic Soil Group	CN	Area (ft^2)	Hydrologic Soil Group	CN
Open Space – Good Condition	83,019	C/D	88.5*	29,785	C/D	74
Paved Streets, Parking Lots	N/A	N/A	N/A	42,134	N/A	98
Building Roof	N/A	N/A	N/A	11,100	N/A	98

*Per City of St Helens Stormwater Master Plan

Table 2: Precipitation Rates**

Storm Event	24-HR Precipitation (inches)
2-year	2.0
10-year	3.0
25-year	3.5
100-year	4.0

**Per City of St Helens Stormwater Masterplan, Section 3

Water Quality

Water quality will be provided in the wet pond (dual facility) and will be sized to treat a water quality storm of 1.44 inches over a required treatment area of 2.72 acres. Per the 2021 King County Surface Water Design Manual (KCSWDM), Table 6.2.1.A the 6-month, 24-hour storm event can be calculated by taking 72% of the 2-year, 24-hour storm event depth. Per Table 2, the 2-year, 24-hour storm event is 2.0 inches:

P = 72% of 2-yr 24-hr storm depth

= 0.72 * (2.0 inches) = 1.44 inches

See Table 3 below for the reported factors of the final weighted curve number for King County Equation 6-17 below.

Table 3: Weighted Curve Number Summary

Area Type	Tributary Area (ft^2)	Tributary Area (AC)	CN
Roof/Pavement	53,234	1.22	98
Landscape	29,785	0.66	74
Composite	83,019	1.88	90

Per King County Equation 6-17

S = (1,000/CN) – 10

S = (1,000/90) – 10

S = 1.11

Per King County Equation 6-15 (for P ≥ 0.2S), the runoff depth (in inches) over the area:

$$Qd = \frac{(P - 0.2S)^2}{(P + 0.8S)}$$

$$Qd = \frac{(1.44 - 0.2(1.11))^2}{(1.44 + 0.8(1.11))}$$

$$Qd = 0.64\ inches$$

The total volume of runoff is then found by multiplying Qd by the area (with necessary conversions)

Total runoff volume = (3,630 ft^3/ac-in) * (Q_d) * A

= (3,630 ft^3/ac-in) * (0.64 inches) * (1.88 ac)

= 4,368 ft^3

The pond is designed with two cells, the first cell (Cell 1) is sized to contain between 25-35% of the wetpool volume calculated above.

See Table 5 for stage storage summary; the corresponding water quality depth for the above calculated runoff volume is 2.1-ft, so water quality will occur from 54.40 to 56.50 feet.

Water Quantity & Flow Control

Flow rates as shown in Table 4 are calculated using the SBUH Method and Autodesk Hydraflow Hydrographs Extension – see Appendix A for Hydraflow results. The project proposes a wet pond with a control manhole to provide the required detention and is designed so that peak flow rates from post-development 25-year 24-hour storm event is less than or equal to the peak flow rates from pre-development conditions for a 10-year 24-hour design storm. The wet pond is a combined facility providing both water quality and water quantity, so the bottom is designed to have a permanent pool sized to provide water quality for the site.

Infiltration will not be utilized as the Geotechnical Report states infiltration is not feasible for this site.

The pond is approximately 70-ft long with a 20-ft wide bottom, 3:1 side slopes and a total depth of 4-ft. The first 2.1-ft of depth is a permanent pool providing water quality, and a minimum 1-ft freeboard above the 100-year depth is provided.

The pre-development for the 10-year is 0.865 cfs, and the post-developed 25-year mitigated flow is 0.847 cfs. The requirement for water quantity and flow control is met.

Table 4: Pre vs. Post Construction Flow Rates

Peak Flow Rate (CFS) for a 24-hr Storm					
10-year		25-year		100-year	
Pre	Post	Pre	Post	Pre	Post
0.865	0.674	1.092	0.861	1.322	1.030

Table 5: Stage Storage Summary					
Contour (ft)	Area (ft^2)	Cumulative Volume (ft^3)	Area (ft^2)	Cumulative Volume (ft^3)	Cumulative Volume (ft^3)
	Cell 1		Cell 2		Pond
54.40	0	0	1,400	0	0
55	108	27	1,735	784	811
56	273	122	2,335	1,801	1,924
56.50	381	286	2,656	3,049	3,335
57	485	501	2,989	4,463	4,965
58	0	744	3,710	7,813	8,557

Conveyance

Per City of St Helens Municipal Code Article VIII, conveyance systems shall be designed to convey and contain at least the peak runoff for the 25-year design storm. Pipe size calculations are provided in Appendix B.

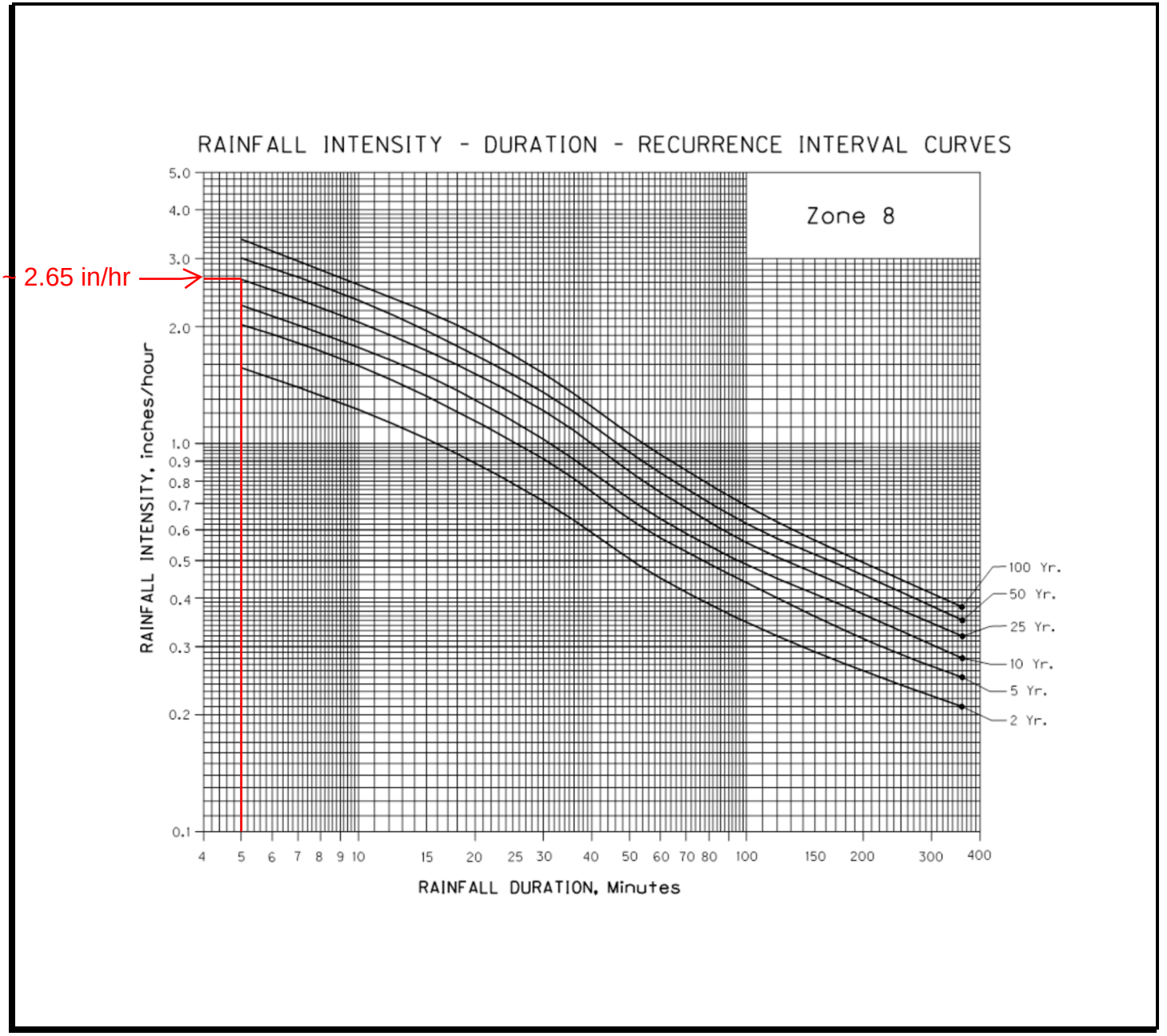
IV. ENGINEERING CONCLUSIONS

Based on compliance with the City of St Helens Municipal Code Chapter 18.16 and the King County Surface Water Design Manual, a wetpond with a permanent pool is proposed to provide both water quality and flow control for the site.

APPENDIX A

WATER QUANTITY CALCULATIONS

5-min, 25-year → 2.65 in/hr



Pond Report

Pond No. 1 - Pond

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 56.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	56.50	3,038	0	0
1.00	60.50	3,474	3,253	3,253
2.00	61.50	3,710	3,591	6,844

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 8.50	5.50	Inactive	0.00
Span (in)	= 8.50	5.50	6.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 56.50	58.00	58.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

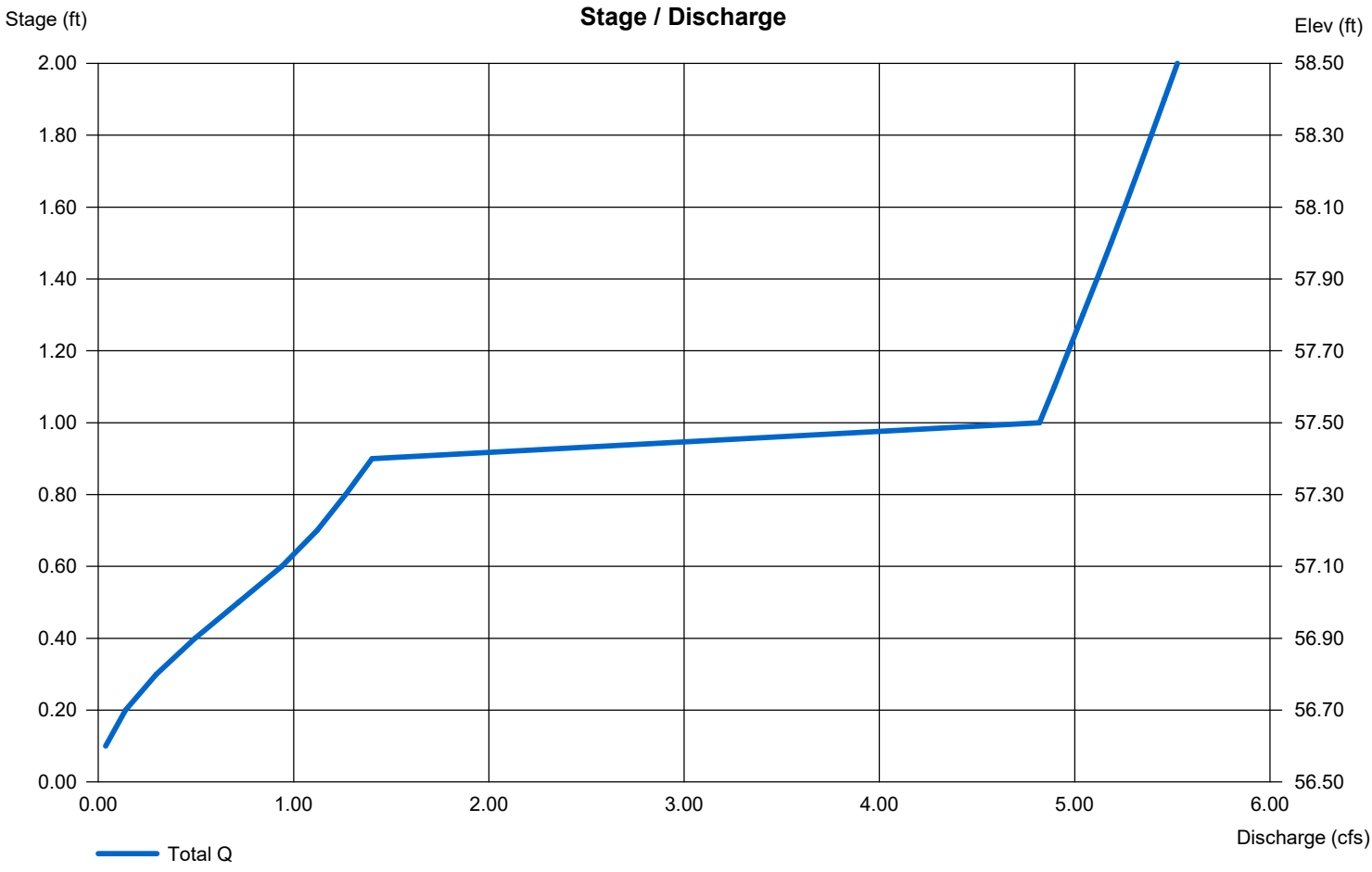
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	0.00	0.00	0.00
Crest El. (ft)	= 56.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Hydrograph Report

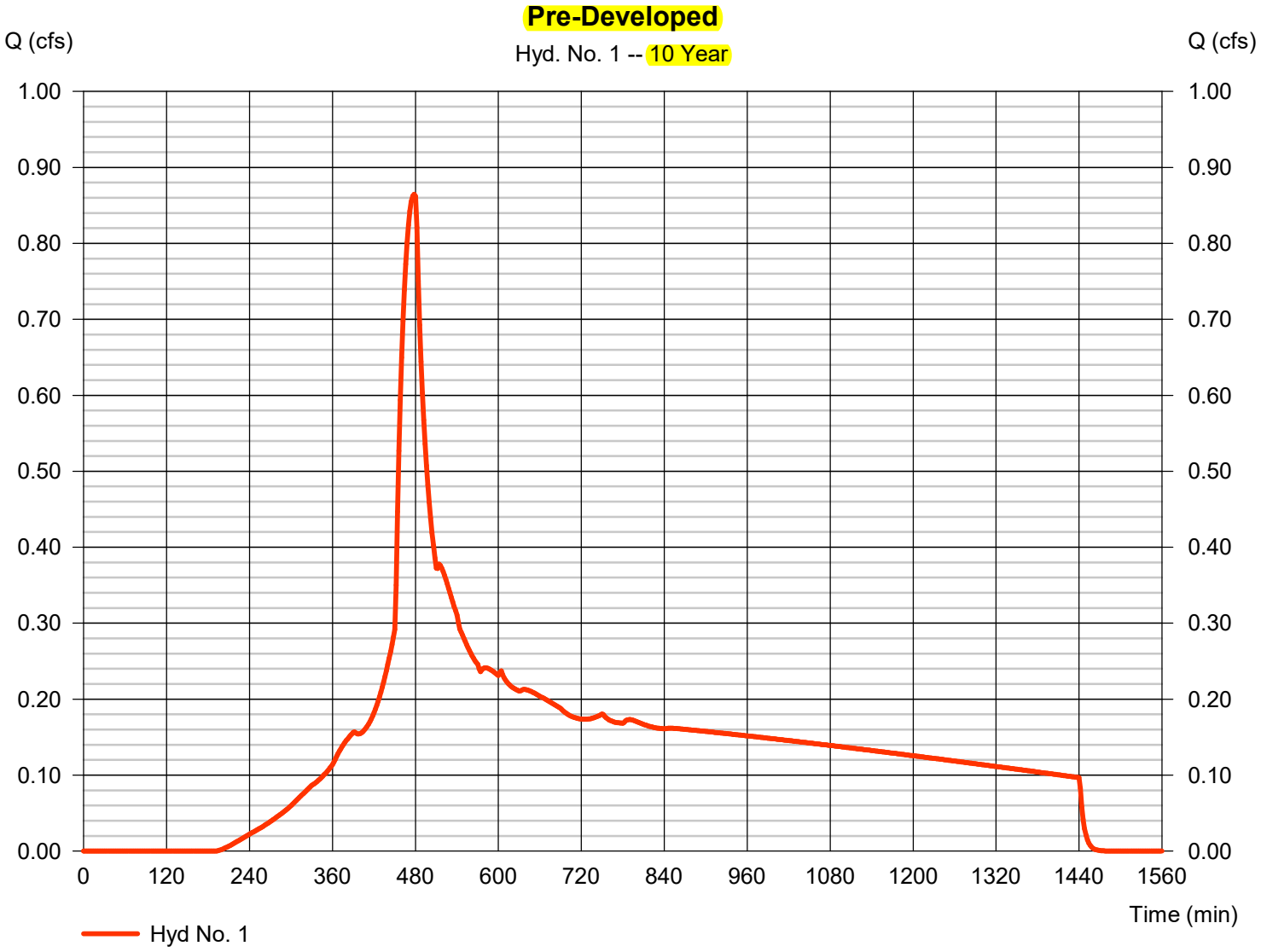
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Friday, 06 / 9 / 2023

Hyd. No. 1

Pre-Developed

Hydrograph type	=	SBUH Runoff	Peak discharge	=	0.865 cfs
Storm frequency	=	10 yrs	Time to peak	=	478 min
Time interval	=	2 min	Hyd. volume	=	12,684 cuft
Drainage area	=	1.880 ac	Curve number	=	88.5*
Basin Slope	=	2.0 %	Hydraulic length	=	275 ft
Tc method	=	LAG	Time of conc. (Tc)	=	5.90 min
Total precip.	=	3.00 in	Distribution	=	Type IA
Storm duration	=	24 hrs	Shape factor	=	n/a

* Composite (Area/CN) = [(0.910 x 74) + (1.720 x 98)] / 1.880



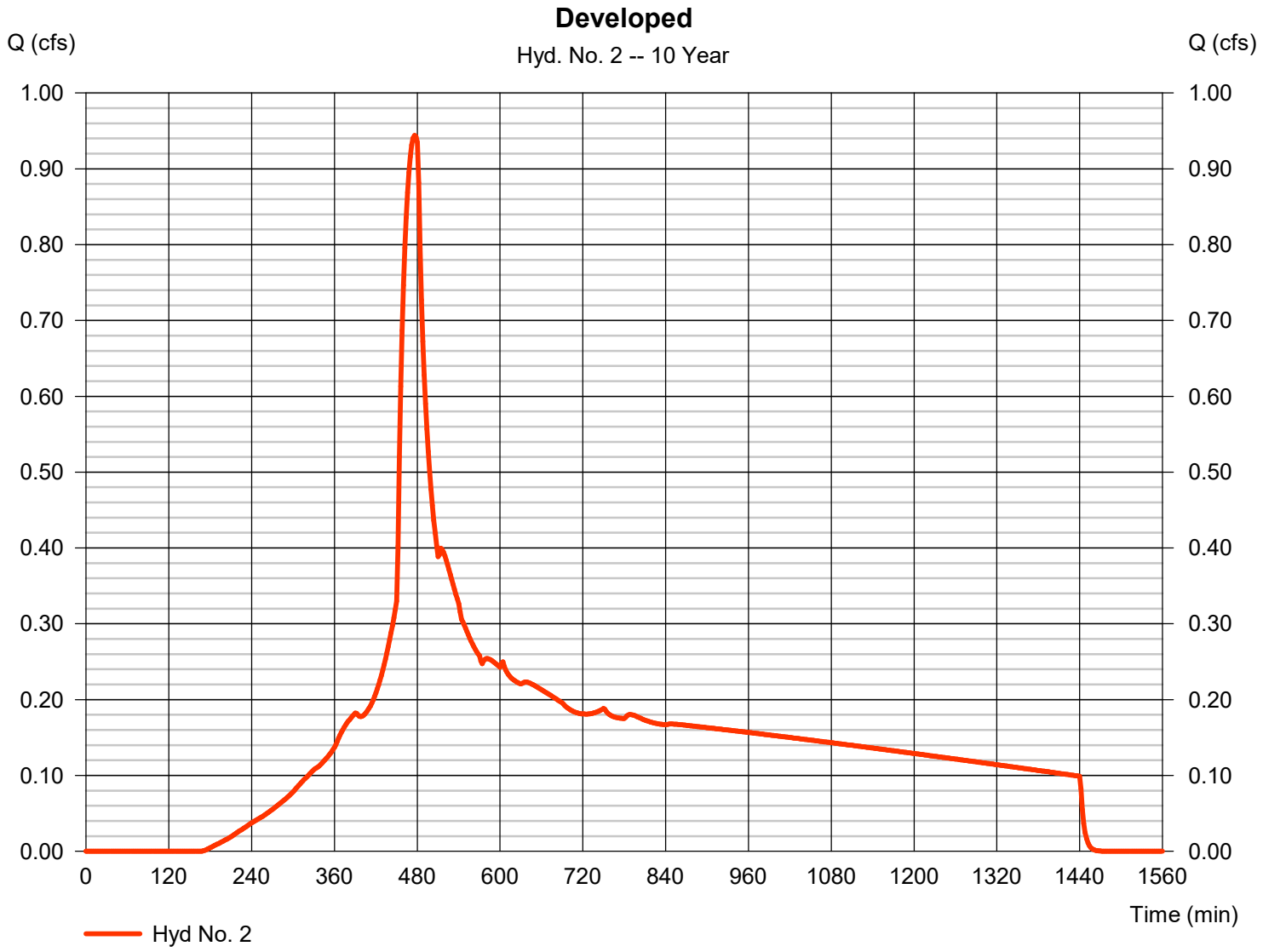
Hydrograph Report

Hyd. No. 2

Developed

Hydrograph type	= SBUH Runoff	Peak discharge	= 0.944 cfs
Storm frequency	= 10 yrs	Time to peak	= 476 min
Time interval	= 2 min	Hyd. volume	= 13,540 cuft
Drainage area	= 1.880 ac	Curve number	= 90*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.00 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= n/a

* Composite (Area/CN) = [(0.660 x 74) + (1.220 x 98)] / 1.880



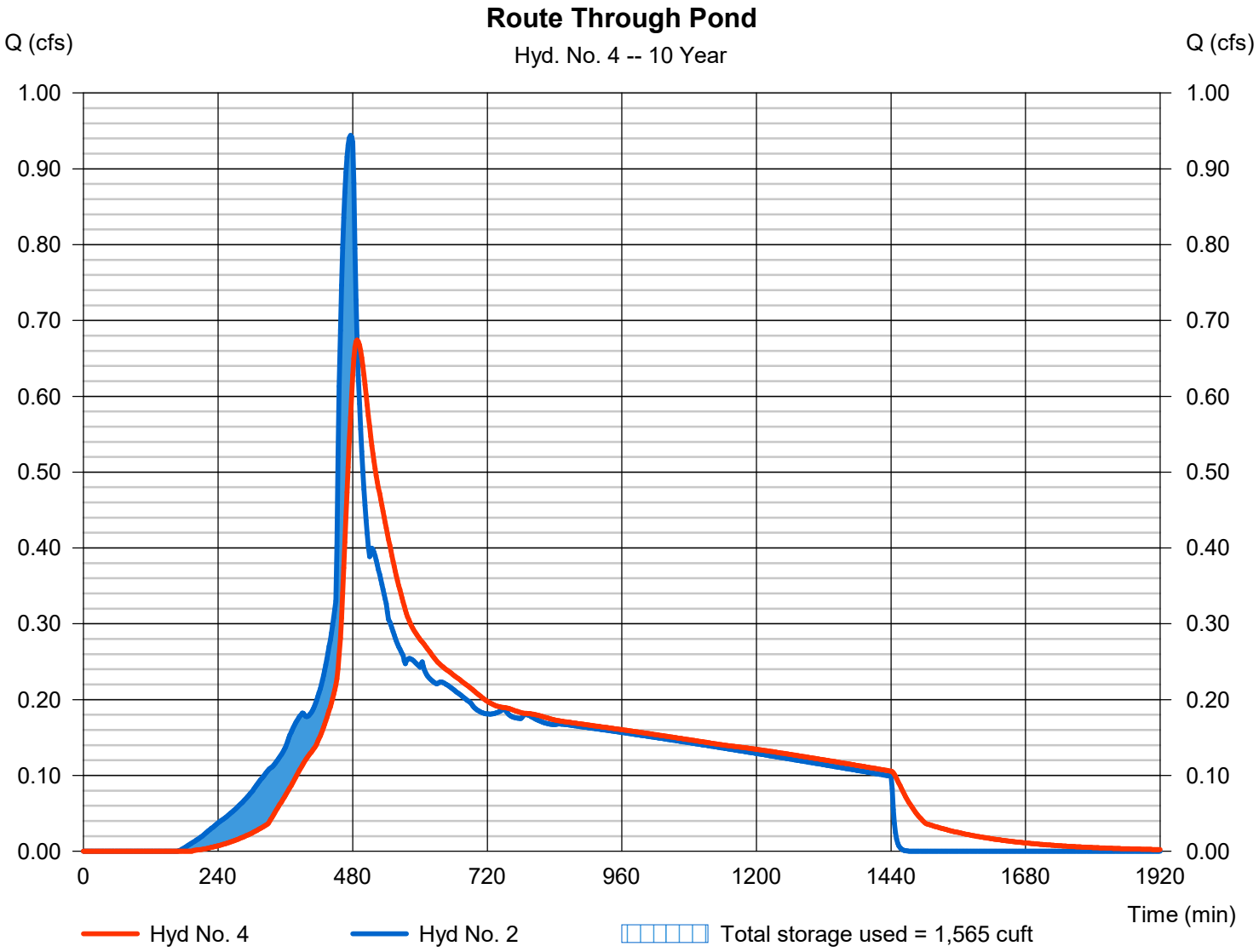
Hydrograph Report

Hyd. No. 4

Route Through Pond

Hydrograph type	=	Reservoir	Peak discharge	=	0.674 cfs
Storm frequency	=	10 yrs	Time to peak	=	488 min
Time interval	=	2 min	Hyd. volume	=	13,532 cuft
Inflow hyd. No.	=	2 - Developed	Max. Elevation	=	56.98 ft
Reservoir name	=	Pond	Max. Storage	=	1,565 cuft

Storage Indication method used.



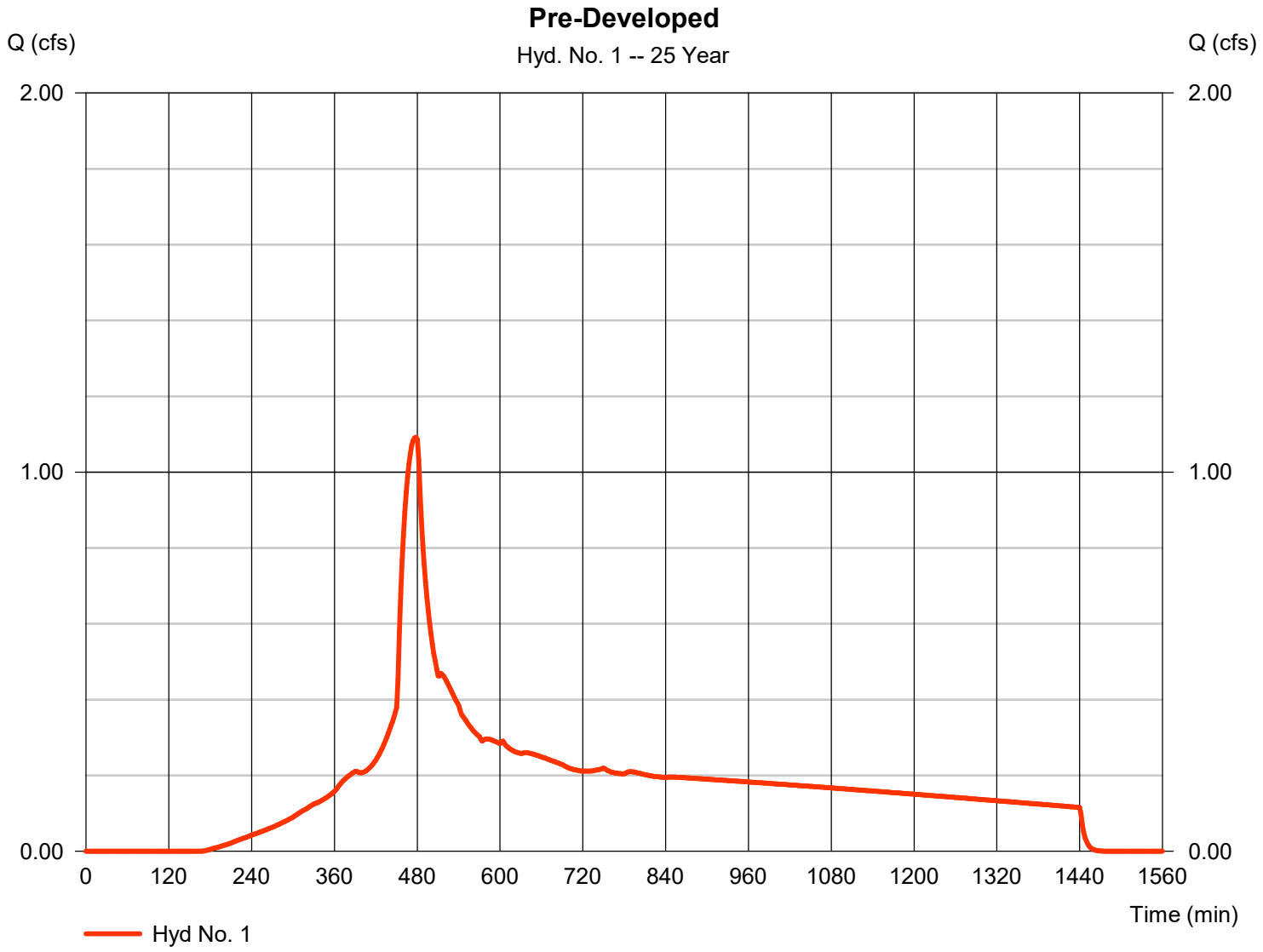
Hydrograph Report

Hyd. No. 1

Pre-Developed

Hydrograph type	=	SBUH Runoff	Peak discharge	=	1.092 cfs
Storm frequency	=	25 yrs	Time to peak	=	478 min
Time interval	=	2 min	Hyd. volume	=	15,782 cuft
Drainage area	=	1.880 ac	Curve number	=	88.5*
Basin Slope	=	2.0 %	Hydraulic length	=	275 ft
Tc method	=	LAG	Time of conc. (Tc)	=	5.90 min
Total precip.	=	3.50 in	Distribution	=	Type IA
Storm duration	=	24 hrs	Shape factor	=	n/a

* Composite (Area/CN) = [(0.910 x 74) + (1.720 x 98)] / 1.880



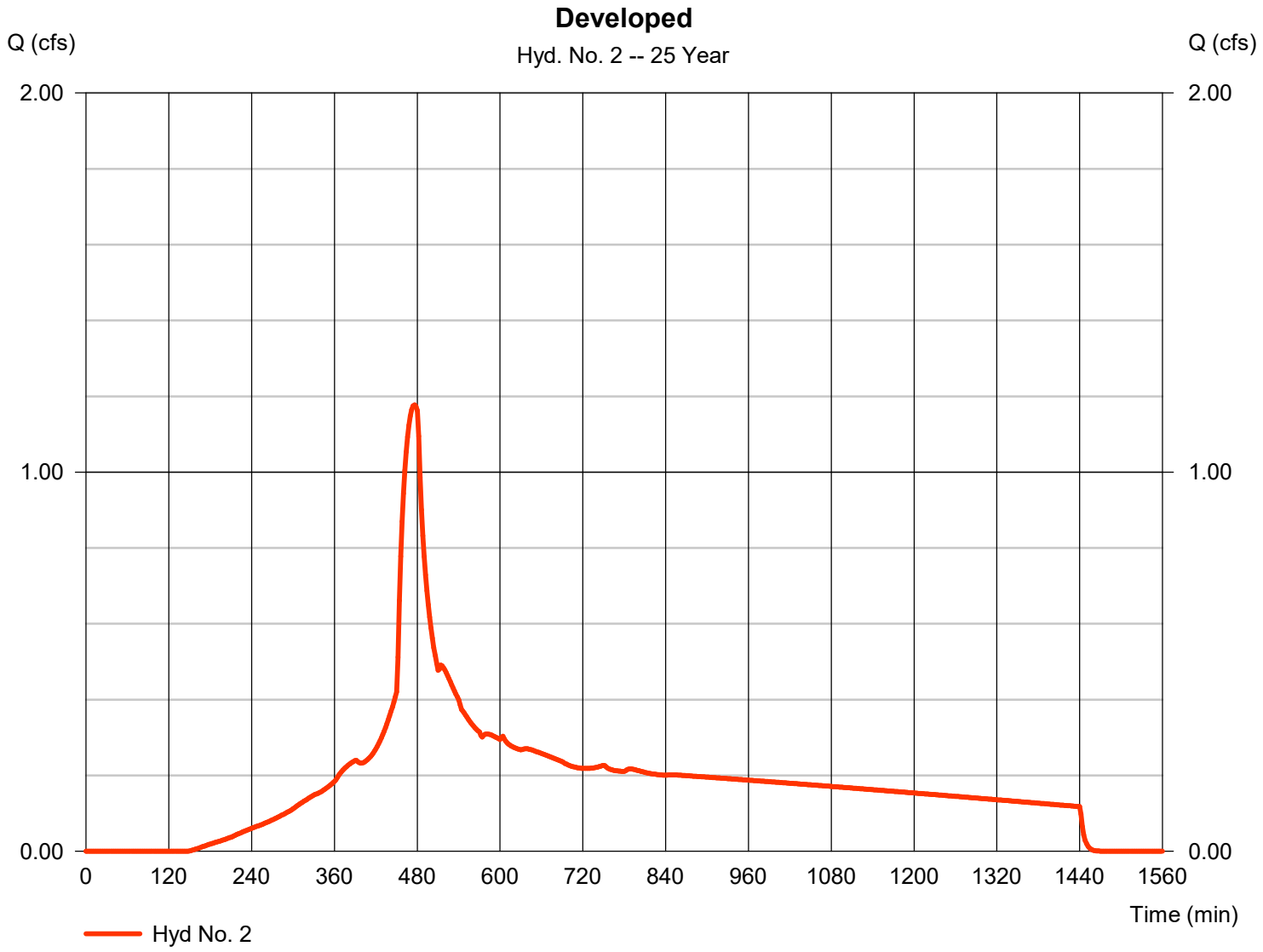
Hydrograph Report

Hyd. No. 2

Developed

Hydrograph type	=	SBUH Runoff	Peak discharge	=	1.177 cfs
Storm frequency	=	25 yrs	Time to peak	=	476 min
Time interval	=	2 min	Hyd. volume	=	16,706 cuft
Drainage area	=	1.880 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.50 in	Distribution	=	Type IA
Storm duration	=	24 hrs	Shape factor	=	n/a

* Composite (Area/CN) = [(0.660 x 74) + (1.220 x 98)] / 1.880



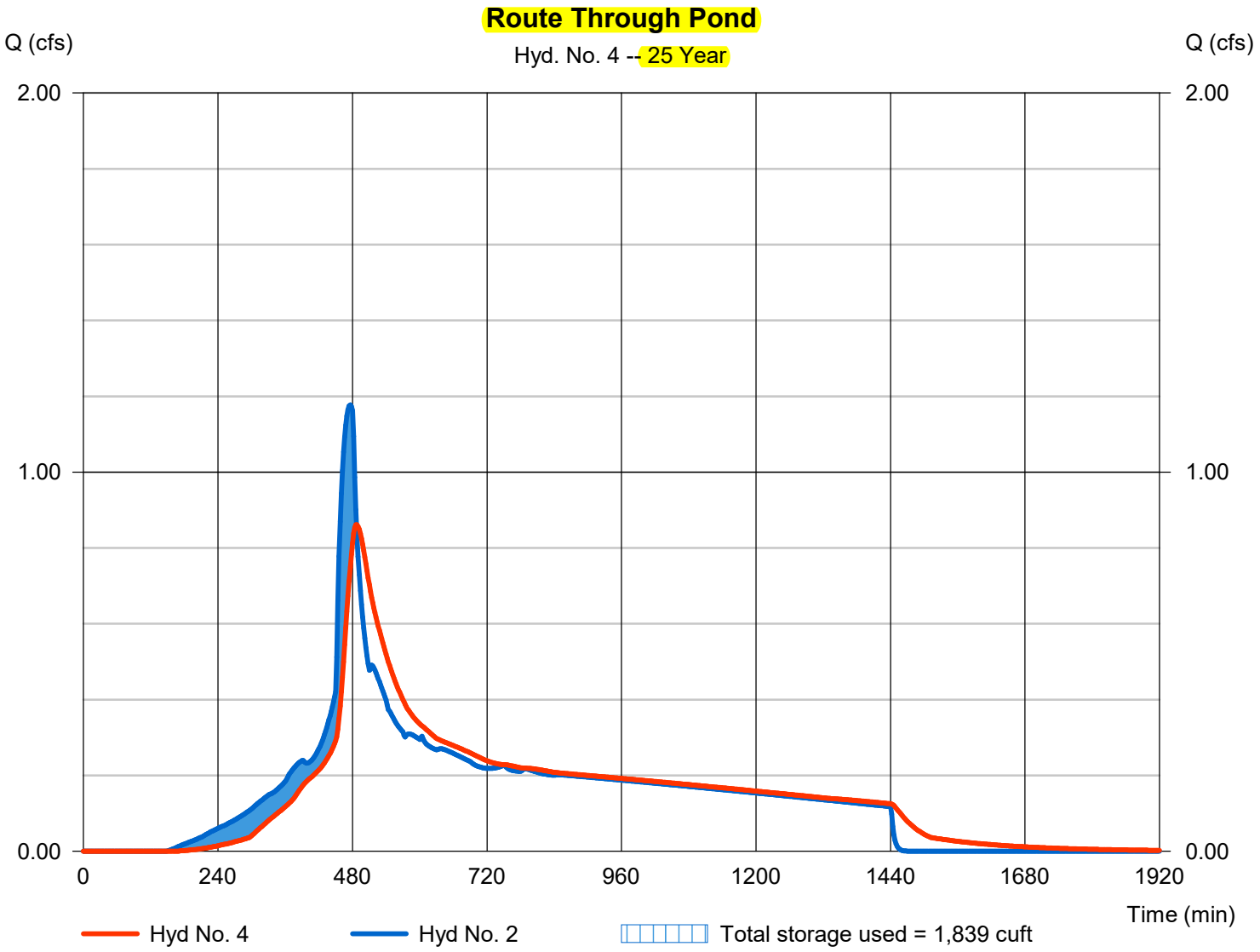
Hydrograph Report

Hyd. No. 4

Route Through Pond

Hydrograph type	=	Reservoir	Peak discharge	=	0.861 cfs
Storm frequency	=	25 yrs	Time to peak	=	488 min
Time interval	=	2 min	Hyd. volume	=	16,697 cuft
Inflow hyd. No.	=	2 - Developed	Max. Elevation	=	57.07 ft
Reservoir name	=	Pond	Max. Storage	=	1,839 cuft

Storage Indication method used.



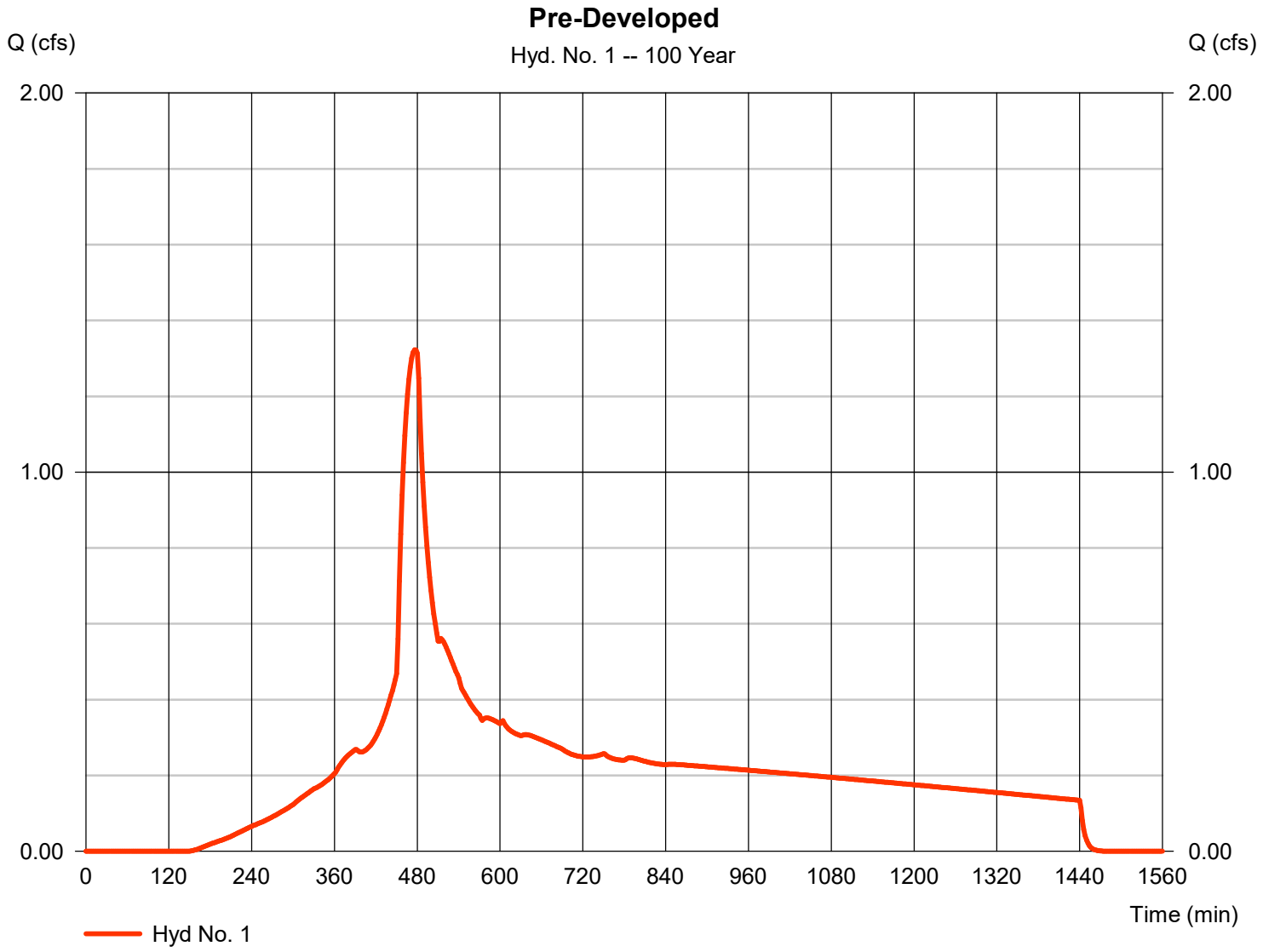
Hydrograph Report

Hyd. No. 1

Pre-Developed

Hydrograph type	=	SBUH Runoff	Peak discharge	=	1.322 cfs
Storm frequency	=	100 yrs	Time to peak	=	476 min
Time interval	=	2 min	Hyd. volume	=	18,943 cuft
Drainage area	=	1.880 ac	Curve number	=	88.5*
Basin Slope	=	2.0 %	Hydraulic length	=	275 ft
Tc method	=	LAG	Time of conc. (Tc)	=	5.90 min
Total precip.	=	4.00 in	Distribution	=	Type IA
Storm duration	=	24 hrs	Shape factor	=	n/a

* Composite (Area/CN) = [(0.910 x 74) + (1.720 x 98)] / 1.880



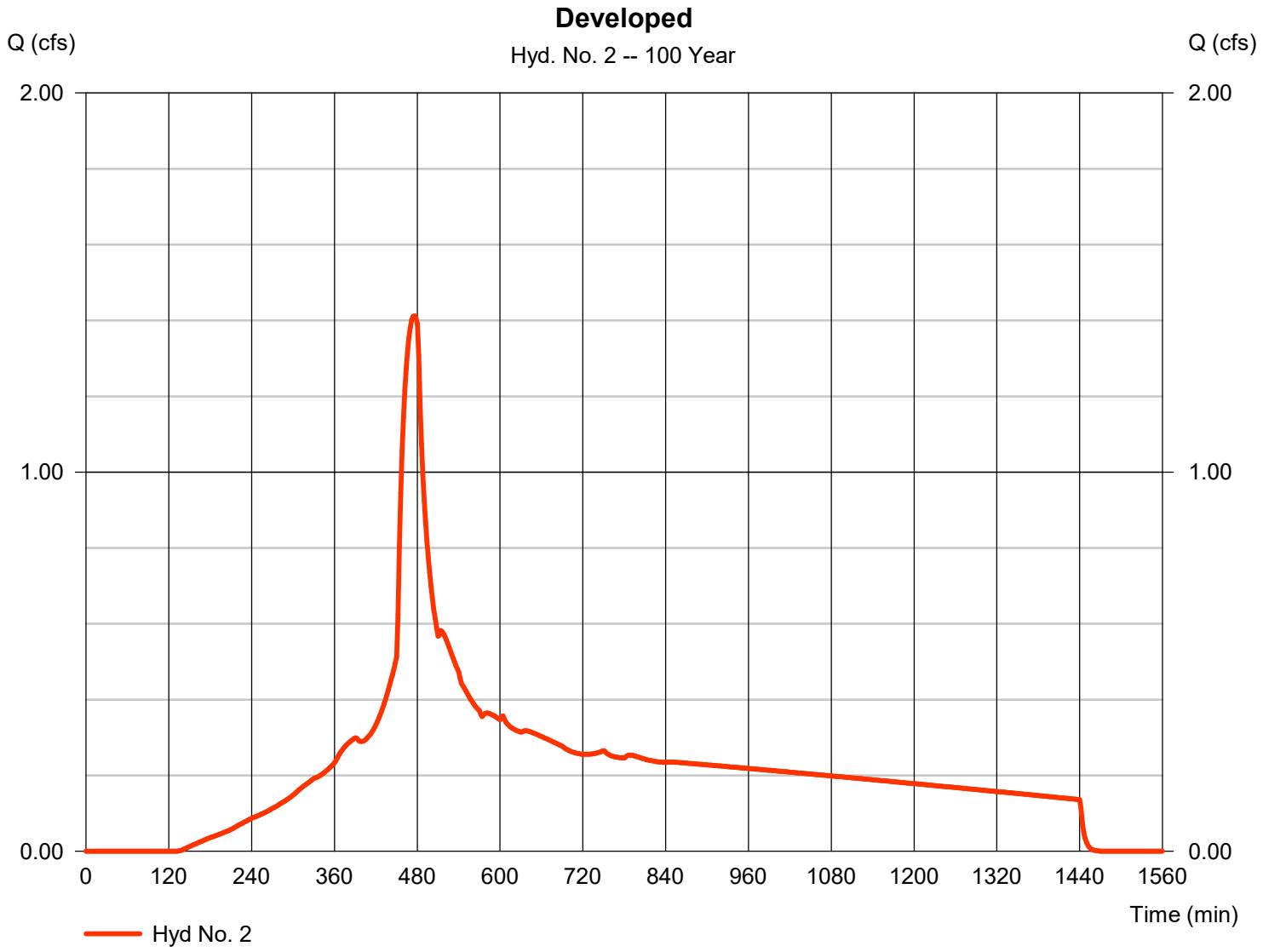
Hydrograph Report

Hyd. No. 2

Developed

Hydrograph type	= SBUH Runoff	Peak discharge	= 1.412 cfs
Storm frequency	= 100 yrs	Time to peak	= 476 min
Time interval	= 2 min	Hyd. volume	= 19,922 cuft
Drainage area	= 1.880 ac	Curve number	= 90*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.00 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= n/a

* Composite (Area/CN) = [(0.660 x 74) + (1.220 x 98)] / 1.880



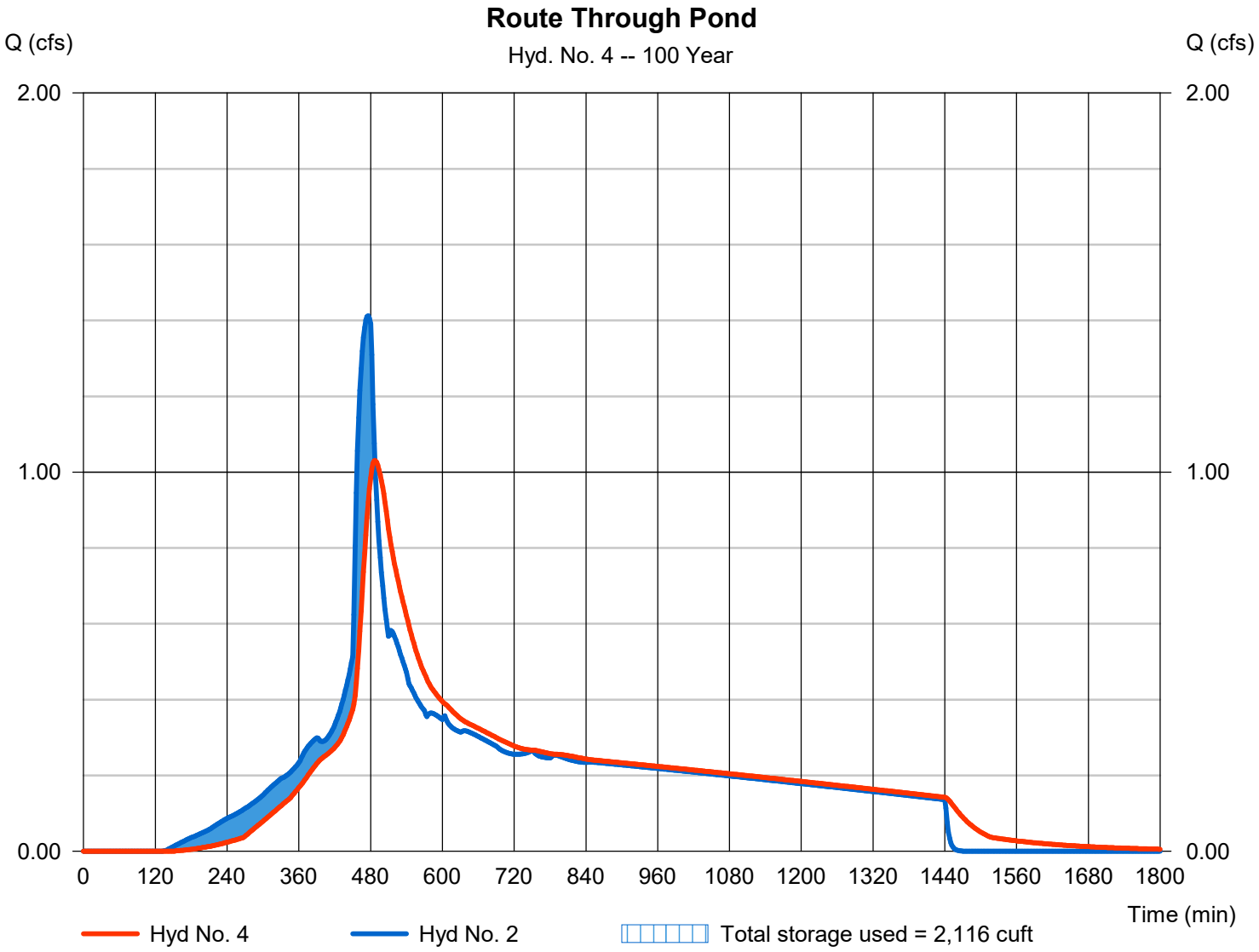
Hydrograph Report

Hyd. No. 4

Route Through Pond

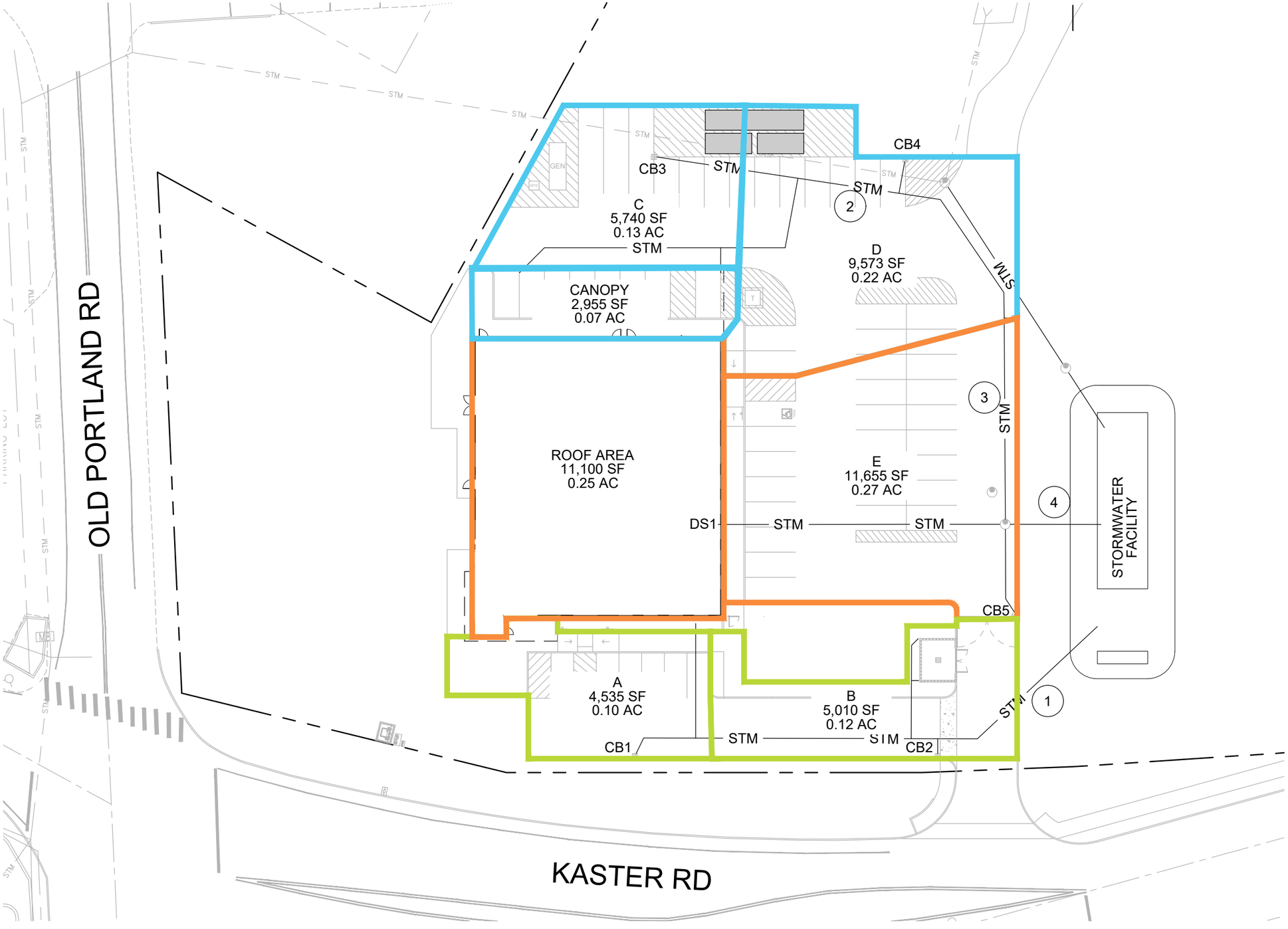
Hydrograph type	=	Reservoir	Peak discharge	=	1.030 cfs
Storm frequency	=	100 yrs	Time to peak	=	488 min
Time interval	=	2 min	Hyd. volume	=	19,913 cuft
Inflow hyd. No.	=	2 - Developed	Max. Elevation	=	57.15 ft
Reservoir name	=	Pond	Max. Storage	=	2,116 cuft

Storage Indication method used.



APPENDIX B

CONVEYANCE CALCULATIONS



LEGEND

- SOUTH BASIN
- MID BASIN
- NORTH BASIN
- STM — STORM PIPE
- CB# — CATCH BASIN ID
- DS# — DOWNSPOUT ID
- (#) — PIPE LINK

BASIN MAP - CONVEYANCE

ST. HELENS POLICE

JUNE 16, 2023
Job # 2210310.00

SCALE: 1"=40'
0 20 40

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2210310000\DRAWINGS\CIVIL\EXHIBITS\310-BASIN MAP-CONVEYANCE.DWG BTC 06/09/23 14:21 1:40

Storm Pipe Sizing - Rational Method

Project Name:	St Helens Police	By:	BTC	Checked:	Checked
Project Number:	2210310.00	Date:	6/9/2023	Date:	Date

User Entry Variables

Runoff Coefficient	C =	0.9
Pipe Coefficient of Friction	n =	0.013
Return Period		25 years

Notes/Design Criteria

C = 0.9 for pavement and roof areas
City of Portland: 0.013 regardless of pipe material - check jurisdiction specific requir
Check conveyance requirement for jurisdiction (likely either 10 or 25)

Equations

Rational	$Q = CiA$	Q =	Runoff	ft^3/s
		Q_m =	Capacity	ft^3/s
Manning's	$Q_m = \left(\frac{1.49}{n}\right) A(R_h{}^{2/3})S^{1/2}$	c =	Runoff coefficient	N/A
		I =	Rainfall intensity	in/hr
Hydraulic Radius	$R_h = \frac{A_{pipe}}{P}$	A =	Basin Area	ac
		P =	Wetted Perimeter	ft
		S =	Slope	ft/ft
Velocity (full pipe)	$v_f = \frac{Qm}{A_{pipe}}$	A_{pipe} =	Pipe Area	ft^2
		L =	Length of pipe	ft
Incremental Time	$T_i = \frac{L}{v_d} * \frac{min}{60\ sec}$			

Basin Data							Pipe Data			Calculations						
Pipe Link (See Basin Map)	Catchment ID (See Basin Map)	A_i, Incremental Basin Area (Ac) 1	A_t, Total Basin Area (Ac) 2	T_c, Time of Concentration (min) 3	T_t, Total Time (min) 4	i, Intensity (in/hr) 5	S, Pipe Slope (%) 6	D, Pipe Diameter (in) 7	L, Length of Pipe Run (ft) 8	A_{pipe}, Pipe Area (ft^2)	R_h, Hydraulic Radius $^{2/3}$	Q, Runoff (ft^3/s)	Q_m, Capacity (ft^3/s)	**Runoff/Capacity (ratio) 9**	v_d, Velocity at Design Flow (ft/s)	T_i, Incremental Time (min)
	A	0.10	0.10	5.00	5.00	3.32	0.50	6	125	0.20	0.25	0.30	**0.40**	0.75	2.20	0.95
	B	0.12	0.12	5.00	5.00	3.32	0.50	6	6	0.20	0.25	0.36	**0.40**	0.90	2.27	0.04
1	A + B		0.22		5.95	3.13	0.50	8	81	0.35	0.30	0.62	**0.86**	0.72	2.65	0.51
	CANOPY	0.07	0.07	5.00	5.00	3.32	0.50	6	138	0.20	0.25	0.21	**0.40**	0.53	2.03	1.13
	C	0.13	0.13	5.00	5.00	3.32	0.50	6	57	0.20	0.25	0.39	**0.40**	0.98	2.28	0.42

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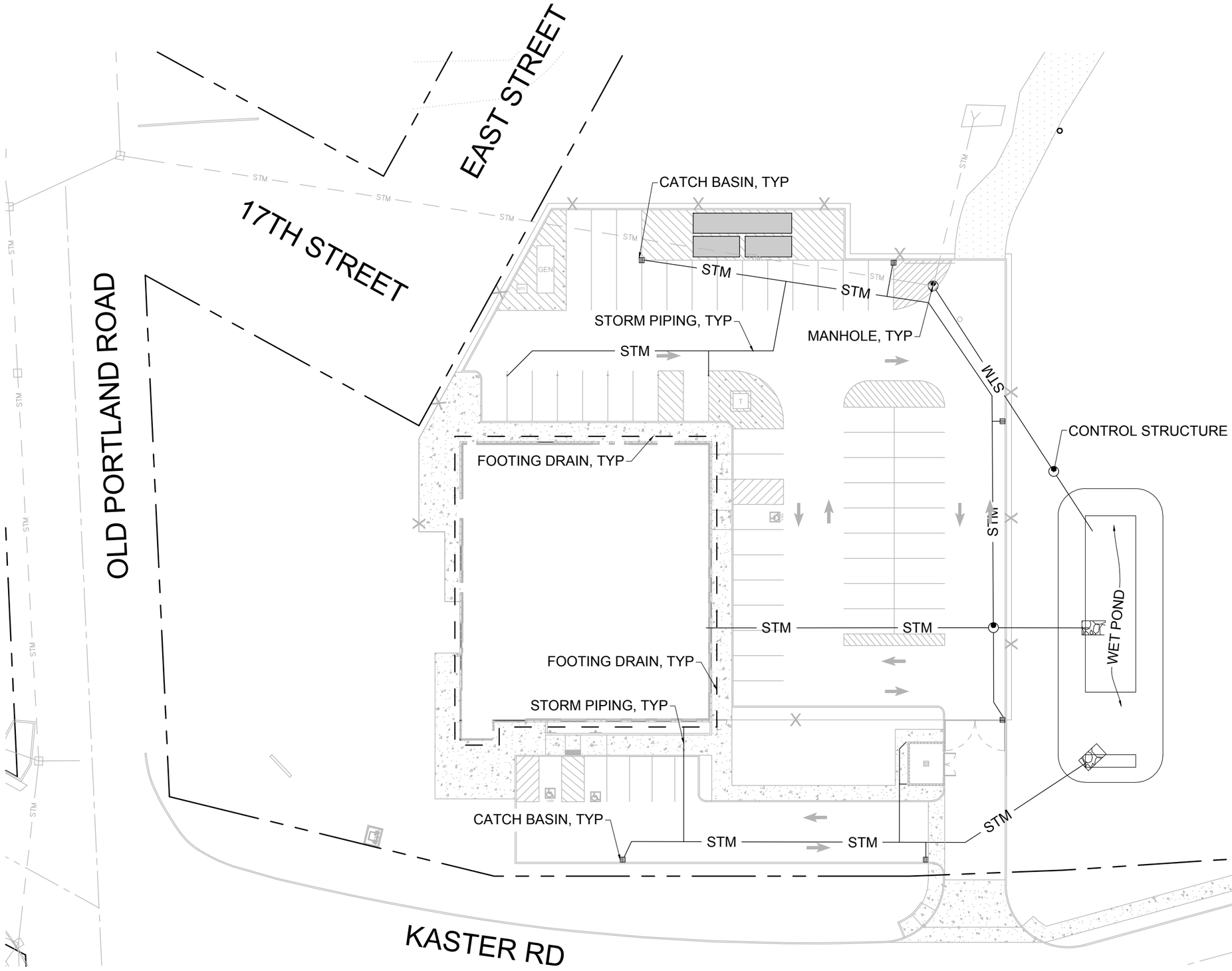
DESIGN DRIVEN | CLIENT FOCUSED

Basin Data							Pipe Data			Calculations						
Pipe Link (See Basin Map)	Catchment ID (See Basin Map)	A_i, Incremental Basin Area (Ac) 1	A_t, Total Basin Area (Ac) 2	T_c, Time of Concentration (min) 3	T_t, Total Time (min) 4	i, Intensity (in/hr) 5	S, Pipe Slope (%) 6	D, Pipe Diameter (in) 7	L, Length of Pipe Run (ft) 8	A_{pipe}, Pipe Area (ft^2)	R_h, Hydraulic Radius $^{2/3}$	Q, Runoff (ft^3/s)	Q_m, Capacity (ft^3/s)	**Runoff/Capacity (ratio) 9**	v_d, Velocity at Design Flow (ft/s)	T_i, Incremental Time (min)
2	CANOPY + C		0.20		6.13	3.09	0.50	8	40	0.35	0.30	0.56	**0.86**	0.65	2.59	0.26
	D	0.22	0.22	5.00	5.00	3.32	0.50	8	13	0.35	0.30	0.66	**0.86**	0.77	2.68	0.08
3	2 + D		0.42		6.39	3.04	0.50	10	152	0.55	0.35	1.15	**1.55**	0.74	3.08	0.82
	ROOF	0.25	0.25	5.00	5.00	3.32	0.50	8	112	0.35	0.30	0.75	**0.86**	0.87	2.73	0.68
	E	0.27	0.27	5.00	5.00	3.32	0.50	8	35	0.35	0.30	0.81	**0.86**	0.94	2.76	0.21
4	3 + ROOF + E		0.94		7.21	2.88	0.50	12	36	0.79	0.40	2.43	**2.53**	0.96	3.62	0.17

APPENDIX C

OPERATIONS & MAINTENANCE MANUAL



O&M SITE MAP

ST. HELENS PUBLIC SAFETY BUILDING

JUNE 12, 2023
Job # 2210310.00

SCALE: 1"=40'
0 10 20 40

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APPENDIX D

GEOTECHNICAL REPORT

Report of Geotechnical Engineering Services

St. Helens Public Safety Building

St. Helens, Oregon

Prepared for

The City of St. Helens

November 18, 2021

0203864-000

HARTCROWSER

A division of Haley & Aldrich

HARTCROWSER

A division of Haley & Aldrich

Report of Geotechnical Engineering Services

St. Helens Public Safety Building

St. Helens, Oregon

Prepared for

The City of St. Helens

November 18, 2021
0203864-000

Prepared by

Hart Crowser, a division of Haley & Aldrich

Daniel J. Trisler, P.E., G.E.
Principal, Geotechnical Engineer

Luke I. Kevan, P.E.
Project Engineer

6420 S Macadam Avenue, Suite 100
Portland, OR 97239
503.620.7284

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APPENDIX C

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St. Helens Public Safety Building

St. Helens, Oregon

1.0 INTRODUCTION

Hart Crowser, a division of Haley and Aldrich, (Hart Crowser) is pleased to submit this report of geotechnical engineering services for the proposed Public Safety Building at the corner of Old Portland Road and Kaster Road in St. Helens, Oregon. Our work was completed in general accordance with our proposal dated September 28, 2021, and our Personal Services Agreement with the City of St. Helens, dated October 15, 2021.

Based on our understanding of the project plans, the new development will include a one- to two-story building with associated parking and landscaping. A new roadway connecting the northeastern end of the property to S 15th Street is also included as a part of the development. Based on our experience with similar developments, we anticipate the building will be supported on shallow footings with structural loads between 3 and 5 kips per lineal foot for strip footings and up to 100 kips for column footings.

We understand the proposed building will be considered “Critical” and “Essential” for immediate occupancy after a seismic event. Therefore, a site-specific seismic hazard analysis is required, per Section 1803.3.2 of the Oregon Structural Specialty Code (OSSC).

The proposed development is located within the 100-year and 500-year floodplains, and therefore, per the St. Helens Municipal Code (SHMC) 17.46.050, new critical facilities (which includes police stations) are required to be at least 3 feet above the base flood elevation or to the height of the 500-year floodplain, whichever is higher. Based on our understanding of the project plans, finished floor elevation of the planned building will be 3 feet above the 100-year floodplain.

Significant earthwork, including excavation of bedrock, will be required to raise site grades and to construct the roadway extension. We understand the southeastern side of the property will be raised about 7 feet and the northwestern portion about 3 feet to meet the flood elevation requirements noted above. An unknown amount of rock excavation will be required in the northeast portion of the site for the roadway construction. Also, a new stormwater facility (detention pond) is conceptually planned for the southern portion of the site.

The location of the site is shown on Figure 1. The site and our exploration locations are shown of Figure 2. Characteristic Tectonics of the Pacific Northwest are shown on Figure 3. Peak Directional Scaling Factors are shown in Figure 4. The recommended seismic response spectrum is shown on Figure 5. Figures 1, 2, 4, and 5 are attached after the text of the report, while Figure 3 is embedded within the text.

Appendix A contains copies of our exploration logs. Appendix B contains the results of our laboratory testing. Appendix C contains the report of the geophysical testing performed at the site by Earth Dynamics, LLC (Earth Dynamics). Appendix D contains attachments associated with the site-specific seismic hazard evaluation.

2.0 SCOPE OF SERVICES

The purpose of our work was to evaluate subsurface conditions and to provide geotechnical engineering services for design of the planned development. We completed the following tasks in general accordance with our proposed scope of work.

- Reviewed readily available geologic, groundwater, and soil survey maps that cover the site vicinity.
- Conducted a field exploration program that included:
  - Notifying the "One-Call" service for public utility locates.
  - Conducting a geotechnical reconnaissance of the site.
  - Advancing 10 test pits to depths between 1 and 10 feet below ground surface (bgs).
  - Conducting field infiltration testing adjacent to three of the test pits at depths of 3 to 5 feet bgs
  - Performing surface shear wave velocity testing along three lines.
- Conducted a program of laboratory testing on selected soil samples. The laboratory tests performed included Atterberg limits, grain-size distribution, moisture content determinations, and fines content determinations.
- Evaluated seismic hazards, including ground shaking and ground shaking amplification, liquefaction, and lateral spread.
- Performed a site-specific seismic hazard investigation per the requirements of the OSSC.
- Conducted an engineering analyses to develop geotechnical design recommendations for infiltration systems, foundations, pavements, and seismic design criteria.
- Evaluated construction issues (i.e., rock rippability, temporary cuts, etc.)
- Prepared this report outlining our findings and recommendations, including information related to the following:
  - Subsurface soil and groundwater conditions;
  - Seismic hazards including the site-specific seismic hazard study results;
  - Site preparation and grading;
  - Utility trench construction;
  - Foundation design parameters;
  - Infiltration test results and recommendations; and
  - Pavement design.

3.0 SITE CONDITIONS

3.1 Geology, Geologic Hazards, and Soil Mapping

The geology at the project site is mapped as basalt assigned to the Miocene-age Sentinel Bluffs member of the Grande Ronde Basalt of the Columbia River Basalt Group (Evarts 2004). The Sentinel Bluffs member is described as two or more basalt flows that are 300 feet or more in thickness. Glacial outburst floods at the end of the last glacial period (about 13,000 to 17,000 years before present) stripped unconsolidated sediments and soil from the basalt and "scoured a complex, scabland-style topography into the basalt" at locations below approximately 200 feet elevation in the St. Helens area (Evarts 2004). We observed both outcrops and subsurface materials generally consistent with the mapped geology.

Statewide online hazards mapping by the Oregon Department of Geology and Mineral Industries (DOGAMI 2021; 2018) does not map any existing landslides on the site. Areas of steeper slopes on the site, generally corresponding to surface outcrops of basalt, are mapped has having moderate, "landslides possible," landslide susceptibility. The site is mapped as having "very strong" expected shaking during either a Cascadia or crustal fault earthquake event with a "moderate" liquefaction hazard. The nearest mapped active fault is the Quaternary Portland Hills Fault located approximately 7.5 miles to the southwest (Personius and Haller 2017).

The soils at the site are mapped by the U.S. Department of Agriculture (USDA 2021) as mantled by Rock outcrop-Xermbrepts complex soils. The rock outcrops are described as unweathered basaltic bedrock directly at the surface. The Xermbrepts soils are described as loam over unweathered bedrock at 18 inches derived from alluvium on terraces. This soil type has an estimated hydraulic conductivity of 0.6 to 2 inches per hour in the most restrictive layer.

Groundwater mapping (Snyder 2008) shows the approximate groundwater elevation to be 30 to 38 feet (NAVD 88). Based on a site elevation of approximately 50 to 70 feet (NAVD 88) the estimated depth to groundwater at the site is mapped as approximately 20 to 32 feet bgs.

3.2 Surface Conditions

The project site is located at the eastern corner of the intersection of Old Portland Road and Kaster Road in St. Helens, Oregon. The site is surrounded by residential development to the north and northwest, McCormick Park to the west, the St. Helens Recreation Center to the southeast, and undeveloped property to the south and east. The project site is undeveloped and is generally covered in grass, trees, and blackberry bushes. There is also, an existing approximately 100 feet long by 75 feet soil stockpile on the site. The stockpile is about 20 feet high and generally contained soil consisting of a silty sandy matrix with gravel and cobbles up to 6 inches in diameter.

At the northeastern corner of the property there is a bedrock outcropping. The oblong outcropping is approximately 300 feet long at its longest point measured from the southwest to the northeast, and about 150 feet wide at its widest point measured form the south west to the north east. The northern end is narrow and only about 50 feet wide. The top of the outcropping is flat and sits at an approximate elevation

of 70 feet (NAVD 88). This is approximately 10 feet above the existing ground surface in the footprint of the planned building, and about 10 to 15 feet above the eastern edge of the property. The walls of the outcropping are generally vertical. The rock within the outcropping appears to be strong basalt. The wall has several fractures and there is evidence of rock fall activity by the existing boulders at the toe of the rock outcropping walls. Also, at the base of the outcropping wall along the northeaster edge, there was garbage at the ground surface.

3.3 Subsurface Conditions

3.3.1 General

We explored subsurface soil and groundwater conditions at the site by completing 10 test pits (TP-1 through TP-10) on October 25 and 26, 2021. The explorations were performed using a CAT Model 305E hydraulic mini-excavator operated by Stratus Corporation of Gaston, Oregon. The exploration locations are shown on Figure 2. Appendix A summarizes our exploration methods and presents our exploration logs. Laboratory test results are provided on the exploration logs and attached in Appendix B.

Materials encountered in our exploration generally included 3 to 12 inches of topsoil overlying fill, or native alluvium, residual soil, and/or basalt rock. Native soils consisted of alluvial sandy silts and clays, and silty to clayey gravels that represent residual soil resulting from the *in situ* weathering of the underlying basalt. The undocumented fills were generally gravelly and contained construction debris and refuse. Basalt underlies all deposits at the site and all of our test pits met refusal in this unit. We note that no direct measurements of *in situ* density were taken and relative density of onsite materials was estimated from bucket action during test pit excavation. These materials are discussed in detail in the paragraphs below.

3.3.1 Fill

A layer of gravelly soil was present either at ground surface or below a thin layer of topsoil in test pits TP-1, TP-5, TP-6, TP-7, and TP-9. These soils were distinct from the underlying native alluvium and residual soil and are grouped here due to their inconsistent presence and generally similar appearance.

Fill soils consisted of poorly graded gravel with variable sand, silt, cobble, and boulder content. The soils were identified by their inclusion of debris, which included wood, brick, and refuse, and generally dark brown to black color. Boulders up to 2 feet in diameter were observed in these deposits. These soils typically extended to approximately 2 to 3.5 feet bgs, but were observed extending from ground surface to 7.0 feet bgs and directly overlying basalt at TP-6. Relative density estimated from bucket action during test pit excavation indicated a predominantly loose relative density with limited areas of medium dense relative density where boulders were observed.

3.3.1 Alluvium

We interpret sandy fine-grained soils observed beneath the surficial fill and/or topsoil in test pits TP-2, TP-4, TP-5, TP-9, and TP-10 as native alluvium based on the presence of mica mineral grains, indicative of Columbia River deposits in the St. Helens area. Where observed, these deposits extended to between 3 and 7 feet bgs and typically consisted of soft to medium stiff silt, elastic silt, and lean clay with variable

sand content. These deposits were observed discontinuously in the center of the lower western portion of the site and were not observed in our explorations in the higher eastern portion of the site.

Moisture contents in the alluvial soils ranged from 20 to 35 percent with an average of 25 percent based on six samples. Four Atterberg limits tests indicate liquid limits cluster between 45 to 52 percent moisture content and plastic indices range from 17 to 23, indicating medium to high plasticity. One grain size analysis determined a fines content of 76 percent.

3.3.2 Residual Soil

Residual soils, both fine-grained (silt and clay) and granular (sands and gravels), formed by decomposition of the underlying bedrock. The depths at which these soils were encountered at the site varied between approximately 0.3 and 7 feet bgs, and were observed in all test pits, except TP-3 and TP-6. They consisted predominantly of silty to clayey gravel with minor silt, and frequently contained numerous cobbles and boulders. These soils typically extended to the top of hard to very hard basalt at depths ranging between approximately 2 and 10 feet bgs. Bucket action during test pit excavation typically indicated a medium dense to dense relative density, but limited exposures of loose to soft soils were observed.

Fragments of fresh gravel and cobbles with a weathered rind were observed in this material and boulders up to 3.0 feet in diameter were encountered in this geologic unit.

Laboratory results on selected soil samples indicated *in situ* moisture contents of the residual soils typically ranged from approximately 16 to 24 percent. Two Atterberg limits tests on the fine-grained portion of the residual soil yielded liquid limits between 36 and 43 percent and plastic limits between 4 and 17 percent indicating low to medium plasticity. Grain size analyses determined fines content (percentage finer than the No. 200 sieve) varied between approximately 25 and 41 percent based on three tests in residual soils. We note that the grain size analysis does not include particles larger than 3 inches in diameter (cobbles and boulders), but original field samples of residual soil contained between 21 and 37 percent by weight of cobbles.

3.3.3 Grande Ronde Basalt

Basalt rock was encountered directly beneath the surficial deposits at depths between approximately 1 and 10 feet bgs across the site. All of our explorations met practical refusal prior to penetrating into this unit where rock hardness was relatively hard to very hard (R4 to R5). At test pit TP-1, very soft to medium hard (R1 to R3), predominantly decomposed basalt was encountered at 3 feet bgs and was able to be excavated to 5.5 bgs before achieving practical refusal on hard (R4) basalt. Additionally, an outcrop of moderately to slightly weathered basalt forms a knob with a steep southeast face at the center of the site (as shown on Figure 2).

3.3.4 Groundwater

Minor to moderate groundwater seepage was observed at 7 and 2 feet bgs in test pits TP-6 and TP-8, respectively, near the contact between the overlying gravelly deposits and hard basalt at depth. We interpret this as perched groundwater related to storm runoff and that the regional groundwater table is found at depths greater than our explorations (estimated 20 to 32 feet bgs).

Note that groundwater conditions are reported at the time of our explorations and field testing. Groundwater conditions can vary over time and may be influenced by weather, temperature, and other factors.

3.3.5 Infiltration Testing

We performed three *in situ* infiltration tests at the project site. The tests were completed in shallow test holes advanced adjacent to the primary test pits. The infiltration tests were performed in general conformance with the methods prescribed in the City of Portland Stormwater Management Manual (Portland 2020). The results of the field testing and fines content and soil type are provided in Table 1.

Table 1 – Infiltration Test Data

Infiltration Test No.	Test Pit No.	Approximate Test Depth (feet)	Field Drawdown Rate (inches/hour)	Soil Type (USCS)
IT-1	TP-2	3.3	2	GC
IT-2	TP-4	3.4	1.1	ML
IT-3	TP-5	3.0	0.6	CL

Note:

a. Infiltration tests IT-1 is an open pit test, while IT-2 and IT-3 are single-ring falling head tests.

Please refer to *Section 6.4 Infiltration Systems* for a discussion of our findings and recommendations regarding the design of infiltration systems.

3.3.6 Geophysical Testing

We subcontracted Earth Dynamics to conduct geophysical testing explorations at the project site. The purpose of the testing was to determine the average shear wave velocity of the site and the compressional wave velocity of the underlying basalt bedrock to aide in the determination of rock rippability. This testing included running two ReMi Shear Wave tests and analyses, and one Seismic Refraction test and analysis. The two ReMi tests were performed within the approximate planned building area, and the Seismic Refraction test was performed to the northeast of the planned building area. Please see Appendix C for the Geophysical Exploration report, including the locations of where the tests were performed and results of the analysis.

3.4 Seismic Hazards

3.4.1 Seismic Setting

Western Oregon sits at the contact between two large crustal tectonic plates. The Juan de Fuca Plate forms the floor of the Pacific Ocean off the coast of the northwestern United States, and moves northeastward from its spreading ridge boundary with the Pacific Plate at an average rate of approximately 1.5 inches per year. As it converges with the continental North American Plate, the Juan de Fuca Plate dips below (or “subducts”) beneath the North American Plate forming a shallow, eastward-dipping contact interface. This boundary is known as the Cascadia Subduction Zone (CSZ) and is responsible for the seismicity in the western Oregon and Washington regions; producing earthquakes

associated with three types of source zones: subduction interface, subduction intraslab, and crustal. Figure 3 shows the three earthquake source zones.

The seismicity of the region is generally related to the presence of the CSZ off the coast of Oregon and Washington. These and other seismic hazards are discussed in the following section.

Refer to *Section 5.4 Seismic Design* of this report for the seismic design recommendations.

