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To: Jenny Dimsho, AICP
City of St. Helens

From: Steve Faust, AICP
Community Planning Director

Date: July 22, 2020

**Project Name:** **St. Helens Industrial Business Park**
**RE:** **Parcelization Framework Report**

# Introduction

The City of St. Helens is interested in spurring new industrial development on its 200-acre industrial business park. In order to effectively facilitate redevelopment and market the business park to potential employers, the City needs to complete a Master Plan for the entire site. The St. Helens Industrial Business Park (SHIBP) Master Plan will promote regional economic development, by guiding industrial development and infrastructure development on one of the largest underutilized Industrial-zoned properties in the City. Industrial development will help restore family wage jobs, increase City utility revenues (reducing the burden on residents) and restore underutilized properties to the tax rolls. Because the site is within the Urban Renewal Agency, a federally designated Opportunity Zone, and the South Columbia County Enterprise Zone, St. Helens Industrial Business Park site preparation will stimulate further economic development and provide additional capacity for infrastructure spending.

The SHIBP Master Plan will assess existing physical conditions and development barriers, summarize pertinent information from previous plan documents and decisions, and define targeted industrial users, provide a framework for parcelization. A subsequent memorandum will develop a phased infrastructure funding plan.

# Parcelization Framework

This draft parcelization framework is based on the following factors:

- **Access** – ability to provide vehicular access and circulation to the parcels, including semi-trucks with trailers.
- **In-water uses** – primarily operate in-water and require a small footprint.
- **Utilities** – access and capacity to provide utility services to the site.
- **Environmental constraints** – sufficient development area on each parcel free of Goal 5 habitat areas.
- **Potential users/desired parcel size** – a parcel size between two and five acres for small industrial users that can be consolidated for larger uses

Figure 1. Proposed Parcelization Framework


## SITE NOTES

SITE MAP HAS BEEN PREPARED USING DATA FROM EXISTING TAX MAPS AND RLIS GIS DATA. THIS MAP HAS BEEN PREPARED FOR ILLUSTRATIVE PURPOSES ONLY. ALL BOUNDARY AND DIMENSIONAL INFORMATION SHOULD BE VERIFIED BY A PROFESSIONAL LAND SURVEYOR.

THE NET ACREAGE FOR EACH PARCEL HAS BEEN CALCULATED BY REMOVING PUBLIC RIGHT-OF-WAY, JURISDICTIONAL WETLANDS AND THEIR ASSOCIATED PROTECTION ZONES, AND WATERWAYS AND THEIR ASSOCIATED RIPARIAN PROTECTION ZONES.

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SCALE: 1" = 500'

0 500 1000

## Parcel Considerations

The following is a description of factors that were considered when establishing parcels and issues that may still need to be addressed.

**Parcel 1** has frontage on Old Portland Road and Kaster Road as well as unimproved right-of-way frontage on East Street and 7th Street. The proposed future roundabout at the intersection of Old Portland Road and Kaster Road may require a right-of-way dedication. Primary access to the site should be provided from 7th Street, as Kaster Road is a collector with a truck route status. An existing sanitary sewer line located within the 7th Street right-of-way would make a vacation of the right-of-way difficult. South 17th Street and East Street may have some right-of-way vacation potential with consideration for existing driveways. East street may be needed as a route outside of flood areas for critical facilities.
This parcel is being considered for locating a new St. Helens Police Station. The 500-year floodplain on the site may prohibit the development of critical facilities. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Light Industrial (LI)

Division Status: Already a legally separate property, surrounded by public right of way on all sides.

**Parcel 2** has frontage on Kaster Road and 7th Street. A right-of-way vacation of the unimproved Fir Street, Park Street, Church Street, Terrace Street and East Street may provide additional area for development. Primary access to the site should be provided from 7th Street and/or Fir Street, as Kaster Road is a collector with a truck route status. An existing sanitary sewer line located within the 7th Street right-of-way would make a vacation of the right-of-way difficult. Fir Street has some potential for vacation, especially areas within significant (Goal 5) designated wetlands. Park Street and California Street appear to be vacation candidates; however, a sanitary sewer line close to or within the California Street right-of-way would make a vacation of the right-of-way difficult. A large wetland and associated 50-foot buffer impact the northern half of the site. It is assumed that the small wetland located on the parcel will be filled. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Light Industrial (LI)

Division Status: The east side of the site would require right-of-way vacations and a replat. Boundaries are clear on north, west and south sides due to existing rights-of-way.

**Parcel 3** has frontage on Kaster Road. Fir Street and Park Street have potential for vacation, especially areas within significant (Goal 5) designated wetlands. A large wetland and associated 50-foot buffer impact the northern half of the site. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. Primary access to the site should be provided from Fir Street, as Kaster Road is a collector with a truck route status. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 3 is part of Parcel 1 of PP No. 2020-03. The west and north sides of the site would require right-of-way vacations and a replat. The parcel will require a subsequent land division.

**Parcel 4** has frontage on Kaster Road and a proposed road. Franklin Street has potential for a vacation, with half of the right-of-way going to each abutting property owners. The portion of the right-of-way vacated to Parcel 4 has a delineated wetland. The configuration of the lot may create challenges for development. A large wetland and associated 50-foot buffer impact the western half of the site. It is assumed that the small wetland located on the parcel will be filled. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 4 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 5** has frontage on two proposed roads. A large wetland and associated 50-foot buffer impact the western half of the site. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. The configuration of the site may not be conducive to a large development. The parcel is located within the area the City has identified as an area needing clearing and grading prior to development. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 5 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 6** has frontage on a proposed road which could be an extension of S. 13th Street. A large wetland and associated 50-foot buffer impact the western half of the site. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. The parcel is located within the area the City has identified as an area needing clearing and grading prior to development. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: The majority of the site is zoned Heavy Industrial (HI) with a small portion in the northwest corner zoned Light Industrial (LI). A zone change could be considered.

Division Status: A portion of Parcel 6 is part of Parcel 1 of PP No. 2020-03, with a portion outside of Parcel 1. The site would require right-of-way vacations and a replat.

**Parcel 7** has frontage on a proposed road which could be an extension of S. 13th Street. A large wetland impacts the eastern half of the site which has a 50-foot protection zone. It is assumed that the small wetland located on the parcel will be filled. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. The parcel is located within the area the City has identified as an area needing clearing and grading prior to development. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: A portion of Parcel 7 is part of Parcel 1 of PP No. 2020-03. The site would require a replat and/or a land division.

**Parcel 8** has frontage on a proposed road. A large wetland with a 50-foot protection zone impacts the western and eastern edges of the site. It is assumed that the small wetland located on the parcel will be filled. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. The parcel is located within the area the City has identified as an area needing clearing and

grading prior to development. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: A portion of Parcel 8 is part of Parcel 1 of PP No. 2020-03, or it may be within a separate lot of record. The site would require a replat and/or a land division.

**Parcel 9** has potential for access from the north either from 9th Street or 10th Street. Additional street improvements may be necessary. A large wetland and associated 50-foot buffer impact the western edge of the site. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. The parcel is located within the area the City has identified as an area needing clearing and grading prior to development. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI), but if access is from the north a re-zoning to Light Industrial (LI) could be considered.

Division Status: Located within a separate lot of record. May require a replat or lot line adjustment.

**Parcel 9a** has potential for access from the north either from 9th Street or 10th Street. Additional street improvements may be necessary. A large wetland and associated 50-foot buffer impact the western edge of the site. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. The parcel is located within the area the City has identified as an area needing clearing and grading prior to development. The site is not currently under City ownership but is considered a future expansion area. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI), but if access is from the north a re-zoning to Light Industrial (LI) could be considered.

Division Status: Located within a separate lot of record. May require a replat or lot line adjustment.

**Parcel 10** has frontage on a proposed road. A large wetland and associated 50-foot buffer impact the eastern half of the site. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. The parcel is located within the area the City has identified as an area needing clearing and grading prior to development. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: A portion of Parcel 10 is part of Parcel 1 of PP No. 2020-03. A portion of the site is outside of the Parcel 1 of PP 2020-03. The site would require a replat.

**Parcel 11** has frontage on two proposed roads. It is assumed that the small wetland located on the parcel will be filled. The parcel is located within the area the City has identified as an area needing clearing and grading prior to development. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 11 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 12** has frontage on two proposed roads. It is assumed that the small wetland located on the parcel will be filled. The parcel is located within the area the City has identified as an area needing clearing and grading prior to development. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 12 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 13** has frontage on a proposed road. The parcel is located within the area the City has identified as an area needing clearing and grading prior to development. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 13 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 14** does not have right-of-way frontage. Frontage along the Multnomah Channel provides a unique opportunity for in-water based development. An easement is proposed for vehicular and utility access. Vehicular access may require a railroad crossing. A large wetland impacts the northern half of the site. This site could potentially be used as a regional storm facility location. The site is located within the 100-year floodplain and Columbia River Protection zone with a 75-foot buffer. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI) and Willamette Greenway

Division Status: Parcel 14 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 15** does not have right-of-way frontage. Frontage along the Multnomah Channel provides a unique opportunity for in-water based development. An easement is proposed for vehicular and utility access. Vehicular access may require a railroad crossing. The site is located within the 100-year floodplain and Columbia River Protection zone with a 75-foot buffer. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI) and Willamette Greenway

Division Status: Parcel 15 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 16** does not have right-of-way frontage. Frontage along the Multnomah Channel provides a unique opportunity for in-water based development. An easement has been provided for vehicular and utility access. Vehicular access may require a railroad crossing. The site is located within the 100-year floodplain and Columbia River Protection zone with a 75-foot buffer. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI) and Willamette Greenway

Division Status: Parcel 16 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 17** does not have right-of-way frontage. Frontage along the Multnomah Channel provides a unique opportunity for in-water based development. An easement has been provided for vehicular and utility access. Vehicular access may require a railroad crossing. The site is located within the 100-year floodplain and Columbia River Protection zone with a 75-foot buffer. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI) and Willamette Greenway

Division Status: Parcel 17 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 18** appears to have facilities currently in use by Cascade Tissue. These facilities will require private easements prior to formal parcelization. An easement has been provided for vehicular and utility access. Frontage along the Multnomah Channel provides a unique opportunity for in-water based development. Vehicular access may require a railroad crossing. The site is located within the 100-year floodplain and Columbia River Protection zone with a 75-foot buffer. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI) and Willamette Greenway

Division Status: Parcel 18 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 19** has an easement has been provided for vehicular and utility access. Vehicular access may require a railroad crossing. Frontage along the Multnomah Channel provides a unique opportunity for in-water based development. It is assumed that the small wetland located on the parcel will be filled. The site is located within the 100-year floodplain and Columbia River Protection zone with a 75-foot buffer. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI) and Willamette Greenway

Division Status: Parcel 19 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 20** appears to have facilities currently in use by Cascade Tissue. These facilities will require private easements prior to formal parcelization. Frontage along the Multnomah Channel provides a unique opportunity for in-water based development. Right-of-way frontage has extended across the site to provide access to the Port's property to the south. The site is located within the 100-year floodplain and Columbia River Protection zone with a 75-foot buffer. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI) and Willamette Greenway

Division Status: Parcel 20 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 21** is currently being used by ACSP. A proposed road will provide right-of-way access to the site. A landfill (South 80 Landfill) may impact any future development. A 20-foot utility and access easement follows along the south boundary of the property. A public utility easement bisects the property in half.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 21 is Parcel 2 of PP No. 2020-03.

**Parcel 22** can be accessed by the 20-foot access and utility easement that follows the southern boundary of Parcel 21.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 22 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 23** is currently in use by Cascade Tissue. Further parcelization may be achievable if Cascade Tissue consolidates operations.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 23 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 24** is currently in use by Portland General Electric. Access is currently from a public access easement recorded with PP 2020-03. An expansion of the facilities is proposed on the parcel. It is assumed that the small wetland and channel on site will be filled.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 24 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 25** has frontage on Kaster Road and a proposed road. It is assumed that the existing private drive currently used will be decommissioned. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 25 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 26** has frontage on Kaster Road. It is assumed that the existing private drive utilized by the mill and other users will be decommissioned. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 26 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 27** has frontage on Kaster Road and a proposed road. It is assumed that the existing private drive currently used by the mill will be decommissioned. The Milton Creek protection zone requires a 50-foot buffer. Wetland and riparian protection zones may be less depending on pre-existing impacts

to the buffers. A 20-foot wide pedestrian easement is proposed through the site for a proposed trail. Easement is not actual alignment. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 27 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 28** is currently in use by the City for a recreational facility. Redevelopment of the site as an RV park is being considered. The site has frontage on Old Portland Road and Kaster Road. Access will need to be provided from Kaster Road. The proposed future roundabout at the intersection of Old Portland Road and Kaster Road may require a right-of-way dedication. The Milton Creek protection zone requires a 50-foot buffer. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. A 20-foot wide pedestrian easement is proposed through the site for a proposed trail. Easement is not actual alignment. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Light Industrial (LI)

Division Status: Parcel 28 is already a legally separate lot.

**Parcel 29** has frontage on a proposed road. A small wetland impacts the northern portion of the site. It is assumed that the small wetland located on the parcel will be filled. The Milton Creek protection zone requires a 50-foot buffer along the western boundary. A 20-foot wide pedestrian easement is proposed through the site for a proposed trail. Easement is not actual alignment. The site is located within the 100-year and 500-year floodplain. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. The City is exploring options for an RV park on this parcel. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 29 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 30** has frontage on two proposed roads. The site is located within the 100-year and 500-year floodplain. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 30 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 31** has frontage on two proposed roads. The Milton Creek protection zone requires a 50-foot buffer along the western boundary. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. The site is located within the 100-year and 500-year floodplain. A 20-foot wide pedestrian easement is proposed through the site for a proposed trail. Easement is not actual alignment. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 31 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 32** has frontage on a proposed road. The Milton Creek protection zone requires a 50-foot buffer along the western boundary. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. The site is located within the 100-year and 500-year floodplain. A 20-foot wide pedestrian easement is proposed through the site for a proposed trail. Easement is not actual alignment. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 32 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 33** has frontage on a proposed road. The Milton Creek protection zone requires a 50-foot buffer along the western boundary. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. The site is located within the 100-year and 500-year floodplain. A portion of the parcel is outside of the study area for Department of State Lands Wetland Determination WD 2019-0324. A 20-foot wide pedestrian easement is proposed through the site for a proposed trail. Easement is not actual alignment. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 33 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 34** has frontage on a proposed road. The Milton Creek protection zone requires a 50-foot buffer along the western boundary. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. A portion of a large wetland and associated 75-foot wide protection buffer are located in the southern corner of the site. The entire parcel is outside of the study area for Department of State Lands Wetland Determination WD 2019-0324. The site is located within the 100-year and 500-year floodplain. A 20-foot wide pedestrian easement is proposed through the site for a proposed trail. Easement is not actual alignment. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 34 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 35** has frontage on a proposed road. The Milton Creek protection zone requires a 50-foot buffer along the western boundary. A large wetland and associated 75-foot wide protection buffer are located in the southern half of the site. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. The entire parcel is outside of the study area for Department of State Lands Wetland Determination WD 2019-0324. The site is located within the 100-year and 500-year floodplain. A 20-foot wide pedestrian easement is proposed through the site for a proposed trail. Easement is not actual alignment. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 35 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 36** has frontage on a proposed road. A large wetland and associated 75-foot wide protection buffer are located in the eastern half of the site. Wetland and riparian protection zones may be less depending on pre-existing impacts to the buffers. The entire parcel is outside of the study area for Department of State Lands Wetland Determination WD 2019-0324. The site is located within the 100-year and 500-year floodplain. A 20-foot wide pedestrian easement is proposed through the site for a proposed trail. Easement is not actual alignment. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

Division Status: Parcel 36 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

**Parcel 37** has frontage on two proposed roads. A small wetland has been delineated on the site. The site is located within the 100-year and 500-year floodplain. Parcels may be combined with abutting parcels to accommodate larger users where applicable.

