



PLANNING DEPARTMENT
6101 SE Johnson Creek Blvd
Milwaukie OR 97206

PHONE: 503-786-7630
FAX: 503-774-8236
E-MAIL: planning@milwaukieoregon.gov

Application for Land Use Action

Master File #: NR-2019-001

Review type*: I II III IV V

CHOOSE APPLICATION TYPE(S):

Natural Resource Review

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...

...

Use separate application forms for:

- Annexation and/or Boundary Change
- Compensation for Reduction in Property Value (Measure 37)
- Daily Display Sign
- Appeal

RESPONSIBLE PARTIES:

APPLICANT (owner or other eligible applicant—see reverse): Jennifer Garbely, PE, Assistant City Engineer

Mailing address: 10722 SE Main Street, Milwaukie, OR Zip: 97222

Phone(s): 503-786-7534 E-mail: GarbelyJ@milwaukieoregon.gov

APPLICANT'S REPRESENTATIVE (if different than above): same

Mailing address: Zip:

Phone(s): E-mail:

SITE INFORMATION:

Address: 11910 SE McLoughlin Blvd Map & Tax Lot(s): 11E36CB03000, 3100, 3300, 4500

Comprehensive Plan Designation: P Zoning: OS Size of property: 3.90 Acres

PROPOSAL (describe briefly):

Construct a 10' - 12' wide, 1040-LF multi-use path paralleling SE McLoughlin Boulevard, per the 2015 Robert Kronberg Nature Park Master Plan. Path will connect the south end of Kellogg Creek pedestrian bridge with the crosswalk at McLoughlin Boulevard and River Road.

SIGNATURE:

ATTEST: I am the property owner or I am eligible to initiate this application per Milwaukie Municipal Code (MMC) Subsection 19.1001.6.A. If required, I have attached written authorization to submit this application. To the best of my knowledge, the information provided within this application package is complete and accurate.

Submitted by: *Jennifer Garbely* Date: 1/4/2019

IMPORTANT INFORMATION ON REVERSE SIDE

RESET

*For multiple applications, this is based on the highest required review type. See MMC Subsection 19.1001.6.B.1.

WHO IS ELIGIBLE TO SUBMIT A LAND USE APPLICATION (excerpted from MMC Subsection 19.1001.6.A):

Type I, II, III, and IV applications may be initiated by the property owner or contract purchaser of the subject property, any person authorized in writing to represent the property owner or contract purchaser, and any agency that has statutory rights of eminent domain for projects they have the authority to construct.

Type V applications may be initiated by any individual.

PREAPPLICATION CONFERENCE:

A preapplication conference may be required or desirable prior to submitting this application. Please discuss with Planning staff.

REVIEW TYPES:

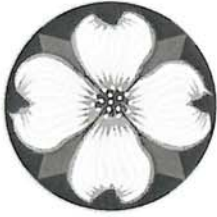
This application will be processed per the assigned review type, as described in the following sections of the Milwaukie Municipal Code:

- Type I: Section 19.1004
- Type II: Section 19.1005
- Type III: Section 19.1006
- Type IV: Section 19.1007
- Type V: Section 19.1008

THIS SECTION FOR OFFICE USE ONLY:

FILE TYPE	FILE NUMBER	FEE AMOUNT*	PERCENT DISCOUNT	DISCOUNT TYPE	DEPOSIT AMOUNT	DATE STAMP
Master file		\$			\$	Submitted on January 8, 2019
Concurrent application files		\$			\$	
		\$			\$	
		\$			\$	
		\$			\$	
SUBTOTALS		\$			\$	
TOTAL AMOUNT RECEIVED: \$			RECEIPT #:		RCD BY:	
Associated application file #s (appeals, modifications, previous approvals, etc.):						
Neighborhood District Association(s):						
Notes:						

*After discount (if any)



MILWAUKIE PLANNING
6101 SE Johnson Creek Blvd
Milwaukie OR 97206
503-786-7630
planning@milwaukieoregon.gov

Submittal Requirements

**For all Land Use Applications
(except Annexations and Development Review)**

All land use applications must be accompanied by a signed copy of this form (see reverse for signature block) and the information listed below. The information submitted must be sufficiently detailed and specific to the proposal to allow for adequate review. Failure to submit this information may result in the application being deemed incomplete per the Milwaukie Municipal Code (MMC) and Oregon Revised Statutes.

Contact Milwaukie Planning staff at 503-786-7630 or planning@milwaukieoregon.gov for assistance with Milwaukie's land use application requirements.

1. **All required land use application forms and fees**, including any deposits.
Applications without the required application forms and fees will not be accepted.
2. **Proof of ownership or eligibility to initiate application** per MMC Subsection 19.1001.6.A.
Where written authorization is required, applications without written authorization will not be accepted.
3. **Detailed and comprehensive description** of all existing and proposed uses and structures, including a summary of all information contained in any site plans.
Depending upon the development being proposed, the description may need to include both a written and graphic component such as elevation drawings, 3-D models, photo simulations, etc. Where subjective aspects of the height and mass of the proposed development will be evaluated at a public hearing, temporary onsite "story pole" installations, and photographic representations thereof, may be required at the time of application submittal or prior to the public hearing.
4. **Detailed statement** that demonstrates how the proposal meets the following:
 - A. All applicable development standards (listed below):
 1. **Base zone standards** in Chapter 19.300.
 2. **Overlay zone standards** in Chapter 19.400.
 3. **Supplementary development regulations** in Chapter 19.500.
 4. **Off-street parking and loading standards and requirements** in Chapter 19.600.
 5. **Public facility standards and requirements**, including any required street improvements, in Chapter 19.700.
 - B. All applicable application-specific approval criteria (check with staff).
These standards can be found in the MMC, here: www.qcode.us/codes/milwaukie/
5. **Site plan(s), preliminary plat, or final plat** as appropriate.
See Site Plan, Preliminary Plat, and Final Plat Requirements for guidance.
6. **Copy of valid preapplication conference report**, when a conference was required.

APPLICATION PREPARATION REQUIREMENTS:

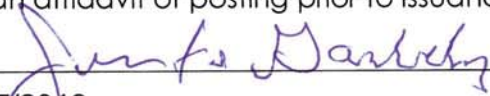
- Five hard copies of all application materials are required at the time of submittal. Staff will determine how many additional hard copies are required, if any, once the application has been reviewed for completeness.
- All hard copy application materials larger than 8½ x 11 in. must be folded and be able to fit into a 10- x 13-in. or 12- x 16-in. mailing envelope.
- All hard copy application materials must be collated, including large format plans or graphics.

ADDITIONAL INFORMATION:

- Neighborhood District Associations (NDAs) and their associated Land Use Committees (LUCs) are important parts of Milwaukie's land use process. The City will provide a review copy of your application to the LUC for the subject property. They may contact you or you may wish to contact them. Applicants are strongly encouraged to present their proposal to all applicable NDAs prior to the submittal of a land use application and, where presented, to submit minutes from all such meetings. NDA information: www.milwaukieoregon.gov/citymanager/what-neighborhood-district-association.
- Submittal of a full or partial electronic copy of all application materials is strongly encouraged.

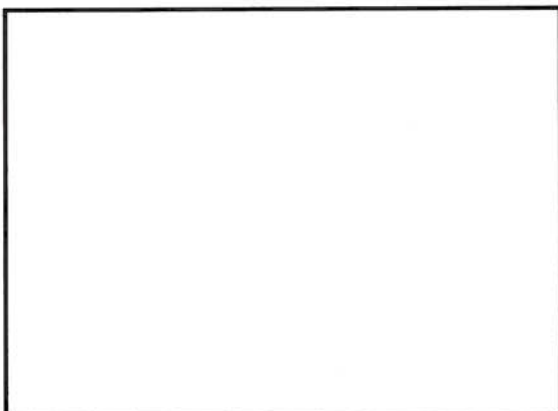
As the authorized applicant I, (print name) Jennifer Garbely, PE, attest that all required application materials have been submitted in accordance with City of Milwaukie requirements. I understand that any omission of required items or lack of sufficient detail may constitute grounds for a determination that the application is incomplete per MMC Subsection 19.1003.3 and Oregon Revised Statutes 227.178. I understand that review of the application may be delayed if it is deemed incomplete.

Furthermore, I understand that, if the application triggers the City's sign-posting requirements, I will be required to post signs on the site for a specified period of time. I also understand that I will be required to provide the City with an affidavit of posting prior to issuance of any decision on this application.

Applicant Signature: 
Date: 1/07/2019

Official Use Only

Date Received (date stamp below):





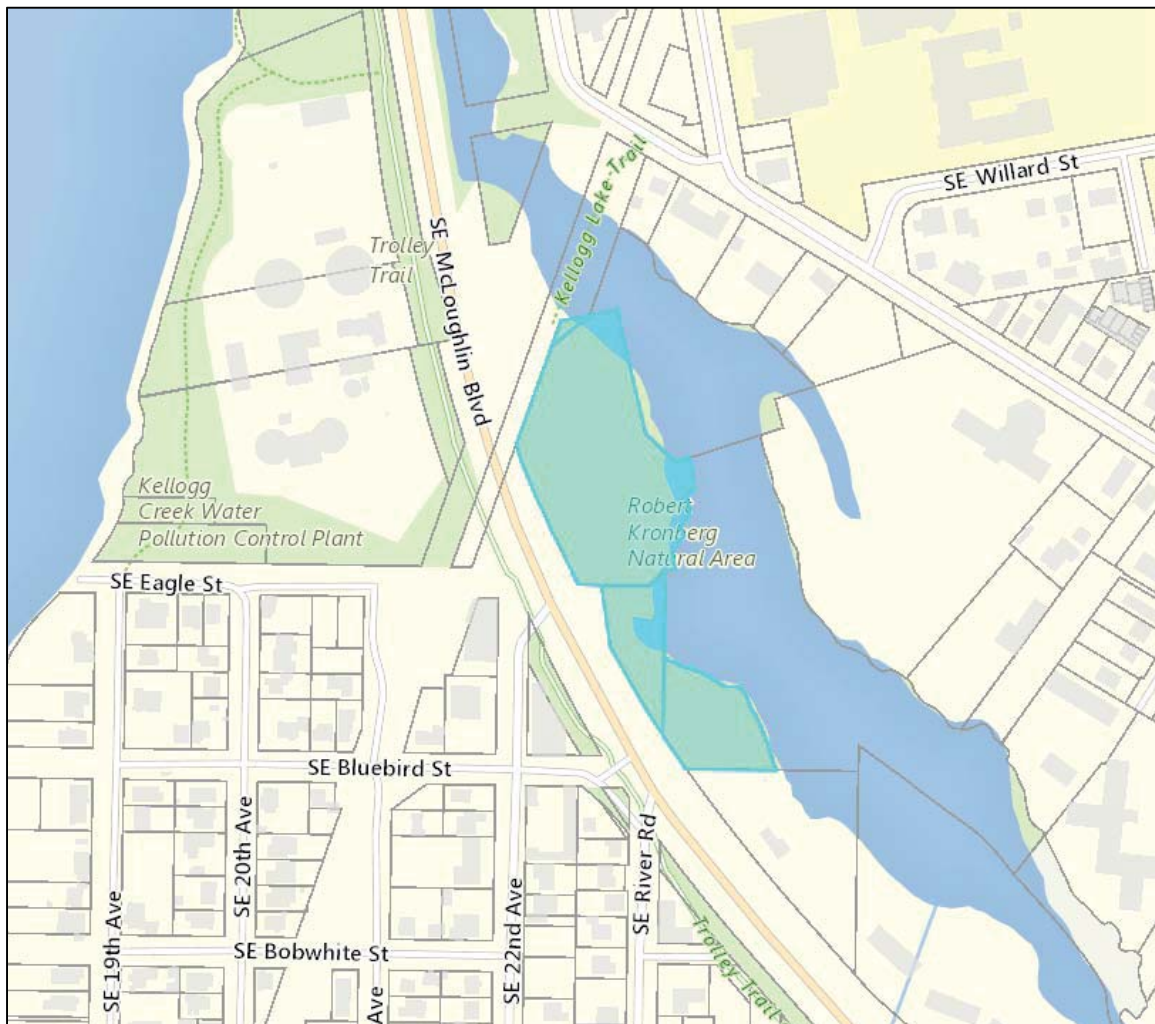
January 07, 2019

Vera Kolas
City of Milwaukie Planning Department
6101 SE Johnson Creek Blvd
Milwaukie, OR 97206

Subject: **Kronberg Park Multi-Use Path**
Application for Natural Resource Review

Dear Ms. Kolas -

Please accept our application for Natural Resource Review of the Kronberg Park Multi-Use Walkway. The project is located at 11910 SE McLoughlin Boulevard, adjacent to Kellogg Lake.



PROJECT SUMMARY

- Subject Property:** 11910 SE McLoughlin Boulevard
Tax Lots 11E36CB 03000, 03100, 03300, 04500; 3.9 acres
- Comprehensive Plan:** Public Land – P
- Zoning Designation:** Open Space – OS
- Zoning Overlays:** Habitat Conservation Area – HCA
Water Quality Resource (Vegetated Corridor) – WQR
Willamette Greenway – WG
FEMA 100-year and Metro 1996 Floodplain
- Applicant/Owner:** City of Milwaukie
Jennifer Garbely, PE, Assistant City Engineer
10722 SE Main Street
Milwaukie, OR 97222
503.786.7534
GarbelyJ@MilwaukieOregon.gov
- Project Team:** City of Milwaukie Engineering Department - Applicant
Otak, Inc. – Civil, Structural Consultant
Compass Land Surveyors – Surveying Consultant
Multnomah Tree Experts, Ltd. – Arborist Consultant
Shannon & Wilson, Inc. – Geotechnical Subconsultant
OBEC Consulting Engineers – Structural and QA/QC Consultant

Existing Uses

The project site, Robert Kronberg Nature Park, is currently undeveloped. The northern portion of the site is covered in grass and shrubs, while the southern portion is covered in trees. There are no developed pathways on the site. The project is located within the Habitat Conservation Area, Water Quality Resource Area (Vegetated Corridor), 100-Year Floodplain, and Willamette Greenway Overlay. The Kellogg Lake Pedestrian Bridge connects the northerly corner of the site to downtown Milwaukie and the TriMet light rail station on Main Street. The southerly corner of the property is across the street from the Trolley Trail, at the intersection of McLoughlin Boulevard and River Road.

Proposed Uses

The Robert Kronberg Nature Park Master Plan, adopted in 2015, includes four phases of implementation:

- Kellogg Creek pedestrian bridge – completed with TriMet Light Rail Orange Line

- Multi-use path - this proposal
- Soft-surface pathways and experiential nodes – future project by North Clackamas Parks and Recreation Department (NCPRD)
- Habitat preservation and restoration - future project by NCPRD

Proposed Construction

This proposal will complete the multi-use path, approximately 1036 feet in length. An at-grade hard-surface path will be constructed in the northern grass covered portion of the site, connecting to the existing Kellogg Creek pedestrian bridge. This segment will be 10 feet in width, constructed of permeable materials. The southern portion will be elevated, taking users through the tree canopy and providing views of Kellogg Lake and the natural vegetation below. The elevated path will connect to the existing sidewalk at the River Road/McLoughlin Boulevard intersection. This segment will be 12 feet in width, consisting of steel bridges with at-grade sections where transitions are necessary. Construction will minimally impact the environmental areas noted above. Measures such as restricting portions of the path width to 10 feet, vegetative mitigation, cut and fill balance, permeable materials, and maximum tree preservation are incorporated into the design to minimize impacts to these sensitive areas. Appendix B depicts the proposed alignment and environmental overlays.

Please find our code responses below, along with Appendices A through K containing plans and reference materials.

Sincerely,

Jennifer Garbely, PE
Assistant City Engineer
City of Milwaukie

APPLICABLE APPROVAL CRITERIA

Chapter 16.28 Erosion Control

In conjunction with this application, an erosion control permit is applied for through City of Milwaukie Engineering Department.

Chapter 16.32 Tree Cutting

In conjunction with this application, a tree cutting permit is applied for through City of Milwaukie Engineering Department.

Chapter 18.04 Flood Hazard Areas

The site lies partially within the FEMA 100-year floodplain and the Metro 1996 flood zone. The project does not involve construction of habitable buildings. Only Sections 18.04.150.A, B, and F apply to the proposed development.

Chapter 19.300 Base Zones

The base zone for this site is Open Space (OS), which is categorized as a Downtown Zone. The proposed project is a permitted use in the Institutional category in Table 19.304.2.

Chapter 19.400 Overlay Zones and Special Areas

Willamette Greenway (19.401) – the site lies within the Willamette Greenway, but is exempt from the criteria.

Natural Resources (19.402) – Type II includes Water Quality Resource/ Vegetated Corridor and Habitat Conservation Area.

Chapter 19.500 Supplementary Development Regulations

No accessory structures are proposed; therefore, this section does not apply.

Chapter 19.600 Off-street Parking and Loading

The proposed development does not include addition or increase of floor area, and no parking area is proposed. Therefore, this section does not apply.

Chapter 19.700 Public Facility Improvements

Although the proposed development of a path is not specifically exempted in this Chapter, by nature of the project, no vehicular trips will be generated and no impacts to the vehicular transportation system have been identified. Therefore, this section does not apply.

APPROVAL CRITERIA RESPONSES

Chapter 16.28 Erosion Control

16.28.020 Erosion Control Permit and Erosion Control Plans—Applicability—Conformance

A. Definitions.

“Erosion control permit” means the official approval issued by the City that demonstrates compliance with this chapter for activities described in the application form, erosion control plan, and related materials submitted pursuant to this chapter.

“Erosion control plan” means all documents, maps, plans and other information specified in Section 16.28.030 and submitted in association with an application for an erosion control permit.

B. An erosion control plan that meets the requirements of Section 16.28.030 is required prior to any approval of an erosion control permit.

C. An erosion control permit is required as follows:

1. Prior to placement of fill, site clearing, or land disturbances, including but not limited to grubbing, clearing or removal of ground vegetation, grading, excavation, or other activities, any of which results in the disturbance or exposure of soils exceeding 500 square feet.
2. For disturbed areas or exposed soils less than 500 square feet, where the City has determined that site conditions may result in visible and measurable erosion and where the City has provided written notice of the requirement to obtain an erosion control permit to the property owner. Upon notice by the City, all work shall cease pending approval of an erosion control permit and installation of approved erosion control measures.
3. For any lot that includes natural resources regulated by Milwaukie Zoning Ordinance Section 19.402 Natural Resources, an erosion control permit shall be required prior to placement of fill, site clearing, or land disturbances, including but not limited to grubbing, clearing or removal of ground vegetation, grading, excavation, or other activities, any of which has the potential for, or results in visible and measurable erosion, regardless of the area of disturbance.

D. An erosion control permit shall not be issued for activities on lots that include natural resources regulated by Section 19.402, where the site activity has not been authorized, or is not exempt under the provisions of Milwaukie Zoning Ordinance Section 19.402 Natural Resources as determined by the Planning Director. This provision does not apply where the erosion control permit is associated with correction of a violation of the City Code or as necessary for public safety, or the protection of property or water quality.

E. Timing

Approval of the erosion control permit is required prior to the following, whichever comes first:

1. Issuance of grading permits, building permits, and approval of construction plans for subdivision; or
 2. Placement of fill, site clearing, land disturbances, including but not limited to grubbing, clearing or removal of ground vegetation, grading, excavation, or other activities, any of which disturbs or exposes soil.
- F. Erosion control measures set forth in any approved erosion control plan shall be implemented and maintained on the site until the date set forth in the plan, or the amended date as necessary for the establishment of final landscaping. The City may allow for the removal of erosion control measures at an earlier date if erosion control is assured by established landscaping.

Response: Complies as Proposed. Applicant will obtain an erosion control permit prior to any land disturbance. Erosion control plans are included in the Construction Plan Set attached as Exhibit B.