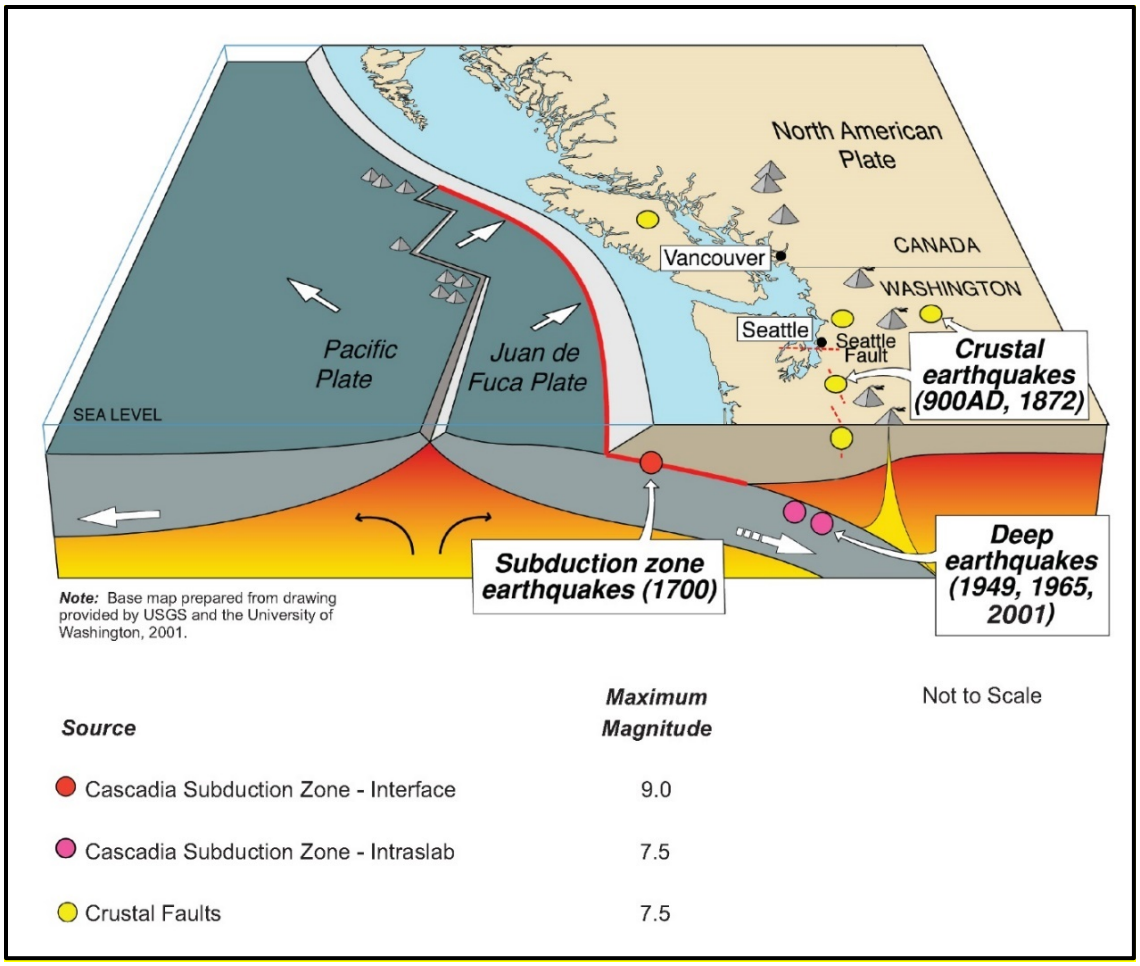

Figure 3. Characteristic Tectonics of the Pacific Northwest

Subduction Interface Sources. The displacement caused by the subduction of the Juan de Fuca Plate below the North American Plate does not generally manifest as slip between the two plates; rather, it is absorbed by compression of the North American Plate at the interface at relatively shallow depths. This compression, based on geologic and historical evidence, is released every 500 to 600 years on average in the form of magnitude 8 to 9 earthquakes, the last such event occurring in 1700. Characteristics of this type of earthquake may include very large ground accelerations, shaking durations in excess of 2 minutes, and particularly strong long-period ground motions that may affect tall or long-period structures.

Subduction Intraslab Sources. A deeper zone of seismicity is associated with a steeper bending of the Juan de Fuca Plate and the breaking of the plate under its own weight below the Pacific Northwest region. This

region, termed the Benioff Zone, produces intraslab earthquakes at depths of 40 to 70 kilometers (km). Such past events in western Washington include the 1949 Puget Sound, 1965 Olympia, and 2001 Nisqually Earthquakes. Deep, intraslab earthquakes tend to be felt over larger areas than shallower crustal events, and generally lack significant aftershocks.

Crustal Sources. Few geologic traces exist of the shallow crustal faults in the nearby Portland, Oregon and Vancouver, Washington areas. Several northwest-striking faults have been mapped in bedrock exposures in the Tualatin Mountains south of the site and below sedimentary cover (Blakely et al., 1995). To the south of the project site in the Portland area, a series of shallow crustal faults, including the Portland Hills Fault, Oatfield Fault, and the East Bank Fault have had their surface traces either eroded away or buried by ancient flood deposits but have been mapped by seismic reflection and refraction studies. Therefore, less information is known about these faults than faults with distinct surface traces. The project site lies about at least 16 miles north of these faults.

To the southwest of the project site, the Lacamas Fault strikes in an approximately northwest-southeast direction through Camas, Washington, and Lacamas Lake. The Lacamas Fault is a steeply dipping fault that has been mapped by surface slicken slides and shear zones, and from geophysical data. The fault is believed to be capable of producing earthquakes of magnitudes approximately 6.5 to 6.6. The project site is located approximately 18.5 miles northwest to the northern end of the Lacamas Fault at its closest mapped location.

3.4.2 Site Classification

The site shear wave velocity (V_S) was measured by Earth Dynamics using the refraction microtremor survey (ReMi) at the project site. The ReMi survey includes two linear arrays going NW-SE (ReMi1) and SW-NE (ReMi2) directions. The V_{S30} for the NW-SE (ReMi1) and SW-NE (ReMi2) profiles are 3,651 feet per second (fps) and 3,411 fps, respectively. The V_{S30} representative for the project site was selected as the average of the two profiles and is 3,531 fps (1,076 meters per second). The shear wave velocity measurement report is attached in Appendix C. This site-specific V_{S30} corresponds to Site Class B in accordance with Table 20.3-1 of the American Society of Civil Engineers (ASCE) 7-16 Chapter 20.

3.4.3 Liquefaction

Liquefaction is a phenomenon caused by a rapid increase in pore water pressure that reduces the effective stress between soil particles, resulting in the sudden loss of shear strength in the soil. Granular soils, which rely on interparticle friction for strength, are 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 soils with low silt and clay contents are the most susceptible to liquefaction. Silty soils with low plasticity are moderately susceptible to liquefaction under relatively higher levels of ground shaking. For any soil type, the soil must be saturated for liquefaction to occur.

Due to the groundwater being 20 to 30 feet below the ground surface, and the only the hard residuals soils being saturated from perched water, the risk of liquefaction at this site is low.

3.4.4 Earthquake-Induced Landsliding/Rockfall

According to the DOGAMI HazVue Website (DOGAMI 2018), the rock outcrop area located at within the northeastern portion of the property is mapped as a "moderate landslide hazard." This is likely due to the steep slopes that exists in this area. Some potential for rock fall may provide issues for future development; however, for this project, the areas of concern with be graded out, or they do not face the planned developed areas. As such, it is our opinion the risk of seismic-induced land sliding and rock fall for this site is low.

3.4.5 Fault Surface Rupture

We used the U.S. Geologic Survey (USGS) U.S. Quaternary Faults Web Application (USGS 2020) to identify earthquake producing faults near the project site. No mapped earthquake producing crustal faults are present at the site. The closest known quaternary-age fault is the East Bank Fault mapped approximately at least 16 miles to the south. Therefore, we consider the hazard from fault surface rupture at the site to be low, although unmapped or otherwise unknown faults may be present that could result in a higher hazard.

4.0 CONCLUSIONS

Based on our explorations, testing, and analyses, it is our opinion that the site is suitable for the proposed use, provided the recommendations in this report are included in design and construction. We offer the following general summary of our conclusions.

- We encountered localized deposits of undocumented fill and based on the extensive site development, we anticipate there may be widespread zones of near-surface fill across the site. Loose or debris-laden undocumented fill materials will need to be removed from or reworked below the proposed structures.

- Site stratigraphy generally consists of silty gravel fill, stiff silts and clays, clayey gravels, and bedrock (at depth). The soils should be readily excavatable by conventional equipment. However, the underlying bedrock is strong and will likely require specialized equipment or methods for excavation.

- The proposed development is located within the 100-year and 500-year floodplains. Based on our understanding of the project plans, finished floor elevation of the planned building will be 3 feet above the 100-year floodplain. This means the site will be raised about 7 feet on the southeastern side of the property and about 3 feet on the northwestern part of the property.

- The proposed new foundation elements may be supported by a conventional spread footing foundation system.

- The groundwater table was not encountered during our explorations; however, locally perched groundwater from stormwater runoff was encountered within the dense clayey gravel residual soils and on top of bedrock.

- Infiltration testing conducted at the site indicated that infiltration rates in the upper silty sand soils and lower clayey gravel soils are low.

The following sections present our specific recommendations for earthworks and structural components of the project.

5.0 DESIGN RECOMMENDATIONS

5.1 Foundation Support Recommendations

5.1.1 General

The proposed buildings and other structures (e.g., trash enclosures) may be supported by conventional spread footings that bear on bedrock, new engineered fill, or re-worked existing fills. As mentioned previously, current preliminary development plans indicate that approximately 3 to 7 feet of fill will be placed beneath the proposed building area; therefore, we anticipate the building (as conceptually laid out) will be fully supported by new fill. However, other ancillary structures may be constructed in areas with shallow bedrock. Where undocumented fill or organic soils are encountered below foundations or slabs, then such materials should be removed and/or recompacted. New and reworked fill should be placed and compacted per *Section 8.0 Earthwork Recommendations* of this report.

The following recommendations are based on the assumption that maximum structural loads will be up to 100 kips for column footings and between 3 to 5 kips per linear foot for continuous wall footings. If structural loads are greater, then we should be contacted to verify that our recommendations are appropriate.

5.1.2 Shallow Foundations

5.1.2.1 Dimensions and Design Parameters

Spread footings may be designed using an allowable bearing pressure of 4,000 pounds per square foot (psf) if bearing on new engineered fill, or 8,000 psf if bearing on bedrock. Continuous strip footings should have a minimum width of 1.25 feet, while isolated footings should have a minimum dimension of 2.0 feet. The bottom of perimeter footings should extend at least 16 inches below the adjacent exterior grade. Footings located proximate to slopes (e.g., stormwater pond) should be set-back or embedded to provide at least 10 feet of horizontal coverage between the base of the footing and the slope.

The bearing values provided above represent net bearing pressures; the weight of the footings and overlying backfill can be ignored in calculating footing sizes. The recommended allowable bearing pressures apply to the total of dead plus long-term live loads and may be increased by one-third for short-term loads, such as wind or seismic forces.

5.1.2.2 Foundation Subgrade Preparation

Prior to the installation of the new footings and placement of reinforcing steel in the footing excavations, loose or disturbed soils should be removed, and the footing subgrade be compacted with a small vibratory

plate compactor to a dense condition. As noted previously, any pre-existing fills should be removed, processed to remove oversized materials and debris, and then be recompacted per *Section 8.0 Earthwork Recommendations*.

If water infiltrates and pools in the excavation, the water, along with any disturbed soil, should be removed before placing the reinforcing steel. If construction is undertaken during periods of rain, we recommend that imported granular material or lean concrete be placed over the base of footing excavations. The granular material or concrete reduces subgrade disturbance from standing water and from foot traffic during forming and tying of reinforcing steel. Typically, 3 to 6 inches of clean granular material that is lightly compacted until well interlocked provides sufficient protection from disturbance.

We recommend that Hart Crowser observe all foundation excavations to determine that bearing surfaces have been adequately prepared and that the soil conditions are consistent with those observed during our field investigation and assumed during design.

5.2 Retaining Structures

5.2.1 General

According to the project plans, a 6-foot-tall retaining structure is planned along the northeastern edge of the property. The following guidelines should be followed in the design of this retaining wall.

5.2.2 Design Parameters

The lateral earth pressures on retaining walls depends on the amount of wall movement allowed. Active earth pressures are appropriate for use for flexible walls that can tolerate displacement at the top equal to 0.1 percent of its height. At-rest earth pressures are appropriate for rigid walls that are not expected to deflect.

Flexible retaining walls should be designed to resist an active earth pressure of 45 pounds per cubic foot (pcf). Rigid retaining walls should be designed to resist an at-rest earth pressure of 65 pcf. These lateral earth pressures should be modelled as equivalent fluid pressures and are based on the following assumptions.

- The ground surface above the wall has a gradient flatter than 4:1 (H:V) for a minimum distance equal to the wall height.
- Hydrostatic pressures do not develop, and a drainage system will be provided behind the wall.

Surcharge loads applied closer than one-half of the wall height should be considered as uniformly distributed horizontal pressures equal to one-third of the distributed vertical surcharge pressure.

For seismic loading conditions on yielding walls (subject to active earth pressures), the lateral seismic surcharge can be modeled as a uniform pressure in psf of 10H (where H is the height of the wall in feet). The seismic surcharge was determined using the Mononobe and Okabe methodology. The lateral seismic surcharge is in addition to the static lateral pressure.

Footings for retaining walls should be designed as recommended in *Section 5.1 Foundation Support Recommendations*. Backfill should be placed and compacted as recommended in *Section 8.0 Earthwork Recommendations*.

5.2.3 Wall Drainage and Waterproofing

The above design parameters have been provided assuming that back-of-wall drains will be installed to prevent hydrostatic pressures. The drainage system should consist of a minimum 12-inch-wide zone of drain rock (or a prefabricated drainage panel), extending from the base of the wall to within 6 inches of finished grade. The drain rock or panel should be placed against the back of all retaining walls. Perforated collector pipes should be embedded at the base of the drain rock.

Where used, the drain rock should meet the requirements provided in *Section 8.5 Structural Fill and Backfill*. The perforated collector pipes should discharge at an appropriate location away from the base of the wall. The discharge pipe(s) should not be tied directly into stormwater drain systems, unless measures are taken to prevent backflow into the wall's drainage system.

5.3 Floor Slabs

Satisfactory subgrade support for concrete slabs supporting up to 200 psf areal loading can be obtained from new structural fill or native subgrade prepared in accordance with *Section 8.0 Earthwork Recommendations*.

A minimum 6-inch-thick layer of crushed rock should be placed over the prepared subgrade to assist as a capillary break. Base material placed directly below the slab should be 0.75- to 1-inch maximum size.

Slabs should be reinforced according to their proposed use and per the structural engineer's recommendations. Load-bearing concrete slabs may be designed assuming a modulus of subgrade reaction, k, of 125 pounds per square inch, provided the subgrade is prepared as recommended in this report.

We generally recommend the use of a vapor barrier beneath slabs-on-grade of occupied building spaces. However, within mechanical spaces the use of a vapor barrier is considered optional, and its use should be based on discussions among the members of the design team.

We recommend that Hart Crowser observe slab subgrade preparation before placement of aggregate base to determine that subgrade has been adequately prepared, and that the soil conditions are consistent with those observed during our explorations. We should also evaluate the compacted aggregate base to verify that required compaction levels have been achieved.

5.4 Seismic Design

5.4.1 Seismic Basis of Design and Analysis Methodology

The site-specific seismic hazard analysis conducted for the project site follows the procedures of site-specific ground motion for seismic design in ASCE 7-16 Chapter 21 and those of Section 1803 of the 2019

OSSC (OSSC 2019). The basis of design for ASCE 7-16 is the Risk-Targeted Maximum Considered Earthquake (MCE_R) at 5 percent damping, which is based on the 2,475-year return period hazard (2 percent probability of exceedance in 50 years) that is adjusted from the geometric mean to peak directional orientation and risk-adjusted to achieve a 1 percent probability of collapse in 50 years. The design earthquake response spectrum is equal to two-thirds of the MCE_R response spectrum.

The seismic hazard analysis for the site included both probabilistic and deterministic seismic hazard analyses (PSHA and DHSA, respectively). Inputs to both analysis procedures include information about the site, such as location and site class and information about nearby faults and their seismic activity.

A PSHA procedure evaluates the level of seismic hazard at a site considering the locations of regional faults, the likelihood and geometry of possible fault ruptures, and associated uncertainties. A DSHA procedure evaluates the level of seismic shaking at the site considering the maximum credible earthquake events from all seismic sources and the associated uncertainty, but the analysis does not consider the likelihood of those events occurring during the design life of the structure. The lesser of the probabilistic and deterministic hazards is used in code-based design per ASCE 7-16 Chapter 21.

We understand the new structure will be a one- or two-story building, corresponding to a structural period of approximately 0.1 to 0.2 seconds. We will present response spectra for the range of 0 to 3 seconds and hazard deaggregation results in this report for the range of 0 to 1 second, which covers the period range of interest related to the structure.

5.4.2 Design Code Parameters

The site-specific analysis results are bounded by surface spectrum developed following generalized, non-site-specific design procedures of ASCE 7-16 Chapter 11. This general spectrum will be referred to in this report as the "code-based spectrum." The design parameters for the code-based spectrum are developed following the provisions of ASCE 7-16 and modifications in OSSC if applicable. The parameters used in the code-based spectrum are provided in Table 2. Note that these parameters are provided for reference only and not recommended for use in design. The parameters recommended for use in design are presented in Tables 11 and 12 in this report.

Table 2 – Code-Based Spectral Parameters (Not for Use in Design)

Site Property	Value
Latitude	45.8519
Longitude	-122.8116
Site Class	B
S_S	0.833
S_1	0.401
F_a	0.9
F_v	0.8
T_L	16 seconds

Note:

The information presented in the table can be obtained from:

https://earthquake.usgs.gov/ws/designmaps/asce7-16.json?latitude=45.85191&longitude=-122.811636&riskCategory=IV&siteClass=B&title=St Helens Public Safety Building

5.4.3 Probabilistic Seismic Hazard Analysis

A PSHA for this project was computed using the HAZ45 software. The analysis was conducted for the 2,475-year return period hazard level, as described in ASCE 7-16. The PSHA performed for this project will be used for hazard deaggregation and for comparison to the DSHA.

The seismic hazard model used with this software contains seismic source geometries and recurrence models developed, based on the 2014 USGS National Seismic Hazard Model as described in USGS Open-File Report 2014-1091 (Petersen et al., 2014). The source file used for the analyses includes source models for known surface faults (i.e., the Tacoma Fault), gridded crustal seismicity, and CSZ. Our HAZ45 source model was validated against the USGS 2014 National Seismic Hazard Maps (NSHMs) for grid points in the Pacific Northwest, including western Oregon.

The Hart Crowser PSHA logic tree contains ground motion models (GMMs) and weights, which generally follow the logic tree used in the 2014 USGS NSHMs with modifications to use more regionally appropriate GMMs or revised and updated GMMs. The development of the GMM logic tree involved close investigation of the individual GMMs and weights used in the 2014 USGS NSHMs to formulate an appropriate logic tree. The GMMs and weights used are presented in Tables 3 through 5. The weights and models used in the PSHA have been used on peer-reviewed Washington State Department of Transportation (WSDOT) projects, on several peer-reviewed tall buildings in the Seattle and Bellevue metro areas, on a peer-reviewed tsunami evacuation structure in Tokeland, Washington and on a peer-reviewed seismic retrofit project in Beaverton, Oregon.

Table 3 – GMMs and Relative Weights for Crustal Sources

Ground Motion Model (GMM)	GMM Abbreviation	GMM Weights	
		2014 USGS Logic Tree	Hart Crowser Logic Tree
Abrahamson, Silva, and Kamai. NGA-West2 (2014)	ASK14	0.22	0.25
Boore et al. NGA-West2 (2014)	BSSA14	0.22	0.25
Campbell and Bozorgnia NGA-West2 (2014)	CB14	0.22	0.25
Chiou and Youngs NGA-West2 (2014)	CY14	0.22	0.25
Idriss NGA-West2 (2014)	I14	0.12	-

Table 4 – GMMs and Relative Weights for Subduction Intraslab Sources

Ground Motion Model (GMM)	GMM Abbreviation	GMM Weights	
		2014 USGS Logic Tree	Hart Crowser Logic Tree
Atkinson and Boore (2003, 2008) Global Model[a]	AB03_G	0.1667[a]	0.1
Atkinson and Boore (2003) Cascadia Model[a]	AB03_C	0.1667[a]	0.1
Zhao et al. (2006)[b]	Z06	0.3333[b]	0.2

BC Hydro (2012)	BCHydro12	0.3333	-
BC Hydro Base Global (2018)[c]	BCHydro18	-	0.6

Notes:

a. Atkinson and Boore (2003) model is only valid for spectral periods of up to 3.0 seconds. The AB03 models had a correction to several periods and were revised in Atkinson and Boore (2008). The revised models are used in our PSHA.

b. Zhao et al. (2006) model is only valid for periods of up to 5.0 seconds.

c. The BCHydro12 model was used in the 2014 hazard maps, the revised 2018 model is used in our PSHA.

Table 5 – GMMs and Relative Weights for Subduction Interface Sources

Ground Motion Model (GMM)	GMM Abbreviation	GMM Weights	
		2014 USGS Logic Tree	Hart Crowser Logic Tree
Atkinson and Boore (2003, 2008) Global Model[a]	AB03_G	0.1[a]	0.1
Zhao et al. (2006)[b]	Z06	0.3[b]	0.3
Atkinson and Macias (2009)	AM09	0.3	-
BC Hydro (2012)	BCHydro12	0.3	-
Abrahamson, Gregor, and Addo (2018)[c]	BCHydro18	-	0.6

Notes:

a. Atkinson and Boore (2003) model is only valid for spectral periods of up to 3.0 seconds. The AB03 models had a correction to several periods and were revised in Atkinson and Boore (2008). The revised models are used in our PSHA.

b. Zhao et al. (2006) model is only valid for periods of up to 5.0 seconds.

c. The BCHydro12 model was used in the 2014 hazard maps, the revised 2018 model is used in our PSHA.

The site-specific PSHA GMM logic tree incorporated the following modification to the 2014 USGS logic tree:

- **Removed the Idriss NGA-West 2 GMM.** The Idriss GMM (Idriss 2014) includes significantly fewer input parameters and is, in general, less sophisticated than the other NGA-West2 GMMs. USGS gave this GMM only a 12 percent weight compared to 22 percent to the other NGA-West2 equations. We omitted the Idriss model from our logic tree weighting scheme.

- **Updated BC Hydro model to the 2018 version.** The 2018 BC Hydro GMM is an update to the 2016 and 2012 BC Hydro GMMs based on a more extensive subduction (interface and intraslab) ground motion database. As this model represents the most state-of-the-art GMM, a larger weight (0.60) was assigned to this model for both subduction intraslab and interface weighting schemes.

- **Removed the Atkinson and Macias (2009) GMM.** The Atkinson and Macias model response spectrum differs significantly from the rest of the subduction zone equations, including a much flatter decay at longer periods than other empirical GMMs. This equation was derived entirely from earthquake simulations rather than from observed ground motions and lacks a term corresponding to the site-specific V_{S30}.

The Zhao (2016) GMM represents an update to the Z06 GMM included in our weighting scheme and it was considered for inclusion. However, this GMM is observed to be extremely sensitive to distance when compared to other GMMs and we elected to not include this model due to a lack of confidence in it.

Certain GMMs are only applicable for the period ranges for which they were developed. The Atkinson and Boore (2003) model and the Zhao et al. (2006) model were developed for up to periods of 3 and 5 seconds, respectively. At longer periods, the weighting scheme was altered from those summarized in Tables 4 and 5 to exclude the inapplicable models, and to preserve the relative weights between the remaining GMMs. We understand this methodology is consistent with that used by USGS to develop their NSHMs. Note that the period range of interest for the project is less than 3 seconds and we do not anticipate the altered weights beyond 3 seconds will have an impact on the PSHA results. The geometric mean site-specific PSHA spectrum is presented in the attached Table 9.

The deaggregated hazard results from the PSHA are summarized in Appendix D for the 0.1 and 0.2 second. The deaggregated plots are shown for the V_{S30} of the project site.

5.4.4 Site-Specific Hazard Contributions

The relative contribution of hazard from different seismic sources at the site is evaluated in our PSHA for a Site Class B surface condition. The deaggregated hazard for periods from 0 to 3 seconds is summarized in Table 6 and more detailed deggregation at structural periods of 0.1 and 0.2 seconds are presented in the Appendix D.

Table 6 – Mean Seismic Hazard Contributions for the 2,475-year Return Period Event

Period (s)	Source Contribution (percent)			Mean Magnitude	Mean Distance (km)	Mean Epsilon
	Interface	Intraslab	Crustal			
0.00	66	6	28	8.1	62.06	1.00
0.10	**55**	**10**	**35**	**7.8**	**56.87**	**1.10**
0.20	**69**	**8**	**23**	**8.2**	**65.31**	**1.01**
0.30	76	6	19	8.4	68.95	0.96
0.40	79	5	16	8.5	71.36	0.95
0.50	81	4	15	8.5	73.22	0.94
0.60	81	4	15	8.5	74.25	0.97
0.70	82	3	15	8.6	75.31	0.96
0.80	84	3	13	8.6	76.94	0.94
0.90	85	3	12	8.6	78.59	0.92
1.00	86	3	11	8.6	80.06	0.91

5.4.5 Deterministic Seismic Hazard Analysis

At the project site, the majority of seismic hazard comes from the Cascadia Seismic Zone and a nearby megathrust large-magnitude event. The DSHA was also conducted for the site V_{S30}, and the result of that analysis is included for comparison only.

As the provisions of ASCE 7-16 specify that the lower of the PSHA spectrum or DSHA spectrum shall be selected for use in design, selection of the deterministic spectrum is not anticipated to be unconservative compared to a code-based design that considers both the PSHA and DSHA. The controlling fault was identified based on the PSHA deaggregation results at 0.1 and 0.2 seconds. This fault belongs to the Cascadia fold and fault belt (Class A) No. 784 (Personius 2002). The characteristics of the deterministic maximum earthquake are presented in Table 7.

Table 7 – Deterministic Maximum Earthquake Properties

Property	Abbreviation	Value
Moment Magnitude	M_w	9.1
Top of Rupture Plane	Z_{top}	0 km
Rupture Distance	R_{rup}	63.8 km
Site Shear Wave Velocity	V_{S30}	1,201 meters per second

The deterministic spectrum was computed utilizing the GMM weighting scheme for interface source from the PSHA presented above (Table 5). The computed 84th-percentile geometric mean DSHA spectrum is presented in Table 10.

5.4.6 MCE_R Response Spectrum Modifications

5.4.6.1 Modification for Targeted Risk

The MCE hazard is risk-adjusted to achieve a 1 percent probability of collapse in 50 years. To adjust the PSHA spectrum, we calculated the risk coefficients using Method 2 in ASCE 7-16, Section 21.2.1.2, by using an iterative integration procedure that combines the probability of exceedance of a given spectral acceleration with a lognormal probability density function representing the probability of collapse for that particular spectral acceleration (also known as a fragility curve).

The risk coefficients were calculated using a MATLAB script obtained from USGS and were determined using a lognormal standard deviation of 0.6. The input to the MATLAB script consisted of seismic hazard curves at each period (i.e., annual exceedance frequency versus spectral acceleration), which were obtained from the PSHA. The primary outputs of the code are the MCE_R and 2 percent in the 50-year uniform hazard response spectra. The risk coefficients, which the MATLAB script also computes, are simply the ratio of these two response spectra. The values for the hazard curves used as input are summarized in Table 8. The resulting risk coefficients are listed in Table 9.

To adjust the DSHA spectrum, we calculated the risk coefficients using Method 1 in ASCE 7-16, Section 21.2.1.2. These coefficients are listed in Table 10.

5.4.6.2 Modification for Maximum Component

The results of the PSHA and DSHA are geometric mean uniform hazard response spectra. The calculated spectral accelerations are orientation-independent, geometric mean horizontal components of the ground motions. However, the maximum spectral acceleration over all orientations (known as the maximum

component or peak directional accelerations) is a more significant parameter for structural design (NEHRP 2009). In order to develop the maximum component spectrum, the geometric mean response spectra obtained from the PSHA and DSHA were adjusted by period-dependent factors that relate maximum component to geometric mean spectral accelerations. We used the scale factors from Shahi and Baker (2013) to develop the MCE_R. These factors are shown in Table 9 for PSHA, Table 10 for DSHA, and illustrated in Figure 4.

5.4.7 Recommended Site-Specific Response MCE_R and Design Spectra

The site-specific MCE_R spectrum is defined as the lesser of the spectral response accelerations from the PSHA and DSHA MCE_R spectra at each period. The design response spectrum is then defined as two-thirds of the MCE_R spectrum. This design response spectrum is not allowed to fall below the minimum bounding spectrum defined in Section 21.3 of ASCE 7-16. In Figure 5, the MCE_R spectra based on PSHA and DSHA are presented and compared to the code-required minimum bounding spectrum as well as the code-based Site Class B MCE_R spectrum. The site-specific DSHA is higher than the site-specific PSHA spectrum at all levels, therefore the site-specific MCE_R spectrum is based on the PSHA spectrum. The recommended site-specific MCE_R and design response spectra are tabulated in Table 11 below.

Table 11 – Recommended Site-Specific Response Spectra

Period (s)	Recommended MCE_R Response Spectrum (g)	Recommended Design Earthquake Response Spectrum (2/3 MCE_R) (g)
0.01	0.42	0.28
0.1	0.94	0.63
0.2	1.00	0.67
0.3	0.83	0.55
0.4	0.68	0.46
0.5	0.57	0.38
0.6	0.48	0.32
0.7	0.42	0.28
0.8	0.38	0.25
0.9	0.34	0.23
1	0.31	0.20
1.5	0.21	0.14
2	0.16	0.10
3	0.10	0.064

5.4.8 Recommended Site-Specific Design Acceleration Parameters

Where a site-specific procedure is followed, ASCE 7-16 Section 21.4 provides a method to determine the site-specific design acceleration parameters, S_{DS} and S_{D1}, based on the design response spectrum. These values are shown in Table 12 below.

Table 12 – Site-Specific Design Acceleration Parameters

Design Spectral Response Acceleration Parameter at Short Periods S_{DS} (g)	Design Spectral Response Acceleration Parameter at One-Second Period S_{D1} (g)
0.60	0.21

6.0 DRAINAGE DESIGN RECOMMENDATIONS

6.1 Temporary Drainage

During mass grading at the site, 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.

6.2 Surface Drainage

The finished ground surface around buildings should be sloped away from their foundations at a minimum 2 percent gradient for a distance of at least 5 feet. Downspouts or roof scuppers should discharge into a storm drain system that carries the collected water to an appropriate stormwater system. They should not be attached to footing or subslab drains. Trapped planter areas should not be created adjacent to buildings without providing means for positive drainage (i.e., swales or catch basins).

6.3 Subsurface Drainage

The groundwater table is found at depth; therefore, subsurface drainage systems should not be required to protect against groundwater. However, the use of irrigation and improper maintenance of surface drainage gradients adjacent to buildings can often result in adverse conditions, which direct irrigation or surface runoff towards buildings. So it would be prudent though not required, to install a perimeter footing drainage system around the proposed building.

If used, the footing drainage system should consist of a filter fabric-wrapped, drain rock-filled trench that extends at least 12 inches below the lowest adjacent grade (i.e., crawlspace or slab subgrade elevation). A perforated pipe should be placed at the base to collect water that gathers in the drain rock. The drain rock and filter fabric should meet specifications outlined in *Section 8.5 - Structural Fill and Backfill*.

The discharge for subsurface drainage systems should not be tied directly into the stormwater drainage system unless mechanisms are installed to prevent backflow. The use of sump pumps may be required.

6.4 Infiltration Systems

The results of on-site field infiltration testing are described in *Section 3.3.5 - Infiltration Testing*. The near-surface soils generally consist of lean clay or silt with sand, while deeper soils generally consisted of clayey and silty gravel with sand.

Based on our review of our field and laboratory data, the on-site soils have variable unfactored infiltration rates ranging from 0.6 inch per hour in clayey soil to 2 inches per hour in gravelly soil. All of the on-site soils, even the granular materials have relatively high fines content, and we consider the soils have to have a relatively low capacity for infiltration. Additionally, the basalt bedrock underlying the entire site represents an impermeable layer which will cause perching of stormwater. Based on these conditions, we would caution against the widespread use of infiltration systems for disposal of stormwater. Localized use of low volume systems, such as bioswales may be feasible; however, we recommend that we be consulted about any specific system.

For preliminary planning purposes, we recommend the application of a correction factor of 3 to our field infiltration rates to account for our field test methodology and soil variability. This results in design infiltration rates of 0.2 to 0.7 inch per hour. The appropriate design value will need to be determined based on the location, elevation, and type of proposed infiltration system. (We note that the City of St. Helens does not allow infiltration in systems with design rates below 0.5 inch per hour; therefore, some systems may not be feasible.)

6.5 Detention Pond

We understand that site stormwater is likely to be directed to a stormwater detention pond. Conceptual plans indicate that the pond may be on the order of 3 to 5 feet deep.

The pond construction shall be completed in conformance with *Section 8.0 Earthwork Recommendations* of this report. We recommend finished pond slopes have a maximum gradient of 2H:1V.

We note that depending upon the location and configuration of the pond, it could be constructed in fill or cut areas. If located in cut areas, there is the potential that bedrock may be encountered. If the pond exposes bedrock, then water perching on top of the bedrock may tend to seep into the pond. In such a case, it may be appropriate to line the pond to reduce seepage of perched water. If a liner is needed, then additional considerations regarding pond design (e.g., designing for liner buoyancy, etc.) may be required and we should be consulted for additional guidance.

7.0 PAVEMENT DESIGN AND CONSIDERATIONS

7.1 General

Our pavement design recommendations for the project include options for conventional flexible Asphalt Concrete (AC) or rigid Portland Cement Concrete (PCC) pavement. Our design thicknesses assume that new pavements will be supported by a subgrade prepared in conformance with *Section 8.0 Earthwork Recommendations* of this report.

We include our assumptions regarding traffic in the section below. If any of these assumptions are inaccurate, please contact us to develop updated recommendations.

7.2 Pavement Design Assumptions

We made the following assumptions regarding, and used the following parameters for, the design of the pavement sections.

- Traffic on the site will include up to approximately 250 passenger vehicle trips per day with weekly garbage trucks and occasional delivery trucks or fire engines.
- Based on the traffic loading noted above and a 2 percent annual growth rate, we estimate the 20-year design life equivalent single-axle loads (ESALs) to be approximately 50,000 for the site.
- We were not provided with traffic data for the planned roadway; however, for the City standard pavement section of 3 inches of asphalt over 10 inches of aggregate base, we correlate an equivalent ESAL loading of 200,000. This ESAL value seems reasonable for a low volume local street, but should be verified by a traffic engineer or others.
- A resilient modulus of 10,000 pounds per square inch (psi) was estimated for a subgrade that has been moisture conditioned and compacted in conformance with *Section 8.0 Earthwork Recommendations* of this report.
- A resilient modulus of 25,000 psi was estimated for the base rock.
- Initial and terminal serviceability indices of 4.2 and 2.5, respectively.
- Reliability and standard deviation of 85 percent and 0.45, respectively.
- Structural coefficients of 0.42 and 0.10 for the AC and base rock layers, respectively.
- Minimum moduli of rupture and elasticity of 570 and 3,600,000 psi, respectively, for conventional PCC.
- Minimum compressive strength of 4,000 psi for conventional PCC.

Also, construction traffic should be limited to non-building, unpaved portions of the site or haul roads. Construction traffic should not be allowed on new pavements. If construction traffic is to be allowed on newly constructed road sections, an allowance for additional traffic will need to be made in the design pavement section.

7.3 Pavement Sections

The AC pavement sections in Table 13 are minimum recommended material thicknesses.

Table 13 – AC Pavement Sections

Traffic Basis	AC Thickness (inches)	Aggregate Base Thickness (inches)
On Site - Drive Aisles	3.0	6.0
On Site - Parking Stalls	2.5	6.0

Traffic Basis	AC Thickness (inches)	Aggregate Base Thickness (inches)
Roadway Extension to S 15th Street [a]	3.0	10.0

Note:

a. Per Municipal Code Section 18.12.030, the minimum pavement section for streets is 3 inches of asphalt placed in 1 lift, over 10 inches of aggregate base.

The PCC pavement sections in Table 14 include both reinforced and unreinforced sections and are valid for all the traffic levels. The unreinforced PCC pavement would most typically be used in areas that receive "pass through" traffic (i.e., decorative crosswalks, etc.). The reinforced PCC pavement would typically be used as areas with extensive vehicular braking and increased long-term performance requirements (i.e., garbage storage areas).

Table 14 – PCC Pavement Sections

PCC Pavement Type	PCC Thickness (inches)	Aggregate Base Thickness (inches)
Unreinforced	5.0	6.0
Reinforced	6.0	6.0

7.4 Pavement Materials

7.4.1 Flexible AC

The AC should be Level 2, 12.5-mm, dense hot mixed asphalt concrete (HMAC) according to Oregon Standard Specifications (OSS) 00744 – Minor Hot Mixed Asphalt Concrete Pavement. The asphalt cement binder should be PG 64-22 Performance Grade Asphalt Cement. The minimum AC lift thicknesses should be 1.5 inches, though for the roadway a minimum 3-inch-thick lift is required. The AC should be compacted to 91 percent of Rice Density of the mix, as determined in accordance with ASTM D 2041.

7.4.2 Rigid PCC

Rigid PCC used for pavement should meet the specifications provided in OSS 00756 – Plain Concrete Pavement. The installed concrete should be Class 4000 1.5-inch paving concrete per OSS 02001 – Concrete. The PCC joints should have a maximum spacing of 12 feet and be constructed in accordance with OSS 00756.48 – Joints. Unreinforced PCC should be interlocked at contraction joints (e.g., continuous slab with no dowels), though dowels should be used at construction and expansion joints. Reinforced PCC shall have No. 4 bars at 18 inches on center, each way at the mid-depth of the PCC.

7.4.3 Aggregate Base

Imported granular material used as base aggregate (base rock) should meet the criteria specified in *Section 8.5 Structural Fill and Backfill* of this report. The base aggregate should be compacted to not less than 95 percent of the maximum dry density, as determined by ASTM D 1557.

8.0 EARTHWORK RECOMMENDATIONS

8.1 General

Based on available information, we anticipate that site grading will primarily consist of mass grading to increase the site elevation 3 feet above the 100-year flood plain. This will include adding approximately 3 feet of material to the northwestern end of the site, and approximately 7 feet of material to the southeastern portion of the site. However, cutting of the rock outcrop will also be required for the roadway extension.

All earthwork activities should be conducted in accordance with the OSS, particularly OSS 00330 – Earthwork, OSS 00400 – Drainage and Sewers, and OSS 02600 – Aggregates, depending upon the application (ODOT 2021).

8.2 Site Preparation

8.2.1 Subgrade Preparation and Evaluation

Initial site preparation and earthwork operations will include clearing and grubbing, stripping, and grading to establish subgrade elevation for improvements. The site has an organic-rich surficial layer between 6 and 12 inches thick. This material will not be suitable to remain beneath proposed improvements, including buildings and new fills. Actual stripping depths should be based on field observations at the time of construction. Stripped material should be transported off-site for disposal or stockpiled for use in landscaped areas.

Trees and their root balls should be grubbed out to the depth of significant roots, which could exceed 3 to 5 feet bgs for the tall conifer trees. Depending on the methods used to remove the root balls, considerable disturbance and loosening of the subgrade could occur during site grubbing. We recommend that soil disturbed during grubbing operations be removed to expose firm, undisturbed subgrade. The resulting excavations should be backfilled with compacted structural fill.

Following demolition, stripping, and rough excavation, the suitability of the subgrade for fill should be evaluated by a representative of Hart Crowser. In general, subgrades should expose undisturbed soils free from organics and debris, and that are firm and unyielding. Visible organic material (i.e., sod, roots larger than 0.25-inch diameter, and/or other plant material), debris, and other unsuitable materials should be removed from the subgrade area.

For large areas of subgrade, the subgrade should be evaluated by proof rolling with a fully loaded dump truck or similar heavy rubber-tired construction equipment to identify any remaining soft, loose, or unsuitable areas. In areas not accessible by trucks for proof rolling, during wet weather, or when the exposed subgrade is unsuitable for proof rolling, the subgrade should be evaluated by observing excavation activity and probing with a steel foundation probe.

8.2.2 Reworking of Existing Fill

Portions of the site are blanketed by undocumented fill. These materials should be removed and re-worked from areas of planned improvement. In general, this processing would include excavating the fill, removing debris and oversized materials (greater than 6 inches), moisture conditioning, and recompacting the material. More specifically, the undocumented fill should be reworked as an engineered fill in accordance with *Section 8.6 Fill Placement and Compaction*.

8.3 Wet Soil/Wet Weather Construction

Existing near-surface soils at the site commonly include fine-grained (clayey) materials, which will be susceptible to moisture related disturbance, particularly during wet weather. Therefore, we recommend existing surfacing materials be left in place as long as possible to protect the subgrade from equipment trafficking.

Disturbance to the subgrade should be expected if site preparation and earthwork are conducted during periods of excessive wet weather and/or when the moisture content of the surficial soil exceeds optimum. Wet soil construction practices may be necessary during extensive portions of the year, particularly during periods of wet weather. Wet soil construction practices include using equipment, such as smooth excavator buckets and tracked equipment, and stabilized haul roads and staging areas constructed of quarry spalls and separation geotextile, to limit subgrade disturbance.

8.4 Excavation and Slopes

8.4.1 General Excavations

The site is blanketed by about 1 to 10 feet of soil, which is generally medium stiff or medium dense. Below those depths the entire site is underlain by hard basalt bedrock.

It is our opinion that conventional earthmoving equipment in proper working condition should be capable of making necessary general excavations into the onsite soils; however, the bedrock is strong and not likely be excavatable with standard equipment. Additionally, the soil contains a large volume of cobbles and some boulders, which should also be excavatable with conventional earthwork equipment with some additional effort. However, the presence of these materials may cause trenches to cave or slough, resulting in greater than anticipated backfill quantities. Removal of bedrock materials is described in more detail below.

The earthwork contractor should be responsible for providing equipment and following procedures as needed to excavate the site soils and bedrock materials as described in this report.

Permanent slope excavations should have a minimum gradient of 2H:1V, and the foundations for the Public Safety Building must have a minimum horizontal cover of 10 feet adjacent to permanent slopes.

8.4.2 Temporary Excavation Stability (Soil)

Temporary soil cuts for site excavations that are more than 4 feet deep should be adequately sloped back to prevent sloughing and collapse, in accordance with Occupational Safety and Health Administration (OSHA) guidelines.

The stability and safety of cut slopes depend on a number of factors, including:

- Type and density of the soil;
- Presence and amount of groundwater seepage;
- Depth of cut;
- Proximity and magnitude of the cut to any surcharge loads, such as stockpiled material, traffic loads, or structures;
- Duration of the open excavation; and
- Care and methods used by the contractor.

Because of the variables involved, actual slope angles required for stability in temporary cut areas can only be estimated before construction. It is the responsibility of the contractor to ensure that the excavation is properly sloped or braced for worker protection in accordance with OSHA guidelines. The upper on-site soils consist of clay and clayey gravel that would be classified as OSHA Class B for excavation purposes.

In lieu of large open cuts, approved temporary shoring may be used for excavation support. A variety of shoring systems are available; consequently, we recommend that the contractor be responsible for selecting the appropriate system. All trench excavations should be made in accordance with applicable OSHA and state regulations.

We note that box shoring is a safety feature used to protect workers and does not prevent caving. If the excavations are left open for extended periods of time, then caving of the sidewalls may occur. The presence of caved material will limit the ability to properly backfill and compact the trenches. The voids between the box shoring and the sidewalls of the trenches should be properly filled with sand or gravel before caving occurs.

8.4.3 Rock Excavations and Cuts

The following specific information should be considered for excavations into bedrock.

8.4.3.1 Rock Excavation

The basaltic bedrock is hard and expected to be very difficult to excavate. During excavation of the test pits with a relatively small excavator (CAT 305E), the excavator could only expose the upper few inches of the rock surface. We anticipate the rock will not be easily excavated beyond this upper surface, and that large

dozers with rippers, rock hammers and/or blasting will be required to excavate the rock. Refer to the geophysical study in Appendix D for additional discussion regarding the rippability of the bedrock.

8.4.3.2 Permanent Rock Cuts

Based on our understanding of the subsurface conditions and review of the preliminary grading plans, proposed permanent cuts into bedrock at an inclination of 2H:1V will be globally stable, and will be suitable for construction according to the proposed plans and the recommendations in this report. We also anticipate that steeper permanent cuts into basaltic andesite bedrock, up to near vertical, may be globally stable. However, steeper cuts should be evaluated on a case-by-case basis to verify their global stability, but also to evaluate local stability (e.g., rockfall hazard). Furthermore, non-geotechnical considerations (i.e., trip-and-fall hazards, maintenance access, etc.) should also be evaluated by the project team in concert with Hart Crowser.

For planning purposes, it is reasonable to assume that from a geotechnical perspective, permanent cuts up to 1H:1V are globally stable when excavated into basaltic bedrock. However, permanent cuts into bedrock that are steeper than 2H:1V may locally expose areas of lower quality rock, which could require additional reinforcement (i.e., rock bolting) and should be evaluated on a case-by-case basis.

8.4.3.3 Temporary Rock Cuts

Temporary cuts into basaltic andesite bedrock that will be permanently buttressed by retaining walls or fill placed at 2H:1V or flatter, are likely to be stable at inclinations ranging from 1H:1V to near vertical. However, the stability of such cuts should be evaluated on a case-by-case basis during construction.

For planning purposes, it is reasonable to assume that from a geotechnical perspective, temporary cuts up to 1/2H:1V are globally stable when excavated into basaltic bedrock.

8.4.4 Dewatering

Groundwater is not expected within the depths of excavations; however, we do anticipate that perched water will be encountered on top of the underlying bedrock and clayey gravel layers. Measures should be taken to provide temporary drainage of perched and surface water to prevent standing water and/or erosion at the working surface or in excavations.

8.5 Structural Fill and Backfill

Structural fill should be considered to include any fill that is placed beneath buildings, foundations, slabs, pavements, and other areas intended to support structural elements or within their influence zone.

Fill should only be placed over a subgrade that has been prepared in conformance with the prior sections of this report. Fill should be placed and compacted per *Section 8.6 Fill Placement and Compaction*. 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 matter or other unsuitable materials, and should meet specifications provided in the OSS 00330 – Earthwork, OSS 00400 – Drainage and Sewers, and OSS 02600 – Aggregates, depending upon the appropriate application. A brief characterization of some of the acceptable materials and our recommendations for their use as structural fill are provided below.

8.5.1 On-Site Soils

The native, near-surface site soils generally consist of a clay layer up to 5 feet bgs and then clayey gravel to depths of up to 10 feet bgs. The surficial clayey soils are low to medium plasticity and have moisture contents between approximately 20 to 35 percent. These soils are generally not considered suitable for use as structural fill. However, if the soils are amended with lime or cement, they can be made suitable for use as structural fill. Refer to *Section 8.5.6 Amended Soil* for details.

Near surface gravelly fill soils may be suitable for re-use provided they are prepared in accordance with *Section 8.2.2 Reworking of Existing Fill* of this report.

The deeper, native gravelly soils, if segregated from the clayey soil, can be used for structural fill. However, these materials were typically saturated from perched water and may need to be dried prior to use. Furthermore, cobbles and boulders up to 3 feet in diameter were encountered in this material. Material greater than 6 inches in diameter must be removed prior to re-using. If used, the on-site soils should be placed and compacted in lifts with maximum uncompacted thicknesses and relative densities as recommended in the tables that follow.

The imported material that has been stockpiled on the southeastern edge of the property appeared to consist of a silty sandy matrix with gravel and rounded cobbles up to 6 inches in diameter. This material appears to be suitable for use as structural fill; however, prior to use we want to confirm the soil's suitability.

8.5.2 Imported Structural Fill

Imported granular material used as structural fill within the building pad should be pit or quarry run rock, crushed rock, or crushed gravel and sand and should meet the specifications provided in OSS 00330.14 – Selected Granular Backfill, or OSS 00330.15 – Selected Stone Backfill. The imported granular material should also be angular, fairly well graded between coarse and fine material, have less than 5 percent by dry weight passing the U.S. Standard No. 200 Sieve, and have at least two mechanically fractured faces. The material should be placed and compacted in lifts with maximum uncompacted thicknesses and relative densities as recommended in the tables that follow.

Imported material used as structural fill in area outside of the building pad should meet the specifications provided in OSS 00330.13 – Selected General Backfill. This imported material should be free of debris, be non-plastic, and should not contain any particles greater than 3 inches.

8.5.3 Aggregate Base

Imported granular material used as aggregate base (base rock) beneath pavements or the building should be clean, crushed rock or crushed gravel and sand that is fairly well-graded between coarse and fine. The base aggregate should meet the specifications of OSS 00641 – Aggregate Subbase, Base, and Shoulders.

Base Aggregate, depending upon application, with the exception that the aggregate have less than 5 percent by dry weight passing a U.S. Standard No. 200 Sieve and have at least two mechanically fractured faces.

For use beneath pavements or footings, the aggregate base should have a maximum particle size of 1 inch or 1.5 inches, while for use beneath the building or sidewalk slabs should have a maximum particle size of 0.75 or 1 inch. For use beneath buildings, the base rock should also meet the gradation of OSS 2630.11 – Open-Graded Aggregate.

The aggregate base material should be placed and compacted in lifts with maximum uncompacted thicknesses and relative densities as recommended in the tables that follow.

8.5.4 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 1 inch and should meet the specifications of OSS 00405.13 – Pipe Zone Material and the pipe manufacturer's requirements.

Within pavement and slab subgrades the remainder of the trench backfill up to the subgrade elevation can consist of the above 1-inch material or of granular material with a maximum particle size of 3 inches, have less than 10 percent by dry weight passing the U.S. Standard No. 200 Sieve, and meet the specifications of OSS 00405.14 – Class B, C, or D Trench Backfill, as appropriate.

In landscape areas, trench backfill placed above the pipe zone may consist of general fill materials that are free of organics, materials over 3 inches in diameter, and meet the specifications provided in OSS 00405.14 – Class A, B, C, or D Trench Backfill, as appropriate.

The material should be placed and compacted in lifts with maximum uncompacted thicknesses and relative densities as recommended in the tables that follow.

8.5.5 Stabilization Material

If imported granular material is used to create haul roads for construction traffic or is required for stabilization of the bases of excavations, we recommend that material consist of pit or quarry run rock, or crushed rock. The material should generally be sized between 2 and 6 inches, have less than 5 percent by dry weight passing the U.S. Standard No. 4 Sieve, and have at least two mechanically fractured faces. The material should be free of organic matter and other deleterious material. The material should also meet the specifications of OSS 00330.16 – Stone Embankment Material.

Stabilization material should be placed in lifts between 12 and 18 inches thick and be compacted to a well-keyed condition with appropriate compaction equipment without using vibratory action. In trench excavations, a walk behind sheepsfoot roller or a pinwheel on an excavator typically can provide adequate compaction if carefully used.

If groundwater or an unstable subgrade is present and "quarry spalls" or similar open-graded rocks are used for stabilization of the base of excavations or access roadways, then a layer of separation fabric should be placed atop the stabilization material prior to the placement of the pipe bedding material. The geotextile should meet the specifications provided in OSS 02320.20 – Geotextile Property Values for soil separation. The geotextile should be installed in conformance with the specifications provided in OSS 00350 – Geosynthetic Installation.

8.5.6 Amended Soil

As an alternative to the use of imported granular material for structural fill, an experienced contractor may be able to amend the on-site soils with hydrated lime of 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. Specific recommendations for soil amending, based on exposed site conditions and contractor equipment, can be provided if necessary.

Amended soils are hard and have low permeability. These soils do not drain well nor are they suitable for planting. Future planted areas should not be amended, if practical, or accommodations should be made for drainage and planting.

8.5.7 Drain Rock

Drain rock should consist of angular, granular material that meets the specifications provided in OSS 00430.11 – Granular Drain Backfill Material. The drain rock should be wrapped in a Type 1 drainage geotextile that meets the specifications provided in OSS Table 02320-1 – Geotextile Property Values. The geotextile should be installed in conformance with OSS 00350 – Geosynthetic Installation.

8.6 Fill Placement and Compaction

Structural fill should be placed and compacted in accordance with the following guidelines.

- Place fill and backfill on a prepared subgrade that consists of firm, inorganic native soils, or approved structural fill.

- Place fill or backfill in uniform horizontal lifts with a thickness appropriate for the material type and compaction equipment. Table 15 provides general guidance for lift thicknesses.

Table 15 – Guidelines for Uncompacted Lift Thickness

Compaction Equipment	Guidelines for Uncompacted Lift Thickness (inches)		
	On-Site Soil	Granular and Crushed Rock Maximum Particle Size ≤ 1.5 inch	Crushed Rock Maximum Particle Size > 1.5 inch
Plate Compactors and Jumping Jacks	4 - 8	4 - 8	Not Recommended
Rubber-Tire Equipment	6 - 8	10 - 12	6 - 8
Light Roller	8 - 10	10 - 12	8 - 10
Heavy Roller	10 - 12	12 - 18	12 - 16
Hoe Pack Equipment	12 - 16	18 - 24	12 - 16

Note:

The above table is based on our experience and is intended to serve as a guideline. The information provided in this table should not be included in the project specifications.

- Use appropriate operating procedures to attain uniform coverage of the area being compacted.

- Place fill at a moisture content within approximately 3 percent of optimum as determined in accordance with ASTM Test Method D 1557. Moisture condition fill soil to achieve uniform moisture content within the specified range before compacting. Compact fill to the percent of maximum dry densities as noted in Table 16 below.

- Do not place, spread, or compact fill soils during freezing or unfavorable weather conditions. Frozen or disturbed lifts should be removed or properly recompacted prior to placement of subsequent lifts of fill soils.

Table 16 – Fill Compaction Criteria

Fill Type	Percent of Maximum Dry Density Determined in Accordance with ASTM D 1557		
	0 - 2 Feet Below Subgrade	> 2 Feet Below Subgrade	Pipe Bedding and Pipe Zone
Mass Fill (fine-grained soils)	92	92	-----
Mass Fill (granular materials)	95	90	-----
Aggregate Base	95	95	-----
Trench Backfill	95	92	90
Nonstructural Trench Backfill	90	88	-----
Nonstructural Zones	90	88	90

Note:
"Nonstructural" areas are only located in landscaping zones, where the potential for localized trench settlement is acceptable to the owner.

During structural fill placement and compaction, a sufficient number of in-place density tests should be completed by Hart Crowser to verify that the specified degree of compaction is being achieved. For structural fill with more than 30 percent retained on the 3/4-inch sieve, Hart Crowser should visually verify proper compaction with a proof roll or other methods.

9.0 CONSTRUCTION OBSERVATIONS

Satisfactory foundation and earthwork performance depends to a large degree on quality of construction. Sufficient monitoring of the project 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 subsurface explorations. Recognition of changed conditions often requires experience; therefore, Hart Crowser or their representative should visit the site with sufficient frequency to detect whether subsurface conditions change significantly from those anticipated.

We recommend that Hart Crowser be retained to monitor construction at the site to confirm that subsurface conditions are consistent with the site explorations and to confirm that the intent of project plans and specifications relating to earthwork and foundation construction are being met. In particular, we

recommend that the foundation construction and compaction of structural fill be observed and/or tested by Hart Crowser.

10.0 LIMITATIONS

We have prepared this report for the exclusive use of the City of St. Helens and Mackenzie and their authorized agents for the proposed Public Safety Building project in St. Helens, Oregon. Our work was completed in general accordance with our proposal dated September 28, 2021, and our Personal Services Agreement with the City of St. Helens, dated October 15, 2021. Our report is intended to provide our opinion of geotechnical parameters for design and construction of the proposed project based on exploration locations that are believed to be representative of site conditions. However, conditions can vary significantly between exploration locations and our conclusions should not be construed as a warranty or guarantee of subsurface conditions or future site performance.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with generally accepted practices in the field of geotechnical engineering in this area at the time this report was prepared. No warranty, expressed or implied, should be understood.

Any electronic form, facsimile, or hard copy of the original document (i.e., email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by Hart Crowser and will serve as the official document of record.

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OR

N

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A division of Haley & Aldrich

ST. HELENS PUBLIC SAFETY BUILDING
ST. HELENS, OREGON

VICINITY MAP

MAP SOURCE: ESRI
SITE COORDINATES: 45°51'7"N, 45°51'7"N

APPROXIMATE SCALE: 1 IN = 2000 FT
NOVEMBER 2021

FIGURE 1

GIS: \\haleyaldrich.com\share\pdx_data\Notebooks\0203864-000_St_Helens_Public_Safety_Bldg\GIS\MGIS\Maps\2021_11\203864_001_0001_VICINITY_MAP.mxd - mshwetizer - 11/4/2021 1:07:19 PM

LEGEND

- TEST PIT (DEPTH TO BEDROCK, FEET)
- INFILTRATION TEST
- SEWER MANHOLE
- ELEVATION CONTOUR, 1-FT INTERVAL (NAVD 88)
- ROAD RIGHT-OF-WAY
- BEDROCK OUTCROPS
- EXISTING FILL STOCKPILE
- SITE BOUNDARY

NOTES

1. AERIAL IMAGERY SOURCE: NEARMAP, 28 AUGUST 2021
2. ELEVATION CONTOUR SOURCE: AKS, 1 NOVEMBER 2021
3. ROAD RIGHT-OF-WAY SOURCE: AKS, 1 NOVEMBER 2021

N

0 100 200

SCALE IN FEET

HARTCROWSER
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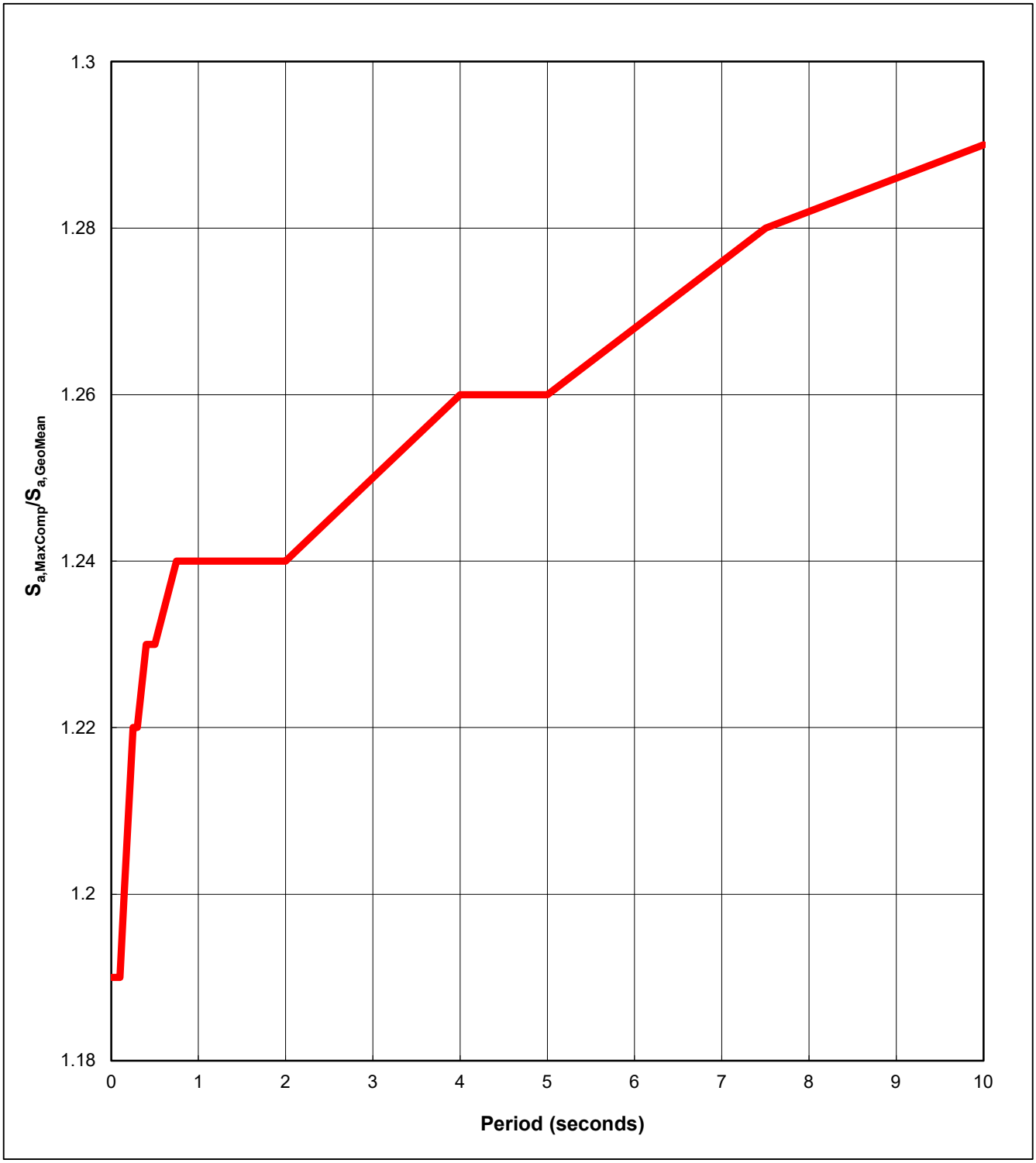
ST. HELENS PUBLIC SAFETY BUILDING
ST. HELENS, OREGON

SITE PLAN

NOVEMBER 2021

FIGURE 2

GIS: \\haleyaldrich.com\share\pdx_data\Notebooks\0203864-000_St_Helens_Public_Safety_Bldg\GIS\MGIS\Maps\2021_11\203864_001_0002_SITE_PLAN.mxd - mschweitzer - 11/18/2021 10:36:31 AM



St Helens Public Safety Building
St. Helens, Oregon

Peak Directional Scaling Factors (Shahi and Baker, 2013)

0203864-000 11/2021

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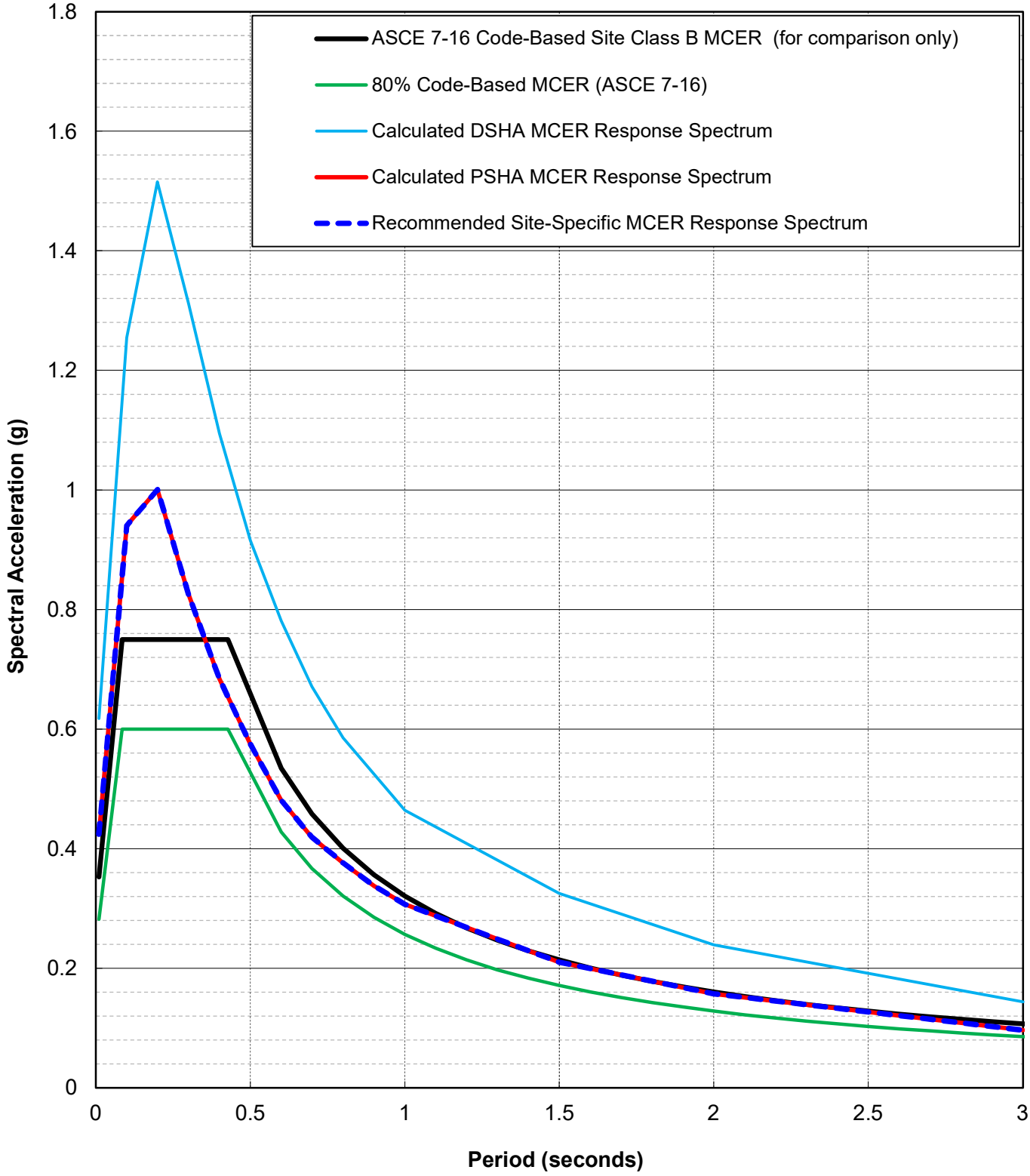
Figure
4

MBC 11/17/2021 \\haleyaldrich.com\share\pdx_data\Notebooks\0203864-000_St_Helens_Public_Safety_Bldg\Analysis and Calcs\Calc_2 Seismic Design Parameters\MCER Development\Peak Direction\Figure 8 - Shahi and Baker 2013.xlsx



St Helens Public Safety Building
St. Helens, Oregon

Recommended Site-Specific MCE_R Spectrum

0203864-000 11/2021

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Figure
5

APPENDIX A
Field Explorations

APPENDIX A

Field Explorations

General

We evaluated subsurface conditions at the site by advancing ten test pits and three infiltration test holes on October 25 and 26, 2021. The field explorations were coordinated and overseen by geotechnical staff from Hart Crowser; who classified the various soil units encountered, obtained representative soil samples for geotechnical testing, recorded groundwater conditions, and maintained a detailed log of each exploration. Logs of the test pits are included in this appendix. Results of the laboratory testing are indicated on the exploration logs and are included in Appendix B.

Materials encountered in the explorations were classified in the field in general accordance with ASTM Standard Practice D 2488 "Standard Practice for the Classification of Soils (Visual-Manual Procedure)." Disturbed ("grab") samples were collected from sidewalls or excavation spoils during test pit explorations and from the core samples in the push probe boring. Sampling intervals are shown on the exploration logs included in this appendix.

The exploration logs in this appendix show our interpretation of the exploration, sampling, and testing data. The logs indicate the depth where the soils change. Note that the change may be gradual. In the field, we classified the samples taken from the explorations according to the methods presented on the *Figure A-1 Key to Exploration Logs*. This figure also provides a legend explaining the symbols and abbreviations used in the logs.

The approximate locations of the explorations are shown on Figure 2 of the report. Explorations were located in the field using a mapping grade Trimble GPS unit.

Test Pits

Ten test pit explorations, designated TP-1 through TP-10, were excavated on October 25 and 26, 2021. Test pit explorations were completed using a CAT Model 305E hydraulic trackhoe operated by Stratus Corporation of Gaston, Oregon. The explorations were continuously observed by geotechnical staff members from Hart Crowser and detailed field logs of the test pits were prepared. Disturbed ("grab") samples were collected from sidewalls or excavation spoils during test pit explorations. Sampling intervals are shown on the exploration logs included in this appendix.

Infiltration Testing

We conducted three infiltration tests designed IT-1 through IT-3 at the site adjacent to three test pits. IT-1 was conducted adjacent to TP-2, IT-2 adjacent to TP-4, and IT-3 adjacent to TP-5. The tests consisted of single-ring falling head infiltration tests or small open test pit holes, as referenced in and conducted in general accordance with the procedures in Portland 2020, and as briefly described below. Single-ring falling tests were attempted at each test locations; however, due to gravelly to cobbly nature of the site

soils, open-pit tests were utilized when pipe could not be sufficiently imbedded to conduct the single-ring tests. Infiltration test IT-1 is an open pit tests, while IT-2 and IT-3 are single-ring falling head tests.

The primary test pits were excavated to a depth of approximately 6 feet or more below the base of the tests to verify subsurface conditions below the base of the test. The adjacent infiltration test pits were advanced adjacent to each primary test pit and cuttings/or grab samples generated from infiltration holes/pits were observed to verify that subsurface conditions were relatively consistent with the primary test pit excavation.

- At IT-2 and IT-3, a 6-inch-diameter PVC pipe was placed in the bottom of the test pit. The tip of the pipe was pushed into the soil approximately 6 or more inches to form a seal around the base of the pipe. At IT-1, an approximately 2- by 2-foot area was excavated at the bottom of the test pit for the infiltration tests, because pipes could not be used due to the gravelly nature of the soils.

- The pipes/pits were filled with water depths roughly corresponding to the anticipated capacity of potential infiltration systems and were allowed to saturate. The tests were allowed to saturate for a minimum of approximately 4 hours or until the draw-down rates had sufficiently stabilized, as described in the test procedure.

- After the saturation period, the infiltration rate was monitored until the rate stabilized.

The results of our infiltration tests are provided in *Section 3.3.5* of this report. Please refer to the body of the report for a discussion of our findings and recommendations regarding the design of infiltration systems.

Sample Description

Identification of soils in this report is based on visual field and laboratory observations which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field nor laboratory testing unless presented herein. ASTM D 2488 visual-manual identification methods were used as a guide. Where laboratory testing confirmed visual-manual identifications, then ASTM D 2487 was used to classify the soils.

Relative Density/Consistency

Soil density/consistency in borings is related primarily to the standard penetration resistance (N). Soil density/consistency in test pits and probes is estimated based on visual observation and is presented parenthetically on the logs.

SAND or GRAVEL Relative Density	N (Blows/Foot)	SILT or CLAY Consistency	N (Blows/Foot)
Very loose	0 to 4	Very soft	0 to 1
Loose	5 to 10	Soft	2 to 4
Medium dense	11 to 30	Medium stiff	5 to 8
Dense	31 to 50	Stiff	9 to 15
Very dense	>50	Very stiff	16 to 30
		Hard	>30

Moisture

Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

USCS Soil Classification Chart (ASTM D 2487)

Major Divisions			Symbols: Graph	Symbols: USCS	Typical Descriptions
Coarse Grained Soils: More than 50% of Material Retained on No. 200 Sieve	Gravel and Gravelly Soils: More than 50% of Coarse Fraction Retained on No. 4 Sieve	Clean Gravels (<5% fines)		GW	Well-Graded Gravel; Well-Graded Gravel with Sand
				GP	Poorly Graded Gravel; Poorly Graded Gravel with Sand
		Gravels (5-12% fines)		GW-GM	Well-Graded Gravel with Silt; Well-Graded Gravel with Silt and Sand
				GW-GC	Well-Graded Gravel with Clay; Well-Graded Gravel with Clay and Sand
				GP-GM	Poorly Graded Gravel with Silt; Poorly Graded Gravel with Silt and Sand
				GP-GC	Poorly Graded Gravel with Clay; Poorly Graded Gravel with Clay and Sand
		Gravels with Fines (>12% fines)		GM	Silty Gravel; Silty Gravel with Sand
				GC	Clayey Gravel; Clayey Gravel with Sand
	Sand and Sandy Soils: More than 50% of Coarse Fraction Passing No. 4 Sieve	Sands with few Fines (<5% fines)		SW	Well-Graded Sand; Well-Graded Sand with Gravel
				SP	Poorly Graded Sand; Poorly Graded Sand with Gravel
		Sands (5-12% fines)		SW-SM	Well-Graded Sand with Silt Well-Graded Sand with Silt and Gravel
				SW-SC	Well-Graded Sand with Clay; Well-Graded Sand with Clay and Gravel
				SP-SM	Poorly Graded Sand with Silt; Poorly Graded Sand with Silt and Gravel
				SP-SC	Poorly Graded Sand with Clay; Poorly Graded Sand with Clay and Gravel
		Sands with Fines (>12% fines)		SM	Silty Sand; Silty Sand with Gravel
				SC	Clayey Sand; Clayey Sand with Gravel
Fine Grained Soils: More than 50% of Material Passing No. 200 Sieve	Silts			ML	Silt; Silt with Sand or Gravel; Sandy or Gravelly Silt
				MH	Elastic Silt; Elastic Silt with Sand or Gravel; Sandy or Gravelly Elastic Silt
	Silty Clay (based on Atterberg Limits)			CL-ML	Silty Clay; Silty Clay with Sand or Gravel; Gravelly or Sandy Silty Clay
	Clays			CL	Lean Clay; Lean Clay with Sand or Gravel; Sandy or Gravelly Lean Clay
				CH	Fat Clay; Fat Clay with Sand or Gravel; Sandy or Gravelly Fat Clay
	Organics			OL/OH	Organic Soil; Organic Soil with Sand or Gravel; Sandy or Gravelly Organic Soil
Highly Organic (>50% organic material)				PT	Peat - Decomposing Vegetation - Fibrous to Amorphous Texture

Minor Constituents

	Estimated Percentage
Sand, Gravel	
Trace	<5
Few	5 - 15
Cobbles, Boulders	
Trace	<5
Few	5 - 10
Little	15 - 25
Some	30 - 45

Soil Test Symbols

%F	Percent Passing No. 200 Sieve
AL	Atterberg Limits (%)
	Liquid Limit (LL)
	Water Content (WC)
	Plastic Limit (PL)
CA	Chemical Analysis
CAUC	Consolidated Anisotropic Undrained Compression
CAUE	Consolidated Anisotropic Undrained Extension
CBR	California Bearing Ratio
CIDC	Consolidated Drained Isotropic Triaxial Compression
CIUC	Consolidated Isotropic Undrained Compression
CK0DC	Consolidated Drained k0 Triaxial Compression
CK0DSS	Consolidated k0 Undrained Direct Simple Shear
CK0UC	Consolidated k0 Undrained Compression
CK0UE	Consolidated k0 Undrained Extension
CRSCN	Constant Rate of Strain Consolidation
DS	Direct Shear
DSS	Direct Simple Shear
DT	In Situ Density
GS	Grain Size Classification
HYD	Hydrometer
ILCN	Incremental Load Consolidation
K0CN	k0 Consolidation
kc	Constant Head Permeability
kf	Falling Head Permeability
MD	Moisture Density Relationship
OC	Organic Content
OT	Tests by Others
P	Pressuremeter
PID	Photoionization Detector Reading
PP	Pocket Penetrometer
SG	Specific Gravity
TRS	Torsional Ring Shear
TV	Torvane
UC	Unconfined Compression
UUC	Unconsolidated Undrained Triaxial Compression
VS	Vane Shear
WC	Water Content (%)

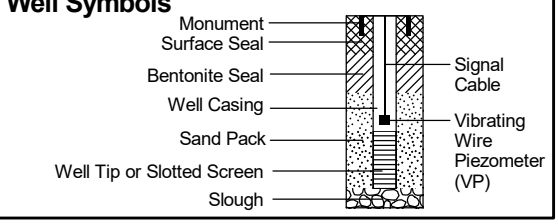
Groundwater Indicators

- Groundwater Level on Date or At Time of Drilling (ATD)
- Groundwater Level on Date Measured in Piezometer
- Groundwater Seepage (Test Pits)

Sample Symbols

- 1.5" I.D. Split Spoon
- 3.0" I.D. Split Spoon
- Modified California Sampler
- Rock Core Run
- Sonic Core
- Thin-walled Sampler
- Grab
- Cuttings
- Push Probe

Well Symbols



Scale of Relative Rock Weathering

Term	Description
Fresh	Crystals are bright. Discontinuities may show some minor surface staining. No discoloration in rock fabric.
Slightly Weathered	Rock mass is generally fresh. Discontinuities are stained and may contain clay. Some discoloration in rock fabric. Decomposition extends up to 1 inch into rock.
Moderately Weathered	Rock mass is decomposed 50% or less. Significant portions of rock show discoloration and weathering effects. Crystals are dull and show visible chemical alteration. Discontinuities are stained and may contain secondary mineral deposits.
Predominantly Decomposed	Rock mass is more than 50% decomposed. Rock can be excavated with geologist's pick. All discontinuities exhibit secondary mineralization. Complete discoloration of rock fabric. Surface of core is friable and usually pitted due to washing out of highly altered minerals by drilling water.
Decomposed	Rock mass is completely decomposed. Original rock "fabric" may be evident. May be reduced to soil with hand pressure.

Scale of Relative Rock Hardness

Hardness Designation	Term	Field Identification	Uniaxial Compressive Strength
R0	Extremely Soft	Can be indented with difficulty by thumbnail. May be moldable or friable with finger pressure.	< 100 psi
R1	Very Soft	Crumbles under firm blows with point of a geology pick. Can be peeled by a pocket knife. Scratched with fingernail.	100 - 1000 psi
R2	Soft	Can be peeled by a pocket knife with difficulty. Cannot be scratched with fingernail. Shallow indentation made by firm blow of geology pick.	1000 - 4000 psi
R3	Medium Hard	Can be scratched by knife or pick. Specimen can be fractured with a single firm blow of hammer/geology pick.	4000 - 8000 psi
R4	Hard	Can be scratched with knife or pick only with difficulty. Several hard hammer blows required to fracture specimen.	8000 - 16000 psi
R5	Very Hard	Cannot be scratched by knife or sharp pick. Specimen require many blows of hammer to fracture or chip. Hammer rebounds after impact.	> 16000 psi

Joint and Bedding Spacing Terms

Spacing	Joint Spacing Terms	Bedding/Foliation Spacing Terms
Less than 2 inches	Very Close	Very Thin (laminated)
2 inches to 1 foot	Close	Thin
1 foot to 3 feet	Moderately Close	Medium
3 feet to 10 feet	Wide	Thick
More than 10 feet	Very Wide	Very Thick (massive)

Stratification Terms

Term	Characteristics
Laminations	Thin beds (<1 cm)
Fissile	Tendency to break along laminations.
Parting	Tendency to break parallel to bedding.
Foliation	Non-depositional (e.g., segregation and layering of minerals in metamorphic rock)

Igneous Rock Textures

Texture	Grain Size
Pegmatitic	Very large; diameters measured in inches or feet
Phaneritic	Can be seen with the naked eye
Porphyritic	Grained of two widely different sizes
Aphanitic	Cannot be seen with the naked eye
Glassy	No grains present

Pyroclastic Rocks

Rock Name	Characteristics
Cinders	Uncemented glassy and vesicular ejecta 4-32 mm size
Tuff Breccia (Agglomerate)	Composed of ejecta >32mm size, in ash/tuff matrix, indurated
Lapilli Tuff	Composed of ejecta 4-32 mm size, in ash/tuff matrix, indurated
Tuff	Cemented volcanic ash particles <4mm size, indurated
Pumice	Excessively vesiculated glassy lava

Degree of Vesicularity

Designation	Percentage of Cavities (by volume) of Total Sample
Some Vesicules	5 to 25 Percent
Highly Vesicular	15 to 50 Percent
Scoriaceous	Greater than 50 Percent

Other Terms:

Core Recover (CR) = the ratio of core recovered to the core run length expressed as a percentage.