Zoning: Heavy Industrial (HI)

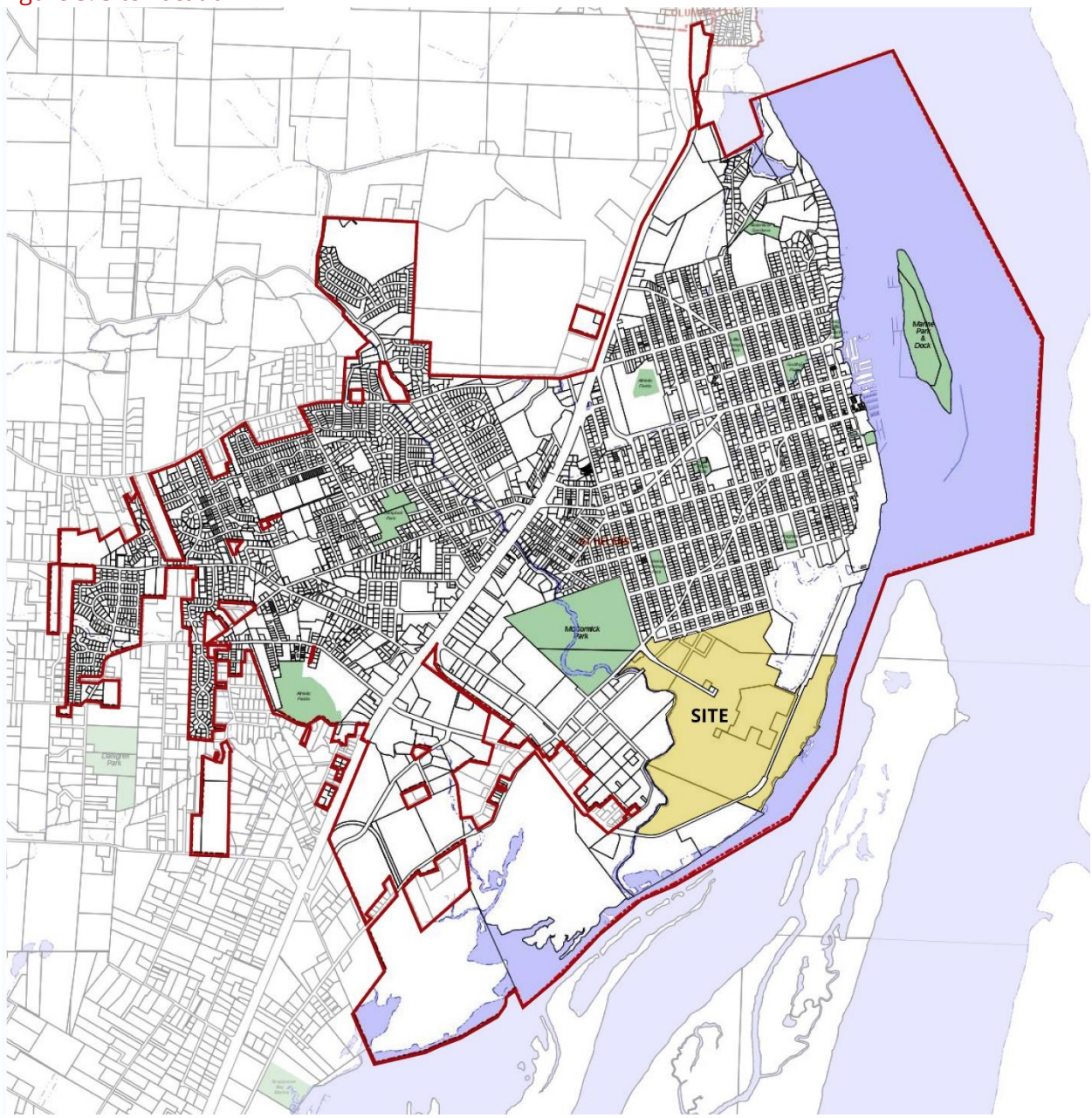
Division Status: Parcel 37 is part of Parcel 1 of PP No. 2020-03. The parcel will require a subsequent land division.

Figure 2. Proposed Parcels

# Existing Conditions of the Site

The St. Helens Industrial Business Park is 205-acre property located at 1300 Kaster Road, on the banks of the Multnomah Channel of the Willamette River, and one mile east of Highway 30 (Figure 3). A portion of the site's northwestern boundary runs along Old Portland Road. Portland & Western Railroad tracks run parallel to the river along the eastern boundary. Milton Creek meanders along the northern portion of the western boundary and into the adjacent Port of Columbia County property. The SHIBP is on a 225-acre brownfield site purchased the City in 2015, shortly after Boise White Paper Mill ceased operations on the site.

Figure 3. Site Location



## Current Uses

The SHIBP consists of parcels comprised of open spaces, paved areas, outdoor storage areas, loading areas, ditches, and pipes. There are approximately 20 structures on the site. Several uses currently operate on the property. Cascade Tissue Group, a tissue manufacturer, is the primary user, occupying about 24 acres of the site, as shown in Figure 4. While operations have been scaled down, the paper processing mill still utilizes several existing buildings and facilities. ACSP LLC, an indoor commercial agricultural facility, operates on 8.62 acres of the site. Portland General Electric (PGE) has an easement for a substation, though the current substation is inadequate. PGE plans to expand and upgrade the substation. These uses are clustered toward the center of the site.

Other uses on the site are located in the northwest portion of the site along Kaster Road. The St. Helens Recreation Center is located on the south side of Kaster Road at the intersection with Old Portland Road. The recreation center is owned and operated by the City of St. Helens. Several softball fields are located further east along Kaster Road. An old Association of Western Pulp and Paper Workers Union building is located at the eastern terminus of Kaster Road. This site is not under City ownership currently.

## Other Site Features

- Access and utility easements: a 50-foot access easement located southeast of the Cascade Tissue facilities provides access to the ACSP site, A 20-foot access and utility easement along the south end of the ACSP site, and a public utility easement bisecting the site.
- Right-of-Way: Kaster Road is the only improved right-of-way on site. Several unimproved right-of-way streets have been platted on site. These include Fir Street, Church Street, Terrace Street, Park Street, California Street, East Street and 7$^{th}$ Street. The Portland and Western Railway right-of-way runs parallel to the Multnomah Channel, bisecting the site.
- Treatment Pond – a 39-acre wastewater treatment facility and lagoon, located just north of the SHIPB along the Multnomah Channel. The City is considering a redevelopment of the site as part of the Central Waterfront Redevelopment Project.
- Topography: The site generally slopes down from Old Portland Road towards the Multnomah Channel. Several rock outcroppings exist in the northern portion of the site.

Figure 4. Existing Conditions Map

## Comprehensive Plan and Zoning Designations

**Comprehensive Plan**
The St. Helens Comprehensive Plan includes goals and policies related to land use within the SHIBP.

Heavy Industrial Category

Goals:

- To establish large tracts of land where manufacturing and industrial operations of an intensive or heavy character may be carried out with minimal impact upon the community.
- To provide suitable sites where transportation, including employee carpooling, public utilities, and other special industrial requirements, such as the disposal of waste materials, can be met.

Policies:

- Apply this category to areas that already have existing heavy industry or can serve such industry with adequate rail, river or highway access.
- Ensure that the size, location and boundary conditions of heavy industrial areas are such that surrounding residential areas are protected.
- Follow a site design review process for heavy industrial activity to ensure proper setback, screening and buffering, and adequate consideration of significant fish and wildlife habitats; screening and buffering are particularly important for unsightly areas which can be viewed from arterials or adjoining residential areas.
- Ensure that heavy industrial operations have sufficient space for employee and truck parking, loading, maneuvering and storage.
- Designate sufficient land for heavy industrial purposes to meet estimated future needs and preserve these areas for such activities by excluding unrelated uses which would reduce available land and restrict the growth and expansion of industry and consider adding additional lands when the need for a specific site becomes known.
- Activities which have no off-site effects will be allowed in this area; heavy industrial activities with off-site noise, odor, air pollution or vibrating effects may be required to increase the setback from a property line.

Light Industrial Category

Goals:

- To provide a place for smaller and/or less intensive industrial activities where their service and transportation requirements can be met, and where their environmental effects will have minimal impact upon the community.

Policies:

- Apply this category where light industrial concerns have become established and where vacant industrial sites have been set aside for this purpose.
- Encourage preserving such designated areas for light manufacturing, wholesaling, processing and similar operations by excluding unrelated uses which would reduce available land and restrict the growth and expansion of industry.
- Ensure that light industry operations have adequate space with respect to employee and truck parking, loading, maneuvering and storage.
- Follow a site design review process for light industrial activity to ensure proper setbacks as well as screening and buffering, particularly for unsightly areas which can be viewed from

arterials or from adjoining residential areas; in contemplating the setbacks, consideration should be given to the effect of the activity on significant fish and wildlife areas.

**Community Development Code**

The St. Helens Community Development Code establishes standards and procedures governing the development and use of land in the city of St. Helens and to implement the St. Helens Comprehensive Plan. As shown in Figure 5, assigned zoning districts in the SHIBP are concurrent with Comprehensive Plan designations. The following standards and procedures pertain to zoning districts within the SHIBP.

Heavy Industrial

The Heavy Industrial zone allows for intensive manufacturing activities including fabrication, processing, or assembling of semi-finished or finished products from raw materials, outdoor storage areas, and the storage of heavy equipment. It is also intended to provide locations for activities that need to be separated from more easily impacted activities such as schools, churches, etc. Standards are determined by the proximity to residential zones and the anticipated off-site impacts and include noise, vibrations, glare, odor, smoke, and gases/chemicals. The maximum height within 100 feet of any residential zone is 35 feet.

Light Industrial

The light industrial zone allows for general industrial use including light manufacturing and related activities with few, if any, nuisance characteristics such as noise, glare, and smoke. It permits manufacturing, processing, assembling, packaging or treatment of products from previously prepared materials and discourages residential and limited commercial uses. Standards are determined by the proximity to residential zones and the anticipated off-site impacts. The maximum height within 100 feet of any residential zone is 35 feet.

Willamette Greenway

The Willamette Greenway (WG) zone protects, conserves, enhances and maintains the natural, scenic, historical, agricultural, economic, and recreational quality of lands along the Willamette River. The WG zone is a superimposed zone to be used in combination with the existing underlying zone.

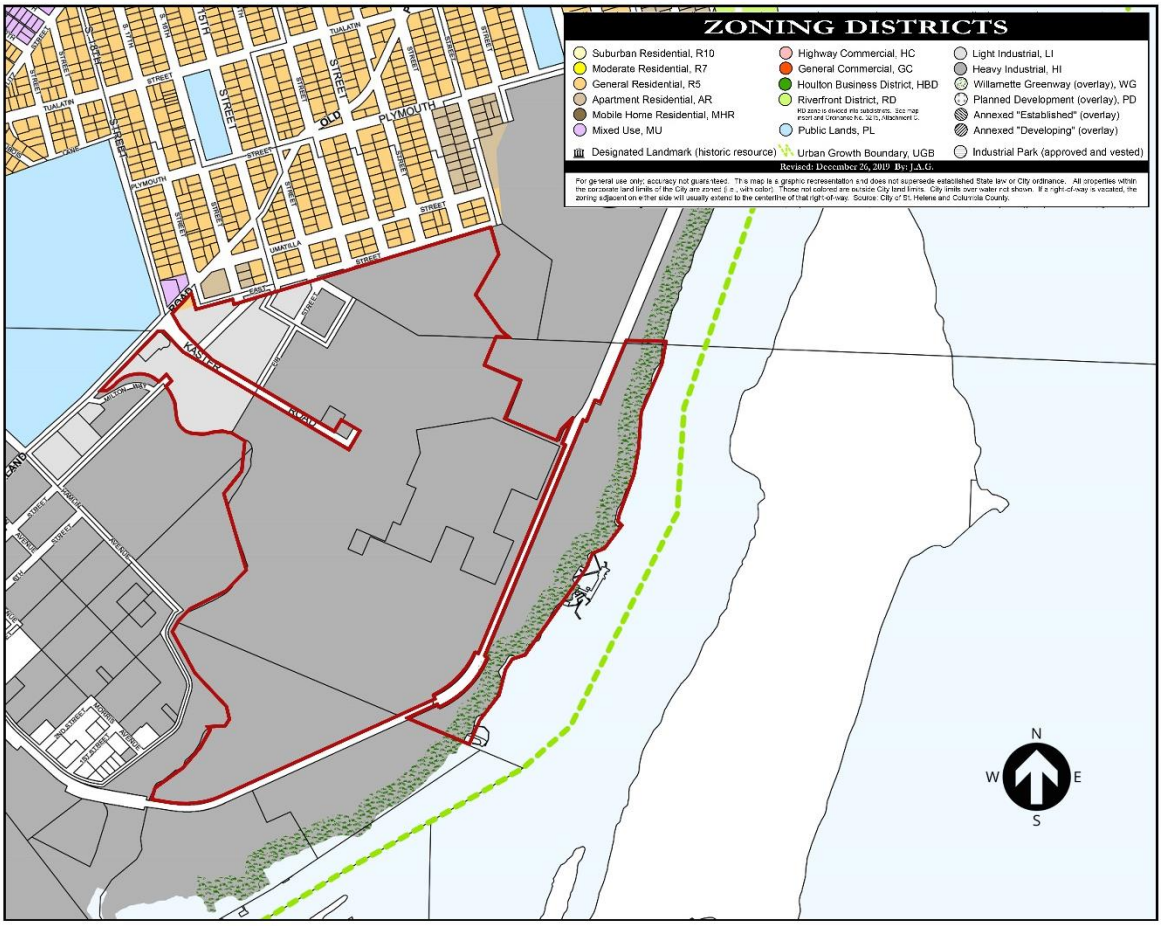
Within the WG zone, development shall be directed away from the Willamette River to the greatest practicable degree. However, lands committed to urban uses are permitted to continue, and intensification or development associated with existing or historical urban uses is allowed subject to the approval of the director. Urban uses are industrial and commercial activities including facilities relating to the production, storage and transportation of timber and paper products.

In evaluating a proposal, the director shall take into consideration the proposed activity's impact on fish and wildlife, public access, safety, and the vegetative fringe. The director may impose a setback in the WG zone if he/she believes these aspects have not been reasonably taken into account. Non-water-dependent and non-water-related uses shall be set back 150 feet from the river bank.

In areas in which there are industrial and commercial activities, public access is discouraged when there is a potential for physical harm to members of the public. Allowed activities will provide

maximum practicable landscaping, aesthetic enhancement, open space or vegetation between the activity and the Willamette River.