Chapter 18.04 Flood Hazard Areas

18.04.040 Applicability

A. This chapter shall apply to all special flood hazard areas and all flood management areas within the jurisdiction of the City.

Response: Partially Applicable. The project does not involve construction of habitable buildings. Only Sections 18.04.150.A, B, and F apply to the proposed development.

18.04.150 General Standards

In all special flood hazard and all flood management areas the following standards are required:

A. Anchoring

1. All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.
2. All manufactured homes shall be anchored to resist flotation, collapse, or lateral movement to the structure, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, over-the-top and frame ties to ground anchors (reference FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques).

Response: Complies as Proposed. The elevated structures have been designed per the *AASHTO LRFD Bridge Design Specifications* and the *LRFD Guide Specifications for the Design of Pedestrian Bridges* to resist flotation, collapse, and lateral movement. The structural plan sheets, stamped by a registered Structural Engineer, are a part of the Construction Plan set found in Appendix C.

B. Construction Materials and Methods

1. All new construction and substantial improvements shall be constructed with materials and utilize equipment resistant to flood damage.
2. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.
3. Electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to

prevent water from entering or accumulating within the components during conditions of flooding.

Response: Complies as Proposed. The illumination plan sheets, stamped by a registered Engineer, include requirements that electrical equipment conform to the relevant industry standards to ensure protection of the equipment. These plans are a part of the Construction Plan set found in Appendix C.

C. Utilities

Response: Not Applicable. The proposal is not for installation of water or sanitary sewer systems.

D. Subdivision Proposals

Response: Not Applicable. The proposal is not for a subdivision.

E. Review of Building Permits

Where elevation data are not available, applications for building permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs of past flooding, etc., where available. Failure to elevate at least two (2) feet above grade in these zones may result in higher insurance rates.

Response: Not Applicable. The proposal is not for a building.

F. Balanced Cut and Fill

The displacement of flood storage area by the placement of fill or structures (including building foundations) shall conform to the following standards for balanced cut and fill:

1. The placement of fill or structures that displaces ten (10) cubic yards or less of flood storage area is exempt from the requirements of subsection 2 below.

Response: Not Applicable. The project will require more than 10 CY of fill within the floodplain; therefore, the criterion for exemption is not met.

2. The placement of fill or structures that displaces more than ten (10) cubic yards of flood storage area shall comply with the following standards:

- a. No net fill in any floodplain is allowed.
- b. All fill placed in a floodplain shall be balanced with at least an equal amount of soil material removal.
- c. Any excavation below bankful stage shall not count toward compensating for fill.
- d. Excavation to balance a fill shall be located on the same parcel as the fill unless it is not reasonable or practicable to do so. In such cases, the excavation may be located in the same drainage basin and as close as possible to the fill site subject to the following:
 - (1) The proposed excavation and fill will not increase flood impacts for surrounding properties as determined through hydrologic and hydraulic analysis;
 - (2) The proposed excavation is authorized under applicable municipal code provisions including Section 19.402 Natural Resources; and
 - (3) Measures to ensure the continued protection and preservation of the excavated area for providing balanced cut and fill shall be approved by the City.

- e. Temporary fills permitted during construction shall be removed at the end of construction.
- f. New culverts, stream crossings, and transportation projects shall be designed as balanced cut and fill projects or designed not to significantly raise the design flood elevation. Such projects shall be designed to minimize the area of fill in flood management areas and to minimize erosive velocities. Stream crossings shall be as close to perpendicular to the stream as practicable. Bridges shall be used instead of culverts wherever practicable.
- g. Excavation and fill required for the construction of detention facilities or structures, and other facilities, shall be designed to reduce or mitigate flood impacts and improve water quality. Levees shall not be used to create vacant buildable lands.

Response: Complies as Proposed. Construction of the project necessitates minor areas of fill within the floodplain. Grading will be accomplished to create an equivalent amount of cutting to mitigate for total volume of storage lost due to the fill. All balancing of cut and fill will be located on the subject parcel. The cut and fill areas are depicted on the diagram in Appendix D.

G. Crawlspace Construction

Response: Not applicable. The project does not involve construction of habitable buildings.

Chapter 19.300 Base Zones

19.304.2 Uses

A. Permitted Uses

Uses allowed in the downtown zones are listed in Table 19.304.2 with a "P." These uses are allowed if they comply with the development and design standards, any applicable design guidelines, and other regulations of this title.

Response: Applicable. The proposed development is an enhancement to an existing park, which is permitted in the Open Space (OS) Downtown Zone.

19.304.4 Development Standards

In the downtown zones, the development standards in Table 19.304.4 apply.

Response: Not applicable. No habitable structures are proposed; therefore, development standards do not apply.

Chapter 19.400 Overlay Zones and Special Areas

19.401 Willamette Greenway Zone WG

19.401.4 Definitions

"Change of use" means making a different use of the land or water which requires construction; alterations of the land, river bed, bank, water, or other areas outside of existing buildings or structures; and which substantially alters or affects the land or water.

It does not include a change of use of a building or other structure that does not substantially alter or affect the land or water upon which it is situated. Landscaping, construction of driveways, modifications of existing structures, or the construction or placement of such subsidiary structures or facilities as are usual and necessary to the use and enjoyment of existing improvements (such as swing sets and patios), the improvement of existing paved recreational trails, or the construction of new low-impact pathways within parks shall not be considered a change of use.

“Intensification” means any change of use; or action which increases or expands the area or amount of an existing use or the level of activity, including remodeling the exterior of a structure if the remodeling substantially alters the appearance of the structure. Maintenance and repair usual and necessary for the continuance of an existing use is not an intensification of use.

Reasonable emergency procedures necessary for the safety or the protection of property are not an intensification of use. Residential use of lands within the WG Zone includes the practices and activities customarily related to the use and enjoyment of one’s home. Landscaping, construction of driveways, modifications of existing structures, or the construction or placement of such subsidiary structures or facilities as are usual and necessary to the use and enjoyment of existing improvements (such as swing sets and patios), the improvement of existing paved recreational trails, or the construction of new low-impact pathways within parks shall not be considered an intensification of use.

“Low-Impact Pathways” means public recreational trails or public walkways located a minimum of 150 ft from the top of Willamette riverbank and constructed of permeable material if at-grade, up to 12 ft in width.

19.401.5 Procedures

The following procedures shall govern the application of WG zones:

- A. In the WG Zone, all uses and their accessory uses are permitted subject to the provisions of Section 19.905, except as noted in Subsection 19.401.5.B and Subsection 19.401.5.D.
- B. Willamette Greenway review is not required for any of the activities listed below:
 - 1. Changes to the interior of a building or alterations of buildings or accessory structures that do not increase the size or alter the configuration of the building or accessory structure footprint;
 - 2. Normal maintenance and repair as necessary for an existing development;
 - 3. Removal of plants listed as nuisance species on the Milwaukie Native Plant List;
 - 4. Addition or modification of existing utility lines, wires, fixtures, equipment, circuits, appliances, and conductors by public or municipal utilities;
 - 5. Flood emergency procedures, and maintenance and repair of existing flood control facilities;
 - 6. Placement of signs, markers, aids, etc., by a public agency to serve the public;

7. Establishment of residential accessory uses, such as lawns, gardens, and play areas, subject to the vegetation buffer requirements of Subsection 19.401.8;
8. Ordinary maintenance and repair of existing buildings, structures, parking lots, or other site improvements;
9. Minor repairs or alterations to existing structures for which no building permit is required;
10. A change of use of a building or other structure that does not substantially alter or affect the land or water upon which it is situated;
11. Construction of driveways;
12. Reasonable emergency procedures as necessary for the safety or protection of property; and
13. Other activities similar to those listed in "1" through "12" above. Such Director determinations, including a finding of consistency with Goal 15, shall be made in accordance with Section 19.903.

C. The Oregon Department of Parks and Recreation shall be notified of a hearing on a conditional use in the WG Zone. The notice shall be sent via "certified mail, return receipt requested."

D. A greenway conditional use is required for all intensification or change of use, or alteration of the vegetation buffer area, or development, as defined in this section. Landscaping, construction of driveways, modifications of existing structures, or the construction or placement of such subsidiary structures or facilities as are usual and necessary to the use and enjoyment of existing improvements shall not be considered a change in use or intensification. Approval shall be granted only if the criteria in Subsection 19.401.6 are met.

Response: Not applicable. The proposal is for a public walkway located a minimum of 150 feet from the top of Willamette riverbank, with at-grade portions constructed of permeable material, and width not exceeding 12 feet.

19.402 Natural Resources NR

19.402.3 Applicability

A. The regulations in Section 19.402 apply to all properties that contain, or are within 100 ft of a WQR and/or HCA (including any locally significant Goal 5 wetlands or habitat areas identified by the City of Milwaukie) as shown on the Milwaukie Natural Resource Administrative Map (hereafter "NR Administrative Map").

Response: Applicable. The subject properties lie partially within the WQR and the HCA. Therefore, this Chapter applies.

K. Activities that are not exempt per Subsection 19.402.4, or prohibited per Subsection 19.402.5, are subject to the Type I, II, or III review process as outlined in Table 19.402.3.K

Response: Applicable. The proposed development is a special use and requires Type II review per Table 19.402.3.K.

19.402.4 Exempt Activities

A. Outright Exemptions

The following activities in WQRs or HCAs are exempt from the provisions of Section 19.402:

6. Removal of trees under any of the following circumstances:
 - a. The tree is a “downed tree” as defined in Section 19.201, the tree has been downed by natural causes, and no more than 150 sq ft of earth disturbance will occur in the process of removing the tree.
 - b. The tree is categorized as a nuisance species on the Milwaukie Native Plant List, no more than 3 such trees will be removed from 1 property during any 12-month period, and no more than 150 sq ft of earth disturbance will occur in the process of removing the tree(s).
 - c. The tree presents an emergency situation with immediate danger to persons or property, as described in Subsection 19.402.4.A.3. Emergency situations may include, but are not limited to, situations in which a tree or portion of a tree has been compromised and has damaged, or is damaging, structures or utilities on private or public property, or where a tree or portion of a tree is prohibiting safe passage in the public right-of-way. Examples are trees that have fallen into or against a house or other occupied building, or trees downed across power lines or roadways. This exemption is limited to removal of the tree or portion of the tree as necessary to eliminate the hazard. Any damage or impacts to the designated natural resource shall be repaired after the emergency has been resolved.
 - d. Removal of the tree is in accordance with an approved natural resource management plan per Subsection 19.402.10.
 - e. Major pruning of trees within 10 ft of existing structures.

17. Establishment and maintenance of trails in accordance with the following standards:
 - a. Trails shall be confined to a single ownership or within a public trail easement.
 - b. Trails shall be no wider than 30 in. Where trails include stairs, stair width shall not exceed 50 in and trail grade shall not exceed 20%, except for the portion of the trail containing stairs.
 - c. Trails shall be unpaved and constructed with nonhazardous, pervious materials.
 - d. Trails shall be located at least 15 ft from the top of bank of all water bodies.
 - e. Plants adjacent to trails may be trimmed, but trimming clearances shall not exceed a height of 8 ft and a width of 6 ft.
 - f. Native trees of larger than 6-in diameter, and native shrubs or conifers larger than 5 ft tall, shall not be removed.

***Response:* Not Applicable. The walkway will exceed 30 inches in width and will be paved. Therefore, the proposal does not meet the criteria for exemption from this Chapter.**

B. Limited Exemptions Within HCAs

The following activities within HCAs are exempt from the provisions of Section 19.402, except that a construction management plan is required, according to the provisions of Subsection 19.402.9, where the activity disturbs a total of more than 150 sq ft:

1. The alteration and/or total replacement of existing structures, provided that both of the following standards are met:
 - a. The alteration and/or replacement shall not intrude more than 500 sq ft into the HCA, beyond the area defined as the building footprint as of September 15, 2011, the effective date of Ordinance #2036.
 - b. The alteration and/or replacement shall not result in increased direct stormwater discharges to a WQR.
2. Minor encroachments, not to exceed 500 sq ft for residential zones or 150 sq ft in nonresidential zones, for new features such as accessory buildings, patios, walkways, or retaining walls.
3. Temporary and minor clearing, excavation, or other disturbances, not to exceed 150 sq ft, for the purpose of: site investigations or preparation of soil profiles; installation of underground utility facilities or other infrastructure; routine repair and maintenance and/or alteration of existing utility facilities, access, streets, driveways, and parking improvements; or similar activities, provided that such disturbed areas are restored to their original condition when the activity is complete.
4. Low-impact outdoor recreation facilities for public use—including, but not limited to, multiuse paths, accessways, trails, picnic areas, or interpretive and educational displays and overlooks that include benches and outdoor furniture—provided that such facilities contain no more than 500 sq ft of new impervious surface. Any trails shall have a maximum width of 5 ft and shall be constructed using nonhazardous, pervious materials.
5. Facilities that infiltrate stormwater on the site, including the associated piping, so long as the forest canopy and the areas within the driplines of the trees are not disturbed. Such facilities may include, but are not limited to, vegetated swales, rain gardens, vegetated filter strips, and vegetated infiltration basins. Native or nonnative vegetation may be planted in these facilities, provided that none of the plantings are identified as a nuisance species on the Milwaukee Native Plant List.

Response: Not Applicable. The walkway will exceed 500 sf of new impervious area and 5 feet in width, and paved with impervious materials. Therefore, the proposal does not meet the criteria for limited exemption from this Chapter.

19.402.6 Activities Requiring Type I Review

Within either WQRs or HCAs, the following activities and items are subject to Type I review per Section 19.1004:

A. Limited Tree Removal

1. The Planning Director may approve an application for limited tree removal or major pruning within WQRs and HCAs, except where exempted by Subsection 19.402.6.A.2, under any of the following circumstances:
 - a. The tree removal is necessary to eliminate a hazardous, nonemergency situation, as determined by the Planning Director. A situation may be deemed hazardous if a tree, or portion of a tree, has undergone a recent change in health or condition in a manner that may pose a danger to people, to structures on private property, to public or private utilities, or to travel on private property or in the public right-of-way. Examples of imminent hazards may include, but are not

limited to, trees that are broken, split, cracked, uprooted, or otherwise in danger of collapse. Approval shall be limited to removal of the tree, or portion of the tree, as necessary to eliminate the hazard.

b. The tree is dead, diseased, or dying and cannot be saved, as determined and documented in a report by a certified arborist.

c. The proposal would remove more than 3 trees during any 12-month period that are categorized as nuisance species on the Milwaukie Native Plant List.

d. The tree is a downed tree, but more than 150 sq ft of earth disturbance is necessary to remove it.

e. The tree is a nuisance species, but more than 150 sq ft of earth disturbance is necessary to remove it.

f. The tree is not categorized as either a nuisance or native species on the Milwaukie Native Plant List and is not located in a WQR categorized as Class A ("Good"), according to Table 19.402.11.C, provided that no more than 3 such trees will be removed during any 12-month period.

g. For major pruning, as defined in Section 19.201, a certified arborist has determined, and documented in a report, that the tree will survive the proposed pruning.

2. The provisions of Subsection 19.402.6.A.1 do not apply to tree removal proposed in association with development or other activities regulated by Section 19.402, for which other approval criteria and mitigation standards may apply.

3. The Planning Director shall require the application to comply with all of the following standards:

a. A construction management plan shall be prepared in accordance with Subsection 19.402.9. When earth disturbance is necessary for the approved removal or pruning, all open soil areas that result from the disturbance shall be replanted and/or protected from erosion.

b. All pruning and/or tree removal shall be done in accordance with the standards of the International Society of Arboriculture (ISA).

c. Any tree that is removed in accordance with Subsection 19.402.6.A shall be replaced with a new tree, of at least ½-in caliper or at least 6-ft overall height after planting. An exception to this requirement may be granted if the applicant demonstrates that a replacement tree has already been planted, in anticipation of tree removal, or if the existing site conditions otherwise preclude tree replacement (due to existing dense canopy coverage or other ecological reasons).

d. The replacement tree(s) shall be located in the general vicinity of the removed tree(s), somewhere within the designated natural resource (WQR or HCA). The replacement tree(s) does not have to be a native species; but, in accordance with Subsection 19.402.5.C, the replacement tree(s) shall not be categorized as a nuisance species on the Milwaukie Native Plant list. The

property owner shall ensure that the replacement tree(s) survives at least 2 years beyond the date of its planting.

Response: Not Applicable. Per Section 19.402.6.A.2, the proposed removal of trees is in association with development of a multi-use walkway which is regulated by 19.402. Tree removal required for the proposed development will be reviewed in conjunction with the walkway. Therefore, criteria for Type I Review do not apply.

19.402.7 Activities Requiring Type II Review

Within either WQRs or HCAs, the following activities and items are subject to Type II review and approval by the Planning Director per Section 19.1005, unless they are otherwise exempt or permitted as a Type I activity.

A. Special Uses

If not listed as exempt in Subsection 19.402.4, and not able to meet the nondiscretionary standards for HCAs as established in Subsection 19.402.11.D, any special use activity listed below shall be subject to Type II review if the proposal complies with the applicable standards provided in Subsection 19.402.11.E:

1. Improvement or construction of public or private utility facilities.
2. New stormwater facilities.
3. Walkways and bike paths.
4. Stormwater management plans.

If the proposed special use activity is not in compliance with the applicable standards in Subsection 19.402.11.E, it shall be subject to Type III review and the general discretionary review criteria provided in Subsection 19.402.12.

Response: Applicable. The proposal is for a walkway/bike path that lies partially within the WQR. The proposed activity meets the criteria of 19.402.11.E.4; therefore, Type II Review applies.

19.402.8 Activities Requiring Type III Review

Within either WQRs or HCAs, the following activities are subject to Type III review and approval by the Planning Commission under Section 19.1006, unless they are otherwise exempt or permitted as a Type I or II activity.

A. The activities listed below shall be subject to the general discretionary review criteria provided in Subsection 19.402.12:

1. Any activity allowed in the base zone that is not otherwise exempt or permitted as a Type I or II activity.
2. Within HCAs, development that is not in compliance with the nondiscretionary standards provided in Subsection 19.402.11.D.
3. New roads to provide access to protected water features, necessary ingress and egress across WQRs, or the widening of an existing road.
4. Improvement of existing public utility facilities that cannot meet the applicable standards of Subsection 19.402.11.E.
5. New stormwater facilities that cannot meet the applicable standards of Subsection 19.402.11.E.

6. New public or private utility facility construction that cannot meet the applicable standards of Subsection 19.402.11.E.
7. Walkways and bike paths that are not exempt per Subsection 19.402.4 or cannot meet the applicable standards of Subsection 19.402.11.E.
8. Tree removal in excess of that permitted under Subsections 19.402.4 or 19.402.6.
9. Landscaping and maintenance of existing landscaping that would increase impervious area by more than 150 sq ft.
10. Routine repair and maintenance, alteration, and/or total replacement of existing legal buildings or structures that increases the existing disturbance area by more than 150 sq ft within the WQR.
11. Routine repair and maintenance, alteration, and/or total replacement of existing utility facilities, accesses, streets, driveways, and parking improvements that would disturb more than 150 sq ft within the WQR.

Response: Not Applicable. The proposed activity is permitted under Type II Review.

19.402.9 Construction Management Plans

- A. Construction management plans are not subject to Type I review per Section 19.1004 but shall be reviewed in similar fashion to an erosion control permit (MMC Chapter 16.28).
- B. Construction management plans shall provide the following information:
 1. Description of work to be done.
 2. Scaled site plan showing a demarcation of WQRs and HCAs and the location of excavation areas for building foundations, utilities, stormwater facilities, etc.
 3. Location of site access and egress that construction equipment will use.
 4. Equipment and material staging and stockpile areas.
 5. Erosion and sediment control measures.
 6. Measures to protect trees and other vegetation located within the potentially affected WQR and/or HCA. A root protection zone shall be established around each tree in the WQR or HCA that is adjacent to any approved work area. The root protection zone shall extend from the trunk to the outer edge of the tree's canopy, or as close to the outer edge of the canopy as is practicable for the approved project. The perimeter of the root protection zone shall be flagged, fenced, or otherwise marked and shall remain undisturbed. Material storage and construction access is prohibited within the perimeter. The root protection zone shall be maintained until construction is complete.