Rock Quality Designation (RQD) = the percentage of rock core recovered in intact pieces of 4 inches or more in length in the length of a core run. Does not include mechanical breaks caused by drilling.

Reference:

Oregon Department of Transportation (ODOT), 1987. *Soil and Rock Classification Manual*, May 1987.

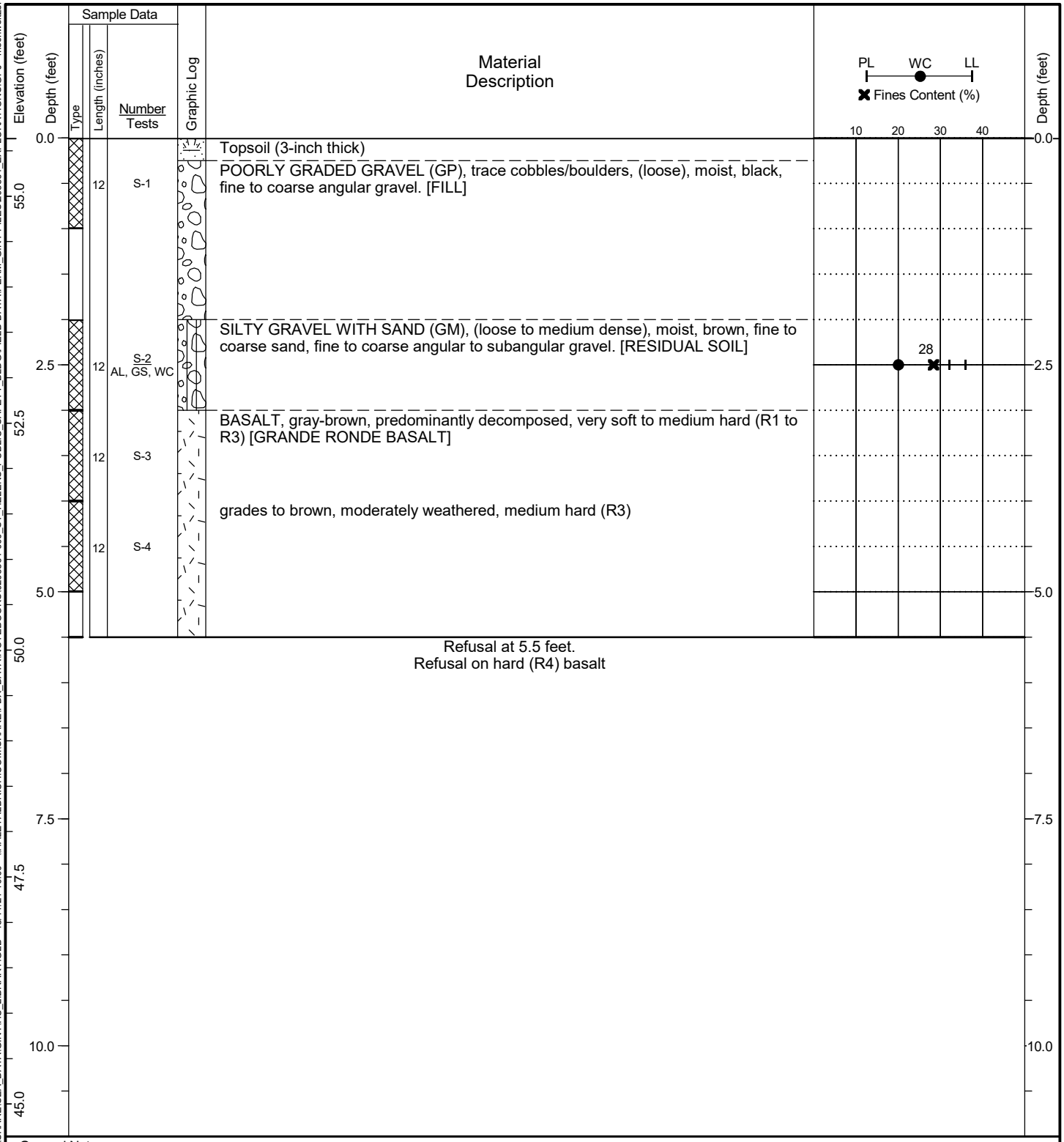
Date Started: 10/25/2021 Date Completed: 10/25/2021 Contractor/Crew: Stratus Corporation / Scott Flaherty

Logged by: R. Rosenberg Checked by: D. Knapp Rig Model/Type: Cat® 305E / Excavator

Location: Lat: 45.852430 Long: -122.809902 (WGS 84) Total Depth: 5.5 feet Depth to Seepage: Not Encountered

Ground Surface Elevation: 55.64 feet (NAVD 88)

Comments:



General Notes:

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HARTCROWSER A division of Haley & Aldrich

Project: St. Helens Public Safety Building
Location: St. Helens, Oregon
Project No.: 0203864-000

Test Pit Log
TP-1

Figure **A-2**
Sheet **1 of 1**

Date Started: 10/25/2021 Date Completed: 10/25/2021 Contractor/Crew: Stratus Corporation / Scott Flaherty

Logged by: R. Rosenberg Checked by: D. Knapp Rig Model/Type: Cat® 305E / Excavator

Location: Lat: 45.852223 Long: -122.812049 (WGS 84) Total Depth: 5.5 feet Depth to Seepage: Not Encountered

Ground Surface Elevation: 61.85 feet (NAVD 88)

Comments:

Elevation (feet)	Depth (feet)	Sample Type	Sample Length (inches)	Sample Number / Tests	Graphic Log	Material Description
61.85	0.0					SANDY SILT (ML), (soft), moist, black, fine to coarse sand, low plasticity, root zone (Topsoil 12-inch thick).
59.35	2.5					SANDY SILT (ML), (soft to medium stiff), moist, brown, fine to coarse sand, medium plasticity, micaceous. [ALLUVIUM]
			6	S-1 AL, WC		
			6	S-2 GS, WC		CLAYEY GRAVEL WITH SAND (GC), little cobbles, (medium dense to dense), moist, light brown, fine to coarse sand, fine to coarse angular to subangular gravel, low plasticity fines. [RESIDUAL SOIL]
56.85	5.0		6	S-3		

Refusal at 5.5 feet.
Refusal on hard (R4) basalt

PL WC LL
Fines Content (%)
10 20 30 40
41

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HARTCROWSER A division of Haley & Aldrich

Project: St. Helens Public Safety Building
Location: St. Helens, Oregon
Project No.: 0203864-000

Test Pit Log
TP-2

Figure **A-3**
Sheet **1 of 1**

Date Started: 10/25/2021 Date Completed: 10/25/2021 Contractor/Crew: Stratus Corporation / Scott Flaherty

Logged by: R. Rosenberg Checked by: D. Knapp Rig Model/Type: Cat® 305E / Excavator

Location: Lat: 45.851719 Long: -122.812122 (WGS 84) Total Depth: 1 feet Depth to Seepage: Not Encountered

Ground Surface Elevation: 61.41 feet (NAVD 88)

Comments:

Elevation (feet)	Depth (feet)	Sample Data: Type	Sample Data: Length (inches)	Sample Data: Number / Tests	Graphic Log	Material Description	Depth (feet)
61.4	0.0					SANDY SILT (ML), (soft), moist, black, fine to coarse sand, low plasticity, root zone (Topsoil 12-inch thick).	0.0
			6	S-1			
60.0						Refusal at 1.0 feet. Refusal on hard (R4) basalt	
	2.5						2.5
57.5							
	5.0						5.0
55.0							
	7.5						7.5
52.5							
	10.0						10.0

General Notes:

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HARTCROWSER A division of Haley & Aldrich

Project: St. Helens Public Safety Building
Location: St. Helens, Oregon
Project No.: 0203864-000

Test Pit Log
TP-3

Figure **A-4**
Sheet **1 of 1**

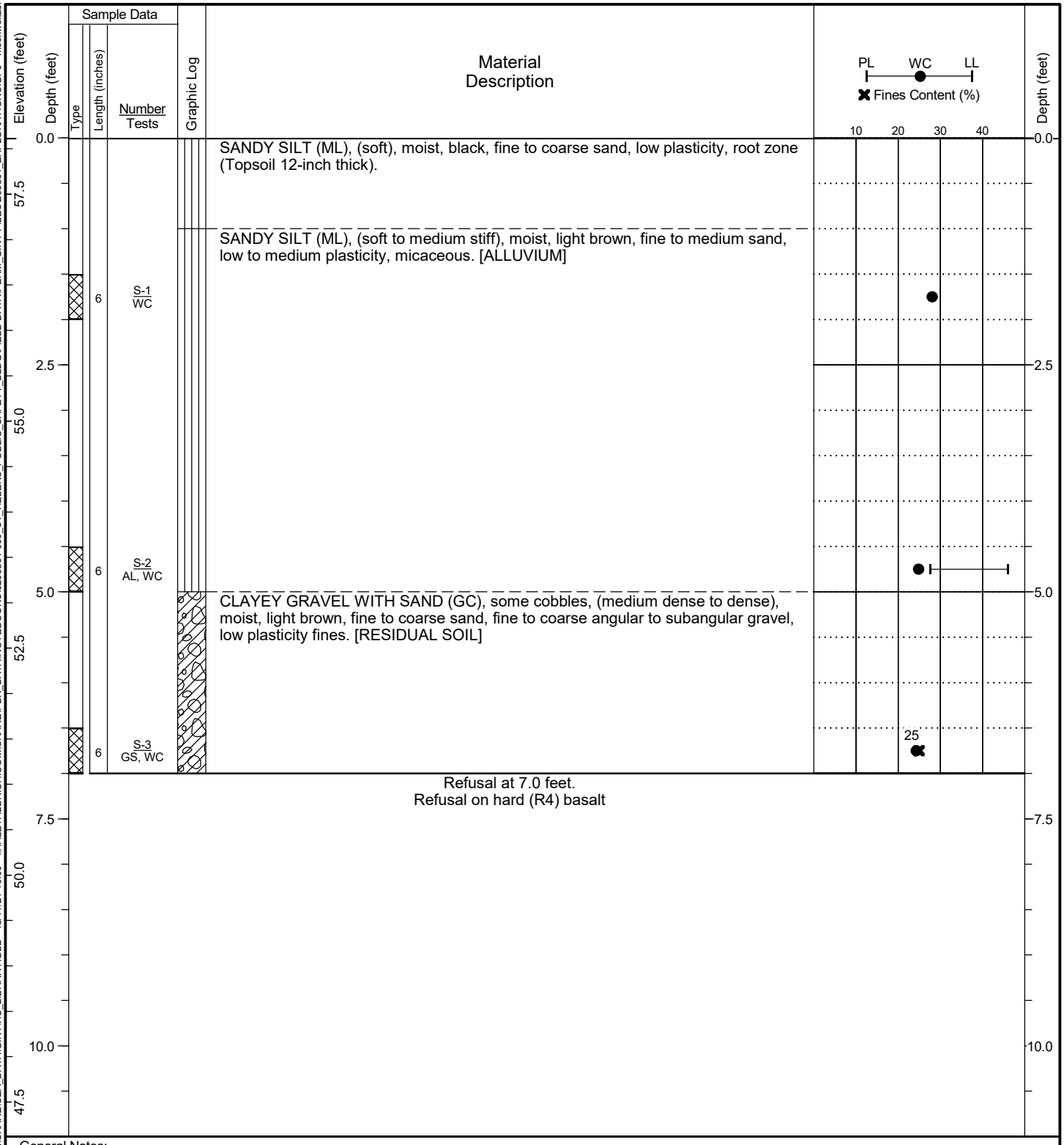
Date Started: 10/25/2021 Date Completed: 10/25/2021 Contractor/Crew: Stratus Corporation / Scott Flaherty

Logged by: R. Rosenberg Checked by: D. Knapp Rig Model/Type: Cat® 305E / Excavator

Location: Lat: 45.851458 Long: -122.811639 (WGS 84) Total Depth: 7 feet Depth to Seepage: Not Encountered

Ground Surface Elevation: 58.12 feet (NAVD 88)

Comments:



SANDY SILT (ML), (soft), moist, black, fine to coarse sand, low plasticity, root zone (Topsoil 12-inch thick).

SANDY SILT (ML), (soft to medium stiff), moist, light brown, fine to medium sand, low to medium plasticity, micaceous. [ALLUVIUM]

CLAYEY GRAVEL WITH SAND (GC), some cobbles, (medium dense to dense), moist, light brown, fine to coarse sand, fine to coarse angular to subangular gravel, low plasticity fines. [RESIDUAL SOIL]

Refusal at 7.0 feet.
Refusal on hard (R4) basalt

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

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Project: St. Helens Public Safety Building
Location: St. Helens, Oregon
Project No.: 0203864-000

Test Pit Log
TP-4

Figure **A-5**
Sheet **1 of 1**

Date Started: 10/25/2021 Date Completed: 10/25/2021 Contractor/Crew: Stratus Corporation / Scott Flaherty

Logged by: R. Rosenberg Checked by: D. Knapp Rig Model/Type: Cat® 305E / Excavator

Location: Lat: 45.851535 Long: -122.811108 (WGS 84) Total Depth: 10 feet Depth to Seepage: Not Encountered

Ground Surface Elevation: 56.09 feet (NAVD 88)

Comments:

Elevation (feet)	Depth (feet)	Sample Data: Type	Sample Data: Length (inches)	Sample Data: Number / Tests	Graphic Log	Material Description
56.0	0.0					SANDY SILT (ML), (soft), moist, black, fine to coarse sand, low plasticity, root zone (Topsoil 6-inch thick).
55.0	1.0					SILTY GRAVEL (GM), (loose), moist, dark brown to black, fine to coarse angular gravel and cobbles, nonplastic to low plasticity fines, contains wood, brick, and garbage. [FILL]
53.5	2.5					SANDY LEAN CLAY (CL), (medium stiff), moist, light brown, fine sand, low to medium plasticity fines, micaceous. [ALLUVIUM]
50.9	5.1		6	S-1 AL, WC		
48.5	7.5					CLAYEY GRAVEL WITH SAND (GC), (medium dense to dense), moist to wet, light brown, fine to coarse sand, fine to coarse angular to subangular gravel, low to medium plasticity fines. [RESIDUAL SOIL]
48.4	7.6		6	S-2		
46.0	10.0					Refusal at 10.0 feet. Refusal on hard (R4) basalt

PL WC LL

10 20 30 40

Depth (feet)

General Notes:

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

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Project: St. Helens Public Safety Building
Location: St. Helens, Oregon
Project No.: 0203864-000

Test Pit Log
TP-5

Figure **A-6**
Sheet **1 of 1**

Date Started: 10/25/2021 Date Completed: 10/25/2021 Contractor/Crew: Stratus Corporation / Scott Flaherty

Logged by: R. Rosenberg Checked by: D. Knapp Rig Model/Type: Cat® 305E / Excavator

Location: Lat: 45.851841 Long: -122.810641 (WGS 84) Total Depth: 7 feet Depth to Seepage: 6 feet

Ground Surface Elevation: 57.00 feet (NAVD 88)

Comments:

Elevation (feet)	Depth (feet)	Sample Data: Type	Sample Data: Length (inches)	Sample Data: Number / Tests	Graphic Log	Material Description	Water Level	Depth (feet)
57.0	0.0					SILTY GRAVEL (GP-GM), some cobbles, few boulders, (loose to medium dense), moist, black to dark brown, fine to coarse angular to subangular gravel, boulders up 2 feet. [FILL]		0.0
55.0	2.5		12	S-1				2.5
52.5	5.0					grades to wet moderate seepage	~ 10/25/2021	5.0
50.0	7.5					Refusal at 7.0 feet. Refusal on hard (R4) basalt		7.5
47.5	10.0							10.0

General Notes:

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

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Project: St. Helens Public Safety Building
Location: St. Helens, Oregon
Project No.: 0203864-000

Test Pit Log
TP-6

Figure **A-7**
Sheet **1 of 1**

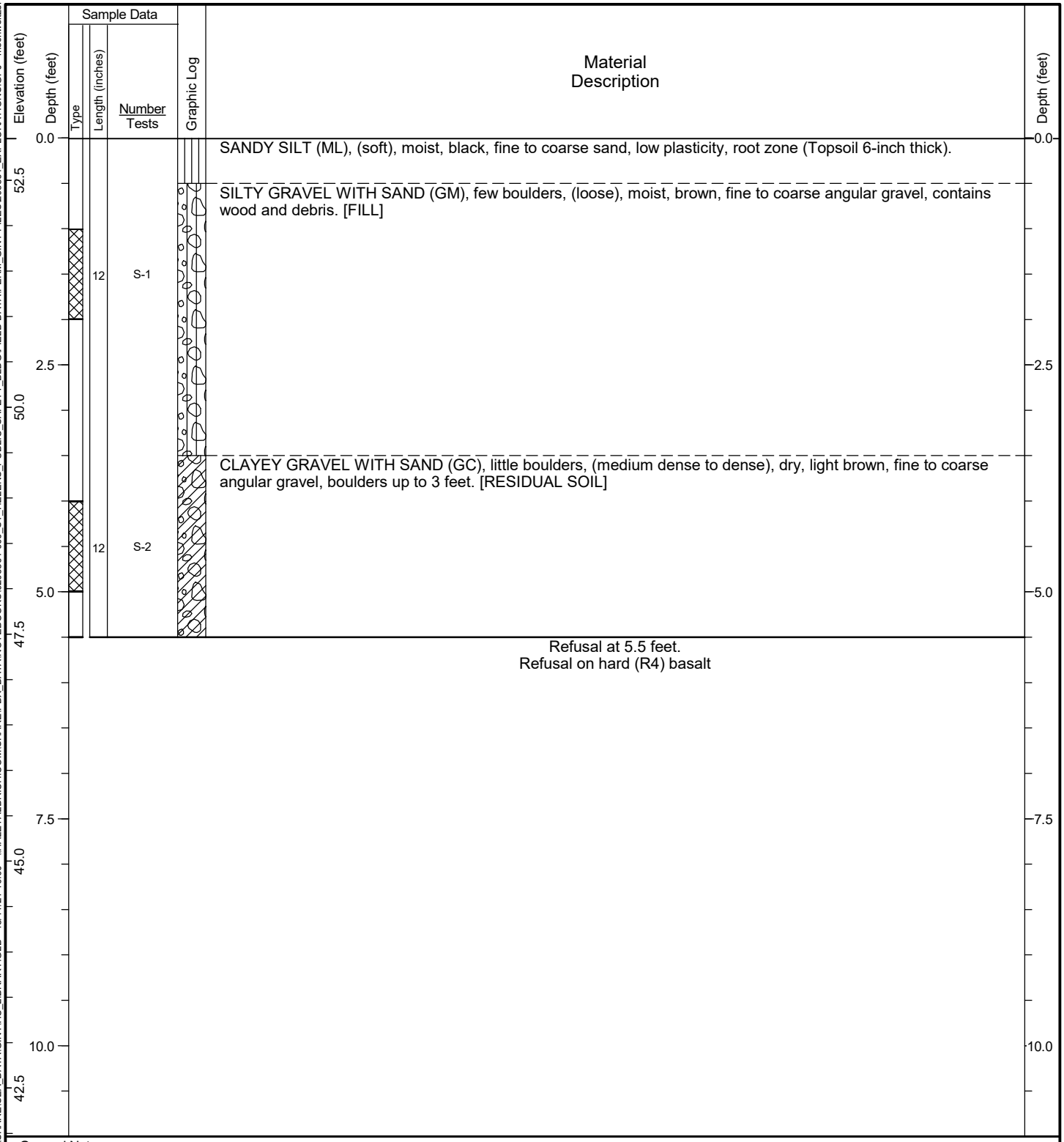
Date Started: 10/26/2021 Date Completed: 10/26/2021 Contractor/Crew: Stratus Corporation / Scott Flaherty

Logged by: R. Rosenberg Checked by: D. Knapp Rig Model/Type: Cat® 305E / Excavator

Location: Lat: 45.852701 Long: -122.809734 (WGS 84) Total Depth: 5.5 feet Depth to Seepage: Not Encountered

Ground Surface Elevation: 52.97 feet (NAVD 88)

Comments:



General Notes:

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

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Project: St. Helens Public Safety Building
Location: St. Helens, Oregon
Project No.: 0203864-000

Test Pit Log
TP-7

Figure **A-8**
Sheet **1 of 1**

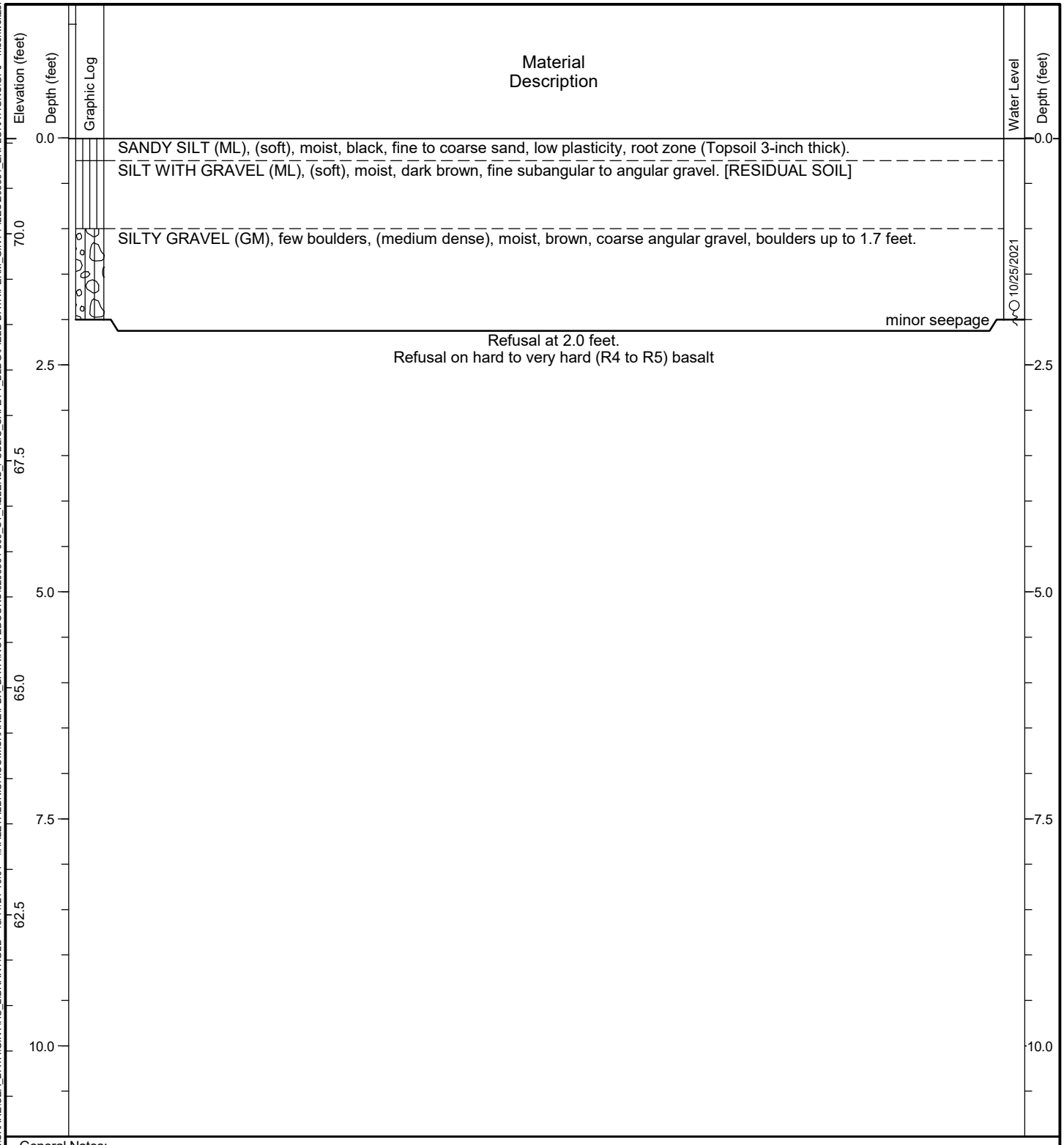
Date Started: 10/26/2021 Date Completed: 10/26/2021 Contractor/Crew: Stratus Corporation / Scott Flaherty

Logged by: R. Rosenberg Checked by: D. Knapp Rig Model/Type: Cat® 305E / Excavator

Location: Lat: 45.852240 Long: -122.810513 (WGS 84) Total Depth: 2 feet Depth to Seepage: 1.9 feet

Ground Surface Elevation: 71.06 feet (NAVD 88)

Comments:



General Notes:

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HARTCROWSER A division of Haley & Aldrich	Project: St. Helens Public Safety Building Location: St. Helens, Oregon Project No.: 0203864-000	Test Pit Log **TP-8**	Figure **A-9** Sheet **1 of 1**

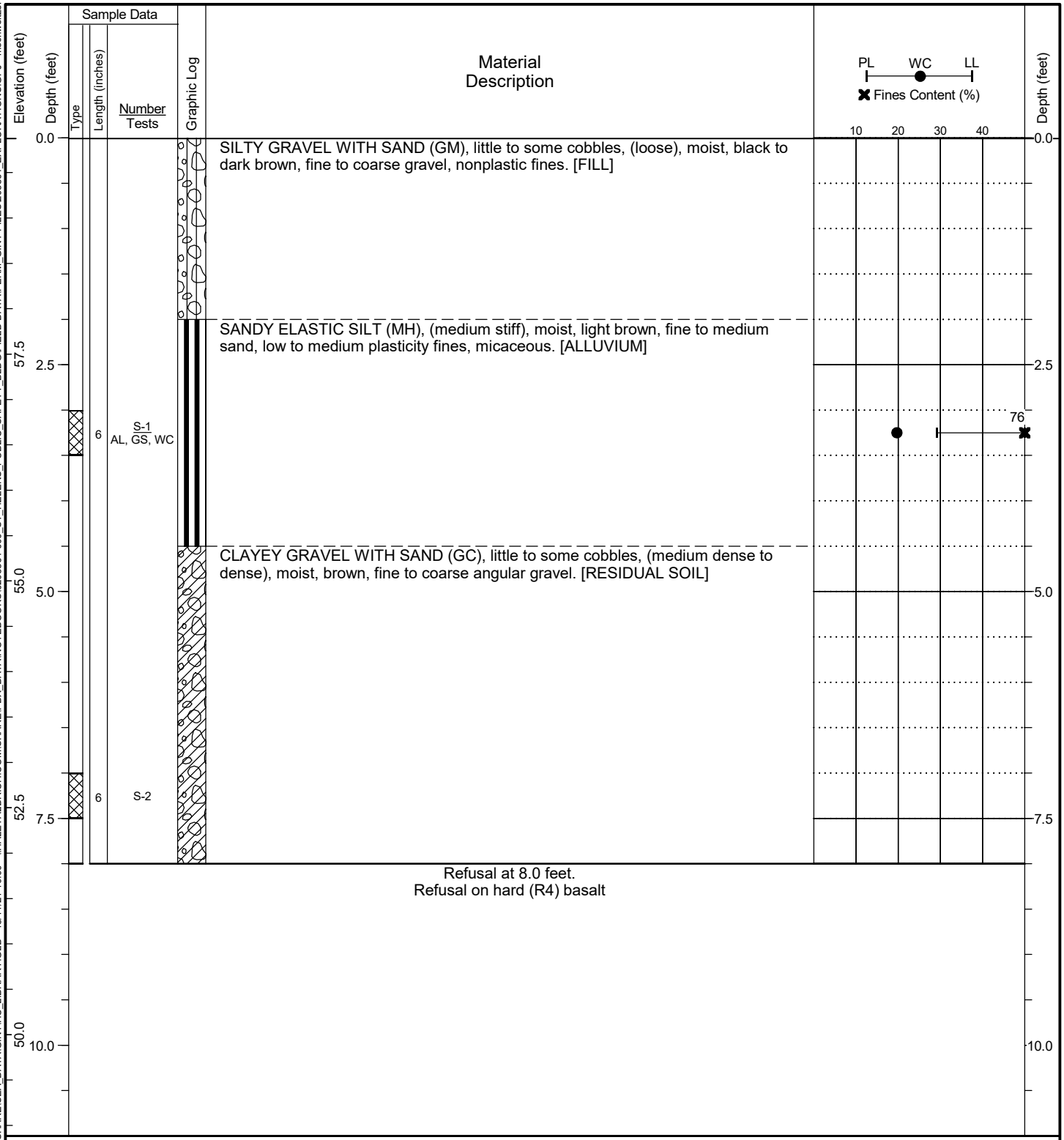
Date Started: 10/25/2021 Date Completed: 10/25/2021 Contractor/Crew: Stratus Corporation / Scott Flaherty

Logged by: R. Rosenberg Checked by: D. Knapp Rig Model/Type: Cat® 305E / Excavator

Location: Lat: 45.852197 Long: -122.811469 (WGS 84) Total Depth: 8 feet Depth to Seepage: Not Encountered

Ground Surface Elevation: 59.88 feet (NAVD 88)

Comments:



Refusal at 8.0 feet.
Refusal on hard (R4) basalt

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

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Project: St. Helens Public Safety Building
Location: St. Helens, Oregon
Project No.: 0203864-000

Test Pit Log
TP-9

Figure **A-10**
Sheet **1 of 1**

Date Started: 10/25/2021 Date Completed: 10/25/2021 Contractor/Crew: Stratus Corporation / Scott Flaherty

Logged by: R. Rosenberg Checked by: D. Knapp Rig Model/Type: Cat® 305E / Excavator

Location: Lat: 45.851904 Long: -122.811622 (WGS 84) Total Depth: 7.5 feet Depth to Seepage: Not Encountered

Ground Surface Elevation: 59.46 feet (NAVD 88)

Comments:

Elevation (feet)	Depth (feet)	Sample Data: Type	Sample Data: Length (inches)	Sample Data: Number / Tests	Graphic Log	Material Description	PL / WC / LL (10 20 30 40)	Depth (feet)
59.5	0.0					SANDY SILT (ML), (soft), moist, black, fine to coarse sand, low plasticity, root zone (Topsoil 6-inch thick).		0.0
						LEAN CLAY WITH SAND (CL), (medium stiff), moist, light brown, medium to fine sand, low to medium plasticity, micaceous. [ALLUVIUM]		
57.5	2.5		6	S-1 / WC			WC	2.5
						CLAYEY GRAVEL WITH SAND (GC), little to some cobbles, (medium dense to dense), moist, light brown, fine to coarse angular gravel, low to medium plasticity fines. [RESIDUAL SOIL]		
55.0	5.0							5.0
52.5	7.5		6	S-2 / AL			LL	7.5
						Refusal at 7.5 feet. Refusal on hard (R4) basalt		
50.0	10.0							10.0

General Notes:

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

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Project: St. Helens Public Safety Building
Location: St. Helens, Oregon
Project No.: 0203864-000

Test Pit Log
TP-10

Figure **A-11**
Sheet **1 of 1**

APPENDIX B
Laboratory Testing

APPENDIX B

Laboratory Testing

General

Soil samples obtained from the exploration were transported to our laboratory and evaluated to confirm or modify field classifications, as well as to assess engineering properties of the soils encountered. Representative samples were selected for laboratory testing. The tests were performed in general accordance with the test methods of the ASTM or other applicable procedures. A summary of the test results is included as Figure B-1.

Visual Classifications

Soil samples obtained from the explorations were visually classified in the field and in our geotechnical laboratory based on the Unified Soil Classification System (USCS) and ASTM classification methods. ASTM Test Method D 2488 was used to classify soils using visual and manual methods. ASTM Test Method D 2487 was used to classify soils based on laboratory test results.

Laboratory Test Results

Moisture Content

Moisture contents of samples were obtained in general accordance with ASTM Test Method D 2216. The results of the moisture content tests completed on samples from the explorations are presented on the exploration log included in Appendix A and on Figure B-1 in this appendix.

Fines Content Analyses

Fines content analyses were performed to determine the percentage of soils finer than the No. 200 Sieve—the boundary between sand size particles and silt size particles. The tests were performed in general accordance with ASTM Test Method D 1140. The test results are indicated on the exploration log included in Appendix A and on Figure B-1 in this appendix.

Sieve Analyses

Sieve analysis tests were performed to determine the quantitative distribution of particle sizes in the sample. The tests were performed in general accordance with ASTM Test Methods D 6913 04 and D 1140. The “percent fines” portion of the test results are indicated on the appropriate exploration log included in Appendix A and on Figure B-1 in this appendix. The full test results are shown on Figure B-2 in this appendix.

Atterberg Limits Testing

Atterberg limits (liquid limit, plastic limit, and plasticity index) were obtained in general accordance with ASTM Test Method D 4318. The results of the Atterberg limits tests are presented on the exploration logs included in Appendix A, summarized on Figure B-1 in this appendix, and shown in detail on Figure B-2 in this appendix.

Exploration	Sample ID	Depth	Water Content (%)	Dry Density (pcf)	Fines (%)	Sand (%)	Gravel (%)	Liquid Limit	Plastic Limit	Plasticity Index	Organic Content (%)	Pocket Pen (tsf)	Torvane (tsf)	
TP-1	S-2	2.0	20.1		28			36	32	4				
TP-2	S-1	2.0	29.6					46	29	17				
TP-2	S-2	3.5	16.3		41	16	42							
TP-4	S-1	1.5	28.1											
TP-4	S-2	4.5	24.8					46	28	18				
TP-4	S-3	6.5	24.3		25	20	55							
TP-5	S-1	6.0	35.1					45	25	20				
TP-9	S-1	3.0	19.7		76			52	29	23				
TP-10	S-1	2.5	25.0											
TP-10	S-2	6.5						43	26	17				

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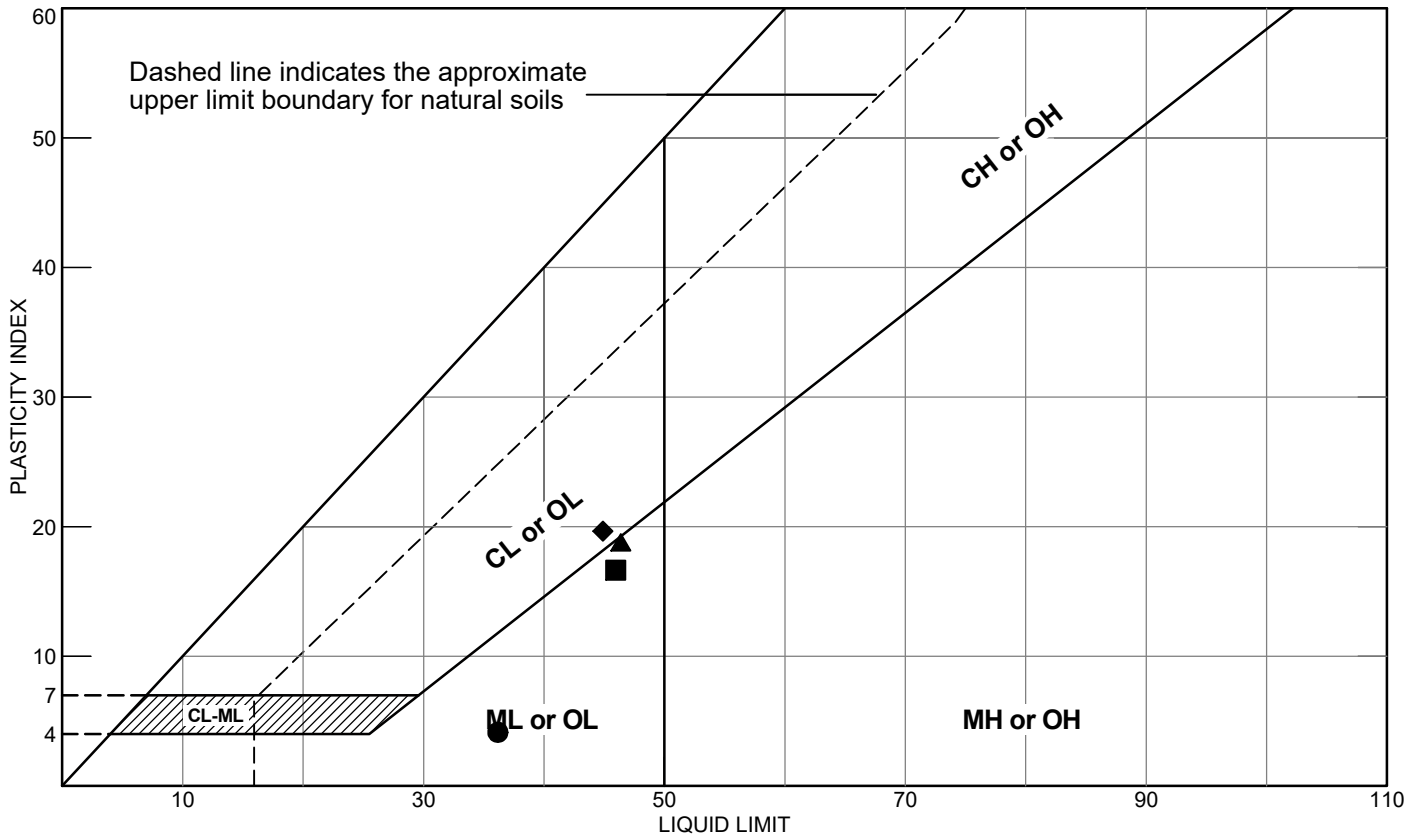
Project: St. Helens Public Safety Building
Location: St. Helens, Oregon
Project No.: 0203864-000

Summary of Laboratory Results

Figure **B-1**
Sheet **1 of 1**



Location and Description	LL	PL	PI	#200	MC%	USCS
● **Source:** TP-1 **Sample No.:** S-2 **Depth:** 2.0 to 3.0 SILTY GRAVEL WITH SAND	36	32	4	28	20	GM
■ **Source:** TP-2 **Sample No.:** S-1 **Depth:** 2.0 to 2.5 SANDY SILT	46	29	17	NT	30	ML
▲ **Source:** TP-4 **Sample No.:** S-2 **Depth:** 4.5 to 5.0 SANDY SILT	46	28	18	NT	25	ML
◆ **Source:** TP-5 **Sample No.:** S-1 **Depth:** 6.0 to 6.5 SANDY LEAN CLAY	45	25	20	NT	35	CL

Remarks:

●
■
▲
◆

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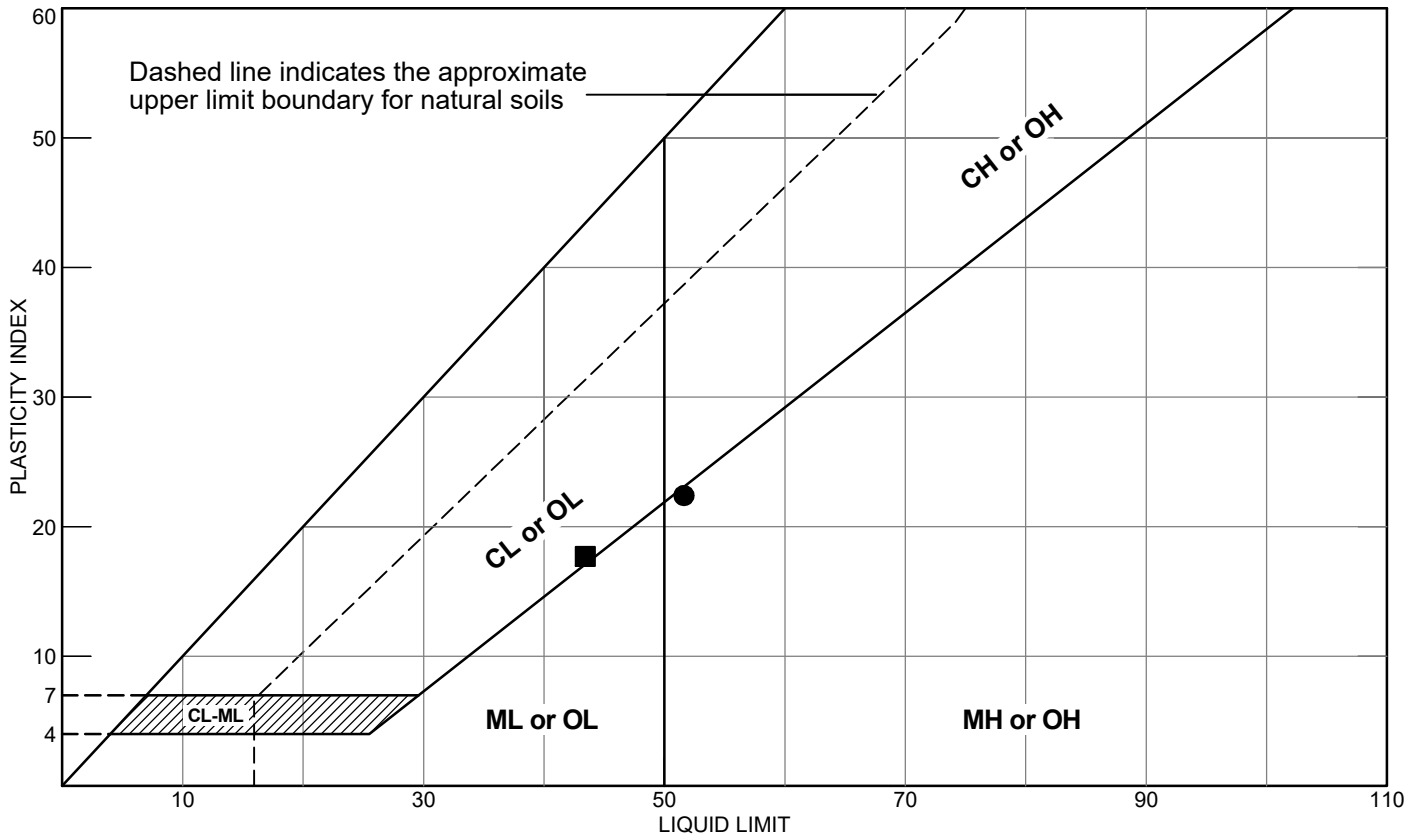
Project: St. Helens Public Safety Building
Location: St. Helens, Oregon
Project No.: 0203864-000

Liquid Limit, Plastic Limit, and Plasticity Index

Figure **B-2**
Sheet **1 of 2**



Location and Description	LL	PL	PI	#200	MC%	USCS
● **Source:** TP-9 **Sample No.:** S-1 **Depth:** 3.0 to 3.5 SANDY ELASTIC SILT	52	29	23	76	20	MH
■ **Source:** TP-10 **Sample No.:** S-2 **Depth:** 6.5 to 7.0 CLAYEY GRAVEL WITH SAND	43	26	17	NT	NT	GC

Remarks:

●

■

HC ATTERBERG LIMITS - \\HALEYALDRICH.COM\SHARE\PDX_DATA\GEOMATICS\GINT\HC_LIBRARY.GLB - 11/10/21 11:41 - \\HALEYALDRICH.COM\SHARE\PDX_DATA\NOTEBOOKS\0203864-000_ST_HELENS_PUBLIC_SAFETY_BLDG\FIELD DATA\PERM_GINT FILES\203864_EXPLORATIONS.GPJ - dknapp

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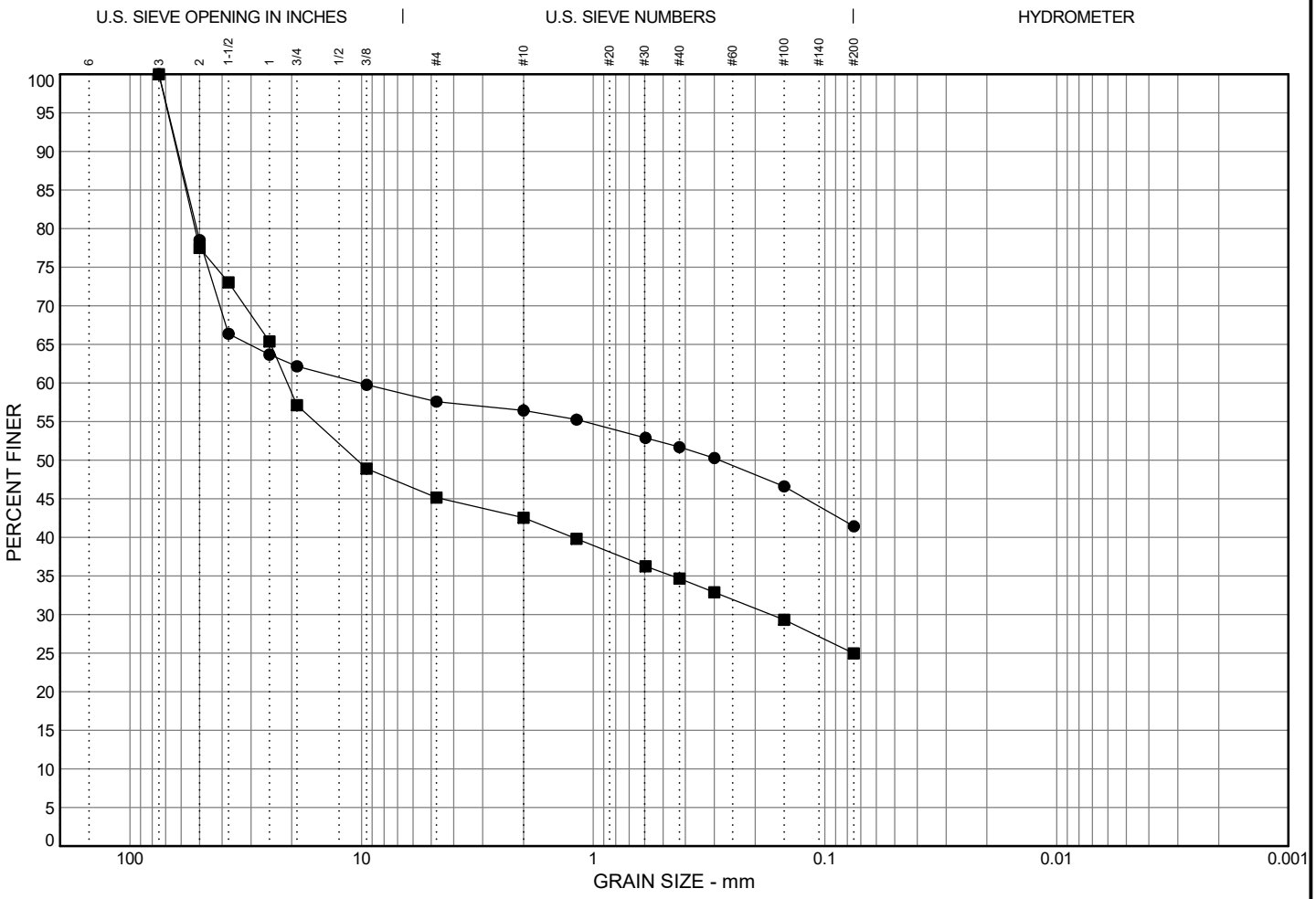
Project: St. Helens Public Safety Building
Location: St. Helens, Oregon
Project No.: 0203864-000

Liquid Limit, Plastic Limit, and Plasticity Index

Figure **B-2**
Sheet **2 of 2**



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Location and Description	% Cobbles	% Gravel	% Sand	% Silt	% Clay	MC%	USCS
●	**Source:** TP-2 **Sample No.:** S-2 **Depth:** 3.5 to 4.0 CLAYEY GRAVEL WITH SAND	0.0	42.4	16.2	41.4		16	GC
■	**Source:** TP-4 **Sample No.:** S-3 **Depth:** 6.5 to 7.0 CLAYEY GRAVEL WITH SAND	0.0	54.9	20.2	25.0		24	GC

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			56.515	10.184	0.285					
■			57.225	20.915	10.411	0.171				

Remarks:

● Original field sample had 21% cobbles. Particles greater than 3-inches were not included in grain size distribution calculations.
■ Original field sample had 37% cobbles. Particles greater than 3-inches were not included in grain size distribution calculations.

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Project: St. Helens Public Safety Building
Location: St. Helens, Oregon
Project No.: 0203864-000

Particle-Size Analysis

Figure **B-3**
Sheet **1 of 1**

APPENDIX C
Geophysical Testing Report

Report on

Geophysical Exploration
St. Helens Public Safety Building Site
St. Helens, Oregon

November 9, 2021

Prepared for:

Hart Crowser
6240 SW Macadam
Portland, OR 97239

Prepared by:

EARTH DYNAMICS LLC
2284 N.W. Thurman St.
Portland, OR 97210
(503) 227-7659
Project No. 21210

1.0 - Introduction

Hart Crowser engaged Earth Dynamics LLC to conduct geophysical explorations for the proposed St. Helens Public Safety Building. The site is located near the intersection of Old Portland Road and Kaster Road in St. Helens, Oregon. The purpose of the exploration is to determine the average shear wave velocity of the site and the compressional wave velocity of basalt bedrock at the site. These data are needed for the design of the proposed building and to determine the rippability of the basalt.

This work was requested and authorized by Mr. Luke Kevan of Hart Crowser. The geophysical field work was conducted on October 26, 2021 under the supervision of Mr. Daniel Lauer of Earth Dynamics LLC. The explorations consist of two ReMi shear wave profiles and one Seismic Refraction profile. The locations of the profiles were requested by Hart Crowser Personnel. This report describes the methodology and results of the geophysical investigation.

2.0 - Method

2.1 - Seismic Refraction

The seismic velocity of soil and rock is a function of the density and elastic properties of the material. Therefore, variations in subsurface materials can be inferred from analysis of the seismic velocity. Application of the method is limited to areas where seismic velocity increases or is constant with depth. Low velocity zones, which are common in basalt, cannot be resolved with seismic refraction.

A seismic refraction exploration consists of measuring the time required for a seismic wave to travel from a seismic source to a receiving transducer. A sledgehammer, large weight dropped, or explosive device is typically used for the seismic source and vertical geophones are used as receiving transducers. A seismograph records signals from the geophones. By analyzing the arrival time of the seismic wave as a function of distance from the seismic source, the seismic velocities of the underlying soil/rock units and the depth to geologic contacts can be determined. The seismic refraction method requires that seismic sources be placed at each end of the geophone array. Intermediate and off end sources are also often used to increase resolution and penetration. The depth of penetration is typically one-quarter to one-third of the geophone array length, and lateral resolution is typically one-half of the geophone spacing.

The seismic refraction survey for this study was conducted using a Seismic Source 24-channel DAQ Link IV seismograph. One refraction array was completed along a profile location designated by Hart Crowser personnel. The geophone spacing is five feet and the array is 115 feet long. A 20-pound

sledgehammer was used as the seismic source. Data from several hammer hits were acquired at each shot point. Stacking the multiple hits enhances the first seismic wave arrival at each geophone. For this study, data are required from a total of five shot points. The seismic refraction profile is designated SR-1.

The seismic data are analyzed using SeisOpt@2D Ver. 6.0 by Optim Software. SeisOpt@2D uses a forward modeling global optimization technique. The technique consists of creating a finite element velocity model through which travel times are computed. The computed times are compared with the observed data. Thousands of iterations are completed to find the velocity model with the minimum travel time error. Comparison of the computed travel times to the measured values provides an indication of the validity of the model. Several velocity models are run using different grid resolution and depth values to obtain the best result for each data set. SeisOpt generates xyz data files that are input to Surfer® 17 for contouring, scaling, and data presentation. The SeisOpt modeling technique is generally superior to discrete layer modeling because lateral, as well as vertical variations can be resolved, and gradual increases in seismic velocity with depth can be quantified.

2.2 – ReMi Shear Wave analysis

The Refraction Microtremor (ReMi) technique provides a simplified characterization of relatively large volumes of the subsurface. The method can be used to estimate one-dimensional shear wave velocity profiles and provide site-specific soil classification data as described in ASCE/SEI 7-16 (2017). In a ReMi survey, geophones are deployed at designated intervals along a linear array. The resolution and depth of investigation depends upon the geophone cut-off frequency, spacing of the geophones, the total array length and the frequency characteristics of the Rayleigh waves at the site. For “rule of thumb” survey planning, the nominal depth of investigation is assumed to be approximately one-third of the geophone array length.

The theoretical basis of the ReMi method is the same as Spectral Analysis of Surface Waves (SASW) and Multi-channel Analysis of Surface Waves (MASW) as first described to the earthquake engineering community by Nazarian and Stokoe (1984). However, ReMi does not require a frequency-controlled source and the field equipment is much more compact and economical. A complete description of the theoretical basis for ReMi is described by Louie (2001). In ReMi analysis all interpretation is done in the frequency domain, and the method assumes that the most energetic arrivals recorded are Rayleigh waves. By applying a time-domain velocity analysis, Rayleigh waves can be separated from body waves, air waves, and other coherent noise. Transforming the time-domain velocity results into the frequency domain allows combination of many arrivals over a long time period, and yields easy recognition of dispersive surface waves.

Data reduction is completed in two steps. First, the time versus amplitude seismic records are transformed into spectral energy shear wave frequency versus shear wave velocity (or slowness). The data are graphically presented in what is commonly termed a p-f plot. The interpreter determines a dispersion curve from the p-f plot by selecting the lower bound of the spectral energy shear wave velocity versus frequency trend. The second phase of the analysis consists of fitting the measured dispersion curve with a theoretical dispersion curve that is based upon a model of multiple layers with various shear wave velocities. The model velocities and layer thicknesses are adjusted until a 'best fit' to the measured data is obtained. This type of interpretation does not provide a unique model. Interpreter experience and knowledge of the existing geology is important to provide a realistic solution. The data are presented as one-dimensional velocity profiles that represent the average shear wave velocities of the subsurface layers over the length of the geophone array.

For this project, data were acquired for two ReMi arrays. These ReMi arrays are designated ReMi-1 and ReMi-2. Each ReMi array consists of twenty-four 4.5 Hz vertical geophones spiked into the ground surface. For ReMi-1 a 15-foot geophone spacing was used for a total array length of 345 feet. For ReMi-2 a 13-foot geophone spacing was used for a total array length of 299 feet. More than twenty 30-second long seismic records of ambient seismic noise were recorded for each array. Data were also acquired when vehicles, and people were moving on and near the site.

2.3 - Location and Elevation Survey

The profiles were laid out using tape measures draped on the ground surface. Relative elevation data are acquired along the seismic refraction profile using a level and stadia rod.

Horizontal position data were obtained with a Trimble GEOXH 6000 GPS receiver. The position data were post-processed to increase the accuracy of the GPS positions. The reported horizontal accuracy of the post-processed position data is less than $\pm$1 foot. Location data were recorded at the ends of each profile. Recorded GPS data for the profile end points are summarized in Table 2-1. The GPS data are displayed in degrees, decimal minutes Latitude and Longitude using the WGS 1984 datum.

Table 2-1. GPS Position Data for Geophysical Profile endpoints. (WGS 1984).

Profile Location	Latitude	Longitude
SR-1 0’	45° 51.1357’N	122° 48.6725’W
SR-1 115’	45° 51.1442’N	122° 48.6479’W
ReMi-1 0’	45° 51.0993’N	122° 48.7387’W
ReMi-1 345’	45° 51.1346’N	122° 48.6759’W
ReMi-1 0’	45° 51.1300’N	122° 48.7244’W
ReMi-1 299’	45° 51.0916’N	122° 48.6803’W

3.0 - Results

The approximate locations of the geophysical profiles are shown in Figure 3-1. GPS data are contained in Table 2-1.

A computed seismic velocity model with interpreted geology for seismic refraction profile SR-1 is contained in Figure 3-2. The model in Figure 3-2 contains interpretations of the geologic contacts.

The ReMi analysis and results for the two ReMi Arrays are contained in Figures 3-3 and 3-4. Figures 3-3 and 3-4 contain the p-f plot, the dispersion curve, the derived velocity versus depth model that best fits the geology of the site and a table containing the shear wave velocity with depth for the array.

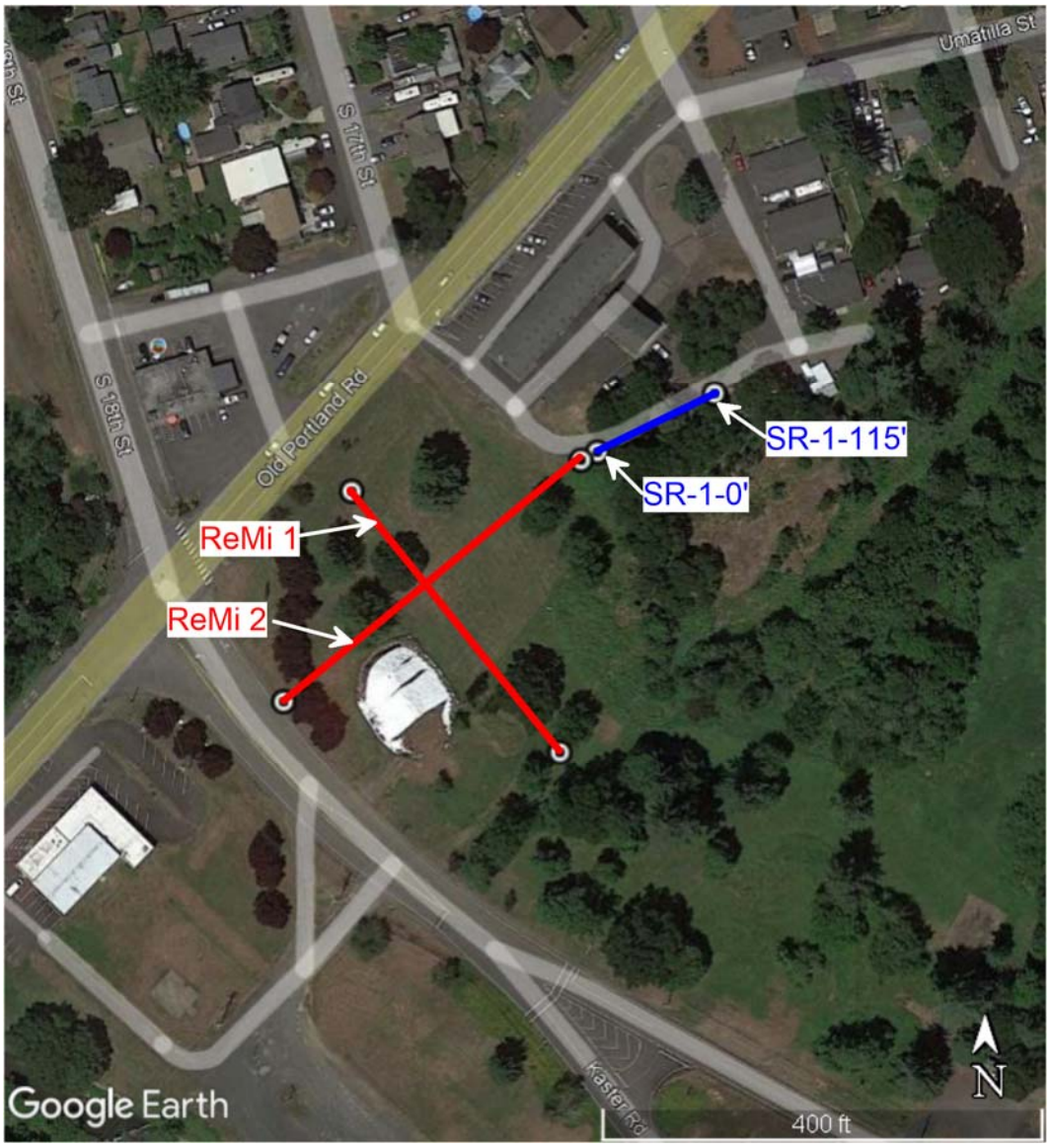


Figure 3-1. Site plan showing approximate locations of seismic profiles.

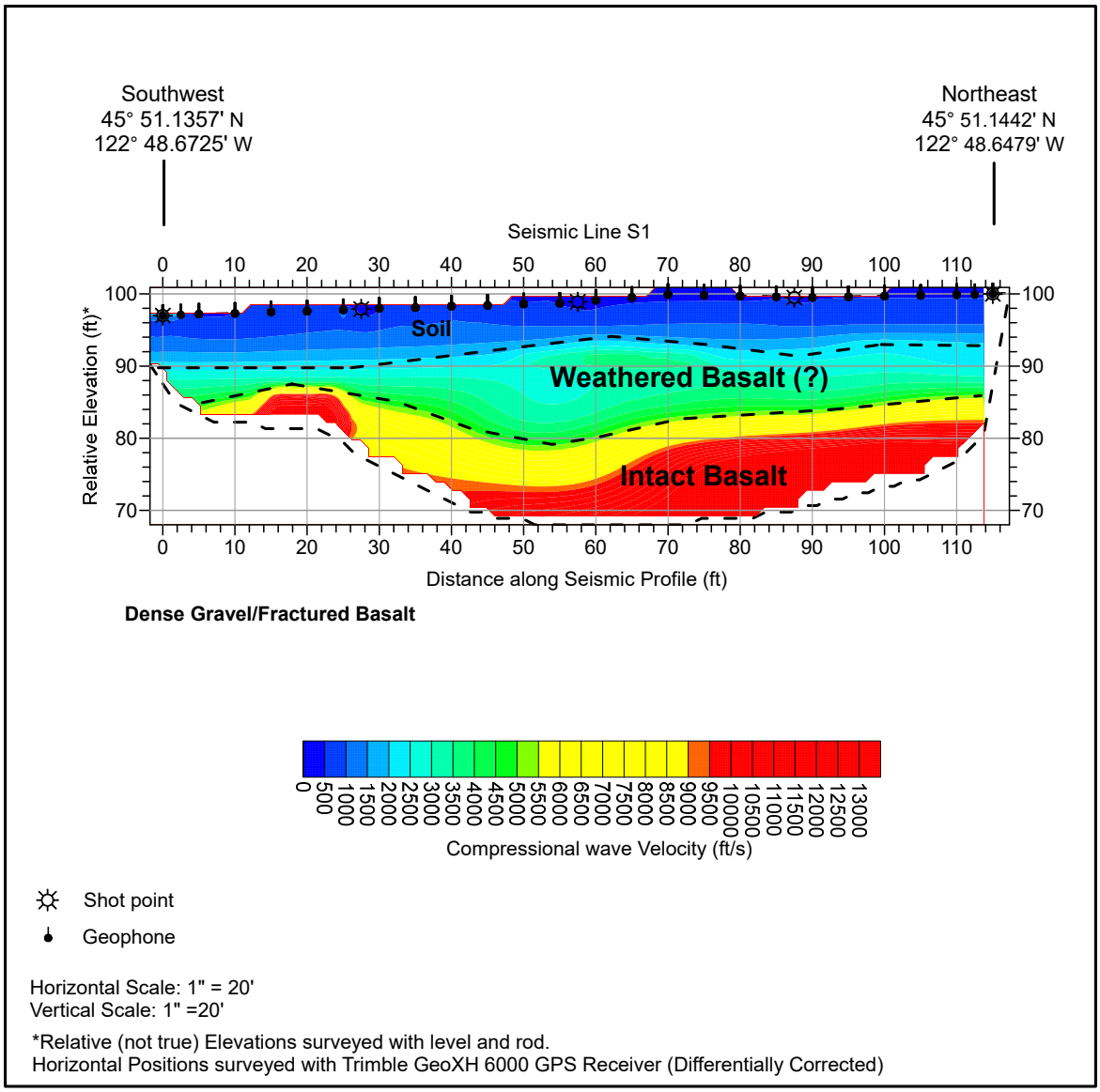
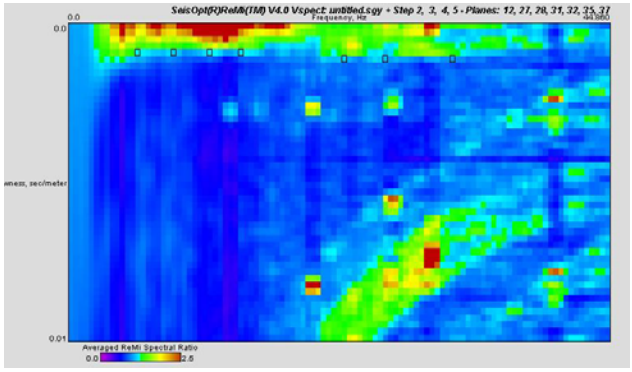
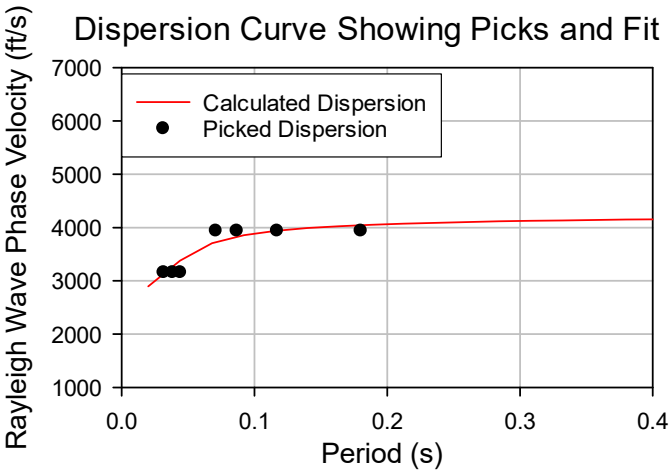
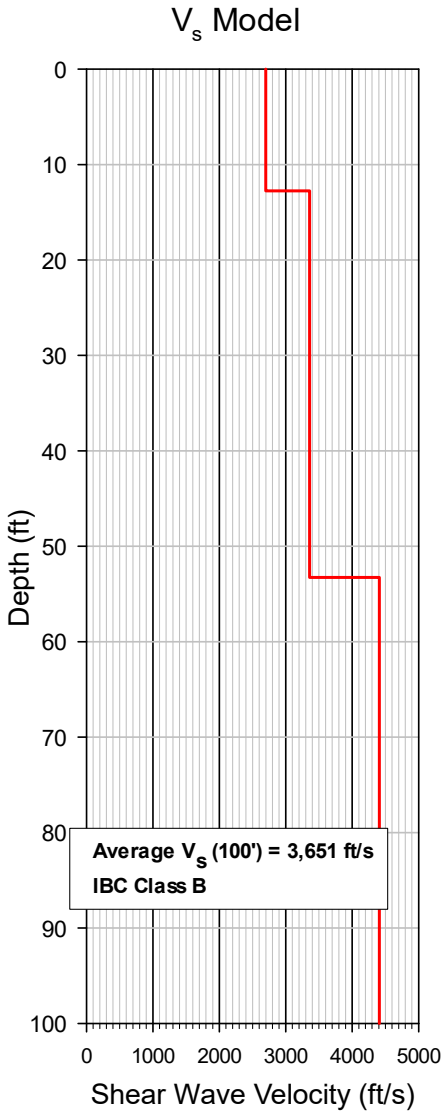


Figure 3-2. Seismic Refraction Profile SR-1 Model with interpretations.

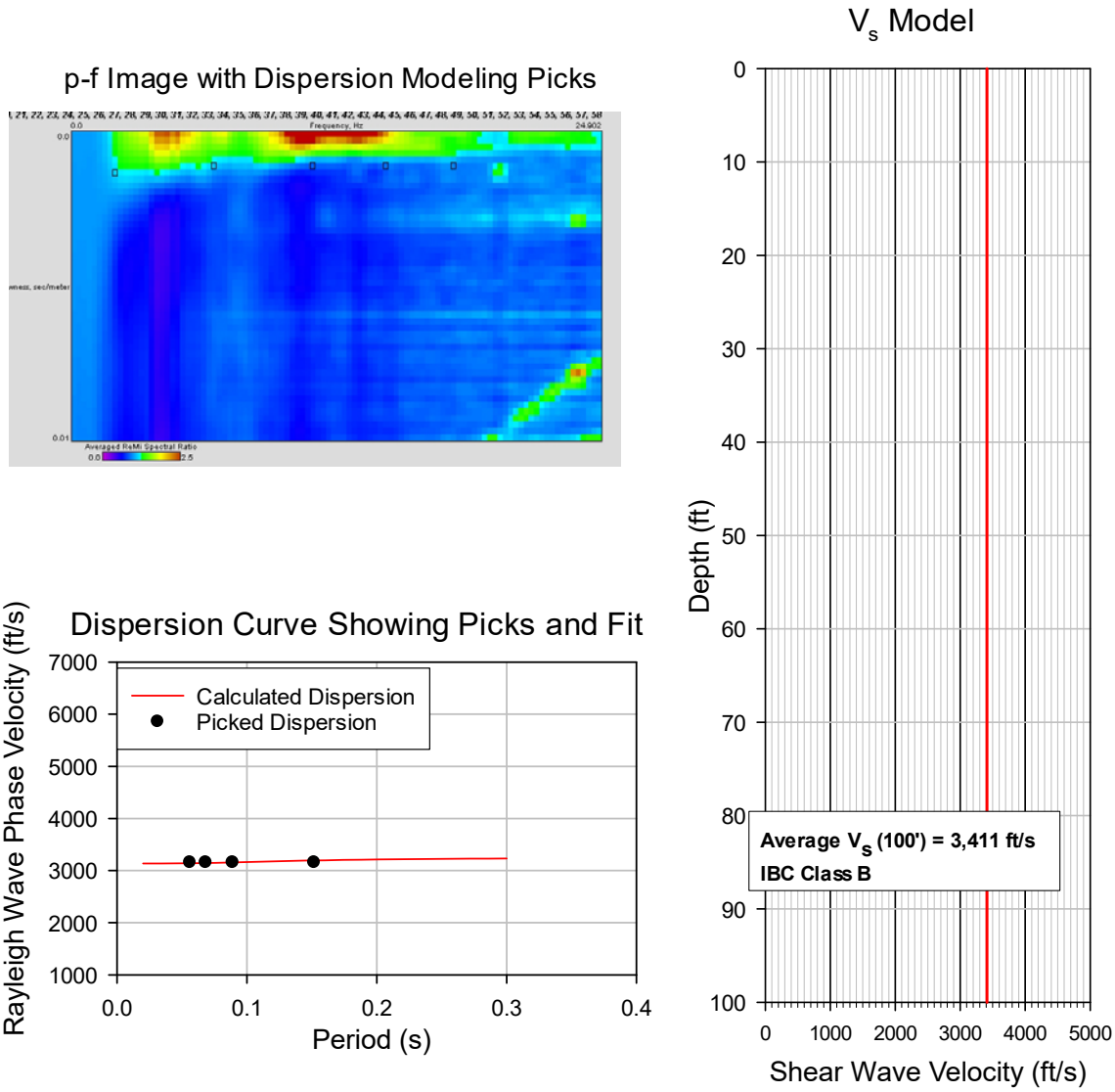






Depth Interval (ft)	Shear-wave velocity (ft/s)
0 – 12.75	2,697
12.75 – 53.25	3,359
53.25 – 100	4,409

Figure 3-3. ReMi-1 Results



Depth Interval (ft)	Shear-wave velocity (ft/s)
0 – 100	3,411

Figure 3-4. ReMi-2 Results

4.0 - Discussion

4.1 – Seismic Refraction

The seismic refraction data acquired in this study are of good quality. The stacking of several hits at each shot point allows for good confidence in picking each first arrival. There is good correlation of the models to the measured data.

Earth Dynamics LLC has completed numerous seismic refraction studies in Portland and surrounding areas. In many cases it is observed that the minimum velocity of un-weathered and fractured basalt is greater than approximately 5,000 feet per second (ft/sec). Weathered, fractured and/or residual basalt typically has a seismic velocity range of 3,000 to 5,000 ft/s. Soils and silts and other unconsolidated sediments typically have a seismic velocity less than 3,000 ft/s. These observations appear to correlate well with the boring log data and seismic models at this site.

The seismic velocity model contained in Figure 3-2 contains the interpreted geologic contact of the top of weathered and intact basalt shown with black dashed lines. In the models, the blue colors represent the soil near the surface, green colors represent decomposed basalt and the yellow and red colors represent intact basalt. The geologic interpretations are based on information from the boring logs, steep gradients in the seismic velocity models and the assumed seismic velocities of the subsurface material expected at this site.

Compressional wave (p-wave) seismic velocity is related to ripper performance in the Caterpillar Performance Handbook (1985). Caterpillar performance data for basalt are summarized in Table 3. The data in Table 4-1 indicate that basalt with a seismic velocity less than 4,500 ft/s is generally rippable with moderately sized equipment and that basalt with seismic velocities greater than 9,200 ft/s is generally non-rippable.

Areas with p-wave velocity greater than 9,200 ft/s is shown with red shading in the profile in Figure 3-4. Areas with p-wave velocities lower than 9,200 ft/s may be rippable with a D10 or smaller excavator. However, basalt rippability is very dependent on the characteristics of particular basalt formations. Basalt which contains interflows, joints or weathered zones may be rippable even when the modeled seismic velocity is greater than 9,200 ft/s. Also, the depth to unrippable basalt may vary significantly across the site.

Table 4-1. Ripper performance in basalt. Caterpillar Tractor Co., Caterpillar Performance Handbook, (October, 1985)

Ripper Model	P-wave Seismic Velocity (ft/sec)		
	Rippable	Marginal	Non-Rippable
D7G	<4,500	4,500 - 5,200	>5,200
D8L	<7,600	7,600 - 8,600	>8,000
D9L	<8,000	8,000 - 9,000	>9,000
D10	<8,300	8,300 - 9,200	>9,200

4.2 - ReMi

The dispersion curve data indicate that there is very little dispersion of surface waves. This result indicates that the shear wave velocity of the subsurface material at the site is relatively uniform. The data quality and the model fit to the data for the arrays is good. The RMS error of the model fit for these data is less than ±200 ft/s.

4.2.1 ASCE Classifications

ASCE/SEI 7-16 (2017) defines five site classes based upon the average shear-wave velocity of the soil to a depth of 30 Meters (100 feet). The ASCE classification is summarized in Table 4-1. The classifications in Table 4-1 are incorporated into the International Building Code (IBC 2018). Earthquake shaking is expected to be stronger where shear-wave velocity is lower. Average shear wave velocity to a depth of 100 ft (V_{s100}) is calculated using Equation 4-1.

$$Vs(100) = \frac{100}{\sum_{i=1}^{i=n}\left(\frac{d_i}{Vs_i}\right)} \qquad \text{Equation 4-1}$$

Where:

n = the number of intervals
i = the interval number
d_i = the thickness of the i^{th} interval in feet
Vs_i = the velocity of the i^{th} interval

Using Equation 1 and the data in Figure 4-2, the average shear wave velocity to a depth of 100 ft for ReMi-1 and ReMi-2 is calculated to be 3,651ft/s and 3,411ft/s respectively. This velocity range corresponds to IBC seismic design classification of “B”.

Table 4-1. Summary of ASCE soil classification.

Class	Average S-wave Velocity (ft/sec)	Description
A	> 5,000	Hard rock
B	2,500 – 5,000	Rock
C	1,200 – 2,500	Very dense soil and soft rock
D	600 – 1,200	Stiff soil
E	<600	Soil

The ReMi model suggests that the shear wave velocity is consistent to at least a depth of 100 feet below the ground surface.

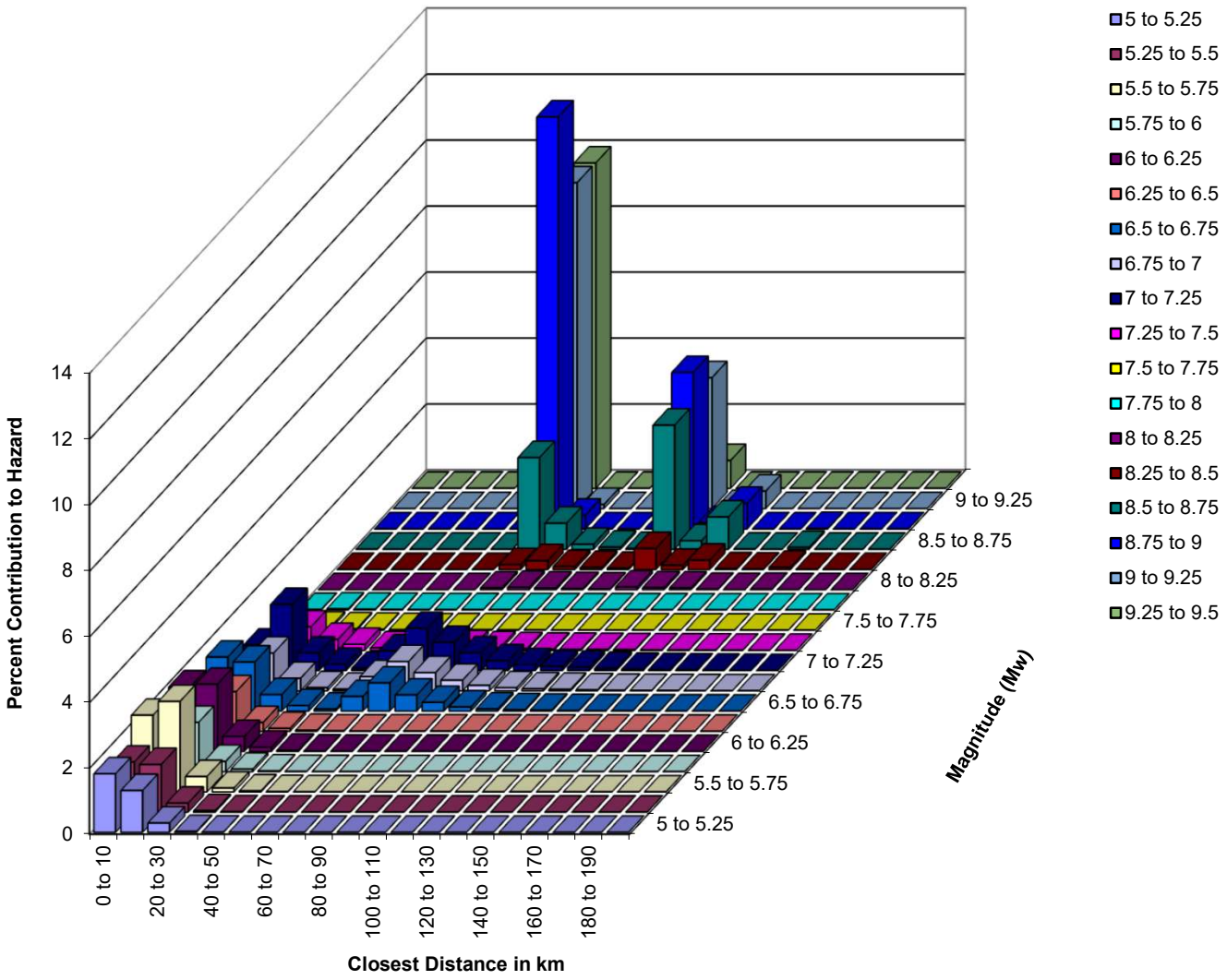
5.0 - Limitations

The inversion of seismic refraction data does not produce a unique model. Theoretically, there are an infinite number of models that will fit the data as well as the models presented in this report. Further, many geologic materials have similar seismic velocity. We have presented models and interpretations which we believe to be the best fit given the geology and known conditions at the site. However, no warranty is made or intended by this report or by oral or written presentation of this work. Earth Dynamics accepts no responsibility for damages as a result of decisions made or actions taken based upon this report.

RESPECTFULLY SUBMITTED
EARTH DYNAMICS LLC

Daniel Lauer
Principal - Senior Geophysicist

APPENDIX D
Hazard Deaggregation



Source	Percent Contribution
Cascadia Interface	55.1%
Crustal sources	1.3%
Gridded Crustal Seismicity	33.9%
Deep Intraslab	9.7%

Site and Hazard Information	
Latitude	45.8519
Longitude	-122.8116
Return Period	2,475 years
Vs30	3,531 feet/sec
Sa Period	0.1 s
Amplitude	0.89 g

Parameter	Mean	Modal
Magnitude	7.79	8.75 to 9
Distance (km)	57	60 to 70
Epsilon	1.10	-

Note: Deaggregation amplitude and intensity shown for geometric mean PSHA. Not for use in design.