Figure 5. Zoning Map




**Buildable Lands**

The majority of the site, approximately 186 acres, is zoned Heavy Industrial. Approximately 15 acres to the south of Old Portland Road and to the east and west of Kaster Road are zoned for Light Industrial use. Upland areas along the waterfront are subject to the Willamette Greenway overlay.

| Zone | Abbreviation | Acres |
|---|---|---|
| Heavy Industrial | HI | 185.8 |
| Light Industrial | LI | 15.4 |

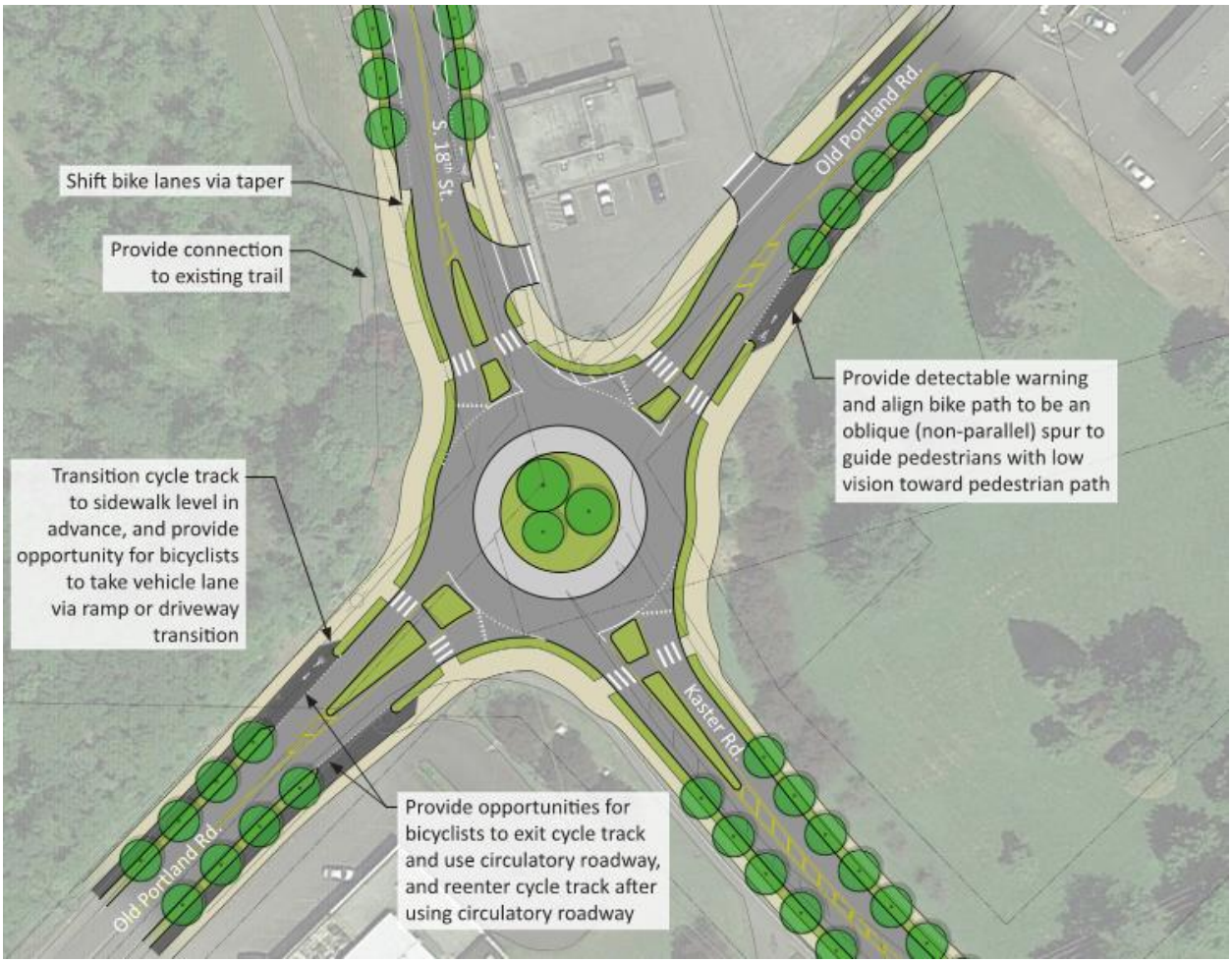
## Transportation

### Streets

Primary access to the site is provided from Old Portland Road. Old Portland Road is classified as a minor arterial and is maintained under City jurisdiction. The right-of-way section is currently 60-feet and has been improved with two vehicle travel lanes and designated bicycle lanes on either side. Kaster Road, a dead-ended collector road, provides access from Old Portland Road to several parcels on site. A private access drive owned and maintained by the Cascade Tissue Group connects at Kaster Road and functions as the primary entrance into the site.

The intersection of Old Portland Road and Kaster Road is signalized; however, the signal is not operating under current standards. Multiple improvement options have been considered to bring the intersection into compliance. The preferred option would be a four-leg roundabout at the intersection, as proposed within the Riverfront Connector Plan (Figure 6).

Figure 6. Preferred Old Portland Road and Kaster Road Intersection Improvement Option



There are several unimproved right-of-way sections on site which may potentially be vacated for future development. Fir Street, Church Street, Terrace Street and Park Street are unimproved and do not have known utilities located within the right-of-way. East Street and 7th Street have underground utilities that would need to be considered before vacating. An existing 50-foot access easement just south of the Cascade Tissue facility provides access to the ACSP, LLC lease area. A 20-foot wide access and utility easement located along the south end of the ACSP site provide access along the south of the site.

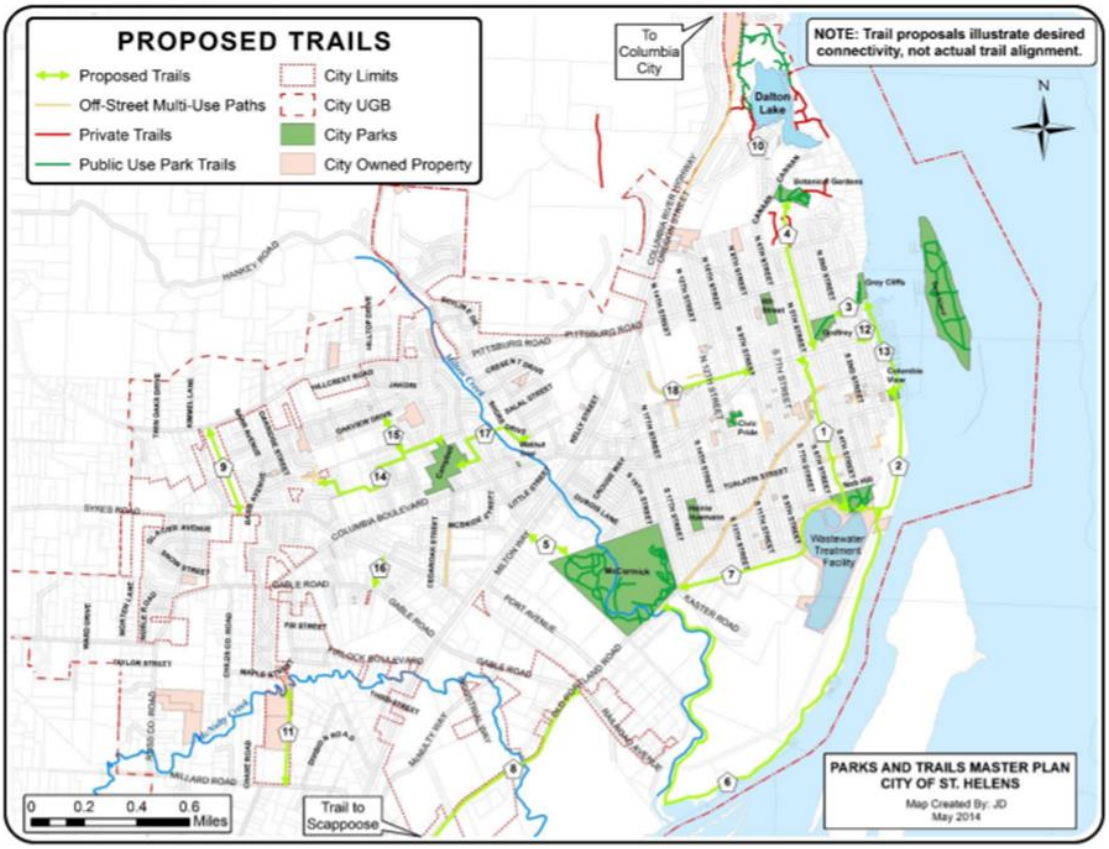
**Railway**

The site is bisected by an operational railspur run by Portland & Western Railroad which dead-ends at the site.

**Trails**

An existing shared use pathway runs along the east side of Old Portland Road. There are also several proposed shared use paths and trails within parks located adjacent to the study area roadways, including McCormick Park, Nob Hill Nature Park, and Columbia View Park. Milton Creek Trail, a regional trail, follows Milton Creek from McCormick Park to the Riverfront. The East Street Trail, a local access trail, connects the McCormick Park trails to the Nob Hill Nature Park Trails. A trail connection following the Milton Creek and connecting at the waterfront downtown through the site has been shown on the City's Parks and Trails Master Plan (Figure 7).

Figure 7. Trails Master Plan Map



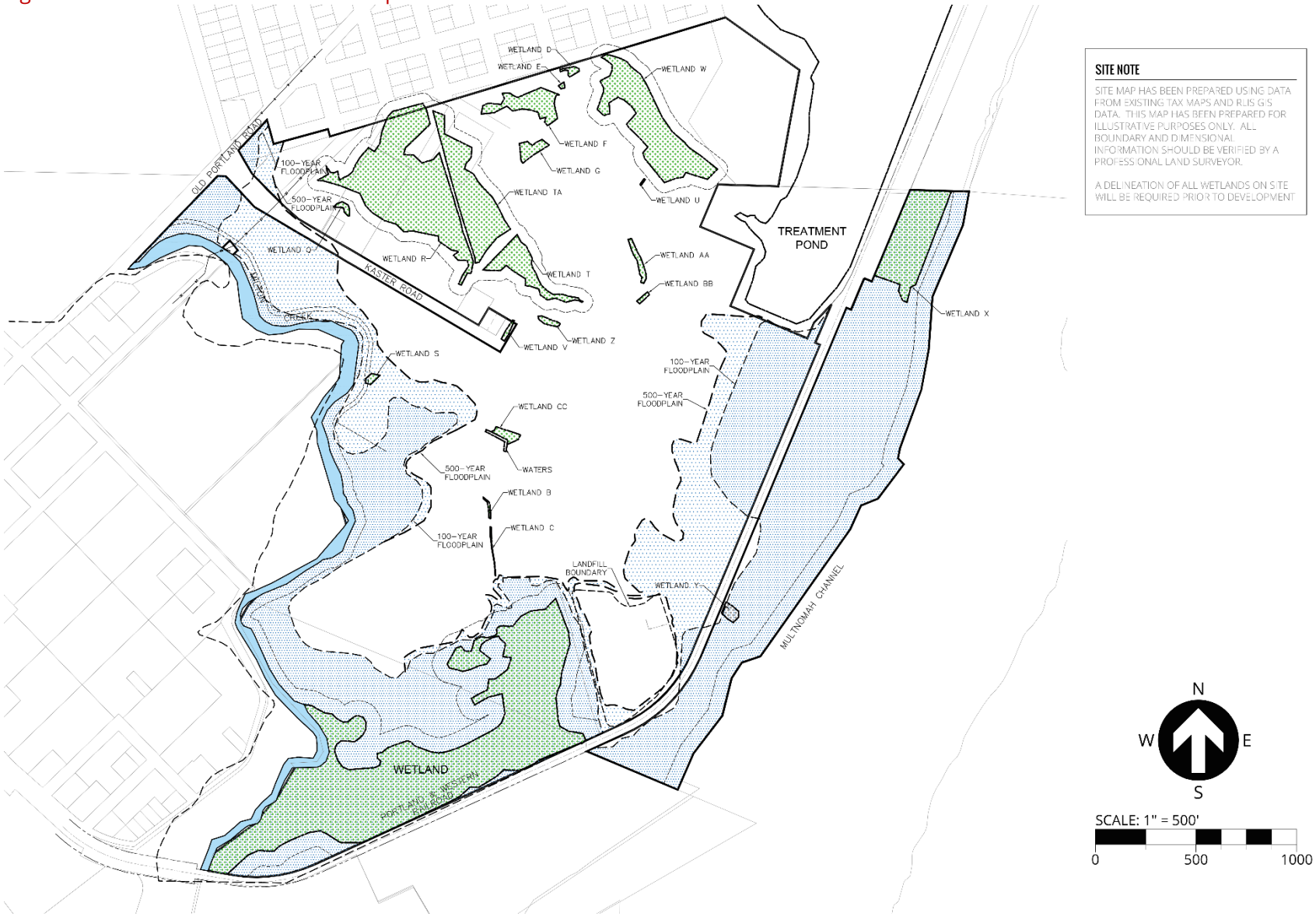
## Environmental Conditions

The SHIPB site is located along the Multnomah Channel, a distributary of the Willamette River. Milton Creek, an essential salmonid stream, runs along the eastern perimeter of the property, continuing in McCormick Park, north of Old Portland Road. Milton Creek terminates south of the SHIPB site at the Multnomah Channel. The Multnomah Channel and Milton Creek riparian areas are identified as Statewide Planning Goal 5 resources. The City's Goal 5 riparian corridor areas include water areas, fish habitat, adjacent riparian areas and wetlands within the riparian boundary area, and significant wetlands identified by the city. The site is mapped with 100-year and 500-year floodplains associated with the Multnomah Channel and Milton Creek waterways. A wetland delineation of the majority of the SHIPB site was prepared by Wetland Solutions Northwest, LLC "(WD 2019-0324)". Within the study area, 19 wetlands, a waterway and the Milton Creek high water line were delineated. The delineated wetlands identification and size has been listed in the table below and Figure 8. The additional wetlands or areas with potential wetlands will need to be delineated prior to development of the site. The protection zones for the significant Goal 5 wetlands have not been included in the area calculations of each wetland below.

| Potentially Jurisdictional Feature | Size (Acres) |
|---|---|
| Wetland B | 0.02 |
| Wetland C | 0.02 |
| Wetland D | 0.05 |
| Wetland E | 0.01 |
| Wetland F | 0.72 |
| Wetland G | 0.19 |
| Wetland Q | 0.05 |
| Wetland R | 5.31 |
| Wetland S | 0.05 |
| Wetland T | 0.83 |
| Wetland U | 0.01 |
| Wetland V | 0.04 |
| Wetland W | 2.84 |
| Wetland X | 1.48 |
| Wetland Y | 0.12 |
| Wetland Z | 0.06 |
| Wetland AA | 0.12 |
| Wetland BB | 0.03 |
| Wetland CC | 0.12 |
| Total Wetland Area | 12.07 |

The SHIPB site has known and suspected contamination as a result of the historical use as an industrial paper mill. An existing landfill located on the site is approximately 5.3 acres in size. The landfill is located entirely within the ACSP lease agreement area (Figure 8). Boise White Paper has an Environmental Indemnification Agreement with the City to address existing or discovered contamination on the site.

Figure 8. Environmental Constraints Map



## Existing Utilities

The existing utility assessment and map were prepared through a review of documentation provided by the City, meetings with key stakeholders and a site visit. The following is a description of the existing public water, stormwater, sewer, and power infrastructure providing service to the site. The site has been divided into four quadrants for ease of discussion (Figure 9).

### Water

There are existing 6" public water mains that run along S. 18th Street and Old Portland Road. These water mains intersect at the Old Portland Road and S. 18th Street intersection. The 6" public main then extends down Kaster road for approximately 400-feet, where it then enlarges to an 8" main and continues for another 1,000-feet before it terminates at the water meter for Cascade Tissue. Additionally, there is a raw water intake owned by the City of St. Helens at the southwest side of the site within the Multnomah Channel that is the source of process water supply for Cascade Tissue.

The existing static pressure at the Cascade Tissue water meter is 96-psi. Water flowrates for industrial and fire supply will need to be modeled for each parcel to confirm serviceability to the potential future industrial users onsite. It should be noted that the fire flow will likely be the limiting factor for supply due to high flow requirements required by the local fire district. It should also be noted that looping the water system onsite can aid in providing adequate water supply at desired pressure.

### Stormwater

Stormwater onsite is collected and conveyed through a series of ditches, catch basins, and stormwater pipes. The Stormwater Pollution Control Plan divides the site into four quadrants. Quadrant 1 does not contain any mill process area and drains to an outfall in the Multnomah Channel. Quadrant 2 does not contain any mill process area and drains to an outfall in Milton Creek. Quadrant 3 and 4 are process areas and are treated onsite prior to discharging to the Columbia River. See Figures 1-6 from the Stormwater Pollution Control Plan (Appendix A) for additional information on stormwater drainage patterns.

Figure 9. Quadrant Map


Stormwater treatment for future development can either be handled by each parcel or with a regional stormwater treatment facility. Providing a regional stormwater treatment facility could both ensure stormwater facilities are properly maintained and make parcels more attractive. Having a regional facility located near the waterfront would allow existing drainage patterns to be utilized without the addition of a stormwater pump station.