When required for a property that does not include a designated natural resource, the construction management plan shall show the protective measures that will be established on the applicant's property.

Response: Complies as proposed. Select pages from the construction plan set are included in Appendix C. The plan set, in particular Sheet TR01 Tree Protection and Sheets CV04, EC01, EC02, and EC03 for Grading and Erosion Control will serve as the construction management plan. This project seeks to provide a natural, forested experience for the user; therefore, tree protection efforts are a priority. Erosion control measures, staging and stockpiling, and construction entrances are addressed on the plans, and will receive further review and inspection under the City's required Erosion

Control permit process. The Erosion Control permit application have received initial review and preliminary approval by Public Works.

19.402.11 Development Standards

A. Protection of Natural Resources During Site Development

During development of any site containing a designated natural resource, the following standards shall apply:

1. Work areas shall be marked to reduce potential damage to the WQR and/or HCA.
2. Trees in WQRs or HCAs shall not be used as anchors for stabilizing construction equipment.
3. Native soils disturbed during development shall be conserved on the property.
4. An erosion and sediment control plan is required and shall be prepared in compliance with requirements set forth in the City's Public Works Standards.
5. Site preparation and construction practices shall be followed that prevent drainage of hazardous materials or erosion, pollution, or sedimentation to any WQR adjacent to the project area.
6. Stormwater flows that result from proposed development within and to natural drainage courses shall not exceed predevelopment flows.
7. Prior to construction, the WQR and/or HCA that is to remain undeveloped shall be flagged, fenced, or otherwise marked and shall remain undisturbed. Such markings shall be maintained until construction is complete.
8. The construction phase of the development shall be done in such a manner as to safeguard the resource portions of the site that have not been approved for development.
9. Where practicable, lights shall be placed so that they do not shine directly into any WQR and/or HCA location. The type, size, and intensity of lighting shall be selected so that impacts to habitat functions are minimized.
10. All work on the property shall conform to a construction management plan prepared according to Subsection 19.402.9.

***Response:* Complies as proposed. The project has been designed to be constructed with protection of natural resources in mind, as demonstrated elsewhere in this application. A stormwater report with calculations demonstrating minimal impact of stormwater runoff is found in Appendix E. The lighting plan, included as Sheets IL1 – IL5 in the Construction Plan set Appendix C, and the accompanying Lighting Analysis in Appendix F addresses Item 9. Protection of sensitive areas is further addressed on the Erosion Control sheets within the Construction Plan set, and in the construction specifications.**

B. General Standards for Required Mitigation

Where mitigation is required by Section 19.402 for disturbance to WQRs and/or HCAs, the following general standards shall apply:

1. Disturbance
 - a. Designated natural resources that are affected by temporary disturbances shall be restored, and those affected by permanent disturbances shall be mitigated, in

accordance with the standards provided in Subsection 19.402.11.C for WQRs and Subsection 19.402.11.D.2 for HCAs, as applicable.

b. Landscape plantings are not considered to be disturbances, except for those plantings that are part of a non-exempt stormwater facility; e.g., raingarden or bioswale.

2. Required Plants

Unless specified elsewhere in Section 19.402, all trees, shrubs, and ground cover planted as mitigation shall be native plants, as identified on the Milwaukie Native Plant List. Applicants are encouraged to choose particular native species that are appropriately suited for the specific conditions of the planting site; e.g., shade, soil type, moisture, topography, etc.

3. Plant Size

Required mitigation trees shall average at least a ½-in caliper—measured at 6 in above the ground level for field-grown trees or above the soil line for container-grown trees—unless they are oak or madrone, which may be 1-gallon size. Required mitigation shrubs shall be at least 1-gallon size and 12 in high.

4. Plant Spacing

Trees shall be planted between 8 and 12 ft on center. Shrubs shall be planted between 4 and 5 ft on center or clustered in single-species groups of no more than 4 plants, with each cluster planted between 8 and 10 ft on center. When planting near existing trees, the dripline of the existing tree shall be the starting point for plant spacing measurements.

5. Plant Diversity

Shrubs shall consist of at least 2 different species. If 10 trees or more are planted, then no more than 50% of the trees shall be of the same genus.

6. Location of Mitigation Area

a. On-Site Mitigation

All mitigation vegetation shall be planted on the applicant's site within the designated natural resource that is disturbed, or in an area contiguous to the resource area; however, if the vegetation is planted outside of the resource area, the applicant shall preserve the contiguous planting area by executing a deed restriction such as a restrictive covenant.

b. Off-Site Mitigation

(1) For disturbances allowed within WQRs, off-site mitigation shall not be used to meet the mitigation requirements of Section 19.402.

(2) For disturbances allowed within HCAs, off-site mitigation vegetation may be planted within an area contiguous to the subject-property HCA, provided there is documentation that the applicant possesses legal authority to conduct and maintain the mitigation, such as having a sufficient ownership interest in the mitigation site. If the off-site mitigation is not within an HCA, the applicant shall document that the mitigation site will be protected after the monitoring period expires, such as through the use of a restrictive covenant.

7. Invasive Vegetation

Invasive nonnative or noxious vegetation shall be removed within the mitigation area prior to planting, including, but not limited to, species identified as nuisance plants on the Milwaukie Native Plant List.

8. Ground Cover

Bare or open soil areas remaining after the required tree and shrub plantings shall be planted or seeded to 100% surface coverage with grasses or other ground cover species identified as native on the Milwaukie Native Plant List. Revegetation shall occur during the next planting season following the site disturbance.

9. Tree and Shrub Survival

A minimum of 80% of the trees and shrubs planted shall remain alive on the second anniversary of the date that the mitigation planting is completed.

a. Required Practices

To enhance survival of the mitigation plantings, the following practices are required:

(1) Mulch new plantings to a minimum of 3-in depth and 18-in diameter to retain moisture and discourage weed growth.

(2) Remove or control nonnative or noxious vegetation throughout the maintenance period.

b. Recommended Practices

To enhance survival of tree replacement and vegetation plantings, the following practices are recommended:

(1) Plant bare root trees between December 1 and April 15; plant potted plants between October 15 and April 30.

(2) Use plant sleeves or fencing to protect trees and shrubs against wildlife browsing and the resulting damage to plants.

(3) Water new plantings at a rate of 1 in per week between June 15 and October 15 for the first 2 years following planting.

c. Monitoring and Reporting

Monitoring of the mitigation site is the ongoing responsibility of the property owner.

Plants that die shall be replaced in kind as needed to ensure the minimum 80% survival rate. The Planning Director may require a maintenance bond to cover the continued health and survival of all plantings. A maintenance bond shall not be required for land use applications related to owner-occupied single-family residential projects. An annual report on the survival rate of all plantings shall be submitted for 2 years.

10. Light Impacts

Where practicable, lights shall be placed so that they do not shine directly into any WQR and/or HCA location. The type, size, and intensity of lighting shall be selected so that impacts to habitat functions are minimized.

Response: Complies as Proposed. As demonstrated in Appendix G, the mitigation plantings will be in conformance with this section. Regarding subsection B.6.a; the plantings are proposed to be located outside of the disturbed natural resource. Much of the disturbed area is already heavily forested. Focusing the plants on the barren areas adjacent to the path will create a more pleasant user experience, buffer the users from vehicular traffic noise, and expand the forested area on the site. Therefore, a greater benefit will be realized by mitigating outside, but adjacent to, the disturbed natural area. A more detailed mitigation planting plan will be submitted with final construction plans. The lighting plan, included as Sheets IL1 – IL5 in the set, demonstrate compliance with this standard. The plantings will be monitored and maintained in accordance with the criteria.

C. Mitigation Requirements for Disturbance within WQRs

1. The requirements for mitigation vary depending on the existing condition of the WQR on the project site at the time of application. The existing condition of the WQR shall be assessed in accordance with the categories established in Table 19.402.11.C.

Response: Applicable. The WQR is classified as B “Marginal, as discussed below in 19.402.11.C.2.

2. When disturbance within a WQR is approved according to the standards of Section 19.402, the disturbance shall be mitigated according to the requirements outlined in Table 19.402.11.C and the standards established in Subsection 19.402.11.B.

Table 19.402.11.C Mitigation Requirements for WQRs	
Existing Condition of WQR	Requirements
Class A (“Good”) Extent and character of existing vegetation provides good conditions for water quality and wildlife habitat	
Combination of trees, shrubs, and ground cover are 80% present, with more than 50% tree canopy coverage in vegetated corridor.	<ul style="list-style-type: none"> · Submit a plan for mitigating water quality impacts related to the development, including: sediments, temperature, nutrients, or any other condition that may have caused the protected water feature to be listed on DEQ’s 303(d) list. · Inventory and remove debris and noxious materials.
Class B (“Marginal”) Extent and character of existing vegetation provides marginal conditions for water quality and wildlife habitat	
Combination of trees, shrubs, and ground cover are 80% present, with 25-50% canopy coverage in vegetated corridor.	<ul style="list-style-type: none"> · Restore and mitigate disturbed areas with native species from the Milwaukie Native Plant List, using a City-approved plan developed to represent the vegetative composition that would naturally occur on the site. · Inventory and remove debris and noxious materials.
Class C (“Poor”) Extent and character of existing vegetation provides poor conditions for water quality and wildlife habitat	
Combination of trees, shrubs, and ground cover are less than 80% present and/or less than 25% canopy coverage in vegetated corridor.	<ul style="list-style-type: none"> · Restore and mitigate disturbed areas with native species from the Milwaukie Native Plant List, using a City-approved plan developed to represent the vegetative composition that would naturally occur on the site. · Plant and/or seed all bare areas to provide 100% surface coverage. · Inventory and remove debris and noxious materials.

Response: Complies as Proposed. To determine the Class of the WQR, measurements were made using the Measurement tool in the City's mapping system, with WQR aerial (tree canopy) layers active. Existing tree, shrub, and ground coverage exceeds 80%, and existing tree canopy is between 25% and 50%. Therefore, the WQR on the subject site is classified as B "Marginal." Mitigation in the WQR is guided only by the general requirements in Table 19.402.11.C. Therefore, mitigation within the WQR will be accomplished using the HCA mitigation standards. WQR disturbance area of 5035 sf (Appendix H) results in planting of 50 trees and 252 shrubs. The Mitigation Planting Plan found in Appendix G demonstrates restoration and mitigation per the Milwaukie Native Plant List.

D. Nondiscretionary Standards for HCAs

The following nondiscretionary standards may be applied to proposals that are subject to Type I review and located within HCAs only. These standards do not apply to activities proposed within WQRs.

1. Disturbance Area Limitations in HCAs

To avoid or minimize impacts to HCAs, activities that are not otherwise exempt from the requirements of Section 19.402, and that would disturb an HCA, are subject to the following disturbance area limitations, as applicable:

a. Detached and Attached Single-Family Residential Uses

The amount of disturbance allowed within an HCA for detached and attached single-family residential uses, including any related public facilities as required by Section 19.700 Public Facility Improvements, shall be determined by subtracting the area of the lot or parcel outside of the HCA from the maximum disturbance area calculated per Figure 19.402.11.D.1.a. Such disturbance shall be subject to the mitigation requirements described in Subsection 19.402.11.D.2.

b. All Other Uses

A maximum net disturbance area of 10% of the HCA on the site is allowed by right, subject to the mitigation requirements described in Subsection 19.402.11.D.2.

c. Temporary and Permanent Disturbances

All disturbances within an HCA that occur during construction or other development activities, whether temporary or permanent disturbances, count equally for the purposes of calculating and tracking the maximum disturbance area allowed for a particular site. Disturbance resulting from any activity deemed exempt per Subsection 19.402.4 shall not be counted against the amount of disturbance allowed by Subsection 19.402.

d. Disturbance in Excess of that Allowed by Section 19.402

In accordance with Subsection 19.402.8, proposed development that would disturb more HCA than allowed by Subsections 19.402.11.D.1.a and b shall be subject to the Type III review process and general discretionary review criteria, as outlined in Subsection 19.402.12.C.1.

e. Disturbance Changes HCA Status

When disturbances within HCAs are allowed, in accordance with the applicable provisions of Section 19.402, the City shall remove the HCA designation from such disturbance areas on the NR Administrative Map, as provided in Subsection 19.402.15.B. In the case of a request to develop within an HCA on a property where a prior development request was subject to the disturbance area limitations of Subsection 19.402.11.D.1, the calculation of the new amount of disturbance area allowed within

the HCA on the property shall be based on the mapped location of the HCA at the time of the request, notwithstanding any previous calculation of allowed disturbance area.

Response: Complies as proposed. The total disturbance within the HCA does not exceed 10%, as demonstrated in the HCA Disturbance Measurements found in Appendix I. Therefore, the HCA disturbance is allowed outright, subject to the mitigation requirements of 19.402.11.D.2. These requirements are reflected in the preliminary Mitigation Planting Plan found in Appendix G.

2. Mitigation Requirements for Disturbance in HCAs

To achieve the goal of reestablishing forested canopy that meets the ecological values and functions described in Subsection 19.402.1, when development intrudes into an HCA, tree replacement and vegetation planting are required according to the following standards, unless the planting is also subject to wetlands mitigation requirements imposed by state and federal law.

These mitigation options apply to tree removal and/or site disturbance in conjunction with development activities that are otherwise permitted by Section 19.402. They do not apply to situations in which tree removal is exempt per Subsection 19.402.4 or approvable through Type I review.

An applicant shall meet the requirement of Mitigation Option 1 or 2, whichever results in more tree plantings; except that where the disturbance area is 1 acre or more, the applicant shall comply with Mitigation Option 2.

a. Mitigation Option 1

This mitigation requirement is calculated based on the number and size of trees that are removed from the site. Trees that are removed from the site shall be replaced as shown in Table 19.402.11.D.2.a. Conifers shall be replaced with conifers. Bare ground shall be planted or seeded with native grasses or herbs. Nonnative sterile wheat grass may also be planted or seeded, in equal or lesser proportion to the native grasses or herbs.

Size of Tree to be Removed (inches in diameter)	Number of Trees and Shrubs to be Planted
6 to 12	2 trees and 3 shrubs
13 to 18	3 trees and 6 shrubs
19 to 24	5 trees and 12 shrubs
25 to 30	7 trees and 18 shrubs
over 30	10 trees and 30 shrubs

b. Mitigation Option 2

This mitigation requirement is calculated based on the size of the disturbance area within an HCA. Native trees and shrubs are required to be planted at a rate of 5 trees and 25 shrubs per 500 sq ft of disturbance area. This is calculated by dividing the number of square feet of disturbance area by 500, multiplying that result times 5 trees and 25 shrubs, and rounding all fractions to the nearest whole number of trees and shrubs. For example, if there will be 330 sq ft of disturbance area, then 330 divided by 500 equals 0.66, and 0.66 times 5 equals 3.3, so 3 trees must be planted, and 0.66 times 25 equals 16.5, so 17 shrubs must be planted. Bare ground shall be planted or seeded

with native grasses or herbs. Nonnative sterile wheat grass may also be planted or seeded, in equal or lesser proportion to the native grasses or herbs.

c. Adjustments to HCA Mitigation Requirements

Proposals to vary the number or size of trees and shrubs required as mitigation in Subsection 19.402.11.D.2 shall be subject to the Type II review process and the requirements of Subsection 19.402.12.C.2.

Response: Complies as proposed. Per Option 1, 5 trees from 6" to 12", and 2 trees from 13" to 18" will be removed. One 6" tree and one 16" tree are on the nuisance list; therefore, mitigation is not required. This results in mitigation of 11 trees and 18 shrubs. Per Option 2, the project will result in 3164 sf of disturbance in the HCA (Appendix I). This calculation will require 32 trees and 158 shrubs to be planted. Option 2 yields a higher mitigation rate; therefore, per 19.402.11.D.2, mitigation shall include planting of at least 32 trees and 158 shrubs. Please note that the calculations are based on the subject property and exclude the area of ODOT public right-of-way, which is exempt from these criteria.

E. Standards for Special Uses

Unless they are exempt per Subsection 19.402.4, or do not meet the nondiscretionary standards for HCAs provided in 19.402.11.D, the special uses listed in Subsection 19.402.7.A are subject to Type II review if they comply with the applicable standards in Subsection 19.402.11.E. Otherwise, the special uses listed in Subsection 19.402.7.A are subject to Type III review and the general discretionary review criteria provided in Subsection 19.402.12.

1. General Standards for Special Uses

Except for stormwater management plans, all nonexempt special uses listed in Subsections 19.402.11.E.2 through 5 that do not meet the nondiscretionary standards for HCAs provided in Subsection 19.402.11.D shall comply with the specific applicable standards in Subsection 19.402.11.E, as well as with the following general standards:

a. In addition to a construction management plan prepared according to the standards of Subsection 19.402.9; a mitigation plan shall be submitted per Subsection 19.402.11.D.2 or 19.402.12.C.2 for HCAs, as applicable, or per Subsection 19.402.11.C for WQRs. WQRs and HCAs shall be restored and maintained in accordance with the approved mitigation plan.

b. Existing vegetation outside of approved work areas shall be protected and left in place. Work areas shall be carefully located and marked to reduce potential damage to WQRs and HCAs. Trees in WQRs or HCAs shall not be used as anchors for stabilizing construction equipment.

c. Where existing vegetation has been removed, or the original land contours disturbed, the site shall be revegetated and the vegetation shall be established as soon as practicable. Interim erosion control measures, such as mulching, shall be used to avoid erosion on bare areas.

Response: Complies as proposed. Vegetation will be mitigated per the Mitigation Plan found in Appendix G.

4. Walkways and Bike Paths

In addition to the requirements of Subsection 19.402.11.E.1; walkways and bike paths that are not exempted by Subsection 19.402.4, or that do not meet the nondiscretionary standards for HCAs provided in Subsection 19.402.11.D, and that are proposed to be constructed or improved with gravel, permeable pavement, pavers, wood, or other materials, shall comply with the following standards:

- a. Walkways and bike paths within WQRs or HCAs shall not exceed a 12-ft width.
- b. If the proposed walkway or bike path will be located within a WQR and will be paved, then, for the purposes of evaluating the proposed project, the vegetated corridor shall be widened by the width of the walkway or bike path.
- c. The walkway or bike path shall be designed to avoid WQRs and HCAs, to the greatest extent practicable, and shall be constructed so as to minimize disturbance to existing vegetation and slope stability.
- d. The walkway or bike path shall be a minimum of 10 ft from the boundary of the protected water feature.
- e. Where practicable, any lights associated with the walkway or bike path shall be placed so that they do not shine directly into any WQR and/or HCA location. The type, size, and intensity of lighting shall be selected so that impacts to habitat functions are minimized.

Response: Complies as proposed. The proposed multi-use path will be limited to 12-foot width, and the at grade portions will be constructed of permeable materials. The alignment was selected from several alternatives to provide the best user experience with the least disturbance to sensitive areas. The lighting plan, included in the Construction Plan set in Appendix C, was designed to minimize impact to habitat functions.

19.508 Downtown Site and Building Design Standards

This section contains building design standards to be used with Type I and II downtown design reviews, as established in Section 19.907, and to provide additional direction when the Downtown Design Guidelines are applied through a Type III downtown design review process.

Response: Not Applicable. Per 19.907.2.A.9, improvements in a City park consistent with an approved master plan are exempt from Downtown Design Review, and therefore from 19.508. The proposed development conforms to the Robert Kronberg Nature Park Master Plan, 2015, and is therefore exempt from Downtown Design Review. A copy of the Master Plan can be found in Appendix J.