St Helens Public Safety Building
St. Helens, Oregon

PSHA Hazard Deaggregation at 0.1 seconds for 2,475-year Return Period

0203864-000 11/21

HARTCROWSER
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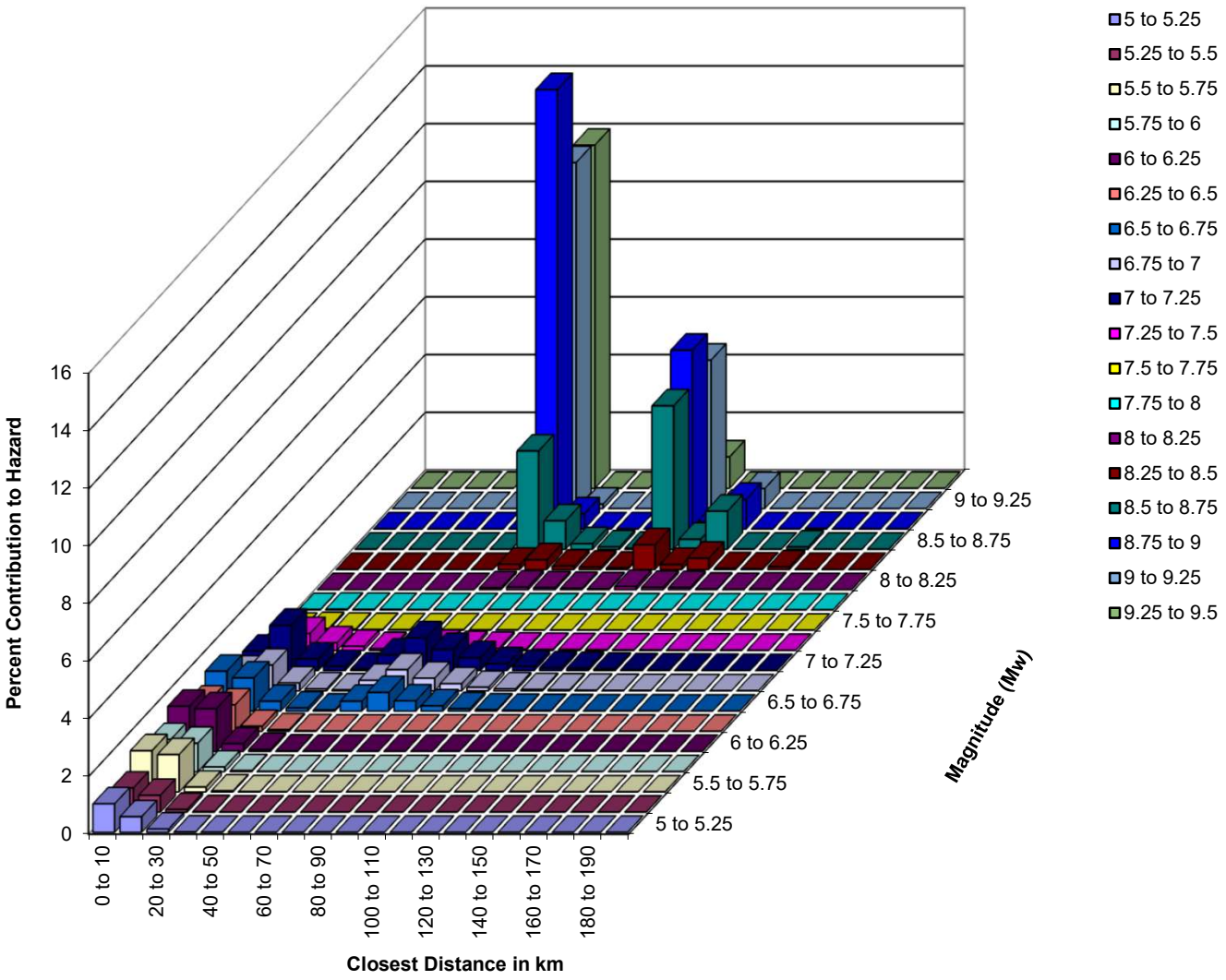
Figure
D-1



Source	Percent Contribution
Cascadia Interface	68.8%
Crustal sources	1.0%
Gridded Crustal Seismicity	22.4%
Deep Intraslab	7.8%

Site and Hazard Information	
Latitude	45.8519
Longitude	-122.8116
Return Period	2,475 years
Vs30	3,531 feet/sec
Sa Period	0.2 s
Amplitude	0.93 g

Parameter	Mean	Modal
Magnitude	8.19	8.75 to 9
Distance (km)	65	60 to 70
Epsilon	1.01	-

Note: Deaggregation amplitude and intensity shown for geometric mean PSHA. Not for use in design.

St Helens Public Safety Building
St. Helens, Oregon

PSHA Hazard Deaggregation at 0.2 seconds for 2,475-year Return Period

0203864-000 11/21

HARTCROWSER
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Figure
D-2

YT 11/10/2021 \\haleyaldrich.com\share\pdx_data\Notebooks\0203864-000_St_Helens_Public_Safety_Bldg\Analysis and Calcs\Calc_2 Seismic Design Parameters\PSHA\PSHA\UHS\DEAGG\DEAGG DATA 2475_Haz 45 Deagg Plot Results_SHPSB_0p2_2475.xlsx

MACKENZIE.

June 22, 2023

City of St. Helens
Attention: Jacob Graichen, City Planner
265 Strand Street
St. Helens, OR 97051

Re: **St. Helens Public Safety Building**
Transportation Impact Analysis Review
Project Number 2210310.04

Dear Jacob:

Mackenzie has prepared this letter to address the requirements for a Traffic Impact Analysis (TIA) and to address Parking needs for the proposed new Public Safety Building in St. Helens, Oregon. Based on our review, trips to the proposed Public Safety Building are expected to be below the threshold for a Traffic Impact Analysis report, and the proposed 52 parking spaces exceeds the minimum of 14 spaces required.

INTRODUCTION

The City of St. Helens is proposing to construct an approximately 11.1 thousand-square-foot (KSF) Public Safety Building. The proposed development would be on Columbia County Tax Lot 4109-AB-01500. The lot is approximately 7.55 acres, undeveloped, and located at the northeast corner of Kaster Road and Old Portland Road. The building will be dedicated to police operations.

BUILDING OPERATIONS

At move-in, the building is anticipated to have approximately 25-27 police staff working all shifts. The police station is currently open 8:00 AM – 5:00 PM but closed from 12:00 PM – 1:00 PM. It is assumed the policing function of the new building will be open to the public during these same hours.

TRAFFIC IMPACT ANALYSIS

The thresholds for a TIA are outlined in St. Helens Municipal Code (SHMC) Chapter 17.156 and include trip generation, mobility impacts on Highway 30 intersections, use of heavy vehicles, driveway spacing and sight distance, and potential for safety problems.

Trip Generation

St. Helens Municipal Code (SHMC) 17.156.020 (1) states that the latest edition of the Institute of Transportation Engineers (ITE) *Trip Generation Manual* shall be used for trip estimates, which is now in its 11th edition. The threshold for requiring a Traffic Impact Analysis (TIA) is 250 daily trips and/or 25 peak hour trips per 17.156.030 (a).

Vehicle trip generation characteristics of a police station are not documented in the ITE *Trip Generation Manual*; however, historical trip surveys have been conducted by Mackenzie and Kittelson & Associates for police facilities. These surveys were taken in Beaverton, Oregon, and east and west Vancouver, Washington. All surveyed police facilities operate 24 hours a day. The surveys indicated an average AM peak hour rate of 0.22 trips per employee, PM peak hour rate of 0.27 trips per employee, and Daily trip rate of 4.27 per employee.

An estimate of trip generation for the Forest Grove police station in 2018 was prepared based on shift schedules of police officers and support staff, which found 25 AM and PM peak hour trips with a total of 37 staff, but also assumed all staff arrive and leave in the same hour. Based on the total number of employees and visitors per day, an estimate of 142 daily trips was made. The trip rates from the Beaverton and Vancouver Surveys were included for comparison in the Forest Grove estimates. Applying this ratio to the 27 staff in St. Helens yields 18 peak hour trips and 104 daily trips. While the daily trips seem reasonable, the peak hour trips seem to be on the high side.

TABLE 1 – POLICE STATION TRIP GENERATION

Description	AM Peak Hour			PM Peak Hour			Daily
	In	Out	Total	In	Out	Total	
Forest Grove Estimate	14	4	18	4	14	18	104
Beaverton/Vancouver Surveys	3	3	6	3	4	7	115

Table 11 shows that the 27 police staff are estimated to generate 6:00 AM peak-hour trips, 7:00 PM pear-hour trips, and 115 daily trips based on surveys of similar facilities in Beaverton and Vancouver, WA.

Highway 30 Intersection Impacts

SHMC Section 17.156.030(3)(b) states a TIA is required if "[t]he proposed action is projected to further degrade mobility at the Deer Island Road/Highway 30, Pittsburg Road/Highway 30, Wyeth Street/Highway 30, Gable Road/Highway 30, or Millard Road/Highway 30 intersections". Given the low number of peak hour trips and the expectation that most trips are local, the impact on these Highway 30 intersections is expected to be minimal. The Millard Road intersection is being improved to add a traffic signal, and the Gable Road intersection is collecting proportionate share costs towards construction of a right turn lane, so mobility of these intersections is already being addressed. A TIA is not required based on Highway intersection impacts.

Heavy Vehicles

SHMC Section 17.156.030(3)(c) states a TIA is required if "[a]n increase in use of adjacent streets by vehicles exceeding the 20,000-pound gross vehicle weights by 10 vehicles or more per day". The proposed new Public Safety Building would not expect more than 10 vehicles per day exceeding this weight threshold, so a TIA would not be required for this criterion.

Intersection Sight Distance

SHMC 17.156.030(3)(d) requires a TIA if the proposed location of the driveway access cannot meet the standards set forth in SHMC 18.12.060, which states that Intersection Sight Distance (ISD) shall follow the "principles and methods" recommended by American Association of State Highway and Transportation Officials AASHTO.

The site will have a single 24-foot-wide driveway on Kaster Road. Kaster Road is classified as Collector Road in St. Helens' 2011 Transportation System Plan (TSP), and has a posted speed of 25 MPH with an assumed design speed of 30 MPH.

Table II (e) in SHMC Section 18.12.060 presents a minimum "Corner Sight Distance" of 310 feet for a design speed of 30 MPH. Corner Sight Distance calculations will assume the driver's eye is 15 feet back from the near edge of the nearest lane for which access will be taken, and at a height of 3.5 feet. The top of the vehicle to be observed on the major roadway is assumed to be 4 feet 3 inches above pavement. Nothing shall block the observed object between the range of 6 inches and 4 feet 3 inches above grade.

The access is proposed to be at grade with the roadway and will be adjacent to a conveyance ditch, which should allow for the required clear zone between 6 inches and 4 feet 3 inches of above grade. The Landscape plan will need to ensure these sight lines are not impacted. Approximately 370 feet of sight distance is available to the west along Kaster Road to the intersection of Old Portland Road, although vehicles can be seen approaching beyond the intersection. Over 400 feet is available to the east along both approaches of the "Y". A site plan is attached showing the required 310-foot sight lines (Attachment B). The proposed driveway location can meet the minimum intersection sight distances, so a TIA is not required based on this criterion.

Access Spacing

SHMC 17.156.030(3)(e) requires a TIA if the proposed location of the driveway access does not meet the access spacing standards set forth in SHMC 17.84.040 (5) Table 17.84.040-2 for City streets. Spacing standards are based on the functional classification of the roadway. As previously mentioned, Kaster Road is classified as a Collector. Table 17.84.040-2 indicates that the private access spacing standard for a collector is 100 feet, and subsection (6) of the same code states that spacing shall be measured from centerline to centerline of the nearest adjacent street or driveway.

The nearest adjacent driveways are across Kaster Road and allow access to a gravel lot behind the St. Helens Recreation Center. The west driveway appears to be used for inbound vehicles only, and the east driveway appears to be used for full movements. In addition to these driveways, the Recreation Center has two (2) driveways on Old Portland Road at the main parking lot. Centerline to centerline measurements from survey data indicate spacing between the nearest adjacent driveway to the west is 21 feet and 107 feet to the second driveway further west.

While the spacing is not met to the nearest driveway, the driveways for the gravel lot appear to be used infrequently and we understand the Recreation Center is permanently closed. Given the low volumes on the driveways and along Kaster Road, especially for left turns from the roadway, the spacing is not expected to create any safety concerns. Further, the driveway is not able to be located closer to the intersection with Old Portland Road, nor would it be desirable.

Spacing to the "Y" intersection to the east is approximately 150 feet from the center of the proposed driveway to the stop bar at the north approach of the intersection.

Given the low volumes on the roadway and the existing and proposed site driveways, requiring a TIA for the reduced spacing does not make sense, and one should not be required.

Safety

SHMC 17.156.030(3)(f) requires a TIA when there is "[a] change in internal traffic patterns that may cause safety problems, such as backup onto the highway or traffic crashes in the approach area."

A quick review of crash history at the signalized intersection of Old Portland Road and Kaster Road indicates only three (3) reported crashes in the last five (5) years (2017 – 2021). These crashes consisted of one (1) turning movement type crash and two (2) rear-end type crashes, which are not unusual patterns for a signalized intersection. The crashes were low in severity, with two (2) causing property damage only and one (1) with no visible injury (Type C). There were no reported crashes along the site frontage on Kaster Road. The small increase in trips from the Public Safety Building is unlikely to cause safety problems and the site internal circulation will not cause backups onto the roadway. A TIA would not be required based on this criterion.

PARKING

Off-street parking requirements are addressed in St. Helens Municipal Code Chapter 17.80. Specifically, section 030 identifies the minimum requirement for various uses.

For public safety services, one (1) space for every employee of the largest shift is required per (2)(h). The weekday day shift is expected to have the highest employee count for the police station and is assumed to be 12 of the 27 total employees. Therefore, 12 spaces would be required. This addresses the day-to-day policing component which is addressed with the secure parking area.

The public parking area in front of the building can be addressed following (2)(g) of one (1) space per 350 SF for a public agency administrative service. With a total public area of 651 SF within the building, this corresponds to two (2) spaces.

The proposed site plan shows six (6) spaces in the visitor lot and 46 spaces in the secure lot where police vehicles and staff's personal vehicles are parked. The number of total spaces exceeds the minimum requirements. The visitor lot will have one (1) accessible space and the secure lot will have two (2) accessible spaces. Bicycle spaces are required at a rate of 20% of the required vehicle parking spaces, so two (2) bicycle spaces are recommended for the visitor lot. Two (2) bicycle spaces are proposed, meeting the number of required bicycle parking spaces.

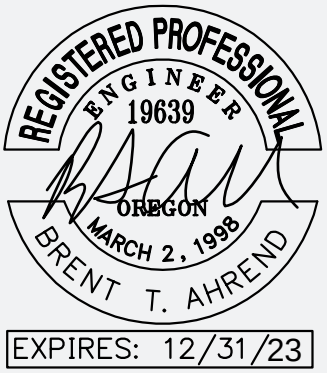
CONCLUSION

Based on our review of the thresholds for a Traffic Impact Analysis in St. Helens Municipal Code section 17.156.030, the proposed Public Safety Building impacts would not require a TIA based on trip generation, mobility impacts on Highway 30 intersections, use of heavy vehicles, driveway sight distance, or potential for safety problems. While the proposed driveway spacing does not meet standard, preparation of a TIA is not necessary to determine the reduced spacing will not create a safety concern.

A minimum of 12 parking spaces is required for the police employees and two (2) for the visitor parking per St. Helens Municipal Code Chapter 17.80, compared to the proposed six (6) spaces in the visitor lot and 46 spaces in the secure lot. Two (2) lockable bicycle spaces are proposed, which meets the number of required lockable bicycle parking spaces for public use.

Sincerely,

Brent Ahrend, PE
Traffic Engineer | Associate Principal



Enclosure(s): Attachment A – Forest Grove Police Trip Generation Estimates
Attachment B – Site Plan with Sight Lines

c: Adrienne Linton, Brian Varricchione, Bailey Currier – Mackenzie

Project: Forest Grove Police Station
Job #: 2180595.02
Date: December 5, 2019
Subject: **Trip Generation Estimates**

Forest Grove Site Description

19,600 Building
2,500 Firing Range
2,500 Patrol Carport

31 Parking Spaces

Employee Count: 37 (from Website)

8 AM - 4 PM M-F
- 3 Administrators
- 6 Support Personnel
- 3 Detectives
- 3-4 Police Officers

4 PM - 8 AM M-F
- 3-8 Police Officers

Daily Sat & Sun
- 3-8 Police Officers

8 AM - 4 PM M-F
- 1 Civilian lobby contact per hour

Department Structure

The Forest Grove Police Department is made up of 37 sworn and non-sworn staff,
Sworn staff includes:

One Chief
One Operations Captain/Public Information Officer
One Administrative Captain
Nineteen Patrol Officers & Three Patrol Sergeants
Two Detectives & One Detective Sergeant
One School Resource Officer

Non-sworn support staff members, including:

One Support Unit Supervisor
One Code Enforcement Officer
One Evidence Specialist
One Community Outreach Specialist
Two Records Specialists

Survey Site	Rate/Emp			Trips Based on Employees		
	Daily	AM	PM	Daily	AM	PM
Vancouver	4.27	0.22	0.27	158	8	10
Beaverton	7.27			269		
Average	5.77	0.22	0.27	214	8	10

PM Peak Hour Other (T = 1.6X + 2.9 where X = KSF) 34

Daily Trip Generation based on Shifts:

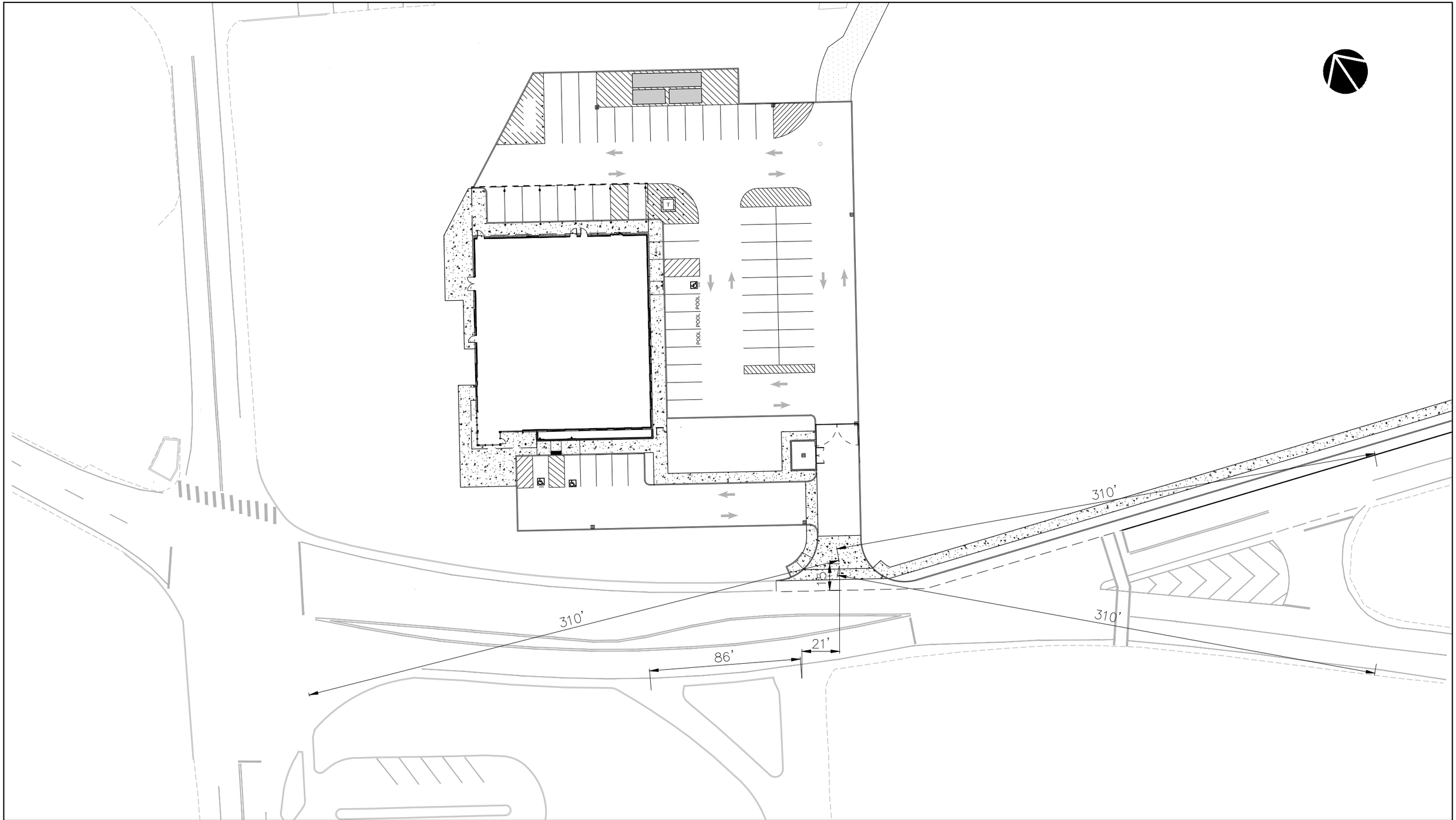
	On Site		Trips				
Staff/Visitor	Employees	Visitors	Commute	Other	Patrol	Total	
Administrators	3		2	2		12	*Assumes all drive t/f work & all drive for lunch*
Support Personnel	6		2	2		24	*Assumes all drive t/f work & all drive for lunch*
Detectives	3		2	4		18	*Assumes all drive t/f work & all drive for lunch & all make some other trip*
Police Officers	4		2	2	2	24	*Assumes all drive t/f work & all take out patrol car & return/depart once during shift*
Visitors		8		2		16	*Assumes all drive*
Night Shift 1	4		2	2	2	24	*Assumes all drive t/f work & all take out patrol car & return/depart once during shift*
Night Shift 2	4		2	2	2	24	*Assumes all drive t/f work & all take out patrol car & return/depart once during shift*
Total	**24**					**142**	

AM Peak Hour (7:15-8:15 AM):

	On Site		Trips				
Staff/Visitor	Employees	Visitors	Commute	Other	Patrol	Total	
Administrators	3		1			3	*Assumes all arrive before shift start at 8:00 AM*
Support Personnel	6		1			6	*Assumes all arrive before shift start at 8:00 AM*
Detectives	3		1			3	*Assumes all arrive before shift start at 8:00 AM*
Police Officers	4		1		0.5	6	*Assumes all arrive before shift start at 8:00 AM & half depart in patrol car after 8:00 AM*
Visitors		8		0.125		1	*Assumes one visitor arrives after 8:00 AM*
Night Shift 1	4					0	
Night Shift 2	4		1		0.5	6	*Assumes half return in patrol car before 8:00 AM and all depart after 8:00 AM*
Total	**24**					**25**	

PM Peak Hour (3:30-4:30 PM)

	On Site		Trips				
Staff/Visitor	Employees	Visitors	Commute	Other	Patrol	Total	
Administrators	3		1			3	*Assumes all depart after shift end at 4:00 PM*
Support Personnel	6		1			6	*Assumes all depart after shift end at 4:00 PM*
Detectives	3		1			3	*Assumes all depart after shift end at 4:00 PM*
Police Officers	4		1		0.5	6	*Assumes half return in patrol car before 4:00 PM and all depart after 4:00 PM*
Visitors		8		0.125		1	*Assumes one visitor departs before 4:00 PM*
Night Shift 1	4		1		0.5	6	*Assumes all arrive before shift start at 4:00 PM and half depart in patrol car after 4:00 PM*
Night Shift 2	4					0	
Total	**24**					**25**	



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DATE: 5.31.2023
DRAWN BY: CNL
CHECKED BY: BTA
JOB NO: 221031004

PROPOSED SITE PLAN W/ INTERSECTION SIGHT DISTANCE + ACCESS SPACING

ST HELENS PUBLIC SAFETY
ST. HELENS, OR

FIGURE 1

Wetland Solutions Northwest, LLC
59446 Lytle Dr.
St. Helens, Oregon 97051
Stacy@WetlandSolutionsNW.com
503-367-7177

June 23, 2023

Mackenzie
1515 SE Water Avenue #100
Portland, OR 97214

SUBJECT: City of St. Helens Public Safety Building
Tax map 04 01 09AB Tax lot 1500

Introduction
The City of St. Helens (City) is planning to construct a new public safety building with associated parking, stormwater treatment and site improvements. The project is located at the intersection of Old Portland Road and Kaster Road on tax lot 1500 on tax map 04 01 09AB (Figure 1).

Existing Site Conditions
The subject site is currently undeveloped with the exception of existing infrastructure serving the adjacent developed area. Topography of the site generally slopes down to the south and east. The western portion of the site is mowed and appears to be maintained as an informal park area by the City. Vegetation in the park area consists of mowed grasses with scattered upland trees including big-leaf maple (*Acer macrophyllum*), Douglas fir (*Pseudotsuga menziesii*), Oregon white oak (*Quercus garryana*), and western larch (*Larix occidentalis*). A higher elevation convex basalt landform is present in the north portion of the site adjacent to the East Street right-of-way. The vegetation community on the basalt outcrop is dominated by weedy upland grasses and forbs with non-native Scot's broom (*Cytisus scoparius*), and Oregon white oak with scattered dull Oregon grape (*Mahonia nervosa*) and creambush (*Holodiscus discolor*). Residential development and the East Street right-of-way borders the site to the north. Pre-existing infrastructure is present in the north portion of the site and includes below-ground stormwater lines, above ground power lines, and a berm/access road.

A large mixed emergent/scrub-shrub/forested wetland is present in the east portion of the site. The wetland is identified as wetland MI-15 on the City's Local Wetland Inventory (LWI) map. The wetland is locally significant under Chapter 17.40 (Protective Measures for Significant Wetlands, Riparian Corridors and Protection Zones) of the St. Helens Municipal Code (SHMC) and requires a 50-foot wetland protection zone. A smaller isolated wetland located to the west of wetland MI-15 is not locally significant and therefore does not require a wetland protection

zone. This smaller, isolated wetland will not be impacted and is not discussed further in this report.

Wetlands and Waters

The majority of the wetland area on the site was previously delineated by this investigator in 2019 for the City's industrial park project on the former Boise White Paper site (Boise site). The previous wetland delineation was concurred by the Oregon Department of State Lands (DSL) under WD #2019-0324 and the U.S. Army Corps of Engineers (Corps) jurisdictional determination NWP-2019-286.

A wetland and waters delineation was conducted in support of the public safety building project to delineate the northernmost edges of the wetland that were not previously investigated due to being in the road right-of-way. Field work was conducted on October 21 and 29, 2021 using the methodology of the *Wetlands Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*, used by both the Corps and DSL. The wetland report was submitted to DSL, and a concurrence letter was issued on November 3, 2022 (WD #2022-0251).

Wetland vegetation in the majority of the wetland is dominated by reed canarygrass (*Phalaris arundinacea*) in the understory with Douglas spirea (*Spiraea douglasii*) and willow (*Salix species*) shrubs and an overstory consisting of willow and Oregon ash (*Fraxinus latifolia*) trees. The easternmost portion of the wetland also contains lady's-thumb (*Persicaria maculosa*) and slough sedge (*Carex obnupta*). Wetland soils were saturated at 24 inches below the ground surface during an October 21, 2021 site visit. Hydrology was rechecked on October 29th after more than 2 inches of rain had fallen since the previous site visit, and wetland hydrology had increased significantly with soils saturated to the surface throughout the wetland with many areas of up to 4-inch deep ponding. The wetland receives stormwater runoff from upslope development and impervious surfaces, which explains the rapid rise in hydrology following a large precipitation event. The wetland extends off-site to the south and east before being culverted under the industrially developed portion of the Boise site. The wetland is hydrologically connected to the Multnomah Channel and was determined to be jurisdictional by DSL and the Corps.

<u>Intermittent Drainage</u>

The ordinary high water (OHW) line of a short section of an intermittent drainage was delineated slightly upslope of the wetland boundary in the central portion of the site. The drainage is separated from the wetland by the existing berm/access road in the powerline corridor. The drainage is unvegetated and therefore does not meet wetland criteria. The drainage flows through a basalt bedrock landform and receives hydrology from a stormwater pipe from upslope development. The drainage flows only in response to precipitation, and it was flowing approximately a foot deep during an October 29, 2021 site visit, after being dry on the October 21st site visit. Vegetation surrounding the drainage is dominated by Himalayan blackberry.

Additional information regarding site conditions is included in St. Helens Public Safety Building Wetland & Waters Delineation Report (Wetland Solutions Northwest 2022; Attachment A).

City of St. Helens Sensitive Lands Permitting

The wetland in the project area is mapped on the City's LWI map as wetland MI-15. The wetland is considered a Type II locally significant wetland in the City's LWI, and a 50-foot wetland buffer (wetland protection zone) is required adjacent to the wetland for site development. Since the project proposes to impact the wetland buffer, the project is subject to the requirements of Chapter 17.40 (Protective Measures for Significant Wetlands, Riparian Corridors and Protection Zones) of the SHMC. The following environmental assessment narrative is provided to meet the review requirements for the sensitive lands permitting process. Relevant portions of the SHMC are excerpted below, and the information in italics is provided in response to the SHMC requirements.

The footprint of the public safety building will not encroach into the 100-year floodplain; therefore, a sensitive lands floodplain permit is not required for the project.

Chapter 17.40 Protective Measures for Significant Wetlands, Riparian Corridors and Protection Zones

17.40.055 General criteria for exceptions and other approvals

The appropriate approval authority shall approve or approve with conditions an application request within a significant wetland, significant riparian corridor, or protection zone based upon findings that all of the following criteria have been satisfied and the conditions herein are proposed:

(1) The extent and nature of the proposed alteration or development will not create site disturbances to an extent greater than the minimum required for the use;

The site plan has been designed to avoid any wetland impact, and the development footprint is located in the north and west portions of the site, as far as possible from natural resource areas. The project proposes to impact 6,961 square feet (SF) of wetland buffer to construct a portion of the parking lot. Much of the buffer impact area is located within the former 7th Street right-of-way and the East Street right-of-way. There is an existing berm and access road that extends east to west through the wetland buffer, generally adjacent to an existing powerline corridor. The existing berm is a legally established non-conforming use.

(2) No loss of wetland/riparian area and function:

The project will only impact the wetland buffer, and no impacts to the wetland are proposed. No riparian area is present in the project area, and no riparian area impacts are proposed.

The project will mitigate for impacts to the wetland buffer by enhancing an adjacent section of the wetland buffer that lacks a tree canopy. Native trees and shrubs will be planted in a 6,961 SF area of the wetland buffer located in the south portion of the site. The enhancement area will be planted with 47 trees and 279 shrubs. Additional information regarding the mitigation plan is provided at the end of this document. Mitigation is proposed at a 1:1 ratio to mitigate for the proposed impacts of 6,961 SF. The enhancement of the remaining wetland buffer will compensate for the proposed impacts to a portion of the wetland buffer by improving the function of the remaining wetland buffer closest to the wetland.

(3) Where natural vegetation has been removed due to alteration or development, erosion control provisions of the Community Development Code and Engineering Department Public Facility Construction Standards Manual shall be met;

During construction activities, erosion and sediment control best management practices, methods, and techniques will be implemented that meet the requirements identified in SHMC 18.36 and the "Engineering Department Public Facility Construction Standards Manual".

(4) All applicable sensitive lands requirements of Chapter 17.44 SHMC have been met;

The project does not propose to impact sensitive lands as defined in Chapter 17.44.

(5) Copies of all state and federal permit applications shall be submitted with development applications requiring compliance with this chapter. All required state and federal permits shall be obtained and copies provided to the City of St. Helens prior to alteration of the site;

The project does not propose any activities within state or federally regulated wetlands or waters; therefore, state and federal wetland permits are not required. The project will require a 1200-C stormwater permit from the Oregon Department of Environmental Quality. The permit will be provided to the City after it has been obtained.

(6) The protection of the significant riparian corridor or significant wetland can be assured through restoration, enhancement, and other similar measures in the protection zone and the resource area.

The project includes enhancement of 6,961 square feet of wetland buffer at a 1:1 ratio in accordance with City requirements. The wetland buffer mitigation area currently consists of mowed non-native grasses and lacks tree and shrub cover, as such it provides low habitat function in its current condition. The wetland buffer mitigation area will be planted with native trees and shrubs in accordance with the mitigation plan later in this document. The wetland buffer enhancement area is shown on the buffer impact and mitigation drawing. Plant materials will be installed and the enhancement area will be managed and maintained in accordance with 17.40.055 (6)(b).

The implementation of the mitigation plan and the ongoing maintenance and management of the mitigation area, the remaining wetland protection zone and the associated significant wetland, will be the responsibility of the City.

Prior to the start of construction, the outer limits of the wetland protection zone to remain on the site will be demarcated with construction fencing to prevent any construction from occurring in the protection zone. In addition, all trees to be retained on the site will be protected with construction fencing along the edge of the tree canopy to avoid impacts to the root zone of protected trees during construction.

In accordance with SHMC Chapter 17.40.055, there shall be no alteration of significant wetlands, riparian corridors or protection zones as delineated and shown on the attached site development plan. There shall be no alteration of the size, shape or design of an approved protection area or resource area without the approval by the City of St. Helens.

Mitigation Plan

The project includes enhancement of 6,961 SF of the remaining wetland buffer by removing invasive species and planting native trees and shrubs. The enhancement ratio required by the City is at a one-to-one ratio, which totals 6,961 SF for the project. Native trees and shrubs to be planted will be based on availability of plant materials from a local native plant nursery and will be installed in accordance with 17.40.055 (6)(b). Recommended plant species and quantities are summarized in Table 1. Species substitutions may occur based on availability and are subject to the approval of a natural resource professional.

Table 1. Recommended Wetland Buffer Enhancement Plantings (6,961 SF)

Scientific Name	Common Name	Quantity
Trees		
Acer macrophyllum	big-leaf maple	13
Pseudotsuga menziesii	Douglas fir	17
Rhamnus purshiana	cascara	17
Shrubs		
Acer circinatum	vine maple	21
Physocarpus capitatus	Pacific ninebark	41
Rosa nutkana	Nootka rose	91
Sambucus racemosa	red elderberry	35
Symphoricarpos albus	snowberry	91

Container plants should be installed in the fall, between approximately October 1 and November 15. If bare root stock is used, it should be installed between December 15 and April 15. Planting outside these times may require additional measures, such as supplemental watering, to ensure their survival. Plants should be mulched a minimum of three inches in depth and 18 inches in diameter to conserve soil moisture and minimize establishment of

weeds. Plant protection measures to protect plants from wildlife damage will be installed as needed. Supplemental watering may be necessary during the two-year plant establishment period. General watering recommendations are at least one inch per week from June 15 through October 15.

Chapter 17.132 SHMC Tree Removal

17.132.025 Tree plan requirement

Trees proposed to be removed on the site are shown on the tree plan drawing and itemized in the tree inventory table at the top of the tree plan. There are 234 trees that are 12 inches in diameter at breast height (DBH) currently present on the site. A total of 33 trees with a DBH of 12 inches or greater are proposed to be removed. The majority of the trees to be removed are located outside the 50-foot wetland buffer, and only five trees are proposed to be removed in the wetland buffer as summarized in Table 2 below. Tree removal will not reduce the tree canopy below the City requirement to maintain no less than 75% canopy cover.

Table 2. Trees to be Removed in the Wetland Buffer

Tree ID	Type	DBH*
30744	Deciduous	8, 10
30746	Deciduous	14
30747	Deciduous	6
30856	Deciduous	7
30862	Deciduous	13, 13, 6

* Diameter at breast height

17.132.070(4) Replacement of trees

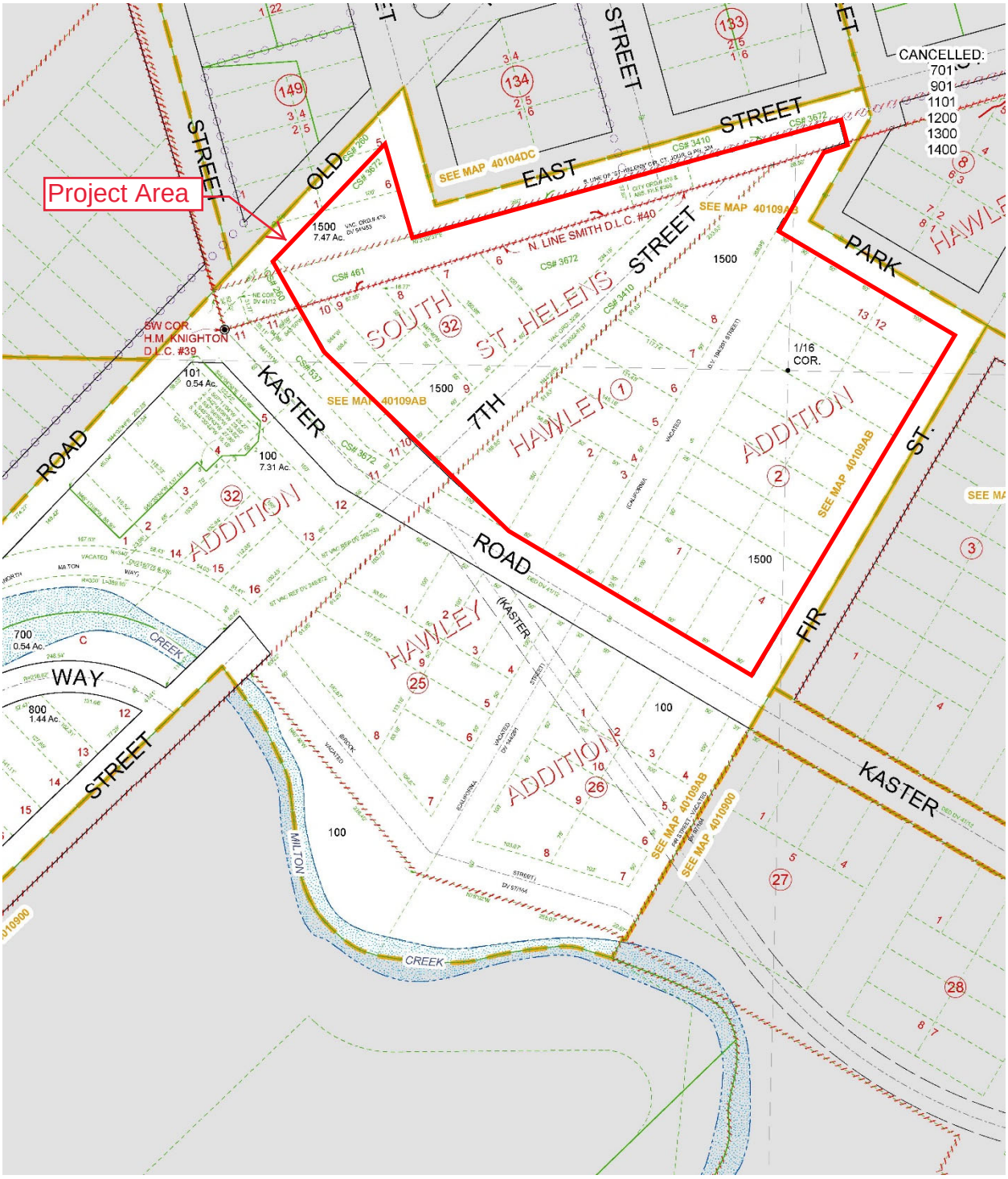
Greater than 50% of the trees over 12 inches DBH will be retained on site. Therefore, the mitigation requirement is a ratio of one minimum two-inch DBH tree to be planted for each 12-inch or greater DBH tree to be removed. A total of 33 trees require mitigation; however, the site plan includes planting 33 mitigation trees, minimum 2-inch DBH, around the edge of the site development area to compensate for the 33 trees to be removed.

In addition, 47 trees are also proposed to be planted in the wetland buffer enhancement area as mitigation for the 6,961 SF of wetland buffer impact. Trees to be planted in the buffer mitigation are recommended to be minimum 1-inch DBH, as this size tree would be expected to have a higher likelihood of successful establishment in the unirrigated wetland buffer than would larger DBH trees. Trees to be planted for the buffer mitigation will be similar species to the trees being removed and remaining trees commonly found on the site. Mitigation trees will include a mix of coniferous and deciduous trees including Douglas fir, big-leaf maple and cascara and are appropriate for the habitat of the wetland buffer.

Figures & Attachments

St. Helens Public Safety Building

Figures



St. Helens Public Safety Building Sensitive Lands Assessment Figure 1. Tax Lot Map	0 200	Wetland Solutions Northwest, LLC
Source: Tax lot map downloaded from: www.ormap.net, Columbia County, 04 01 09AB.		June 2023

St. Helens Public Safety Building Sensitive Lands Assessment Figure 2. Recent Aerial Photo	0 225	Wetland Solutions Northwest, LLC
Source: Columbia County Webmaps		June 2023

LEGEND

- PROPERTY LINE
- WETLAND BOUNDARY
- 50-FT WETLAND BUFFER

FIGURE 3A. EXISTING CONDITIONS
ST. HELENS PUBLIC SAFETY BUILDING

June 13, 2023
Job # 2210310.00

SCALE: 1"=80'
0 20 40 80

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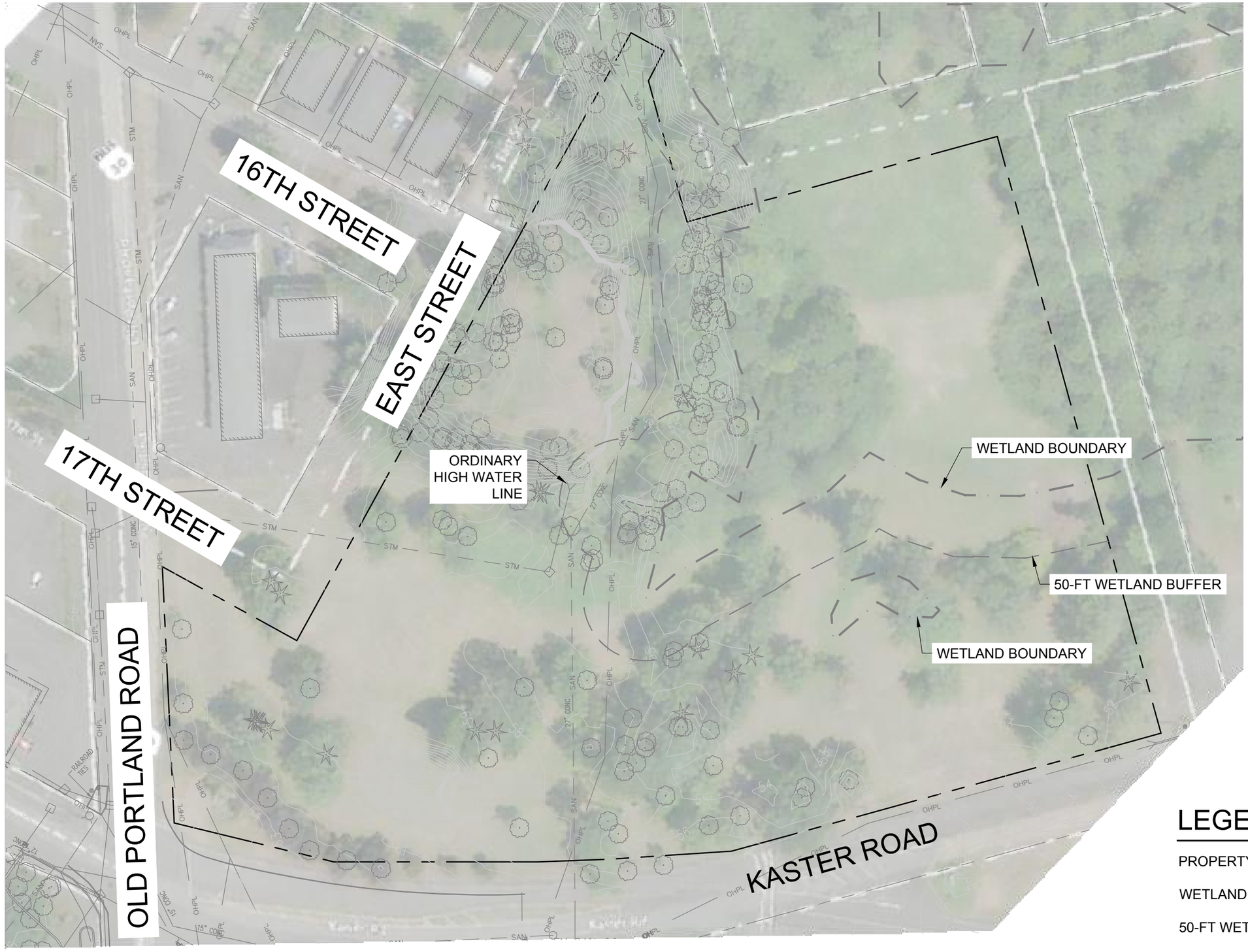

LEGEND

- PROPERTY LINE
- WETLAND BOUNDARY
- 50-FT WETLAND BUFFER

FIGURE 3B. EXISTING CONDITIONS WITH AERIAL

ST. HELENS PUBLIC SAFETY BUILDING

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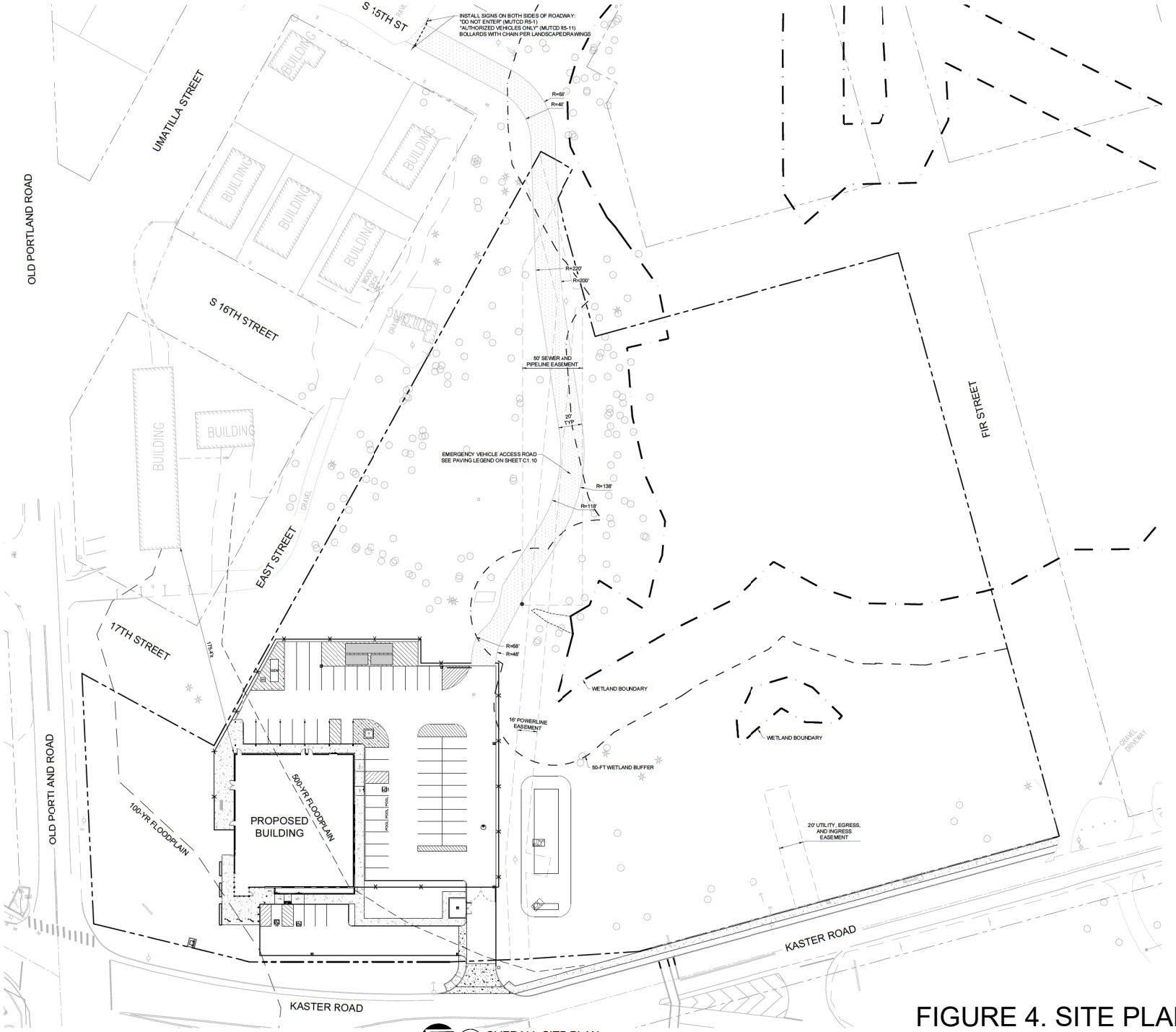

1 C1.00 OVERALL SITE PLAN

30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

FIGURE 4. SITE PLAN

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Delta	Issued As	Issue Date

SHEET TITLE:
OVERALL SITE PLAN

ZMP

GIM

SHEET
C1.00

JOB NO. **2210310.04**

LAND USE SUBMITTAL SET 6/16/2023

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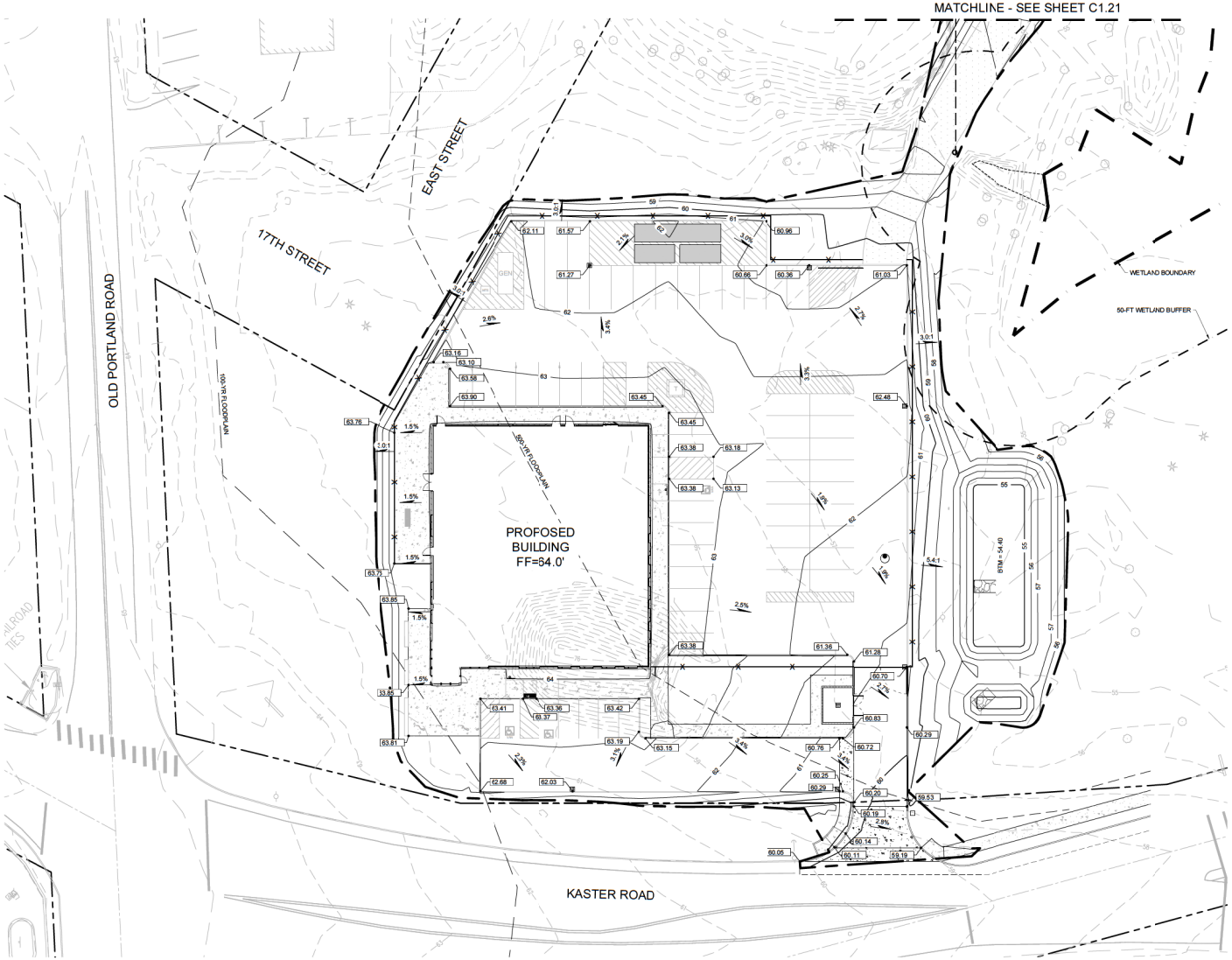

1 C1.20 GRADING PLAN

20 0 10 20 40 80

(IN FEET)

1 inch = 20 ft.

GRADING NOTES

1. ROUGH GRADING: ROUGH GRADE TO ALLOW FOR DEPTH OF BUILDING SLABS, PAVEMENTS, BASE COURSES, AND TOPSOIL PER DETAILS AND SPECIFICATIONS
2. FINISH GRADING: BRING ALL FINISH GRADES TO LEVELS INDICATED. WHERE GRADES ARE NOT OTHERWISE INDICATED, HARDSCAPE FINISH GRADES ARE TO BE THE SAME AS ADJACENT SIDEWALKS, CURBS, OR THE OBVIOUS GRADE OF ADJACENT STRUCTURE. SOFTSCAPE GRADES (INCLUDING ADDITIONAL DEPTH OF TOPSOIL) SHALL BE SET 6 INCHES BELOW BUILDING FINISHED FLOORS WHERE ABUTTING BUILDINGS, 1-2 INCHES WHERE ABUTTING WALKWAYS OR CURBS, OR MATCHING OTHER SOFTSCAPE GRADES. GRADE TO UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE GRADES ARE GIVEN. ROUND OFF SURFACES, AVOID ABRUPT CHANGES IN LEVELS. AT COMPLETION OF JOB AND AFTER BACKFILLING BY OTHER TRADES HAS BEEN COMPLETED, REFILL AND COMPACT AREAS WHICH HAVE SETTLED OR ERODED TO BRING TO FINAL GRADES
3. EXCAVATION: EXCAVATE FOR SLABS, PAVING, AND OTHER IMPROVEMENTS TO SIZES AND LEVELS SHOWN OR REQUIRED. ALLOW FOR FORM CLEARANCE AND FOR PROPER COMPACTION OF REQUIRED BACKFILLING MATERIAL. DAMAGE TO UTILITIES SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE
4. EFFECTIVE EROSION PREVENTION AND SEDIMENT CONTROL IS REQUIRED. EROSION CONTROL DEVICES MUST BE INSTALLED AND MAINTAINED MEETING THE LOCAL AGENCY AND STATE AGENCY REQUIREMENTS. THE AUTHORITIES HAVING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE EROSION CONTROL
5. DRAINAGE SHALL BE CONTROLLED WITHIN THE WORK SITE AND SHALL BE ROUTED SO THAT ADJACENT PRIVATE PROPERTY, PUBLIC PROPERTY, AND THE RECEIVING SYSTEM ARE NOT ADVERSELY IMPACTED. THE ENGINEER AND/OR AUTHORITIES HAVING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE DRAINAGE CONTROL
6. SITE TOPSOIL STOCKPILED DURING CONSTRUCTION AND USED FOR LANDSCAPING SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT
7. CONTRACTOR TO REVIEW AND CONFIRM GRADES AT JOIN POINTS, SUCH AS AT DAYLIGHT LIMITS AND BUILDING ENTRANCES, PRIOR TO CONSTRUCTION
8. ACCESSIBLE PARKING SPACES AND LOADING ZONES SHALL BE CONSTRUCTED AT 2% MAXIMUM SLOPE IN ALL DIRECTIONS
9. PEDESTRIAN SIDEWALK CONNECTIONS BETWEEN PUBLIC R.O.W. AND BUILDING ENTRANCES SHALL BE CONSTRUCTED AT AND 2% MAXIMUM CROSS SLOPE AND 5% MAXIMUM LONGITUDINAL SLOPE (8.33% FOR DESIGNATED RAMPS)

LEGEND

- PROPERTY/ROW LINE
- 100-YEAR FLOODPLAIN
- 500-YEAR FLOODPLAIN
- EASEMENT
- EDGE OF PAVEMENT
- WETLAND BOUNDARY
- 50-FT WETLAND BUFFER
- LIMIT OF GRADE
- TREE

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Delta	Issued As	Issue Date

SHEET TITLE:
GRADING PLAN

FIGURE 5. GRADING PLAN

SHEET
C1.20

JOB NO. 2210310.04

LAND USE SUBMITTAL SET 6/16/2023

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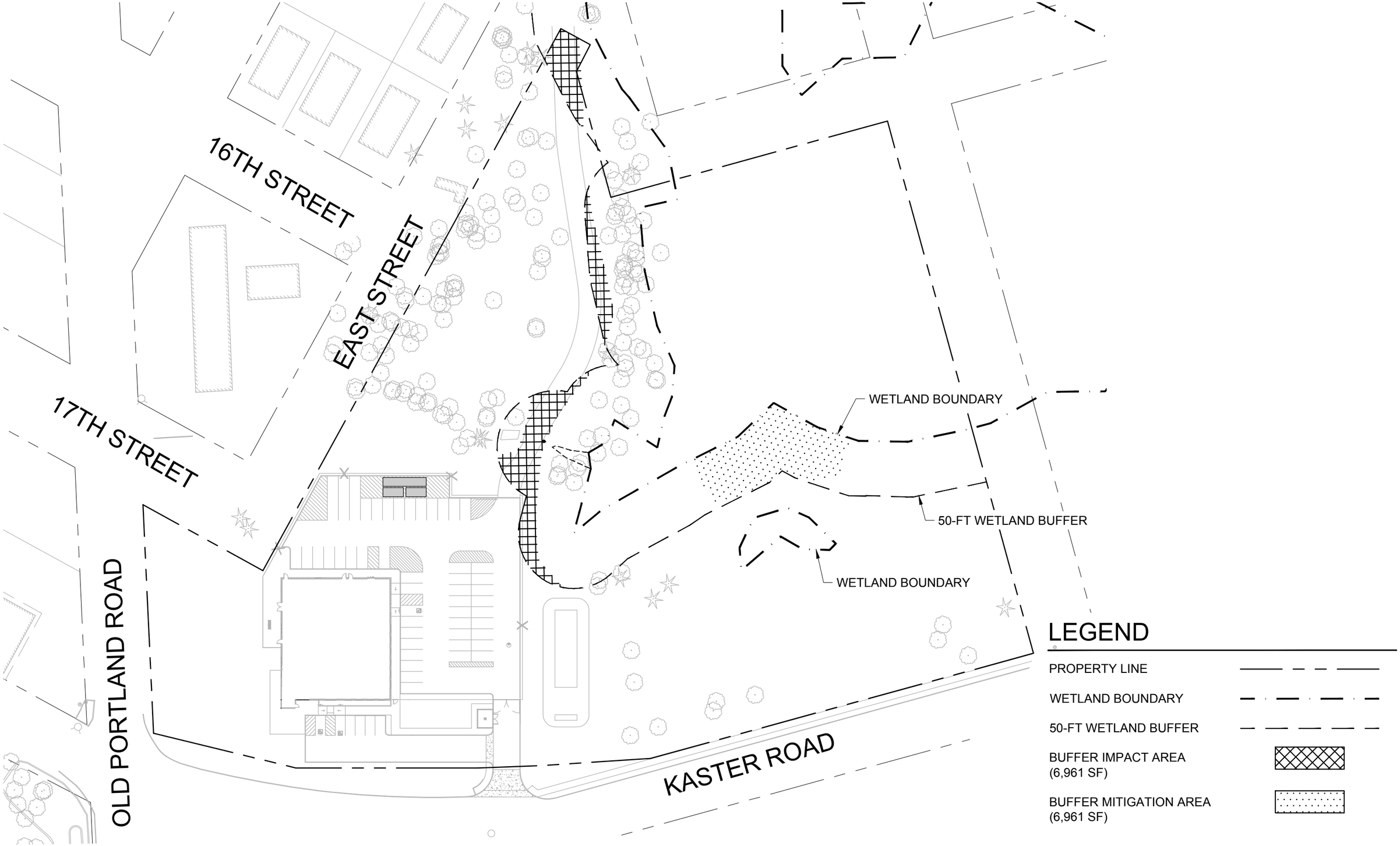

FIGURE 6. BUFFER IMPACT AND MITIGATION AREA

ST. HELENS PUBLIC SAFETY BUILDING

June 13, 2023
Job # 2210310.00

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0 20 40 80

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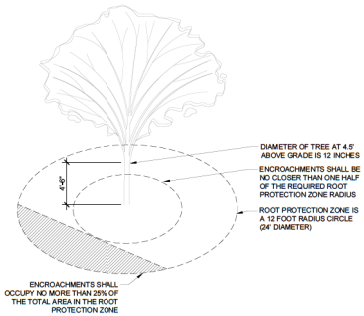
TREE REMOVAL INVENTORY

NO	SURVEY	TYPE	DBH	MITIGATION	BUFFER	NO	SURVEY	TYPE	DBH	MITIGATION	BUFFER
1	30408	DECIDUOUS	8	NO		35	30434	DECIDUOUS	11	NO	
2	30407	DECIDUOUS	13	YES		37	30431	DECIDUOUS	18	YES	
3	30406	DECIDUOUS	14	YES		38	30436	DECIDUOUS	12,15	YES	
4	30415	DECIDUOUS	17	YES		39	30435	DECIDUOUS	43	YES	
5	30416	DECIDUOUS	14	YES		40	30807	DECIDUOUS	11,13,14	YES	
6	30417	DECIDUOUS	17	YES		41	13032	DECIDUOUS	31	RETAIN	
7	30418	DECIDUOUS	17	YES		42	13045	DECIDUOUS	17	RETAIN	
8	30419	DECIDUOUS	17	YES		43	13048	DECIDUOUS	11	NO	
9	30420	DECIDUOUS	16	YES		44	13056	EVERGREEN	29	YES	
10	30421	DECIDUOUS	18	YES		45	13047	DECIDUOUS	10,11,12	YES	
11	30422	EVERGREEN	36	YES		46	13059	EVERGREEN	39	RETAIN	
12	30414	EVERGREEN	23	YES		47	13068	EVERGREEN	39	RETAIN	
13	30413	EVERGREEN	11	NO		48	13069	DECIDUOUS	18,18	RETAIN	
14	30412	EVERGREEN	21	YES		49	30736	DECIDUOUS	14,15	RETAIN	
15	30411	EVERGREEN	11	NO		50	30737	DECIDUOUS	12,17	RETAIN	
16	30423	DECIDUOUS	28	YES		51	30773	DECIDUOUS	6	RETAIN	
17	30410	EVERGREEN	29	RETAIN		52	30769	DECIDUOUS	24	RETAIN	
18	30409	EVERGREEN	30	RETAIN		53	30748	DECIDUOUS	10	NO	
19	30788	DECIDUOUS	19,20	YES		54	30747	DECIDUOUS	6	NO	YES
20	30789	DECIDUOUS	15	YES		55	30746	DECIDUOUS	14	YES	YES
21	30790	DECIDUOUS	11	NO		56	30772	DECIDUOUS	20	RETAIN	
22	30738	DECIDUOUS	39	YES		57	30771	DECIDUOUS	14	RETAIN	
23	30740	EVERGREEN	19	YES		58	30768	DECIDUOUS	8,10,13	RETAIN	
24	30739	EVERGREEN	11,12	YES		59	30745	DECIDUOUS	7,8	NO	
25	30741	DECIDUOUS	11	NO		60	30744	DECIDUOUS	10,8	NO	YES
26	30424	DECIDUOUS	11	NO		61	30792	DECIDUOUS	13,15	RETAIN	
27	30425	DECIDUOUS	10	NO		62	30793	DECIDUOUS	18	RETAIN	
28	30426	DECIDUOUS	6	NO		63	30794	DECIDUOUS	7	RETAIN	
29	30427	DECIDUOUS	8	NO		64	30795	DECIDUOUS	6,7,8	RETAIN	
30	30428	DECIDUOUS	32	YES		65	30791	DECIDUOUS	16	YES	
31	30429	DECIDUOUS	26	YES		66	30827	EVERGREEN	53	YES	
32	13027	DECIDUOUS	27	YES		67	30856	DECIDUOUS	7	NO	YES
33	30430	DECIDUOUS	20	YES		68	30862	DECIDUOUS	13,13,6	YES	YES
34	30432	DECIDUOUS	13	YES							
35	30433	DECIDUOUS	10	NO							

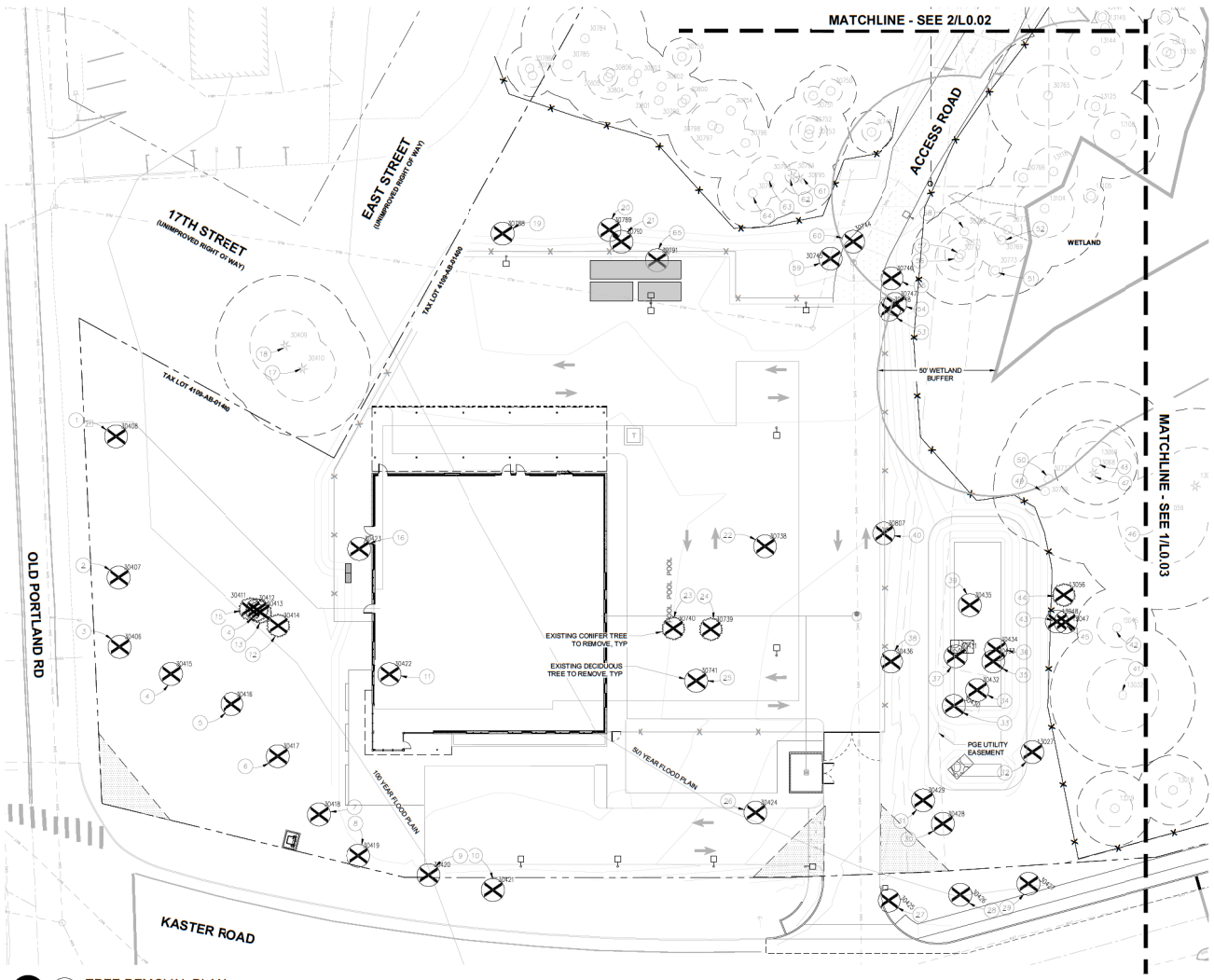
TREE PROTECTION NOTES

1. PROTECTION FENCING: ESTABLISH TREE PROTECTION FENCING IN THE LOCATIONS SHOWN. THE INTENT OF THE TREE PROTECTION FENCING IS TO PROTECT THE MINIMUM ROOT PROTECTION ZONES DETAILED IN FIGURE 1.
2. DIRECTIONAL FELLING - FELL THE TREES TO BE REMOVED AWAY FROM THE TREES TO BE RETAINED SO THEY DO NOT CONTACT OR OTHERWISE DAMAGE THETRUNKS OR BRANCHES OF THE RETAINED TREES. NO VEHICLES OR HEAVY EQUIPMENT SHOULD BE PERMITTEDWITHIN THE TREE PROTECTION ZONES DURING TREE REMOVAL OPERATIONS
3. STUMP REMOVAL - THE STUMPS OF THE TREES TO BE REMOVED FROM WITHIN THE TREE PROTECTION ZONES SHALL BE RETAINED OR CAREFULLY STUMP GROUND SO AS NOT TO DISTURB THE ROOT SYSTEMS OF THE RETAINED TREES.
4. PROTECT CROWNS OF TREES. THE CROWNS OF THE TREES MAY EXTEND BEYOND THE TREE PROTECTION FENCING. CARE WILL NEED TO BE TAKEN TO NOT CONTACT OR OTHERWISE DAMAGE THE CROWNS OF THE TREES DURING CONSTRUCTION ACTIVITIES. ANY REQUIRED PRUNING SHALL BE COMPLETED BY AN ISA CERTIFIED ARBORIST CONSISTENT WITH ANSI A300 PRUNING STANDARDS AS DIRECTED BYTHE PROJECT ARBORIST.
5. SEDIMENT FENCING: SEDIMENT FENCING SHALL BE INSTALLED OUTSIDE THE PROTECTION ZONES OF THE TREES TO BE RETAINED TO MINIMIZE ROOTDISTURBANCES. IF EROSION CONTROL IS REQUIRED INSIDE THE ROOT ZONES, STRAW WATTLES SHALL BE USED ONTHE SOIL SURFACE.



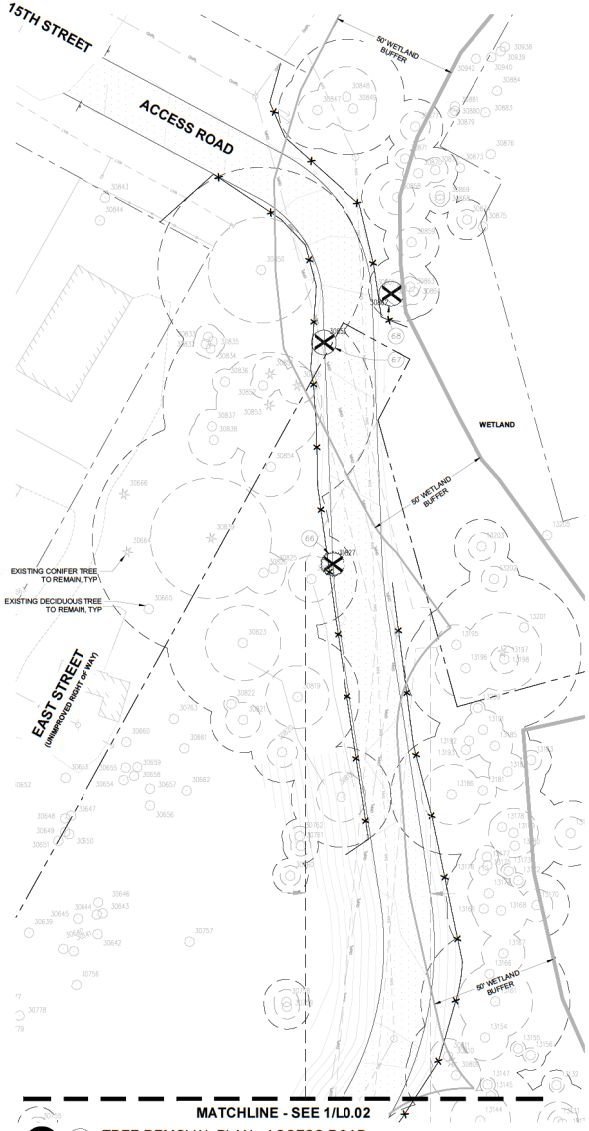
3 ROOT PROTECTION ZONE

SCALE: NTS



1 TREE REMOVAL PLAN

20 0 10 20 40 80 (IN FEET) 1 inch = 20 ft.



2 TREE REMOVAL PLAN - ACCESS ROAD

20 0 10 20 40 80 (IN FEET) 1 inch = 20 ft.

FIGURE 7A. TREE REMOVAL PLAN

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REVISION SCHEDULE

Delta	Issued As	Issue Date

SHEET TITLE:
TREE REMOVAL PLAN

SHEET
L0.02

JOB NO. 2210310.04

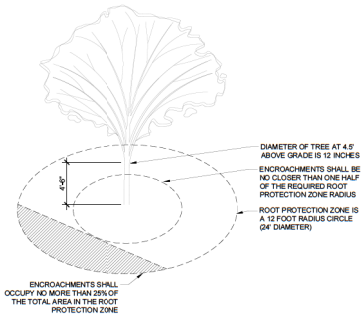
LAND USE SUBMITTAL SET 6/16/2023

TREE REMOVAL INVENTORY

NO	SURVEY	TYPE	DBH	MITIGATION	BUFFER	NO	SURVEY	TYPE	DBH	MITIGATION	BUFFER
1	30408	DECIDUOUS	8	NO		35	30434	DECIDUOUS	11	NO	
2	30407	DECIDUOUS	13	YES		37	30431	DECIDUOUS	18	YES	
3	30406	DECIDUOUS	14	YES		38	30436	DECIDUOUS	12,15	YES	
4	30415	DECIDUOUS	17	YES		39	30435	DECIDUOUS	43	YES	
5	30416	DECIDUOUS	14	YES		40	30807	DECIDUOUS	11,13,14	YES	
6	30417	DECIDUOUS	17	YES		41	13032	DECIDUOUS	31	RETAIN	
7	30418	DECIDUOUS	17	YES		42	13045	DECIDUOUS	17	RETAIN	
8	30419	DECIDUOUS	17	YES		43	13048	DECIDUOUS	11	RETAIN	
9	30420	DECIDUOUS	16	YES		44	13056	EVERGREEN	29	YES	
10	30421	DECIDUOUS	18	YES		45	13047	DECIDUOUS	10,11,12	RETAIN	
11	30422	EVERGREEN	36	YES		46	13059	EVERGREEN	39	RETAIN	
12	30414	EVERGREEN	23	YES		47	13068	EVERGREEN	39	RETAIN	
13	30413	EVERGREEN	11	NO		48	13069	DECIDUOUS	18,18	RETAIN	
14	30412	EVERGREEN	21	YES		49	30736	DECIDUOUS	14,15	RETAIN	
15	30411	EVERGREEN	11	NO		50	30737	DECIDUOUS	12,17	RETAIN	
16	30423	DECIDUOUS	28	YES		51	30773	DECIDUOUS	6	RETAIN	
17	30410	EVERGREEN	29	RETAIN		52	30769	DECIDUOUS	24	RETAIN	
18	30409	EVERGREEN	30	RETAIN		53	30748	DECIDUOUS	10	NO	
19	30788	DECIDUOUS	19,20	YES		54	30747	DECIDUOUS	6	NO	YES
20	30789	DECIDUOUS	15	YES		55	30746	DECIDUOUS	14	YES	YES
21	30790	DECIDUOUS	11	NO		56	30772	DECIDUOUS	20	RETAIN	
22	30738	DECIDUOUS	39	YES		57	30771	DECIDUOUS	14	RETAIN	
23	30740	EVERGREEN	19	YES		58	30768	DECIDUOUS	8,10,13	RETAIN	
24	30739	EVERGREEN	11,12	YES		59	30745	DECIDUOUS	7,8	NO	
25	30741	DECIDUOUS	11	NO		60	30744	DECIDUOUS	10,8	NO	YES
26	30424	DECIDUOUS	11	NO		61	30792	DECIDUOUS	13,15	RETAIN	
27	30425	DECIDUOUS	10	NO		62	30793	DECIDUOUS	18	RETAIN	
28	30426	DECIDUOUS	6	NO		63	30794	DECIDUOUS	7	RETAIN	
29	30427	DECIDUOUS	8	NO		64	30795	DECIDUOUS	6,7,8	RETAIN	
30	30428	DECIDUOUS	32	YES		65	30791	DECIDUOUS	16	YES	
31	30429	DECIDUOUS	26	YES		66	30827	EVERGREEN	53	YES	
32	13027	DECIDUOUS	27	YES		67	30896	DECIDUOUS	7	NO	YES
33	30430	DECIDUOUS	20	YES		68	30862	DECIDUOUS	13,13,6	YES	YES
34	30432	DECIDUOUS	13	YES							
35	30433	DECIDUOUS	10	NO							

TREE PROTECTION NOTES

1. PROTECTION FENCING: ESTABLISH TREE PROTECTION FENCING IN THE LOCATIONS SHOWN. THE INTENT OF THE TREE PROTECTION FENCING IS TO PROTECT THE MINIMUM ROOT PROTECTION ZONES DETAILED IN FIGURE 1.
2. DIRECTIONAL FELLING - FELL THE TREES TO BE REMOVED AWAY FROM THE TREES TO BE RETAINED SO THEY DO NOT CONTACT OR OTHERWISE DAMAGE THETRUNKS OR BRANCHES OF THE RETAINED TREES. NO VEHICLES OR HEAVY EQUIPMENT SHOULD BE PERMITTEDWITHIN THE TREE PROTECTION ZONES DURING TREE REMOVAL OPERATIONS
3. STUMP REMOVAL - THE STUMPS OF THE TREES TO BE REMOVED FROM WITHIN THE TREE PROTECTION ZONES SHALL BE RETAINED OR CAREFULLY STUMP GROUND SO AS NOT TO DISTURB THE ROOT SYSTEMS OF THE RETAINED TREES.
4. PROTECT CROWNS OF TREES. THE CROWNS OF THE TREES MAY EXTEND BEYOND THE TREE PROTECTION FENCING. CARE WILL NEED TO BE TAKEN TO NOT CONTACT OR OTHERWISE DAMAGE THE CROWNS OF THE TREES DURING CONSTRUCTION ACTIVITIES. ANY REQUIRED PRUNING SHALL BE COMPLETED BY AN ISA CERTIFIED ARBORIST CONSISTENT WITH ANSI A300 PRUNING STANDARDS AS DIRECTED BYTHE PROJECT ARBORIST.
5. SEDIMENT FENCING: SEDIMENT FENCING SHALL BE INSTALLED OUTSIDE THE PROTECTION ZONES OF THE TREES TO BE RETAINED TO MINIMIZE ROOTDISTURBANCES. IF EROSION CONTROL IS REQUIRED INSIDE THE ROOT ZONES, STRAW WATTLES SHALL BE USED ONTHE SOIL SURFACE.



3 ROOT PROTECTION ZONE

SCALE: NTS

1 TREE REMOVAL PLAN

20 0 10 20 40 80

(IN FEET)

1 inch = 20 ft.