### Sanitary Sewer

There is an existing 24" public gravity sanitary sewer line flowing from southwest to northeast that runs along the 7th Street right-of-way. This gravity main enlarges to 27" just east of Kaster Road. The

sanitary main then continues by routing along the East Street right-of-way. This main then upsizes to 33" and continues along the northern boundary of Parcels 6, 7, 8, and 9. Additionally, there is a 15" main which flows to the north and terminates in Kaster Road approximately 310-feet south of the Old Portland Road and S. 18th Street intersection. All future development will be required to connect to the public sanitary sewer system.

The site drains from northwest to southeast, with a change in elevation of approximately 37-feet. There is an existing private wastewater treatment facility onsite which handles the process wastewater from Cascade Tissue and ACSP's pre-existing lavatory waste. DEQ requires that only the pre-existing mill will be able to discharge directly to the Wastewater Treatment Plant.

To provide sewer service to future development, a sewer pump station will be needed. This sewer pump station will likely need to be located near the waterfront as existing drainage patterns dictate gravity sewer drainage. The gravity sewer piping will need to follow the alignment of the proposed roadways and drain down to the sewer pump station location. The force main can be routed along existing and/or proposed roadways to deliver the flow to the public sewer system. No current capacity issues are noted on the existing public gravity sewer mains. All future development will be required to connect to the public sanitary sewer.

**Electrical Power, Natural Gas, and Communications**

Electrical power is serviced by Portland General Electric (PGE). There is an existing substation onsite which is leased by PGE. The City of St. Helens is serviced by Northwest Natural Gas. The location of the nearest communication lines (including telephone, fiber, cable) for franchise utilities are unknown.

No issues are anticipated to provide electrical power, natural gas, or communications (including telephone, fiber, cable) for future development. It is anticipated that these utilities will be provided in a combined private utility trench within the public right-of-way or utility easements.

Figure 10. Quadrant 1 Utilities Map (Figure 3 from 2017 SWPCP)

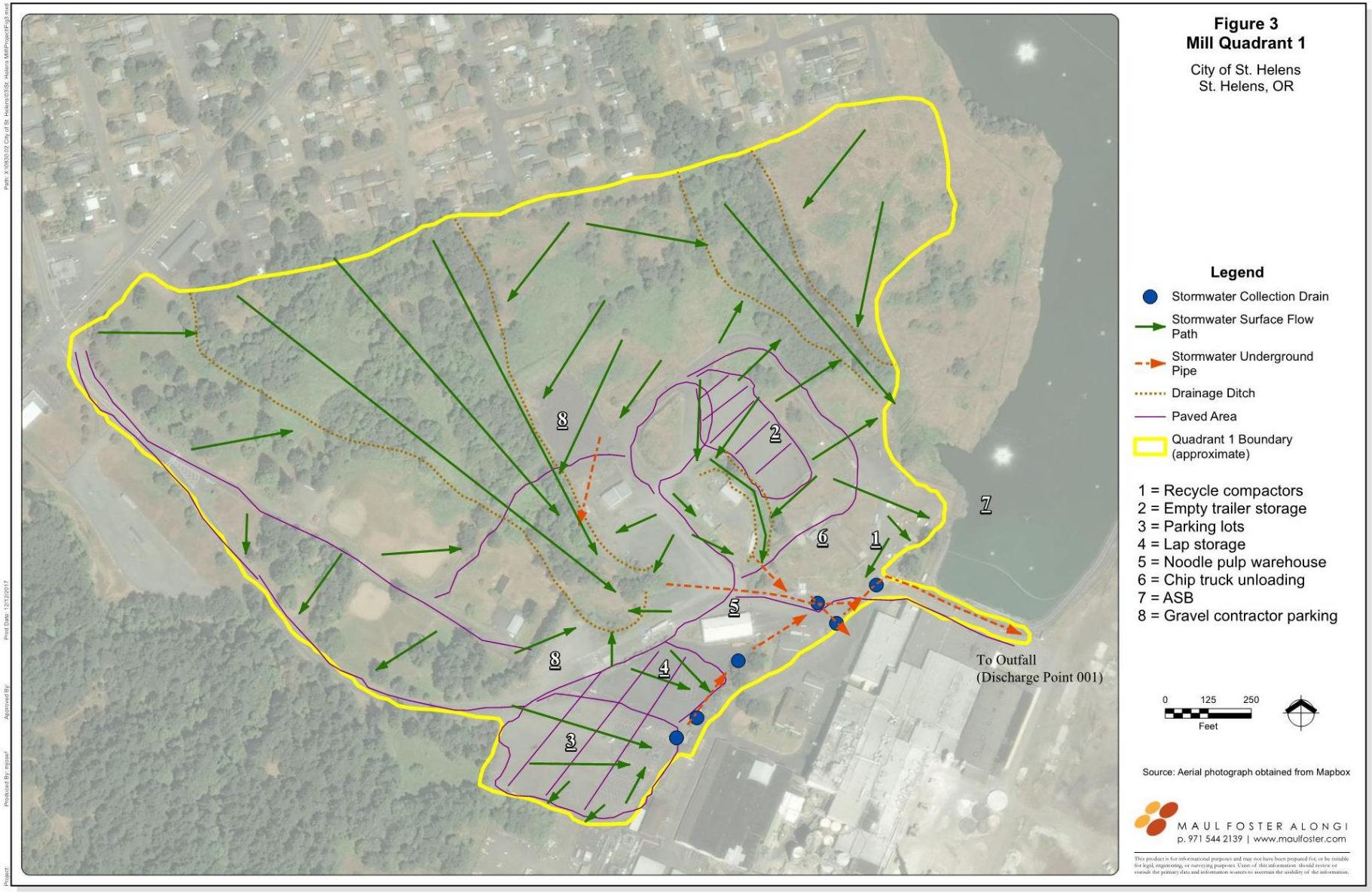


Figure 11. Quadrant 2 Utilities Map (Figure 4 from 2017 SWPCP)

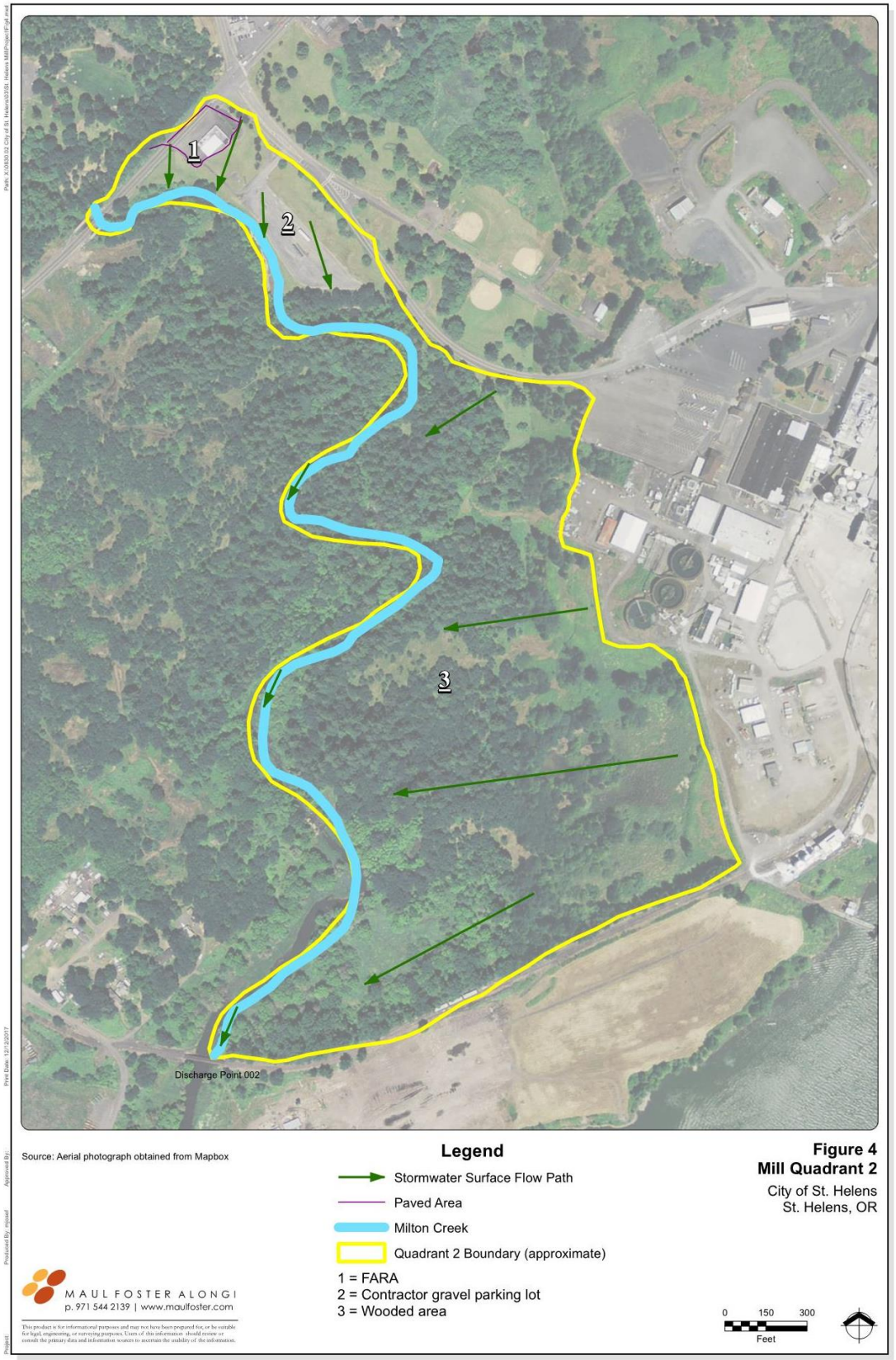


Figure 12. Quadrant 3 Utilities Map (Figure 5 from 2017 SWPCP)

Figure 13. Quadrant 4 Utilities Map (Figure 4 from 2017 SWPCP)

## Waterway Lease

The City has an existing waterway lease along the Columbia River boundary of the property with a sub-lease agreement with Wilsonville Concrete.

Figure 14. Oregon DSL Waterway Lease Map – Parcels 1, 2, 3, 4 and 5

# Updated Market Analysis

This analysis updates an existing market analyses to inform potential parcel size and industrial users, including potential water-related users, based on the regional industrial climate.

**ECONOMIC OUTLOOK IN THE MIDST OF THE COVID-19 PANDEMIC**

This report was drafted in the Spring of 2020. As of this draft, the Covid-19 virus has created a global pandemic that has resulted in entire sectors of the economy being put on pause. Short- to intermediate-term impacts on the economy remain uncertain, although disruptions in commercial and industrial market fundamentals are expected. Over the long-term horizon of which the study area will build out, prevailing demographic and economic trajectories will have greater influence than cyclical variations or economic shocks. As such, this analysis assumes a return to long-term economic stabilization.

In 2015, ECONorthwest conducted extensive market analysis for the business park as part of a larger economic analysis of the proposed new transportation connection from Highway 30 to the Riverfront District. At that time, a declining manufacturing sector had led to a decrease in employment and wages in St. Helens, and most people commuted out of the area for work. A key finding is that the City and its partners should focus finding strategies for keeping workers in St. Helens, especially in growing companies. One recommendation from that analysis is to conduct extensive analysis of the site's existing conditions, including parcel "shovel-readiness," site constraints, and identifying the location(s) of developable pockets of parcels.

The consultant team prepared an updated look at user needs in Columbia County to inform the Master Plan's parcelization plan and infrastructure funding plan by compiling U.S. Census Quarterly Census of Employment and Wages data for Columbia County and conducting five stakeholder interviews with local economic development stakeholders, including the Port of Columbia County, the City of St. Helens, Oregon Manufacturing Innovation Center (OMIC), Columbia-Pacific Economic Development District (Col-Pac), and local industry representatives.

### What has changed over the past five years?

From 2015 to early 2020, the Portland region's employment grew, and the economy continued to diversify and broaden its base. While the region does specialize in some sectors, like semiconductors and the outdoor apparel cluster, the region's evolving industrial structure is matching trends with the country.[1] At the same time, the urban-rural economic divide has grown, and Columbia County experienced both spillover effects of growth from the Portland region, and continued impacts from its transition away from a timber-dependent economy.

Key developments in Columbia County include:

[1] Lehner, Josh. Industrial Diversification in Oregon. March 13, 2019. Oregon Office of Economic Analysis Blog. https://oregoneconomicanalysis.com/2019/03/13/regional-business-cycle-exposure-pt-2/

- The Oregon Manufacturing Innovation Center was established in Scappoose, bringing new talent and attention to the area and driving interest in the county's industrial land.
- Portland Community College broke ground on its workforce training center adjacent to OMIC.
- Cascade Tissue affirmed its long-term presence in the Columbia County, opening a 285,000 square foot facility in Scappoose.
- As target industries have changed, there has been a shift in focus from heavy industry users and larger 20+ acre industrial parcels to smaller parcels and light industrial users.
- At the SHIBP, the City has welcomed one new user to the site (ACSP, LLC), along with several new development proposals and ideas.

In February 2020, the COVID-19 pandemic hit the United States. After 11 years of economic expansion, the social distancing required by the pandemic has precipitated massive layoffs, supply chain disruptions, and stay-at-home orders in the Pacific Northwest. The pandemic has the potential of leading to a recession, the extent or depth of which is not currently known.

## What is the industrial landscape in St. Helens?

Small firms comprise the majority of industrial businesses, and there is a diverse business mix within industrial areas.

The United States Census Quarterly Census of Employment and Wages (QCEW) from 2018 data on firms provides an updated overview of the industrial landscape in St. Helens and Columbia County, we evaluated. Key findings from this analysis include:

- About a quarter of Columbia County's employees work in industrial sectors. Overall, the County has 2,959 employees working in industrial sectors, and 1,633 employees working in manufacturing.
- Among traditional industrial sectors[2], the majority of firms (83%), have fewer than 15 employees.
- Large heavy manufacturing firms in the city are concentrated in legacy industries including fabricated metals, paper, and packaging materials.
- Some retail and other services (i.e. maintenance, repair, equipment leasing) have located in industrial areas, showing there is demand beyond traditional industrial sectors.
- Many businesses in St Helens are home businesses operating out of outbuildings on large parcels that also include a metal structure. Nearly the entire construction sector functions in these spaces.

[2] Construction, manufacturing, wholesaling, transportation, and warehousing.

## Who are the potential users of the St. Helens Industrial Business Park? What size sites do they need?

Small footprint users are the most likely candidates for the site.
The 2015 Columbia County Market Analysis posited that the business park would be "best situated to capture spillover light industrial industry from Portland, as well as growing light industries located in the region that need more space." Based on findings from the 2020 interviews, this remains true.

The market for smaller footprint industrial uses is a function of both supply and demand. The quantitative data on existing businesses and qualitative input from interviewees suggest a market for small- to mid-sized firms in the area. Potential industries cited in interviews included light manufacturing, bulk commodities, natural resources (biomass and off-products), and recycling / green industry.

There may be opportunities for speculative development.
However, due to their scale, many small footprint users are not interested in owner-occupied or build-to-suit spaces. This falls in line with the supply constraints in the market. Interviewees state that it is generally not feasible to develop industrial buildings smaller than 30,000 sq. ft. This is because small buildings are not capable of absorbing costs associated with providing transportation access and utilities or addressing onsite development constraints. These factors show that there may be market opportunities for some speculative development in St. Helens, which was also affirmed through the interviews. Under stable market conditions, we would expect supportable demand for a 30,000 to 50,000 sq. ft. speculative light industrial building. Speculative projects in similarly positioned markets (Port of Kalama, Port of Camas/Washougal) are recent precedent successes. However, these recent successes preceded the economic implications of the COVID-19 pandemic. In the near-term, we would expect low rates of new business formation and/or expansion resulting from more measured market growth, access to capital, and appetite for risk. Increases in industrial vacancies will likely deteriorate market conditions further. Collectively these factors will likely delay pace the timing of market support for speculative industrial development well into the post COVID-19 recovery.