Chapter 19.600 Off-street Parking and Loading

Response: The proposal provides transportation alternatives to the motor vehicle. The development does not include addition or increase of floor area, and no parking area is proposed. Therefore, this section does not apply.

Chapter 19.700 Public Facility Improvements

Response: Although the proposed development of a walkway is not specifically exempted in this Chapter, by nature of the project, no vehicular trips will be generated and no impacts to the transportation system have been identified. Therefore, this section does not apply.

Chapter 19.900 Land Use Applications

19.906 Development Review

Response: Not Applicable. Per 19.906.2.B, proposals in the downtown zones are reviewed under a separate process. The proposed development is within the downtown zone of OS.

19.907 Downtown Design Review

Response: Not Applicable. Per 19.907.2.A.9, the proposed improvement to the City park is in conformance with the Robert Kronberg Nature Park Master Plan, 2015, and is therefore exempt from Downtown Design Review. A copy of the Master Plan can be found in Appendix J.

Chapter 19.1000 Review Procedures

19.1002 Preapplication Conference

19.1002.2 Applicability

- A. For Type I applications, a preapplication conference is optional if MMC Chapter 19.700 is not applicable to the proposal as determined by MMC Section 19.702.
- B. For Type II, III, IV, and V applications, and expedited annexations per Section 19.1104, a preapplication conference is required, with the following exceptions:
 - 1. The Planning Director may waive the preapplication conference requirement for proposals that are not complex or, for some other reason, would not benefit from a formal conference.
 - 2. A preapplication conference is not required for City-initiated Type IV or V applications.

Response: Applicable. The applicant held a pre-application meeting with City Planning staff. Notes from the meeting can be found in Appendix K.

19.1003 Application Submittal and Completeness Review

19.1003.2 Application Submittal Requirements

All application information must be sufficiently detailed and specific to the development being proposed to allow for adequate public review. The application submittal must include all of the items listed below for the City to accept the application and initiate completeness review.

If the application requires sign notice, a sign posting and sign posting affidavit will be required per Subsection 19.1001.6.C.1. If the application requires a public hearing, additional items may be required per Subsection 19.1001.6.D prior to the public hearing.

- A. Application form, including signature(s) of the property owner or public agency initiating the application.
- B. Deed, title report, or other proof of ownership.
- C. Detailed and comprehensive description of all existing and proposed uses and structures, including a summary of all information contained in any site plans. The description may need to include both a written and graphic component such as elevation drawings, 3-D models, and photo simulations, etc. For applications where the subjective aspects of the height and mass of the proposed development will be evaluated at a public hearing, temporary on-site "story pole" installations that simulate the proposed development, and photographic representations thereof, may be required at the time of application submittal.
- D. Detailed statement that demonstrates how the proposal meets all applicable approval criteria, zoning and land use regulations, and development standards.
- E. Site plan(s), preliminary plat, or final plat as applicable.
- F. All materials identified on the Submittal Requirements form, including the signature(s) of the applicant submitting the materials.
- G. Payment of all applicable land use application fee(s) and deposit(s), based on the fee schedule in effect on the date of application submittal.
- H. Copy of a valid preapplication conference report if one was required per Subsection 19.1002.2.

***Response:* Complies as Proposed. Signed application form and a complete descriptive narrative with appendices is included with this submittal. Title reports can be found in Appendix A. Planning Director has confirmed that application fees will be waived.**

19.1005 TYPE II REVIEW

Type II applications involve uses or development governed by subjective approval criteria and/or development standards that may require the exercise of limited discretion. Type II review provides for administrative review of an application by the Planning Director and includes notice to nearby property owners to allow for public comment prior to the decision. The process does not include a public hearing.

19.1005.1 Preapplication Conference

A preapplication conference is required for all Type II applications per Section 19.1002. The Planning Director may waive this requirement.

***Response:* Complies as Proposed. The applicant held a pre-application meeting with City Planning staff. Notes from the meeting can be found in Appendix K.**

19.1005.2 Type II Application Requirements

- A. Type II applications shall be made on forms provided by the Planning Director and shall include all of the information required by Subsection 19.1003.2.
- B. Type II applications are subject to completeness review per Subsection 19.1003.3.

Response: Complies as Proposed. Signed application form and a complete descriptive narrative with appendices is included with this submittal. Applicant acknowledges this proposal is subject to Completeness Review.

19.1005.3 Type II Public Notice

C. Sign Notice

No more than 7 days after the application has been deemed complete, notice of the application shall be posted on the subject property by the applicant and shall remain continuously posted until the decision is issued. Sign notice shall meet the requirements of Subsection 19.1001.6.C.1.b.

Response: Applicant acknowledges this proposal will require posting of signs after deemed complete.

APPENDICES

Appendix A Title Reports

Appendix B Site Plan – Environmental Overlays

Appendix C Construction Plans – Excerpts

City staff can access the full construction plan set, latest version, at [Z:\Engineering\Capital Projects \(CIP and CMP\)\CIP-2017-D29 \(Robert Kronberg Multi-Use Path\)\Design\Plan Review\99.5% Submittal 11212018](Z:\Engineering\Capital Projects (CIP and CMP)\CIP-2017-D29 (Robert Kronberg Multi-Use Path)\Design\Plan Review\99.5% Submittal 11212018)

Appendix D Floodplain Cut/Fill Balance Diagram

Appendix E Stormwater Report

Stormwater Calculations

Appendix F Lighting Analysis

Appendix G Preliminary Mitigation Planting Plan

Preliminary Mitigation Plant List

Appendix H WQR Classification Measurement

WQR Disturbance Measurement

Appendix I HCA Disturbance Measurement

Appendix J Robert Kronberg Nature Park Master Plan, 2015

Appendix K Pre-Application Memo

Appendix A

Address Not Available

Ownership Information

Owner Name:

CITY OF MILWAUKIE

Mailing Address:

10722 SE MAIN ST MILWAUKIE, OR 97222

Property Description

County: Clackamas

Map / Tax Lot: 11E36CB/03000

Account Num: 00029908

Census:

Property ID: 00029908

Owner Occ.: No

Land Use: 100-

Subdivision:

Legal Description:

Section 36 Township 1S Range 1E Quarter CB TAX LOT 03000

Property Characteristics

Property Type: VACANT LAND

Building SF:

Pool: No

House Style:

Living Area SF:

Deck SF:

Year Built:

Square Feet:

Deck Desc:

Bedrooms:

1st Floor SF:

Patio SF:

Bathrooms:

2nd Floor SF:

Patio Desc:

Heat:

3rd Floor SF:

Foundation:

Cooling:

Attic SF:

Exterior:

Lot Size: 1,294

Bsmnt SF:

Ext. Finish:

Acres: 0.03

Fin Bsmt SF:

Interior:

Garage Type:

Garage SF:

Roof Style:

Fireplaces:

Bsmnt Type:

Roof Cover:

Assessment Information

Real Market Value: \$ 2,376

Taxes:

Land Value: \$ 2,376

Imp. Value: \$ 0

Total Assessed Value: \$ 1,549

Levy Code: 012262

M-5 Rate: 19.7781

Tax Year: 18-19

Previous Sale Information

Sale Amount: \$ 38,000

Sale Date: 12/01/1991

Document Num: 1992-014322

Transaction History

<u>Sale Date</u>	<u>Sale Amount</u>	<u>HPI</u> <u>Sale Amount</u>	<u>Document</u> <u>Type</u>	<u>Reception</u> <u>Num</u>	<u>Book/Page</u>
12/1/1991	\$ 38,000			1992-014322	/

*All information provided by ValueCheck, Inc is deemed reliable, but not guaranteed.
Accuracy of the information may vary by county.*

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11910 SE MCLOUGHLIN BLVD MILWAUKIE, OR 97222

Ownership Information

Owner Name:

CITY OF MILWAUKIE

Mailing Address:

10722 SE MAIN ST MILWAUKIE, OR 97222

Property Description

County: Clackamas

Map / Tax Lot: 11E36CB/03100

Account Num: 00029917

Census:

Property ID: 00029917

Owner Occ.: No

Land Use: 101-

Subdivision:

Legal Description:

Section 36 Township 1S Range 1E Quarter CB TAX LOT 03100

Property Characteristics

Property Type: SINGLE FAMILY

Building SF:

Pool: No

House Style:

Living Area SF:

Deck SF:

Year Built:

Square Feet:

Deck Desc:

Bedrooms:

1st Floor SF:

Patio SF:

Bathrooms:

2nd Floor SF:

Patio Desc:

Heat:

3rd Floor SF:

Foundation:

Cooling:

Attic SF:

Exterior:

Lot Size: 114,827

Bsmnt SF:

Ext. Finish:

Acres: 2.34

Fin Bsmt SF:

Interior:

Garage Type:

Garage SF:

Roof Style:

Fireplaces:

Bsmnt Type:

Roof Cover:

Assessment Information

Real Market Value: \$ 2,829,835

Taxes:

Land Value: \$ 448,575

Imp. Value: \$ 2,381,260

Total Assessed Value: \$ 1,845,052

Levy Code: 012262

M-5 Rate: 19.7781

Tax Year: 18-19

Previous Sale Information

Sale Amount: \$ 38,000

Sale Date: 12/01/1991

Document Num: 1992-014322

Transaction History

<u>Sale Date</u>	<u>Sale Amount</u>	<u>HPI Sale Amount</u>	<u>Document Type</u>	<u>Reception Num</u>	<u>Book/Page</u>
12/1/1991	\$ 38,000	\$ 157,700		1992-014322	/

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Accuracy of the information may vary by county.*

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Address Not Available

Ownership Information

Owner Name:

CITY OF MILWAUKIE

Mailing Address:

10722 SE MAIN ST MILWAUKIE, OR 97222

Property Description

County: Clackamas

Map / Tax Lot: 11E36CB/03300

Account Num: 00029926

Census:

Property ID: 00029926

Owner Occ.: No

Land Use: 100-

Subdivision: ROBERTSON

Legal Description:

25 ROBERTSON PT LTS 1 3 5&7 BLK 1

Property Characteristics

Property Type: VACANT LAND

Building SF:

Pool: No

House Style:

Living Area SF:

Deck SF:

Year Built:

Square Feet:

Deck Desc:

Bedrooms:

1st Floor SF:

Patio SF:

Bathrooms:

2nd Floor SF:

Patio Desc:

Heat:

3rd Floor SF:

Foundation:

Cooling:

Attic SF:

Exterior:

Lot Size: 22,898

Bsmnt SF:

Ext. Finish:

Acres: 0.53

Fin Bsmt SF:

Interior:

Garage Type:

Garage SF:

Roof Style:

Fireplaces:

Bsmnt Type:

Roof Cover:

Assessment Information

Real Market Value: \$ 137,589

Taxes:

Land Value: \$ 137,589

Imp. Value: \$ 0

Total Assessed Value: \$ 89,708

Levy Code: 012262

M-5 Rate: 19.7781

Tax Year: 18-19

Previous Sale Information

Sale Amount: \$ 34,000
Document Num: 1992-076727

Sale Date: 11/01/1992

Transaction History

<u>Sale Date</u>	<u>Sale Amount</u>	<u>HPI</u> <u>Sale Amount</u>	<u>Document</u> <u>Type</u>	<u>Reception</u> <u>Num</u>	<u>Book/Page</u>
11/1/1992	\$ 34,000			1992-076727	/

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Accuracy of the information may vary by county.*

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Address Not Available

Ownership Information

Owner Name:

CITY OF MILWAUKIE

Mailing Address:

10722 SE MAIN ST MILWAUKIE, OR 97222

Property Description

County: Clackamas

Map / Tax Lot: 11E36CB/04500

Account Num: 00030040

Census:

Property ID: 00030040

Owner Occ.: No

Land Use: 100-

Subdivision: MILWAUKIE HEIGHTS

Legal Description:

111 MILWAUKIE HEIGHTS LTS 1-3 BLK 32

Property Characteristics

Property Type: VACANT LAND

Building SF:

Pool: No

House Style:

Living Area SF:

Deck SF:

Year Built:

Square Feet:

Deck Desc:

Bedrooms:

1st Floor SF:

Patio SF:

Bathrooms:

2nd Floor SF:

Patio Desc:

Heat:

3rd Floor SF:

Foundation:

Cooling:

Attic SF:

Exterior:

Lot Size: 31,980

Bsmnt SF:

Ext. Finish:

Acres: 0.73

Fin Bsmt SF:

Interior:

Garage Type:

Garage SF:

Roof Style:

Fireplaces:

Bsmnt Type:

Roof Cover:

Assessment Information

Real Market Value: \$ 192,999

Taxes:

Land Value: \$ 192,999

Imp. Value: \$ 0

Total Assessed Value: \$ 125,835

Levy Code: 012262

M-5 Rate: 19.7781

Tax Year: 18-19

Previous Sale Information

Sale Amount: \$ 34,000

Sale Date: 11/01/1992

Document Num: 1992-076727

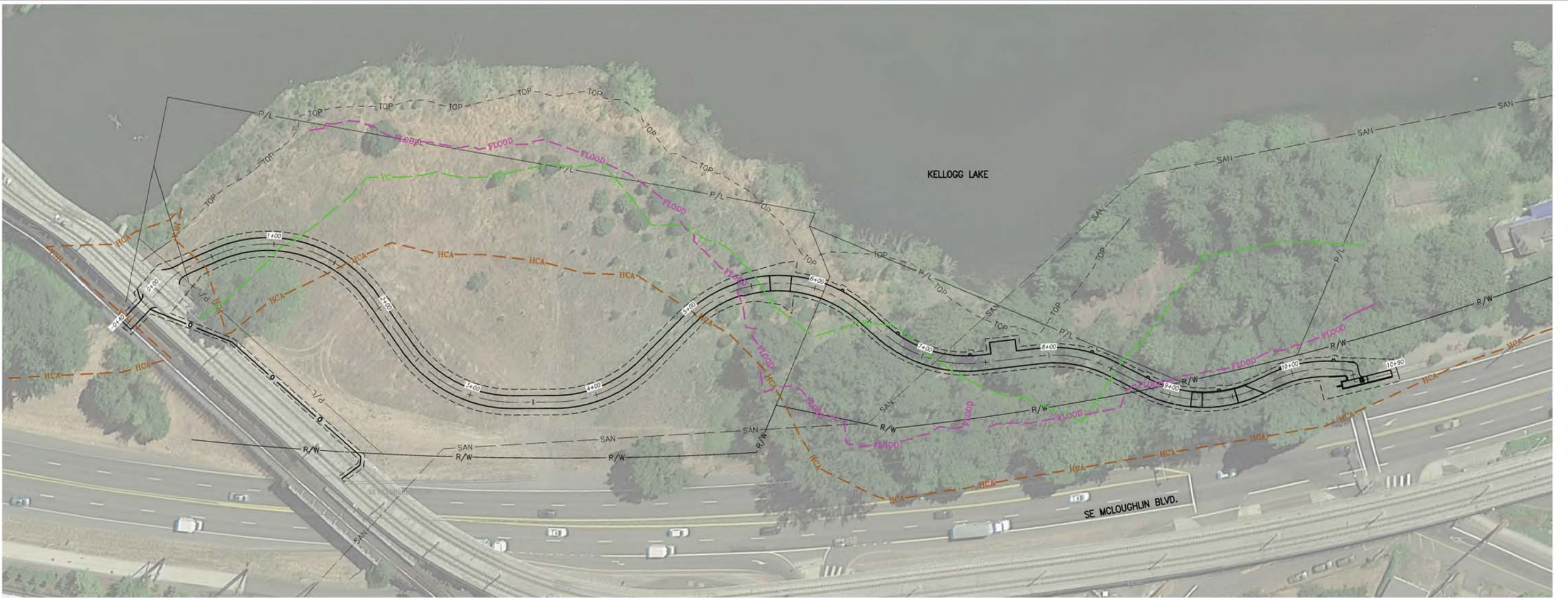
Transaction History








<u>Sale Date</u>	<u>Sale Amount</u>	<u>HPI</u> <u>Sale Amount</u>	<u>Document</u> <u>Type</u>	<u>Reception</u> <u>Num</u>	<u>Book/Page</u>
11/1/1992	\$ 34,000			1992-076727	/

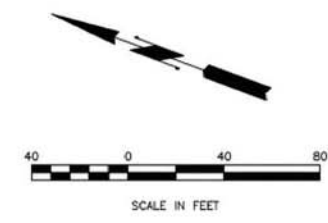
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Accuracy of the information may vary by county.*

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Appendix B



-  FLOOD FLOOD FLOODPLAIN
-  VC VEGETATED CORRIDOR
-  HCA HCA HABITAT CONSERVATION AREA
-  TOP TOP TOP OF BANK
-  R/W ODOT RIGHT-OF-WAY
-  P/L PROPERTY LINE
-  SAN EXISTING SANITARY LINE



Otak
 Otak, Inc.
 700 Washington St., Suite 300
 Vancouver, WA 98660
 360.737.9613
 www.otak.com

Jan 02, 2019 - 8:43am
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NO.	DATE	BY	REVISIONS

DESIGNED	DATE
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE



MILWAUKIE

Dogwood City of the West

6101 SE JOHNSON CREEK BLVD.
 MILWAUKIE, OR 97206

PHONE: 503-786-7600
 FAX: 503-774-8236

KRONBERG PARK MULTI-USE WALKWAY

ENVIRONMENTAL OVERLAYS EXHIBIT

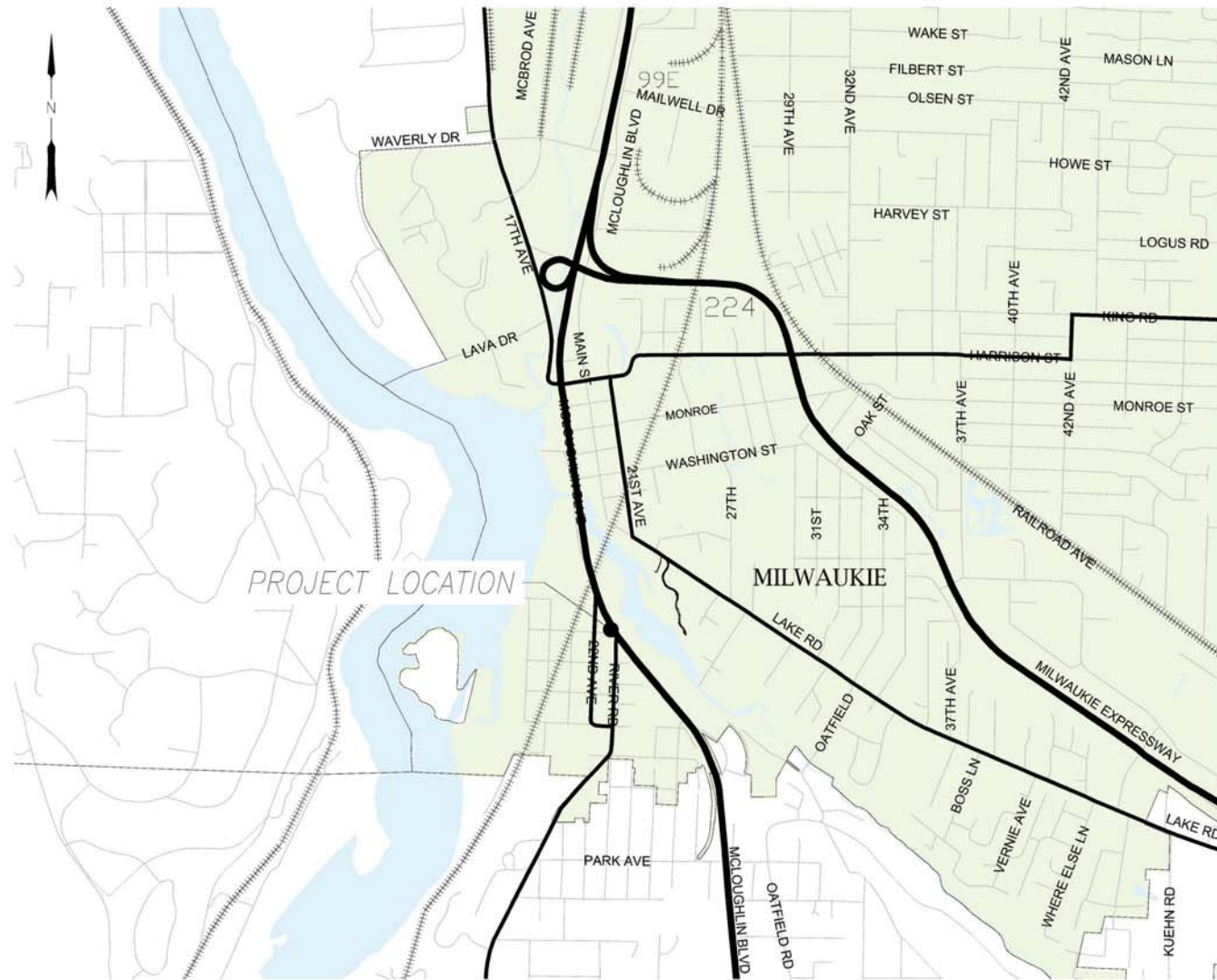
PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.:
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Appendix C

CITY OF MILWAUKIE, OREGON

KRONBERG PARK MULTI-USE WALKWAY

CIP2017-D29



PROJECT DESCRIPTION

A 10.0' WIDE MULTI-USE WALKWAY THROUGHOUT THE ROBERT KRONBERG NATURE PARK AND ASSOCIATED IMPROVEMENTS.