FIGURE 7B. TREE REMOVAL PLAN

Architecture ▪ Interiors
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Client

CITY OF ST. HELENS
265 STRAND STREET
ST. HELENS, OR 97051

Project

ST. HELENS
PUBLIC SAFETY
BUILDING
OLD PORTLAND RD
AND KASTER RD
ST. HELENS, OR 97051

Mechanical/Electrical
PAE ENGINEERS
181 SW 1ST AVENUE
PORTLAND, OR 97204

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REVISION SCHEDULE

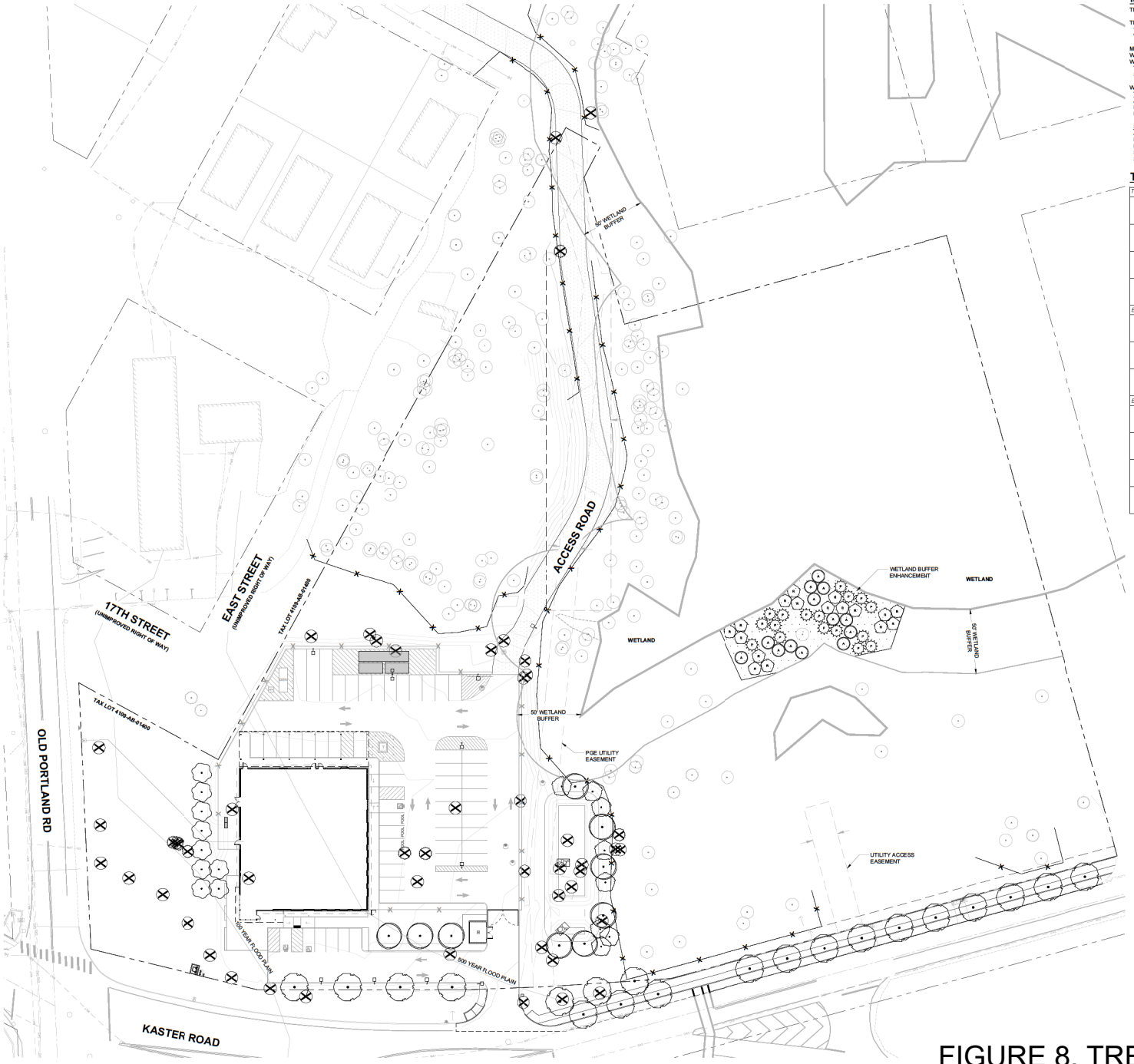
Delta	Issued As	Issue Date

SHEET TITLE:
TREE REMOVAL PLAN

SHEET
L0.03

JOB NO. 2210310.04

LAND USE SUBMITTAL SET 6/16/2023



1 TREE MITIGATION PLAN

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

MITIGATION DATA

TREES 12" DBH OR GREATER ON-SITE	234 TREES
TREES TO BE REMOVED	
12" DBH OR GREATER	33 TREES (14.1%)
WITHIN WETLAND BUFFER	5 TREES
MITIGATION TREES PROVIDED ON SITE	33 TREES
WETLAND BUFFER IMPACT AREA	6,961 SF
WETLAND BUFFER ENHANCEMENT AREA (1:1 RATIO)	6,961 SF
TREES (1 PER 150 FT)	47 TREES
SHRUBS (1 PER 25 SF)	279 SHRUBS

WETLAND BUFFER ENHANCEMENT PLANTING

TREES (1" CAL)	QTY
ACER MACROPHYLLUM / BIG LEAF MAPLE	13
PSEUDOTSUGA MENZIESII / DOUGLAS FIR	17
RHAMNUS PURSHIANA / CASCARA	17

SHRUBS (1 GAL)	QTY
ACER CIRCINATUM / VINE MAPLE	21
PHYSOCARPUS CAPITATUS / PACIFIC NINEBARK	41
ROSA NUTKANA / NOOTKA ROSE	91
SAMBUCUS RACEMOSA / RED ELDERBERRY	35
SYMPHORICARPOS ALBUS / SNOWBERRY	91

TREE SCHEDULE

TREES	BOTANICAL / COMMON NAME	SIZE	QTY
	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE' AUTUMN BRILLIANCE APPLE SERVICEBERRY	2" CAL., B&B	9
	CORNUS KOUSA X NUTTALLII 'KN4-43' STARLIGHT KOUSA DOGWOOD	2" CAL. B&B	9
	NYSSA SYLVATICA 'WILDFIRE' SOUR GUM	2" CAL., B&B	20
	RHAMNUS PURSHIANA CASCARA	2" CAL. B&B	8
BUFFER ENHANCEMENT	BOTANICAL / COMMON NAME	SIZE	QTY
A	ACER MACROPHYLLUM BIG LEAF MAPLE	1" CAL. B&B	13
P	PSEUDOTSUGA MENZIESII DOUGLAS FIR	4' HT.	17
R	RHAMNUS PURSHIANA CASCARA MATURE (25' H X 20' W)	1" CAL. B&B	17
EXISTING	BOTANICAL / COMMON NAME	SIZE	QTY
	EXISTING DECIDUOUS TREE TO REMOVE	N/A	42
	EXISTING DECIDUOUS TREE TO REMAIN	N/A	197
	EXISTING EVERGREEN TREE TO REMOVE	N/A	8
	EXISTING EVERGREEN TREE TO REMAIN	N/A	18

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TREE MITIGATION PLAN

SHEET
L0.04

JOB NO. 2210310.04

FIGURE 8. TREE MITIGATION PLAN

St. Helens Public Safety Building

Attachment A: Wetland & Waters Delineation Report

ST. HELENS PUBLIC SAFETY BUILDING
WETLAND & WATERS DELINEATION REPORT

T4N, R1W, Sec. 4; tax lot 10800 (partial)
T4N, R1W, Sec. 9; tax lots 1400 & 1500 (partial)
7th Street & East Street right-of-way
St. Helens, Columbia County, Oregon

Prepared for

City of St. Helens
265 Strand Street
St. Helens, OR 97051

Prepared by

Wetland Solutions Northwest, LLC
59446 Lytle Dr.
St. Helens, OR 97051

December 2021

Project No. 21102

CONTENTS

Appendices

Tables

Introduction

Wetland Solutions Northwest, LLC (WSNW) conducted a wetland and waters delineation on behalf of the City of St. Helens for site planning and permitting purposes for their proposed public safety building project. The study area consists of several undeveloped tax lots and portions of undeveloped road right-of-ways. The study area is located south of Old Portland Road and east of Kaster Road in St. Helens, Oregon (Figure 1; Appendix A). The study area consists of tax lot 1400 and a portion of tax lot 1500 in T4N, R1W, Sec. 9, a portion of tax lot 10800 in T4N, R1W, Sec. 4, a portion of the undeveloped 7th Street right-of-way and a portion of the undeveloped East Street right-of-way.

A. Landscape Setting and Land Use

The study area is located in a mixed residential and commercial area of St. Helens. The study area is undeveloped. Topography of much of the study area generally slopes down to the south and east. Elevation is 65 feet above sea level in the western portion of the study area adjacent to Old Portland Road and it slopes down to 48 feet above sea level at the wetland boundary in the eastern portion of the study area. A higher elevation convex basalt landform is present in the central portion of the study area which rises to an elevation of 71 feet above sea level.

B. Site Alterations

The only recent site alteration noted is a large soil stockpile located in the western portion of the study area adjacent to Kaster Road. Historic site alterations include construction of a powerline in the 7th Street right-of-way and a rock slope/berm in the East Street right-of-way along the south edge of the residential area on 15th Street.

C. Precipitation Data and Analysis

Recent precipitation data were obtained for the Scappoose area via the NOAA Regional Climate Data Centers for the Scappoose Industrial Airpark, which is the closest weather station to the study area with a sufficiently long record for precipitation analysis. The WETS table provides a month by month summary and probability analysis of temperature and precipitation. According to the WETS table, monthly observed precipitation was below normal for July and August, and it was above normal for September. The WETS table and raw precipitation data are summarized in the tables below and included in Appendix D.

Table 1. Precipitation Data for the Scappoose Industrial Airpark Station (inches)

Field Date	Rainfall on Field Date	Rainfall Two Weeks Prior to Field Date	Rainfall for the Water Year-to- Date (WYTD)
October 21, 2021	0.84	1.01	1.46
October 29, 2021	0.26	3.38	4.51

Table 2. Average Precipitation Data (WETS) for the Scappoose Industrial Airpark Station (inches)

Prior Three Months	Average	30% Chance Will Have Less Than	More Than	Observed Precipitation	Within Normal Range?
September	1.56	0.60	1.86	3.25	No, above normal
August	0.52	0.19	0.57	0.02	No, below normal
July	0.48	0.13	0.37	0.01	No, below normal

D. Methods

The methodology used for determining the presence of wetlands and delineating wetland boundaries followed the *Corps of Engineers Wetlands 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)*. The National Wetland Plant List was used to assign wetland indicator status for the appropriate region.

Field work was conducted on October 21 and 29, 2021 by Stacy Benjamin. Soils, vegetation, and indicators of hydrology were recorded at 5 sample plot locations on standardized wetland determination data forms (Appendix B) to document site conditions. Prior to conducting the field work, available background maps were reviewed for the potential presence of wetlands or waters on or near the site.

The study area consists of one soil unit according to the Natural Resources Conservation Service web soil survey map for Columbia County (Figure 3).

- 45 – Rock Outcrop – Xerumbrepts

The City of St. Helens Local Wetlands Inventory (LWI) maps one wetland immediately south of the study area boundary (Figure 4). This wetland is known as MI-15 in the LWI and has a 50-foot wetland buffer for site development.

A current aerial photograph is included as Figure 5. Representative ground level site photographs are included in Appendix C. References are listed in Appendix F.

E. Description of All Wetlands and Other Non-Wetland Waters

Wetlands

A small area of a much larger off-site wetland was delineated in the eastern portion of the study area. The northern boundary of a mixed emergent/scrub-shrub/forested wetland was delineated on tax lot 10800 and in the undeveloped East Street right-of-way. The wetland extends off-site to the south. The off-site portion of the wetland (known as wetland MI-15 in the LWI) was delineated by this investigator in 2019 and concurred by DSL under WD#2019-0324 and Corps jurisdictional determination NWP-2019-286. The northern portion of the wetland delineated in this study receives stormwater runoff from upslope development and is in the Slope/Flats hydrogeomorphic class.

Wetland vegetation is dominated by lady's-thumb (*Persicaria maculosa*), reed canarygrass (*Phalaris arundinacea*), and slough sedge (*Carex obnupta*) in the understory with Douglas spirea (*Spiraea douglasii*) and willow (*Salix* species) shrubs and an overstory consisting of willow and Oregon ash (*Fraxinus latifolia*) trees. Wetland soils at plot 3 were an organic peat-like material meeting the histosol (A1) hydric soil indicator. Wetland soils were saturated at 24 inches below the ground surface during the October 21, 2021 site visit. Hydrology was rechecked on October 29th after more than 2 inches of rain had fallen since the previous site visit, and wetland hydrology had increased significantly with soils saturated to the surface throughout the wetland with many areas of up to 4-inch deep ponding.

The northern wetland boundary was delineated based on an abrupt change in topography/ fill slope that coincided with a change in the vegetation community and absence of wetland hydrology in the adjacent upland. The adjacent upland consists of a 6- to 8-foot high rock slope/berm that was likely constructed at the time the residences were developed along 15th Street to the north. Adjacent uplands to the east and west were dominated by a non-hydric vegetation community consisting of big-leaf maple (*Acer circinatum*), Himalayan blackberry (*Rubus armeniacus*), English holly (*Ilex aquifolium*), beaked hazelnut (*Corylus cornuta*) and sword fern (*Polystichum munitum*) and displayed non-hydric soils and no indicators of wetland hydrology.

Unnamed Drainage

The ordinary high water (OHW) line of two short sections of an unnamed drainage were delineated in the western portion of the study area. The drainage is unvegetated and flows through a basalt bedrock landform and receives hydrology from a stormwater pipe from upslope development. The two sections of drainage are bisected by a powerline easement which contains a rock access road. The drainage was flowing at least a foot deep on the October 29th site visit, after being dry on the October 21st site visit. The drainage flows off-site to the south where it connects to a wetland delineated previously by this investigator in 2019 (DSL WD#2019-0324). The OHW line was delineated based on the vegetation line, where Himalayan blackberry was present above the wetted width of the drainage.

Uplands

The western portion of the study area (tax lot 1400) is maintained as a park by the City and consists of mowed grasses with scattered upland trees including big-leaf maple, Douglas fir (*Pseudotsuga menziesii*), Oregon white oak (*Quercus garryana*), western larch (*Larix occidentalis*). The herbaceous community includes tall false rye grass (*Schedonorus arundinaceus*), bent grass (*Agrostis* species), orchard grass (*Dactylis glomerata*) and weedy upland forbs including hairy cat's-ear (*Hypochaeris radicata*), dovefoot geranium (*Geranium molle*), and English plantain (*Plantago lanceolata*). The central portion of the study area consists of a higher elevation basalt rock outcrop. The vegetation community on the basalt outcrop is non-hydrophytic and is dominated by orchard grass, brome (*Bromus* species), dovefoot geranium, Scot's broom (*Cytisus scoparius*), and Oregon white oak with scattered dull Oregon grape (*Mahonia nervosa*) and creambush (*Holodiscus discolor*).

F. Deviation from Local Wetlands Inventory

The unnamed drainage delineated in the western portion of the study area is located immediately north of a wetland mapped in the LWI. The wetland delineated in the eastern portion of the study area was not mapped in the LWI.

G. Mapping Method

The wetland boundary, OHW line, and sample plot locations were flagged in the field and were professionally land surveyed by AKS Engineering & Forestry. The wetland map is included as Figures 6A (black and white) and 6B (aerial photograph base map).

H. Additional Information

The wetland and intermittent drainage delineated in this study are likely to be determined to be jurisdictional by the Oregon Department of State Lands and the U.S. Army Corps of Engineers based on their connection to the wetlands previously delineated immediately south of the study area (DSL WD#2019-0324; Corps #NWP-2019-286).

I. Results and Conclusions

A portion of a mixed emergent/forested wetland totaling 9,155 SF (0.21 acre) and 260 SF an unnamed intermittent drainage were delineated in the study area. Wetlands extend off-site to the south.

J. Required Disclaimer

This report documents the investigation, best professional judgment and conclusions of the investigators. It is correct and complete to the best of our knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been reviewed and approved in writing by the Oregon Department of State Lands in accordance with Oregon Administrative Rule (OAR) 141-090-0005 through 141-090-0055.

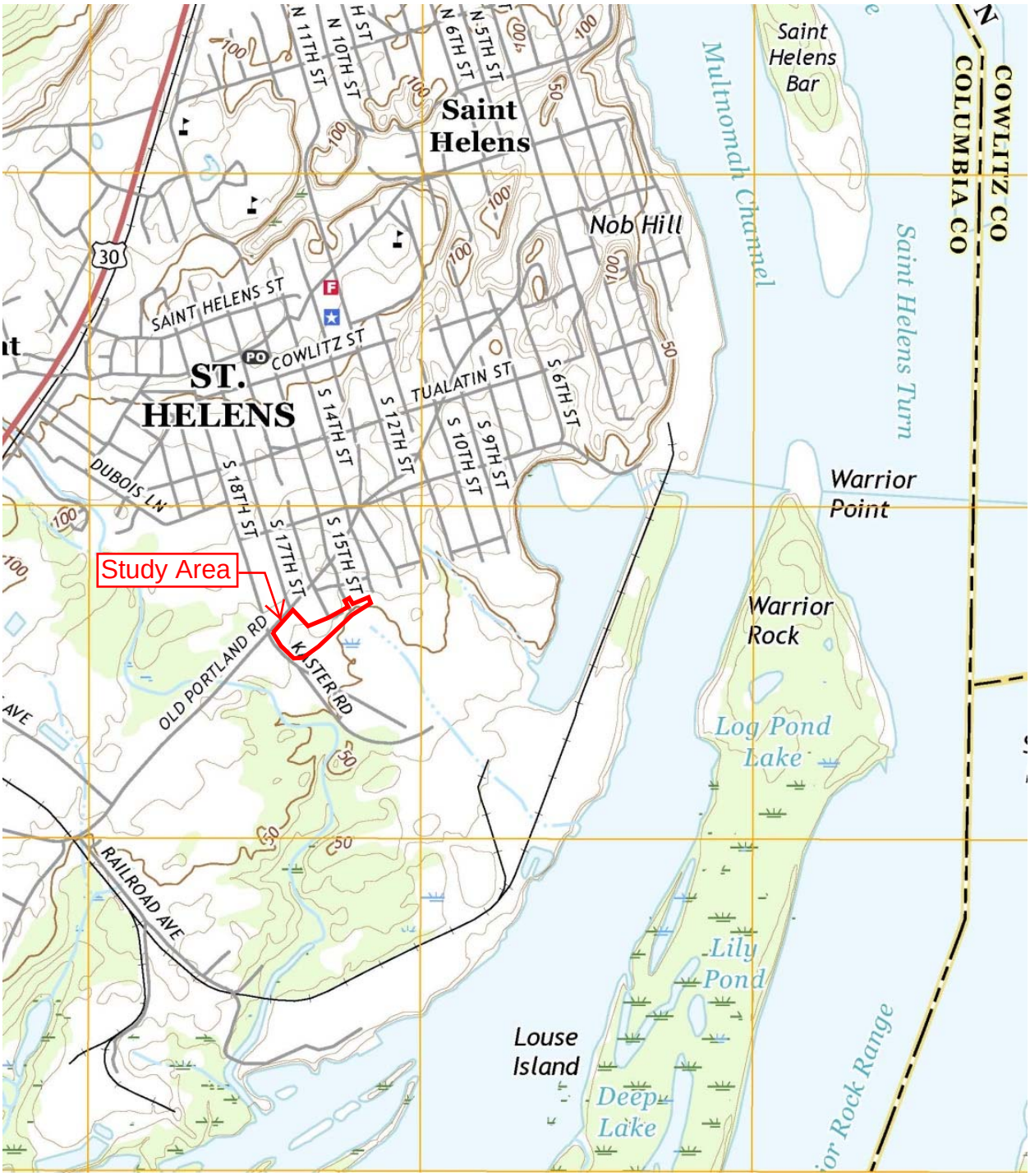
K. Preparer

Stacy Benjamin

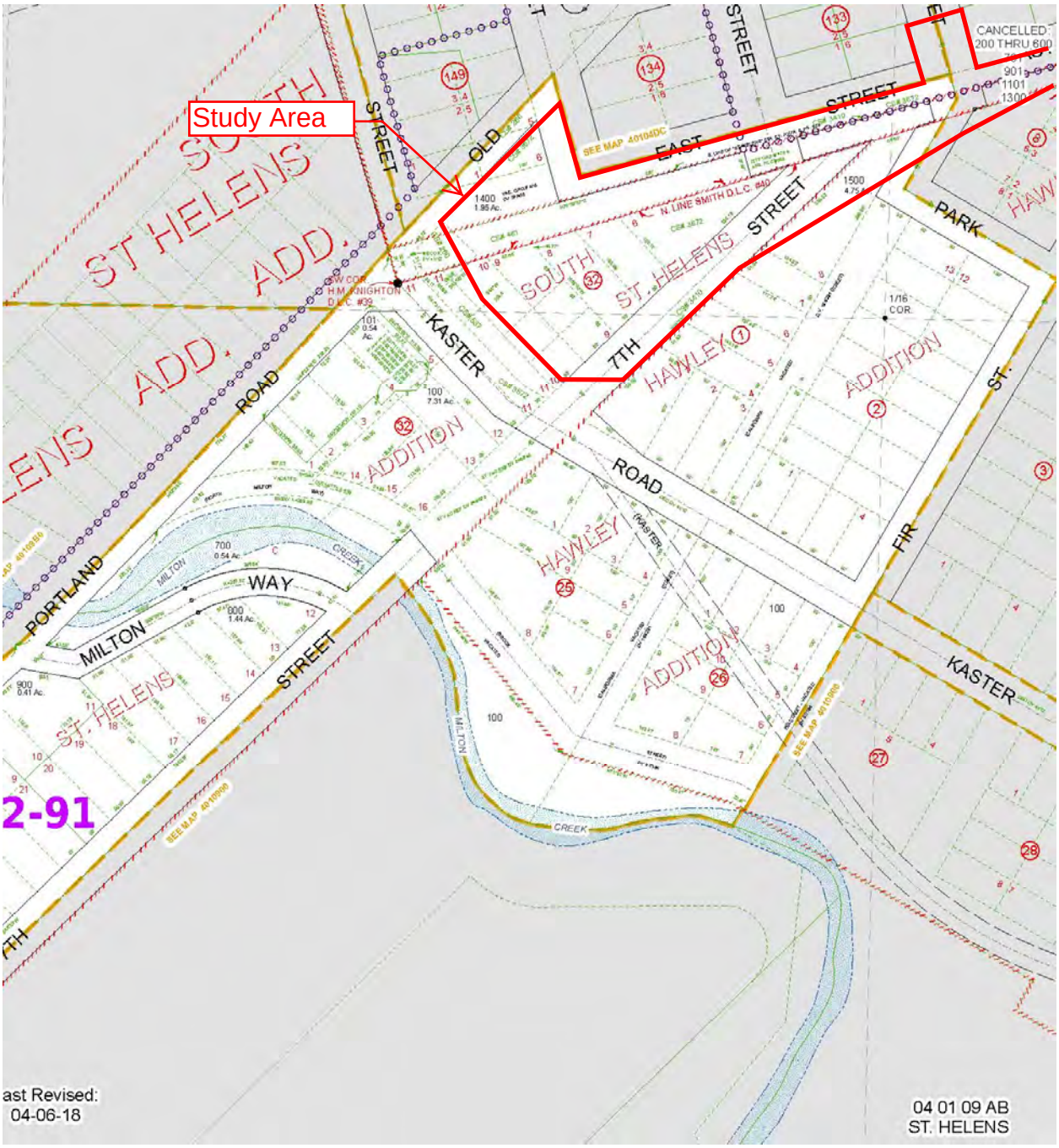
Stacy Benjamin
Principal Ecologist

APPENDIX A

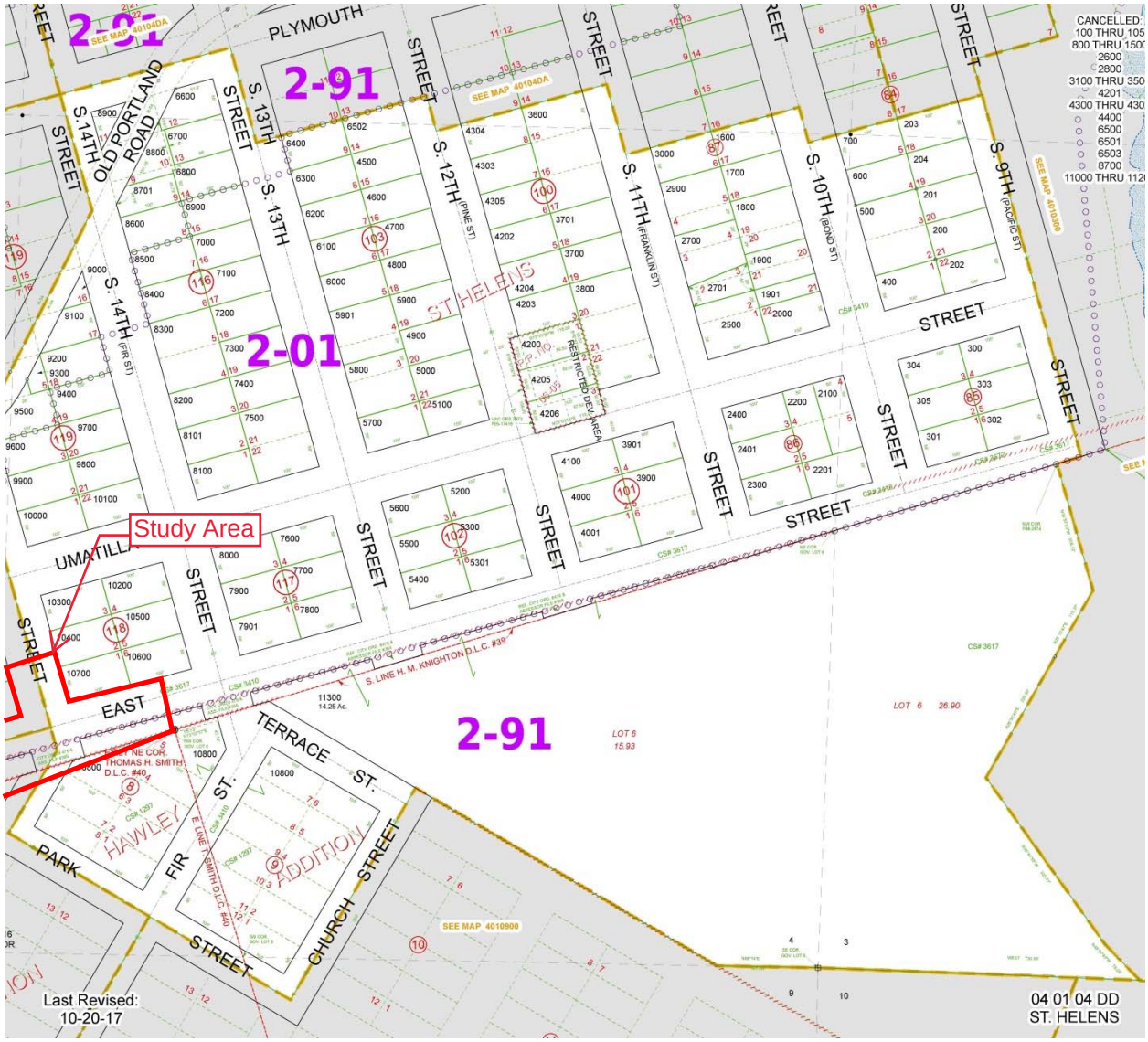
Maps



St. Helens Public Safety Building Wetland & Waters Delineation Figure 1. Site Location Map	⬆ Scale approx. 1 inch =1,500 ft	Wetland Solutions Northwest, LLC
Source: USGS. St. Helens, OR-WA 7.5' quadrangle. Available at: https://viewer.nationalmap.gov/basic. Accessed 10/2021.		May 2022



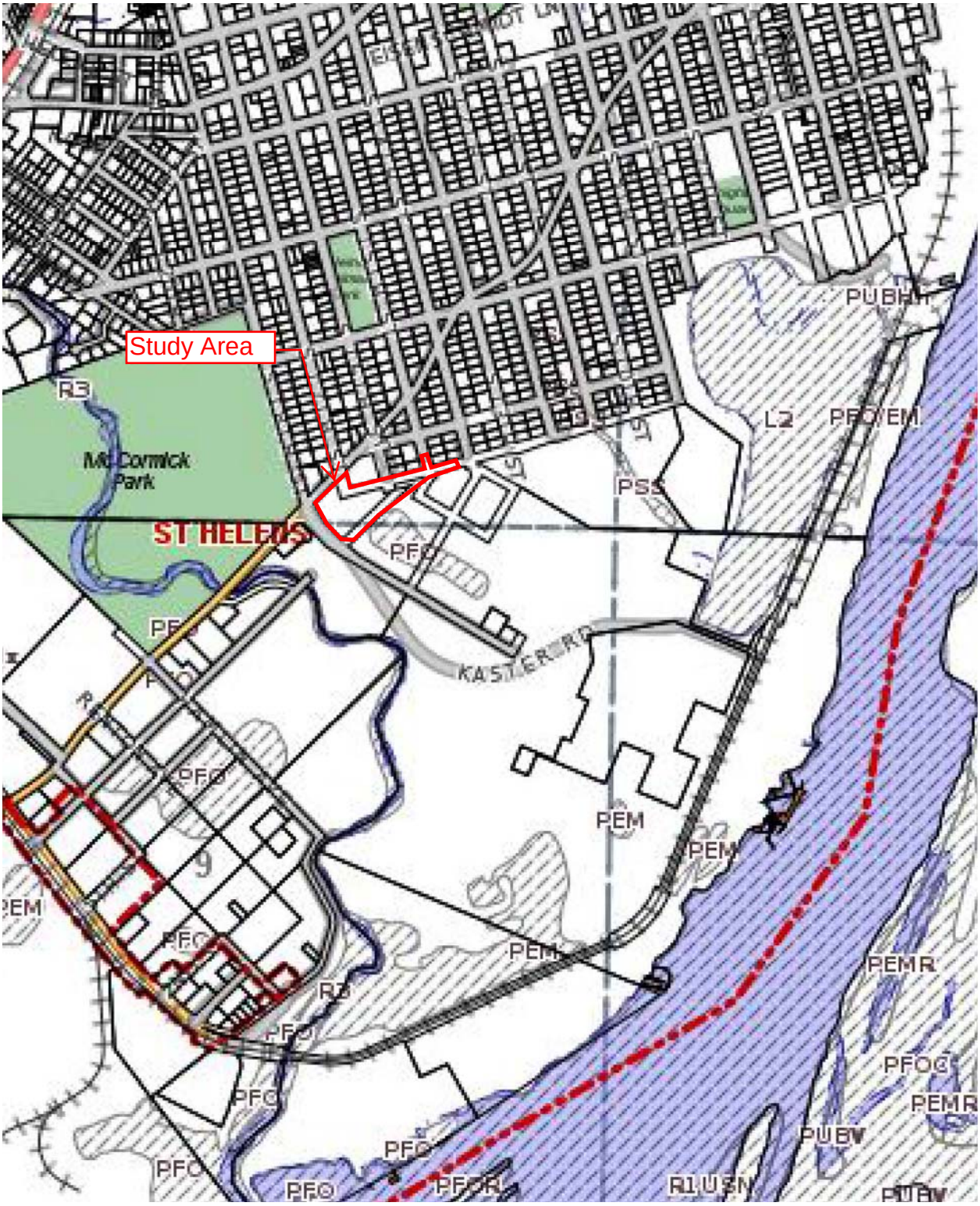
St. Helens Public Safety Building Wetland & Waters Delineation Figure 2A. Tax Lot Map	⬆ Scale approx. 1 inch = 225 ft	Wetland Solutions Northwest, LLC
Source: Tax lot map downloaded from: http://webmap.co.columbia.or.us/geomoose2/, T4N, R1W, Sec. 9. Accessed 10/2021.		May 2022



St. Helens Public Safety Building Wetland & Waters Delineation Figure 2B. Tax Lot Map	Scale approx. 1 inch = 300 ft	Wetland Solutions Northwest, LLC
Source: Tax lot map downloaded from: http://webmap.co.columbia.or.us/geomoose2/, T4N, R1W, Sec. 9. Accessed 10/2021.		May 2022

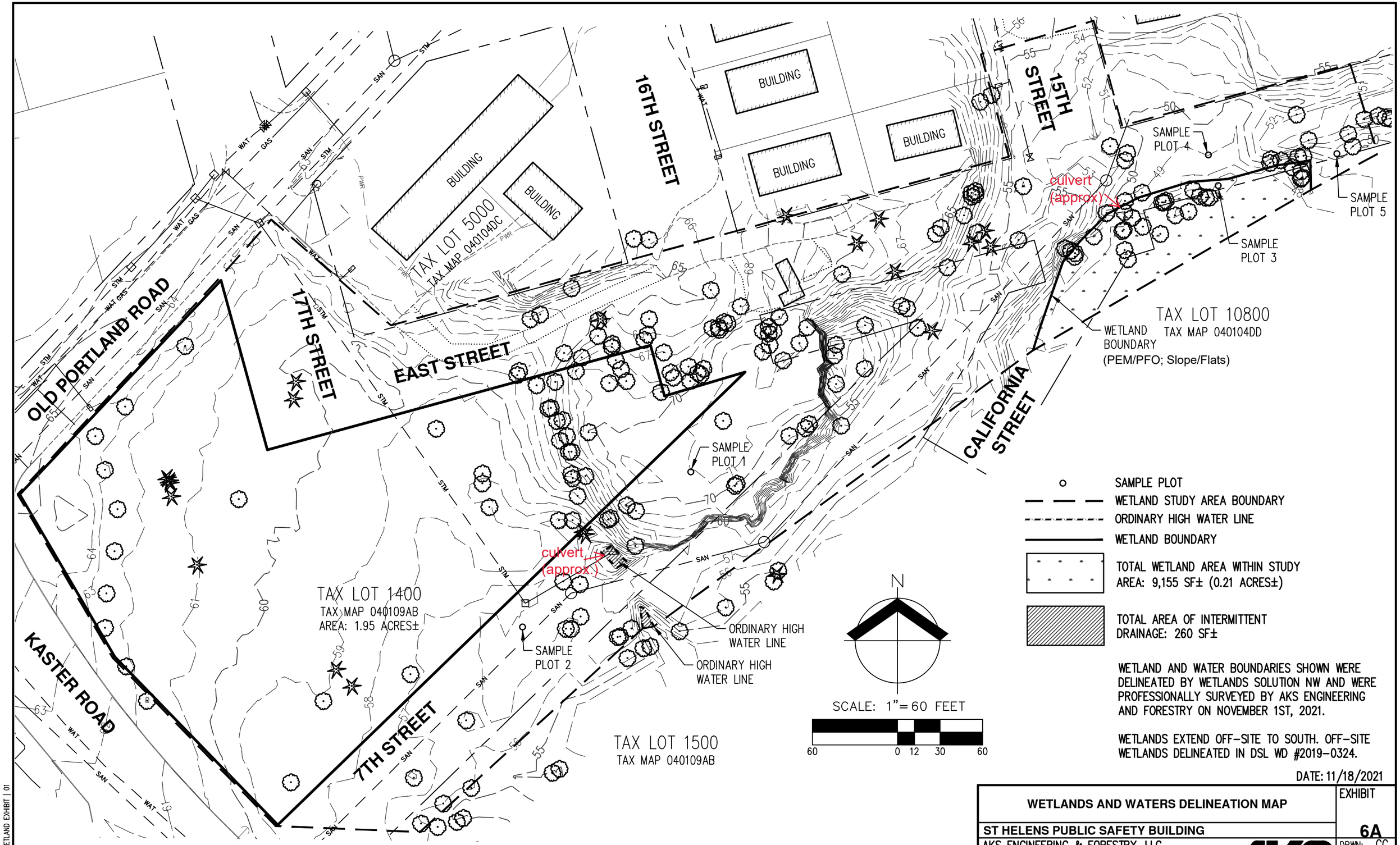
Map Unit	Map Unit Name
45	Rock Outcrop-Xerumbrepts complex, undulating
46	Sauvie silt loam

St. Helens Public Safety Building Wetland & Waters Delineation Figure 3. Soil Survey Map	Scale approx. 1 inch = 900 ft	Wetland Solutions Northwest, LLC
Source: USDA NRCS Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed 10/2021.		May 2022



St. Helens Public Safety Building Wetland & Waters Delineation Figure 4. Local Wetlands Inventory Map	⬆ Scale approx. 1 inch = 1,000 ft	Wetland Solutions Northwest, LLC
Source: downloaded from: http://webmap.co.columbia.or.us/geomoose2/,LWI source: Otak, Inc. 1999.		May 2022

St. Helens Public Safety Building Wetland & Waters Delineation Figure 5. Recent Aerial Photo	⬆ Scale approx. 1 inch = 300 ft	Wetland Solutions Northwest, LLC
Source: Google Earth. Imagery date 6/17/2021.		May 2022



WETLAND AND WATER BOUNDARIES SHOWN WERE DELINEATED BY WETLANDS SOLUTION NW AND WERE PROFESSIONALLY SURVEYED BY AKS ENGINEERING AND FORESTRY ON NOVEMBER 1ST, 2021.

WETLANDS EXTEND OFF-SITE TO SOUTH. OFF-SITE WETLANDS DELINEATED IN DSL WD #2019-0324.

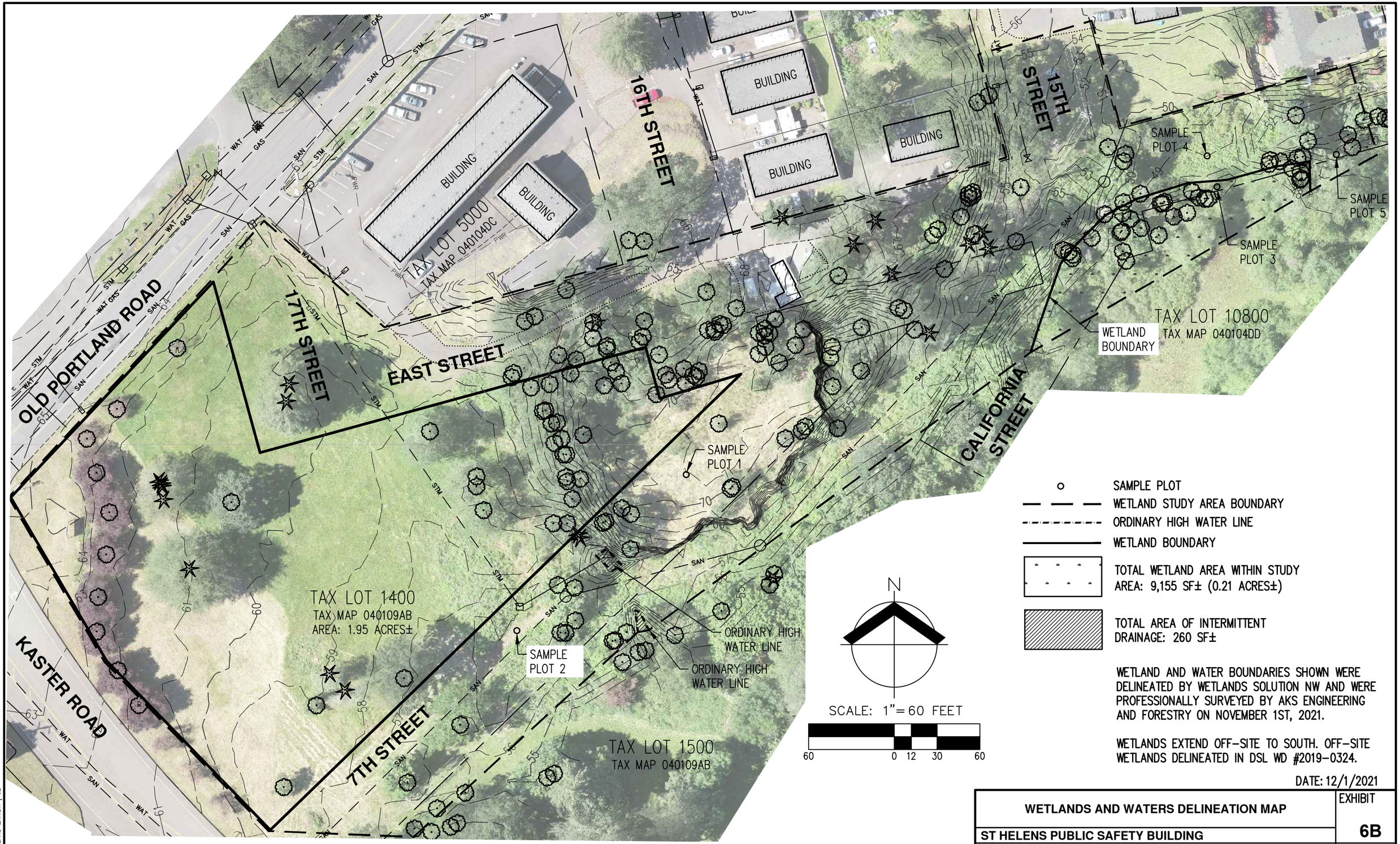
DATE: 11/18/2021

WETLANDS AND WATERS DELINEATION MAP	EXHIBIT
ST HELENS PUBLIC SAFETY BUILDING	6A

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

DRWN:	CC
CHKD:	BH
AKS JOB:	8041-02

DWG: 8041-02 WETLAND EXHIBIT | 01



N

SCALE: 1"= 60 FEET

60 0 12 30 60

- SAMPLE PLOT
- WETLAND STUDY AREA BOUNDARY
- ORDINARY HIGH WATER LINE
- WETLAND BOUNDARY
- TOTAL WETLAND AREA WITHIN STUDY AREA: 9,155 SF± (0.21 ACRES±)
- TOTAL AREA OF INTERMITTENT DRAINAGE: 260 SF±

WETLAND AND WATER BOUNDARIES SHOWN WERE DELINEATED BY WETLANDS SOLUTION NW AND WERE PROFESSIONALLY SURVEYED BY AKS ENGINEERING AND FORESTRY ON NOVEMBER 1ST, 2021.

WETLANDS EXTEND OFF-SITE TO SOUTH. OFF-SITE WETLANDS DELINEATED IN DSL WD #2019-0324.

DATE: 12/1/2021

WETLANDS AND WATERS DELINEATION MAP

ST HELENS PUBLIC SAFETY BUILDING

EXHIBIT **6B**

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

DRWN: CC
CHKD: BH
AKS JOB: 8041-02

DWG: 8041-02 WETLAND EXHIBIT | 02

APPENDIX B

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: St. Helens Public Safety Bldg. City/County: St. Helens / Columbia Sampling Date: 10/21/2021
Applicant/Owner: City of St. Helens State: OR Sampling Point: 1
Investigator(s): S. Benjamin Section, Township, Range: Sec. 9, T4N, R1W
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): <3
Subregion (LRR): A – NW Forests & Coast Lat: Long: Datum:
Soil Map Unit Name: 45 – Rock outcrop – Xerumbrepts complex 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 ___	No X	**Is the Sampled Area within a Wetland?**	**Yes ___ No X**
Hydric Soil Present?	Yes ___	No X		
Wetland Hydrology Present?	Yes ___	No X		

Remarks: Plot located on open grassy knoll on top of convex basalt landform.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus garryana	10	Y	FACU
2.			
3.			
4.			
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10')			
1. Cytisus scoparius	10	Y	UPL
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Holcus lanatus	30	Y	FAC
2. Agrostis species	30	Y	FAC
3. Bromus diandrus	10	N	UPL
4. Rumex acetosella	10	N	FACU
5. Schedonorus arundinaceus	10	N	FAC
6. Geranium molle	5	N	UPL
7. Plantago lanceolata	5	N	FACU
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	60	x 3 =	180
FACU species	25	x 4 =	100
UPL species	35	x 5 =	175
Column Totals:	120 (A)		455 (B)

Prevalence Index = B/A = 3.8

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 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[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-7	10YR 2/2	100					gravelly sicl	

[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.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: Bedrock (basalt outcrop)

Depth (inches): 7

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: Depth to basalt across landform varies from 2 to 7 inches below ground surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soils moist only.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: St. Helens Public Safety Bldg. City/County: St. Helens / Columbia Sampling Date: 10/21/2021
Applicant/Owner: City of St. Helens State: OR Sampling Point: 2
Investigator(s): S. Benjamin Section, Township, Range: Sec. 9, T4N, R1W
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): <3
Subregion (LRR): A – NW Forests & Coast Lat: Long: Datum:
Soil Map Unit Name: 45 – Rock outcrop – Xerumbrepts complex 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	___	No	X
Hydric Soil Present?	Yes	___	No	X
Wetland Hydrology Present?	Yes	___	No	X

Is the Sampled Area within a Wetland? Yes ___ No X

Remarks: Plot located in powerline corridor.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer macrophyllum	10	Y	FACU
2.			
3.			
4.			
	10	= Total Cover	

Sapling/Shrub Stratum (Plot size: 10')			
1. Rubus armeniacus	50	Y	FAC
2.			
3.			
4.			
5.			
	50	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Holcus lanatus	55	Y	FAC
2. Centaurea cyanus	20	Y	FACU
3. Bromus carinatus	10	N	UPL
4. Geranium molle	10	N	UPL
5. Taraxacum officinale	5	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	

Woody Vine Stratum (Plot size:)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	105	x 3 =	315
FACU species	35	x 4 =	140
UPL species	20	x 5 =	100
Column Totals:	160 (A)		555 (B)

Prevalence Index = B/A = 3.46

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 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[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:

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					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	100					gravelly 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.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: rock

Depth (inches): 6

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: Rock appears to be native basalt bedrock.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soils moist only.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: St. Helens Public Safety Bldg. City/County: St. Helens / Columbia Sampling Date: 10/21/2021
Applicant/Owner: City of St. Helens State: OR Sampling Point: 3
Investigator(s): S. Benjamin Section, Township, Range: Sec. 4, T4N, R1W
Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): Concave Slope (%): <3
Subregion (LRR): A – NW Forests & Coast Lat: Long: Datum:
Soil Map Unit Name: 45 – Rock outcrop – Xerumbrepts complex 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	X	No	
Hydric Soil Present?	Yes	X	No	**Is the Sampled Area within a Wetland?** **Yes X No**
Wetland Hydrology Present?	Yes	X	No	

Remarks: Plot is in north part of wetland 'R' delineated under DSL WD #2019-0324.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiandra	70	Y	FACW
2.			
3.			
4.			
	70	= Total Cover	

Sapling/Shrub Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	40	Y	FACW
2. Persicaria maculosa	30	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70	= Total Cover	

Woody Vine Stratum (Plot size:)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

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[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

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					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					organic/peat	
6-20	10YR 2/1	100					organic/peat	
20-30	10YR 4/1	90	10YR 4/6				sicl	

[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.)

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes		No	X	Depth (inches):	
Water Table Present?	Yes	X	No		Depth (inches):	Surface
Saturation Present? (includes capillary fringe)	Yes	X	No		Depth (inches):	Surface

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soils were saturated at 24 inches below the surface on 10/21/2021, and soils were saturated to the surface on 10/29/2021 with ponding up to 4 inches deep observed in the plot vicinity.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: St. Helens Public Safety Bldg. City/County: St. Helens / Columbia Sampling Date: 10/21/2021
Applicant/Owner: City of St. Helens State: OR Sampling Point: 4
Investigator(s): S. Benjamin Section, Township, Range: Sec. 4, T4N, R1W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 10
Subregion (LRR): A – NW Forests & Coast Lat: Long: Datum:
Soil Map Unit Name: 45 – Rock outcrop – Xerumbrepts complex 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	X	No	
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? Yes ___ No X

Remarks: Plot 4 located few feet north of plot 3 on rock berm/fill slope south of stub end of 15th Street.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1. Rubus armeniacus	100	Y	FAC
2.			
3.			
4.			
5.			
	100 = Total Cover		
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

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[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks:

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
Surface	N/A – fill slope						rock	

[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.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: Rock fill

Depth (inches): surface

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: Rock berm / fill slope separating adjacent residential development from wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: St. Helens Public Safety Bldg. City/County: St. Helens / Columbia Sampling Date: 10/21/2021
Applicant/Owner: City of St. Helens State: OR Sampling Point: 5
Investigator(s): S. Benjamin Section, Township, Range: Sec. 4, T4N, R1W
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): <3
Subregion (LRR): A – NW Forests & Coast Lat: Long: Datum:
Soil Map Unit Name: 45 – Rock outcrop – Xerumbrepts complex 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	___	No	X
Hydric Soil Present?	Yes	___	No	X
Wetland Hydrology Present?	Yes	___	No	X

Is the Sampled Area within a Wetland? Yes ___ No X

Remarks: East of wetland boundary and east of plot 3.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer macrophyllum	50	Y	FACU
2.			
3.			
4.			
	50	= Total Cover	

Sapling/Shrub Stratum (Plot size: 10')			
1. Rubus armeniacus	50	Y	FAC
2. Ilex aquifolium	20	Y	FACU
3. Oemleria cerasiformis	5	N	FACU
4. Acer circinatum	5	N	FAC
5. Physocarpus capitatus	5	N	FACW
	85	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Polystichum munitum	20	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20	= Total Cover	

Woody Vine Stratum (Plot size:)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 80

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	5	x 2 =	10
FAC species	55	x 3 =	165
FACU species	95	x 4 =	380
UPL species		x 5 =	
Column Totals:	155 (A)		555 (B)

Prevalence Index = B/A = 3.58

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 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[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	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.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): >20

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): >20

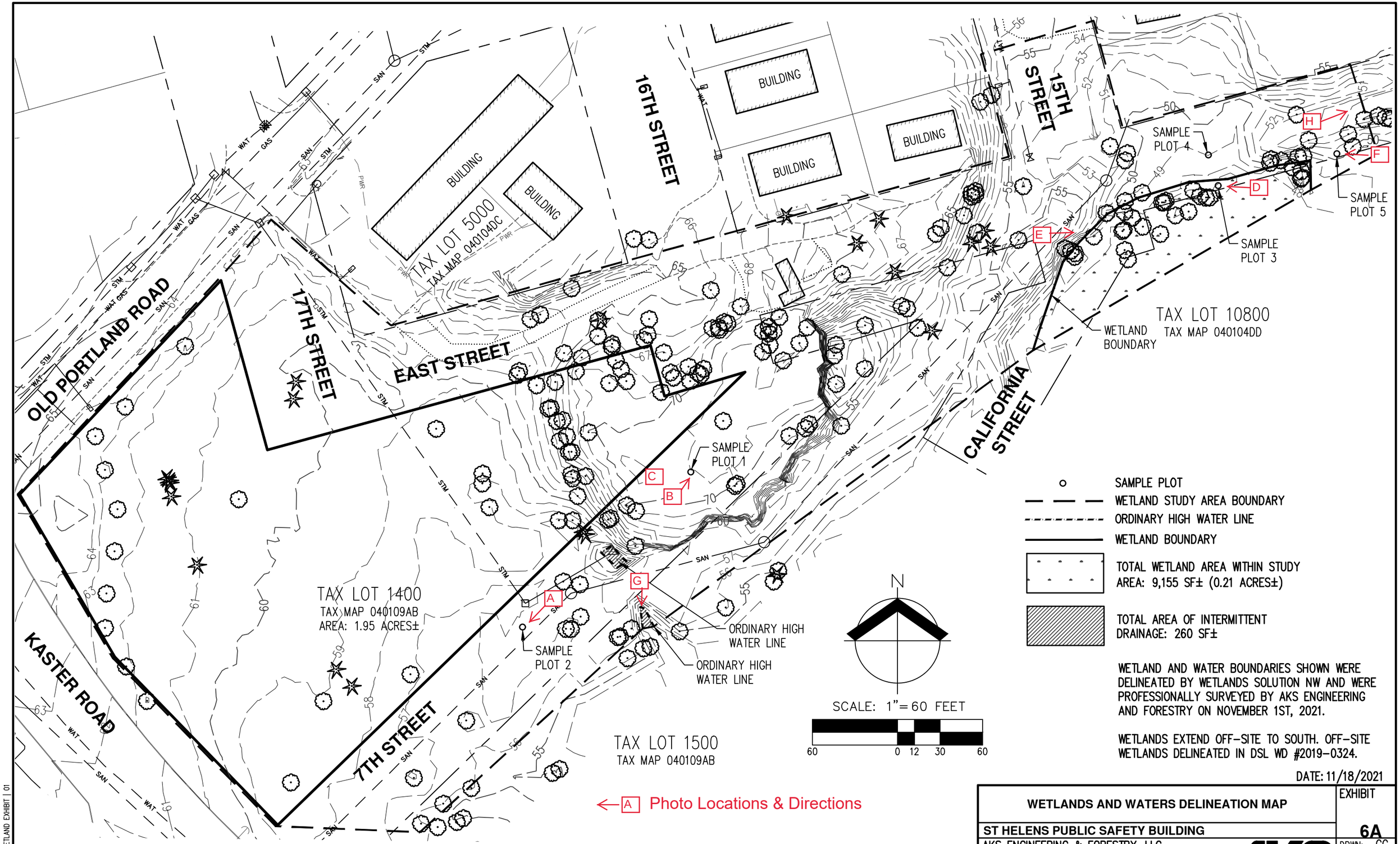
Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soils moist only.

APPENDIX C

Ground-level Site Photographs



N

SCALE: 1"= 60 FEET

60 0 12 30 60

SAMPLE PLOT

WETLAND STUDY AREA BOUNDARY

ORDINARY HIGH WATER LINE

WETLAND BOUNDARY

TOTAL WETLAND AREA WITHIN STUDY AREA: 9,155 SF± (0.21 ACRES±)

TOTAL AREA OF INTERMITTENT DRAINAGE: 260 SF±

WETLAND AND WATER BOUNDARIES SHOWN WERE DELINEATED BY WETLANDS SOLUTION NW AND WERE PROFESSIONALLY SURVEYED BY AKS ENGINEERING AND FORESTRY ON NOVEMBER 1ST, 2021.

WETLANDS EXTEND OFF-SITE TO SOUTH. OFF-SITE WETLANDS DELINEATED IN DSL WD #2019-0324.

← A Photo Locations & Directions

DATE: 11/18/2021

WETLANDS AND WATERS DELINEATION MAP

EXHIBIT 6A

ST HELENS PUBLIC SAFETY BUILDING

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

DRWN: CC
CHKD: BH
AKS JOB: 8041-02

DWG: 8041-02 WETLAND EXHIBIT | 01

Photo A. View southwest of upland plot 2 (yellow flag) in 7th Street right-of-way.

Photo B. View northeast of upland plot 1 (yellow flag) on top of basalt outcrop.

Photo C. Typical conditions of basalt outcrop in vicinity of upland plot 2.

Photo D. View west of wetland plot 3 (yellow flag); pink flagging is south edge of East Street right-of-way.

Photo E. View east of slough sedge wetland plant community and wetland boundary (pink flagging) with upland rock berm in upper left.

Photo F. View west of upland plot 5 (yellow flag).

Photo G. View south of intermittent drainage that connects to wetland 'R' (visible in background) delineated under DSL WD #2019-0324.

Photo H. View northeast showing rock berm in east portion of study area.

APPENDIX D

Precipitation

Climatological Data for SCAPPOOSE INDUSTRIAL AP, OR - October 2021

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2021-10-01	68	47	57.5	18	8	0.00	M	M
2021-10-02	73	43	58.0	18	8	0.00	M	M
2021-10-03	70	42	56.0	16	6	0.00	M	M
2021-10-04	70	53	61.5	22	12	0.00	M	M
2021-10-05	59	43	51.0	11	1	0.28	M	M
2021-10-06	64	42	53.0	13	3	0.17	M	M
2021-10-07	62	37	49.5	10	0	0.00	M	M
2021-10-08	60	38	49.0	9	0	0.00	M	M
2021-10-09	61	40	50.5	11	1	0.01	M	M
2021-10-10	62	39	50.5	11	1	0.05	M	M
2021-10-11	60	37	48.5	9	0	0.00	M	M
2021-10-12	53	33	43.0	3	0	0.22	M	M
2021-10-13	54	38	46.0	6	0	0.09	M	M
2021-10-14	57	49	53.0	13	3	0.05	M	M
2021-10-15	64	46	55.0	15	5	0.00	M	M
2021-10-16	66	45	55.5	16	6	0.00	M	M
2021-10-17	61	50	55.5	16	6	0.32	M	M
2021-10-18	58	41	49.5	10	0	0.00	M	M
2021-10-19	61	36	48.5	9	0	0.02	M	M
2021-10-20	61	50	55.5	16	6	0.25	M	M
2021-10-21	68	47	57.5	18	8	0.84	M	M
2021-10-22	61	51	56.0	16	6	0.04	M	M
2021-10-23	56	51	53.5	14	4	0.44	M	M
2021-10-24	58	51	54.5	15	5	0.51	M	M
2021-10-25	56	51	53.5	14	4	0.25	M	M
2021-10-26	59	51	55.0	15	5	0.11	M	M
2021-10-27	59	48	53.5	14	4	0.15	M	M
2021-10-28	70	52	61.0	21	11	0.45	M	M
2021-10-29	59	46	52.5	13	3	0.26	M	M
2021-10-30	63	38	50.5	11	1	0.00	M	M
2021-10-31	64	37	50.5	11	1	0.00	M	M
Average|Sum	**61.8**	**44.3**	**53.0**	**414**	**118**	**4.51**	**M**	**M**

Climatological Data for SCAPPOOSE INDUSTRIAL AP, OR - September 2021

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2021-09-01	80	64	72.0	32	22	0.00	M	M
2021-09-02	86	51	68.5	29	19	0.00	M	M
2021-09-03	86	50	68.0	28	18	0.00	M	M
2021-09-04	88	50	69.0	29	19	0.00	M	M
2021-09-05	87	57	72.0	32	22	0.00	M	M
2021-09-06	84	56	70.0	30	20	0.00	M	M
2021-09-07	89	53	71.0	31	21	0.00	M	M
2021-09-08	88	57	72.5	33	23	T	M	M
2021-09-09	85	56	70.5	31	21	0.00	M	M
2021-09-10	70	59	64.5	25	15	0.00	M	M
2021-09-11	81	47	64.0	24	14	0.00	M	M
2021-09-12	77	61	69.0	29	19	0.00	M	M
2021-09-13	76	46	61.0	21	11	0.00	M	M
2021-09-14	83	49	66.0	26	16	0.00	M	M
2021-09-15	73	53	63.0	23	13	T	M	M
2021-09-16	78	39	58.5	19	9	0.00	M	M
2021-09-17	76	51	63.5	24	14	0.09	M	M
2021-09-18	69	54	61.5	22	12	2.28	M	M
2021-09-19	70	51	60.5	21	11	0.22	M	M
2021-09-20	73	46	59.5	20	10	0.00	M	M
2021-09-21	86	46	66.0	26	16	0.00	M	M
2021-09-22	69	53	61.0	21	11	0.06	M	M
2021-09-23	75	53	64.0	24	14	0.00	M	M
2021-09-24	90	50	70.0	30	20	0.00	M	M
2021-09-25	83	50	66.5	27	17	0.00	M	M
2021-09-26	75	54	64.5	25	15	0.06	M	M
2021-09-27	65	50	57.5	18	8	0.28	M	M
2021-09-28	62	50	56.0	16	6	0.15	M	M
2021-09-29	66	46	56.0	16	6	0.02	M	M
2021-09-30	62	47	54.5	15	5	0.09	M	M
Average|Sum	**77.7**	**51.6**	**64.7**	**747**	**447**	**3.25**	**M**	**M**

Climatological Data for SCAPPOOSE INDUSTRIAL AP, OR - August 2021

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2021-08-01	90	62	76.0	36	26	0.00	M	M
2021-08-02	93	61	77.0	37	27	0.00	M	M
2021-08-03	91	59	75.0	35	25	0.00	M	M
2021-08-04	96	57	76.5	37	27	0.00	M	M
2021-08-05	84	64	74.0	34	24	0.00	M	M
2021-08-06	80	61	70.5	31	21	T	M	M
2021-08-07	80	57	68.5	29	19	0.02	M	M
2021-08-08	78	53	65.5	26	16	0.00	M	M
2021-08-09	87	60	73.5	34	24	0.00	M	M
2021-08-10	93	66	79.5	40	30	0.00	M	M
2021-08-11	104	66	85.0	45	35	0.00	M	M
2021-08-12	108	65	86.5	47	37	0.00	M	M
2021-08-13	95	66	80.5	41	31	0.00	M	M
2021-08-14	92	63	77.5	38	28	0.00	M	M
2021-08-15	94	60	77.0	37	27	0.00	M	M
2021-08-16	85	55	70.0	30	20	0.00	M	M
2021-08-17	73	56	64.5	25	15	0.00	M	M
2021-08-18	83	51	67.0	27	17	0.00	M	M
2021-08-19	82	53	67.5	28	18	0.00	M	M
2021-08-20	72	60	66.0	26	16	T	M	M
2021-08-21	70	57	63.5	24	14	T	M	M
2021-08-22	70	54	62.0	22	12	T	M	M
2021-08-23	76	44	60.0	20	10	0.00	M	M
2021-08-24	88	54	71.0	31	21	0.00	M	M
2021-08-25	M	M	M	M	M	M	M	M
2021-08-26	M	M	M	M	M	0.00	M	M
2021-08-27	M	M	M	M	M	0.00	M	M
2021-08-28	M	M	M	M	M	0.00	M	M
2021-08-29	M	M	M	M	M	0.00	M	M
2021-08-30	M	M	M	M	M	0.00	M	M
2021-08-31	M	M	M	M	M	0.00	M	M
Average|Sum	**86.0**	**58.5**	**72.3**	**780**	**540**	**0.02**	**M**	**M**

Climatological Data for SCAPPOOSE INDUSTRIAL AP, OR - July 2021

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2021-07-01	74	65	69.5	30	20	0.00	M	M
2021-07-02	86	60	73.0	33	23	0.00	M	M
2021-07-03	88	61	74.5	35	25	0.00	M	M
2021-07-04	87	57	72.0	32	22	0.00	M	M
2021-07-05	86	58	72.0	32	22	0.00	M	M
2021-07-06	91	58	74.5	35	25	0.00	M	M
2021-07-07	75	59	67.0	27	17	0.01	M	M
2021-07-08	80	56	68.0	28	18	0.00	M	M
2021-07-09	89	55	72.0	32	22	0.00	M	M
2021-07-10	86	59	72.5	33	23	0.00	M	M
2021-07-11	87	56	71.5	32	22	0.00	M	M
2021-07-12	87	58	72.5	33	23	0.00	M	M
2021-07-13	87	57	72.0	32	22	0.00	M	M
2021-07-14	82	58	70.0	30	20	0.00	M	M
2021-07-15	80	58	69.0	29	19	0.00	M	M
2021-07-16	76	56	66.0	26	16	0.00	M	M
2021-07-17	82	51	66.5	27	17	0.00	M	M
2021-07-18	87	58	72.5	33	23	0.00	M	M
2021-07-19	90	55	72.5	33	23	0.00	M	M
2021-07-20	80	59	69.5	30	20	0.00	M	M
2021-07-21	76	50	63.0	23	13	0.00	M	M
2021-07-22	82	51	66.5	27	17	0.00	M	M
2021-07-23	86	50	68.0	28	18	0.00	M	M
2021-07-24	91	65	78.0	38	28	0.00	M	M
2021-07-25	90	62	76.0	36	26	0.00	M	M
2021-07-26	90	59	74.5	35	25	0.00	M	M
2021-07-27	89	62	75.5	36	26	0.00	M	M
2021-07-28	95	56	75.5	36	26	0.00	M	M
2021-07-29	98	60	79.0	39	29	0.00	M	M
2021-07-30	101	73	87.0	47	37	0.00	M	M
2021-07-31	86	67	76.5	37	27	0.00	M	M
Average|Sum	**85.9**	**58.4**	**72.1**	**1004**	**694**	**0.01**	**M**	**M**

Climatological Data for SCAPPOOSE INDUSTRIAL AP, OR - June 2021

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2021-06-01	96	67	81.5	42	32	0.00	M	M
2021-06-02	90	60	75.0	35	25	0.00	M	M
2021-06-03	85	57	71.0	31	21	0.00	M	M
2021-06-04	77	51	64.0	24	14	0.00	M	M
2021-06-05	69	44	56.5	17	7	T	M	M
2021-06-06	64	42	53.0	13	3	0.02	M	M
2021-06-07	67	43	55.0	15	5	0.00	M	M
2021-06-08	67	49	58.0	18	8	T	M	M
2021-06-09	69	44	56.5	17	7	T	M	M
2021-06-10	68	44	56.0	16	6	T	M	M
2021-06-11	63	52	57.5	18	8	0.24	M	M
2021-06-12	77	50	63.5	24	14	0.30	M	M
2021-06-13	68	62	65.0	25	15	0.89	M	M
2021-06-14	72	53	62.5	23	13	0.12	M	M
2021-06-15	72	48	60.0	20	10	T	M	M
2021-06-16	80	46	63.0	23	13	0.00	M	M
2021-06-17	84	56	70.0	30	20	0.00	M	M
2021-06-18	80	56	68.0	28	18	0.00	M	M
2021-06-19	83	51	67.0	27	17	0.00	M	M
2021-06-20	91	61	76.0	36	26	0.00	M	M
2021-06-21	96	61	78.5	39	29	0.00	M	M
2021-06-22	86	57	71.5	32	22	0.00	M	M
2021-06-23	82	57	69.5	30	20	0.00	M	M
2021-06-24	90	52	71.0	31	21	0.00	M	M
2021-06-25	96	60	78.0	38	28	0.00	M	M
2021-06-26	107	64	85.5	46	36	0.00	M	M
2021-06-27	112	69	90.5	51	41	0.00	M	M
2021-06-28	116	68	92.0	52	42	0.00	M	M
2021-06-29	91	62	76.5	37	27	0.00	M	M
2021-06-30	76	61	68.5	29	19	0.00	M	M
Average|Sum	**82.5**	**54.9**	**68.7**	**867**	**567**	**1.57**	**M**	**M**

WETS Station: SCAPPOOSE INDUSTRIAL AP, OR

Requested years: 1991 - 2020

Month	Temperature (°F)			Precipitation (inches)				
	Avg daily max*	Avg daily min*	Avg daily mean*	Avg*	30% chance will have		Avg number of days with 0.10 inch or more	Average total snowfall*
					less than	more than		
Jan	46.8	33.8	40.3	6.54	4.24	7.15	13	-
Feb	51.2	34.2	42.7	4.62	2.74	5.31	11	-
Mar	56.3	36.9	46.6	4.54	3.17	5.53	11	-
Apr	61.0	39.9	50.5	3.08	2.18	3.36	9	-
May	68.2	46.2	57.2	2.49	1.18	2.73	7	-
Jun	73.1	50.6	61.9	1.37	0.88	1.63	5	-
Jul	81.0	54.5	67.8	0.48	0.13	0.37	1	-
Aug	82.0	54.4	68.2	0.52	0.19	0.57	2	-
Sep	76.3	49.8	63.1	1.56	0.60	1.86	4	-
Oct	63.6	42.8	53.2	3.60	2.22	4.27	8	-
Nov	52.6	37.0	44.8	6.26	3.63	6.99	12	-
Dec	46.1	33.7	39.9	7.25	4.95	8.16	13	-
Annual:					35.13	43.99		
Average	63.2	42.8	53.0	-	-	-	-	-
Total	-	-	-	42.31			96	-

APPENDIX E

References

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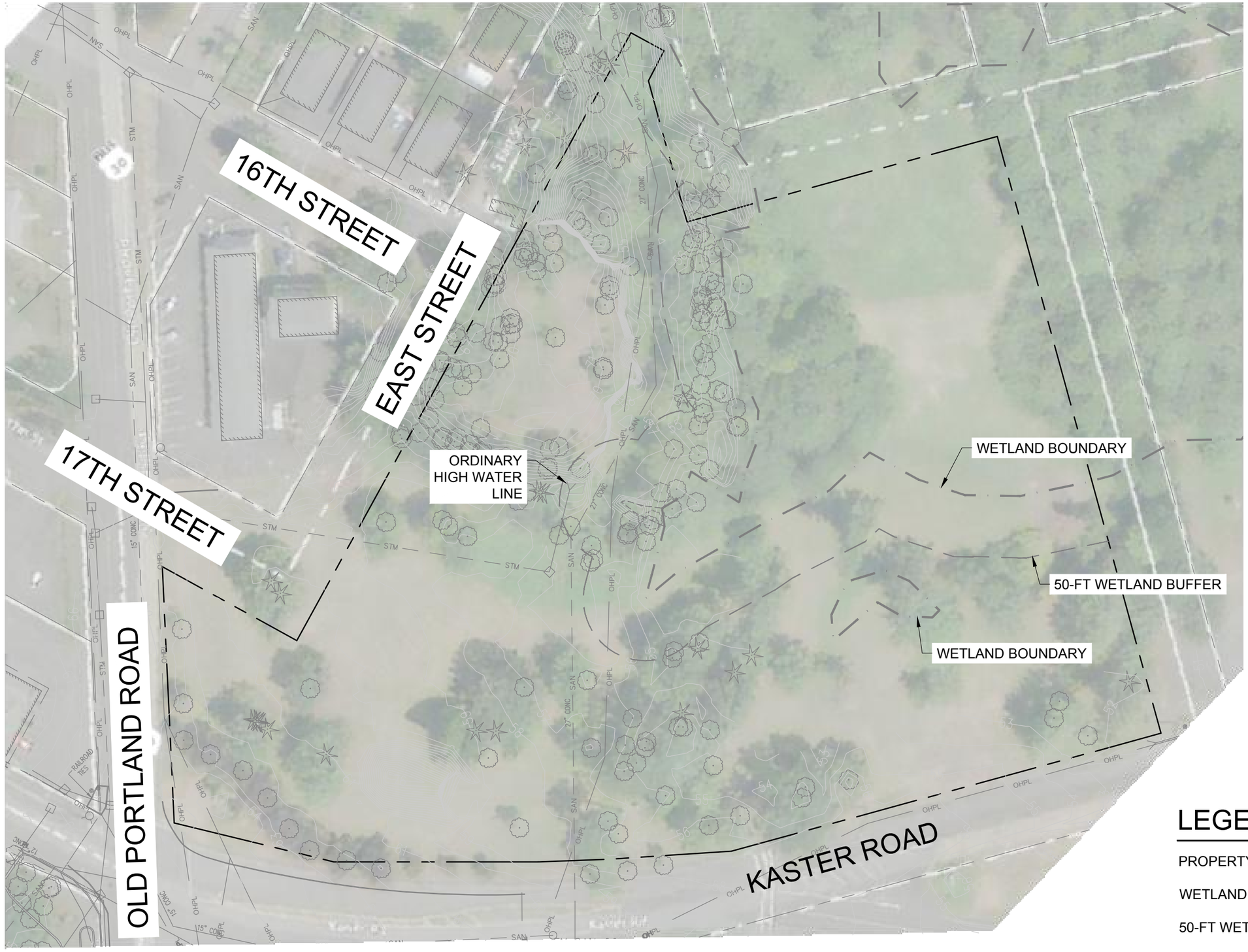

LEGEND

- PROPERTY LINE
- WETLAND BOUNDARY
- 50-FT WETLAND BUFFER

EXISTING CONDITIONS

ST. HELENS PUBLIC SAFETY BUILDING

June 13, 2023
Job # 2210310.00

SCALE: 1"=80'
0 20 40 80

Portland 503.224.9560 Vancouver 360.695.7879 Seattle 206.749.9993
www.mcknze.com
Architecture ▪ Interiors
Planning ▪ Engineering
MACKENZIE.

2210310\DRAWINGS\CIVIL\EXHIBITS\310-WETLAND_EXISTING CONDITIONS.DWG BTC 06/13/23 12:56 1:80

LEGEND

- PROPERTY LINE
- WETLAND BOUNDARY
- 50-FT WETLAND BUFFER

EXISTING CONDITIONS

ST. HELENS PUBLIC SAFETY BUILDING

June 13, 2023
Job # 2210310.00

SCALE: 1"=80'
0 20 40 80

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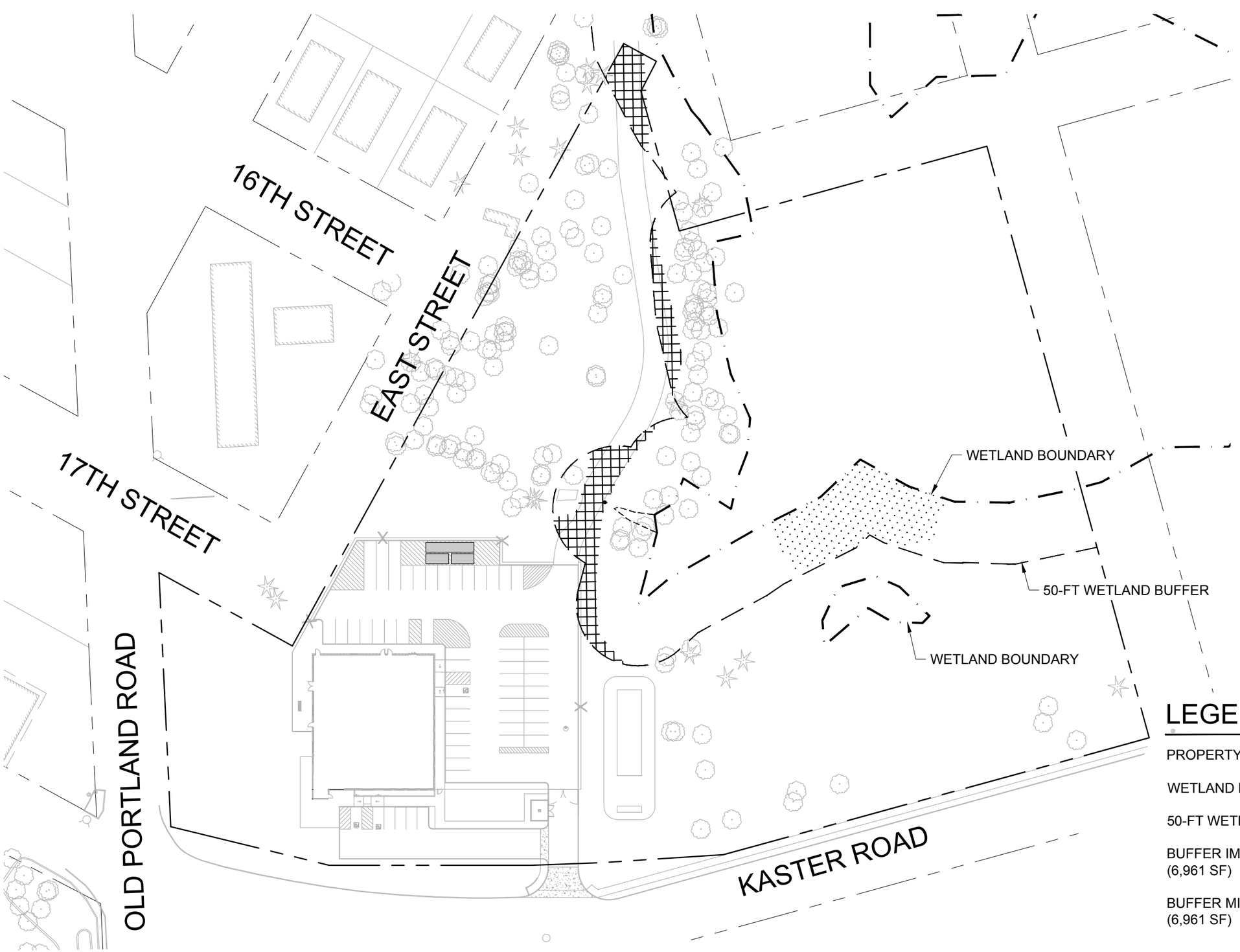

LEGEND

- PROPERTY LINE
- WETLAND BOUNDARY
- 50-FT WETLAND BUFFER
- BUFFER IMPACT AREA (6,961 SF)
- BUFFER MITIGATION AREA (6,961 SF)

BUFFER IMPACT AND MITIGATION AREA
ST. HELENS PUBLIC SAFETY BUILDING

June 13, 2023
Job # 2210310.00

SCALE: 1"=80'
0 20 40 80

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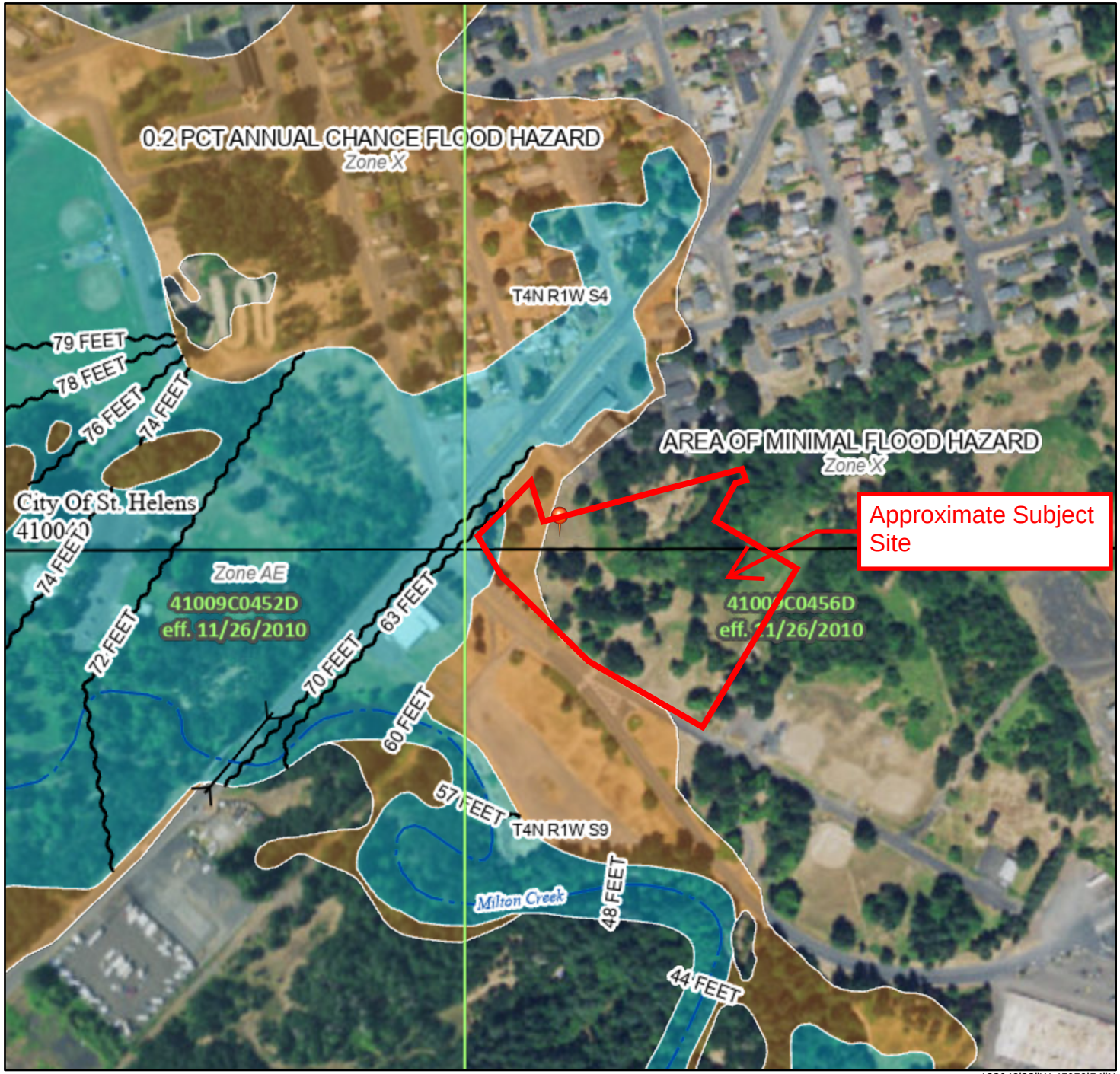
2210310\00\DRAWINGS\CIVIL\EXHIBITS\310-WETLAND.DWG BTC 06/13/23 12:52 1:80

National Flood Hazard Layer FIRMette

FEMA

122°49'1"W 45°51'19"N



122°48'23"W 45°50'54"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

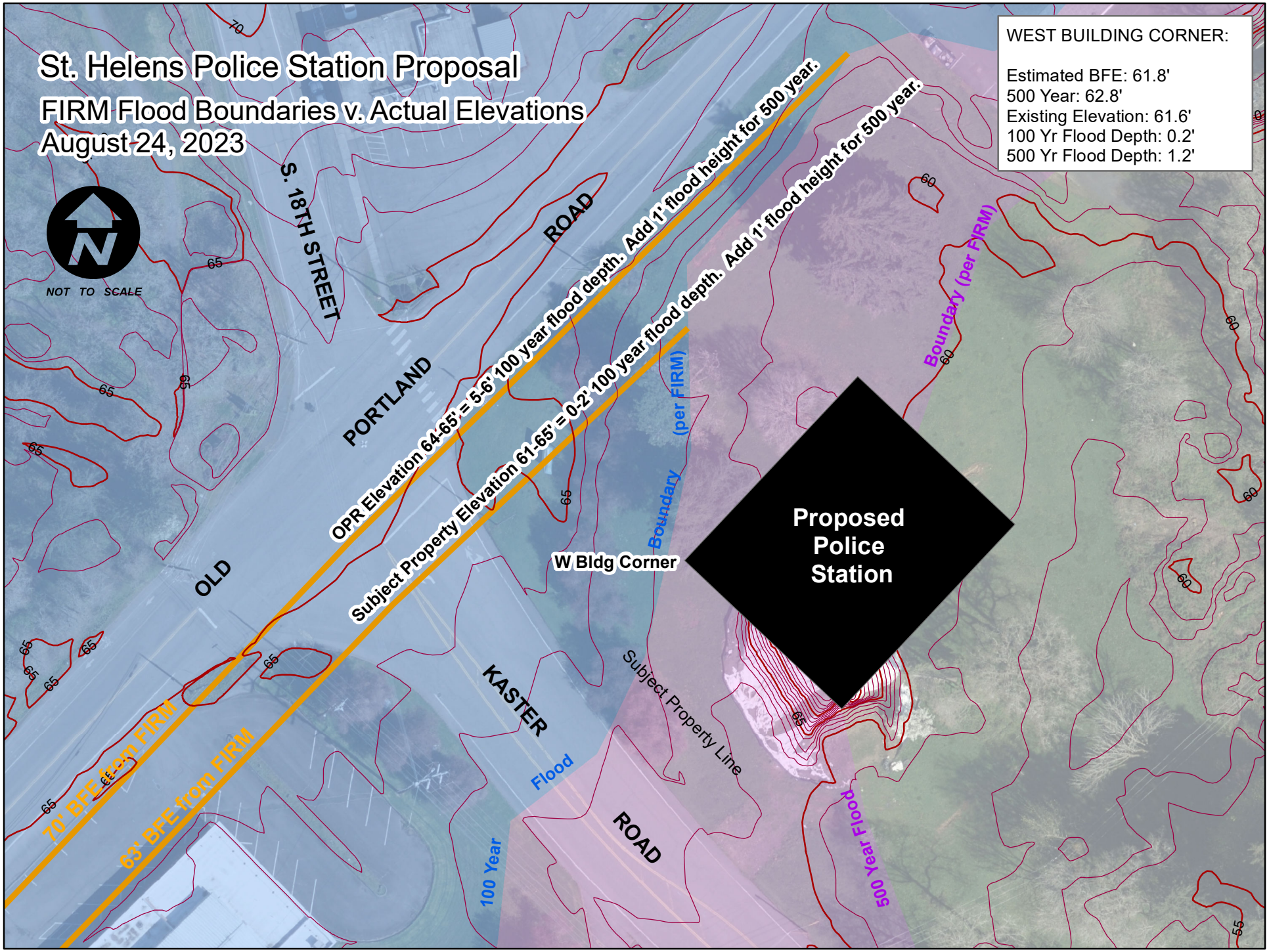
N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/3/2022 at 11:51 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.