Light manufacturing is a likely target industry.
Interviewees cite the need for a critical mass of integrated businesses which can help to shorten the supply chain so that local businesses can source locally. Interviewees cite several factors that set up to complement a light industrial manufacturing industry in St. Helens: favorable local government regulations, the area's strategic location close to the I-5 corridor but on the less trafficked Highway 30 corridor, and strong local workforce that currently commute to Portland and to a lesser extent Hillsboro. In addition, the City's efforts to revitalize downtown and the waterfront may help to attract new residents who seek a vibrant, small-town experience. Each of these factors may contribute to some spillover from the Portland region of manufacturers looking for room to grow.

Potential manufacturing sectors may include specialty manufacturing and manufacturers that are complementary industries to current businesses, including industries that can cluster with Cascade Tissue. These users have demonstrated market interest along the Lower Columbia, ranging from Scappoose to Port Westward and at the Port of Kalama in Washington State.

*Key takeaway: Uses would skew to smaller two- to five-acre parcels, but some users may be in need of larger ten- to twenty-acre parcels. There remains regional demand for larger 20- to 40-acre sites, but other industrial areas (e.g. Port Westward or Scappoose Industrial Park) may be better positioned to attract such users.*

## What users might be interested in locating on the waterfront?

The SHIBP is a strategic location for a narrow set of users who can locate in a shallow water area. The main constraint of the waterfront portion of the SHIBP is that it is limited to shallow draft boats and maneuverability is low. For certain users, such as tugboat operators, this could be an asset. A local maritime industry stakeholder said that this location is ideal because it is central to many potential freight destinations and at the confluence of the Multnomah Channel and the Columbia River. If the City were to offer incentives and proactively build infrastructure to support uses at the business park, the City could potentially attract a suitable maritime use. Another factor for some users is the ability to own the waterfront sites outright. However, there are several barriers to development of maritime uses, including State of Oregon Department of State Lands regulations, and the cost associated with removing abandoned and submerged derelict boats at the existing high dock. A working waterfront may also have associated operational costs for dredging and dock maintenance. Beyond the water uses, ancillary land side buildings could include business offices or storage.

If the SHIBP is able to attract water-based industry, there may be other industries that would want to be close to that user, including:

- Drydock repair and the ability to pull vessels out of the water. While a user at this site would not compete with larger repair operations like Vigor or Sundial, there are opportunities for smaller scale vessels. An example of this can be found at Tongue Point in Astoria.
- Shoreside heavy lift crane. This would offer the ability to do barge loading/off-loading, load and unload bulk material. There is clear demand for such uses.
- Small intermodal facilities. The viability of such a facility would depend on the cost per unit and traffic on the rail line, which may not provide the necessary value-add to justify the cost of construction. The site may also be at a competitive disadvantage relative to Scappoose and Longview unless there is a rail cost advantage.
- Drilling/Dredging support. Such a user would support the maintenance of the waterfront area as well as other water-dependent industrial areas nearby. An example of this is DMI in Portland.

*Key takeaway: An active waterfront at the SHIBP could serve as a catalyst for other complementary users. These users would similarly require a small footprint, as most of their operations would be in-water.*

## For light industrial users, what are the Industrial Business Park's competitor areas, and what advantages does the SHIBP have?

The SHIBP competes with other industrial areas at the regional scale.
Beyond Columbia County, users are generally evaluating alternatives in Portland and in rural Clackamas County. For non-marine dependent users, areas like Estacada and Molalla offer similar cost advantages, distance from the metro area, and the ability to draw from Clackamas Community College's workforce training.

Within Columbia County, there are several direct competitor areas.
These include the Port's McNulty Creek and Milton Creek Industrial Parks, and the Scappoose Industrial Park. Since 2015, the Scappoose Industrial Park has come online, with 200 acres of land available for new development closer to the Portland market and the OMIC. It may also be more desirable to some users, given its closer proximity to Portland. However, OMIC is largely regarded as a regional resource will improve the overall marketability of Columbia County once technical training and other synergy materialize at and around OMIC. With its position adjacent to OMIC, the Scappoose Industrial Park is well positioned to attract anchor industries with direct dependencies on OMIC (e.g. larger scale metals manufacturing) and or airport-related uses.

As the relationship between OMIC and local businesses takes shape, complementary businesses will influence demand for industrial space throughout Columbia County. While this phase is a cycle or two in the future, it will likely represent a transition toward mid-size firms.

Collectively, industrial properties in Columbia County offer a cost advantage vis-à-vis the Portland market, space for future expansion and growth, and a less restrictive regulatory environment. The largely unbuilt nature of many industrial areas in the market offers a blank slate for new business clusters to organize around both legacy and emerging industrial anchors.

What can the City do to best encourage a healthy business mix on the SHIBP site?
For businesses evaluating investment opportunities, the risk profile is still very high for the SHIBP, and it will take some shoring up to catalyze new private investment. Interviewees are impressed with the City of St. Helens' business friendliness and willingness to be creative and entrepreneurial.

Key next steps could include:

- Complete due diligence on the site. Interviewees mention the need to provide better certainty of what City's asset is, including environmental issues, existing infrastructure issues, easements, etc. This will be completed as part of the master plan.

- Prioritize infrastructure to key opportunity sites. Multiple interviewees characterized the lack of access and transportation infrastructure as the primary development challenge for matching potential users with sites in Columbia County. Users would prefer to have city water, sewer, and electrical service ready to go at the property line, along with a public access road. Given the range of potential user needs described above, it is not necessary at this point to fully flesh out exact lot sizes. Instead, the City can focus on providing the main access road to the site, and provide stubbed utilities to serve collections of parcels.
- Focus on training. The St. Helens workforce is a great asset to the area. Craig Campbell from OMIC explained OMIC's potential role in helping to transition the economy through training from its paper mill focused to a broader, more resilient set of industries. OMIC is a resource for every business in Columbia County and beyond, and is committed to partnering with local governments to serve as a resource. This condition will only improve when the PCC campus comes online.
- Explore the feasibility of speculative development. Both qualitative and quantitative inputs to this study identify market opportunities for speculative light industrial development. The City should have a plan to capitalize on opportunities when market conditions normalize.
- Promote a flexible parcelization plan. All indications point to an established market for two to five-acre sites capable of accommodating 30,000 to 50,000 square foot structures. However, the City's parcelization strategy should allow for opportunities to aggregate sites to accommodate mid-sized users. With transportation access and infrastructure presenting the greatest challenges to development, a path of growth phasing strategy stemming from primary access points along Old Portland Road is likely.

Col-Pac indicates that they have received requests for 25-acre or larger sites, especially for businesses that are priced out of the Portland market or who do not need to be centrally located.

Col-Pac has had difficulty matching potential users with sites. This is because while the land may be available, the transportation and utility infrastructure is not yet available to service the development, and is beyond the investment timeframe of the potential business.

While we consider the market for the SHIBP to be for smaller parcels in the 2-5-acre range, this unmet market need is indicative of a need to maintain flexibility and provide opportunities for aggregation.

# Appendix A. Stormwater Pollution Control Plan Exhibits

# STORMWATER POLLUTION CONTROL PLAN

## CITY OF ST. HELENS MILL

*Prepared for*

**CITY OF ST. HELENS**

SITE NAME: CITY OF ST. HELENS MILL
SITE OPERATOR/OWNER: CITY OF ST. HELENS
DEQ PERMIT FILE NO.: 9582
EPA PERMIT NO.: ORR220121
PRIMARY SIC CODE: 2621
SITE CONTACT: JOHN WALSH
PHONE NO.: 503-366-8211
EMAIL: JWALSH@CI.ST-HELENS.OR.US
SITE PHYSICAL ADDRESS: 1300 KASTER ROAD
ST. HELENS, OREGON 97051
COLUMBIA COUNTY
MAILING ADDRESS: P.O. BOX 278
ST. HELENS, OREGON 97051

*December 28, 2017*
*Project No. 0830.02.03*

MAUL FOSTER ALONGI

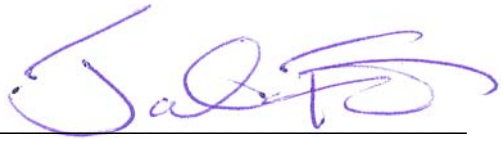
*Prepared by*
*Jacob Faust, PE*
*Maul Foster & Alongi, Inc.*
*2001 NW 19th Avenue, Suite 200, Portland OR 97209*

# STORMWATER POLLUTION CONTROL PLAN

CITY OF ST. HELENS MILL

*The material and data in this plan were prepared under the supervision and direction of the undersigned.*

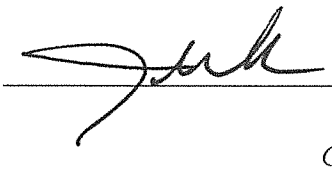
MAUL FOSTER & ALONGI, INC.



*Jacob Faust, PE*
*Senior Engineer*

# CERTIFICATION

*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*



*John Walsh*
*City Administrator*

# STORMWATER POLLUTION CONTROL PLAN CHECKLIST

SITE NAME: BOISE ST. HELENS PAPER DEQ FILE NO. 9582

| Permit Schedule | | SWPCP Required Element | Page No. | Comments (Official Use Only) |
|---|---|---|---|---|
| **New Discharger** | Permit Cover and Exclusion | A new discharger to an impaired water without a TMDL must meet one of the conditions in this section of the permit to obtain coverage | N/A | |
| **Tier II Status** | A.3 | Facility triggered Tier II under previous permit ☐ Yes<br>Facility triggered Tier II under current permit ☐ Yes<br>Provide a description of treatment controls or source control or mass load reduction waiver, including low impact development, in response to corrective action requirements and operation and maintenance procedures. | N/A | |
| **Signature** | A.6.b. | Signed and certified in accordance with 40 CFR 122.22 | III | |
| **Title Page** | A.7.a. | Plan date | I | |
| | | Name of the site | I | |
| | | Name of the site operator or owner | I | |
| | | Name of the person(s) preparing the SWPCP | I | |
| | | DEQ File No. and EPA Permit No. | I | |
| | | Primary SIC code and any co-located SIC codes | I | |
| | | Contact person(s) name, telephone number and email | I | |
| | | Physical address, including county | I | |
| | | Mailing address if different | I | |
| **Site Description*** | A.7.b.ii | A description of industrial activities conducted at the site and significant materials stored, used, treated or disposed of in a manner which exposes those activities or materials to stormwater. Include in the description the methods of storage, usage, treatment or disposal. | 2 | |
| | A.7.b.iii | Location and description, with any available characterization data, of areas of known or discovered significant materials from previous operations. | N/A | |
| | A.7.b.iv | Regular operating hours of operation. | 2 | |
| **General Location Map** | A.7.b.i | General location of the site in relation to surrounding properties, transportation routes, surface waters and other relevant features. | Figure 1 | |
| **Site Map* (please identify clearly)** | A.7.b.i | Drainage patterns | Figures 3,4,5,6 | |
| | | Conveyance and discharge structures, such as piping or ditches | Figures 3,4,5,6 | |
| | | All discharge points assigned a unique three-digit identifying number starting with 001, 002 used for electronic reporting | Figure 6 | |
| | | Outline of the drainage area for each discharge point | Figures 3,4,5,6 | |
| | | Paved areas and buildings within each drainage area | Figures 3,4,5,6 | |
| | | Areas used for outdoor manufacturing, treatment, storage, or disposal of significant materials | Figures 3,4,5,6 | |
| | | Existing structural control measures for minimizing pollutants in stormwater runoff | Figures 3,4,5,6 | |
| | | Structural features that reduce flow or minimize impervious areas | Figures 3,4,5,6 | |

| Permit Schedule | | SWPCP Required Element | Page No. | Comments (Official Use Only) |
|---|---|---|---|---|
| **Site Map* (please identify clearly)** | A.7.b.i | Material handling and access areas | Figures 3,4,5,6 | |
| | | Hazardous waste treatment, storage and disposal facilities | N/A | |
| | | Location of wells including waste injection wells, seepage pits, drywells | N/A | |
| | | Location of springs, wetlands and other surface waterbodies both on-site and adjacent to the site | Figures 3,4,5,6 | |
| | | Location of groundwater wells | N/A | |
| | | Location and description of authorized non-stormwater discharges | Figures 3,4,5,6 | |
| | | Exact location of monitoring points, indicating if any discharge points are "substantially similar" and not being monitored | Figures 3,4,5,6 | |
| | | Location and description of spill prevention and cleanup materials | Figures 3,4,5,6 | |
| | | Locations of the following materials and activities if they are exposed to stormwater and applicable: | | |
| | | Fueling stations | N/A | |
| | | Vehicle and equipment maintenance cleaning areas | Figures 3,4,5,6 | |
| | | Loading/unloading areas | Figures 3,4,5,6 | |
| | | Locations used for the treatment, storage, or disposal of wastes | Figures 3,4,5,6 | |
| | | Liquid storage tanks | Figures 3,4,5,6 | |
| | | Processing and storage areas | Figures 3,4,5,6 | |
| | | Immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste materials, or by-products used or created by the facility | Figures 3,4,5,6 | |
| | | Transfer areas for substances in bulk | Figures 3,4,5,6 | |
| | | Machinery | Figures 3,4,5,6 | |
| | | Locations and sources of run-on to your site from adjacent property | Figures 3,4,5,6 | |
| **Potential Pollutants** | A.7.b.v | For each area of the site where a reasonable potential exists for contributing pollutants to stormwater runoff, a description of the potential pollutant sources that could be present in stormwater discharges and if associated with a co-located SIC code. | 3 | |
| **Impervious Area** | A.7.b.viiii | An estimate of the amount of impervious surface area (including paved areas and building roofs) and the total area drained by each stormwater discharge point to be reported in area units. | 3, 4 | |
| **Receiving Waters** | A.7.b.ix | The name(s) of the receiving water(s) for stormwater drainage. If drainage is to a municipal storm sewer system, the name(s) of the ultimate receiving waters and the name of the municipality. | 3, 4 | |
| **Monitoring Locations*** | A.7.b.x | The identification of each discharge point and the location(s) where stormwater monitoring will occur as required by Schedule B.2. The monitoring location must also be labeled in the SWPCP as "monitoring location". | 3, 4 | |

| Permit Schedule | | SWPCP Required Element | Page No. | Comments (Official Use Only) |
|---|---|---|---|---|
| | | Existing discharge points excluded from monitoring must include a description of the discharge point(s) and data or analysis supporting that the discharge point(s) are substantially similar as described in Schedule B.2.c.ii of this permit SWPCP as "monitoring location". | 3, 4 | |
| **Site Controls*** | A.7.b.vi | A description of the control measures installed and implemented to meet the technology and water quality based requirements below and any applicable sector specific requirements (Sch.E) | 4-6 | |
| | | Minimize exposure | 4, 5 | |
| | | Oil and grease | 5 | |
| | | Waste chemicals and material disposal | 5, 6 | |
| | | Erosion and sediment control | 6 | |
| | | Debris control | 6 | |
| | | Dust generation and vehicle tracking | 6 | |
| | | Housekeeping | 6 | |
| | | Spill prevention and response | 6-9 | |
| | | Preventative maintenance | 9, 10 | |
| | | Employee education | 11 | |
| | | Non-stormwater discharges | 11, 12 | |
| **Procedures and Schedules** | A.7.c.i | **Spill Prevention and Response Procedures.** Procedures for preventing and responding to spills and cleanup and notification procedures. Indicate who is responsible for on-site management of significant materials and include their contact information. Spills prevention plans required by other regulations may be substituted for this provision if the spill prevention plan addresses stormwater management concerns and the plan is included with the SWPCP. | 6-9 | |
| | | Indicate how spill response will be coordinated between the permit registrant and otherwise unpermitted tenants. The permit registrant is ultimately responsible for spills of the tenant and appropriate response. | 9 | |
| | A.7.c.ii | **Preventative Maintenance Procedures.** Procedures for conducting inspections, maintenance and repairs to prevent leaks, spills, and other releases from drums, tanks and containers exposed to stormwater and the scheduled regular pickup and disposal of waste materials. Include the schedule or frequency for maintaining all control measures and waste collection. | 9, 10 | |
| | A.7.c.iii | **Operations and Maintenance Plan.** Include an operation and maintenance plan for active treatment systems, such as electrocoagulation, chemical flocculation, or ion-exchange. The O&M plan must include, as appropriate to the type of treatment system, items such as system schematic, manufacturer's maintenance/operation specifications, chemical use, treatment volumes and a monitoring or inspection plan and frequency. For passive treatment and low impact development control measures, include routine maintenance standards. | N/A | |
| | A.7.c.iv | **Employee Education Training Program and Schedule**. Orientation no later than 30 calendar days of hire or change in duties, education annually. Include a description of the training content and the required frequency. | 11 | |
| **Some facilities must meet sector specific requirements (Schedule E) and include additional information in SWPCP, including the site map. If applicable, ensure that the SWPCP includes the sector specific information.* | | | | |

# CONTENTS

# 1 INTRODUCTION

This Stormwater Pollution Control Plan (SWPCP) was prepared on behalf of City of St. Helens (City) consistent with the National Pollutant Discharge Elimination System Stormwater Discharge Permit No. 1200-Z (the Permit) issued to the City by the Oregon Department of Environmental Quality (DEQ) for stormwater discharges from the St. Helens Mill located at 1300 Kaster Road in St. Helens, Oregon (see Figure 1).