PROJECT MANAGER

Name: Jennifer Garbely, PE
 Title: Civil Engineer
 Phone Number: (503) 786-7609
 Email Address: GarbelyJ@milwaukieoregon.gov

PROJECT CIVIL ENGINEER

Name: Chuck Green
 Title: Senior Project Manager
 Phone Number: (360) 906-6795
 Email Address: Chuck.Green@otak.com

PROJECT STRUCTURAL ENGINEER

Name: Scott Nettleton
 Title: Bridge Engineer
 Phone Number: (360) 906-9434
 Email Address: Scott.Nettleton@otak.com

MILWAUKIE PUBLIC WORKS

Name: Emergency On-Call
 Phone Number: (503) 348-8833

NORTH CLACKAMAS PARKS AND RECREATION DEPARTMENT

Name: Kathryn Krygier
 Phone Number: (503) 742-4358

PORTLAND GENERAL ELECTRIC

Name: Todd Jones
 Phone Number (Office): (503) 736-5404
 Phone Number (Cell): (503) 523-7131

NORTHWEST NATURAL

Name: Nina Carlson
 Email Address: Nina.carlson@nwnatural.com

CENTURY LINK

Name: Scott Miller
 Phone Number (Office): (503) 242-4144
 Phone Number (Cell): (503) 754-7289
 Email Address: scott.miller4@centurylink.com

COMCAST

Name: Chad Vaughn
 Phone Number (Office): (503) 813-0484
 Phone Number (Cell): (971) 801-5813

CLACKAMAS CO. WATER ENVIRONMENTAL SERVICES

Name: Lynne Chicoine, PE
 Title: WES Capital Program Manager
 Phone Number (Direct): (503) 742-4559
 Phone Number (Mobile): (503) 953-2587



CITY OF MILWAUKIE
ENGINEERING DEPARTMENT
 6101 SE JOHNSON CREEK BLVD
 MILWAUKIE, OR 97206
 PHONE (503) 786-7600
 FAX (503) 774-8236



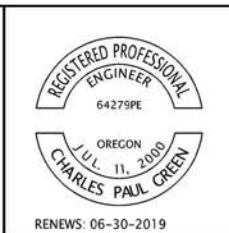
Oregon law requires contractors to follow rules adopted by the Oregon Utility Notification Center. Those rules are set forth in OAR 952-001-0010 through 952-001-0090. Contractors may obtain copies of the rules by calling the Oregon Utility Notification Center at 503-232-1987.




Nov 20, 2018 - 12:24pm
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NO.	DATE	BY	REVISIONS

C. Green	11/20/2018
DESIGNED	DATE
S. Lozano	11/20/2018
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE





MILWAUKIE

Dogwood City of the West

6101 SE JOHNSON CREEK BLVD.
MILWAUKIE, OR 97206

PHONE: 503-786-7600
FAX: 503-774-8236

KRONBERG PARK MULTI-USE WALKWAY	
COVER	
PROJECT NO.: CIP2017-D29	CONTRACT NO.:
DATE: NOV 2018	SHEET NO.: CV01

CIVIL TABLE OF CONTENTS	
SHT. NO.	DESCRIPTION
CV01	COVER
CV02	TABLE OF CONTENTS AND LEGEND
CV03	GENERAL NOTES
CV04	EROSION CONTROL NOTES
CV05	SHEET LAYOUT
DT01	STANDARD DETAILS
DT02	STANDARD DETAILS
DT03	STANDARD DETAILS
DT04	STANDARD DETAILS
DT05	STANDARD DETAILS
DT06	STANDARD DETAILS
DT07	STANDARD DETAILS
DT08	METAL HANDRAIL DETAILS
SG01	SPOT GRADES
SG02	SPOT GRADES
SG03	SPOT GRADES
SG04	SPOT GRADES
STN1	TYPICAL SECTIONS
STN2	TYPICAL SECTIONS
STN3	TYPICAL SECTIONS
PP01	PLAN AND PROFILE
PP02	PLAN AND PROFILE
PP03	PLAN AND PROFILE
PP04	PLAN AND PROFILE
PP05	PLAN AND PROFILE
EX01	EXISTING CONDITIONS AND DEMO
EX02	EXISTING CONDITIONS AND DEMO
EX03	EXISTING CONDITIONS AND DEMO
EC01	GRADING AND EROSION CONTROL
EC02	GRADING AND EROSION CONTROL
EC03	GRADING AND EROSION CONTROL
TR01	TREE REMOVAL
TR02	TREE LIST
SI01	WAYFINDING PLAN
SI02	WAYFINDING DETAILS
SI03	WAYFINDING DETAILS
SI04	WAYFINDING DETAILS
SI05	WAYFINDING DETAILS
IL1	ILLUMINATION PLANS
IL2	ILLUMINATION PLANS
IL3	ILLUMINATION PLANS
IL4	ILLUMINATION PLANS
IL5	ILLUMINATION PLAN DETAILS

CIVIL TABLE OF CONTENTS	
SHT. NO.	DESCRIPTION
TC-1	DETOUR PLAN
TC-2	TEMP. TRAFFIC CONTROL PLAN
TC-3	TEMP. TRAFFIC CONTROL PLAN
TS-1	TRAFFIC SIGNAL LEGEND
TS-2	TEMP. TRAFFIC SIGNAL PLAN
TS-3	TEMP. DETECTOR PLAN
TS-4	TRAFFIC SIGNAL PLAN
TS-5	DETECTOR PLAN
TS-6	SIGNAL DETAILS
TS-7	SIGNAL DETAILS

STRUCTURAL TABLE OF CONTENTS	
SHT. NO.	DESCRIPTION
COMMON BRIDGE DETAILS	
BR01	ALIGNMENT GEOMETRY SHEET
BR02	GENERAL NOTES
BR03	GEOTECHNICAL DATA
BR04	GEOTECHNICAL DATA
BR05	RAILING LAYOUT
BR06	RAILING DETAILS
BR07	LIGHT POLE SUPPORT DETAILS
BR08	LIGHT POLE SUPPORT DETAILS 2
LONG BRIDGE SHEETS	
LBR01	PLAN AND ELEVATION
LBR02	PLAN AND ELEVATION 2
LBR03	FOUNDATION PLAN
LBR04	BENT 1 DETAILS
LBR05	BENT 2 THRU 7 DETAILS
LBR06	OVERLOOK BENT DETAILS
LBR07	BENT 8 DETAILS
LBR08	BEARING DETAILS
LBR09	FRAMING PLAN AND BEAM DETAILS
LBR10	OVERLOOK PLATFORM FRAMING AND DECK
LBR11	FRAMING DETAILS
LBR12	SPAN 3 BRACING
LBR13	TYPICAL SECTION AND DECK REINFORCING PLAN
LBR14	MISCELLANEOUS DETAILS
SHORT BRIDGE SHEETS	
SBR01	PLAN AND ELEVATION
SBR02	FOUNDATION PLAN
SBR03	BENT 1 DETAILS
SBR04	BENT 6 DETAILS
SBR05	FRAMING PLAN AND STEEL DETAILS

SBR06	STEEL DETAILS
SBR07	DECK DETAILS
RETAINING WALL SHEETS	
WL1	PLAN AND ELEVATION

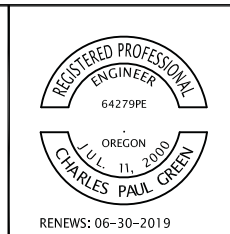
LEGEND

EXISTING	PROPOSED
CATCH BASIN	INLET PROTECTION
REMOVABLE BOLLARD	TRUNCATED DOMES
UTILITY POLE	REMOVABLE BOLLARD
SIGNAL POLE	MSE RETAINING WALL
TRAFFIC SIGNAL CONTROL CABINET	CHAIN LINK FENCE
SIGN OR SIGN POST	SILT FENCE
PEDESTRIAN PUSHBUTTON POLE	SAWCUT LINE
DECIDUOUS TREE	TREE PROTECTION FENCE
EVERGREEN TREE	CUT LIMITS
SANITARY LINE	FILL LIMITS
STORM LINE	MAJOR CONTOUR 1' INTERVALS
EDGE OF PAVEMENT	MINOR CONTOUR 0.2' INTERVALS
EDGE OF GRAVEL	CONCRETE PAD/SIDEWALK
RIGHT-OF-WAY	BRIDGE STRUCTURE
PROPERTY LINE	BRIDGE END PANEL
FLOODPLAIN	
VEGETATED CORRIDOR	
HABITAT CONSERVATION AREA	
TOP OF BANK	
MAJOR CONTOUR 5' INTERVALS	
MINOR CONTOUR 1' INTERVALS	

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NO.	DATE	BY	REVISIONS

C. Green	DESIGNED	11/20/2018	DATE
S. Lozano	DRAFTED	11/20/2018	DATE
	CHECKED		DATE
	APPROVED		DATE



MILWAUKIE

Dogwood City of the West

6101 SE JOHNSON CREEK BLVD. MILWAUKIE, OR 97206

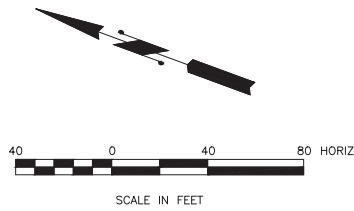
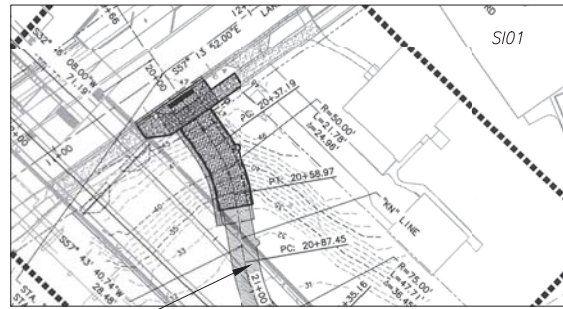
PHONE: 503-786-7600
FAX: 503-774-8236

KRONBERG PARK MULTI-USE WALKWAY

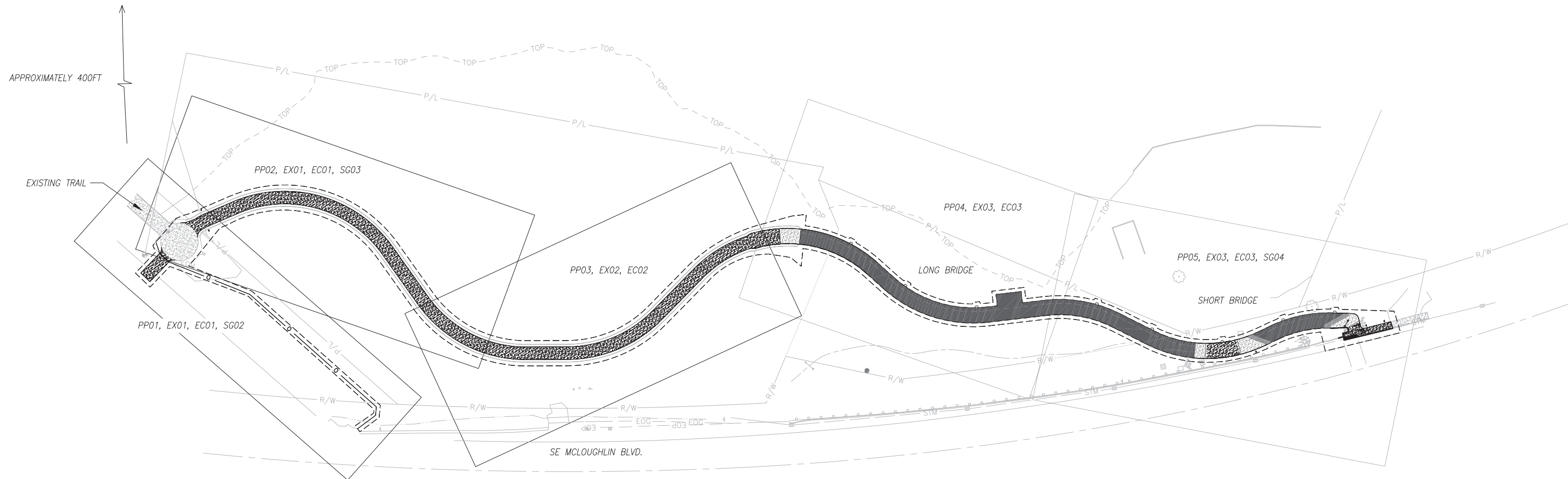
TABLE OF CONTENTS AND LEGEND

PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.: CV02
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EXISTING TRAIL NORTH END OF TRAIL VICINITY



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NO.	DATE	BY	REVISIONS

C. Green 11/20/2018
DESIGNED DATE
S. Lozano 11/20/2018
DRAFTED DATE
CHECKED DATE
APPROVED DATE



MILWAUKIE
Dogwood City of the West

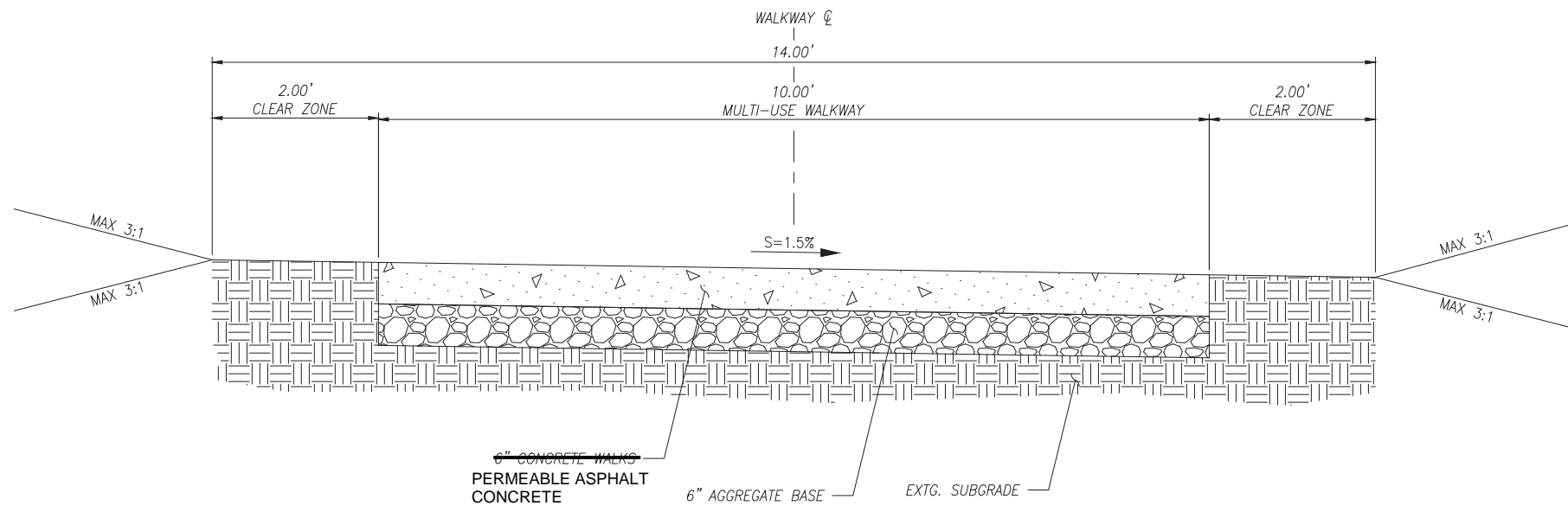
6101 SE JOHNSON CREEK BLVD. MILWAUKIE, OR 97206
PHONE: 503-786-7600 FAX: 503-774-8236

KRONBERG PARK MULTI-USE WALKWAY

SHEET LAYOUT

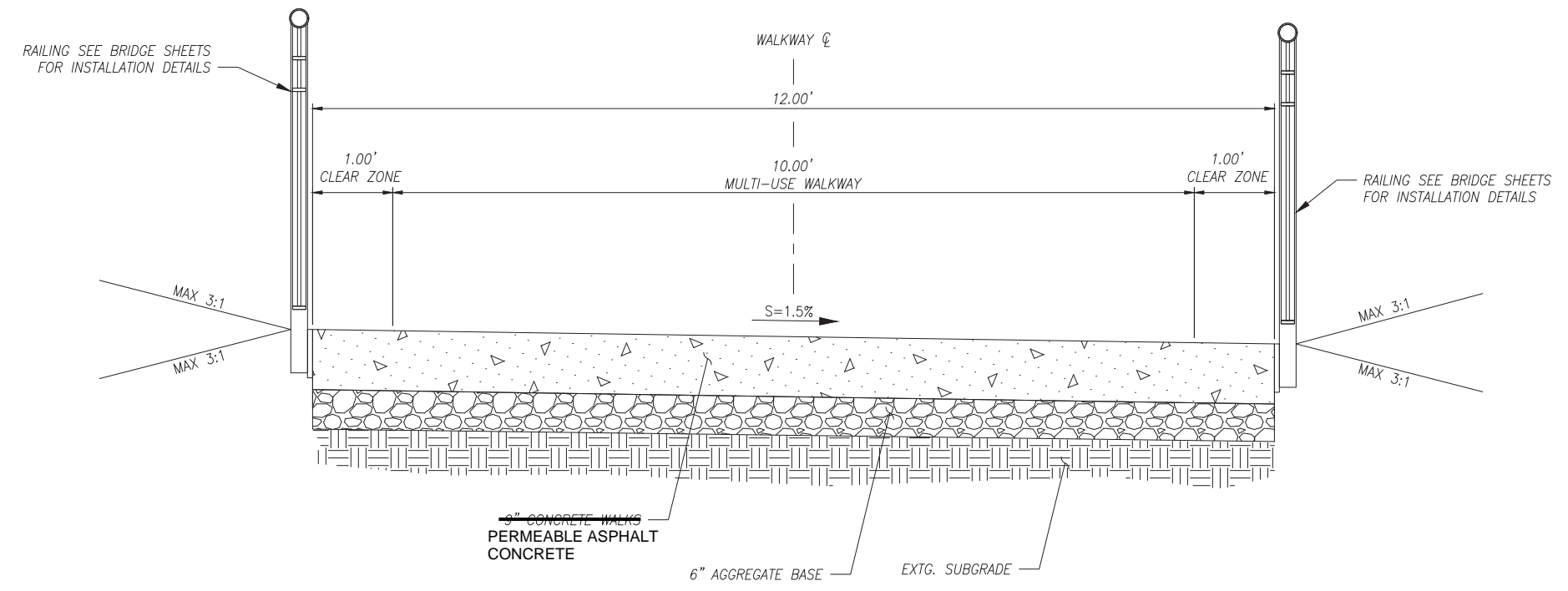
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STA. -0+36.57 TO STA. -0+12.57
 STA. 0+17.31 TO STA. 5+43.21
 N.T.S. 1
 STN1