St. Helens Police Station Proposal
FIRM Flood Boundaries v. Actual Elevations
August 24, 2023
NOT TO SCALE
WEST BUILDING CORNER:
Estimated BFE: 61.8'
500 Year: 62.8'
Existing Elevation: 61.6'
100 Yr Flood Depth: 0.2'
500 Yr Flood Depth: 1.2'
S. 18TH STREET
ROAD
PORTLAND
OLD
KASTER
ROAD
OPR Elevation 64-65' = 5-6' 100 year flood depth. Add 1' flood height for 500 year.
Subject Property Elevation 61-65' = 0-2' 100 year flood depth. Add 1' flood height for 500 year.
Boundary (per FIRM)
Boundary (per FIRM)
W Bldg Corner
Proposed Police Station
Subject Property Line
100 Year Flood
500 Year Flood
70' BFE from FIRM
63' BFE from FIRM

St. Helens Wastewater Collection System New Sewer Connection Surcharge

December 1, 2022
Revision 01

CITY OF ST. HELENS
265 STRAND STREET | ST. HELENS, OREGON 97051
503.397.6272 | WWW.STHELENSOREGON.GOV

TABLE OF CONTENTS

SECTION 1 – BACKGROUND

1.1 Wastewater Masterplan 2021 Update

The City of St. Helens provides sanitary sewer collection services to businesses and residences within the City limits. The sanitary sewer collection system is a combination of over 60 miles of gravity and force mains, 9 lift stations, and over 1,700 sanitary sewer manholes, vaults, and cleanouts. The sewer pipes in the City range from 6-inches to 48-inches in diameter, with the majority of the pipes being 8-inch. All sewage flows are conveyed to the City's wastewater treatment facility.

Figure 1.1.A St. Helens Sanitary Sewer Map

On November 17, 2021, the St. Helens City Council adopted the updated Wastewater Master Plan (WWMP) under Resolution No. 1940. This update to the City's WWMP is the first complete study done on the entire sewer collection system since 1989. The population was 7,500 at the time. Since then, the population of St. Helens has grown to over 14,500 – almost double. With this added population, more load is added to the public sewer system. Meanwhile, the size of the sewers have not been increased.

After 33 years of growth, the WWMP revealed that the majority of the City's sewer trunklines are at operating at or above capacity. This means that the greater portion of the City's public sewer system is inadequate to serve a growing population. Without

increasing the sizes of the trunklines, there is an increased risk of sanitary sewer overflows in the collection system.

Figure 1.1.B Existing Sanitary Sewer Evaluation Map (2021 WWMP)

1.2 New Development Sewer Surcharge

To assess the impacts of future development on the public sewer system and how the City could pay for the costly capital improvements identified in the WWMP, Keller Associates performed an assessment of a sewer charge based on the shared of costs that new upstream Equivalent Dwelling Units (EDUs), as identified in the 2019 Housing Needs Analysis, would pay to complete the downstream CIP improvements along trunk lines that convey their sewage flows. The costs per EDU were based on the CIP project costs broken down by trunkline.

This sewer surcharge assessed per EDU is to fund capacity upgrades to the public sewer system and will be levied on those properties and developments requiring connection to the sewer trunklines identified in the 2021 WWMP update as "at or above" capacity. These fees will allow the City to recover a fair portion of the infrastructure improvements made by the City to accommodate new users and be used solely for public sewer capacity improvements. Equivalent Dwelling Units conversion details for sewer charges for multifamily dwellings, commercial, and industrial land uses may be found in Section 4 – EQUIVALENT DWELLING UNIT CONVERSION.

SECTION 2 – ST. HELENS SEWER TRUNKLINE BASINS

2.1 Sanitary Sewer Trunk Basins Methodology

Sewer basin delineations by trunk lines were created to aid in the proper assessment of the sewer surcharge to ensure costs reflect the actual share of costs that new upstream EDUs, as identified in the 2019 Housing Needs Analysis, would pay based on the downstream sanitary sewer capital improvements along the trunk lines the flows for their property would flow through.

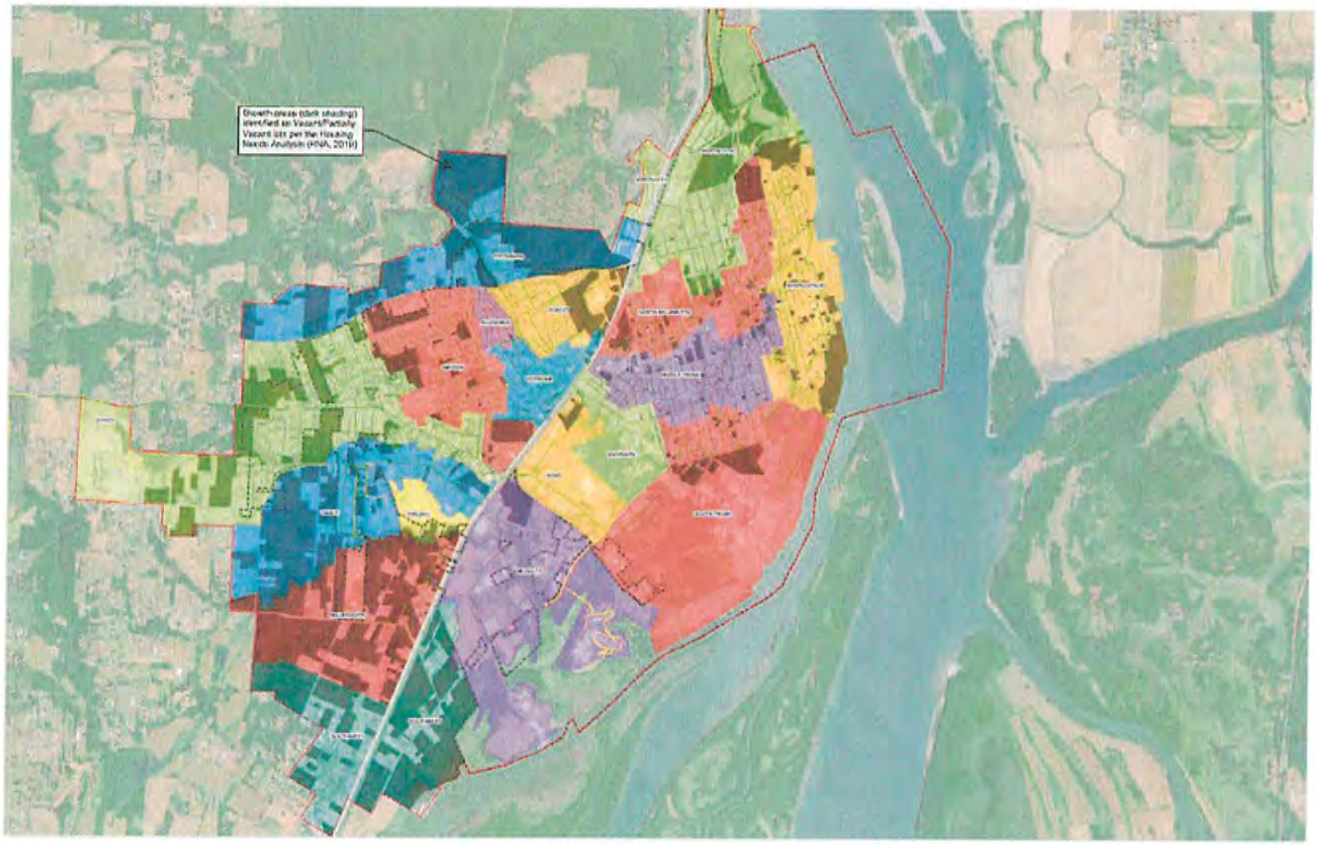


Figure 2.1.A St. Helens Sanitary Sewer Trunkline Basin Delineations

The delineation of CIP projects was simplified and where major portions of a Capital Improvement Project (CIP) spanned more than one basin, projects were split by basin. Basin delineation generally reflects existing conditions, except the Pittsburg basin, which is largely undeveloped and is anticipated to discharge to the North-11th basin.

Costs were calculated by summing CIP costs in and downstream of a basin and summing the EDUs in and upstream of the basin. The downstream CIP costs are then divided by the upstream EDUs. A sewer surcharge cap of $15,000 per EDU is assumed.

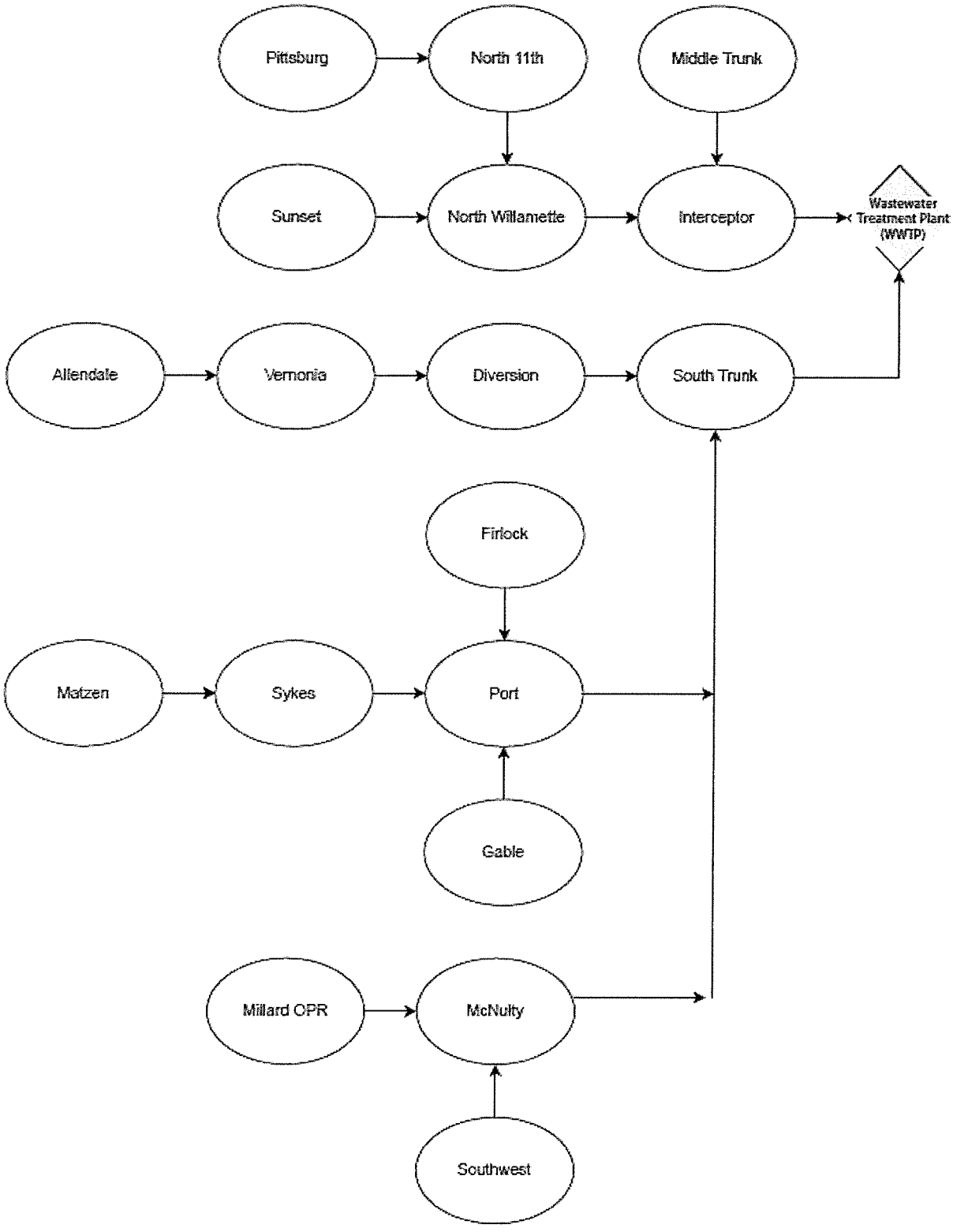


Figure 2.1.B St. Helens Sanitary Sewer Trunkline Basin Flow Paths

2.15 South Trunk Sewer Basin

The South Trunk sewer basin area has 124 new In-Basin EDUs.

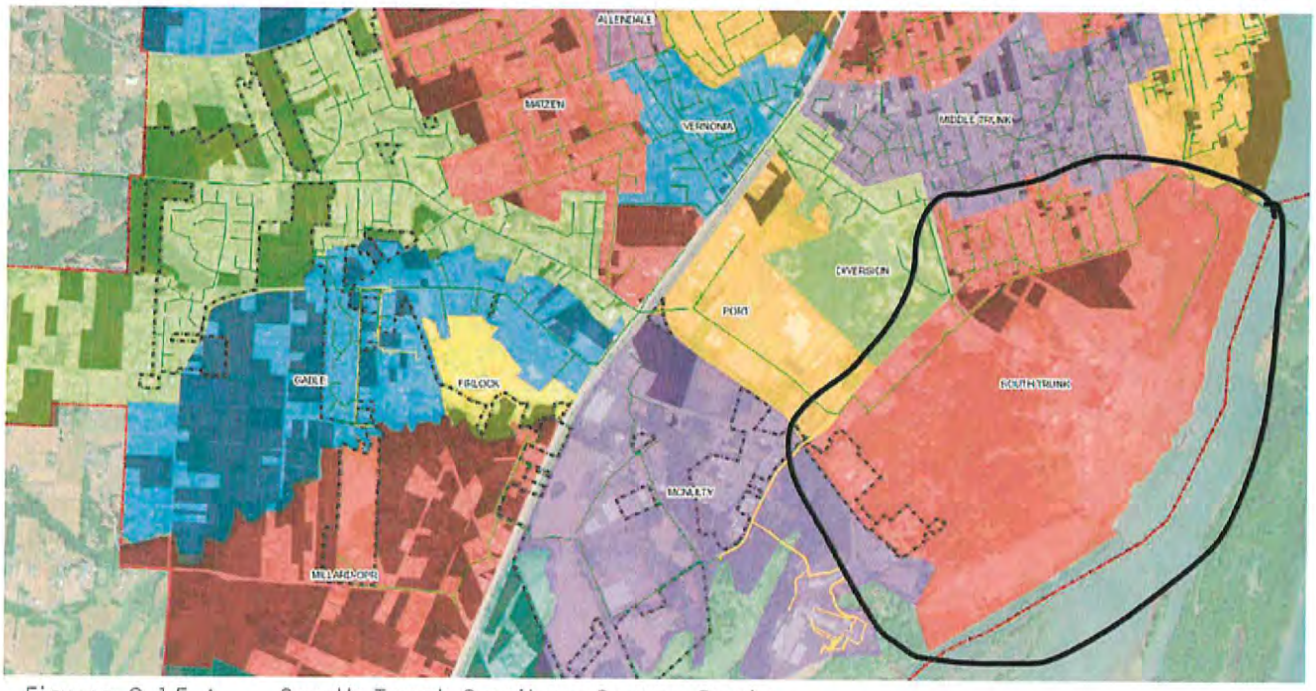


Figure 2.15.A South Trunk Sanitary Sewer Basin

The allocation of the South Trunk sewer basin's downstream CIP share per new upstream EDU, which consists of the South Trunk basin, is $1,800.

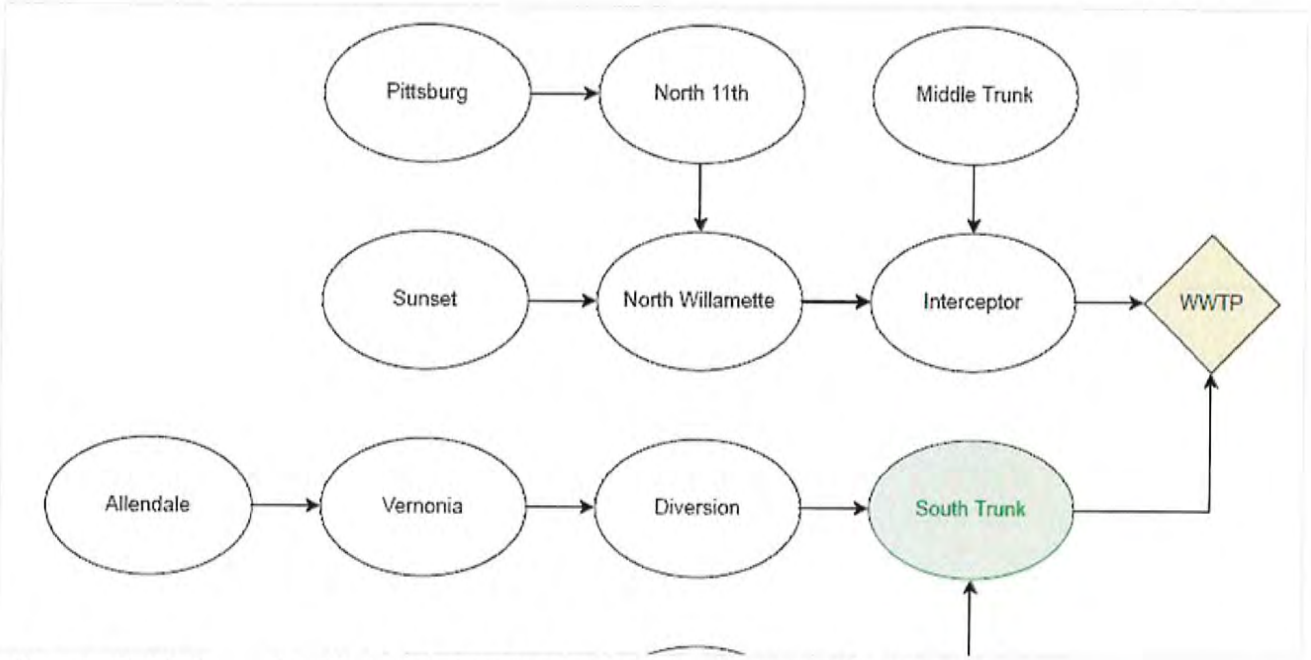


Figure 2.15.B South trunk Sewer Basin Flow Path to WWTP

SECTION 3 – SEWER SURCHARGE CHART

Sewer Trunkline Basin	Downstream CIP Share per New Upstream EDU	New-In Basin EDU	**Sewer Surcharge per EDU***
Allendale	$104,900	1	$15,000 (max.)
Diversion	$104,900	1	$15,000 (max.)
Firlock	$7,600	0	$7,600
Gable	$7,900	589	$7,900
The Interceptor	$2,200	512	$2,200
Matzen	$12,700	430	$12,700
McNulty	$3,200	144	$3,200
Middle Trunk	$41,400	91	$15,000 (max.)
Millard-OPR	$3,200	806	$3,200
North 11th	$3,400	340	$3,400
North Willamette	$2,200	134	$2,200
Pittsburg	$3,400	731	$3,400
Port	$3,800	36	$3,800
South Trunk	$1,800	124	$1,800
Southwest	$3,200	748	$3,200
Sunset	$7,900	321	$7,900
Sykes	$6,600	500	$6,600
Vernonia	$104,900	30	$15,000 (max.)

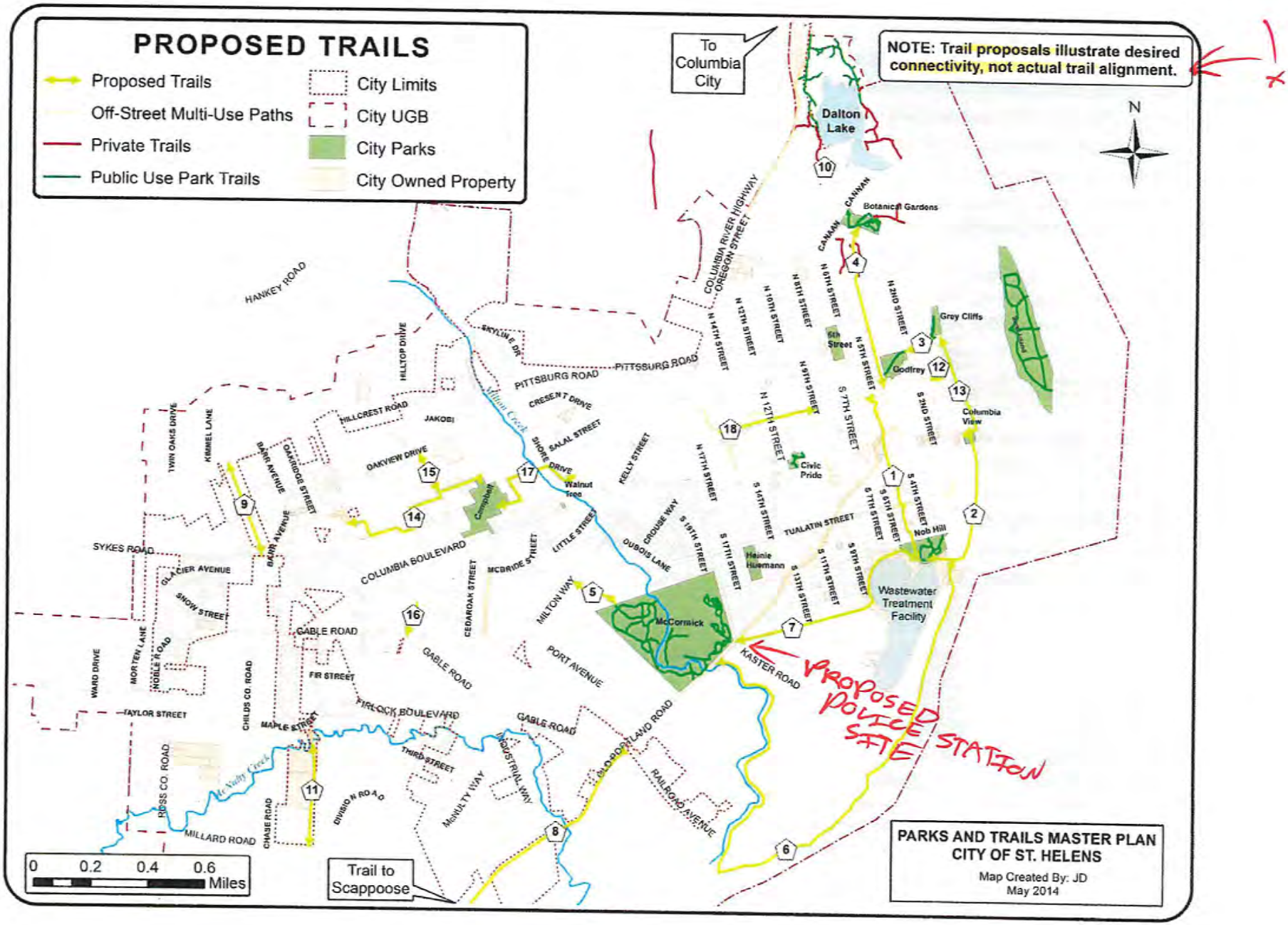
* Estimated Sewer Surcharge cost per EDU is based on the US dollar at the time this document was published. Inflation adjustment to value at time of building permit issuance shall be included.

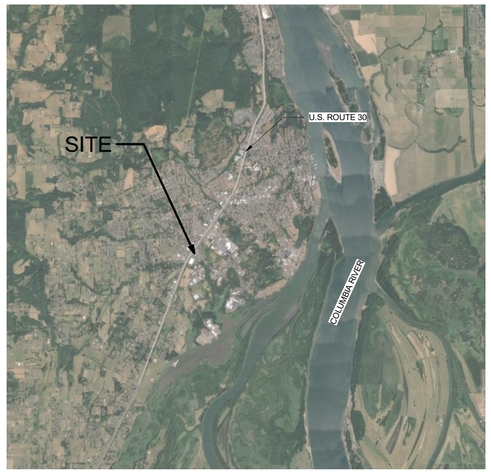
SECTION 4 – EQUIVALENT DWELLING UNIT CONVERSION

Land Use	EDU Conversion
Single Family Residential	1.00 EDU per unit
Multi Family (Duplex)	0.80 EDU per unit
Multi Family (3 or more Dwelling Units)	0.77 EDU per unit

Residential EDU conversion rate based on the City of St. Helens adopted Sewer Utility Rates and Charges.

EDU conversion rates for sewer surcharges for commercial, industrial, and other land uses not covered under Single Family Residential, Multi Family (Duplex), or Multi Family (3 or more Dwelling Units) shall be based on City of St. Helens wastewater rate classifications for water meter size(s),	
3/4-inch meter	1.00 x Sewer Surcharge
1-inch meter	1.67 x Sewer Surcharge
1.5-inch meter	3.33 x Sewer Surcharge
2-inch meter	5.33 x Sewer Surcharge
3-inch meter	10.00 x Sewer Surcharge
4-inch meter	16.67 x Sewer Surcharge
6-inch meter	33.33 x Sewer Surcharge
8-inch meter	53.33 x Sewer Surcharge


PROPOSED TRAILS
Proposed Trails
Off-Street Multi-Use Paths
Private Trails
Public Use Park Trails
City Limits
City UGB
City Parks
City Owned Property
To Columbia City
NOTE: Trail proposals illustrate desired connectivity, not actual trail alignment.
N
Dalton Lake
Botanical Gardens
Grey Cliffs
Columbia View
Civic Pride
Nob Hill
Heinie Huemann
Wastewater Treatment Facility
McCormick
Campbell
Walnut Tree
Milton Creek
Mt. Valley Creek
PROPOSED POLICE STATION
Trail to Scappoose
0 0.2 0.4 0.6 Miles
PARKS AND TRAILS MASTER PLAN
CITY OF ST. HELENS
Map Created By: JD
May 2014



VICINITY MAP
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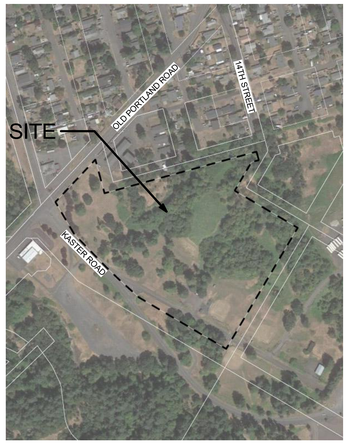

SITE MAP
NOT TO SCALE

ST. HELENS PUBLIC SAFETY BUILDING

LAND USE SUBMITTAL - JUNE 28, 2023

SITE INFORMATION

LEGAL DESCRIPTION:	COLUMBIA COUNTY TAX LOT 4109-AB-01500
ADDRESS:	EAST SIDE OF KASTER RD AND OLD PORTLAND RD, ST. HELENS, OR.
SITE SIZE:	2.6 ACRES
JURISDICTION:	CITY OF ST. HELENS
ZONING:	LI & R5

DRAWING CRITERIA

ALL DRAWINGS ARE IDENTIFIED BY TWO DIGITS AS FOLLOWS:

A. CATEGORY LETTER REFERRING TO THE DISCIPLINE OR MAJOR

G. TITLE SHEET AND CODE INFORMATION
C. CIVIL
L. LANDSCAPE
S. STRUCTURAL
A. ARCHITECTURAL
M. MECHANICAL
E. ELECTRICAL
P. PLUMBING
T. TECHNOLOGY

B. SUB-CATEGORY NUMBER REFERRING TO TYPE OF DRAWING O

0. GENERAL
1. PLANS AND REFLECTED CEILING PLANS
2. EXTERIOR ELEVATIONS
3. BUILDING SECTIONS/WALL SECTIONS
4. ENLARGED PLANS AND INTERIOR ELEVATIONS
5. DETAILS
6. SCHEDULES
7. VERTICAL CIRCULATION

DEFERRED SUBMITTALS

PER SECTION 107.3.4.2 DEFERRED SUBMITTALS: DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE REGISTERED DESIGN PROFESSIONAL IN CHARGE WHO SHALL REVIEW THEM AND FORWARD THEM TO THE CONTRACTOR FOR DISTRIBUTION TO THE BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND FOUND TO BE IN GENERAL CONFORMANCE TO THE DESIGN OF THE BUILDING. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

- FIRE SPRINKLER NFPA 13 SYSTEM
- FIRE ALARM SYSTEM (INCLUDING EMERGENCY RESPONDER RADIO COVERAGE AS OUTLINED IN SPEC
- PROVIDE CALCULATIONS AND DETAILS FOR SEISMIC ANCHORAGE AND BRACING OF ALL MECHANICAL AND ELECTRICAL AND OTHER EQUIPMENT WEIGHTING MORE THAN 400 LBS AND ATTACHED TO A FLOOR OR ROOF LEVEL, OR WEIGHING MORE THAN 75 LBS AND ATTACHED MORE THAN 4'-0" ABOVE THE FLOOR OR ROOF LEVEL.
- CEILING CLOUDS ANCHORING/BRACING
- GLAZED METAL CURTAIN WALL DESIGN
- CARPORT DESIGN
- PV ARRAY DESIGN (INCLUDING FRAMING MEMBERS AND PANELS ATTACHED TO STANCHIONS.)
- FIRESTOPPING (THE GENERAL CONTRACTOR SHALL SCHEDULE A FIRESTOPPING MEETING WITH THE BUILDING INSPECTOR AND SUBCONTRACTORS THAT WILL BE INSTALLING THE FIRESTOPPING MATERIALS. CONTRACTORS SHALL PROVIDE INFORMATION ON REQUIRED INSTALLER CERTIFICATIONS AND FAMILIARITY WITH EACH FIRESTOP MATERIAL/ASSEMBLIES WHICH WILL BE USED, THE TYPE OF PENETRATIONS WHERE EACH MATERIAL / ASSEMBLY WILL BE USED, AND THE LISTING AND APPROVAL INFORMATION (I.E. UL, ICC, OR OTHER APPROVED BY THE CITY BUILDING DEPARTMENT). THIS MEETING SHALL BE COORDINATED WITH THE BUILDING INSPECTOR AND SHALL OCCUR PRIOR TO ANY FIRESTOPPING INSTALLATION. OSSC CHAPTER 7.

SEPARATE PERMIT

- SIGNAGE

CLIENT

CITY OF ST. HELENS
265 STRAND STREET
ST. HELENS, OR 97051

CONTACT: JOHN WALSH
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OTAK CPM
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CONTACT: DAVE LINTZ
OTAK CPM
OWNERS REPRESENTATIVE

PHONE: 503.318.1750
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DUSTIN.PEEK@PAE-ENGINEERS.COM

INDEX OF DRAWINGS - LAND USE SET

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Client

265 STRAND STREET
ST. HELENS, OR 97051

Project

ST. HELENS PUBLIC SAFETY BUILDING
OLD PORTLAND ROAD AND KASTER ROAD
ST. HELENS, OR 97051

PAE ENGINEERS
151 SW 1ST AVENUE
PORTLAND, OR 97204

(PLACE SECONDARY STAMP HERE)

REFERENCE ONLY UNLESS STAMP IS PLACED

(PLACE STAMP HERE)

REVISION SCHEDULE

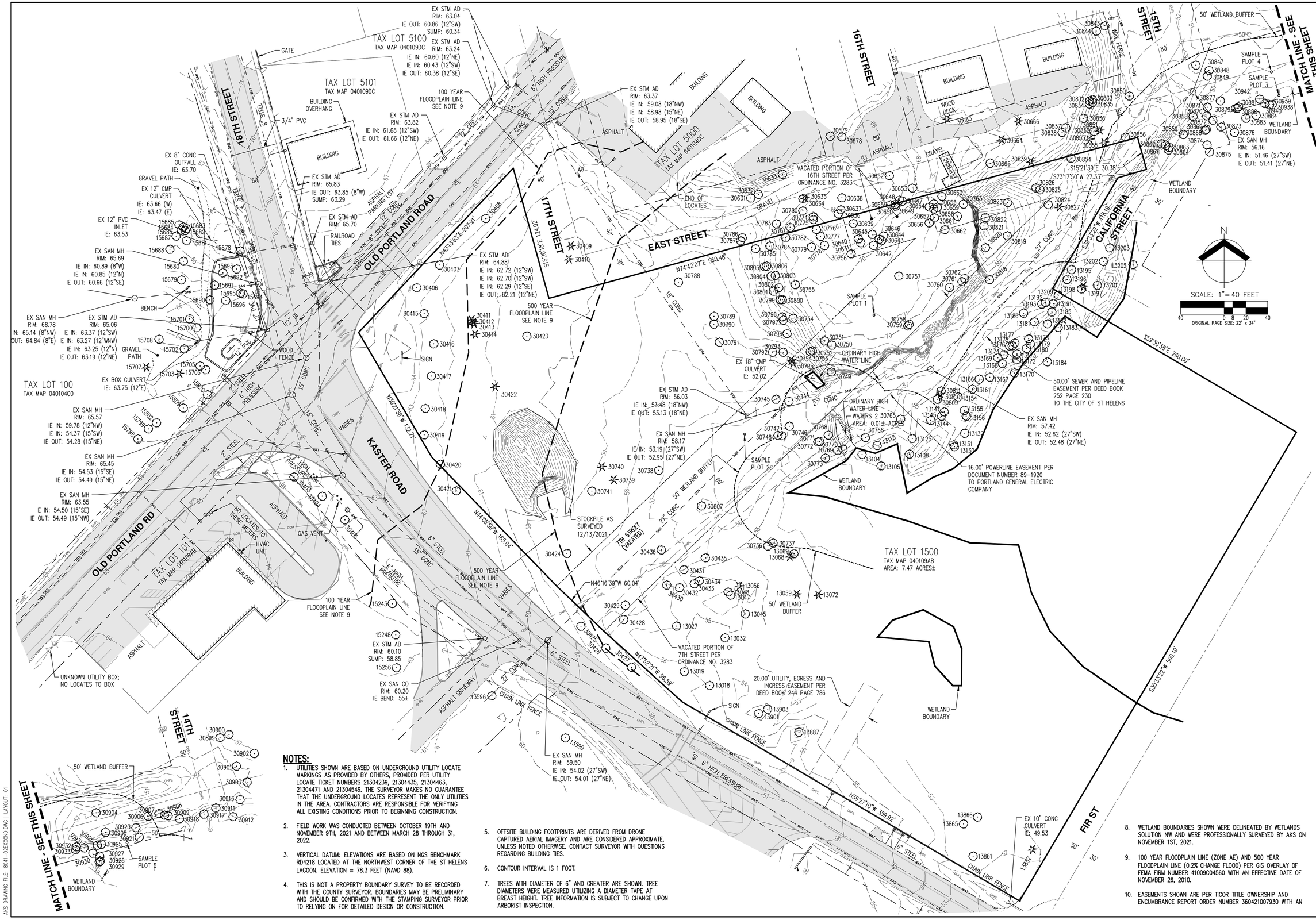
Delta	Issued As	Issue Date

SHEET TITLE:
TITLE SHEET AND DRAWING INDEX

SHEET
G0.01

JOB NO. **2210310.04**

LAND USE SUBMITTAL 6/28/2023



NOTES:

1. UTILITIES SHOWN ARE BASED ON UNDERGROUND UTILITY LOCATE MARKINGS AS PROVIDED BY OTHERS, PROVIDED PER UTILITY LOCATE TICKET NUMBERS 21304239, 21304435, 21304463, 21304471 AND 21304546. 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.
2. FIELD WORK WAS CONDUCTED BETWEEN OCTOBER 19TH AND NOVEMBER 9TH, 2021 AND BETWEEN MARCH 28 THROUGH 31, 2022.
3. VERTICAL DATUM: ELEVATIONS ARE BASED ON NGS BENCHMARK RD4218 LOCATED AT THE NORTHWEST CORNER OF THE ST HELENS LAGOON. ELEVATION = 78.3 FEET (NAVD 88).
4. 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.
5. OFFSITE BUILDING FOOTPRINTS ARE DERIVED FROM DRONE CAPTURED AERIAL IMAGERY AND ARE CONSIDERED APPROXIMATE, UNLESS NOTED OTHERWISE. CONTACT SURVEYOR WITH QUESTIONS REGARDING BUILDING TIES.
6. CONTOUR INTERVAL IS 1 FOOT.
7. TREES WITH DIAMETER OF 6" AND GREATER ARE SHOWN. TREE DIAMETERS WERE MEASURED UTILIZING A DIAMETER TAPE AT BREAST HEIGHT. TREE INFORMATION IS SUBJECT TO CHANGE UPON ARBORIST INSPECTION.
8. WETLAND BOUNDARIES SHOWN WERE DELINEATED BY WETLANDS SOLUTION NW AND WERE PROFESSIONALLY SURVEYED BY AKS ON NOVEMBER 1ST, 2021.
9. 100 YEAR FLOODPLAIN LINE (ZONE AE) AND 500 YEAR FLOODPLAIN LINE (0.2% CHANGE FLOOD) PER GIS OVERLAY OF FEMA FIRM NUMBER 41009C04560 WITH AN EFFECTIVE DATE OF NOVEMBER 26, 2010.
10. EASEMENTS SHOWN ARE PER TICOR TITLE OWNERSHIP AND ENCUMBRANCE REPORT ORDER NUMBER 360421007930 WITH AN

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12965 SW HERMAN RD, STE 100
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KASTER RD

OREGON
COLUMBIA COUNTY TAX MAP 04 01 09 AB

ST HELENS
TAX LOT 1400

EXISTING CONDITIONS PLAN

DESIGNED BY:
DRAWN BY: CC
MANAGED BY: BH
CHECKED BY: BH
DATE: 6/12/2023

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
MARCH 14, 2017
BENJAMIN R HUFF
84738PLS
RENEWS: 6/30/25

REVISIONS

JOB NUMBER
8041-02

SHEET
01

AKS DRAWING FILE: 8041-02EXCOND.DWG | LAYOUT: 01

TREE TABLE		
TREE NUMBER	TYPE	DBH (IN.)
10647	DECIDUOUS	6,7,9,9
10904	DECIDUOUS	22
10908	DECIDUOUS	16
10909	DECIDUOUS	14
10912	DECIDUOUS	16
10913	DECIDUOUS	18
10914	DECIDUOUS	14
10915	DECIDUOUS	21
10917	DECIDUOUS	14
10918	DECIDUOUS	13
10919	DECIDUOUS	20
10920	DECIDUOUS	11
10921	DECIDUOUS	8
10922	DECIDUOUS	18
10923	DECIDUOUS	26
10924	DECIDUOUS	9
10925	DECIDUOUS	21
10926	DECIDUOUS	23
10937	DECIDUOUS	6
10938	DECIDUOUS	18
10941	DECIDUOUS	8,13
10942	DECIDUOUS	6
10943	DECIDUOUS	6
10963	DECIDUOUS	7
10964	DECIDUOUS	7,9
10965	DECIDUOUS	6,8
10966	DECIDUOUS	8
10967	CONIFEROUS	6,11
10968	DECIDUOUS	6
10969	DECIDUOUS	6
10970	DECIDUOUS	6,1
10971	DECIDUOUS	11
10972	DECIDUOUS	6,7
10973	DECIDUOUS	6
10974	DECIDUOUS	10
10975	DECIDUOUS	9
10976	DECIDUOUS	19
10977	DECIDUOUS	21
10979	DECIDUOUS	18
10980	DECIDUOUS	17
10983	DECIDUOUS	18
10984	CONIFEROUS	17
10985	CONIFEROUS	13,13
10986	DECIDUOUS	7
10987	DECIDUOUS	6
10988	CONIFEROUS	24
10989	DECIDUOUS	9
10991	CONIFEROUS	11,15

TREE TABLE		
TREE NUMBER	TYPE	DBH (IN.)
10992	DECIDUOUS	25
10993	DECIDUOUS	29
10994	DECIDUOUS	6
10995	DECIDUOUS	13,13
10996	DECIDUOUS	9
10997	DECIDUOUS	7
10998	DECIDUOUS	8
10999	DECIDUOUS	21
11000	DECIDUOUS	20
11001	DECIDUOUS	6
11002	DECIDUOUS	7,7
11003	DECIDUOUS	7
11004	DECIDUOUS	9
11005	DECIDUOUS	18
11006	DECIDUOUS	13
11007	DECIDUOUS	14,14
11008	DECIDUOUS	7
11009	DECIDUOUS	14
11010	DECIDUOUS	16
11011	DECIDUOUS	18
11012	DECIDUOUS	10
11013	DECIDUOUS	13,14
11014	DECIDUOUS	6,6,7,7
11015	DECIDUOUS	6
11016	DECIDUOUS	7,8
11017	DECIDUOUS	10
11018	DECIDUOUS	17
11019	DECIDUOUS	12
11020	DECIDUOUS	18
11021	DECIDUOUS	16
11022	DECIDUOUS	12,15,17
11023	DECIDUOUS	15,16
11025	DECIDUOUS	24
11026	DECIDUOUS	15
11032	DECIDUOUS	19
11033	DECIDUOUS	13
11034	DECIDUOUS	18,18,20
11035	DECIDUOUS	17
11036	DECIDUOUS	18
11042	DECIDUOUS	16
11043	DECIDUOUS	15,15,20,22
11045	DECIDUOUS	15,16
11046	DECIDUOUS	19
11047	DECIDUOUS	13
11048	DECIDUOUS	24
11049	DECIDUOUS	17
11050	DECIDUOUS	15
11051	DECIDUOUS	19

TREE TABLE		
TREE NUMBER	TYPE	DBH (IN.)
11063	DECIDUOUS	20,21
11064	DECIDUOUS	18,19
11065	DECIDUOUS	9,20
11066	DECIDUOUS	23
11067	DECIDUOUS	19
11068	DECIDUOUS	23
13018	DECIDUOUS	14,15
13019	DECIDUOUS	13,14,16
13027	DECIDUOUS	27
13032	DECIDUOUS	31
13045	DECIDUOUS	17
13047	DECIDUOUS	10,11,12
13048	DECIDUOUS	11
13056	CONIFEROUS	29
13059	CONIFEROUS	39
13068	CONIFEROUS	39
13069	DECIDUOUS	18,18
13072	CONIFEROUS	33
13104	DECIDUOUS	25
13105	DECIDUOUS	6
13108	DECIDUOUS	19
13118	DECIDUOUS	10,21
13125	DECIDUOUS	6,6,7,7,8,8,8,9,9
13130	DECIDUOUS	8,9,12
13131	DECIDUOUS	6,15
13132	DECIDUOUS	6
13144	DECIDUOUS	6,9,11,11
13145	DECIDUOUS	6,7,7,7
13147	DECIDUOUS	6
13154	DECIDUOUS	11,13
13155	DECIDUOUS	6
13156	DECIDUOUS	6,7
13161	DECIDUOUS	8,13,19
13166	DECIDUOUS	9
13167	DECIDUOUS	19
13168	DECIDUOUS	6,9,14
13169	DECIDUOUS	10
13170	DECIDUOUS	6,7,13
13172	DECIDUOUS	6
13173	DECIDUOUS	6,6
13174	DECIDUOUS	8,13
13175	DECIDUOUS	6
13176	DECIDUOUS	11
13177	DECIDUOUS	9
13178	DECIDUOUS	6,7
13179	DECIDUOUS	13,13
13180	DECIDUOUS	11
13181	DECIDUOUS	10

TREE TABLE		
TREE NUMBER	TYPE	DBH (IN.)
13182	DECIDUOUS	15
13183	DECIDUOUS	8
13184	DECIDUOUS	12,13
13185	DECIDUOUS	14
13186	DECIDUOUS	24
13191	DECIDUOUS	16
13192	DECIDUOUS	7,10
13193	DECIDUOUS	8
13195	DECIDUOUS	16
13196	DECIDUOUS	24
13197	CONIFEROUS	31
13198	DECIDUOUS	11
13201	DECIDUOUS	8,9
13202	DECIDUOUS	10
13203	DECIDUOUS	11
13205	DECIDUOUS	7,7
13209	DECIDUOUS	6
13575	CONIFEROUS	22
13590	DECIDUOUS	12
13596	DECIDUOUS	14
13633	DECIDUOUS	17
13634	DECIDUOUS	18
13756	DECIDUOUS	26
13757	DECIDUOUS	26
13758	DECIDUOUS	28
13759	DECIDUOUS	33
13760	DECIDUOUS	18
13761	DECIDUOUS	9,13,16
13762	CONIFEROUS	24
13763	CONIFEROUS	26
13764	DECIDUOUS	10,14
13765	DECIDUOUS	10
13766	DECIDUOUS	13,14
13767	DECIDUOUS	13
13768	DECIDUOUS	10
13769	DECIDUOUS	12
13770	DECIDUOUS	12
13771	DECIDUOUS	13,15
13772	DECIDUOUS	9
13773	DECIDUOUS	14
13774	CONIFEROUS	11
13775	CONIFEROUS	15
13776	CONIFEROUS	9
13777	CONIFEROUS	20
13778	CONIFEROUS	20
13779	CONIFEROUS	15,19
13780	CONIFEROUS	16
13781	CONIFEROUS	11

TREE TABLE		
TREE NUMBER	TYPE	DBH (IN.)
13851	CONIFEROUS	36
13852	CONIFEROUS	46
13861	DECIDUOUS	15
13865	DECIDUOUS	20
13866	DECIDUOUS	29
13887	DECIDUOUS	13,13,17
13901	DECIDUOUS	17,22,29
13903	DECIDUOUS	11,18
14525	CONIFEROUS	30
14526	CONIFEROUS	35
14567	CONIFEROUS	25
14568	CONIFEROUS	25
14569	CONIFEROUS	20,24
14642	DECIDUOUS	7,7,9,9,10
14654	DECIDUOUS	9,15
14656	CONIFEROUS	22
14657	CONIFEROUS	26
14658	CONIFEROUS	29
14738	DECIDUOUS	8,14
14775	DECIDUOUS	6,6,6
14776	DECIDUOUS	8
14777	CONIFEROUS	26
14778	CONIFEROUS	26
15243	DECIDUOUS	14
15248	DECIDUOUS	13
15256	DECIDUOUS	14
15678	DECIDUOUS	6
15679	DECIDUOUS	12,15
15680	DECIDUOUS	13
15681	DECIDUOUS	7
15682	DECIDUOUS	8
15683	DECIDUOUS	6
15684	DECIDUOUS	6,7
15685	DECIDUOUS	7
15686	DECIDUOUS	8
15687	DECIDUOUS	12
15688	DECIDUOUS	7
15690	DECIDUOUS	21
15691	DECIDUOUS	6,7,7
15692	DECIDUOUS	6,7
15693	DECIDUOUS	6,6,6
15694	DECIDUOUS	10,11
15695	DECIDUOUS	12,13
15696	DECIDUOUS	6
15700	DECIDUOUS	14
15701	DECIDUOUS	7
15702	DECIDUOUS	25
15703	CONIFEROUS	21

TREE TABLE		
TREE NUMBER	TYPE	DBH (IN.)
15705	DECIDUOUS	6
15706	DECIDUOUS	13
15707	CONIFEROUS	27
15708	DECIDUOUS	6
15798	DECIDUOUS	11
15799	DECIDUOUS	22
15802	DECIDUOUS	14
15809	DECIDUOUS	14
15820	DECIDUOUS	6
25217	DECIDUOUS	24
25218	DECIDUOUS	22
25234	DECIDUOUS	8,12,19
25237	DECIDUOUS	13, 34
30403	DECIDUOUS	14
30404	DECIDUOUS	12
30405	DECIDUOUS	14
30406	DECIDUOUS	14
30407	DECIDUOUS	13
30408	DECIDUOUS	8
30409	CONIFEROUS	30
30410	CONIFEROUS	29
30411	CONIFEROUS	11
30412	CONIFEROUS	21
30413	CONIFEROUS	11
30414	CONIFEROUS	23
30415	DECIDUOUS	17
30416	DECIDUOUS	14
30417	DECIDUOUS	17
30418	DECIDUOUS	17
30419	DECIDUOUS	17
30420	DECIDUOUS	16
30421	DECIDUOUS	18
30422	CONIFEROUS	36
30423	DECIDUOUS	28
30424	DECIDUOUS	11
30425	DECIDUOUS	10
30426	DECIDUOUS	6
30427	DECIDUOUS	8
30428	DECIDUOUS	32
30429	DECIDUOUS	26
30430	DECIDUOUS	20
30431	DECIDUOUS	18
30432	DECIDUOUS	13
30433	DECIDUOUS	10
30434	DECIDUOUS	11
30435	DECIDUOUS	43
30436	DECIDUOUS	12,15
30631	DECIDUOUS	23

TREE TABLE		
TREE NUMBER	TYPE	DBH (IN.)
30632	DECIDUOUS	17
30633	DECIDUOUS	13,24
30634	DECIDUOUS	13
30635	CONIFEROUS	24
30636	DECIDUOUS	8
30637	DECIDUOUS	8
30638	DECIDUOUS	9
30639	DECIDUOUS	15
30640	DECIDUOUS	10,13
30641	DECIDUOUS	6
30642	DECIDUOUS	7
30643	DECIDUOUS	9
30644	DECIDUOUS	10
30645	DECIDUOUS	14
30646	DECIDUOUS	10,14
30647	DECIDUOUS	10
30648	DECIDUOUS	16
30649	DECIDUOUS	9
30650	DECIDUOUS	11
30651	DECIDUOUS	10
30652	DECIDUOUS	21
30653	DECIDUOUS	16
30654	DECIDUOUS	10
30655	DECIDUOUS	10
30656	DECIDUOUS	6
30657	DECIDUOUS	7
30658	DECIDUOUS	9
30659	DECIDUOUS	6
30660	DECIDUOUS	6,7
30661	DECIDUOUS	8
30662	DECIDUOUS	14
30663	CONIFEROUS	16
30664	CONIFEROUS	26
30665	DECIDUOUS	19,21
30666	CONIFEROUS	36
30678	DECIDUOUS	16
30679	DECIDUOUS	14
30736	DECIDUOUS	14,15
30737	DECIDUOUS	12,17
30738	DECIDUOUS	39
30739	CONIFEROUS	11,12
30740	CONIFEROUS	19
30741	DECIDUOUS	11
30744	DECIDUOUS	8,10
30745	DECIDUOUS	7,8
30746	DECIDUOUS	14
30747	DECIDUOUS	6
30748	DECIDUOUS	10

TREE TABLE		
TREE NUMBER	TYPE	DBH (IN.)
30749	DECIDUOUS	9
30750	DECIDUOUS	11
30751	DECIDUOUS	8
30752	DECIDUOUS	10
30753	DECIDUOUS	17
30754	DECIDUOUS	13
30755	DECIDUOUS	8
30756	DECIDUOUS	14,16
30757	DECIDUOUS	12
30758	DECIDUOUS	9
30759	DECIDUOUS	9
30760	DECIDUOUS	7
30761	DECIDUOUS	7
30762	DECIDUOUS	7
30763	DECIDUOUS	9
30765	DECIDUOUS	6,9,12,13
30766	DECIDUOUS	29
30768	DECIDUOUS	8,10,13
30769	DECIDUOUS	24
30770	DECIDUOUS	12
30771	DECIDUOUS	14
30772	DECIDUOUS	20
30773	DECIDUOUS	6
30774	DECIDUOUS	12
30775	DECIDUOUS	12
30776	DECIDUOUS	8
30777	DECIDUOUS	7
30778	DECIDUOUS	8
30779	DECIDUOUS	9
30780	DECIDUOUS	7
30781	DECIDUOUS	6
30782	DECIDUOUS	17
30783	DECIDUOUS	9
30784	DECIDUOUS	27
30785	DECIDUOUS	14
30786	DECIDUOUS	6,7
30787	DECIDUOUS	6,6
30788	DECIDUOUS	19,20
30789	DECIDUOUS	15
30790	DECIDUOUS	11
30791	DECIDUOUS	16
30792	DECIDUOUS	13,15
30793	DECIDUOUS	18
30794	CONIFEROUS	7
30795	CONIFEROUS	6,7,8
30796	DECIDUOUS	7,8
30797	DECIDUOUS	21
30798	DECIDUOUS	19

TREE TABLE		
TREE NUMBER	TYPE	DBH (IN.)
30799	DECIDUOUS	10
30800	DECIDUOUS	10
30801	DECIDUOUS	15
30802	DECIDUOUS	13
30803	DECIDUOUS	13
30804	DECIDUOUS	12
30805	DECIDUOUS	8
30806	DECIDUOUS	21
30807	DECIDUOUS	11,13,14
30809	DECIDUOUS	10,15
30810	CONIFEROUS	12
30811	DECIDUOUS	15
30818	DECIDUOUS	20
30819	DECIDUOUS	16,17
30820	DECIDUOUS	12
30821	DECIDUOUS	12,14
30822	DECIDUOUS	6
30823	DECIDUOUS	18,21
30824	DECIDUOUS	8,9,10
30825	DECIDUOUS	10
30826	DECIDUOUS	17
30827	CONIFEROUS	53
30832	DECIDUOUS	9
30833	DECIDUOUS	9
30834	DECIDUOUS	8
30835	DECIDUOUS	10
30836	DECIDUOUS	9
30837	DECIDUOUS	14
30838	DECIDUOUS	20
30839	CONIFEROUS	47
30843	DECIDUOUS	44
30844	DECIDUOUS	18
30847	DECIDUOUS	7,8,8
30848	DECIDUOUS	23
30849	DECIDUOUS	18
30850	DECIDUOUS	41
30851	CONIFEROUS	14
30852	DECIDUOUS	9
30853	CONIFEROUS	42
30854	DECIDUOUS	15,16
30855	CONIFEROUS	15
30856	DECIDUOUS	7
30858	DECIDUOUS	14
30859	DECIDUOUS	6,11
30861	DECIDUOUS	7,12,13
30862	DECIDUOUS	6,13,13
30863	DECIDUOUS	7
30864	DECIDUOUS	10

TREE TABLE		
TREE NUMBER	TYPE	DBH (IN.)
30868	DECIDUOUS	6
30869	DECIDUOUS	7
30870	DECIDUOUS	12
30871	DECIDUOUS	7
30872	DECIDUOUS	9
30873	DECIDUOUS	6
30874	DECIDUOUS	8,8
30875	DECIDUOUS	12
30876	DECIDUOUS	6,9
30877	DECIDUOUS	11
30879	DECIDUOUS	10
30880	DECIDUOUS	9
30881	DECIDUOUS	10
30883	DECIDUOUS	7,8,9,10
30884	DECIDUOUS	9,12
30899	DECIDUOUS	19
30900	DECIDUOUS	18
30901	DECIDUOUS	11,22
30902	DECIDUOUS	11,11,15
30903	DECIDUOUS	11,12
30904	DECIDUOUS	16
30905	DECIDUOUS	16
30906	DECIDUOUS	14
30907	DECIDUOUS	18
30908	DECIDUOUS	8
30909	DECIDUOUS	10
30911	DECIDUOUS	17
30912	DECIDUOUS	25
30913	DECIDUOUS	23
30917	DECIDUOUS	8,10
30918	DECIDUOUS	14
30921	DECIDUOUS	6
30923	DECIDUOUS	7
30925	DECIDUOUS	17
30926	DECIDUOUS	19
30927	DECIDUOUS	8
30928	DECIDUOUS	10
30929	DECIDUOUS	6
30930	DECIDUOUS	10
30931	DECIDUOUS	8
30932	DECIDUOUS	10
30933	DECIDUOUS	8
30938	DECIDUOUS	6
30939	DECIDUOUS	6
30940	DECIDUOUS	7
30942	DECIDUOUS	9

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

KASTER RD

OREGON
COLUMBIA COUNTY TAX MAP 04 01 09 AB

ST HELENS
TAX LOT 1400

EXISTING CONDITIONS PLAN

DESIGNED BY:
DRAWN BY: CC
MANAGED BY: BH
CHECKED BY: BH
DATE: 6/12/2023

REGISTERED PROFESSIONAL LAND SURVEYOR

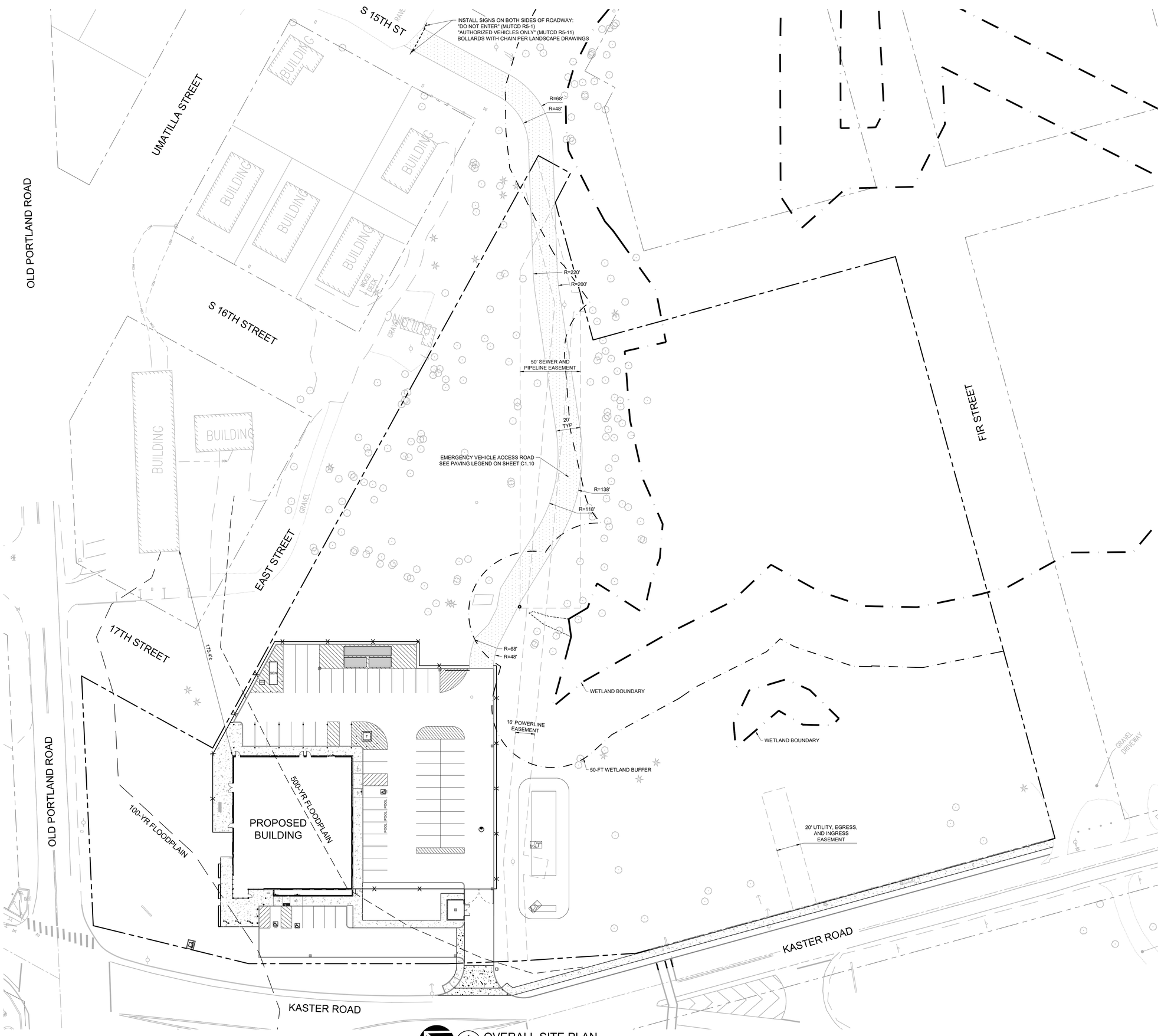
OREGON
MARCH 14, 2017
BENJAMIN R HUFF
84738PLS
RENEWS: 6/30/25

REVISIONS

JOB NUMBER
8041-02

SHEET
02

AKS DRAWING FILE: 8041-02EXCOND.DWG | LAYOUT: 02



1 C1.00 OVERALL SITE PLAN

30 0 15 30 60 120

(IN FEET)

1 inch = 30 ft.

LAND USE SUBMITTAL SET 6/28/2023

221031000\DRAWINGS\CIVIL\310-C1.00.DWG BTC 06/26/23 10:15 1:30

Architecture ▪ Interiors
Planning ▪ Engineering

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Client

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265 STRAND STREET
ST. HELENS, OR 97051

Project

ST. HELENS PUBLIC SAFETY BUILDING
OLD PORTLAND RD AND KASTER RD
ST. HELENS, OR 97051

Mechanical/Electrical
PAE ENGINEERS
151 SW 1ST AVENUE
PORTLAND, OR 97204

PAE
pae-engineers.com

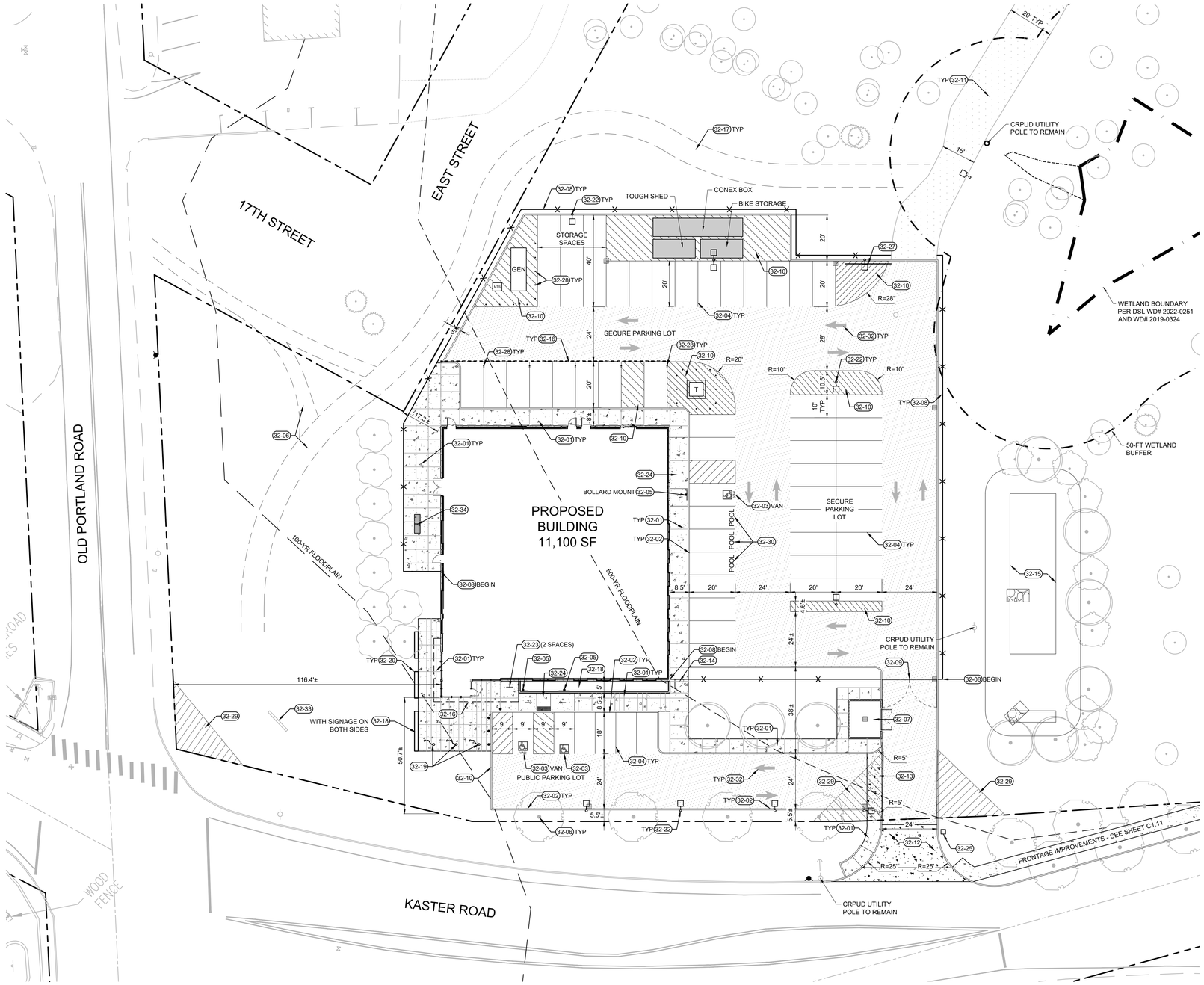
REVISION SCHEDULE

Delta	Issued As	Issue Date

SHEET TITLE:
OVERALL SITE PLAN

SHEET
C1.00

JOB NO. **2210310.04**



1 C1.10 SITE PLAN

20 0 10 20 40 80

(IN FEET)

1 inch = **20** ft.

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE CURRENT STANDARD SPECIFICATIONS AND REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION AND THE CURRENT AMERICAN PUBLIC WORKS ASSOCIATION STANDARDS FOR PUBLIC WORKS CONSTRUCTION
2. THE SURVEY INFORMATION SHOWN AS A BACKGROUND SCREEN IS BASED ON A SURVEY BY OTHERS AND IS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS WITH ITS OWN RESOURCES PRIOR TO START OF ANY CONSTRUCTION
3. CONTRACTOR MUST COMPLY WITH LOCAL AND STATE REQUIREMENTS TO NOTIFY ALL UTILITY COMPANIES FOR LINE LOCATIONS SEVENTY-TWO (72) HOURS (MINIMUM) PRIOR TO START OF WORK. DAMAGE TO UTILITIES SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE
4. CONTRACTOR SHALL ADJUST ALL STRUCTURES IMPACTED BY CONSTRUCTION IMPROVEMENTS TO NEW FINISH GRADES
5. REQUEST BY THE CONTRACTOR FOR CHANGES TO THE PLANS MUST BE APPROVED BY THE ENGINEER.
6. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY REQUIRES A PUBLIC WORKS PERMIT
7. CONTRACTOR SHALL PROVIDE THE ENGINEER OF RECORD WITH AS-BUILT PLANS AT LEAST 2 WEEKS PRIOR TO REQUESTING AGENCY SIGN OFF ON PERMITS FOR OCCUPANCY
8. CONTRACTOR SHALL PERFORM ALL THE WORK SHOWN ON THE DRAWINGS AND ALL INCIDENTAL WORK NECESSARY TO COMPLETE THE PROJECT

SITE WORK NOTES

1. ALL CURB RADII TO BE 3 FEET UNLESS NOTED OTHERWISE
2. STAIR RISERS AND TREADS SHALL BE CONFORMANT WITH THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION AND THE CURRENT EDITION OF THE STATE BUILDING CODE (E.G. INTERNATIONAL BUILDING CODE, CHAPTER 10, SECTION 1011.5)
3. WHEREVER A PEDESTRIAN WALKING PATH IS WITHIN 36 INCHES OF A VERTICAL DROP OF 30 INCHES OR GREATER, GUARDRAIL SHALL BE INSTALLED CONFORMANT WITH THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION AND THE CURRENT EDITION OF THE STATE BUILDING CODE (E.G. INTERNATIONAL BUILDING CODE, CHAPTER 10, SECTION 1015)
4. PAVEMENTS WITH DEPRESSIONS OR BIRD BATHS, UNCONTROLLED CRACKS WHICH ARE VISIBLE WITHOUT MAGNIFICATION, AND/OR BONY OR OPEN GRADED SURFACES (EXCEPTING POROUS PAVEMENTS) WILL BE CONSIDERED UNACCEPTABLE. CONTRACTOR SHALL REVIEW PAVEMENT REPAIR OR REPLACEMENT ALTERNATIVES WITH THE OWNER AND ENGINEER PRIOR TO CONDUCTING THE REPAIR WORK.

PARKING DATA

	ACCESSIBLE	STANDARD	CARPOOL/VANPOOL	TOTAL
SECURE (10' x 20')	1	42	3	46
PUBLIC (9' x 18')	2	4	0	6
TOTAL	3	46	3	52

SITE DATA

SITE AREA	325,274 SF (7.47 AC)
DISTURBED AREA	93,720 SF (2.72 AC)
BUILDING AREA	11,230 SF (18.6%)
PAVEMENT AREA	41,903 SF (45.4%)
LANDSCAPE AREA	40,587 SF (36.0%)

LEGEND

	EXISTING	PROPOSED
PROPERTY/ROW LINE		
100-YEAR FLOODPLAIN		
500-YEAR FLOODPLAIN		
EDGE OF PAVEMENT		
WETLAND BOUNDARY		
50-FT WETLAND BUFFER		
CHAINLINK FENCE		
TREE		

PAVING LEGEND

*PAVING SECTION PER REPORT OF GEOTECHNICAL ENGINEERING SERVICES BY HART CROWSER, DATED NOVEMBER 18, 2021.

- CONCRETE SIDEWALK PER DETAIL 1/C5.10 SCORING PER LANDSCAPE DRAWINGS
- EMERGENCY VEHICLE ACCESS ROAD* 3" AC OVER 10" AGGREGATE BASE
- DRIVE AISLE* 3" AC OVER 6" AGGREGATE BASE
- PARKING STALLS* 2.5" AC OVER 6" AGGREGATE BASE

KEYNOTES

32-01	CONCRETE SIDEWALK, SCORING PER LANDSCAPE DRAWINGS
32-02	VERTICAL CURB
32-03	ACCESSIBLE PARKING STALL
32-04	PARKING STALL STRIPING
32-05	ACCESSIBLE SIGN
32-06	LANDSCAPE AREA PER LANDSCAPE DRAWINGS
32-07	TRASH ENCLOSURE PER ARCHITECTURAL DETAILS
32-08	8-FT TALL CHAINLINK FENCE WITH SLATS
32-09	SWINGING SECURITY GATE PER ARCHITECTURAL DETAILS
32-10	4" WHITE STRIPE AT 45-DEGREE ANGLE
32-11	EMERGENCY VEHICLE ROAD PER PAVING LEGEND
32-12	COMMERCIAL DRIVEWAY PER CITY OF ST HELENS MUNICIPAL CODE, SECTION 17.76.020
32-13	CONCRETE CROSSWALK
32-14	MAN GATE WITH CONTROL ACCESS PER ARCHITECTURAL PLANS
32-15	STORMWATER POND - SEE GRADING PLAN
32-16	BUILDING CANOPY PER ARCHITECTURAL PLANS
32-17	FUTURE MULTI-USE TRAIL
32-18	RAISED PLANTER PER LANDSCAPE DRAWINGS
32-19	FLAGPOLE PER LANDSCAPE DRAWINGS
32-20	SITE FURNISHINGS PER LANDSCAPE DRAWINGS
32-21	LIGHTED BOLLARDS PER LANDSCAPE DRAWINGS
32-22	SITE LIGHTING PER ELECTRICAL DRAWINGS
32-23	BIKE RACK PER LANDSCAPE DETAILS
32-24	CURB RAMP
32-25	MAILBOX - CONTRACTOR TO COORDINATE FINAL LOCATION WITH USPS AND OWNER
32-26	EV CHARGING STATION PER ELECTRICAL DRAWINGS
32-27	CANTILEVER GATE PER ARCHITECTURAL DETAILS
32-28	BOLLARDS
32-29	VISION TRIANGLE PER CITY OF ST HELENS MUNICIPAL CODE, SECTION 17.76.020
32-30	CARPOOL/VANPOOL PARKING
32-31	BUILDING COLUMN PER ARCHITECTURAL DRAWINGS
32-32	PAINTED DIRECTIONAL ARROWS
32-33	EXISTING PROPERTY SIGN TO REMAIN
32-34	MECHANICAL UNITS PER MECHANICAL DRAWINGS

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Delta	Issued As	Issue Date

SHEET TITLE:
SITE PLAN

SHEET
C1.10

JOB NO. **2210310.04**

LAND USE SUBMITTAL SET 6/28/2023

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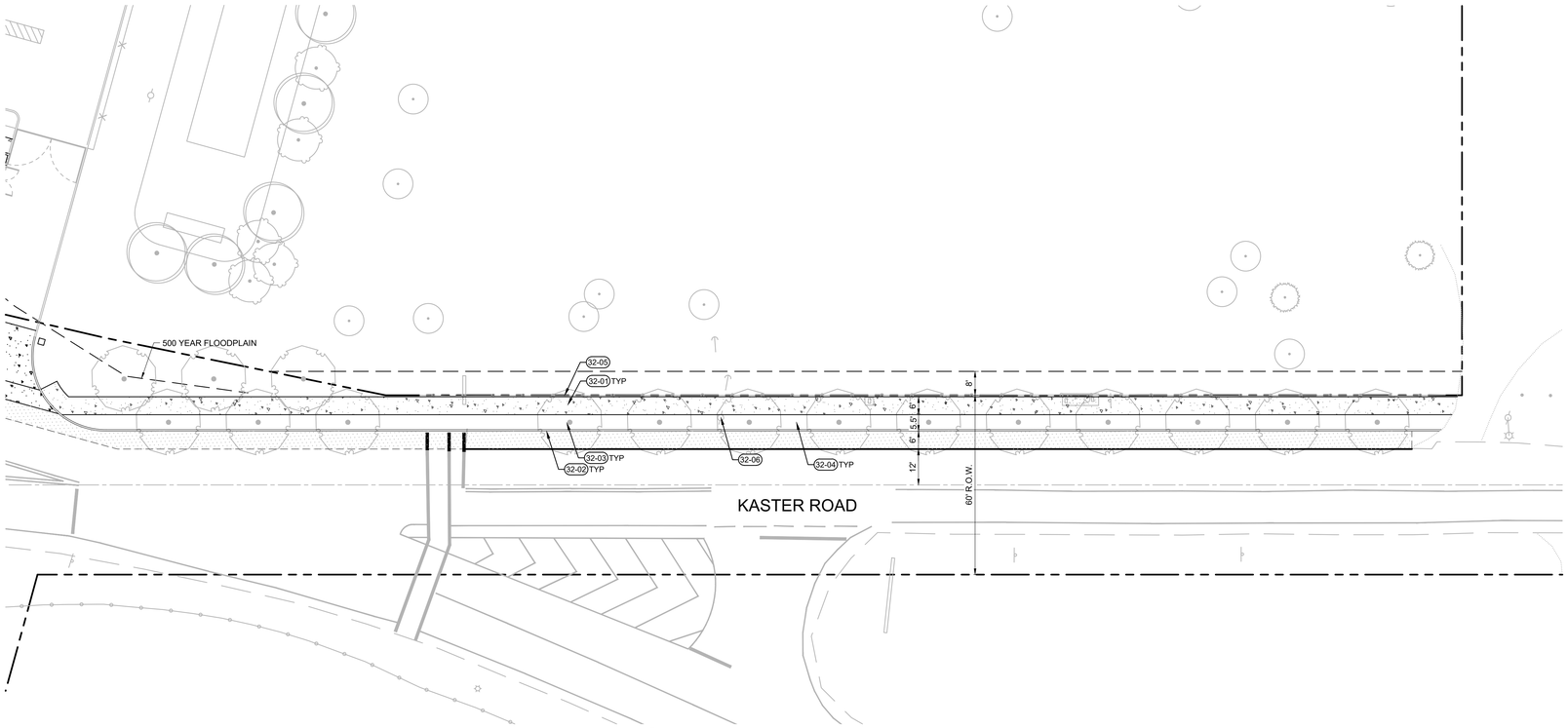


1 C1.11 SITE PLAN - KASTER ROAD FRONTAGE IMPROVEMENTS

20 0 10 20 40 80

(IN FEET)

1 inch = 20 ft.