This SWPCP addresses the requirements of the Permit with an effective date of August 1, 2017. This SWPCP is prepared consistent with the SWPCP requirements outlined in the Permit Schedule A and the provisions of Title 40, Code of Federal Regulations (CFR), Part 122, and serves as a guidance document for City personnel to manage the quality of stormwater discharged from the site to the receiving waters.

## 1.1 Revisions and Reviews

This SWPCP must be kept current and updated to reflect any substantial changes to the site controls or industrial activities. The SWPCP will be updated within 30 days of making changes and reviewed within 30 days of receiving results from a sampling event that indicate an exceedance of a Permit benchmark.

This SWPCP and all revisions will be kept on site. Revisions to the SWPCP will be submitted to DEQ only if the revisions are made for any of the following reasons:

- Change in site contact
- In response to a corrective action or inspection
- Changes to the site or site control measures that may significantly change the nature of pollutants present in stormwater discharge or significantly increase the pollutant(s) levels, discharge frequency, volume or flow rate
- Changes to the monitoring locations

If DEQ does not comment within 30 days of receipt of the revised SWPCP, the proposed revisions are deemed accepted. DEQ approval is not required prior to implementation of proposed control measures, except for changes in monitoring locations.

# 2 SITE DESCRIPTION

## 2.1 Site Location

The St. Helens Mill (the site) is located at 1300 Kaster Road in St. Helens, Oregon (see Figure 1). The site is located on a 60-acre site on the banks of the Multnomah Channel of the Willamette River, and one mile east of Highway 30.

## 2.2 Site Description

The site is also known as the former Boise St. Helens Mill. The site consists of four quadrants comprised of open spaces, paved areas, buildings, outdoor storage areas, loading areas, ditches, and pipes. Site features, including drainage patterns, are shown on Figures 2 through 6.

Quadrant 1 facilities include: asphalt roads; recycle compactors; storage areas; parking lots (gravel and paved); warehouse and treatment buildings; and the unloading area. Approximately 15 acres of Quadrant 1 are impervious and drain to the storm sewer (see Figure 3).

Quadrant 2 facilities include: FARA (lessee to the City), gravel contractor parking lot, and wooded/vegetated area. Approximately 1.5 acres of Quadrant 2 are impervious and drain to Milton Creek (see Figure 4).

Quadrant 3 facilities include: asphalt roads; hazardous waste storage building; plant, pulp mill, and treatment operations and associated equipment; contractor staging area; lime pit; storage areas (used oil, clarifier solids storage) and storage tanks (black liquor, chlorine dioxide, fuel oil, and methanol); loading area; and maintenance shops. Approximately 23.5 acres of Quadrant 3 are impervious (gravel, structures, paving), and drain to the process sewer system (see Figure 5).

Quadrant 4 facilities include: asphalt roads; machines building and warehouse; shipping area; woodyard; chip piles; and the storeroom and the main office buildings. Approximately 17 acres of Quadrant 4 are impervious (gravel, structures, paving), and drain to the process sewer system (see Figure 6).

## 2.3 Industrial Activities

The mill manufactures fine white tissue paper, operating 24 hours per day. Chemicals used at the mill include paper additives (calcium carbonate, hypochlorite, biocides, and various sizing agents). Other activities include steam production, maintenance and transportation support (which utilize hydrochloric acid, gasoline, diesel, oils and greases), and process wastewater treatment.

Environmental staff are on site from 8:00AM to 4:00PM.

The mill activities are classified with a standard industrial classification (SIC) code 2621 (paper mills).

## 2.4 Significant Materials and Potential Pollutants

All process areas are serviced by process sewers. Process wastewater is treated in a primary clarifier and a 45 million gallon per day (MGD) secondary treatment aerated stabilization basin (ASB) prior to discharge into the Columbia River consistent with a wastewater discharge permit. A 300-gallon portable container of sodium hypochlorite is stored at the wastewater treatment plant located at the southwest corner of the lagoon. A secondary containment pallet is provided for the container.

Other significant materials that are stored on the site include: motor oil, gasoline, diesel, antifreeze, hydraulic fluids, grease.

Generally, potential pollutants in stormwater at the site are associated with trucks, vehicles, and equipment, waste management, and particulates and debris from impervious areas. The potential pollutants are listed below:

- Galvanized surfaces (e.g. roofs, siding, vents, fencing), as well as vehicle and equipment tires are a potential source of zinc in stormwater.
- Particulates, debris, and oil and grease from the recycle area are a potential source of oil and grease, suspended solids and metals in stormwater.
- Leaks/spills of motor oil, gasoline, diesel, antifreeze, and hydraulic fluids from equipment, trucks and vehicles are a potential source of oil and grease, hydrocarbons and oxygen demand in stormwater.
- Vehicle and equipment brake pads are a potential source of copper in stormwater.
- Unvegetated, pervious areas, including gravel areas are a potential source of suspended solids in stormwater.
- Outdoor storage areas that are exposed to rainfall and/or runoff can contribute pollutants to stormwater when solid materials wash off. Transporting pulp to and from the storage area may discharge small amounts of wood fiber which are a potential source of oxygen demand and suspended solids in stormwater.

## 2.5 Site Stormwater System

The site is divided into four quadrants. Drainage patterns are shown in detail on Figures 3 through 6.

Quadrant 1 consists of vegetated areas, paved parking areas, and paved roadways. Stormwater from vegetated areas is collected by surface flow to drainage ditches; storm drains collect stormwater within the paved areas. The storm sewers drain the majority of Quadrant 1 and flow to the outfall in Multnomah Channel (Discharge Point 001). There are no discharges into the storm sewer from the mill process areas.

Quadrant 2 is mostly vegetated and separated by berms from the process areas of the mill. Stormwater from this area drains directly into Milton Creek (Discharge Point 002).

Quadrant 3 and Quadrant 4 are process areas where stormwater from impervious areas drains into the process sewer system, is treated with an onsite primary clarifier, then routed through the City's

secondary sewage treatment lagoon before discharge to the Columbia River. Discharges from the City's lagoon are covered under a wastewater discharge permit. One catch basin collects stormwater from the western access road that discharges to Multnomah Channel through the outfall (Discharge Point 001).

## 2.6 Stormwater Monitoring Locations

Stormwater samples (from Quadrants 1, 3 and 4) are collected from the outfall to the Multnomah Channel located on the northeastern most point of the property (see Monitoring Location 001, Figure 6).

Stormwater in Quadrant 2 is not impacted by industrial activities at the site and therefore no samples are collected.

## 2.7 Receiving Waters

The receiving water for Quadrants 1, 3, and 4 is the Multnomah.

The receiving water for Quadrant 2 is Milton Creek.

# 3 SITE CONTROL MEASURES

The following operational and structural source control and treatment measures are implemented at the site, consistent with the narrative technology-based effluent limits listed in Schedule A of the Permit.

## 3.1 Minimize Exposure

The City implements structural and operational source control measures to minimize the exposure of potential pollutants to stormwater runoff.

- All process areas are serviced by a process sewer system, which discharges to the wastewater treatment system.
- The stormwater system is protected on all sides from process runoff by a berms and grading.
- To the extent practicable, industrial activities (including any associated materials) that have the potential to contaminate stormwater are conducted indoors or under cover.
- Uncovered activities (such as liquid fueling, manufacturing, treatment, and disposal) are located in the area draining to the process sewer system.
- Manufacturing activities are performed indoors.
- To the extent practicable, materials and products that are stored outside the buildings are stored under cover (e.g., lean-to roofs, shipping containers, covered with tarps).
- Equipment maintenance is conducted in designated indoor areas, to the extent practicable.

- Leaking or leak-prone equipment is stored indoors, to the extent practicable, or equipped with absorbent materials or drip pans.
- Drums stored outdoors are securely closed to minimize exposure of residual petroleum products with stormwater runoff.
- Leaks and spills are cleaned promptly to minimize potential exposure in stormwater.

## 3.2 Oil and Grease

Oil absorbing booms are deployed in areas where oil sheen is observed to capture oil and greases from stormwater.

## 3.3 Chemicals and Waste Materials Storage and Disposal

Chemicals are stored in a contained area that does not drain to the stormwater system. Waste material is stored in areas that are serviced by the mill's effluent treatment system.

Waste paper material (produced material not meeting manufacturing specification) is wrapped in plastic and stored in the outdoor storage areas. The waste paper is recycled and reused in the manufacturing process. Other paper waste and packaging is disposed an offsite recycling facility.

Chemical storage and handling is allowed only in those areas which drain to a mill process sewer, with the exception for one 300-gallon portable container of sodium hypochlorite that is used for treating the mill's sanitary wastewater, which is stored within secondary containment. No waste sodium hypochlorite is generated.

Used oil and air compressor condensate are stored and picked up by an outside service and transported to an off-site recycling facility.

Waste bins or dumpsters are equipped with lids and closed when not in use or stored indoors/tarped. Recycle compactors are equipped with lids and closed when not in use. Municipal and non-hazardous wastes are picked up by a municipal waste management provider and disposed of at a Subtitle D landfill.

Waste solids from the clarifier (process sewer system), are stored in a concrete basin that drains to the process sewer. Solids are dried then disposed at a Subtitle D Landfill.

## 3.4 Erosion and Sediment Control

Most of the site is pervious and vegetated. Areas subject to vehicle traffic are paved, to the extent practicable, to minimize erosion. Paved surfaces are swept to remove sediment. Stormwater from Quadrant 2 filters through vegetation that filters out sediment before discharging to the creek.

## 3.5 Debris Control

The City implements an ongoing inspection program to monitor for discharges of debris and litter into the stormwater system. Debris and litter are picked up upon discovery and placed in an appropriate disposal container. Catch basin drains are equipped with screens on inlet pipes, slotted drain covers that block debris. In some instances, filter fabric inserts are used to keep debris out of the stormwater system. A pavement sweeper is used as needed to remove accumulated debris from paved surfaces.

## 3.6 Dust Generation and Vehicle Tracking of Industrial Materials

Vehicle and equipment traffic areas are paved to minimize generation and tracking of dust. The pavement is swept to minimize the potential for vehicle tracking of materials off site.

## 3.7 Housekeeping

The City implements a rigorous housekeeping program, including pavement sweeping to remove solids, fluids and debris from paved surfaces, promptly clean up leaks or spills, and ensure regular maintenance of facility vehicles and equipment. The housekeeping program ensures that particulate matter, dust and debris (from industrial sources) are promptly cleaned up, especially from areas where materials are loaded and unloaded, stored or otherwise handled. Materials and products are stored in designated areas. Petroleum products and wastes are stored in a designated area and in appropriately labeled containers.

## 3.8 Spill Prevention and Response Measures

The City is committed to the prevention of leaks and spills and mill personnel are trained to respond to spills and leaks safely and promptly. Spill kits are maintained on site to allow for prompt and safe spill response.

### 3.8.1 Spill Prevention

Facility equipment is routinely inspected and maintained. Equipment maintenance activities are conducted in an indoor designated maintenance area, away from the stormwater system and adjacent to a spill kit.

Fuel, used oil and antifreeze are stored in tanks and within secondary containment. The following measures are implemented to prevent spills at the site:

- The portable container is located on a spill pallet that provides secondary treatment.
- Mill employees adhere to the following procedure for draining the spill containment pallet
  - The spill pallet will be inspected after each rainfall event
  - If the visual inspection indicates that no release of hypochlorite has occurred, the drain valve on the spill pallet will be opened to allow the water to drain to the stormwater system

  - The valve will be closed and locked after the water has drained completely from the spill containment pallet
  - If sodium hypochlorite is discovered in the spill containment pallet, the Environmental Department is contacted for assistance in removing and disposing of the pallet contents

- Container lids are securely fastened.
- Containers are labeled to facilitate proper response in the event of a spill.
- Fueling or transfer activities are continuously attended.
- Pads, drip pans and appropriate transfer equipment are used when transferring used oil or antifreeze.

## 3.8.2 Spill-Response Procedures

Spill kits containing oil absorbent booms, pads, and granular clay absorbent are located onsite. The mill keeps absorbent material including booms and mats onsite at all times. In the event of a spill, immediate response is required to prevent the spill from entering the stormwater system:

- Immediately assess the situation, including, to the extent possible, the source of the spill, the spilled material nature and hazards, and proximity to the stormwater system or pervious areas of the site.
- If the spill is minor (i.e., can be contained and cleaned up safely and with spill-response materials available on site), proceed with the spill response procedures listed in the following section, and report to the Environmental Manager when cleanup is complete.
- If the spill is major (i.e., cannot be contained and cleaned up safely and with spill-response materials available on site), contact the Environmental Manager immediately. The Environmental Manager will contact a qualified spill-response contactor as soon as possible and notify the appropriate agencies.

### 3.8.2.1 Minor Spill Response

A spill is considered minor if:

- The spilled material is localized and easily controlled at the time of the spill.
- The spilled material is not likely to reach storm drains, surface water, or groundwater.
- There is little danger of fire, explosion, or risk to human health.

To respond to a minor spill, immediately locate a spill kit and implement measures to contain the spill and divert it from the stormwater system or pervious areas. Notify the Environmental Manager as soon as possible. Spill-response actions may include:

- Use of absorbent material to contain the spill, including:
  - Surrounding the perimeter of the spill with oil-absorbent booms or berms of loose absorbent material

  - Placing absorbent pads or loose absorbent material to absorb spills
- Isolate nearby drainage structures to reduce the potential for the spill to reach the stormwater system using oil-absorbent booms or berms of loose absorbent material.
- Clean up all spill-response materials and store them in a designated, labeled and covered container (e.g., drum with lid) prior to disposal at a permitted facility.

#### 3.8.2.2 Major Spill Response

A spill is major if:

- The spilled material enters storm drains, surface water, or groundwater (regardless of spill size).
- The spill cannot be contained and cleaned up safely and with spill-response materials available on site.
- The spill requires special training and equipment to clean up, as determined by the Environmental Manager.
- The spilled material is dangerous to human health or there is a danger of fire or explosion.

To respond to a major spill, immediately notify the Environmental Manager, who will coordinate cleanup and seek assistance from an outside contractor, if necessary.

#### 3.8.2.3 Notifications

All spills must be reported to the Environmental Manager, who will determine if additional notifications are necessary.