LEGEND

	EXISTING	PROPOSED
PROPERTY/ROW LINE		
100-YEAR FLOODPLAIN		
500-YEAR FLOODPLAIN		
EDGE OF PAVEMENT		
WETLAND BOUNDARY		
50-FT WETLAND BUFFER		
CHAINLINK FENCE		
TREE		

PAVING LEGEND

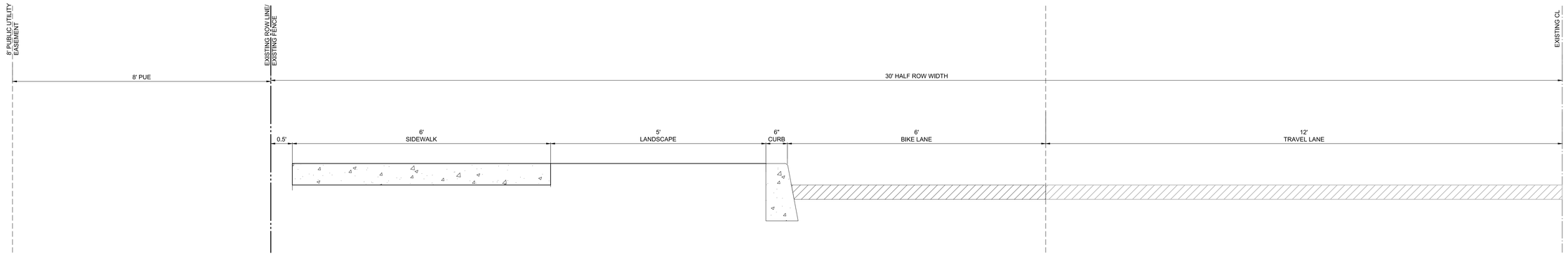
*PAVING SECTION PER REPORT OF GEOTECHNICAL ENGINEERING SERVICES BY HART CROWSER, DATED NOVEMBER 18, 2021.

CONCRETE SIDEWALK

AC PAVING

KEYNOTES

32-01	CONCRETE SIDEWALK, SCORING PER LANDSCAPE DRAWINGS TYPE 'A' CURB PER CITY OF ST HELENS DWG. NO. 210
32-02	VERTICAL CURB SIDEWALK PER CITY OF ST HELENS DWG. NO. 220
32-03	LANDSCAPE AREA PER LANDSCAPE DRAWINGS
32-04	STREET TREE PER LANDSCAPE DRAWINGS
32-05	EXISTING CHAIN LINK FENCE
32-06	EXISTING UTILITY POLE TO REMAIN



2 C1.11 KASTER ROAD - TYPICAL SECTION

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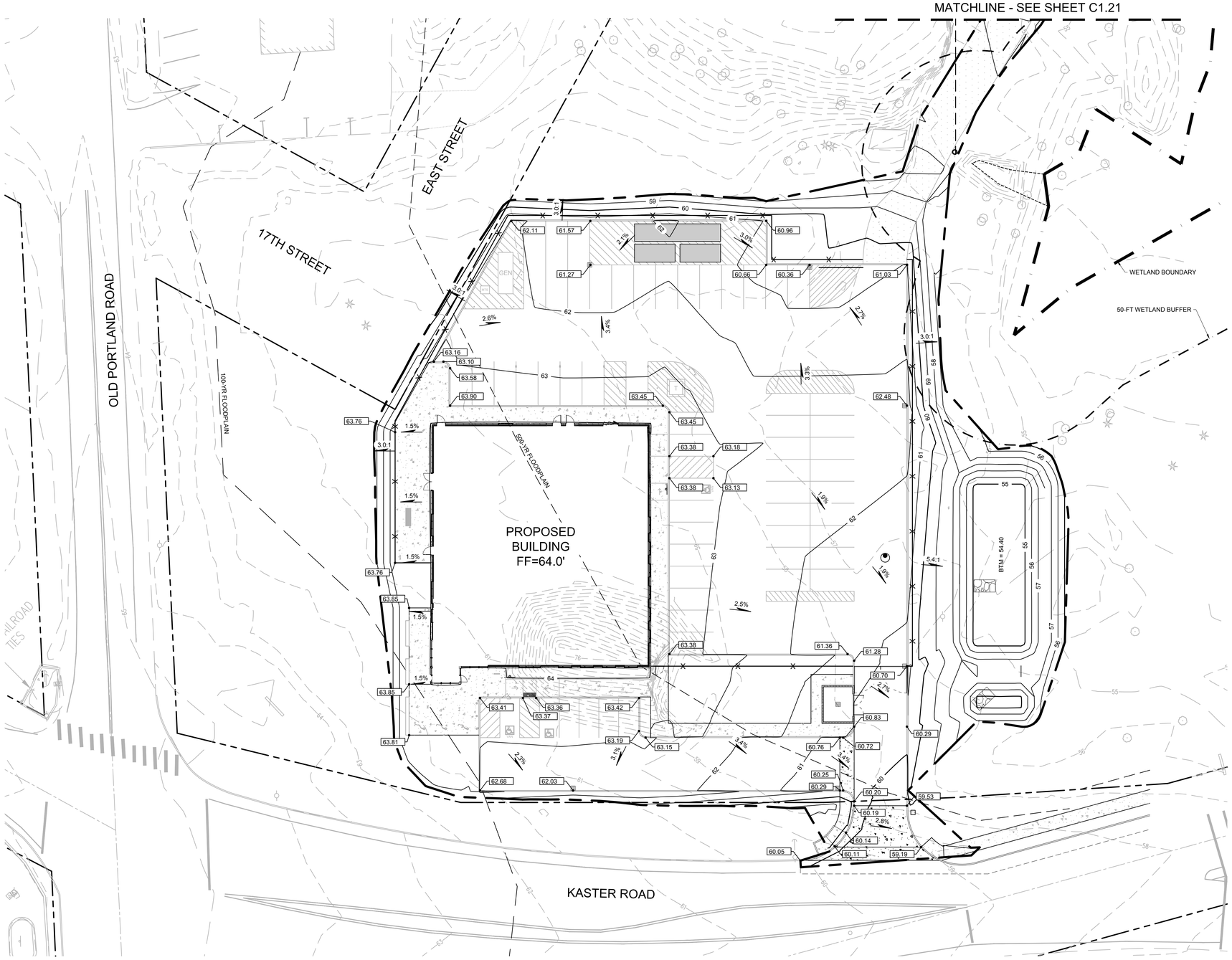
SHEET TITLE:
SITE PLAN - KASTER ROAD FRONTAGE IMPROVEMENTS

SHEET
C1.11

JOB NO. **2210310.04**

LAND USE SUBMITTAL SET 6/28/2023



GRADING NOTES

1. ROUGH GRADING: ROUGH GRADE TO ALLOW FOR DEPTH OF BUILDING SLABS, PAVEMENTS, BASE COURSES, AND TOPSOIL PER DETAILS AND SPECIFICATIONS
2. FINISH GRADING: BRING ALL FINISH GRADES TO LEVELS INDICATED. WHERE GRADES ARE NOT OTHERWISE INDICATED, HARDSCAPE FINISH GRADES ARE TO BE THE SAME AS ADJACENT SIDEWALKS, CURBS, OR THE OBVIOUS GRADE OF ADJACENT STRUCTURE. SOFTSCAPE GRADES (INCLUDING ADDITIONAL DEPTH OF TOPSOIL) SHALL BE SET 6 INCHES BELOW BUILDING FINISHED FLOORS WHERE ABUTTING BUILDINGS, 1-2 INCHES WHERE ABUTTING WALKWAYS OR CURBS, OR MATCHING OTHER SOFTSCAPE GRADES. GRADE TO UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE GRADES ARE GIVEN. ROUND OFF SURFACES, AVOID ABRUPT CHANGES IN LEVELS. AT COMPLETION OF JOB AND AFTER BACKFILLING BY OTHER TRADES HAS BEEN COMPLETED, REFILL AND COMPACT AREAS WHICH HAVE SETTLED OR ERODED TO BRING TO FINAL GRADES
3. EXCAVATION: EXCAVATE FOR SLABS, PAVING, AND OTHER IMPROVEMENTS TO SIZES AND LEVELS SHOWN OR REQUIRED. ALLOW FOR FORM CLEARANCE AND FOR PROPER COMPACTION OF REQUIRED BACKFILLING MATERIAL. DAMAGE TO UTILITIES SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE
4. EFFECTIVE EROSION PREVENTION AND SEDIMENT CONTROL IS REQUIRED. EROSION CONTROL DEVICES MUST BE INSTALLED AND MAINTAINED MEETING THE LOCAL AGENCY AND STATE AGENCY REQUIREMENTS. THE AUTHORITIES HAVING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE EROSION CONTROL
5. DRAINAGE SHALL BE CONTROLLED WITHIN THE WORK SITE AND SHALL BE ROUTED SO THAT ADJACENT PRIVATE PROPERTY, PUBLIC PROPERTY, AND THE RECEIVING SYSTEM ARE NOT ADVERSELY IMPACTED. THE ENGINEER AND/OR AUTHORITIES HAVING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE DRAINAGE CONTROL
6. SITE TOPSOIL STOCKPILED DURING CONSTRUCTION AND USED FOR LANDSCAPING SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT
7. CONTRACTOR TO REVIEW AND CONFIRM GRADES AT JOIN POINTS, SUCH AS AT DAYLIGHT LIMITS AND BUILDING ENTRANCES, PRIOR TO CONSTRUCTION
8. ACCESSIBLE PARKING SPACES AND LOADING ZONES SHALL BE CONSTRUCTED AT 2% MAXIMUM SLOPE IN ALL DIRECTIONS
9. PEDESTRIAN SIDEWALK CONNECTIONS BETWEEN PUBLIC R.O.W. AND BUILDING ENTRANCES SHALL BE CONSTRUCTED AT AND 2% MAXIMUM CROSS SLOPE AND 5% MAXIMUM LONGITUDINAL SLOPE (8.33% FOR DESIGNATED RAMPS)

LEGEND

- PROPERTY/ROW LINE
- 100-YEAR FLOODPLAIN
- 500-YEAR FLOODPLAIN
- EASEMENT
- EDGE OF PAVEMENT
- WETLAND BOUNDARY
- 50-FT WETLAND BUFFER
- LIMIT OF GRADE
- TREE

1 / C1.20 GRADING PLAN

20 0 10 20 40 80
(IN FEET)
1 inch = **20** ft.

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SHEET TITLE:
GRADING PLAN

SHEET
C1.20

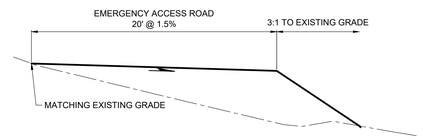
JOB NO. **2210310.04**

LAND USE SUBMITTAL SET 6/28/2023

"2210310.00" C:\TEMP\ACPUBLISH_12444\310-C1.20.DWG BTC 06/26/23 11:08 1:20

1 C1.21 GRADING ENLARGEMENT - EMERGENCY ACCESS ROAD

(IN FEET)
1 inch = 20 ft.



2 C1.21 TYPICAL EMERGENCY ACCESS ROAD SECTION
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GRADING ENLARGEMENTS

SHEET
C1.21

JOB NO. **2210310.04**

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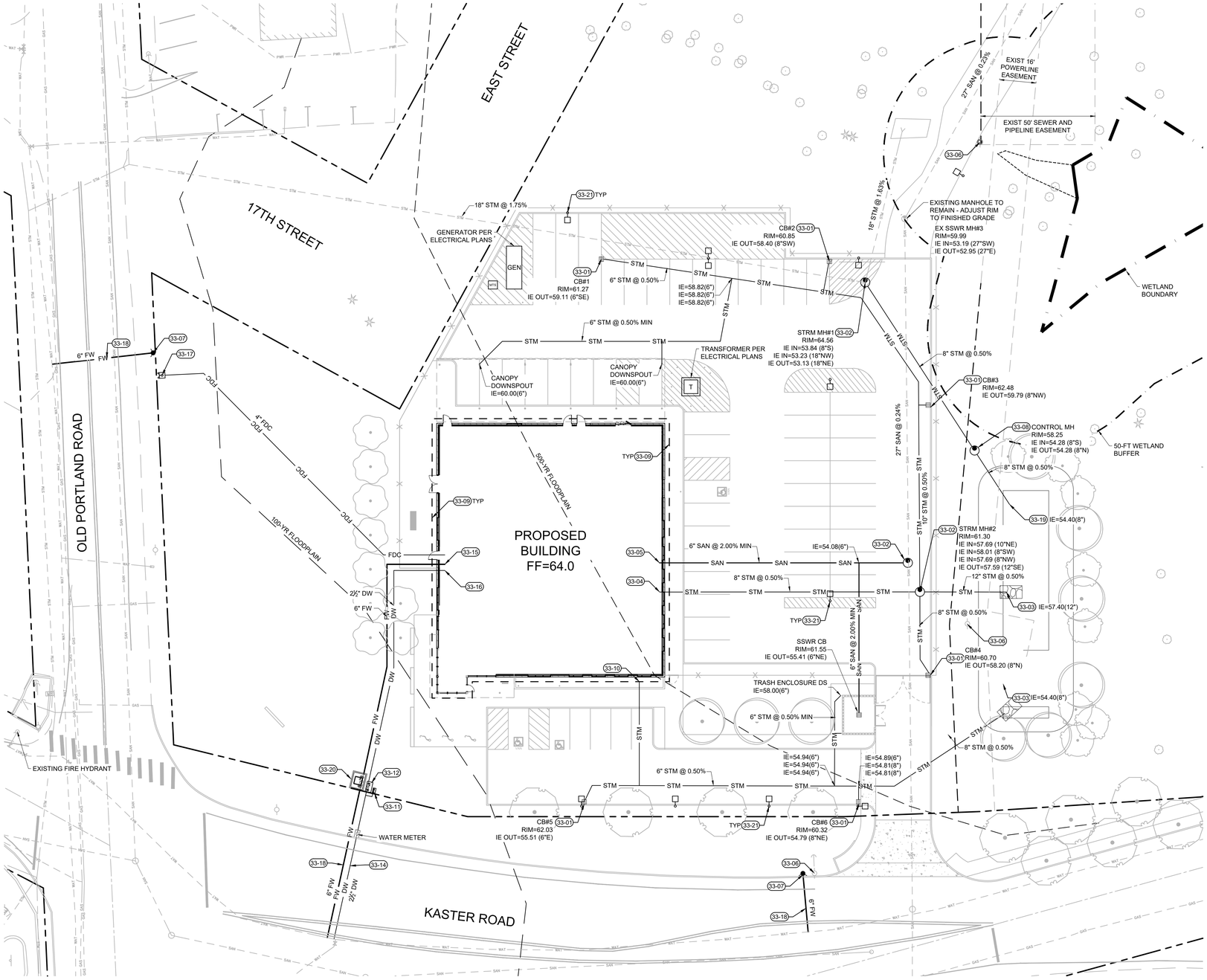
LAND USE SUBMITTAL SET 6/28/2023



1 C1.30 UTILITY PLAN

20 0 10 20 40 80

(IN FEET)

1 inch = 20 ft.

UTILITY NOTES

1. ALL WORK SHALL CONFORM TO THE CURRENT EDITIONS OF THE STATE PLUMBING AND BUILDING CODES WITH LOCAL AMENDMENTS AS APPLICABLE ALONG WITH ANY ADDITIONAL REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION.
2. THE WORKING DRAWINGS ARE GENERALLY DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW REQUIRED FOR INSTALLATION IN THE SPACE PROVIDED. THEY DO NOT SHOW EVERY DIMENSION, COMPONENT PIECE, SECTION, JOINT OR FITTING REQUIRED TO COMPLETE THE PROJECT. ALL LOCATIONS FOR WORK SHALL BE CHECKED AND COORDINATED WITH EXISTING CONDITIONS IN THE FIELD BEFORE BEGINNING CONSTRUCTION. EXISTING UNDERGROUND UTILITIES WITHIN THE LIMITS OF EXCAVATION SHALL BE VERIFIED AS TO CONDITION, SIZE AND LOCATION BY UNCOVERING (POTHOLING), PROVIDING SUCH IS PERMITTED BY THE AUTHORITIES HAVING JURISDICTION, BEFORE BEGINNING CONSTRUCTION. CONTRACTOR TO NOTIFY ENGINEER IF THERE ARE ANY DISCREPANCIES.
3. NOT ALL REQUIRED CLEANOUTS ARE SHOWN ON THE PLANS. PROVIDE CLEANOUTS AS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION AND THE CURRENT EDITION OF THE STATE PLUMBING CODE (E.G. UNIFORM PLUMBING CODE CHAPTER 7, SECTIONS 707 AND 719, AND CHAPTER 11, SECTION 1101.13).
4. ALL SANITARY AND STORM PIPING IS DESIGNED USING CONCENTRIC PIPE TO PIPE AND WYE FITTINGS, UNLESS OTHERWISE NOTED
5. ALL DOWNSPOUT LEADERS TO BE 6 INCHES AT 2.0% MINIMUM UNLESS NOTED OTHERWISE
6. IF APPLICABLE, PROVIDE 2 INCH PVC DRAIN LINE FROM DOMESTIC WATER METER VAULT AND BACKFLOW PREVENTER VAULT TO THE DOUBLE DETECTOR CHECK VALVE (FIRE) VAULT. PROVIDE 1/3 HP SUMP PUMP AT BASE OF FIRE VAULT AND INSTALL 2 INCH PVC DRAIN LINE WITH BACKFLOW VALVE FROM SUMP PUMP TO DAYLIGHT AT NEAREST CURB. FURNISH 3/4 INCH DIAMETER CONDUIT FROM BUILDING ELECTRICAL ROOM TO FIRE VAULT FOR SUMP PUMP ELECTRICAL SERVICE. NOTE: COORDINATE WITH FIRE PROTECTION CONTRACTOR FOR FLOW SENSOR INSTALLATION AND CONDUIT REQUIREMENTS
7. PREFABRICATED PLUMBING PRODUCTS USED SHALL BE LISTED ON THE IAPMO R&T PRODUCT LISTING DIRECTORY (pld.iapmo.org). ALL SUBMITTALS FOR REVIEW SHALL BE ACCOMPANIED BY MANUFACTURER'S LITERATURE CLEARLY STATING THIS CERTIFICATION AND/OR THE PRODUCT LISTING CERTIFICATE FROM THE IAPMO DIRECTORY WEBSITE
8. IF APPLICABLE, CONTRACTOR TO PROVIDE POWER TO IRRIGATION CONTROLLER. SEE LANDSCAPE PLANS AND SPECIFICATIONS
9. SEE BUILDING PLUMBING DRAWINGS FOR PIPING WITHIN THE BUILDING AND UP TO 5 FEET OUTSIDE THE BUILDING, INCLUDING ANY FOUNDATION DRAINAGE PIPING
10. CONTRACTOR TO MAINTAIN MINIMUM 3 FEET OF COVER OVER ALL UTILITY PIPING AND CONDUITS, UNLESS NOTED OTHERWISE
11. WHERE CONNECTING TO AN EXISTING PIPE, AND PRIOR TO ORDERING MATERIALS, THE CONTRACTOR SHALL EXPOSE THE EXISTING PIPE TO VERIFY THE LOCATION, SIZE, AND ELEVATION. NOTIFY ENGINEER OF ANY DISCREPANCIES
12. CONTRACTOR SHALL SCOPE ALL PRIVATE ONSITE GRAVITY SYSTEM LINES THAT ARE BEING CONNECTED TO FOR PROPOSED SERVICE. SCOPING SHALL OCCUR A MINIMUM OF 72 HOURS PRIOR TO CONSTRUCTION AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES WITH AS-BUILT RECORDS/SURVEY FINDINGS OR IF THE EXISTING UTILITIES ARE DAMAGED OR SHOW SIGNS OF SIGNIFICANT DETERIORATION. CONTRACTOR SHALL PROVIDE THE ENGINEER WITH VIDEO RECORDS, ALONG WITH A SKETCH IF THE LOCATIONS DIFFER FROM AS-BUILT PLANS OR SURVEY FINDINGS
13. PRODUCT MATERIAL SUBMITTALS FOR REVIEW BY THE ENGINEER SHALL BE ACCOMPANIED BY A MANUFACTURER'S CERTIFICATION THAT THE PRODUCT IS CAPABLE OF MEETING PERFORMANCE EXPECTATIONS (I.E. - WATERTIGHT, MINIMUM/MAXIMUM BURIAL, PREVENTION OF GROUNDWATER INTRUSION, ETC.) BASED ON THEIR REVIEW OF THE PROJECT PLANS. IN THE ABSENCE OF A MANUFACTURER'S CERTIFICATION, THE GENERAL CONTRACTOR'S REVIEW STAMP SHALL CONSTITUTE THAT THEY HAVE PERFORMED THE NECESSARY REVIEW TO CERTIFY THE PRODUCT'S CONFORMANCE TO PROJECT SPECIFICATIONS AND GENERAL EXPECTATIONS
14. PIPE LENGTHS SHOWN ON PLANS ARE TWO DIMENSIONAL AND MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE
15. MANHOLE RIM ELEVATIONS SHOWN ON PLANS REFERENCE THE CENTER OF THE STRUCTURE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECONCILING LIDS/GRATES/ETC TO THE SLOPES OF THE SITE GRADING
16. MANHOLE OR VAULT RIM ELEVATIONS SHALL BE SET FLUSH IN PAVEMENT AREAS AND 3-4 INCHES ABOVE GRADE IN LANDSCAPE AREAS. RIMS IN PAVEMENT AREAS SHALL BE H-20 TRAFFIC RATED

LEGEND

	EXISTING	PROPOSED
PROPERTY/ROW LINE		
100-YEAR FLOODPLAIN		
500-YEAR FLOODPLAIN		
EASEMENT		
EDGE OF PAVEMENT		
WETLAND BOUNDARY		
50-FT WETLAND BUFFER		
WATERLINE	WAT	FW / DW
STORM LINE	STM	STM
SANITARY LINE	SAN	SAN
OVERHEAD POWER	OHPL	
GAS LINE	GAS	
UTILITY POLE		
GUY WIRE		
BACKFLOW		
WATER METER		
BACKFLOW		
FDC		

KEYNOTES

33-01	INSTALL CATCH BASIN
33-02	INSTALL MANHOLE
33-03	OUTFALL WITH RIP-RAP PAD
33-04	CONNECT TO INTERNAL DOWNSPOUTS
33-05	CONNECT TO BUILDING SANITARY
33-06	COLUMBIA RIVER PUD POWER POLE TO REMAIN - PROTECT DURING CONSTRUCTION
33-07	INSTALL FIRE HYDRANT PER CITY OF ST HELENS DWG. NO. 400
33-08	CONTROL MANHOLE
33-09	FOOTING DRAIN - 4" PERFORATED PIPE IN FILTER FABRIC WRAPPED DRAIN ROCK TRENCH EXTENDING A MINIMUM OF 12" BELOW THE LOWEST ADJACENT GRADE. DRAIN ROCK AND FILTER FABRIC PER SECTION 8.5 OF THE GEOTECHNICAL REPORT
33-10	CONNECT FOOTING DRAIN TO STORM SYSTEM. INSTALL BACKWATER VALVE
33-11	IRRIGATION BACKFLOW AND POINT OF CONNECTION PER LANDSCAPE DRAWINGS
33-12	2½" DOMESTIC BACKFLOW
33-13	LANDSCAPE AREA DRAIN
33-14	2½" DOMESTIC WATER SERVICE PER CITY OF ST HELENS DWG. NO. 405
33-15	CONNECT TO BUILDING FIRE WATER. 6" BACKFLOW LOCATED IN BUILDING PER PLUMBING DRAWINGS
33-16	CONNECT TO BUILDING DOMESTIC WATER
33-17	INSTALL FDC
33-18	6" FIRE WATER LINE. TRENCHING PER CITY OF ST HELENS DWG. NO. 300
33-19	POND INLET WITH GRATE
33-20	6" DDCV
33-21	SITE LIGHT

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SHEET TITLE:
UTILITY PLAN

SHEET
C1.30

JOB NO. **2210310.04**

LAND USE SUBMITTAL SET 6/28/2023

PLANT SCHEDULE

TREES	BOTANICAL / COMMON NAME	SIZE		QTY
	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE' AUTUMN BRILLIANCE APPLE SERVICEBERRY	2" CAL., B&B		9
	CORNUS KOUSA X NUTTALLII 'KN4-43' STARLIGHT KOUSA DOGWOOD	2" CAL. B&B		9
	NYSSA SYLVATICA 'WILDFIRE' SOUR GUM	2" CAL., B&B		21
	RHAMNUS PURSHIANA CASCARA	2" CAL. B&B		8
BUFFER ENHANCEMENT	BOTANICAL / COMMON NAME	SIZE		QTY
A	ACER MACROPHYLLUM BIG LEAF MAPLE	1" CAL. B&B		13
P	PSEUDOTSUGA MENZIESII DOUGLAS FIR	4' HT.		17
R	RHAMNUS PURSHIANA CASCARA MATURE (25' H X 20' W)	1" CAL. B&B		17
EXISTING	BOTANICAL / COMMON NAME	SIZE		QTY
	EXISTING DECIDUOUS TREE TO REMOVE	N/A		42
	EXISTING DECIDUOUS TREE TO REMAIN	N/A		197
	EXISTING EVERGREEN TREE TO REMOVE	N/A		8
	EXISTING EVERGREEN TREE TO REMAIN	N/A		18
SHRUBS	BOTANICAL / COMMON NAME	SIZE	SPACING	QTY
	BERBERIS AQUIFOLIUM 'COMPACTA' COMPACT OREGON GRAPE	3 GAL.	30" o.c.	27
	CORNUS STOLONIFERA RED TWIG DOGWOOD	2 GAL.	48" o.c.	6
	GARRYA ELLIPTICA COAST SILKTASSEL	5 GAL.	48" o.c.	40
	GAULTHERIA SHALLON SALAL	1 GAL.	36" o.c.	173
	HOLODISCUS DISCOLOR OCEAN-SPRAY	1 GAL.	48" o.c.	3
	PHILADELPHUS LEWISII WILD MOCKORANGE	1 GAL.	48" o.c.	14
	RIBES SANGUINEUM RED FLOWERING CURRANT	1 GAL.	48" o.c.	18
	ROSA NUTKANA NOOTKA ROSE	1 GAL.	36" o.c.	34
	SPIRAEA BETULIFOLIA 'TOR' TOR BIRCHLEAF SPIREA	3 GAL.	30" o.c.	104
	SYMPHORICARPOS ALBUS COMMON WHITE SNOWBERRY	1 GAL.	36" o.c.	45
	THUJA OCCIDENTALIS 'SMARAGD' EMERALD GREEN ARBORVITAE	8' HT. MIN.	48" o.c.	72
	VACCINIUM OVATUM EVERGREEN HUCKLEBERRY	3 GAL.	36" o.c.	25
BUFFER ENHANCEMENT	BOTANICAL / COMMON NAME	SIZE	SPACING	QTY
AC	ACER CIRCINATUM VINE MAPLE	1 GAL.	48" o.c.	15
PC	PHYSOCARPUS CAPITATUS PACIFIC NINEBARK	1 GAL.	48" o.c.	22
RN	ROSA NUTKANA NOOTKA ROSE	1 GAL.	48" o.c.	53
SA	SYMPHORICARPOS ALBUS COMMON WHITE SNOWBERRY	1 GAL.	36" o.c.	62
PERENNIALS	BOTANICAL / COMMON NAME	SIZE	SPACING	QTY
	ACHILLEA MILLEFOLIUM COMMON YARROW	4" POT	18" o.c.	42
	DESCHAMPSIA CESPITOSA TUFTED HAIR GRASS	1 GAL.	18" o.c.	44
	POLYSTICHUM MUNITUM WESTERN SWORD FERN	1 GAL.	24" o.c.	47
SHRUB AREAS	BOTANICAL / COMMON NAME	SIZE	SPACING	QTY
	WETLAND BUFFER ENHANCEMENT SHRUB MIX	---		6,962 SF
GROUND COVERS	BOTANICAL / COMMON NAME	SIZE	SPACING	QTY
	CEANOTHUS GLORIOSUS POINT REYES CEANOTHUS	1 GAL.	24" o.c.	2,882
	DIVERSE PRAIRIE MIX HERITAGE SEEDLINGS	8 LBS / AC		26,797 SF
	LAWN PROTIME SEED MIX 301	8 LBS/1000 SQFT		2,254 SF

STORMWATER FACILITY INSTALLATION

(PER KING COUNTY SURFACE WATER DESIGN MANUAL (2021 - 5.1.1.1)

1. POND BOTTOM AND INTERIOR SIDES SHALL BE SODDED OR SEEDED WITH AN APPROPRIATE SEED MIXTURE. ALL REMAINING AREAS OF THE TRACT MUST BE PLANTED WITH GRASS INTERMIXED WITH LANDSCAPE ISLANDS
2. LANDSCAPE ISLANDS:
   - TREES AND SHRUBS MUST BE PLANTED IN CLUMPS RATHER THAN EVENLY SPACED.
   - ISLANDS MUST BE SPACED 6-FT APART MIN. AND SET BACK 6-FT FROM FENCES OR OTHER BARRIERS
   - ISLANDS MUST BE MULCHED WITH 4-INCHES OF HOG FUEL OR WOOD MULCH SHREDDED FROM TREES CLEARED ONSITE. MULCH MUST BE FREE OF GARBAGE AND WEEDS AND MAY NOT CONTAIN EXCESSIVE RESIN, TANNIN, OR OTHER MATERIAL DETRIMENTAL TO PLANT GROWTH.
3. NO TREES OR SHRUBS WITHIN 10' OF INLET OR OUTLET PIPES
4. NATIVE SOIL MAY BE USED IF AMENDED WITH 2-INCHES OF WELL-ROTTED COMPOST TILLED INTO TOP 6-INCHES OF SOIL.

COMPOST REQUIREMENTS
- COMPOST PER SPEC IN REFERENCE 11-C OF THE KING COUNTY 2021 SURFACE WATER DESIGN MANUAL.
- MEET THE DEFINITION OF COMPOSTED MATERIAL IN WAC 173-350-100 AND MUST COMPLY WITH TESTING PARAMETERS AND OTHER STANDARDS INCLUDING NOT EXCEEDING CONTAMINANT LIMITS IDENTIFIED IN TABLE 220-B. PHYSICAL CONTAMINANTS SHALL BE LESS THAN 1 PERCENT BY WEIGHT TOTAL AND NOT EXCEED 0.25 PERCENT FILM PLASTIC BY DRY WEIGHT.
- ORIGINATE FROM 65 PERCENT BY VOLUME FROM RECYCLED PLANT WASTE MIN AND 35 PERCENT POST-CONSUMER FOOD WASTE MAX. BIOSOLIDS, MANURE, AND/OR BEDDING STRAW OR WOOD CHIPS OR SHAVINGS CONTAINING ANIMAL EXCRETA ARE NOT ALLOWED.
- ONLY WOOD WASTE FROM VIRGIN TIMBER IS ALLOWED. WOOD WASTE CONTAINING TOXIC OR HARMFUL MATERIALS IS NOT ALLOWED.
- NO VISIBLE FREE WATER OR DUST PRODUCED WHEN HANDLING THE MATERIAL.
- ORGANIC MATTER CONTENT OF 40 PERCENT TO 65 PERCENT BY DRY WEIGHT.
- CARBON NITROGEN RATIO BELOW 25:1 OR 35:1 IF COMPOSED ENTIRELY OF LOCALLY NATIVE PLANTS.
- pH BETWEEN 6.0 AND 8.5
- SOLUBLE SALTS LESS THAN 4.0 dS/m
- GERMINATION RATE GREATER THAN 80% FOR EMERGENCE AND VIGOR
- STABILITY 7-mg CO2-C/g OM/DAY OR BELOW
- SIEVED TO MEET THE FINE COMPOST GRADATION

SIEVE	MIN PERCENT PASSING
2"	100%
1"	99%
5/8"	90%
1/4"	75%

COMPOST SUBMITTALS

a. WRITTEN VERIFICATION AND LAB ANALYSES THE MATERIAL COMPLIES WITH THE PROCESSES, TESTING, AND STANDARDS SPECIFIED IN WAC 173-350 AND THESE SPECIFICATIONS.
b. AN INDEPENDENT SEAL OF TESTING ASSURANCE (STA) PROGRAM CERTIFIED LABORATORY OR A LABORATORY ACCREDITED BY WA ECOLOGY FOR THE SPECIFIED METHODS SHALL PERFORM THE ANALYSES.
c. **LAB ANALYSIS SHALL BE FOR THE COMPOST TO BE DELIVERED ON SITE FOR PROJECT USE.**
d. COPY OF THE STA LAB'S SEAL OF TESTING ASSURANCE STA CERTIFICATION AS ISSUED BY THE US COMPOSTING COUNCIL, OR A COPY OF THE ECOLOGY-CERTIFIED LAB'S ACCREDIDATION FOR THE SPECIFIED METHODS.

STORMWATER FACILITY MAINTENANCE

(PER KING COUNTY STORMWATER POLLUTION PREVENTION MANUAL (2021 - BMP A26)

BMPs LANDSCAPE AND VEGETATION MANAGEMENT

1. DO NOT DISPOSE OF COLLECTED VEGETATION INTO SURFACE WATERS OR STORMWATER DRAINAGE SYSTEMS.
2. DO NOT BLOW VEGETATION OR OTHER DEBRIS INTO THE STORMWATER DRAINAGE SYSTEM, SIDEWALKS, OR STREET.
3. DISPOSE OF COLLECTED VEGETATION BY RECYCLING OR COMPOSTING.
4. USE MULCH OR OTHER EROSION CONTROL MEASURES WHEN SOILS ARE EXPOSED FOR MORE THAN ONE WEEK DURING THE DRY SEASON (MAY 1 TO SEPTEMBER 30) OR TWO DAYS DURING THE RAINY SEASON (OCTOBER 1 TO APRIL 30).
5. ENSURE SPRINKLER SYSTEMS DO NOT "OVERSPRAY" VEGETATED AREAS RESULTING IN THE EXCESS WATER DISCHARGING INTO THE STORMWATER DRAINAGE SYSTEM.
6. ENSURE THAT PLANTS SELECTED FOR PLANTING ARE NOT ON THE NOXIOUS WEED LIST. REMOVE, BAG, AND DISPOSE OF CLASS A AND B NOXIOUS WEEDS IN THE GARBAGE IMMEDIATELY. MAKE REASONABLE ATTEMPTS TO REMOVE AND DISPOSE OF CLASS C NOXIOUS WEEDS. DO NOT COMPOST NOXIOUS WEEDS AS IT MAY LEAD TO SPREADING THROUGH SEED OR FRAGMENT IF THE COMPOSTING PROCESS IS NOT HOT ENOUGH.

BMPs IRRIGATION MANAGEMENT

1. ENSURE SPRINKLER SYSTEMS DO NOT OVERSPRAY VEGETATED AREAS RESULTING IN RUNOFF DISCHARGING INTO SURFACE WATERS OR STORMWATER DRAINAGE SYSTEMS. ADJUST WATERING TIMES AND SCHEDULES TO ENSURE THAT THE APPROPRIATE AMOUNT OF WATER IS BEING USED TO MINIMIZE RUNOFF. CONSIDER FACTORS SUCH AS SOIL STRUCTURE, GRADE, TIME OF YEAR, AND TYPE OF PLANT MATERIAL IN DETERMINING THE PROPER AMOUNTS OF WATER FOR A SPECIFIC AREA.
2. INSPECT IRRIGATED AREAS REGULARLY FOR SIGNS OF EROSION AND/OR DISCHARGE.
3. DO NOT IRRIGATE PLANTS DURING OR IMMEDIATELY AFTER FERTILIZER APPLICATION. THE LONGER THE PERIOD BETWEEN FERTILIZER APPLICATION AND IRRIGATION, THE LESS FERTILIZER RUNOFF OCCURS.
4. DO NOT IRRIGATE PLANTS DURING OR IMMEDIATELY AFTER PESTICIDE APPLICATION (UNLESS THE PESTICIDE LABEL DIRECTS SUCH TIMING).
5. REDUCE FREQUENCY AND/OR INTENSITY OF WATERING AS APPROPRIATE FOR THE WET SEASON (OCTOBER 1 TO APRIL 30).

SUPPLEMENTAL BMPs LANDSCAPING AND VEGETATION MANAGEMENT

1. SELECT THE RIGHT PLANTS FOR THE PLANTING LOCATION BASED ON PROPOSED USE, AVAILABLE MAINTENANCE, SOIL CONDITIONS, SUN EXPOSURE, WATER AVAILABILITY, HEIGHT, SIGHT FACTORS, AND SPACE AVAILABLE.
2. USE NATIVE PLANTS IN LANDSCAPING. NATIVE PLANTS DO NOT REQUIRE EXTENSIVE FERTILIZER OR PESTICIDE APPLICATIONS.
3. INSTALL ENGINEERED SOIL/LANDSCAPE SYSTEMS TO IMPROVE THE INFILTRATION AND REGULATION OF STORMWATER IN LANDSCAPED AREAS.
4. USE AT LEAST AN EIGHT-INCH "TOPSOIL" LAYER WITH AT LEAST 8 PERCENT ORGANIC MATTER TO PROVIDE A SUFFICIENT VEGETATION-GROWING MEDIUM.
5. SELECT THE APPROPRIATE TURFGRASS MIXTURE FOR THE CLIMATE AND SOIL TYPE.
6. ADJUSTING THE SOIL PROPERTIES OF THE SUBJECT SITE CAN ASSIST IN SELECTION OF DESIRED PLANT SPECIES. CONSULT A SOIL RESTORATION SPECIALIST FOR SITE-SPECIFIC CONDITIONS
7. REMOVE WEEDS/VEGETATION IN STORMWATER DITCHES BY HAND OR OTHER MECHANICAL MEANS AND ONLY USE CHEMICALS AS A LAST RESORT. IF HERBICIDES ARE USED, REFER TO ACTIVITY SHEET A-5: STORAGE AND USE OF PESTICIDES AND FERTILIZERS FOR REQUIRED BMPS.
8. CONDUCT MULCH-MOWING WHENEVER PRACTICABLE.
9. TILL A TOPSOIL MIX OR COMPOSTED ORGANIC MATERIAL INTO THE SOIL TO CREATE A WELL-MIXED TRANSITION LAYER THAT ENCOURAGES DEEPER ROOT SYSTEMS AND DROUGHT-RESISTANT PLANTS.
10. APPLY AN ANNUAL TOPDRESSING APPLICATION OF 3/8" COMPOST. AMENDING EXISTING LANDSCAPES AND TURF SYSTEMS BY INCREASING THE PERCENT ORGANIC MATTER AND DEPTH OF TOPSOIL CAN:
    10.1. SUBSTANTIALLY IMPROVE THE PERMEABILITY OF THE SOIL.
    10.2. INCREASE THE DISEASE AND DROUGHT RESISTANCE OF THE VEGETATION.
    10.3. REDUCES THE DEMAND FOR FERTILIZERS AND PESTICIDES.
11. DISINFECT GARDENING TOOLS AFTER PRUNING DISEASED PLANTS TO PREVENT THE SPREAD OF DISEASE.
12. PRUNE TREES AND SHRUBS IN A MANNER APPROPRIATE FOR EACH SPECIES.
13. IF SPECIFIC PLANTS HAVE A HIGH MORTALITY RATE, ASSESS THE CAUSE, AND REPLACE WITH ANOTHER MORE APPROPRIATE SPECIES.

ZONING COMPLIANCE

JURISDICTION	ST. HELENS, OR
STORMWATER	KING COUNTY
PARKING LANDSCAPE PROVIDED	86 SF
PROPOSED PARKING STALLS	6 STALLS (PUBLIC) 46 STALLS (SECURE)
INTERIOR PARKING AREA LANDSCAPING	
PARKING LOT ISLANDS (1 PER 7 STALLS)	0 ISLANDS
PARKING LOT TREES (1 PER ISLAND)	0 TREES
BUFFER AND SCREENING AT KASTER WAY	265 LF (1,325 SF)
LARGE OR MEDIUM TREES (1 PER 30 LF)	4 MEDIUM TREES
BUFFER AREA	819 SF
SHRUBS - 5 GAL. (10 PER 1,000 SF) OR	0 SHRUBS (0 SF)
SHRUBS - 1 GAL. (20 PER 1,000 SF)	54 SHRUBS (2,700 SF)
EVERGREEN HEDGE REQ.	PROVIDED

SOIL AND EROSION CONTROL NARRATIVE

EXISTING SOIL CONDITIONS

FILL

EROSION CONTROL MEASURES

PROVIDE SILT FENCE AROUND CONSTRUCTION PERIMETER.
PROVIDE INLET PROTECTION AT ALL INLETS.
PROVIDE CONSTRUCTION ENTRANCE TO ELIMINATE OFFSITE SEDIMENT TRANSPORT.

SHEET INDEX

TABLE OF ABBREVIATIONS

ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
B&B	BALL AND BURLAP
CAL	CALIPER
DEG	DEGREE
ELL	ELBOW
POC	POINT OF CONNECTION
SCH	SCHEDULE
X	TIMES

LANDSCAPE NOTES

GENERAL

1. CONTRACTOR SHALL CONFIRM ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
2. CALL BEFORE YOU DIG. CONTRACTOR SHALL VERIFY INVERT ELEVATIONS OF ALL UNDERGROUND UTILITIES AND NOTIFY LANDSCAPE ARCHITECT IF THERE ARE ANY DISCREPANCIES WITH PLANTING ROOT ZONES. TO REQUEST LOCATES FOR PROPOSED EXCAVATION CALL 1-800-332-2344 (OR 811) IN OREGON.
3. NOTIFY THE OWNER OR OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS WITH EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF ANY WORK.
4. LOCATION OF EXISTING TREES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF WORK.
5. DAMAGE TO EXISTING CONCRETE CURB, ASPHALT PAVING, OR OTHER STRUCTURE SHALL BE REPAIRED OR REPLACED TO PRE CONSTRUCTION CONDITIONS.
6. CONTRACTOR SHALL COORDINATE WITH THE OWNER ANY DISRUPTION TO VEHICULAR CIRCULATION PRIOR TO COMMENCEMENT OF ANY WORK.

PLANTING

1. ALL EXISTING TREES, PLANTS, AND ROOTS SHALL BE PROTECTED FROM DAMAGE FROM ANY CONSTRUCTION PREPARATION, REMOVAL OR INSTALLATION ACTIVITIES WITHIN AND ADJACENT TO PROJECT LIMITS.
2. SHRUBS ADJACENT TO PARKING AREAS SHALL BE PLANTED 2 FT MINIMUM AWAY FROM THE BACK OF CURB. SHRUBS AND GROUNDCOVER ALONG OTHER PAVEMENT EDGES SHALL BE PLANTED A MINIMUM OF ONE HALF THEIR ON CENTER SPACING AWAY FROM PAVEMENT EDGE.
3. ALL PLANT MATERIAL SHALL BE HEALTHY NURSERY STOCK, WELL BRANCHED AND ROOTED, FULL FOLIAGE, FREE FROM INSECTS, DISEASES, WEEDS, WEED ROT, INJURIES AND DEFECTS WITH NO LESS THAN MINIMUMS SPECIFIED IN AMERICAN STANDARDS FOR NURSERY STOCK, ANSI Z60.1-2004.
4. TREES IN THE RIGHT OF WAY SHALL BE TALL ENOUGH TO BE LIMBED UP TO AT LEAST 8 FT ABOVE DRIVE SURFACE GRADE WHILE MAINTAINING ENOUGH BRANCHES TO SUPPORT HEALTHY GROWTH.
5. DO NOT PLANT TREES ABOVE WATERLINES, UTILITIES, OR OTHER UNDERGROUND PIPING.
6. IF DISTURBANCE IS NECESSARY AROUND EXISTING TREES, CONTRACTOR SHALL PROTECT THE CROWN AND ALL WORK WITHIN THE TREE DRIPZONE SHALL BE LIMITED TO THE USE OF HAND TOOLS AND MANUAL EQUIPMENT ONLY.
7. REPLACE, REPAIR AND RESTORE DISTURBED LANDSCAPE AREAS DUE TO GRADING, TRENCHING OR OTHER REASONS TO PRE-CONSTRUCTION CONDITION AND PROVIDE MATERIAL APPROVED BY THE OWNER AND OWNER'S REPRESENTATIVE.
8. EXISTING AREAS PROPOSED FOR NEW PLANT MATERIAL SHALL BE CLEARED AND LEGALLY DISPOSED UNLESS SO NOTED.
9. A SOILS ANALYSIS, BY AN INDEPENDENT SOILS TESTING LABORATORY RECOGNIZED BY THE STATE DEPARTMENT OF AGRICULTURE, SHALL BE USED TO RECOMMEND AN APPROPRIATE PLANTING SOIL AND/OR SPECIFIED SOIL AMENDMENTS.
10. TOPSOIL SHALL BE AMENDED AS RECOMMENDED BY AN INDEPENDENT SOILS TESTING LABORATORY AND AS OUTLINED IN THE SPECIFICATION.
11. ALL LANDSCAPED AREAS SHALL BE COVERED BY A LAYER OF ORGANIC MULCH TO A MINIMUM DEPTH OF 2-INCHES.

IRRIGATION

1. UNLESS OTHERWISE INDICATED, ALL NEW LANDSCAPE AREAS TO BE IRRIGATED WITH A FULLY AUTOMATIC UNDERGROUND IRRIGATION SYSTEM. PROVIDE LOOP SYSTEM FOR OPTIMUM EFFICIENCY.
2. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS (IRRIGATION PLANS) TO LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION. DRAWINGS TO INDICATE HEAD TYPE, GALLONS PER MINUTE, LATERAL LINES, AND BE AT MINIMUM SCALE OF 1"=20'
3. CONTRACTOR TO DETERMINE STATIC WATER PRESSURE AT THE P.O.C. PRIOR TO PREPARING SHOP DRAWINGS.
4. CONTRACTOR SHALL ESTABLISH MINIMUM PRESSURE AND MAXIMUM DEMAND REQUIREMENTS FOR IRRIGATION SYSTEM DESIGN, AND PROVIDE INFORMATION IN AN IRRIGATION SCHEDULE.
5. IRRIGATION SYSTEM AS DESIGNED AND INSTALLED SHALL PERFORM WITHIN THE TOLERANCES AND SPECIFICATIONS OF THE SPECIFIED MANUFACTURERS.
6. SYSTEM SHALL BE DESIGNED TO SUPPLY MANUFACTURER'S SPECIFIED MINIMUM OPERATING PRESSURE TO FARTHEST EMITTER FROM WATER METER.
7. SYSTEM SHALL PROVIDE HEAD TO HEAD COVERAGE WITHOUT OVERSPRAY ONTO BUILDING, FENCES, SIDEWALKS, PARKING AREAS, OR OTHER NON-VEGETATED SURFACES.
8. ALL IRRIGATION PIPE MATERIAL AND INSTALLATION SHALL CONFORM TO APPLICABLE CODE FOR PIPING AND COMPONENT REQUIREMENTS.
9. PROVIDE SLEEVING AT ALL AREAS WHERE PIPE TRAVELS UNDER CONCRETE OR HARD SURFACING.
10. VALVES SHALL BE WIRED AND INSTALLED PER MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES AND CONNECTED TO THE IRRIGATION CONTROLLER.
11. REFER TO CIVIL DETAILS AND DETAILS ON L5.12 FOR POINT OF CONNECTION AND BACKFLOW PREVENTION INFORMATION.
12. MAINLINE LAYOUT IS DIAGRAMMATIC ONLY.
13. CONTROLLER TO BE MOUNTED IN BUILDING RISER ROOM. GENERAL CONTRACTOR TO COORDINATE LOCATION WITH OWNER'S REPRESENTATIVE.
14. ZONE THE FOLLOWING AREAS SEPARATELY: TEMPORARY AREAS, STORMWATER AREAS, PERMANENT LANDSCAPE AREAS, AND TREES.
15. QUICK COUPLERS TO BE PLACED ADJACENT TRASH ENCLOSURES, AMENITY SPACES, AND EVERY 150 LINEAR FEET MAX.
16. IRRIGATION SHALL BE WINTERIZED THROUGH LOW PRESSURE, HIGH VOLUME AIR BLOWOUT CONNECTION THROUGH QUICK COUPLER.
17. THE SYSTEM SHALL BE GRAVITY DRAINED. THE CONTRACTOR SHALL PROVIDE APPROPRIATE MANUAL DRAINS AT LOW POINTS.

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LANDSCAPE ARCHITECTURE & IRRIGATION

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REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT
OREGON
NICOLE TERRIRA
12/1/2020

REVISION SCHEDULE

Delta	Issued As	Issue Date

SHEET TITLE:
LANDSCAPE GENERAL INFORMATION

SHEET
L0.01

JOB NO. **2210310.04**

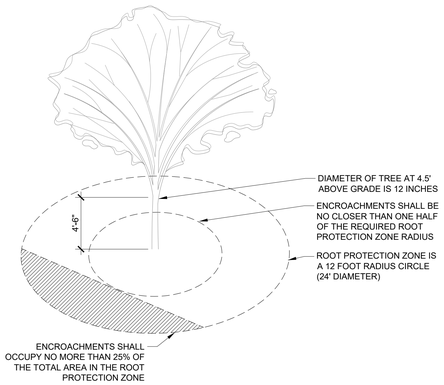
LAND USE SUBMITTAL SET 6/28/2023

TREE REMOVAL INVENTORY

NO	SURVEY	TYPE	DBH	MITIGATION	BUFFER	NO	SURVEY	TYPE	DBH	MITIGATION	BUFFER
1	30408	DECIDUOUS	8	NO		36	30434	DECIDUOUS	11	NO	
2	30407	DECIDUOUS	13	YES		37	30431	DECIDUOUS	18	YES	
3	30406	DECIDUOUS	14	YES		38	30436	DECIDUOUS	12,15	YES	
4	30415	DECIDUOUS	17	YES		39	30435	DECIDUOUS	43	YES	
5	30416	DECIDUOUS	14	YES		40	30807	DECIDUOUS	11,13,14	YES	
6	30417	DECIDUOUS	17	YES		41	13032	DECIDUOUS	31	RETAIN	
7	30418	DECIDUOUS	17	YES		42	13045	DECIDUOUS	17	RETAIN	
8	30419	DECIDUOUS	17	YES		43	13048	DECIDUOUS	11	NO	
9	30420	DECIDUOUS	16	YES		44	13056	EVERGREEN	29	YES	
10	30421	DECIDUOUS	18	YES		45	13047	DECIDUOUS	10,11,12	YES	
11	30422	EVERGREEN	36	YES		46	13059	EVERGREEN	39	RETAIN	
12	30414	EVERGREEN	23	YES		47	13068	EVERGREEN	39	RETAIN	
13	30413	EVERGREEN	11	NO		48	13069	DECIDUOUS	18,18	RETAIN	
14	30412	EVERGREEN	21	YES		49	30736	DECIDUOUS	14,15	RETAIN	
15	30411	EVERGREEN	11	NO		50	30737	DECIDUOUS	12,17	RETAIN	
16	30423	DECIDUOUS	28	YES		51	30773	DECIDUOUS	6	RETAIN	
17	30410	EVERGREEN	29	RETAIN		52	30769	DECIDUOUS	24	RETAIN	
18	30409	EVERGREEN	30	RETAIN		53	30748	DECIDUOUS	10	NO	
19	30788	DECIDUOUS	19,20	YES		54	30747	DECIDUOUS	6	NO	YES
20	30789	DECIDUOUS	15	YES		55	30746	DECIDUOUS	14	YES	YES
21	30790	DECIDUOUS	11	NO		56	30772	DECIDUOUS	20	RETAIN	
22	30738	DECIDUOUS	39	YES		57	30771	DECIDUOUS	14	RETAIN	
23	30740	EVERGREEN	19	YES		58	30768	DECIDUOUS	8,10,13	RETAIN	
24	30739	EVERGREEN	11,12	YES		59	30745	DECIDUOUS	7,8	NO	
25	30741	DECIDUOUS	11	NO		60	30744	DECIDUOUS	10,8	NO	YES
26	30424	DECIDUOUS	11	NO		61	30792	DECIDUOUS	13,15	RETAIN	
27	30425	DECIDUOUS	10	NO		62	30793	DECIDUOUS	18	RETAIN	
28	30426	DECIDUOUS	6	NO		63	30794	DECIDUOUS	7	RETAIN	
29	30427	DECIDUOUS	8	NO		64	30795	DECIDUOUS	6,7,8	RETAIN	
30	30428	DECIDUOUS	32	YES		65	30791	DECIDUOUS	16	YES	
31	30429	DECIDUOUS	26	YES		66	30827	EVERGREEN	53	YES	
32	13027	DECIDUOUS	27	YES		67	30856	DECIDUOUS	7	NO	YES
33	30430	DECIDUOUS	20	YES		68	30862	DECIDUOUS	13,13,6	YES	YES
34	30432	DECIDUOUS	13	YES							
35	30433	DECIDUOUS	10	NO							

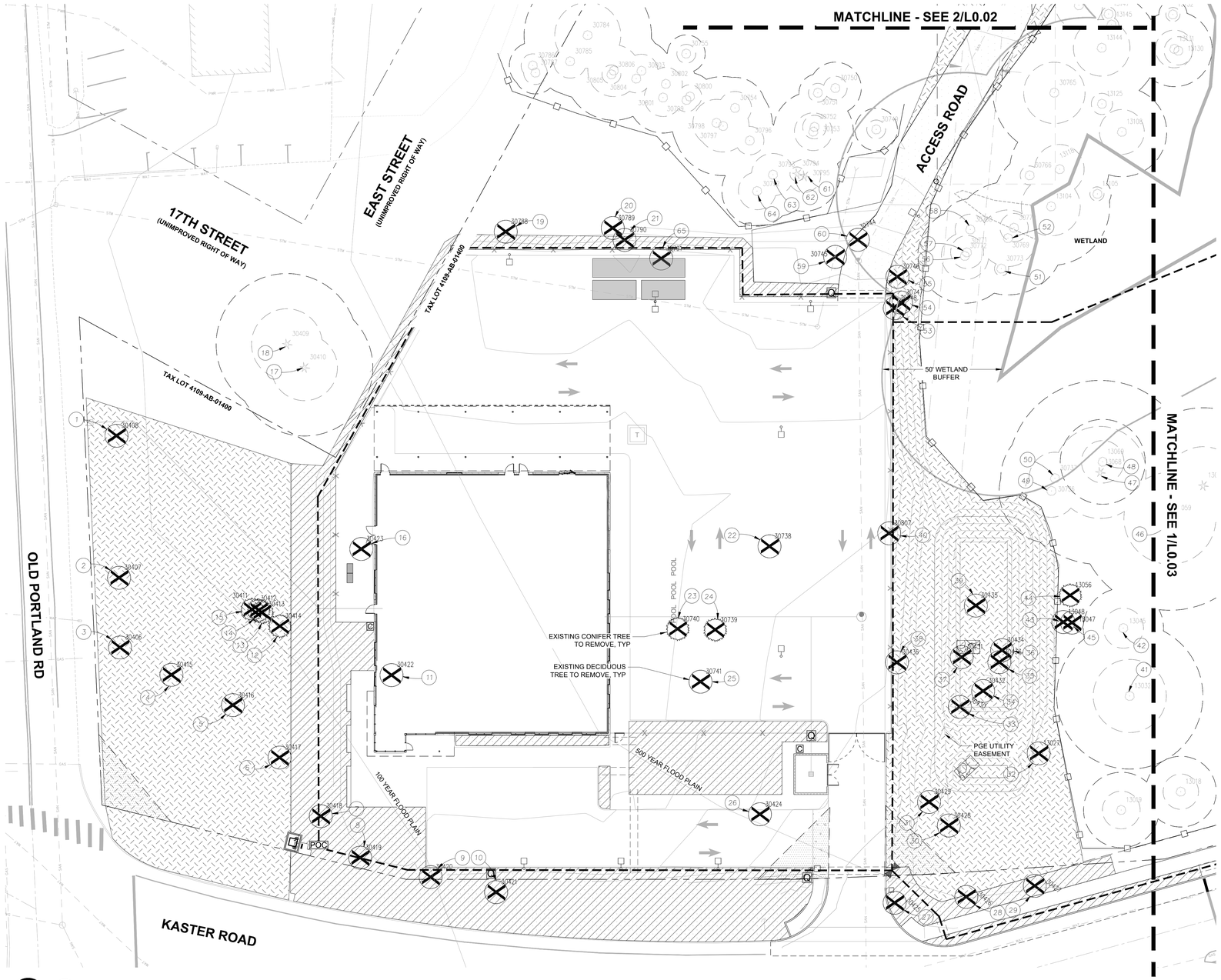
TREE PROTECTION NOTES

1. PROTECTION FENCING: ESTABLISH TREE PROTECTION FENCING IN THE LOCATIONS SHOWN. THE INTENT OF THE TREE PROTECTION FENCING IS TO PROTECT THE MINIMUM ROOT PROTECTION ZONES DETAILED IN FIGURE 1.
2. DIRECTIONAL FELLING - FELL THE TREES TO BE REMOVED AWAY FROM THE TREES TO BE RETAINED SO THEY DO NOT CONTACT OR OTHERWISE DAMAGE THE TRUNKS OR BRANCHES OF THE RETAINED TREES. NO VEHICLES OR HEAVY EQUIPMENT SHOULD BE PERMITTED WITHIN THE TREE PROTECTION ZONES DURING TREE REMOVAL OPERATIONS.
3. STUMP REMOVAL - THE STUMPS OF THE TREES TO BE REMOVED FROM WITHIN THE TREE PROTECTION ZONES SHALL BE RETAINED OR CAREFULLY STUMP GROUND SO AS NOT TO DISTURB THE ROOT SYSTEMS OF THE RETAINED TREES.
4. PROTECT CROWNS OF TREES: THE CROWNS OF THE TREES MAY EXTEND BEYOND THE TREE PROTECTION FENCING. CARE WILL NEED TO BE TAKEN TO NOT CONTACT OR OTHERWISE DAMAGE THE CROWNS OF THE TREES DURING CONSTRUCTION ACTIVITIES. ANY REQUIRED PRUNING SHALL BE COMPLETED BY AN ISA CERTIFIED ARBORIST CONSISTENT WITH ANSI A300 PRUNING STANDARDS AS DIRECTED BY THE PROJECT ARBORIST.
5. SEDIMENT FENCING: SEDIMENT FENCING SHALL BE INSTALLED OUTSIDE THE PROTECTION ZONES OF THE TREES TO BE RETAINED TO MINIMIZE ROOT DISTURBANCES. IF EROSION CONTROL IS REQUIRED INSIDE THE ROOT ZONES, STRAW WATTLES SHALL BE USED ON THE SOIL SURFACE.



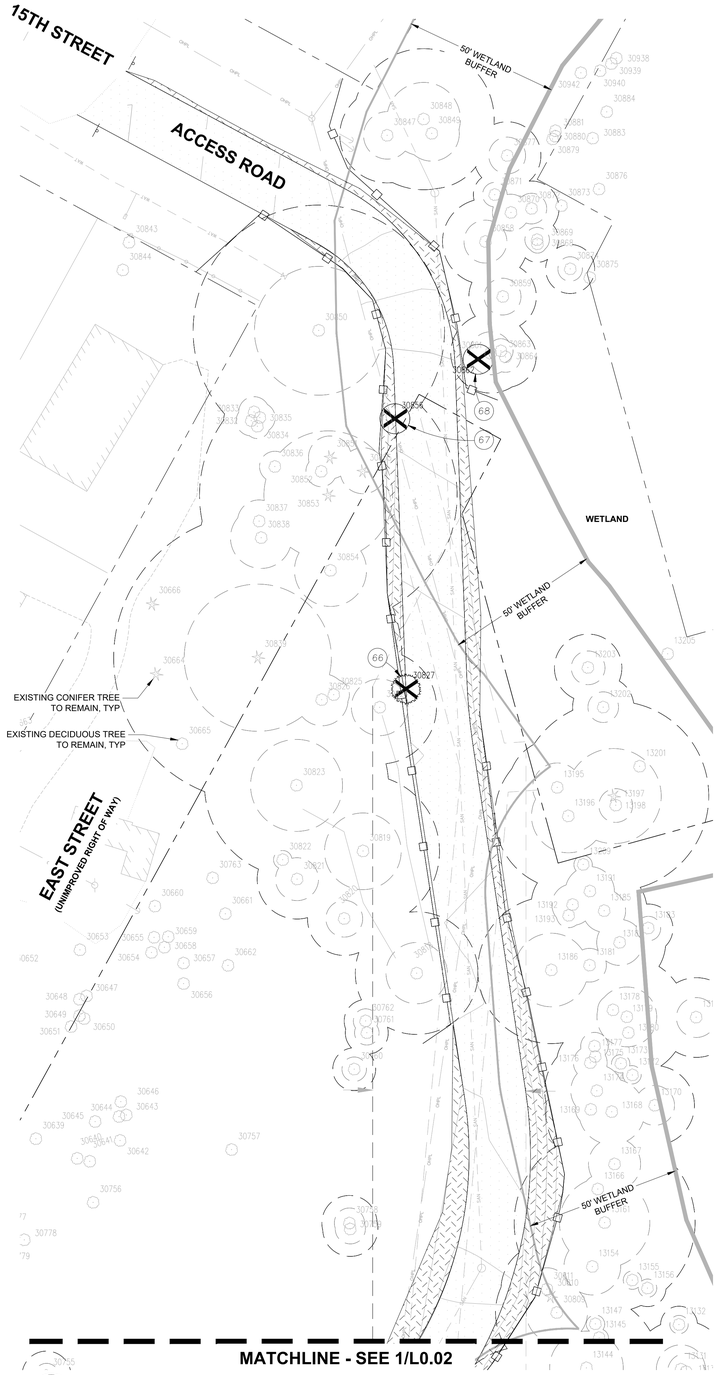
3 ROOT PROTECTION ZONE

SCALE: NTS



1 TREE REMOVAL PLAN

20 0 10 20 40 80 (IN FEET)
1 inch = 20 ft.



2 TREE REMOVAL PLAN - ACCESS ROAD

20 0 10 20 40 80 (IN FEET)
1 inch = 20 ft.

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REGISTERED LANDSCAPE ARCHITECT
OREGON
NICOLE TERRIRA
12/1/2020

REVISION SCHEDULE

Delta	Issued As	Issue Date

SHEET TITLE:
TREE REMOVAL PLAN

SHEET
L0.02

JOB NO. 2210310.04

LAND USE SUBMITTAL SET 6/28/2023

TREE REMOVAL INVENTORY

NO	SURVEY	TYPE	DBH	MITIGATION	BUFFER
1	30408	DECIDUOUS	8	NO	
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3	30406	DECIDUOUS	14	YES	
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5	30416	DECIDUOUS	14	YES	
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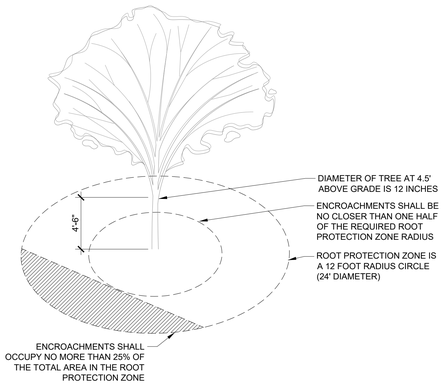
7	30418	DECIDUOUS	17	YES	
8	30419	DECIDUOUS	17	YES	
9	30420	DECIDUOUS	16	YES	
10	30421	DECIDUOUS	18	YES	
11	30422	EVERGREEN	36	YES	
12	30414	EVERGREEN	23	YES	
13	30413	EVERGREEN	11	NO	
14	30412	EVERGREEN	21	YES	
15	30411	EVERGREEN	11	NO	
16	30423	DECIDUOUS	28	YES	
17	30410	EVERGREEN	29	RETAIN	
18	30409	EVERGREEN	30	RETAIN	
19	30788	DECIDUOUS	19,20	YES	
20	30789	DECIDUOUS	15	YES	
21	30790	DECIDUOUS	11	NO	
22	30738	DECIDUOUS	39	YES	
23	30740	EVERGREEN	19	YES	
24	30739	EVERGREEN	11,12	YES	
25	30741	DECIDUOUS	11	NO	
26	30424	DECIDUOUS	11	NO	
27	30425	DECIDUOUS	10	NO	
28	30426	DECIDUOUS	6	NO	
29	30427	DECIDUOUS	8	NO	
30	30428	DECIDUOUS	32	YES	
31	30429	DECIDUOUS	26	YES	
32	13027	DECIDUOUS	27	YES	
33	30430	DECIDUOUS	20	YES	
34	30432	DECIDUOUS	13	YES	
35	30433	DECIDUOUS	10	NO	
36	30434	DECIDUOUS	11	NO	
37	30431	DECIDUOUS	18	YES	
38	30436	DECIDUOUS	12,15	YES	
39	30435	DECIDUOUS	43	YES	
40	30807	DECIDUOUS	11,13,14	YES	
41	13032	DECIDUOUS	31	RETAIN	
42	13045	DECIDUOUS	17	RETAIN	
43	13048	DECIDUOUS	11	RETAIN	
44	13056	EVERGREEN	29	YES	
45	13047	DECIDUOUS	10,11,12	RETAIN	
46	13059	EVERGREEN	39	RETAIN	
47	13068	EVERGREEN	39	RETAIN	
48	13069	DECIDUOUS	18,18	RETAIN	
49	30736	DECIDUOUS	14,15	RETAIN	
50	30737	DECIDUOUS	12,17	RETAIN	
51	30773	DECIDUOUS	6	RETAIN	
52	30769	DECIDUOUS	24	RETAIN	
53	30748	DECIDUOUS	10	NO	
54	30747	DECIDUOUS	6	NO	YES
55	30746	DECIDUOUS	14	YES	YES
56	30772	DECIDUOUS	20	RETAIN	
57	30771	DECIDUOUS	14	RETAIN	
58	30768	DECIDUOUS	8,10,13	RETAIN	
59	30745	DECIDUOUS	7,8	NO	
60	30744	DECIDUOUS	10,8	NO	YES
61	30792	DECIDUOUS	13,15	RETAIN	
62	30793	DECIDUOUS	18	RETAIN	
63	30794	DECIDUOUS	7	RETAIN	
64	30795	DECIDUOUS	6,7,8	RETAIN	
65	30791	DECIDUOUS	16	YES	
66	30827	EVERGREEN	53	YES	
67	30856	DECIDUOUS	7	NO	YES
68	30862	DECIDUOUS	13,13,6	YES	YES

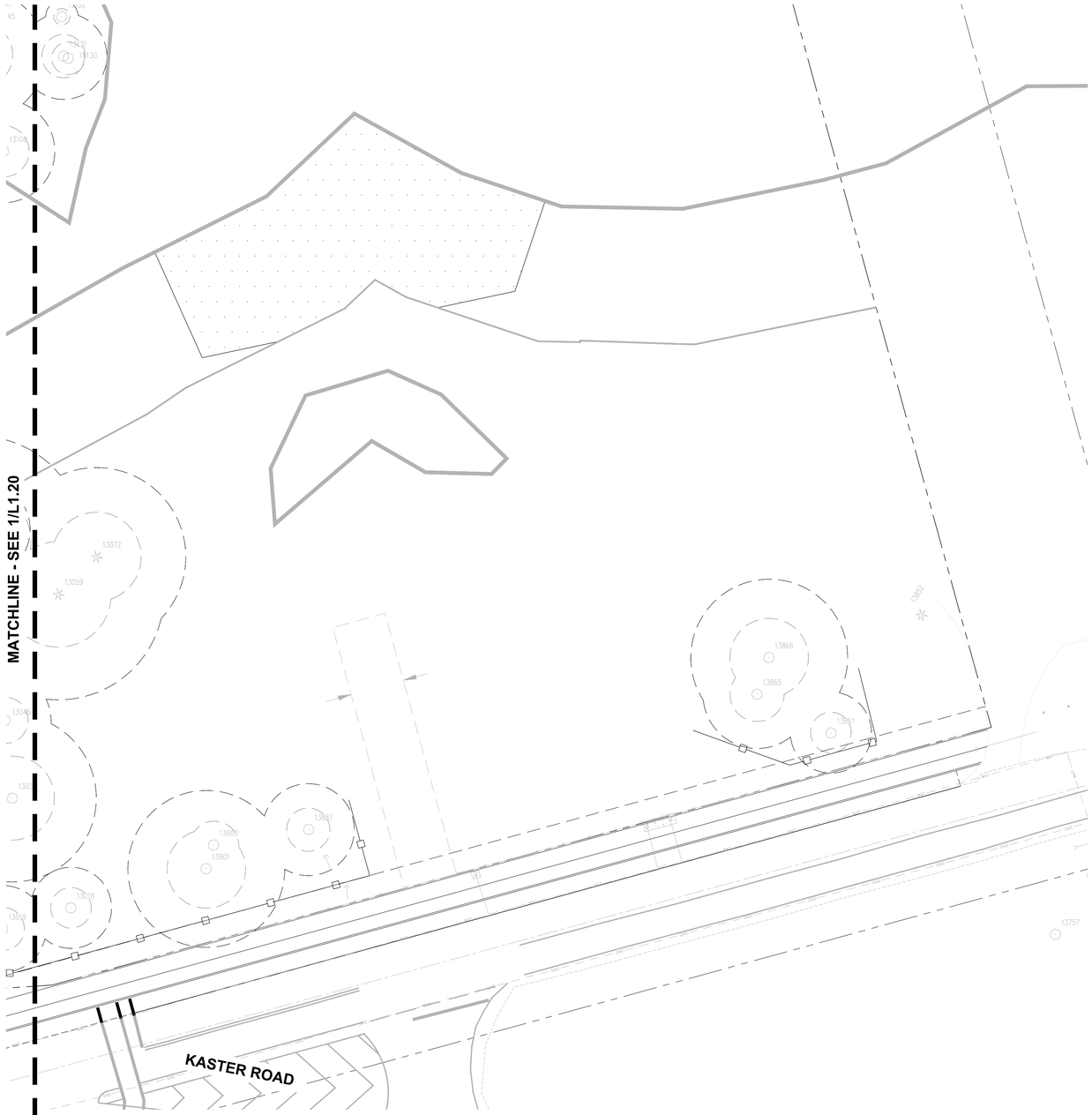
TREE PROTECTION NOTES

1. PROTECTION FENCING: ESTABLISH TREE PROTECTION FENCING IN THE LOCATIONS SHOWN. THE INTENT OF THE TREE PROTECTION FENCING IS TO PROTECT THE MINIMUM ROOT PROTECTION ZONES DETAILED IN FIGURE 1.
2. DIRECTIONAL FELLING - FELL THE TREES TO BE REMOVED AWAY FROM THE TREES TO BE RETAINED SO THEY DO NOT CONTACT OR OTHERWISE DAMAGE THE TRUNKS OR BRANCHES OF THE RETAINED TREES. NO VEHICLES OR HEAVY EQUIPMENT SHOULD BE PERMITTED WITHIN THE TREE PROTECTION ZONES DURING TREE REMOVAL OPERATIONS.
3. STUMP REMOVAL - THE STUMPS OF THE TREES TO BE REMOVED FROM WITHIN THE TREE PROTECTION ZONES SHALL BE RETAINED OR CAREFULLY STUMP GROUND SO AS NOT TO DISTURB THE ROOT SYSTEMS OF THE RETAINED TREES.
4. PROTECT CROWNS OF TREES: THE CROWNS OF THE TREES MAY EXTEND BEYOND THE TREE PROTECTION FENCING. CARE WILL NEED TO BE TAKEN TO NOT CONTACT OR OTHERWISE DAMAGE THE CROWNS OF THE TREES DURING CONSTRUCTION ACTIVITIES. ANY REQUIRED PRUNING SHALL BE COMPLETED BY AN ISA CERTIFIED ARBORIST CONSISTENT WITH ANSI A300 PRUNING STANDARDS AS DIRECTED BY THE PROJECT ARBORIST.
5. SEDIMENT FENCING: SEDIMENT FENCING SHALL BE INSTALLED OUTSIDE THE PROTECTION ZONES OF THE TREES TO BE RETAINED TO MINIMIZE ROOT DISTURBANCES. IF EROSION CONTROL IS REQUIRED INSIDE THE ROOT ZONES, STRAW WATTLES SHALL BE USED ON THE SOIL SURFACE.



3 ROOT PROTECTION ZONE

SCALE: NTS



1 TREE REMOVAL PLAN

20 0 10 20 40 80 (IN FEET)

1 inch = 20 ft.

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NICOLA TERREIRA
12/11/2020

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Delta	Issued As	Issue Date

SHEET TITLE:
TREE REMOVAL PLAN

SHEET
L0.03

JOB NO. **2210310.04**

LAND USE SUBMITTAL SET 6/28/2023

1 TREE MITIGATION PLAN

30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

MITIGATION DATA

TREES 12" DBH OR GREATER ON-SITE	234 TREES
TREES TO BE REMOVED	
12" DBH OR GREATER	33 TREES (14.1%)
WITHIN WETLAND BUFFER	5 TREES
MITIGATION TREES PROVIDED ON SITE	33 TREES
WETLAND BUFFER IMPACT AREA	6,961 SF
WETLAND BUFFER ENHANCEMENT AREA (1:1 RATIO)	6,961 SF
TREES (1 PER 150 FT)	47 TREES
SHRUBS (1 PER 25 SF)	279 SHRUBS

WETLAND BUFFER ENHANCEMENT PLANTING

TREES (1" CAL)	QTY
ACER MACROPHYLLUM / BIG LEAF MAPLE	13
PSEUDOTSUGA MENZIESII / DOUGLAS FIR	17
RHAMNUS PURSHIANA / CASCARA	17

SHRUBS (1 GAL)	QTY
ACER CIRCINATUM / VINE MAPLE	21
PHYSOCARPUS CAPITATUS / PACIFIC NINEBARK	41
ROSA NUTKANA / NOOTKA ROSE	91
SAMBUCUS RACEMOSA / RED ELDERBERRY	35
SYMPHORICARPOS ALBUS / SNOWBERRY	91

TREE SCHEDULE

TREES	BOTANICAL / COMMON NAME	SIZE	QTY
	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE' AUTUMN BRILLIANCE APPLE SERVICEBERRY	2" CAL., B&B	9
	CORNUS KOUSA X NUTTALLII 'KN4-43' STARLIGHT KOUSA DOGWOOD	2" CAL. B&B	9
	NYSSA SYLVATICA 'WILDFIRE' SOUR GUM	2" CAL., B&B	21
	RHAMNUS PURSHIANA CASCARA	2" CAL. B&B	8
BUFFER ENHANCEMENT	BOTANICAL / COMMON NAME	SIZE	QTY
A	ACER MACROPHYLLUM BIG LEAF MAPLE	1" CAL. B&B	13
P	PSEUDOTSUGA MENZIESII DOUGLAS FIR	4' HT.	17
R	RHAMNUS PURSHIANA CASCARA MATURE (25' H X 20' W)	1" CAL. B&B	17
EXISTING	BOTANICAL / COMMON NAME	SIZE	QTY
	EXISTING DECIDUOUS TREE TO REMOVE	N/A	42
	EXISTING DECIDUOUS TREE TO REMAIN	N/A	197
	EXISTING EVERGREEN TREE TO REMOVE	N/A	8
	EXISTING EVERGREEN TREE TO REMAIN	N/A	18

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SHEET TITLE:
TREE MITIGATION PLAN

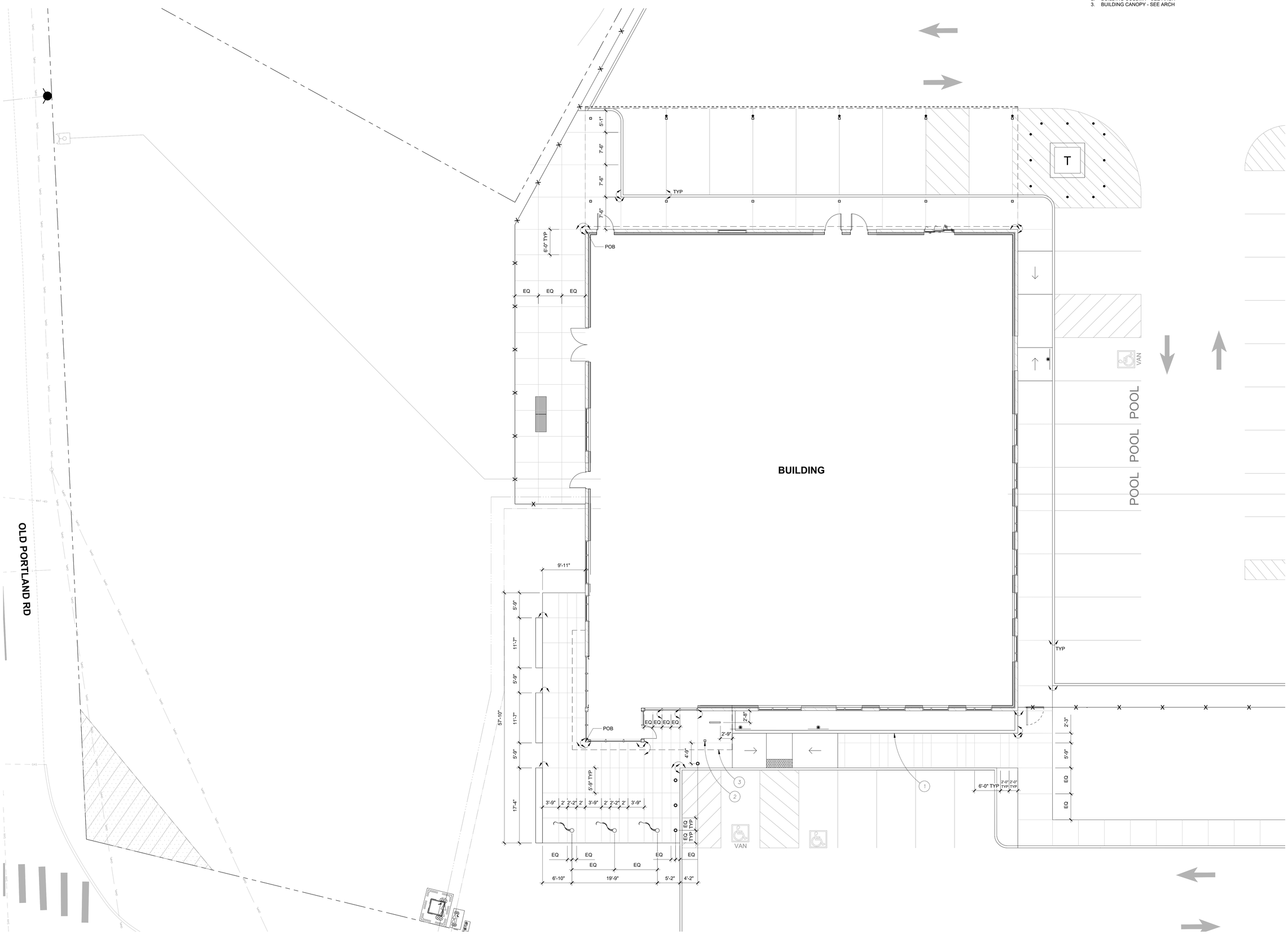
SHEET
L0.04

JOB NO. **2210310.04**

LAND USE SUBMITTAL SET 6/28/2023

REFERENCE NOTES

1. RAISED PLANTER - SEE ARCH
2. BUILDING COLUMN - SEE ARCH
3. BUILDING CANOPY - SEE ARCH



1 LAYOUT PLAN

8 0 4 8 16 32

(IN FEET)

1 inch = 8 ft.