Jeff South, Environmental Manager……..... 503-397-2900

##### Emergency Response Notification

National Response Center..... 800-424-8802
Oregon Emergency Response System (OERS)..... 800-452-0311

##### Emergency Response Contractor

NRC Environmental Services..... 800-33-SPILL

#### 3.8.2.4 Reporting

All pertinent information related to a spill must be recorded on a Spill Record form (see Appendix A), including but not limited to a description of the event, the equipment or procedural failures that led to the spill, cleanup measures conducted, available analytical data, and future physical and/or procedural changes that will be implemented to mitigate the potential for future releases. The Environmental Manager is responsible for reporting any spill that exceeds a reportable quantity, consistent with the following guidelines:

- Petroleum product spills of any amount that are likely to contact waters of the state (Multnomah Channel, Milton Creek, groundwater, and stormwater system) must be reported within one hour to the National Response Center and OERS.
- Petroleum product spills greater than 42 gallons to land (including soil, gravel, or asphalt, but not indoor areas that do not have the potential to reach waters of the state) that are not likely to contact waters of the state must be reported within one hour to OERS.
- Release of hazardous materials equal to or greater than the quantity listed in 40 CFR Part 302 (Table 302.4—List of Hazardous Substances and Reportable Quantities) requires immediate notification of the National Response Center and OERS.

## 3.9 Preventative Maintenance

The City implements a preventative maintenance program that regularly evaluates the condition of drainage areas and source controls to minimize the potential for discharging pollutants with stormwater. At minimum the preventative maintenance program includes the following:

- Monthly visual inspections of the stormwater management system, including the pollution-control measures.
- Catch basins cleaning as needed.
- Pavement sweeping to maintain sediment- and debris-free surfaces. Pavement is swept as needed. This activity is carried out by the mill's yard crew or contractor. A sweeper log is maintained to document each use of the vacuum sweeper truck.
- Regular pickup of waste materials and disposal at permitted disposal facilities.
- Preventative maintenance is routinely done on mill vehicles and machinery.

### 3.9.1 Monthly Stormwater Inspections

Monthly inspections of the facility stormwater system and drainage areas are conducted to evaluate the condition of site control measures. Inspections focus on:

- Visual inspection of the site and identification of sources of pollutants (i.e., industrial materials, residue or waste) to which stormwater is exposed. New sources of pollutants must be added to the SWPCP.
- Leaks or spills from equipment, trucks, vehicles, drums, tanks and other containers.
- Off-site tracking of waste materials or sediment where vehicles enter or exit the site and/or internal tracking.
- Tracking or blowing of raw, final or waste materials that results in exposure of these materials to stormwater.
- Evidence of, or the potential for, pollutants entering the drainage system or receiving waters.
- Evaluation of the condition of source control measures and the need for maintenance and/or repairs, including the spill kits and containment berms.
- Visual inspection of stormwater at the stormwater monitoring location (see Figure 6), when discharge is occurring during regular business hours, for the presence of floating, suspended

or settleable solids, foam, visible oil sheen, odor, color, or other obvious indicators of stormwater pollution.

Monthly inspections and maintenance activities are recorded on the Monthly Stormwater Inspection and Maintenance Record (Appendix B).

## 3.10 Employee Education

A continuing program of employee orientation and education is implemented to raise awareness about site-specific control measures and prompt and safe response to a spill or accident. City personnel are informed of the goals of the SWPCP and control measures such as:

- Good housekeeping and debris/litter control
- Measures to minimize exposure of stormwater runoff to potential pollutants
- Erosion and sediment control measures
- Waste storage and disposal
- Oil and grease control measures and used oil management
- Spill prevention and response
- Preventive maintenance of equipment and stormwater control measures
- Unauthorized discharges to the stormwater system

This training is included with new-employee orientation (within 30 days of the start of employment) and is repeated annually as part of the facility safety training program. A sample employee education documentation form is included in Appendix C.

## 3.11 Non-stormwater Discharges

There are no known unauthorized non-stormwater discharges at the site. The following non-stormwater discharges are authorized under the Permit:

- Landscape watering providing pesticides and fertilizers has been applied in accordance with manufacturers' instructions
- Potable water, including water line flushing
- Pavement wash waters where no detergents or hot water are used, no spills or leaks of toxic or hazardous materials have occurred (unless all spilled material has been removed), and surfaces are swept prior to washing
- Routine external building wash-down that does not use detergents or hot water
- Fire hydrant flushing
- Discharges from firefighting activities
- Uncontaminated air conditioning condensate
- Uncontaminated groundwater or spring water

# 4 REPORTING AND RECORDKEEPING

## 4.1 Discharge Monitoring Report

Stormwater monitoring results (analytical sampling data and field pH measurements) are reported using a DEQ-approved Discharge Monitoring Report (DMR) form. The data must be entered into the DMR form and submitted no later than July 31 of each year, along with laboratory reports and records of pH meter calibration and field measurements (see Appendix D).

## 4.2 Tier I Corrective Action

A Tier I Report must be prepared in response to any exceedance of a Permit benchmark or impairment pollutant reference concentration. Each Tier I Report should include:

- A summary of an investigation of the cause of the elevated pollutant levels, including a previous and/or planned source control measures to minimize exposure of the pollutant source to stormwater.
- A statement confirming the SWPCP was reviewed following the receipt of the monitoring data showing a benchmark exceedance to determine whether the SWPCP controls were properly installed, maintained and selected.
- Corrective action (additional control measures or modifications/improvements to existing controls) implemented in response to the benchmark exceedance and the implementation schedule. Corrective actions must be implemented before the next storm event, if possible, or no later than 30 days after receipt of the monitoring results. Justification for extending the implementation beyond 30 days must be included in the report and the corrective action must be implemented as soon as practicable.

Tier I Reports must be filed on site and submitted to the DEQ upon request. If a Tier II corrective action is triggered, sampling results collected during the third and fourth year of the Permit, prior to the Tier II implementation deadline are exempt from Tier I Report requirements.

## 4.3 Tier II Corrective Action

If the geometric mean of the qualifying sampling results collected during the second year of the Permit (July 2018 through June 2019) exceed any Permit statewide benchmark, or if 50 percent or more of the pH measurements collected during the first two years of the Permit (July 2017 through June 2019) are outside of the permitted range for pH, a Tier II Report, Tier II Mass Reduction Waiver Request or Tier II Natural Background Waiver Request must be submitted to the DEQ no later than December 31, 2019.

### 4.3.1 Tier II Report

The Tier II Repot must summarize proposed stormwater treatment measures or a combination of stormwater treatment and source control designed by a professional engineer licensed in Oregon with the goal of achieving the applicable Permit benchmark. The Tier II Report should include a rationale for the selection of the treatment measures, the projected reduction of pollutant concentration(s) and the implementation schedule. Tier II treatment measures must be implemented no later than June 30, 2020, unless a later date is approved by the DEQ in writing.

### 4.3.2 Tier II Mass Reduction Waiver Request

A Tier II Mass Reduction Waiver Request may be submitted if volume-reduction measures (e.g., infiltration, reuse) have or will result in a reduction of the mass load of pollutant(s) in the discharge to below the mass-equivalent of the applicable statewide benchmark. The request must include data and analysis to support the rationale, including a description of the measure(s), a mass load analysis, and expected implementation date(s). The request must be stamped by a professional engineer licensed in Oregon or a certified engineering geologist.

### 4.3.3 Tier II Natural Background Waiver Request

A Tier II Natural Background Waiver Request may be submitted if an exceedance of a statewide benchmark is attributed solely to the presence of the pollutant(s) in natural background and not associated with industrial activities at the site. The request must include the results of investigations and data collected on or around the site and/or published peer-reviewed studies.

## 4.4 Recordkeeping

Records of the following documents are maintained on site for at least three years and make them available to the DEQ upon request:

- A copy of this SWPCP and revisions
- A copy of the Permit
- Permit assignment letter and Permit coverage documents
- DMRs
- Inspection reports
- Employee education records
- Maintenance and repair of stormwater source control and treatment measures
- Spill records, if applicable
- Tier I Reports and corrective action implementation records
- Tier II Report, if applicable

# LIMITATIONS

The services undertaken in completing this plan were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This plan is solely for the use and information of our client unless otherwise noted. Any reliance on this plan by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this plan.

# FIGURES


Source: Aerial photograph obtained from Mapbox

**Legend**

Location Boundary (approximate)

**Figure 1**
**General Location**
City of St. Helens
St. Helens, OR

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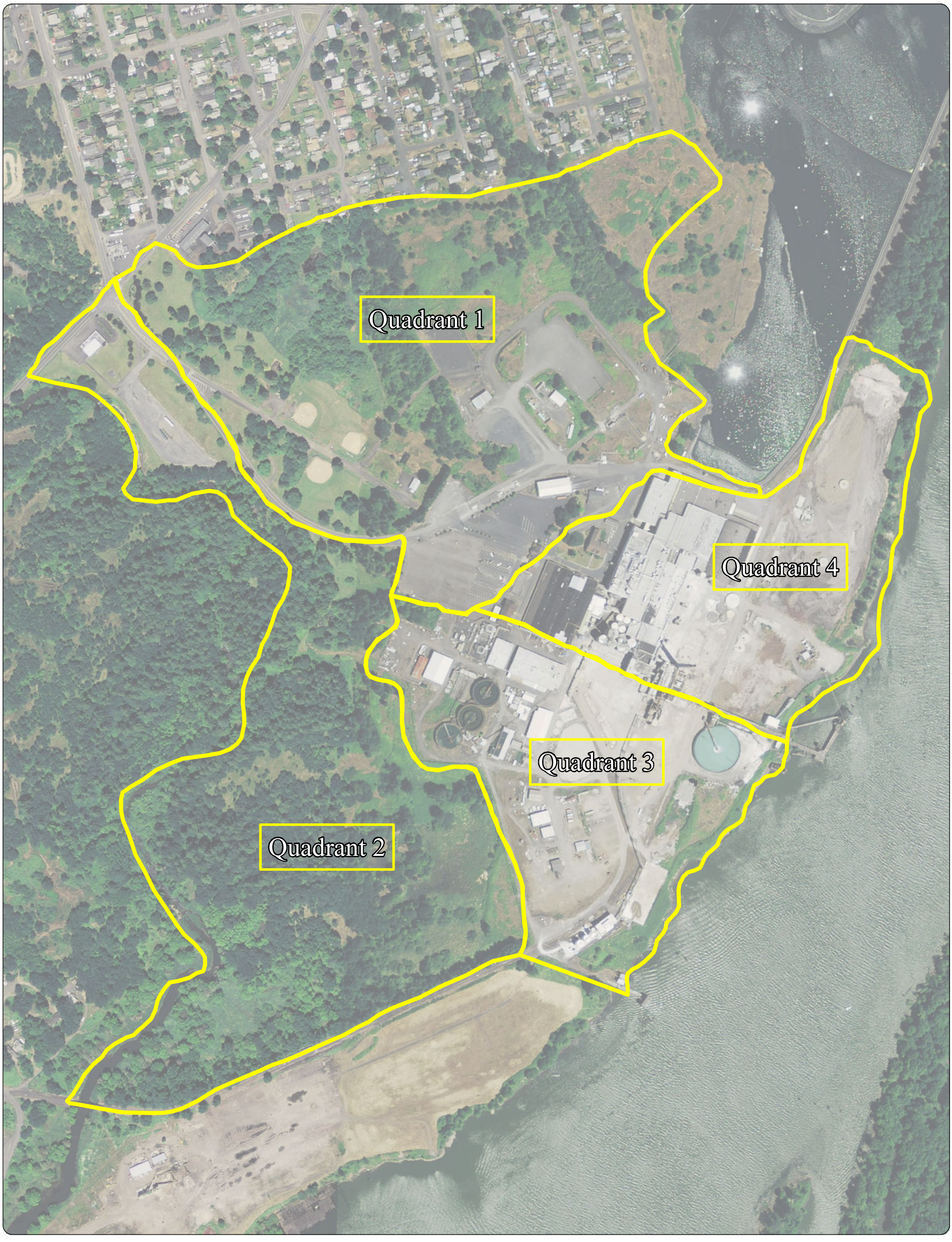
0 350 700
Feet

Print Date: 12/12/2017
Approved By:
Produced By: mjosef
Project:

Path: X:\0830.02 City of St. Helens\03\St. Helens Mill\Project\Fig2.mxd




Source: Aerial photograph obtained from Mapbox

**Legend**

Quadrant Boundaries (approximate)

# Figure 2
## General Site Quadrant Map

City of St. Helens
St. Helens, OR

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0 200 400
Feet

Print Date: 12/12/2017
Approved By:
Produced By: mjosef
Project:

Path: X:\0830.02 City of St. Helens\03\St. Helens Mill\Project\Fig3.mxd

Print Date: 12/12/2017

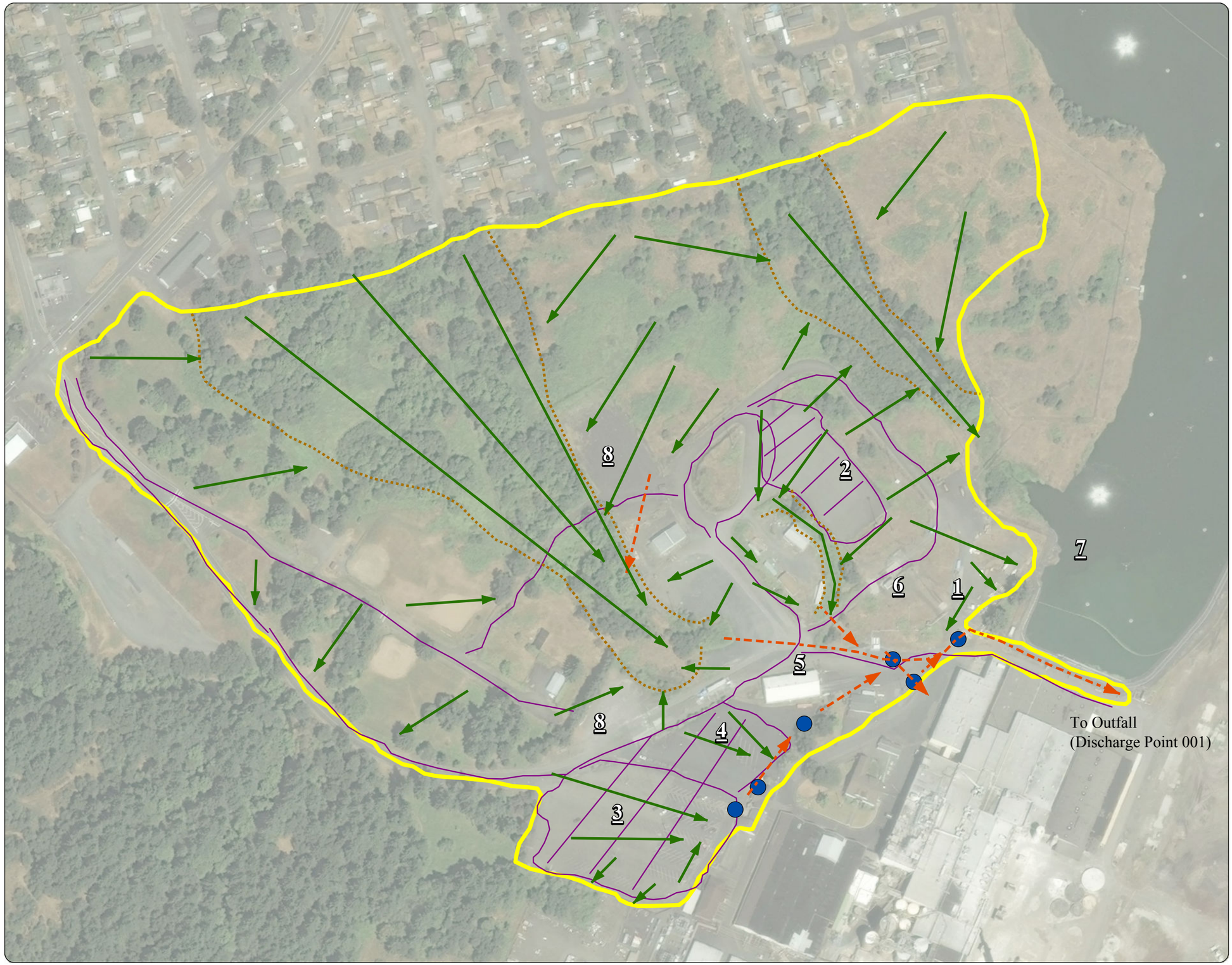
Approved By:

Produced By: mjosef

Project:

# Figure 3
# Mill Quadrant 1

City of St. Helens
St. Helens, OR




## Legend

- Stormwater Collection Drain
- Stormwater Surface Flow Path
- Stormwater Underground Pipe
- Drainage Ditch
- Paved Area
- Quadrant 1 Boundary (approximate)

1 = Recycle compactors
2 = Empty trailer storage
3 = Parking lots
4 = Lap storage
5 = Noodle pulp warehouse
6 = Chip truck unloading
7 = ASB
8 = Gravel contractor parking

0 125 250
Feet

Source: Aerial photograph obtained from Mapbox

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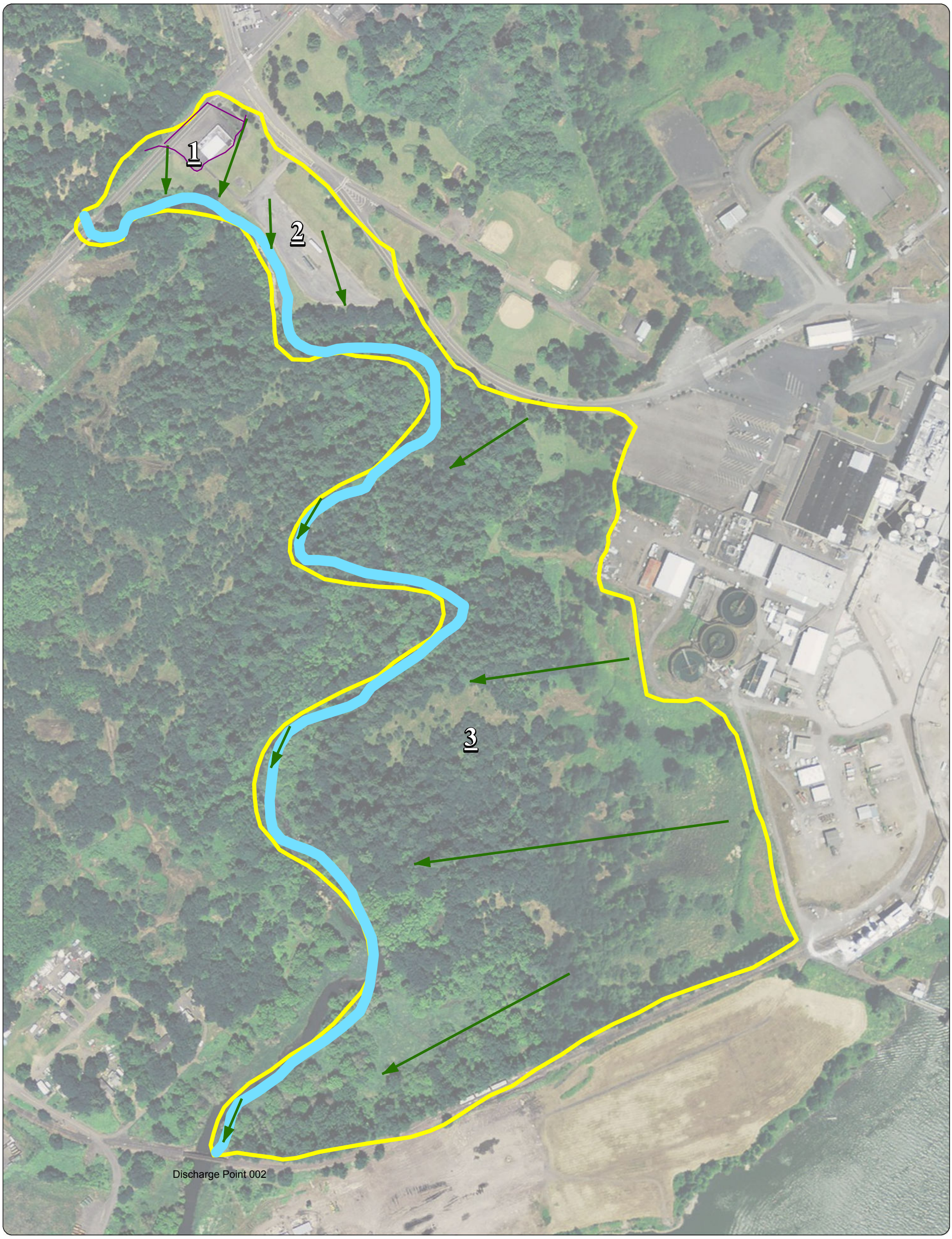
Path: X:\0830.02 City of St. Helens\03\St. Helens MillProjectFig4.mxd




Source: Aerial photograph obtained from Mapbox

## Legend

- Stormwater Surface Flow Path
- Paved Area
- Milton Creek
- Quadrant 2 Boundary (approximate)

1 = FARA
2 = Contractor gravel parking lot
3 = Wooded area

**Figure 4**
**Mill Quadrant 2**
City of St. Helens
St. Helens, OR

0 150 300
Feet

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Print Date: 12/12/2017
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Produced By: mjosef
Project:

# Figure 5
# Mill Quadrant 3

City of St. Helens
St. Helens, OR


## Legend

- Process Sewer Drain
- Surface Flow Path
- Paved Area
- Quadrant 3 Boundary (approximate)

1 = Hazardous waste storage
2 = PCC plant
3 = Primary clarifier
4 = Power and recovery
5 = Contractor staging area
6 = Lime pit
7 = Used oil storage
8 = Clarifier solids storage and loading area
9 = Maintenance shops
10 = Methanol storage tank

0 100 200
Feet

Source: Aerial photograph obtained from Mapbox

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Path: X:\0830.02 City of St. Helens\03\St. Helens Mill\Project\Fig5.mxd
Print Date: 12/12/2017
Approved By:
Produced By: mjosef
Project:

# Figure 6
# Mill Quadrant 4

City of St. Helens
St. Helens, OR

City Secondary
Treatment Lagoon

Discharge Point 001 and
Monitoring Location 001

Multnomah Channel

1
2
3
4
5
6

## Legend

- Process Sewer Drain
- Stormwater Collection Drain
- Stormwater Discharge Outfall
- Stormwater Surface Flow Path
- Stormwater Underground Pipe
- Paved Area
- Quadrant Boundary (approximate)

1 = Paper machines
2 = Shipping
3 = Woodyard
4 = Paper warehouse
5 = Storeroom
6 = Main office

0 100 200
Feet

Source: Aerial photograph obtained from Mapbox

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Path: X:\0830.02 City of St. Helens\03\St. Helens Mill\Project\Fig6.mxd
Print Date: 12/12/2017
Approved By:
Produced By: mjosef
Project:

# APPENDIX A

SPILL REPORT FORM

# SPILL/RELEASE REPORT

## 1 - GENERAL INFORMATION

a. Company Name: _____

b. Address: _____

_____

c. Company Contact Person: _____

d. Phone Number(s): _____

e. Specific on-site location of the release (and address if different from above):

_____

_____

_____

**Please provide a map of the site showing area(s) where the release occurred, any sample collection locations, location of roads/ditches/surface water bodies, etc.**

## 2 - RELEASE INFORMATION

a. Date/Time Release started:_____ Date/Time stopped:_____

b. Release was reported to (specify Date/Time/Name of Person contacted where applicable):

ODEQ _____

OERS _____

NRC _____

Other (describe):_____

c. Person(s) reporting release:_____

d. Name, quantity and physical state (gas, liquid, solid or semi-solid) of material(s) released:

_____

_____

**Please attach copies of material safety data sheets (MSDS) for released material(s).**

e. The release affected: ____Air ____Groundwater ____Surface Water ____Soil ____Sediment

f. Name and distance to nearest surface water body(s), even if unaffected (include locations of creeks, streams, rivers and ditches that discharge to surface water on maps):

_____

Has the release reached the surface water identified above?: ____Yes ____No

Could the release potentially reach the surface water identified above? ____Yes ____No

Explain:_____

_____

g. Depth to nearest aquifer/groundwater:_____

Is nearest aquifer/groundwater potable (drinkable)? ____Yes ____No

Has the release reached the nearest aquifer/groundwater? ____Yes ____No

Explain:_____

_____

h. Release or potential release to the air occurred? ____Yes ____No

Explain:_____

_____

i. Was there a threat to public safety? ____Yes ____No

j. Is there potential for future releases? ____Yes ____No

Explain:_____

_____

k. Describe other effects/impacts from release (emergency evacuation, fish kills, etc.):

_____

_____

_____

l. Describe how the release occurred. Include details such as the release source, cause, contributing weather factors, activities occurring prior to or during the release, dates and times of various activities, first responders involved in containment activities, etc.:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

**3 - SITE INFORMATION**

a. Adjacent land uses include (check all that apply and depict on site maps):

____Residential ____Commercial ____Light Industrial ____Heavy Industrial

____Agricultural ____Other (describe):_____

b. What is the population density surrounding the site:_____

c. Is the site and/or release area secured by fencing or other means? ____Yes ____No

d. Soil types (check all that apply): ____alluvial ____ bedrock ____ clay ____sandy

____silt ____ silty loam ____artificial surface (cement/asphalt/etc.)

e. Describe site topography:_____

_____

_____

**4 - CLEANUP INFORMATION**

a. Was site cleanup performed? ____Yes ____No

If No, explain:_____

_____

b. Who performed the site cleanup?

Company Name: _____

Address: _____

_____

Cleanup Supervisor: _____

Phone Number(s): _____

c. Has all contamination been removed from the site? ____Yes ____No

If No, explain:_____

_____

d. Estimated volume of contaminated soil removed:_____

e. Estimated volume of contaminated soil left in place:_____

f. Was a hazardous waste determination made for cleanup materials? ____Yes ____No

g. Based on the determination, are the cleanup materials hazardous wastes?

____Yes ____No If Yes, list all waste codes:_____

h. Was contaminated soil or water disposed of at an off-site location? ____Yes ____No

**If yes, attach copies of receipts/manifests/etc., and provide the following information:**

Facility Name: _____

Address: _____

_____

Facility Contact: _____

Phone Number(s): _____

i. Is contaminated soil or water being stored and/or treated on-site? ____Yes ____No

If yes, please describe the material(s), storage and/or treatment area, and methods utilized (attach additional sheets if necessary):

_____

_____

_____

_____

j. Describe cleanup activities including what actions were taken, dates and times actions were initiated and completed, volumes of contaminated materials that were removed, etc. (attach additional sheets or contractor reports if necessary or more convenient):

_____

_____

_____

_____

_____

**5 - SAMPLING INFORMATION**

**Attach copies of all sample data and indicate locations of sample collection on maps.**

a. Were samples of contaminated soil collected? ____Yes ____No ____N/A

b. Were samples of contaminated water collected? ____Yes ____No ____N/A

c. Were samples collected to show that all contamination had been removed?

____Yes ____No ____N/A

d. Describe sampling activities, results and discuss rationale for sampling methods:

_____

_____

_____

_____

_____

## 6 - SPILL REPORT CHECKLIST

**To ensure that you have gathered all pertinent information, please complete the following checklist:**

____ Map(s) of the site showing buildings, roads, surface water bodies, ditches, waterways, point of the release, extent of contamination, areas of excavation and sample collection locations attached.

____ Material Safety Data Sheet (MSDS) for released material(s) attached. **Note: an MSDS is not required for motor fuels.**

____ Sampling data/analytical results attached.

____ Receipts/manifests (if any) for disposal of cleanup materials attached.

____ Contractor reports (if any) attached.

If you would like to submit your report by e-mail it can be submitted electronically to: DOSPILLS@deq.state.or.us

# APPENDIX B

## MONTHLY STORMWATER INSPECTION AND MAINTENANCE REPORT

# MONTHLY STORMWATER INSPECTION AND MAINTENANCE REPORT
# PERMITEE/FACILITY NAME

**MONTHLY VISUAL OBSERVATIONS OF STORMWATER DISCHARGE DATE AND TIME:_____**

*Visual inspection of stormwater at the stormwater sampling locations (see Figure 6), when discharge is occurring during regular business hours, for the presence of floating solids (associated with industrial activity), foam, visible oil sheen, and discoloration.*

| Sampling Location | (Yes/No) | Additional Information (e.g., Detailed Description, Source, Corrective Action and Implementation Date) |
|---|---|---|
| Are there floating, suspended or settleable solids, foam, oil sheen, color or odor in stormwater discharging from **Monitoring Location 001**. | | |

**MONTHLY SITE INSPECTION DATE AND TIME:_____**

*Monthly inspections of the drainage areas and stormwater system are conducted to evaluate the condition of source controls. Inspections focus on:*
- *Visual inspection of the facility stormwater system and identification of sources of pollutants to which stormwater is exposed.*
- *Industrial materials, residue or waste that may have or could come into contact with stormwater.*
- *Leaks or spills from equipment and tanks/drums.*
- *Off-site and internal tracking of waste materials or sediment where vehicles enter or exit the site.*
- *Tracking or blowing of raw, final or waste materials that may have or could come into contact with stormwater.*
- *Evidence of, or the potential for, pollutants entering the drainage system or receiving waters.*
- *Evaluation of the condition of site control measures and the need for maintenance and/or repairs .*

| Inspection Item | (Yes/No) | Additional Information (e.g., Detailed Description, Source, Corrective Action and Implementation Date) |
|---|---|---|
| Are paved surfaces free of solids/sediment accumulation? | | |
| Are there visible discharges, leaks, or spills of petroleum products? | | |
| Are the spill kits properly stocked and in their designated location? | | |
| Is there evidence of non-stormwater discharges to storm drains? | | |
| Is there visible tracking of materials or waste from indoor areas to the outside? | | |
| Is there visible tracking of waste or sediment where vehicles enter or exit the site? | | |
| Are process sewer collection points functioning and preventing comingling of stormwater? | | |
| Do catch basins show excessive accumulation of sediment, debris, or oil sheen? | | |

**STORMWATER SOURCE AND TREATMENT CONTROLS MAINTENANCE TASKS AND/OR CORRECTIVE ACTIONS IMPLEMENTED THIS MONTH**

| | |
|---|---|
| Inspected By: | Signature: |

*I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.*

# APPENDIX C

## EMPLOYEE TRAINING DOCUMENTATION FORM

**Employee Education Record**
**City of St. Helens Mill**

Instructor(s)_____

Date and Time of Training _____

A continuing program of employee orientation and education is maintained to raise awareness about site-specific control measures and prompt and safe response to a spill or accident. This training is included with new-employee orientation (within 30 days of the start of employment) and is repeated annually as part of the facility safety training program.

The undersigned City and Mill personnel have been informed of the goals of site control measures, including:

- Good housekeeping and debris/litter control
- Measures to minimize exposure of stormwater runoff to potential pollutants
- Erosion- and sediment-control measures
- Waste storage and disposal
- Oil and grease control measures
- Spill prevention and control
- Preventive maintenance of equipment and pollution-control measures
- Unauthorized discharges to the stormwater system

| Employee Name | Employee Signature |
| --- | --- |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

# APPENDIX D

PH RECORDS

## PH METER CALIBRATION AND PH MEASUREMENT RECORDS
## PERMITEE/FACILITY NAME

### PH METER CALIBRATION RECORD

*The pH meter must be calibrated prior to the collection of pH measurements in the field.*

Calibration Date and Time: _____

Calibration Solution 4.01 S.U. _____

Calibration Solution 7.00 S.U. _____

Calibration Solution 10.01 S.U. _____

Calibration Notes:

### PH MEASUREMENT RECORD

*pH must be measured within 15 minutes of sample collection.*

| Monitoring Location | pH (s.u.) | Sample Collection Date and Time | pH Measurement Date and Time |
|---|---|---|---|
| Monitoring Location 001 | | | |

| | |
|---|---|
| Calibrated and Measured By: | Signature: |