LAND USE SUBMITTAL SET 6/28/2023

2210310000\DRAWINGS\LANDSCAPE\310-L0.01-ON SITE.DWG:L1.10 AEZ 06/15/23 15:15 1:0.08

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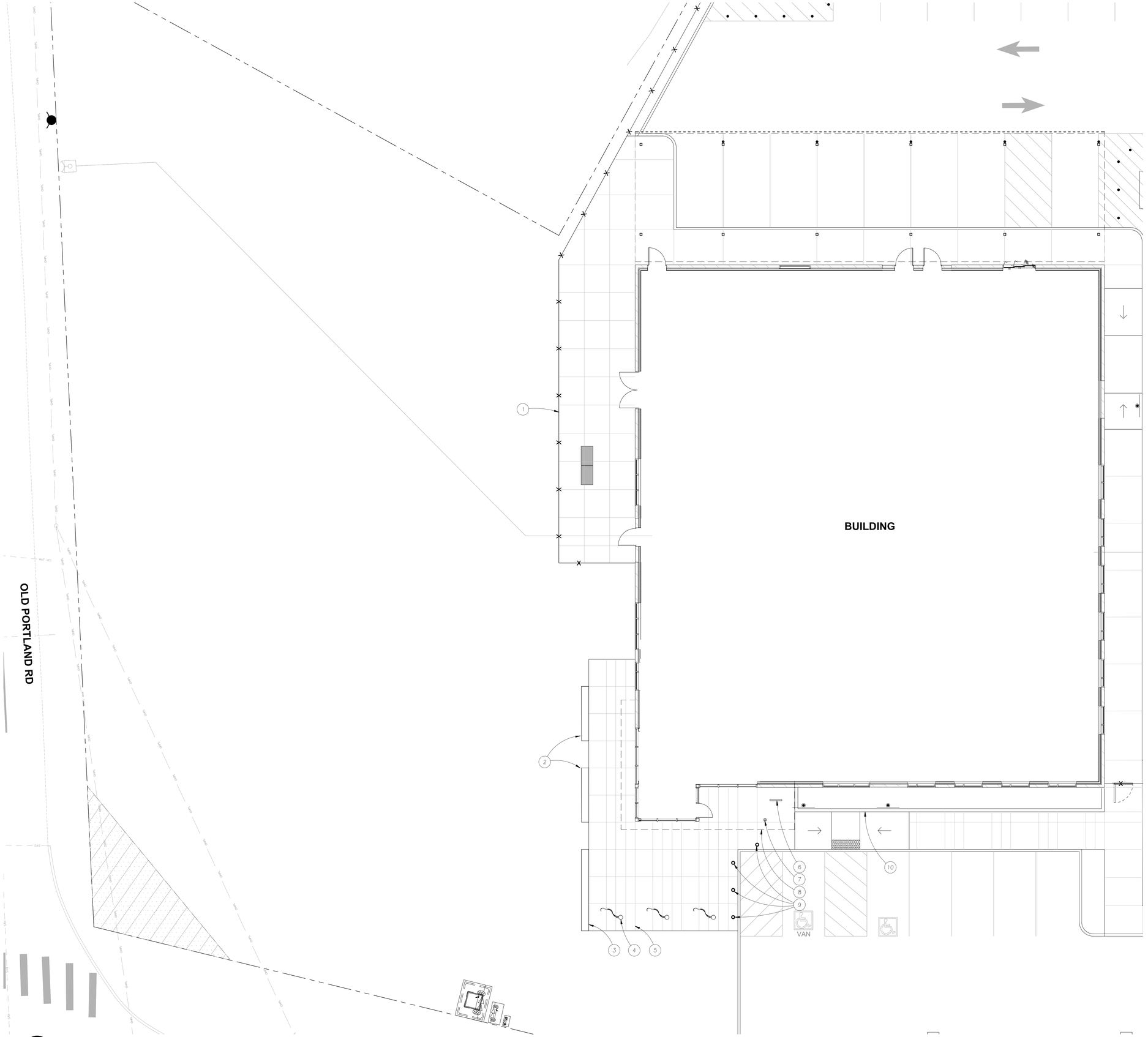
SHEET TITLE:
LAYOUT PLAN

SHEET
L1.10

JOB NO. **2210310.04**



1 MATERIALS PLAN

8 0 4 8 16 32

(IN FEET)

1 inch = 8 ft.

REFERENCE NOTES

1. CHAIN LINK FENCE - SEE DETAIL 4/L5.11
2. WALL - SEE DETAIL 1/L5.10 AND SPECS
3. SIGN - SEE DETAIL 3/L5.10
4. FLAG POLE - SEE SPECS
   DOWN LIGHTING, SEE ELEC
5. CONCRETE WITH DECORATIVE SCORING - SEE L1.10 AND DETAIL 2/L5.11
6. BIKE RACK - SEE DETAIL 3/L5.11 AND SPECS
7. BUILDING COLUMN, SEE ARCH
8. BUILDING CANOPY, SEE ARCH
9. SECURITY BOLLARD, SEE SPECS
10. RAISED PLANTER, SEE ARCH

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SHEET TITLE:
MATERIALS PLAN

SHEET
L1.11

JOB NO. **2210310.04**

LAND USE SUBMITTAL SET 6/28/2023

PLANT LEGEND

	BOTANICAL / COMMON NAME
	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE' AUTUMN BRILLIANCE APPLE SERVICEBERRY
	CORNUS KOUSA X NUTTALLII 'KN4-43' STARLIGHT KOUSA DOGWOOD
	NYSSA SYLVATICA 'WILDFIRE' SOUR GUM
	RHAMNUS PURSHIANA CASCARA

BUFFER ENHANCEMENT	BOTANICAL / COMMON NAME
A	ACER MACROPHYLLUM BIG LEAF MAPLE
P	PSEUDOTSUGA MENZIESII DOUGLAS FIR
R	RHAMNUS PURSHIANA CASCARA

EXISTING	BOTANICAL / COMMON NAME
	EXISTING DECIDUOUS TREE TO REMOVE
A	EXISTING DECIDUOUS TREE TO REMAIN
	EXISTING EVERGREEN TREE TO REMOVE
	EXISTING EVERGREEN TREE TO REMAIN

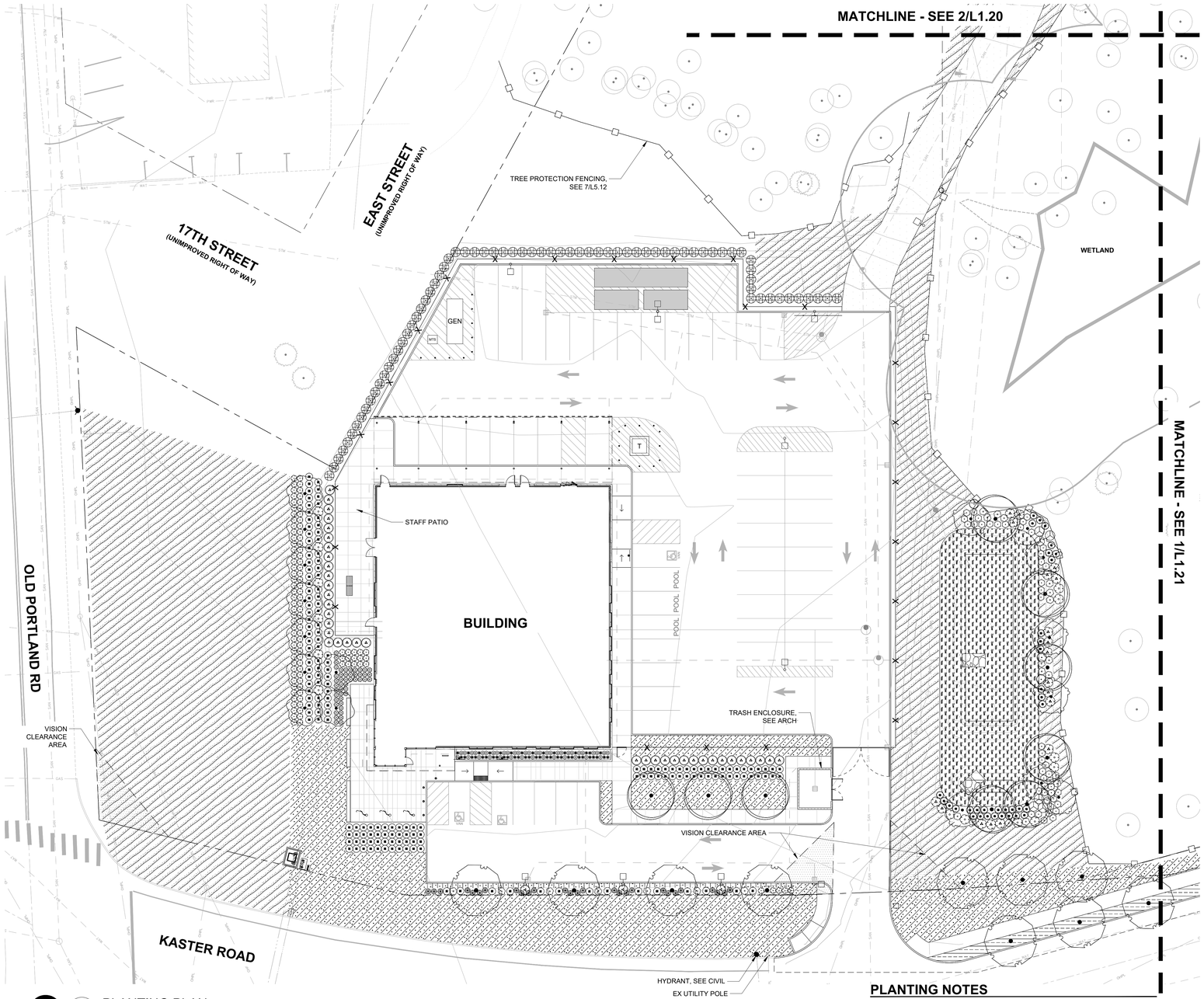
SHRUBS	BOTANICAL / COMMON NAME
	BERBERIS AQUIFOLIUM 'COMPACTA' COMPACT OREGON GRAPE
	CORNUS STOLONIFERA RED TWIG DOGWOOD
A	GARRYA ELLIPTICA COAST SILKTASSEL
	GAULTHERIA SHALLON SALAL
	HOLODISCUS DISCOLOR OCEAN-SPRAY
	PHILADELPHUS LEWISII WILD MOCKORANGE
	RIBES SANGUINEUM RED FLOWERING CURRANT
	ROSA NUTKANA NOOTKA ROSE
	SPIRAEA BETULIFOLIA 'TOR' TOR BIRCHLEAF SPIREA
	SYMPHORICARPOS ALBUS COMMON WHITE SNOWBERRY
	THUJA OCCIDENTALIS 'SMARAGD' EMERALD GREEN ARBORVITAE
	VACCINIUM OVATUM EVERGREEN HUCKLEBERRY

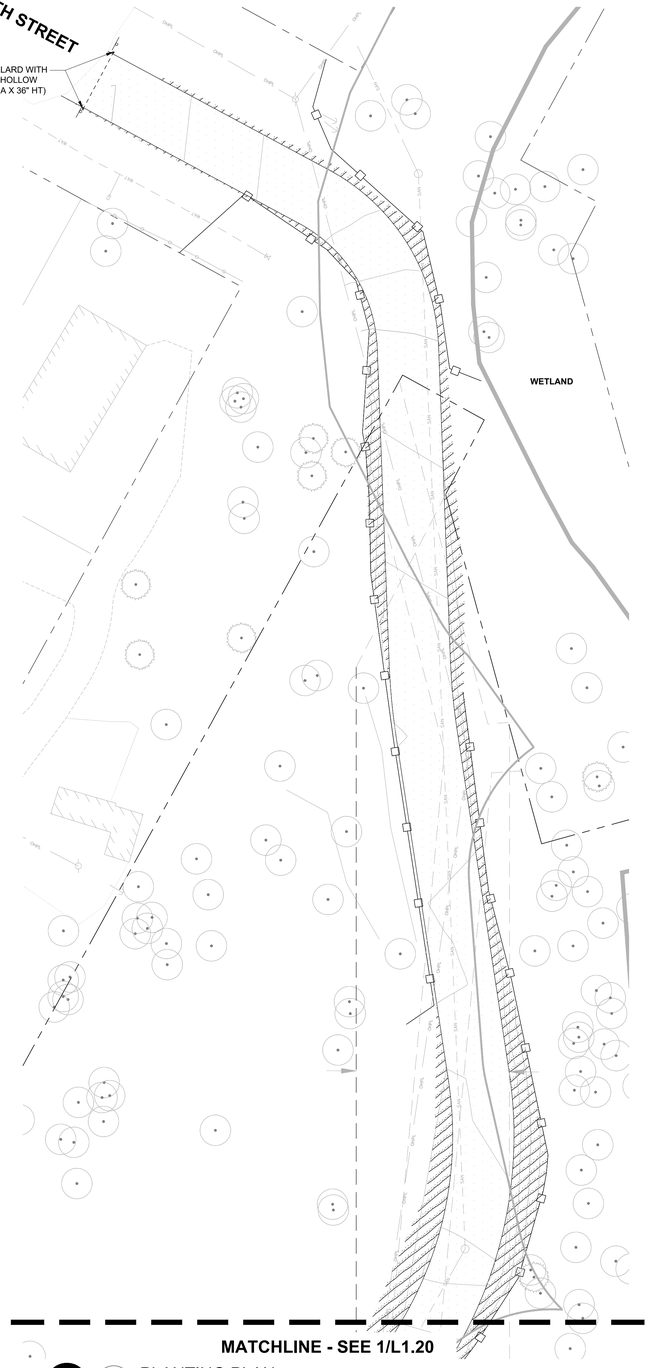
BUFFER ENHANCEMENT	BOTANICAL / COMMON NAME
AC	ACER CIRCINATUM VINE MAPLE
PC	PHYSOCARPUS CAPITATUS PACIFIC NINEBARK
RN	ROSA NUTKANA NOOTKA ROSE
SA	SYMPHORICARPOS ALBUS COMMON WHITE SNOWBERRY

PERENNIALS	BOTANICAL / COMMON NAME
	ACHILLEA MILLEFOLIUM COMMON YARROW
	DESCHAMPSIA CESPITOSA TUFTED HAIR GRASS
	POLYSTICHUM MUNITUM WESTERN SWORD FERN

SHRUB AREAS	BOTANICAL / COMMON NAME
	WETLAND BUFFER ENHANCEMENT SHRUB MIX

GROUND COVERS	BOTANICAL / COMMON NAME
	CEANOTHUS GLORIOSUS POINT REYES CEANOTHUS
	DIVERSE PRAIRIE MIX HERITAGE SEEDLINGS
	LAWN PROTIME SEED MIX 301





1 PLANTING PLAN

20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

2 PLANTING PLAN

20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

PLANTING NOTES

1. DO NOT DISTURB EXISTING TREES TO REMAIN. PROTECT IN PLACE.
2. AVOID PLANTING WITHIN DEFINED ACCESS ZONE OF PROPOSED UTILITY BOXES.
3. CAREFULLY EXCAVATE SHRUB PITS IN VICINITY OF EXISTING TREES, WITHOUT DISTURBING TREE ROOTS.
4. COORDINATE SHRUB LAYOUT WITH EXISTING UTILITIES, REPORT CONFLICTS TO LANDSCAPE ARCHITECT.

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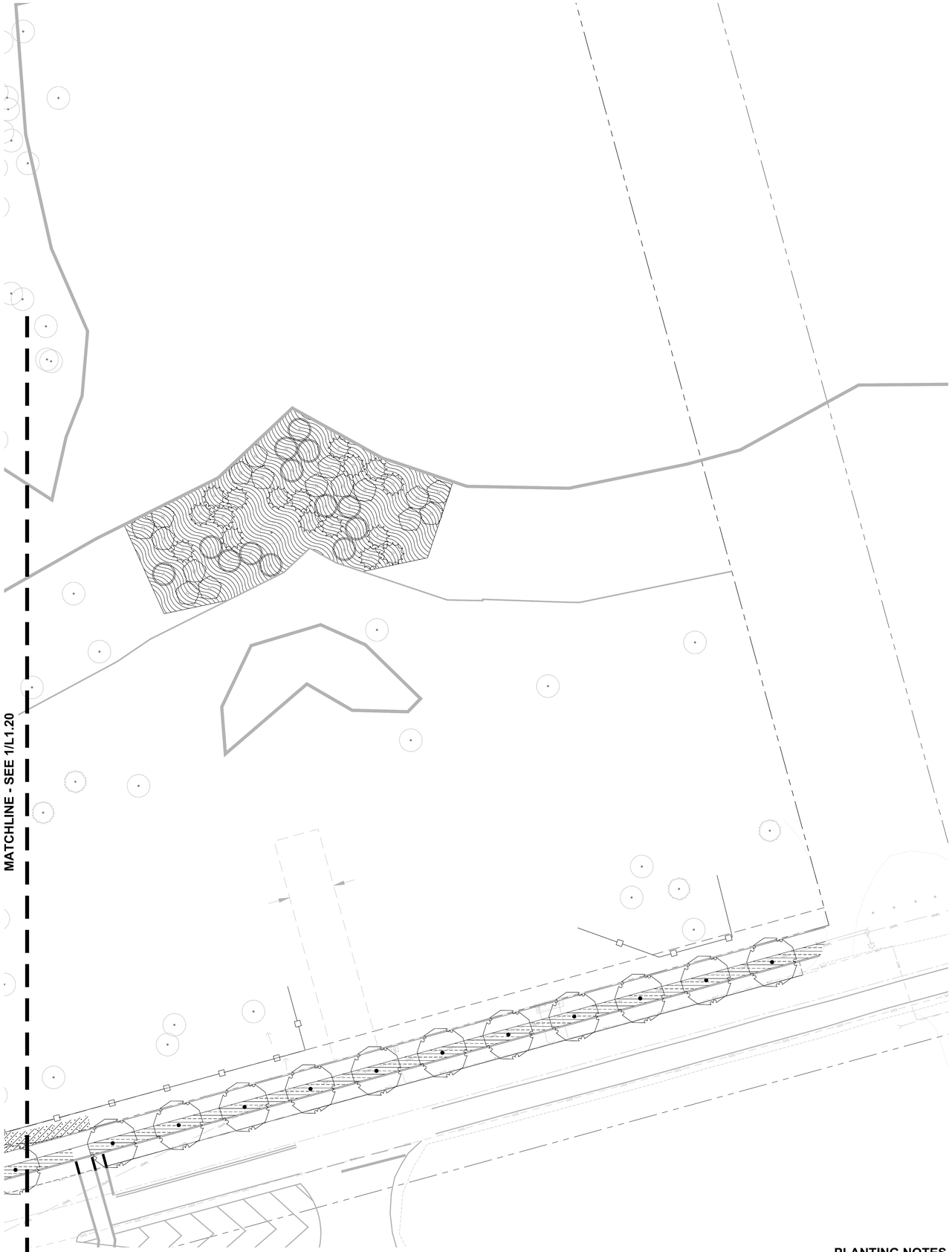
PLANTING PLAN

SHEET
L1.20

JOB NO. **2210310.04**

LAND USE SUBMITTAL SET 6/28/2023



1 PLANTING PLAN

20 0 10 20 40 80

(IN FEET)

1 inch = 20 ft.

PLANT LEGEND

TREES	BOTANICAL / COMMON NAME
	NYSSA SYLVATICA 'WILDFIRE' SOUR GUM
BUFFER ENHANCEMENT	**BOTANICAL / COMMON NAME**
A	ACER MACROPHYLLUM BIG LEAF MAPLE
P	PSEUDOTSUGA MENZIESII DOUGLAS FIR
R	RHAMNUS PURSHIANA CASCARA
EXISTING	**BOTANICAL / COMMON NAME**
	EXISTING DECIDUOUS TREE TO REMAIN
	EXISTING EVERGREEN TREE TO REMAIN
SHRUB AREAS	**BOTANICAL / COMMON NAME**
	WETLAND BUFFER ENHANCEMENT SHRUB MIX
GROUND COVERS	**BOTANICAL / COMMON NAME**
	LAWN PROTIME SEED MIX 301

WETLAND BUFFER SHRUBS

SEE L0.04 MITIGATION PLAN FOR PLANT QUANTITIES

BOTANICAL NAME	COMMON NAME
ACER CIRCINATUM	VINE MAPLE
PHYSOCARPUS CAPITATUS	PACIFIC NINEBARK
ROSA NUTKANA	NOOTKA ROSE
SAMBUCUS RACEMOSA	RED ELDERBERRY
SYMPHORICARPOS ALBUS	SNOWBERRY

PLANTING NOTES

1. DO NOT DISTURB EXISTING TREES TO REMAIN. PROTECT IN PLACE.
2. AVOID PLANTING WITHIN DEFINED ACCESS ZONE OF PROPOSED UTILITY BOXES.
3. CAREFULLY EXCAVATE SHRUB PITS IN VICINITY OF EXISTING TREES, WITHOUT DISTURBING TREE ROOTS.
4. COORDINATE SHRUB LAYOUT WITH EXISTING UTILITIES, REPORT CONFLICTS TO LANDSCAPE ARCHITECT.

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SHEET TITLE:
PLANTING PLAN

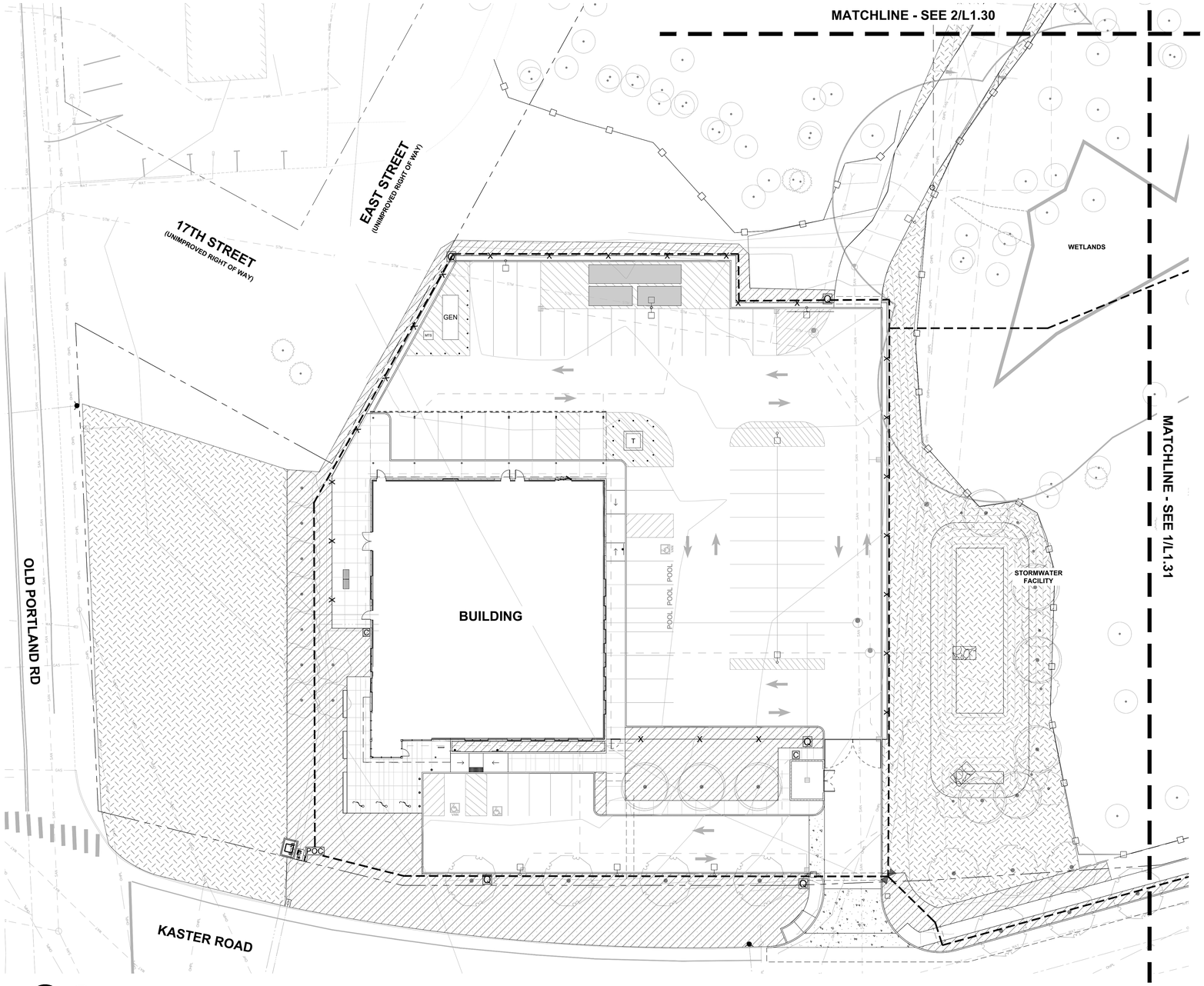
SHEET
L1.21

JOB NO. **2210310.04**

LAND USE SUBMITTAL SET 6/28/2023

IRRIGATION LEGEND

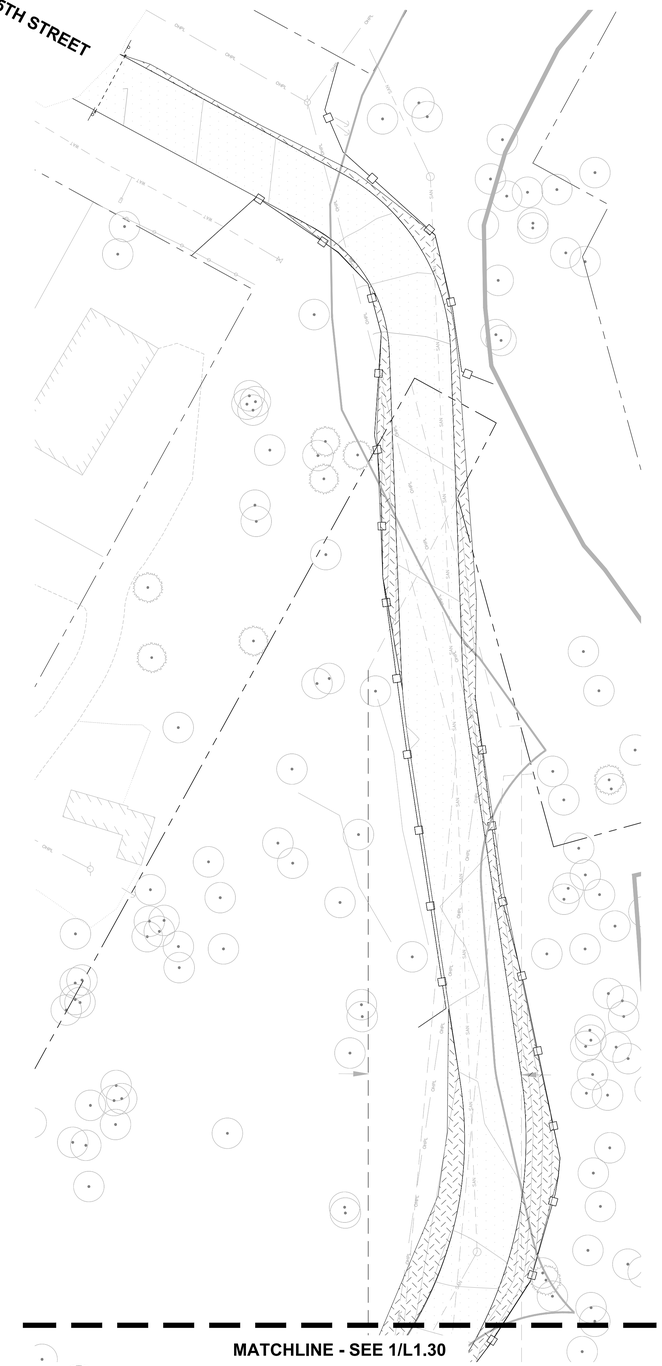
POC	POINT OF CONNECTION, INCLUDE DOUBLE CHECK BACKFLOW PREVENTOR, MASTER VALVE AND FLOW SENSOR - SEE DETAIL ON L5.13
C	IRRIGATION CONTROLLER
	GATE VALVE
Q	QUICK COUPLER AT 150' (INTERVALS MAX)
	MAINLINE SLEEVE- DIAMETER AT LEAST TWICE DIAMETER OF PIPE BEING SLEEVED
	MAINLINE-SCHEDULE 40 PVC
	SHRUB AND GROUNDCOVER DRIP AREA
	TEMPORARY IRRIGATED AREA - ZONE SEPARATELY



1 IRRIGATION PLAN

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.



2 IRRIGATION PLAN

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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12/1/2020

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SHEET TITLE:
IRRIGATION PLAN

SHEET
L1.30

JOB NO. 2210310.04

LAND USE SUBMITTAL SET 6/28/2023

1 IRRIGATION PLAN

20 0 10 20 40 80

(IN FEET)

1 inch = 20 ft.

IRRIGATION LEGEND

POC	POINT OF CONNECTION, INCLUDE DOUBLE CHECK BACKFLOW PREVENTOR, MASTER VALVE AND FLOW SENSOR - SEE DETAIL ON L5.13
C	IRRIGATION CONTROLLER
	GATE VALVE
Q	QUICK COUPLER AT 150' (INTERVALS MAX)
	MAINLINE SLEEVE- DIAMETER AT LEAST TWICE DIAMETER OF PIPE BEING SLEEVED
	MAINLINE-SCHEDULE 40 PVC
	SHRUB AND GROUNDCOVER DRIP AREA
	TEMPORARY IRRIGATED AREA - ZONE SEPARATELY

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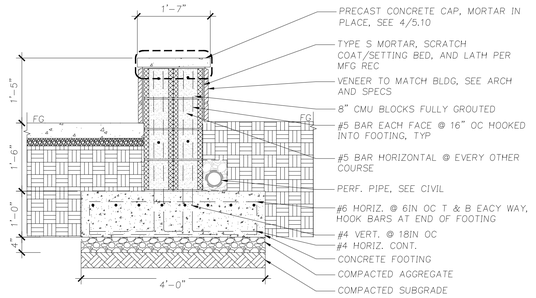
SHEET TITLE:
IRRIGATION PLAN

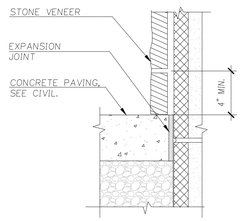
SHEET
L1.31

JOB NO. 2210310.04

LAND USE SUBMITTAL SET 6/28/2023

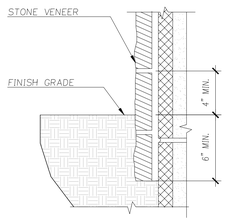


NOTE:
1. ENSURE UNTREATED CMU SURFACE IS CLEAN AND FREE OF DEBRIS. WHEN NECESSARY, DAMPEN CMU SURFACE BEFORE APPLYING STONE.
2. FOR STONE VENEER AND WALL CAP AT CORNERS, UTILIZE CORNER PIECES. NO EXPOSED END CUTS.
3. TREAT VENEER WITH WATER REPELLENT, SEE SPECS.



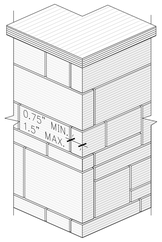
NOTE:
1. BOTTOM COURSE OF VENEER TO BE CUT ON SITE TO ENSURE THAT VENEER SITS FLUSH TO CONCRETE PAVING.
2. VENEER AT BOTTOM OF WALL SHALL EXTEND AT LEAST 4" ABOVE FINISHED GRADE BEFORE FIRST HORIZONTAL MORTAR JOINT OCCURS.

VENEER AT PAVING ENLARGEMENT
N.T.S



NOTE:
1. WHEN ADJACENT TO LANDSCAPE BED, BOTTOM COURSE OF VENEER TO EXTEND A MINIMUM OF 6" BELOW GRADE.

VENEER AT LANDSCAPE ENLARGEMENT
N.T.S

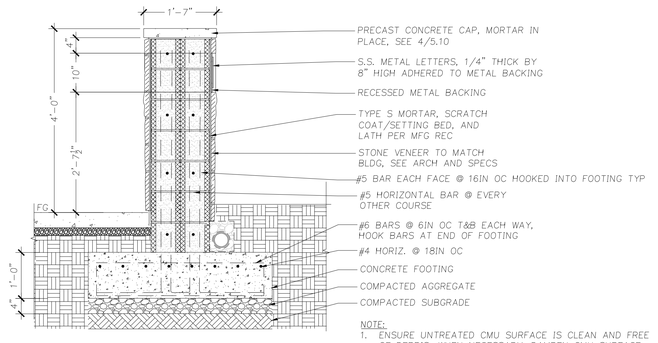


NOTES:
1. STONES AT CORNER WALL SHALL HAVE IRREGULAR ALTERNATING COURSE PATTERN BETWEEN INTERSECTING FACES.
2. CORNER STONES SHALL BE 3/4" TO 1-1/2" THICK.
3. CUT TO ACCOMMODATE ANGLES GREATER OR LESS THAN 90 DEGREES

VENEER AT CORNER
AXON
N.T.S

1 WALL

3/4"=1'-0"

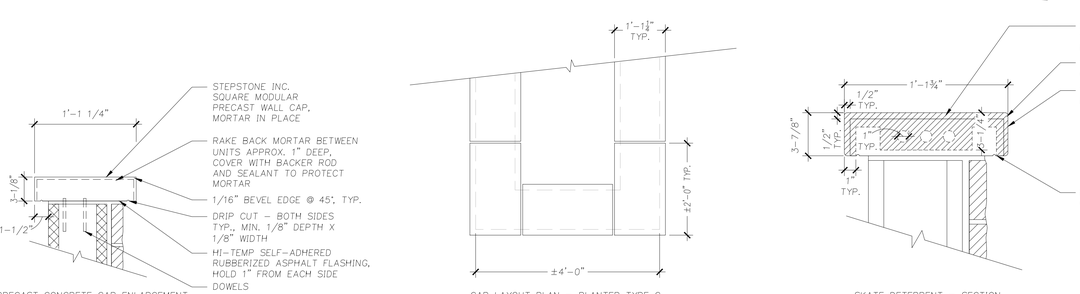


NOTE:
1. ENSURE UNTREATED CMU SURFACE IS CLEAN AND FREE OF DEBRIS. WHEN NECESSARY, DAMPEN CMU SURFACE BEFORE APPLYING STONE.
2. FOR STONE VENEER AND WALL CAP AT CORNERS, UTILIZE CORNER PIECES. NO EXPOSED END CUTS.
3. TREAT VENEER WITH WATER REPELLENT, SEE SPECS.

2 WALL SIGNAGE

SECTION

3/4"=1'-0"



ELEVATION

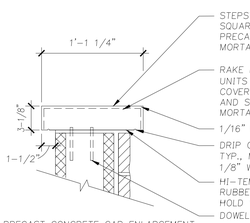
PLAN

3 WALL SIGNAGE

ELEVATION

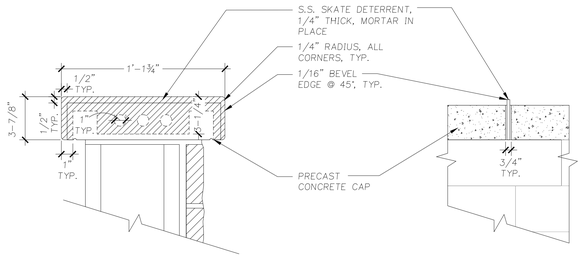
3/4"=1'-0"

L5-DETL-CONC SIGN



PRECAST CONCRETE CAP ENLARGEMENT
N.T.S.

CAP LAYOUT PLAN - PLANTER TYPE C



SKATE DETERRENT - SECTION
N.T.S.

SKATE DETERRENT - ELEVATION
N.T.S.

SKATE DETERRENT NOTES:
1. INSTALL SKATE DETERRENTS AT JOINTS BETWEEN PRECAST CONCRETE CAPS, ONLY AT LOCATIONS INDICATED ON MATERIALS PLAN L1.10.
2. SUBMIT SHOP DRAWING OF SKATE DETERRENT LAYOUT TO LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL.
3. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO FABRICATION OF SKATE DETERRENTS.
4. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
5. PROVIDE MOCKUP INSTALLATION OF ONE SKATEBOARD DETERRENT FOR APPROVAL BY LANDSCAPE ARCHITECT.

NOTES:
1. ACTUAL DIMENSIONS OF PRECAST CAP MAY VARY DEPENDING ON LENGTH OF PLANTER - SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO FABRICATION.
2. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

4 WALL CAP

3/4"=1'-0"

L5-DETL-PLANTER CAP

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REGISTERED LANDSCAPE ARCHITECT
OREGON
NICOLE TERREIRA
12/1/2020

REVISION SCHEDULE

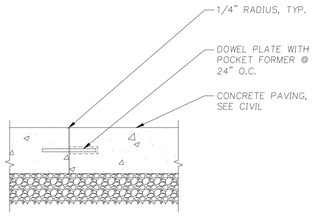
Delta	Issued As	Issue Date

SHEET TITLE:
WALL DETAILS

SHEET
L5.10

JOB NO. **2210310.04**

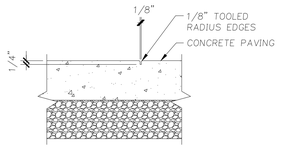
LAND USE SUBMITTAL SET 6/28/2023



NOTES:
1. SEE JOINT LAYOUT PLAN L1.10 FOR LOCATION OF JOINTS.
2. NO SHINERS ON TOOLED JOINTS.
3. PROVIDE STEEL DOWEL PLATES AT ALL CONSTRUCTION JOINTS.

1 CONSTRUCTION JOINT
SECTION 1 1/2"=1'-0"

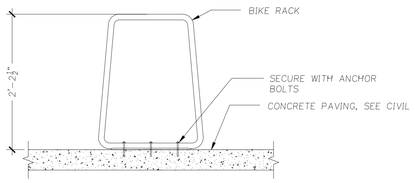
LS-JNT_CNST

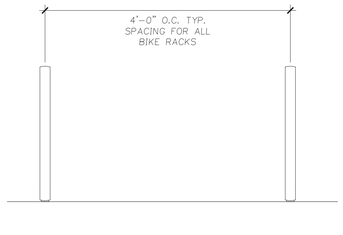


NOTES:
1. SEE MATERIALS AND LAYOUT PLAN L1.10 FOR LOCATION OF DECORATIVE SCORE JOINTS.
2. NO SHINERS ON TOOLED JOINTS.

2 SCORE JOINT
DECORATIVE 2"=1'-0"

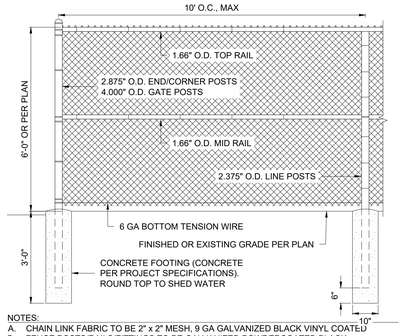
LS-JNT_DECSCR





NOTES:
1. SEE SPECS.
2. LOCATE BIKE RACKS PER PLANS.

3 BIKE RACK
SCALE: N.T.S.



NOTES:
A. CHAIN LINK FABRIC TO BE 2" x 2" MESH, 9 GA GALVANIZED BLACK VINYL COATED
B. FENCE POSTS/RAILS/FITTINGS TO BE GALVANIZED POWDERCOATED BLACK
C. FITTINGS TO BE HEAVY PRESSED GALVANIZED PER ASTM F626
D. FENCE MATERIALS AND CONSTRUCTION SHALL CONFORM WITH THE CHAIN LINK FENCE MANUFACTURER'S INSTITUTE (CLFMI) GUIDELINES FOR HEAVY INDUSTRIAL FENCE

4 CHAIN LINK FENCE
NTS

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REGISTERED OREGON NICOLE FERREIRA RENEWAL 12/31/2020 LANDSCAPE ARCHITECT

REVISION SCHEDULE

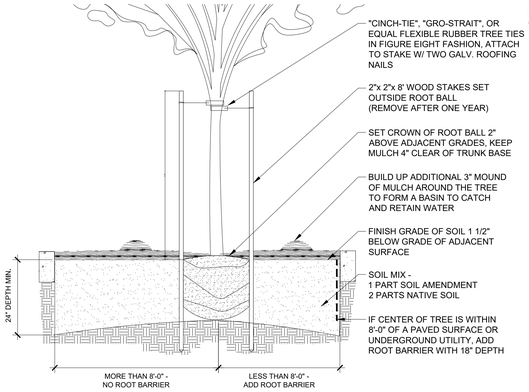
Delta	Issued As	Issue Date

SHEET TITLE:
SITE DETAILS

SHEET
L5.11

JOB NO. **2210310.04**

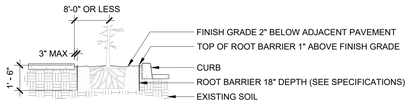
LAND USE SUBMITTAL SET 6/28/2023



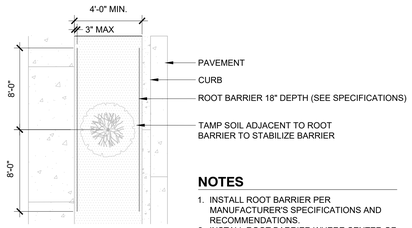
NOTES

1. PLANT ALL TREES AT LEAST 32 INCHES FROM THE END OF HEAD-IN PARKING SPACES TO PREVENT DAMAGE FROM CAR OVERHANGS.
2. ALL ROOTS MUST BE COMPLETELY COVERED. BACKFILL SHOULD BE THOROUGHLY WATERED AS IT IS PLACED AROUND THE ROOTS.
3. SCARIFY AND ROUGHEN BOTTOM OF PLANTING PIT PRIOR TO PLACING TREE AND TOPSOIL. SLOPE BOTTOM TO DRAIN TO SIDES.
4. THE ENTIRE WIDTH OF THE PLANTING ISLAND SHALL CONTAIN ONLY SOIL/COMPOST PLANTING MIX AND BE FREE OF ALL DEBRIS INCLUDING GARBAGE, CONCRETE, GRAVEL OR OTHER FOREIGN MATERIALS.
5. ALL TREES SHALL CONFORM TO MOST RECENT ANSI Z60.1 AMERICAN STANDARD FOR NURSERY STOCK. FIRST LIMBS OF DECIDUOUS TREES IN PARKING LOTS AND ALONG STREETS AND SIDEWALKS SHALL BE 5 FEET ABOVE GROUND OR HIGHER.
6. EXCAVATE HOLE INTO PREPARED SOIL TO ONE INCH LESS THAN HEIGHT OF ROOTBALL AND TWO TIMES THE WIDTH OF THE ROOTBALL. TAMP BOTTOM OF PIT UNDER ROOTBALL THOROUGHLY TO KEEP TREE FROM SETTLING. BUTTRESS AT THE BOTTOM OF THE PIT NO LESS THAN THREE FEET WIDE IF NEEDED TO REINFORCE LATERAL SUPPORT.
7. DO NOT DAMAGE THE ROOTBALL WHEN PLANTING. REMOVE ALL WIRE, STRING AND BURLAP FROM TOP AND SIDES OF ROOTBALL ONLY AFTER PLACING IN THE HOLE.
8. SET TREE STRAIGHT ON TAMPED SOIL.
9. BACKFILL HOLE WITH APPROVED PLANTING MEDIUM MIX TO HALF DEPTH. TAMP SOIL TO STABILIZE ROOTBALL. FINISH BACKFILLING AND TAMP AGAIN.
10. STAKE TREES OUTSIDE OF ROOTBALL AND PARALLEL TO PLANTING ISLAND CURBS WITH TREE STAKES. USE ONE INCH HEAVY CHAINLOCK TREE TIES OR SIMILAR. REMOVE AFTER ONE YEAR.
11. WATER IMMEDIATELY AND THOROUGHLY, TWICE PER WEEK DURING THE FIRST MONTH, THEN ONCE PER WEEK THROUGH THE REMAINDER OF THE DRY SEASON. WATER A MINIMUM OF ONCE PER MONTH DURING THE SECOND SUMMER SEASON.
12. ALL PLANTING BEDS CONTAINING TREES AND SHRUBS AND SURFACE DRAINAGE SHALL BE PREPARED SIMILAR TO THIS LANDSCAPE TREE PLANTING AND DRAINAGE DETAIL.

1 DECIDUOUS TREE PLANTING DETAIL



SECTION VIEW



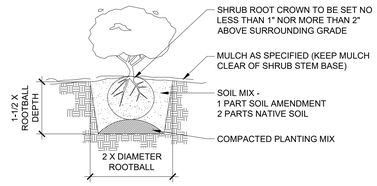
PLAN VIEW

NOTES

1. INSTALL ROOT BARRIER PER MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
2. INSTALL ROOT BARRIER WHERE CENTER OF ROOT BALL IS WITHIN 8' OF PAVEMENT.

2 ROOT BARRIER DETAIL

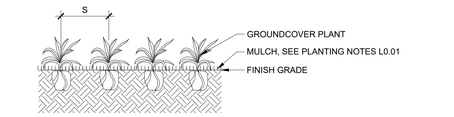
SCALE: NTS



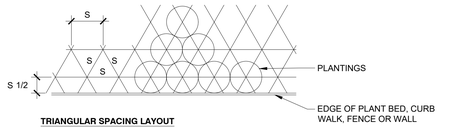
3 SHRUB PLANTING

SCALE: NTS

LS-DETL-SHRB.DWG



PLANTING SECTION



TRIANGULAR SPACING LAYOUT

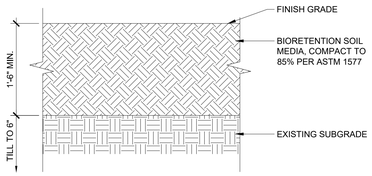
NOTES

1. TILL SOIL SO THAT THERE ARE NO CLODS OR CLUMPS LARGER THAN 1 1/2" DIAMETER

4 GROUNDCOVER PLANTING

SCALE: NTS

LS-DETL-GCVR.DWG



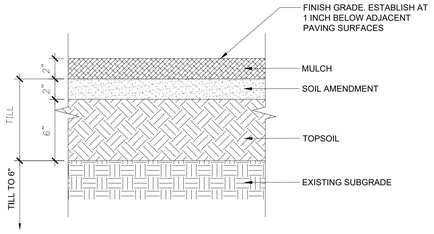
NOTES:

1. REMOVE ALL ROCK, DEBRIS AND OTHER FOREIGN MATTER OVER 1 INCH IN DIAMETER FROM TOP 12 INCHES OF SOIL.
2. BIORETENTION SOIL MEDIA SHALL MEET THE STANDARDS ESTABLISHED IN THE 2012 STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON, AS AMENDED IN DECEMBER 2014, VOLUME V - CHAPTER 7 'DEFAULT BIORETENTION SOIL MEDIA (BSM)'.
3. RIP AND TILL EXISTING TOPSOIL TO 6 INCHES DEEP MINIMUM, PRIOR TO INSTALLING GROWING MEDIUM. TILL INTERFACE OF SUBGRADE AND TOPSOIL.
4. MIX GROWING MEDIUM AND EXISTING TOPSOIL TO A MINIMUM 10 INCH DEPTH.

5 SOIL PREP. AT STORMWATER

WESTERN WASHINGTON

SCALE: NTS



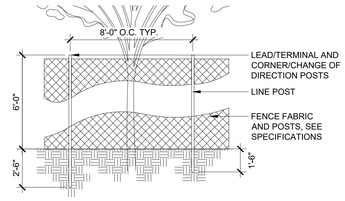
NOTES

1. REMOVE ALL ROCK, DEBRIS AND OTHER FOREIGN MATTER OVER 1" IN DIAMETER FROM TOP 12" OF SOIL.
2. RIP AND TILL SUBGRADE TO 6" DEEP (MIN.) PRIOR TO INSTALLING TOPSOIL AND TILL INTERFACE OF SUBGRADE AND TOPSOIL.
3. TILL TOPSOIL AND SOIL AMENDMENTS TO A MIN. 12" DEPTH.
4. SUBMIT SAMPLE OF MULCH & TOPSOIL FOR ACCEPTANCE PRIOR TO PLACEMENT.

6 SOIL PREPARATION

SCALE: NTS

LS-DETL-PLNT-SOIL.DWG



7 TREE PROTECTION

SCALE: NTS

TREE PROTECTION MEASURES

UNLESS OTHERWISE INDICATED FOR REMOVAL ALL TREES SHALL RECEIVE PROTECTIVE MEASURES FOR THE DURATION OF THE PROJECT IN ACCORDANCE WITH THE CITY REQUIREMENTS.

6' HIGH MINIMUM CHAIN-LINK FENCING, SHALL BE ERECTED AND MAINTAINED. FENCING SHALL BE INSTALLED AS INDICATED ON THIS PLAN. IN AREAS WHERE ROOT ZONE ENCROACHMENT IS UNAVOIDABLE ADJUSTMENTS OF FENCING LOCATION SHALL BE COORDINATED WITH A CERTIFIED ARBORIST PRIOR TO START OF WORK.

NO ACTIVITY MAY BE CONDUCTED WITHIN ANY DESIGNATED TREE PROTECTION AREA INCLUDING BUT NOT LIMITED TO PARKING EQUIPMENT, PLACING SOLVENTS, STORING MATERIALS AND SOIL DEPOSITS, DUMPING CONCRETE WASHOUT, OR OTHER DEBRIS, OR ANY EXCAVATION OR COMPACTION WORK.

DURING CONSTRUCTION NO OBJECTS SHALL BE ATTACHED TO ANY TREE DESIGNATED TO BE RETAINED AND PROTECTED.

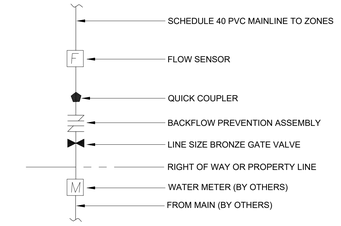
FENCE SHALL REMAIN IN PLACE UNTIL THE COMPLETION OF CONSTRUCTION ACTIVITIES. MOVEMENT OR REMOVAL OF THE FENCE REQUIRES APPROVAL BY THE ARBORIST AND/OR THE CITY'S AUTHORIZED REPRESENTATIVE.

EXCAVATION / TRENCHING AROUND TREES

PROPOSED TRENCHING AND EXCAVATION AROUND TREES SHALL BE COORDINATED WITH CONSULTING ARBORIST.

WHERE TRENCHING IS REQUIRED WITHIN CRITICAL ROOT ZONE, TUNNEL UNDER OR AROUND ROOTS BY HAND DIGGING OR BORING. DO NOT CUT MAIN LATERAL ROOTS OR TAP ROOTS. CLEANLY CUT/SEVER SMALLER ROOTS. RELOCATE ROOTS IN BACKFILL AREAS WHEREVER POSSIBLE.

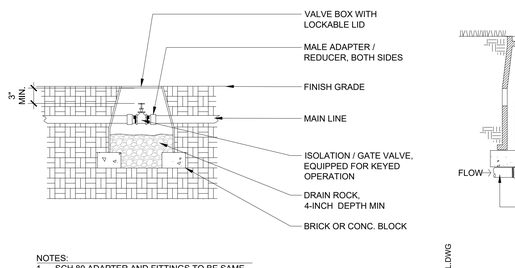
DO NOT ALLOW EXPOSED ROOTS TO DRY OUT BEFORE PERMANENT BACKFILL IS PLACED, PROVIDE TEMPORARY EARTH COVER, OR PACK WITH PEAT MOSS AND WRAP WITH BURLAP. WATER AND MAINTAIN IN MOIST CONDITION UNTIL RELOCATED AND COVERED WITH BACKFILL.



8 POINT OF CONNECTION

SCALE: NTS

LC-DETL-GEN-POC.DWG

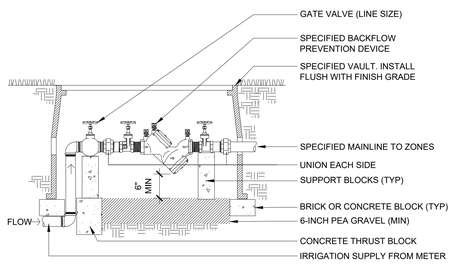


NOTES:
1. SCH 80 ADAPTER AND FITTINGS TO BE SAME SIZE AS ISOLATION VALVE

9 ISOLATION / GATE VALVE

SCALE: NTS

LS-DETL-06-VALV-GATE-ISOL.DWG



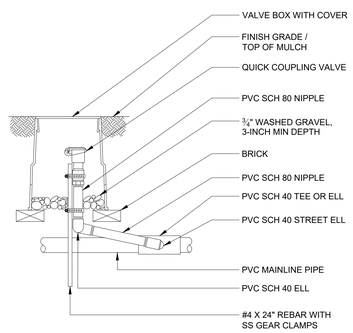
NOTE:
INSTALL BACKFLOW PREVENTOR PER CODE AND REQUIREMENTS OF PREVAILING JURISDICTIONS.

10 DOUBLE CHECK VALVE

BACKFLOW PREVENTOR (BELOW GRADE)

SCALE: NTS

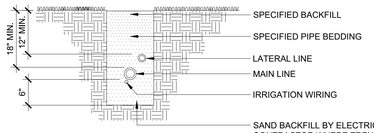
LS-DETL-VALV-DCHK.DWG



11 QUICK COUPLER VALVE

SCALE: NTS

LS-DETL-VALV-QCUP.DWG

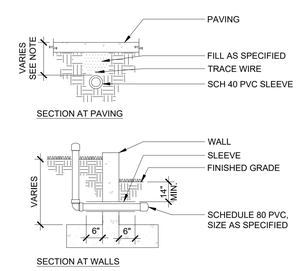


NOTES:
1. SNAKE ALL PVC PIPING IN TRENCHING
2. TIE LOOSE 3 FT LOOP IN ALL IRRIGATION WIRING AT CHANGES IN DIRECTION GREATER THAN 30 DEGREES. UNTIE AFTER ALL CONNECTIONS HAVE BEEN MADE.
3. WHERE ELECTRICAL WIRING DOES NOT SHARE COMMON TRENCH, OVER EXCAVATE TRENCH 2 INCHES MIN AND BACKFILL WITH SPECIFIED BEDDING MATERIAL.
4. LOCATE ALL WIRING NOT IN COMMON TRENCHES ACCURATELY ON RECORD DRAWINGS.

12 IRRIGATION TRENCHING (TYP)

SCALE: NTS

LS-DETL-GEN-TRENCH.DWG



SECTION AT PAVING

SECTION AT WALLS

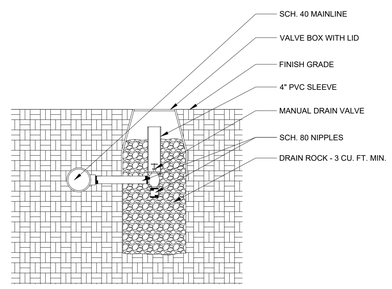
MIN DEPTH OF PIPE	
MAINLINE	18"
LATERAL AT PAVING	14"
AT DRIVING SURFACE	24"

NOTES:
1. SLEEVES TO BE TWICE DIAMETER OF LINE OR LINES PASSING THROUGH.
2. EXTEND IRRIGATION SLEEVE 6-INCHES BEYOND EDGE OF PAVING, EACH SIDE.
3. INSTALL SLEEVES AT SAME TIME AS WALL OR PAVING INSTALLATION.
4. INSTALL PIPE IN SLEEVE BEFORE BACKFILLING AND CAP BOTH ENDS WITHOUT GLUE.

13 IRRIGATION SLEEVES

SCALE: NTS

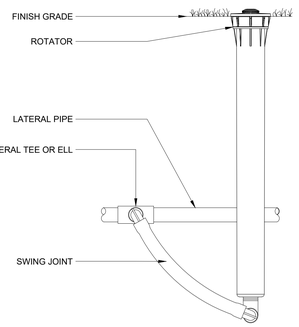
LS-DETL-GEN-SLEEVE.DWG



14 MANUAL DRAIN VALVE

SCALE: NTS

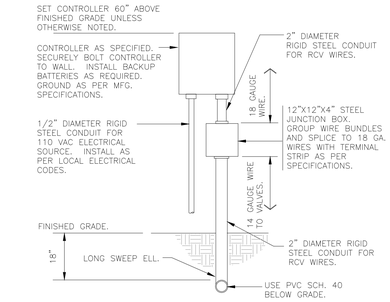
3510-L0.01-ON SITE.DWG



15 MULTI-TRAJECTORY SPRAY HEAD

SCALE: NTS

LS-DETL-HEAD-SPRAY-MT.DWG



16 EXTERIOR WALL MOUNT CONTROLLER

1" = 1'-0"

P-PU-12

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OREGON
NICOLE TERREIRA
12/1/2020

REVISION SCHEDULE

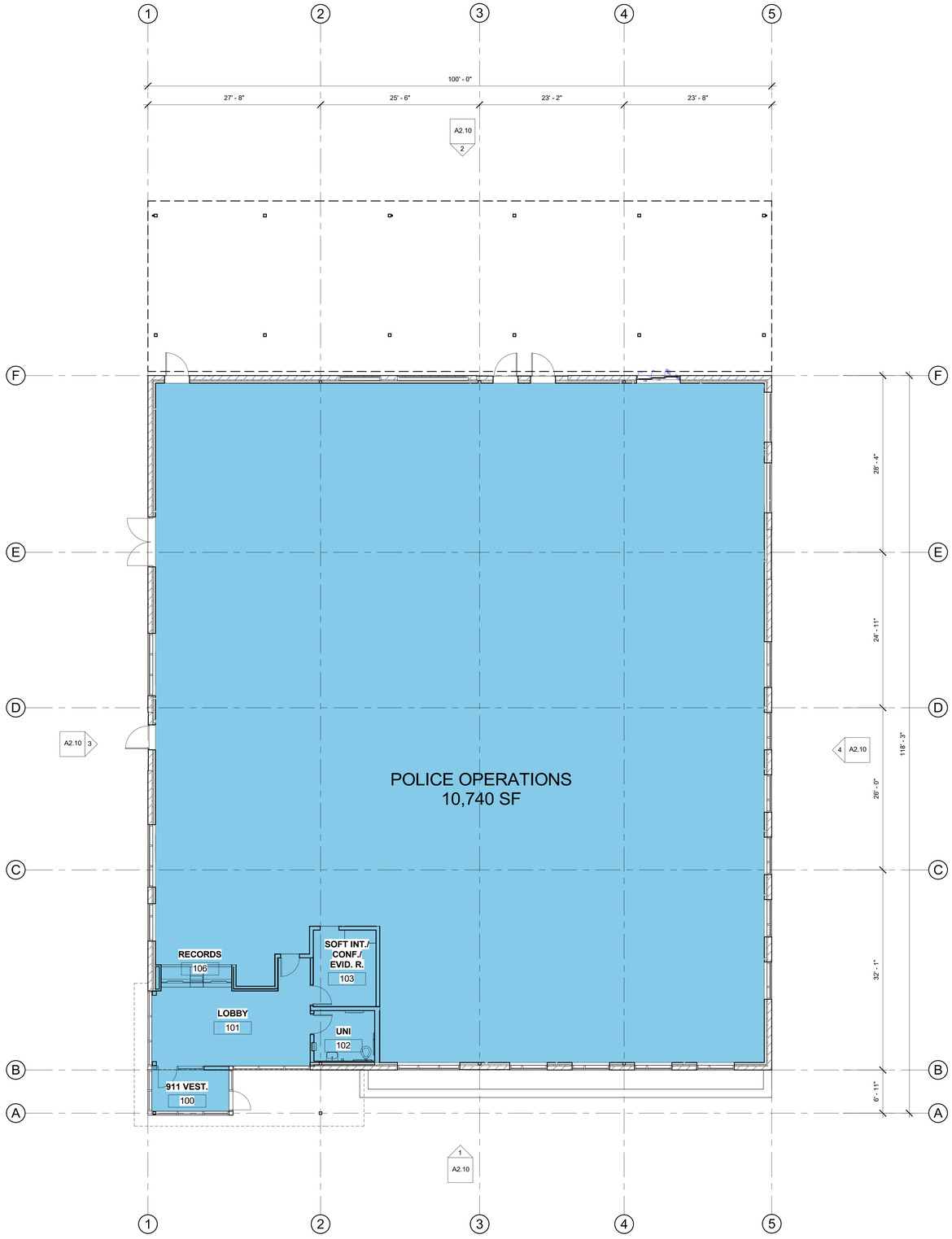
Delta	Issued As	Issue Date

SHEET TITLE:
PLANTING AND IRRIGATION DETAILS

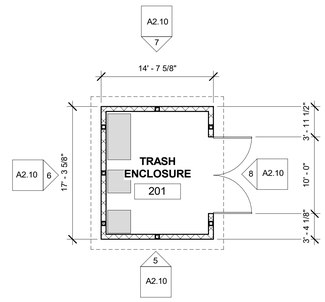
SHEET
L5.12

JOB NO.
2210310.04

LAND USE SUBMITTAL SET 6/28/2023



1 A1.10 FLOOR PLAN
1/8" = 1'-0"



2 A1.10 TRASH ENCLOSURE
1/8" = 1'-0"

BUILDING AREA

11,495 SF (ONLY ROOF AND CANOPY, INCLUDES EXT WALLS)

253 SF TRASH ENCLOSURE

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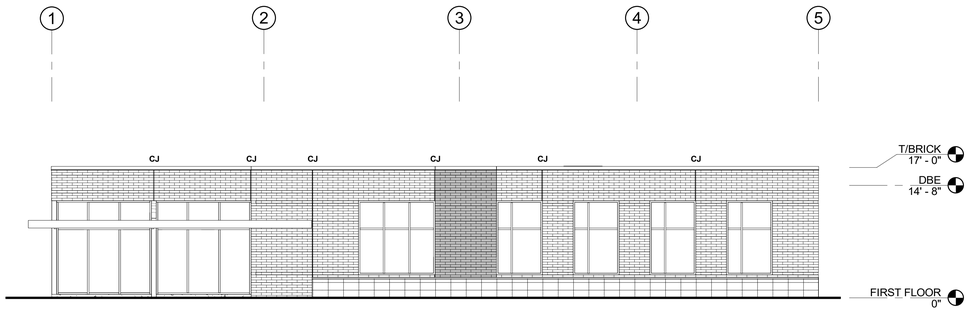
Delta	Issued As	Issue Date

SHEET TITLE:
FLOOR PLAN

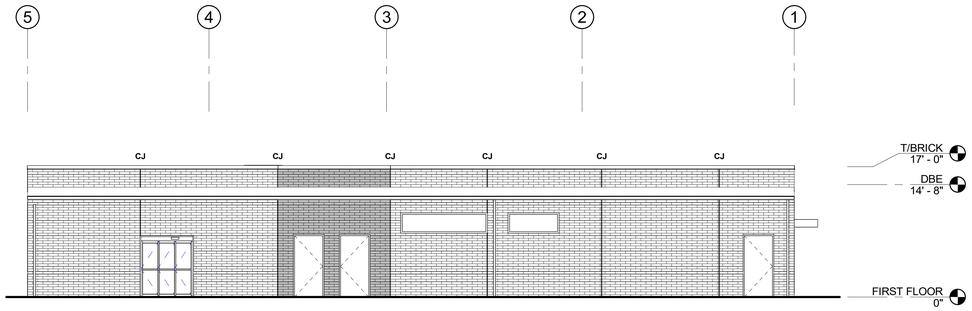
SHEET
A1.10

JOB NO. **2210310.04**

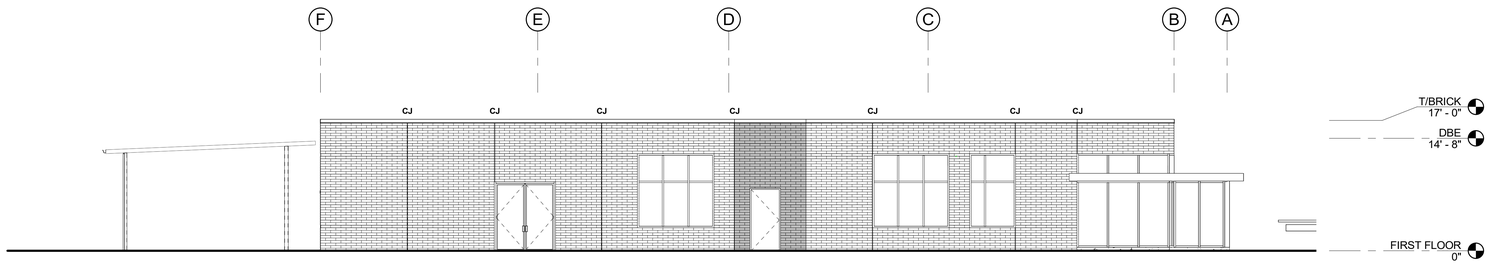
LAND USE SUBMITTAL 6/28/2023



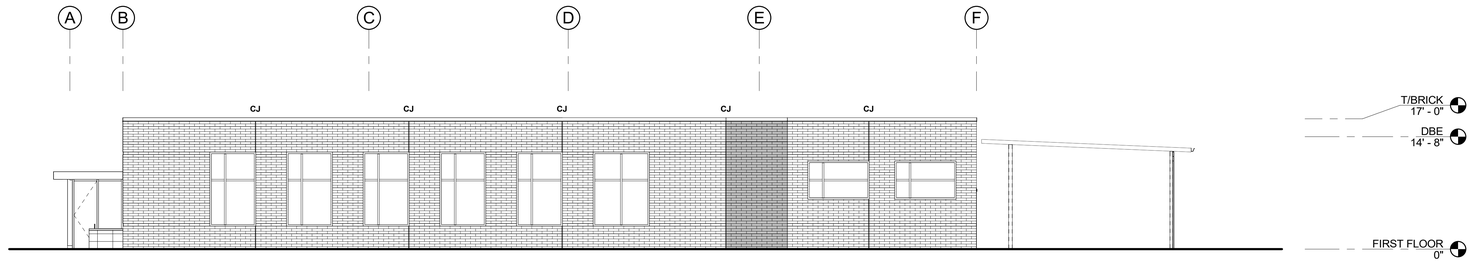
1 A2.10 FRONT ELEVATION
1/8" = 1'-0"



2 A2.10 REAR ELEVATION
1/8" = 1'-0"



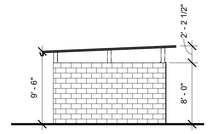
3 A2.10 LEFT ELEVATION
1/8" = 1'-0"



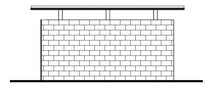
4 A2.10 RIGHT ELEVATION
1/8" = 1'-0"

LEGEND

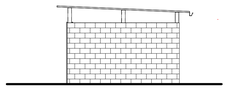
	SB-1, STRUCTURAL ATLAS BRICK 4X8X16
	SB-2, ACCENT STRUCTURAL ATLAS BRICK 4X8X16
	STONE
	CMU
CJ	CONTROL JOINT



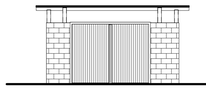
5 A2.10 TRASH ENCLOSURE - FRONT ELEVATION
1/8" = 1'-0"



6 A2.10 TRASH ENCLOSURE - LEFT ELEVATION
1/8" = 1'-0"



7 A2.10 TRASH ENCLOSURE - REAR ELEVATION
1/8" = 1'-0"



8 A2.10 TRASH ENCLOSURE - RIGHT ELEVATION
1/8" = 1'-0"

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SHEET TITLE:
BUILDING ELEVATIONS

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A2.10

JOB NO. **2210310.04**

LAND USE SUBMITTAL 6/28/2023

EXTERIOR LUMINAIRE SCHEDULE

FIXTURE TYPE	IMAGE	PRODUCT DESCRIPTION	BASIS OF DESIGN MANUFACTURER	SIZE	INPUT WATTS	LAMP SOURCE	POWER SUPPLY	INPUT VOLTAGE	FINISH	MOUNTING	NOTES
S1A		PARKING/AREA POLE LUMINAIRE	LITHONIA LIGHTING D-SERIES SIZE 1	26" L X 13" W X 7" H	50 W	LED, 3000K, 6700 LUMENS	INTEGRAL ELECTRONIC DRIVER NO DIMMING	277V		25' POLE	T4M DISTRIBUTION
S1B		PARKING/AREA POLE LUMINAIRE	LITHONIA LIGHTING D-SERIES SIZE 1	26" L X 13" W X 7" H	50 W	LED, 3000K, 6500 LUMENS	INTEGRAL ELECTRONIC DRIVER NO DIMMING	277V		25' POLE	T2M DISTRIBUTION
S1C		PARKING/AREA POLE LUMINAIRE	LITHONIA LIGHTING D-SERIES SIZE 1	26" L X 13" W X 7" H	50 W	LED, 3000K, 6900 LUMENS	INTEGRAL ELECTRONIC DRIVER NO DIMMING	277V		25' POLE	T5M DISTRIBUTION
S1D		PARKING/AREA POLE LUMINAIRE	LITHONIA LIGHTING D-SERIES SIZE 1	26" L X 13" W X 7" H	50 W	LED, 3000K, 4800 LUMENS	INTEGRAL ELECTRONIC DRIVER NO DIMMING	277V		25' POLE	BLC DISTRIBUTION
S3		FLAG POLE LIGHTING	AMERICAN BEACON	6"D	2 W	LED, 3000K, 500 LM, 80 CRI	INTEGRAL ELECTRONIC DRIVER NO DIMMING	120V		FLAG POLE	
S8		2" DOWNLIGHT	JUNO 2" IC 1000 LED ROUND DOWNLIGHT BAFFLE	11.9" X 4 1/8"	7.5 W	LED, 3000K, 600 LM, 80 CRI	INTEGRAL ELECTRONIC DRIVER NO DIMMING	120-277 VAC		RECESSED	FLOOD DISTRIBUTION
S10		WALL SCONCE	ACQUITY WDGE2	11.5"W X 9"H X 7"D	10 W	LED, 3000K, 1210 LM, 80 CRI	INTEGRAL ELECTRONIC DRIVER NO DIMMING	120-277 VAC		WALL MOUNT @ 14.5'	VISUAL COMFORT FORWARD THROW
S11		CAR PORT SURFACE MOUNT DOWNLIGHT	MCGRAW-EDISON TT TOPTIER	14"H X 18"D	28 W/F	LED, 3000K, 4000 LM, 80 CRI	INTEGRAL ELECTRONIC DRIVER NO DIMMING	120-277 VAC		SURFACE MOUNT	WIDE DISTRIBUTION
S12		SURFACE STRIP LIGHT	LITHONIA CLX	48"	18.5 W	LED, 3000K, 3000 LM, 80 CRI	INTEGRAL ELECTRONIC DRIVER NO DIMMING	MVOLT		SURFACE MOUNT	
S13		FLOOD LIGHT	LITHONIA D-SERIES SIZE 1	9"W X 13" H X 3.5"D	21 W	LED, 3000K, 2400 LM, 70 CRI	INTEGRAL ELECTRONIC DRIVER NO DIMMING	MVOLT		GROUND MOUNT	HORIZONTAL MEDIUM FLOOD DISTRIBUTION WITH VISOR

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SHEET TITLE:
LUMINAIRE SCHEDULE

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SHEET

E0.02

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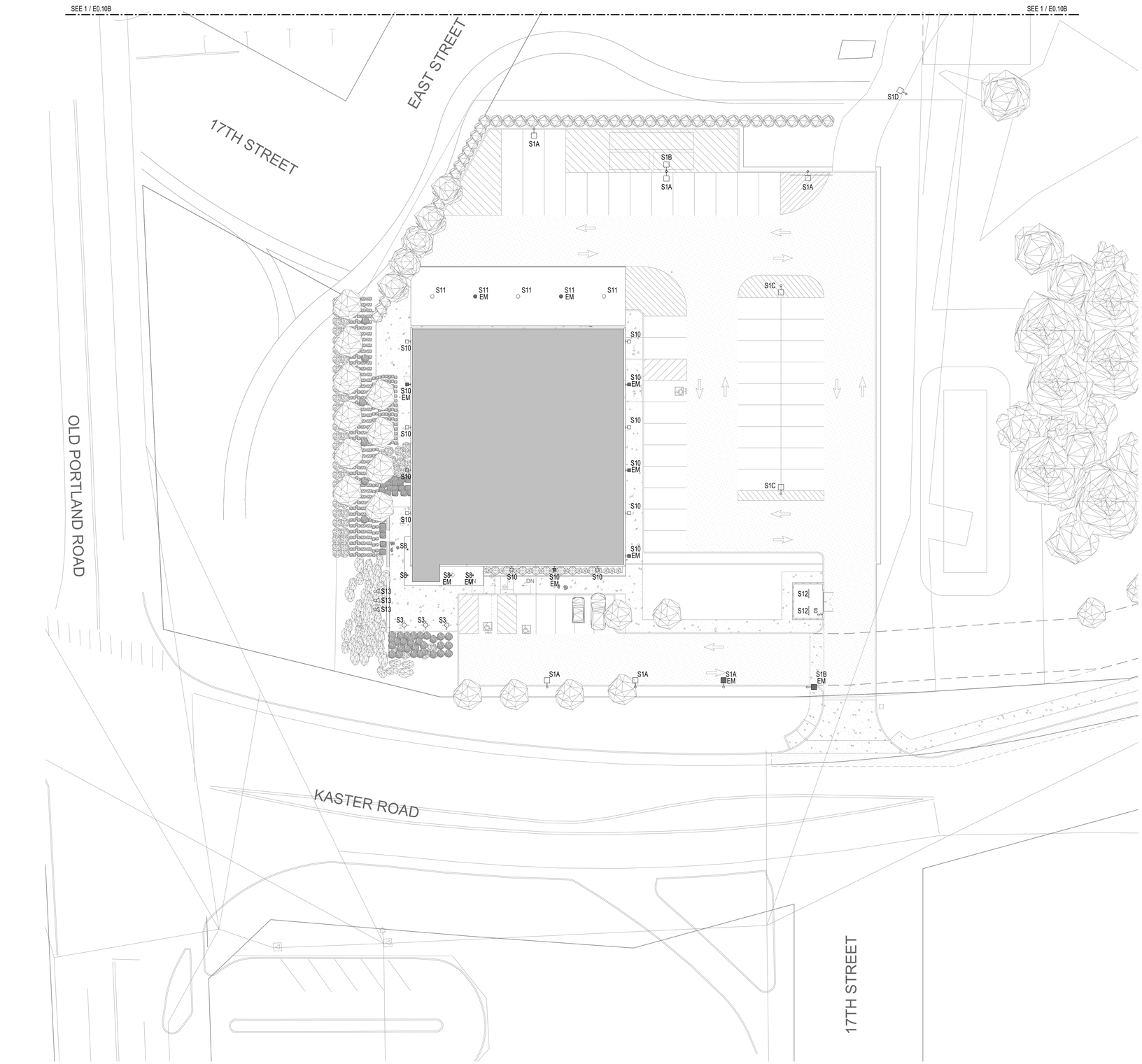

1 SITE PLAN - LIGHTING
1" = 20'-0"

GENERAL NOTES:

A. REFERENCE ARCHITECTURAL (OR: LANDSCAPE, CIVIL) DRAWINGS FOR EXACT LOCATIONS OF EXTERIOR LUMINAIRES AND EQUIPMENT.

B. ALL NORMAL POWER CIRCUITS ARE ASSIGNED TO BRANCH PANEL 4L-XX AND ALL EMERGENCY POWER CIRCUITS ARE ASSIGNED TO BRANCH PANEL E4L-XX UNLESS OTHERWISE NOTED.

C. PROVIDE FLOOD PROOF LIGHTING, CONNECTION AND CONDUITS FOR ELECTRICAL ITEMS THAT ARE LOCATED WITHIN 100-YEAR FLOODPLAIN.

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SHEET TITLE:
SITE PLAN - LIGHTING

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SHEET
E0.10A

JOB NO. **2210310.04**

LAND USE SUBMITTAL 06/28/2023

1 SITE PLAN - LIGHTING
1" = 20'-0"

GENERAL NOTES:

A. REFERENCE ARCHITECTURAL (OR: LANDSCAPE, CIVIL) DRAWINGS FOR EXACT LOCATIONS OF EXTERIOR LUMINAIRES AND EQUIPMENT.

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SHEET TITLE:
SITE PLAN - LIGHTING

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E0.10B

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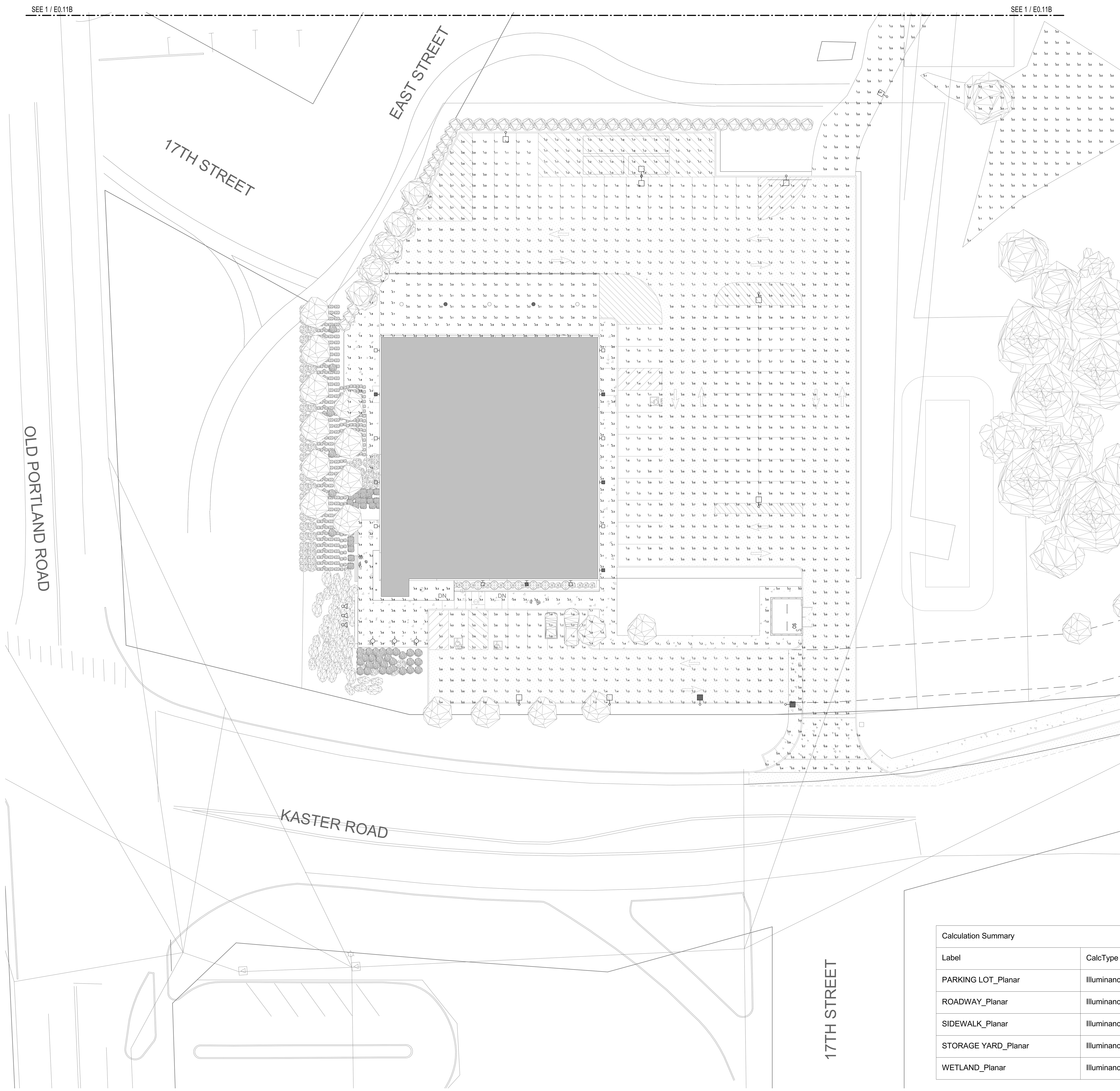

1 SITE PHOTOMETRICS - LIGHTING
1" = 20'-0"

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
PARKING LOT_Planar	Illuminance	Fc	1.13	4.7	0.3	3.77	15.67
ROADWAY_Planar	Illuminance	Fc	0.96	1.5	0.3	3.20	5.00
SIDEWALK_Planar	Illuminance	Fc	2.42	6.3	0.2	12.10	31.50
STORAGE YARD_Planar	Illuminance	Fc	1.34	1.9	1.1	1.22	1.73
WETLAND_Planar	Illuminance	Fc	0.00	0.1	0.0	N.A.	N.A.

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SHEET TITLE:
SITE PHOTOMETRICS - LIGHTING

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SHEET

E0.11A

JOB NO. **2210310.04**

LAND USE SUBMITTAL 06/28/2023

Autodesk Docs://2210310.00 - St. Helens Public Safety Building/21-1273 MEP22.rvt 6/27/2023 8:48:52 AM As indicated

1 SITE PHOTOMETRICS - LIGHTING
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