SEE BRIDGE SHEETS FOR BRIDGE TYPICAL SECTIONS
 STA. 5+81.00 TO STA. 10+29.06




STA. 5+43.21 TO STA. 5+64.75
 N.T.S. 2
 STN1



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NO.	DATE	BY	REVISIONS

C. Green	11/20/2018
DESIGNED	DATE
S. Lozano	11/20/2018
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE



MILWAUKIE

Dogwood City of the West

6101 SE JOHNSON CREEK BLVD.
 MILWAUKIE, OR 97206

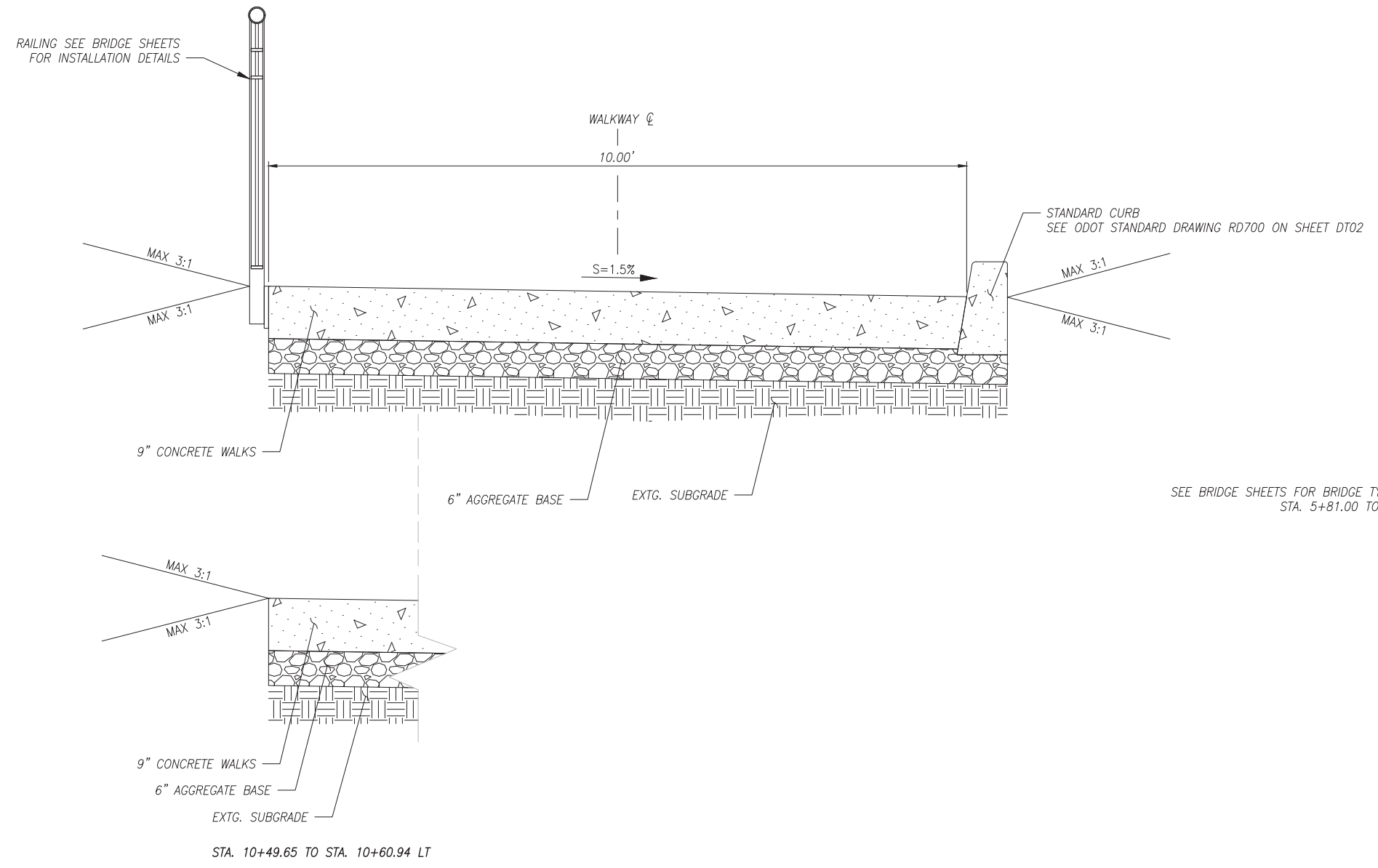
PHONE: 503-786-7600
 FAX: 503-774-8236

KRONBERG PARK MULTI-USE WALKWAY

TYPICAL SECTIONS

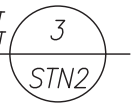
PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.: STN1
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D
C
B



SEE BRIDGE SHEETS FOR BRIDGE TYPICAL SECTIONS
STA. 5+81.00 TO STA. 10+29.06


STA. 10+46.89 TO STA. 10+60.94 LT
STA. 10+43.17 TO STA. 10+53.44 RT
N.T.S.



Nov 20, 2018 - 12:00pm
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NO.	DATE	BY	REVISIONS

C. Green	11/20/2018
DESIGNED	DATE
S. Lozano	11/20/2018
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE



MILWAUKIE

Dogwood City of the West

6101 SE JOHNSON CREEK BLVD.
MILWAUKIE, OR 97206

PHONE: 503-786-7600
FAX: 503-774-8236

KRONBERG PARK MULTI-USE WALKWAY

TYPICAL SECTIONS

PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.: STN2
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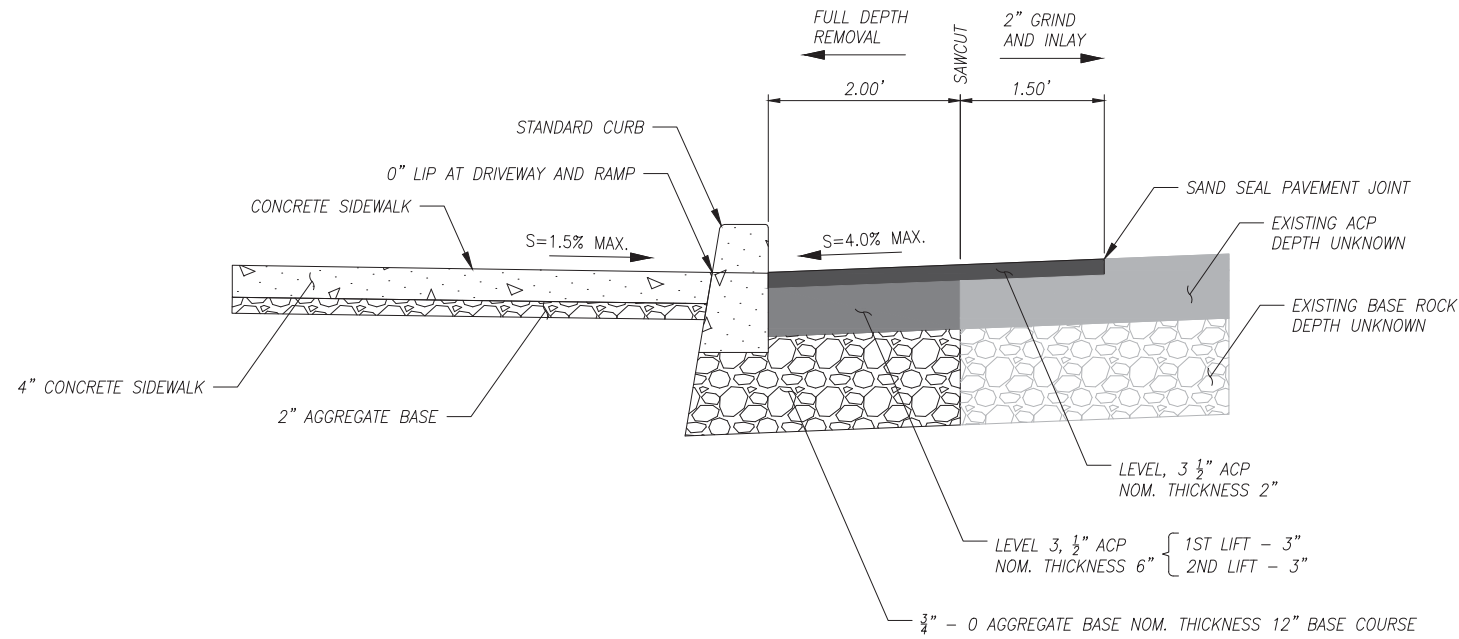


FULL DEPTH REMOVAL AT 2" GRIND AND POLISH

D

C

B



McLOUGHLIN PAVEMENT RESTORATION
 APPROX. STA. 10+55 TO STA. 10+85
 N.T.S.

4
 STN3

Nov 20, 2018 - 12:00pm
 V:\PROJECT\18400\18408\CADD\CADD\ACAD\Drawings\18408C-Section.dwg

NO.	DATE	BY	REVISIONS

C. Green	11/20/2018
DESIGNED	DATE
S. Lozano	11/20/2018
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE

MILWAUKIE
Dogwood City of the West

6101 SE JOHNSON CREEK BLVD.
 MILWAUKIE, OR 97206

PHONE: 503-786-7600
 FAX: 503-774-8236

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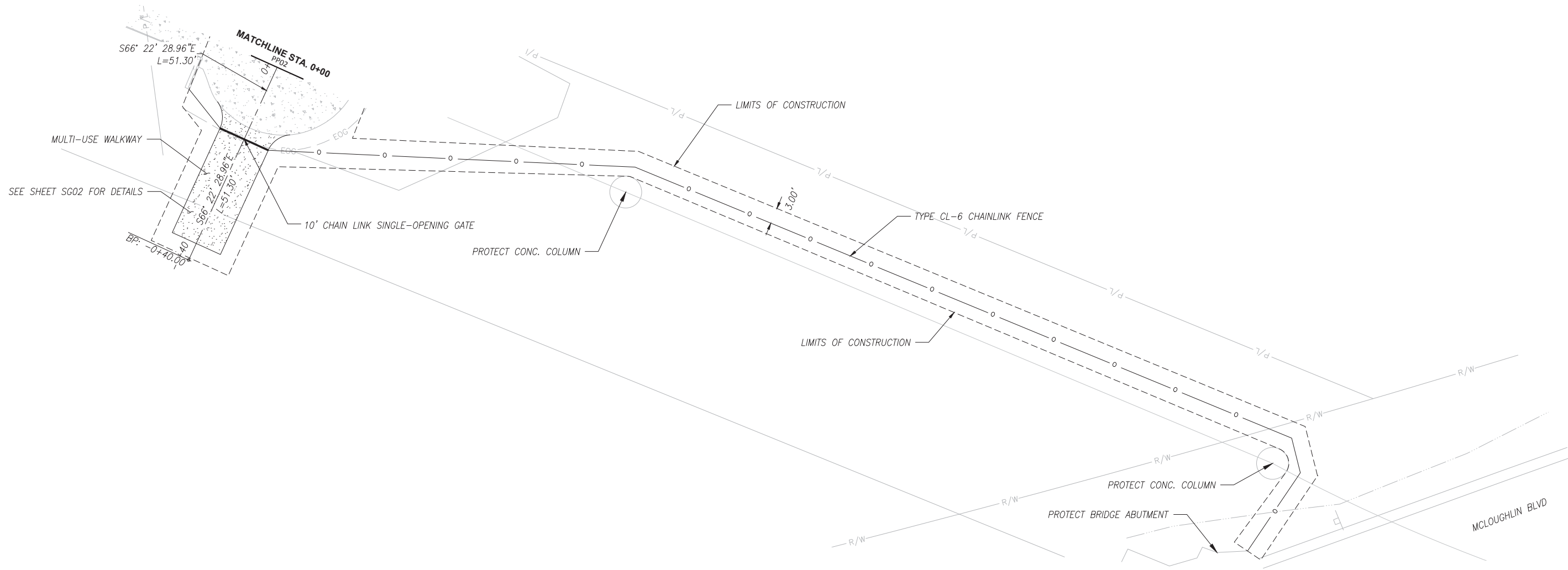
KRONBERG PARK MULTI-USE WALKWAY

TYPICAL SECTIONS

PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.: STN3
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D
C
B



PLAN

Nov 20, 2018 - 12:01pm
V:\PROJECT\18400\18408\CADD\ACAD\DWG\18408C-Plan Profile.dwg

NO.	DATE	BY	REVISIONS

C. Green	11/20/2018
DESIGNED	DATE
S. Lozano	11/20/2018
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE

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KRONBERG PARK MULTI-USE WALKWAY

PLAN AND PROFILE

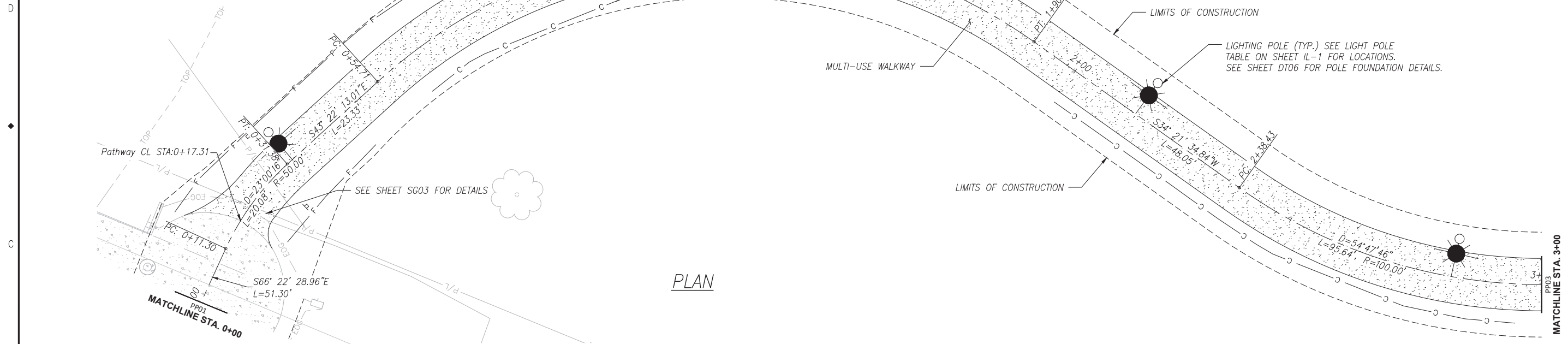
PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.: PP01
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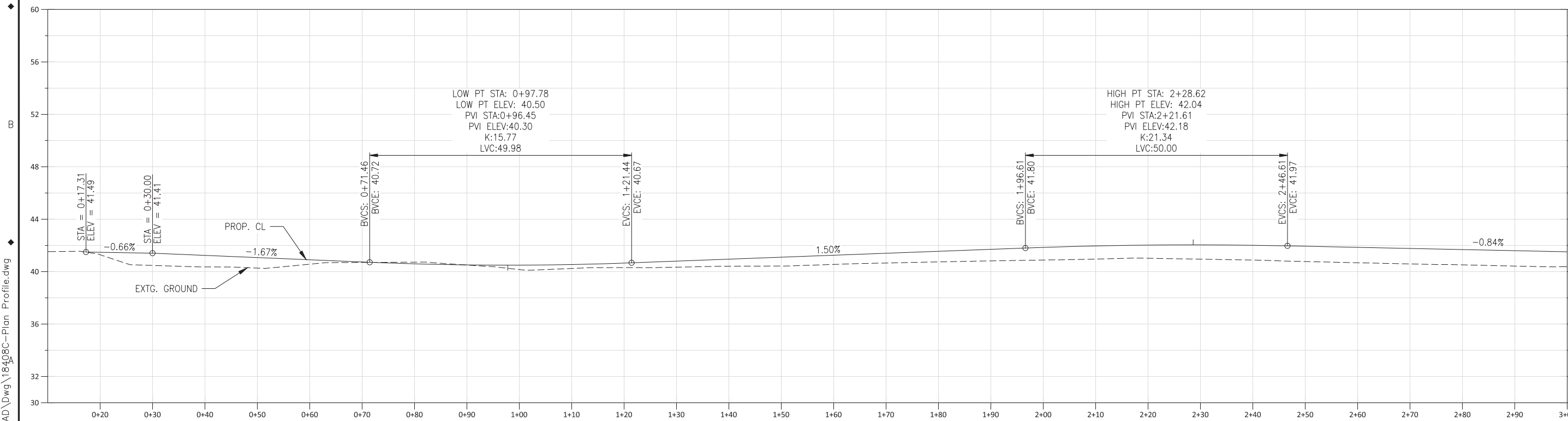


LEGEND

- C — CUT
- F — FILL



PLAN



PROFILE



Nov 20, 2018 - 12:01pm
V:\PROJECT\18400\18400\CADD\ACAD\DWG\18408C-Plan Profile.dwg

NO.	DATE	BY	REVISIONS

C. Green	11/20/2018
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APPROVED	DATE



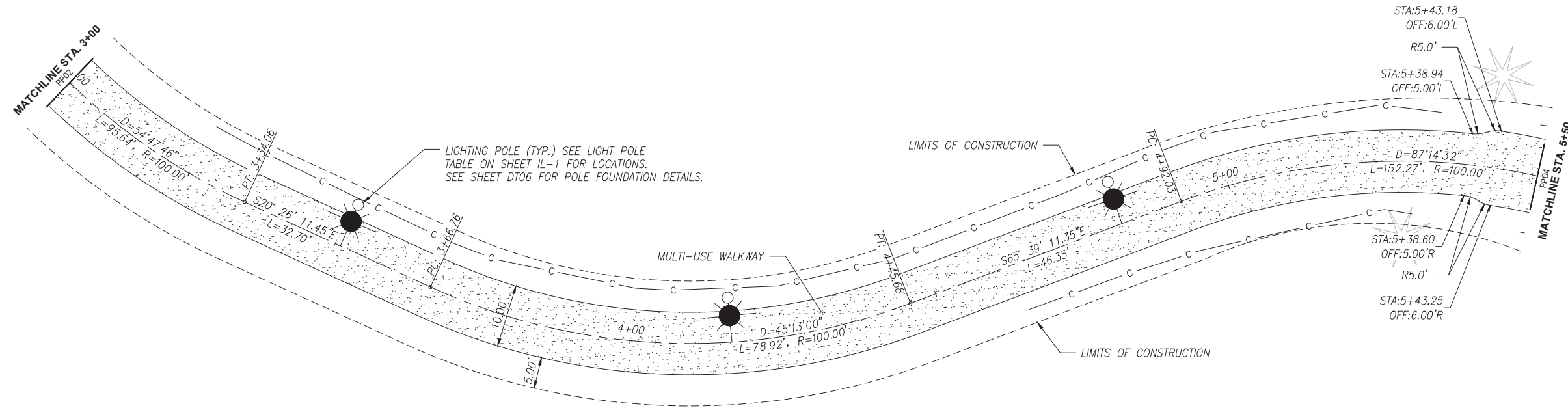
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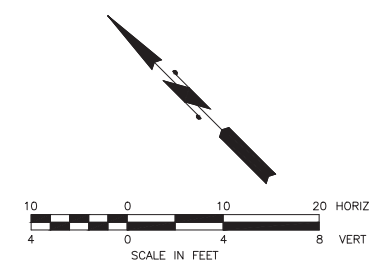
PLAN AND PROFILE

PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.: PP02
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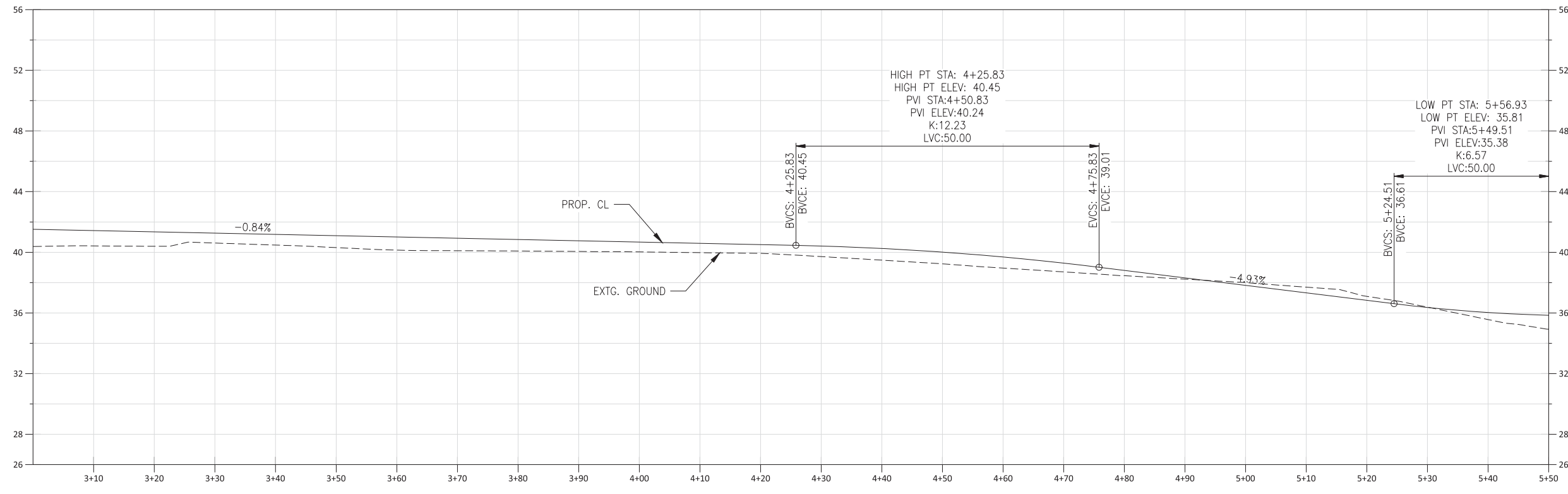


LEGEND

- C — CUT
- F — FILL



PLAN



PROFILE



NO.	DATE	BY	REVISIONS

C. Green	11/20/2018
DESIGNED	DATE
S. Lozano	11/20/2018
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE



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KRONBERG PARK MULTI-USE WALKWAY

PLAN AND PROFILE

PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.: PP03
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Nov 20, 2018 - 12:01pm
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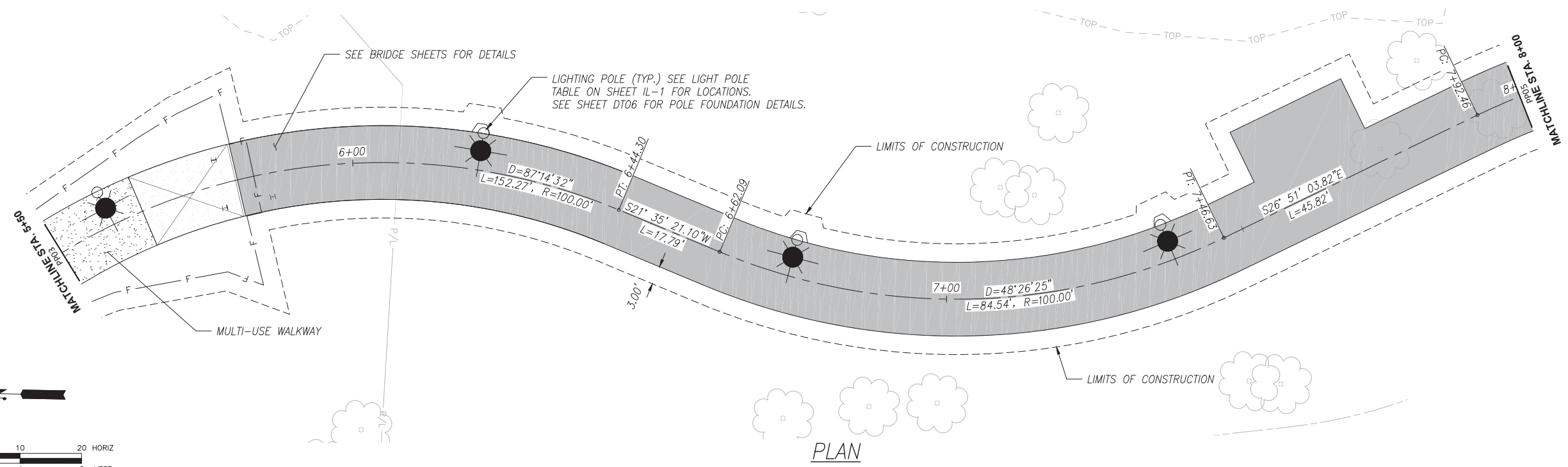
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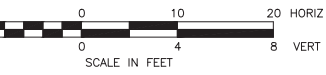
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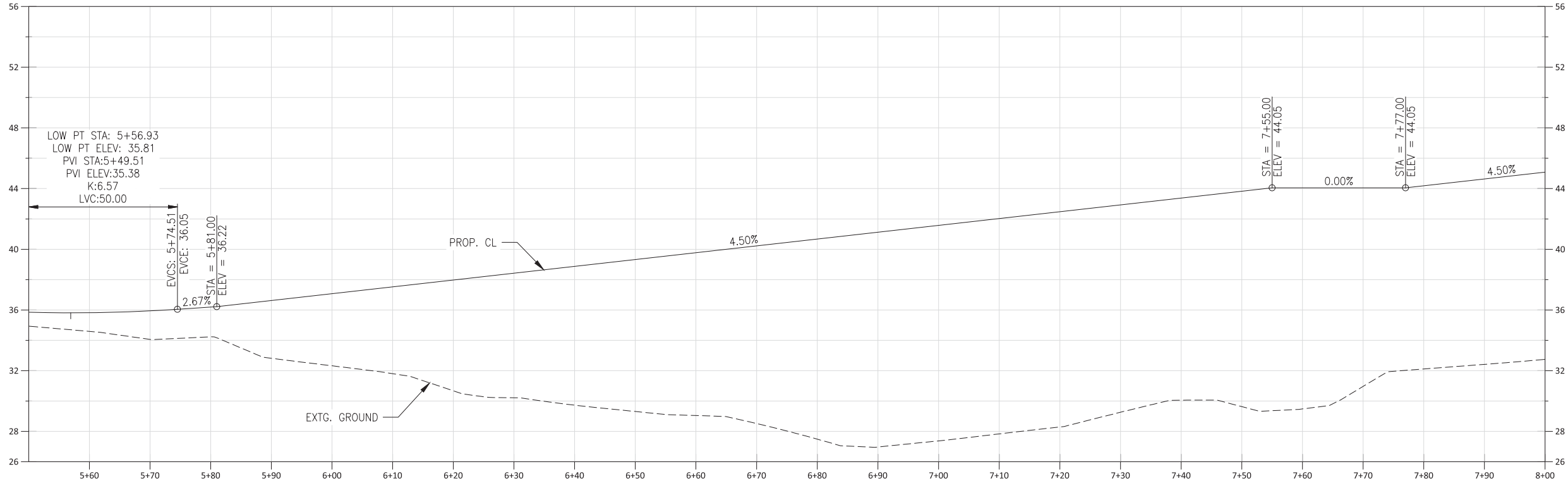


LEGEND

- C — CUT
- F — FILL



PLAN




PROFILE



Nov 20, 2018 - 12:02pm
V:\PROJECT\18400\18408\CADD\CADD\ACAD\Dwg\18408C-Plan Profile.dwg

NO.	DATE	BY	REVISIONS

C. Green	11/20/2018
DESIGNED	DATE
S. Lozano	11/20/2018
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE



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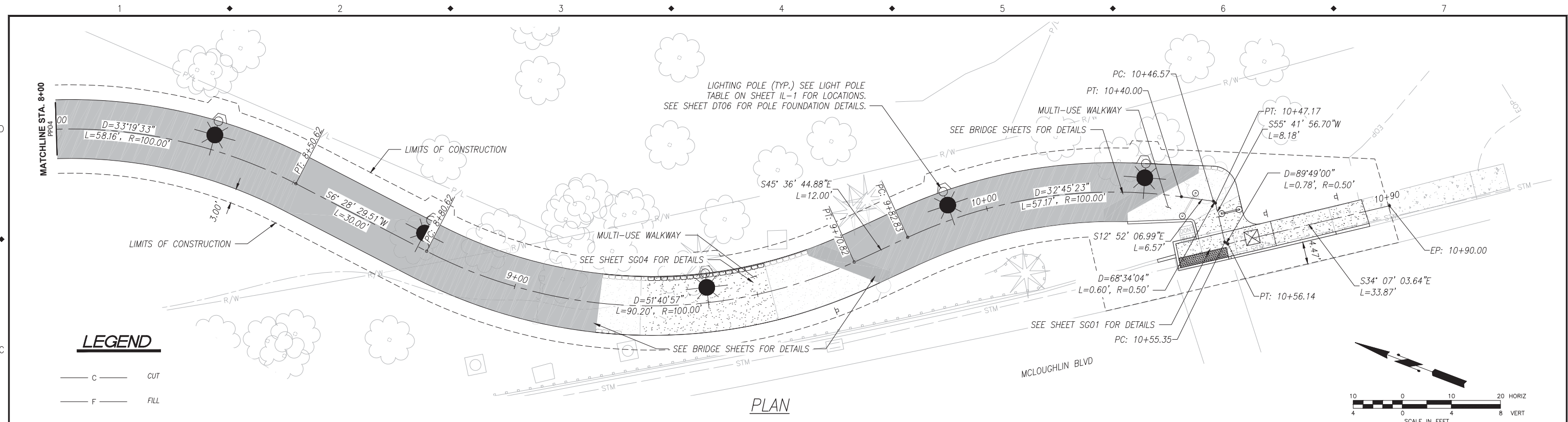
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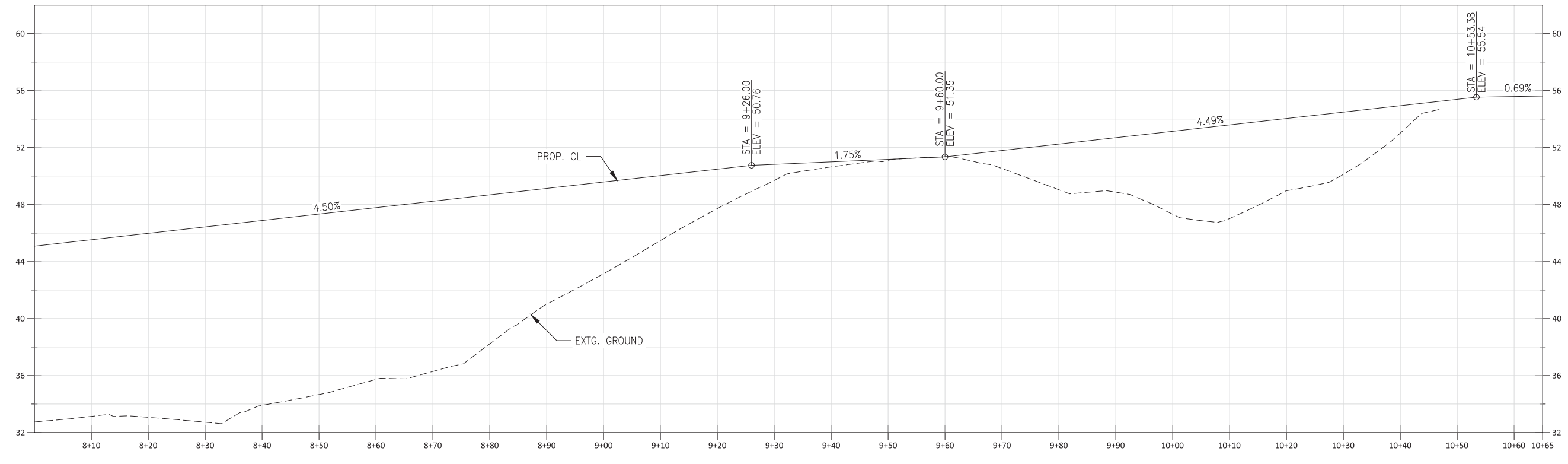
PLAN AND PROFILE

PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.: PP04
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Nov 20, 2018 - 12:02pm
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PLAN



PROFILE

LEGEND

— C — CUT

— F — FILL

NO.	DATE	BY	REVISIONS

C. Green	11/20/2018
DESIGNED	DATE
S. Lozano	11/20/2018
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE



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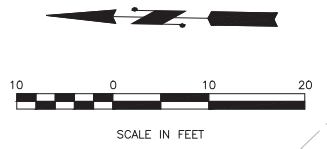
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PLAN AND PROFILE

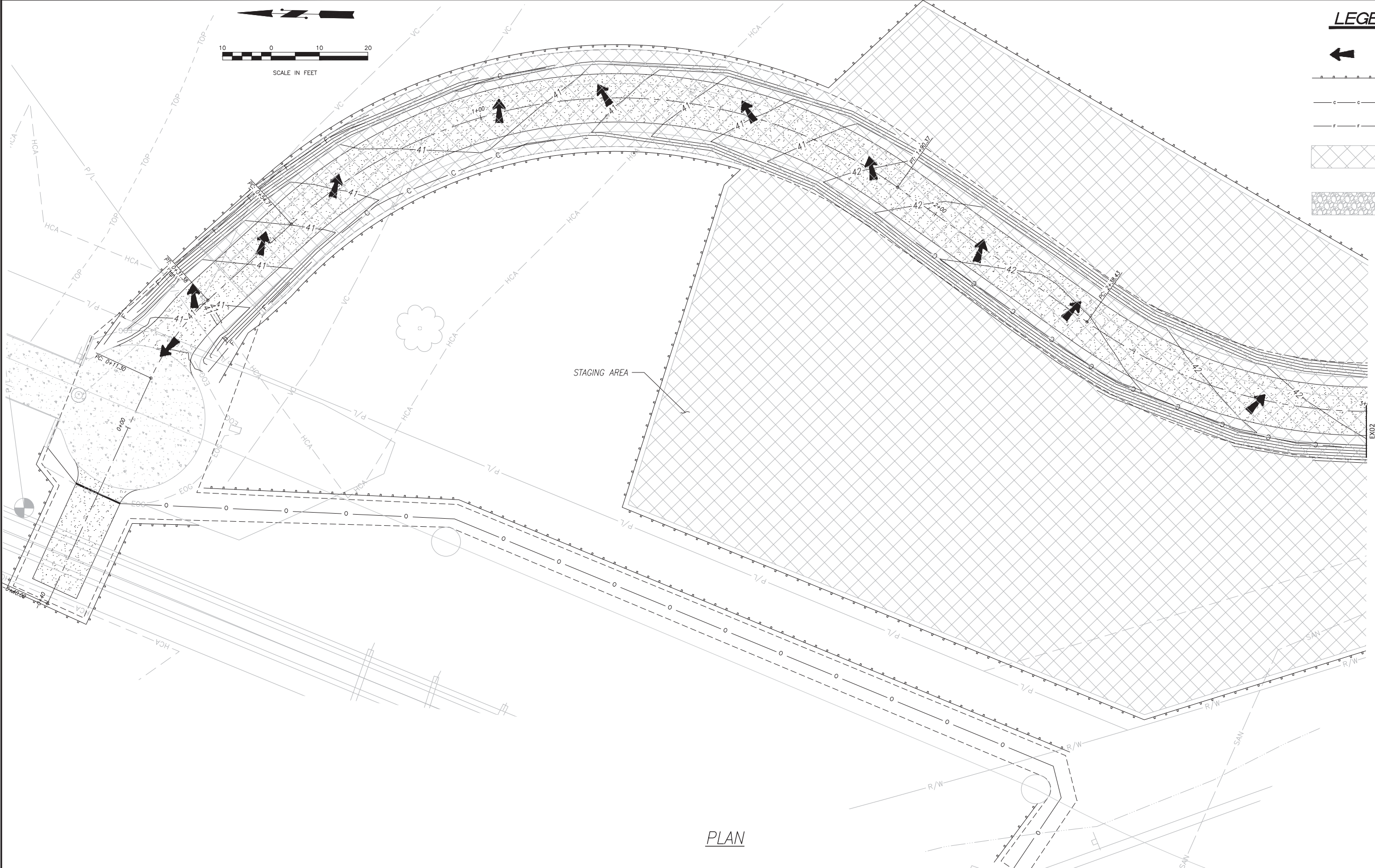
PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.: PP05
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LEGEND

	PROP. GND. FLOW
	SEDIMENT FENCE
	CUT
	FILL
	STAGING AREA NOTE: ANY ADDITIONAL TREE REMOVAL WITHIN THE STAGING AREA WILL REQUIRE PERMITTING FROM THE CITY OF MILWAUKIE
	CONSTRUCTION ENTRANCE, TYPE 1



PLAN

Nov 20, 2018 - 12:02pm
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NO.	DATE	BY	REVISIONS

C. Green	11/20/2018
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S. Lozano	11/20/2018
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE



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KRONBERG PARK MULTI-USE WALKWAY

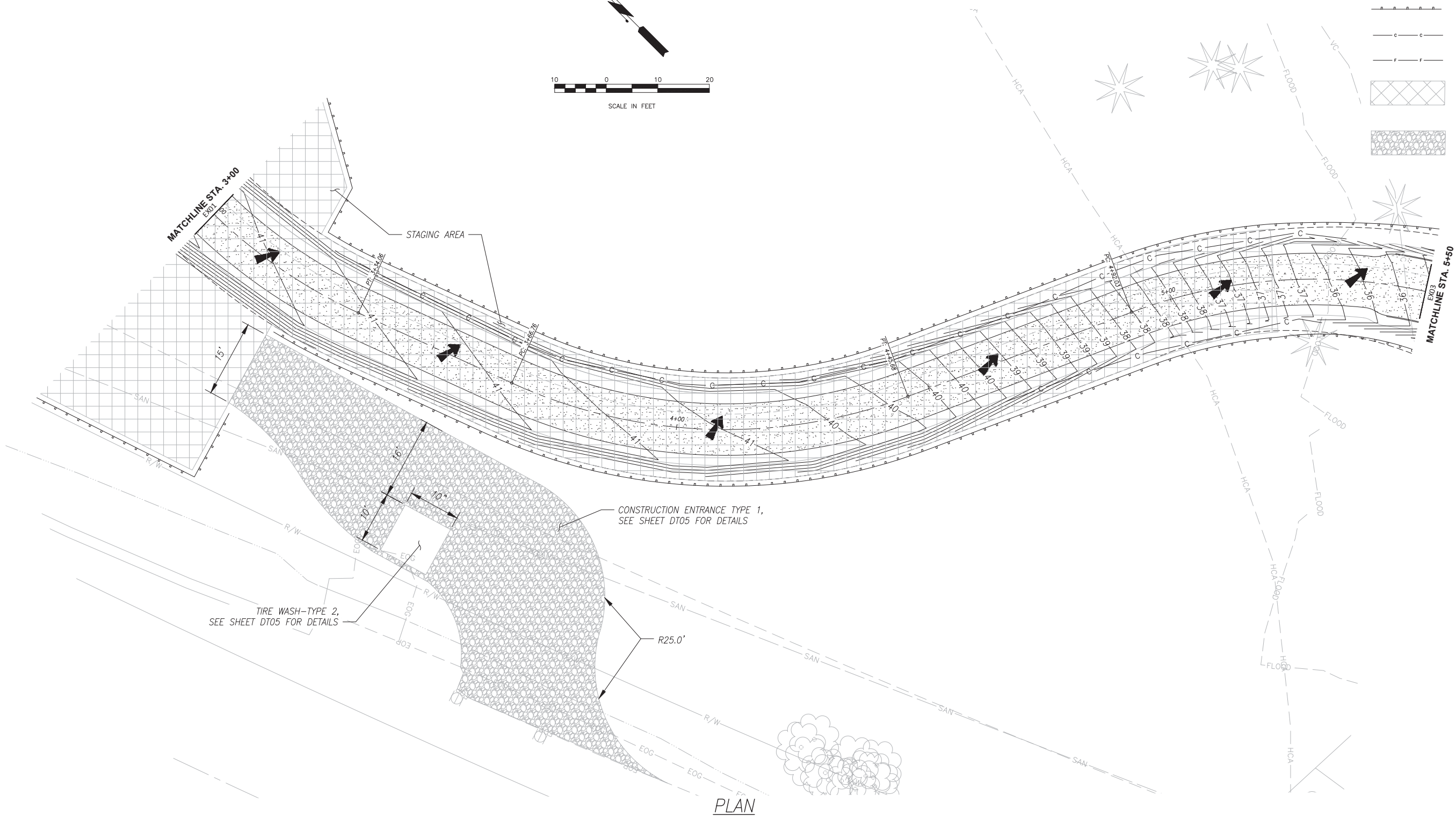
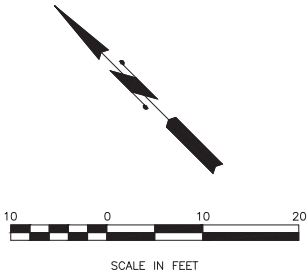
GRADING AND EROSION CONTROL

PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.: EC01
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LEGEND

-  PROP. GND. FLOW
-  SEDIMENT FENCE
-  CUT
-  FILL
-  STAGING AREA
NOTE: ANY ADDITIONAL TREE REMOVAL WITHIN THE STAGING AREA WILL REQUIRE PERMITTING FROM THE CITY OF MILWAUKIE
-  CONSTRUCTION ENTRANCE, TYPE 1




PLAN

Nov 20, 2018 - 12:02pm
V:\PROJECT\18400\18408\CADD\ACAD\DWG\18408C-Grading and Erosion.dwg

NO.	DATE	BY	REVISIONS

C. Green	DESIGNED	11/20/2018	DATE
S. Lozano	DRAFTED	11/20/2018	DATE
	CHECKED		DATE
	APPROVED		DATE



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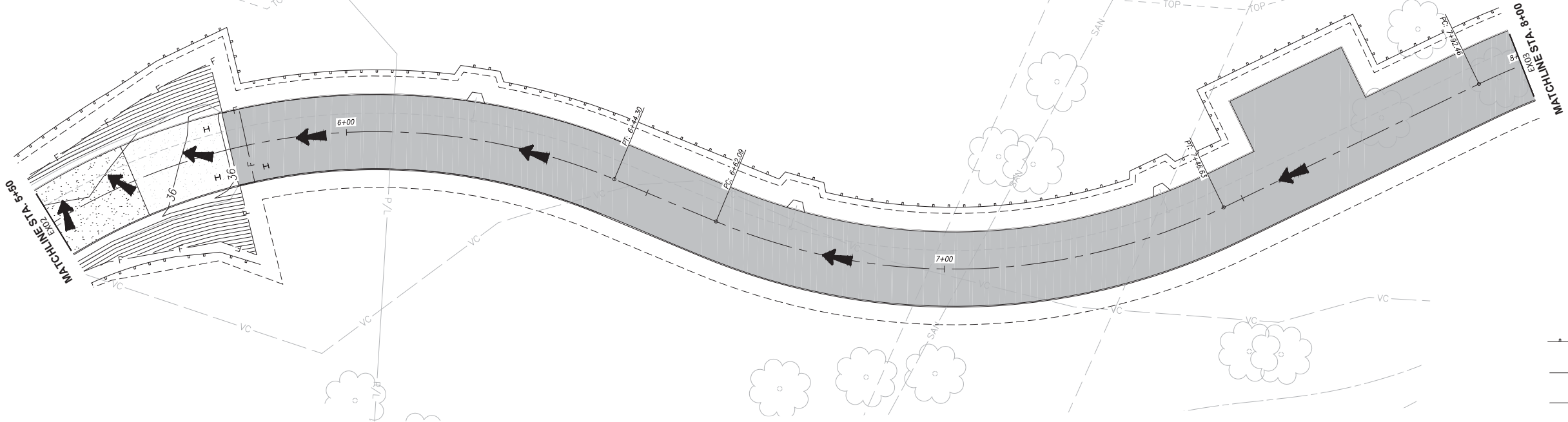
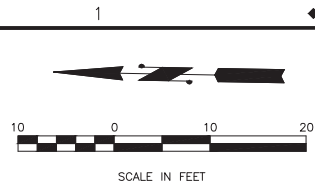
KRONBERG PARK MULTI-USE WALKWAY

GRADING AND EROSION CONTROL

PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.: EC02
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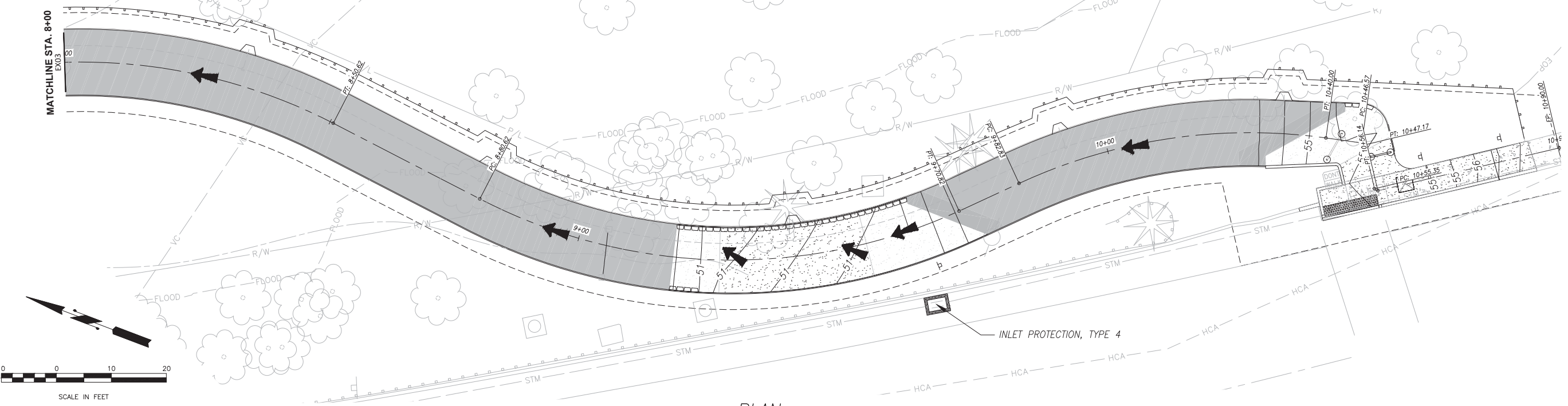
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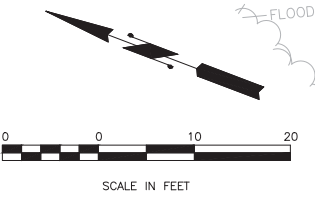
PLAN

LEGEND

- PROP. GND. FLOW
- SEDIMENT FENCE
- CUT
- FILL
- INLET PROTECTION, TYPE 4 (SEE SHEET DT04)




PLAN



Nov 20, 2018 - 12:03pm V:\PROJECT\18400\18408\CADD\ACAD\DWG\18408C-Grading and Erosion.dwg

NO.	DATE	BY	REVISIONS

C. Green	11/20/2018
DESIGNED	DATE
S. Lozano	11/20/2018
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE



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KRONBERG PARK MULTI-USE WALKWAY

GRADING AND EROSION CONTROL

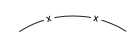

PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.: EC03
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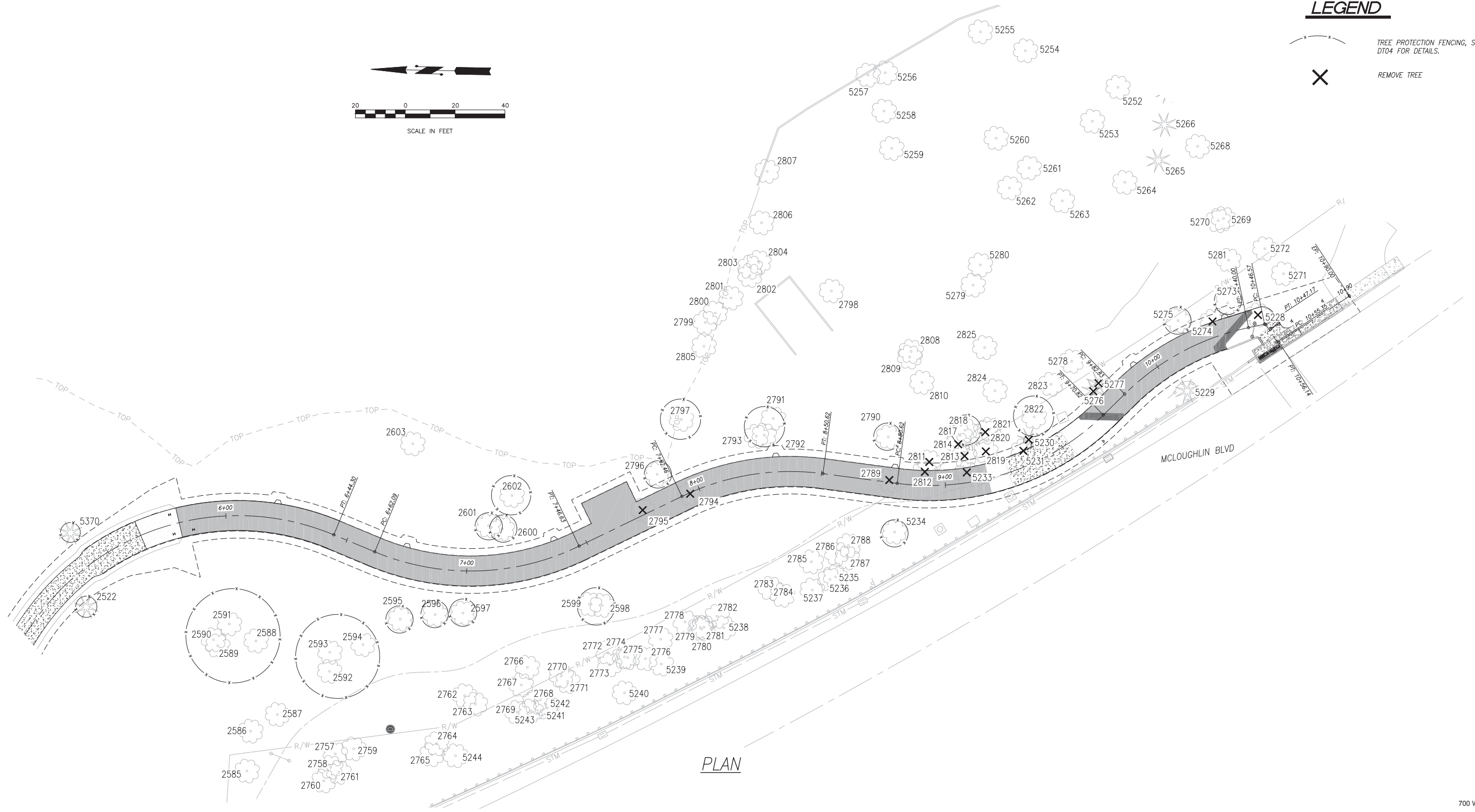
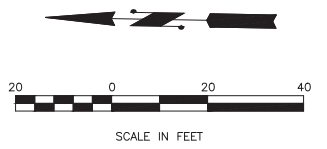


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D
C
B

LEGEND

-  TREE PROTECTION FENCING, SEE SHEET DT04 FOR DETAILS.
-  REMOVE TREE




PLAN



Nov 20, 2018 - 12:03pm
V:\PROJECT\18400\CADD\ACAD\Dwg\18408C-Tree removal.dwg

NO.	DATE	BY	REVISIONS

C. Green	DESIGNED	11/20/2018	DATE
S. Lozano	DRAFTED	11/20/2018	DATE
	CHECKED		DATE
	APPROVED		DATE



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KRONBERG PARK MULTI-USE WALKWAY

TREE REMOVAL

PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.: TR01
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2000	36.0"OAK	30' DL	OREGON WHITE OAK	2773	14.0"MAPLE	8' DL	5233	24.0"DECIDUOUS	20' DL	REMOVE, ODOT
2243	6.0"PINE	4' DL		2774	10.0"MAPLE	12' DL	5234	32.0"DECIDUOUS	15' DL	
2247	12.0"FIR	12' DL		2775	12.0"MAPLE	14' DL	5235	12.0"DECIDUOUS	20' DL	
2286	6.0"PINE	6' DL		2776	6.0"MAPLE	8' DL	5236	12"&14"DBL DECIDUOUS	20' DL	
2287	6.0"PINE	6' DL		2777	6.0"MAPLE	8' DL	5237	24.0"DECIDUOUS	28' DL	
2288	6.0"PINE	6' DL		2778	6.0"MAPLE	20' DL	5238	24.0"DECIDUOUS	20' DL	
2385	6.0"LOCUST	12' DL		2779	6.0"MAPLE	8' DL	5239	6.0"DECIDUOUS	15' DL	
2386	6.0"LOCUST	12' DL		2780	6.0"MAPLE	8' DL	5240	21.0"DECIDUOUS		
2387	6.0"LOCUST	12' DL		2781	6.0"MAPLE	8' DL	5241	8.0"DECIDUOUS	20' DL	
2388	6.0"LOCUST	12' DL		2782	6.0"DECIDUOUS	8' DL	5242	10.0"DECIDUOUS	20' DL	
2389	6.0"LOCUST	12' DL		2783	18.0"MAPLE	20' DL	5243	7.0"DECIDUOUS	20' DL	
2390	6.0"LOCUST	12' DL		2784	6.0"MAPLE	8' DL	5244	18.0"DECIDUOUS	25' DL	
2391	6.0"LOCUST	12' DL		2785	10.0"MAPLE	20' DL	5249	17.0"MAPLE	8' DL	
2392	12.0"LOCUST	12' DL		2786	10.0"MAPLE	10' DL	5250	20.0"MAPLE	10' DL	
2393	12.0"LOCUST	12' DL		2787	8.0"MAPLE	10' DL	5251	24.0"MAPLE	12' DL	
2394	12.0"LOCUST	12' DL		2788	10.0"MAPLE	20' DL	5252	14.0"DECID SNAG	5' DL	
2395	12.0"LOCUST	12' DL		2789	8.0"MAPLE	10' DL	5253	20.0"DECID SNAG	5' DL	
2396	12.0"LOCUST	12' DL		2790	10.0"MAPLE	16' DL	5254	24.0"MAPLE	15' DL	
2397	12.0"LOCUST	12' DL		2791	10.0"MAPLE	18' DL	5255	44.0"OAK	15' DL	
2522	6.0"PINE	6' DL		2792	10.0"MAPLE	10' DL	5256	28.0"OAK	15' DL	
2585	6.0"DECIDUOUS	8' DL		2793	8.0"MAPLE	10' DL	5257	8.0"MAPLE	5' DL	
2586	14.0"DECIDUOUS	16' DL		2794	16.0"LOCUST	14' DL	5258	10.0"COTTONWOOD	8' DL	
2587	20"&28"DBL DECIDUOUS	20' DL		2795	16.0"MAPLE	20' DL	5259	25.0"MAPLE	12' DL	
2588	8.0"DECIDUOUS	6' DL		2796	6.0"MAPLE	20' DL	5260	12.0"DECIDUOUS	7' DL	
2589	6.0"DECIDUOUS	6' DL		2797	6.0"MAPLE	20' DL	5261	11.0"DECIDUOUS	6' DL	
2590	18.0"DECIDUOUS	15' DL		2798	12"DECIDUOUS	15' DL	5262	18.0"MAPLE	12' DL	
2591	10"&16"DBL DECIDUOUS	15' DL		2799	10.0"MAPLE	12' DL	5263	12.0"DECIDUOUS	10' DL	
2592	20.0" DECIDUOUS	20' DL		2800	14.0"MAPLE	18' DL	5264	16.0"DECIDUOUS	10' DL	
2593	14.0"MAPLE	20' DL		2801	22.0"MAPLE	15' DL	5265	9.0"FIR	6' DL	
2594	24"18"18"TRI DECID	20' DL		2802	12.0"MAPLE	20' DL	5266	9.0"CEDAR	5' DL	
2595	18.0"MAPLE	25' DL		2803	14.0"MAPLE	20' DL	5267	15.0"FIR	20' DL	
2596	8.0"MAPLE	10' DL		2804	18.0"MAPLE	20' DL	5268	34.0"MAPLE	30' DL	
2597	8.0"MAPLE	10' DL		2805	18.0"MAPLE	---	5269	14.0"MAPLE	25' DL	
2598	32.0"MAPLE	25' DL		2806	12.0"MAPLE	14' DL	5270	14.0"MAPLE	25' DL	
2599	6.0"MAPLE	6' DL		2807	16.0"MAPLE	20' DL	5271	7.0"DECIDUOUS	5' DL	
2600	8.0"MAPLE	10' DL		2808	24.0"MAPLE	20' DL	5272	16.0"DECIDUOUS	10' DL	
2601	10.0"MAPLE	12' DL		2809	6.0"MAPLE	10' DL	5273	10.0"DECIDUOUS	5' DL	
2602	12"&14"DBL MAPLE	18' DL		2810	16.0"MAPLE	16' DL	5274	6.0"DECIDUOUS	2' DL	REMOVE, ODOT
2603	14"&18"DBL DECIDUOUS	20' DL		2811	12.0"MAPLE	14' DL	5275	28.0" WHITE OAK	30' DL	PROTECT OREGON WHITE OAK
2757	16.0"MAPLE	18' DL		2812	6.0"MAPLE	6' DL	5276	38.0"FIR	30' DL	REMOVE, ODOT
2758	16.0"MAPLE	18' DL		2813	6.0"MAPLE	6' DL	5277	24.0"FIR	25' DL	REMOVE, ODOT
2759	10.0"MAPLE	12' DL		2814	6.0"MAPLE	6' DL	5278	22.0"MAPLE	15' DL	
2760	14.0"MAPLE	14' DL		2817	12.0"MAPLE	12' DL	5279	20.0" WHITE OAK	20' DL	PROTECT OREGON WHITE OAK
2761	10.0"MAPLE	12' DL		2818	10.0"MAPLE	10' DL	5280	10.0"MAPLE	12' DL	
2762	36.0"COTTONWOOD	25' DL		2819	10.0"MAPLE	14' DL	5281	20.0"MAPLE	25' DL	
2763	48.0"COTTONWOOD	30' DL		2820	6.0"MAPLE	6' DL	5365	6.0"PINE	4' DL	
2764	12.0"MAPLE	10' DL		2821	8.0"MAPLE	8' DL	5366	6.0"PINE	4' DL	
2765	36.0"COTTONWOOD	25' DL		2822	12.0"MAPLE	12' DL	5367	6.0"FIR	6' DL	
2766	48.0"COTTONWOOD	30' DL		2823	10.0"MAPLE	14' DL	5368	6.0"FIR	6' DL	
2767	12.0"MAPLE	12' DL		2824	14.0"MAPLE	16' DL	5369	6.0"FIR	8' DL	
2768	10.0"MAPLE	12' DL		2825	24.0"MAPLE	---	5370	6.0"FIR	8' DL	
2769	14.0"MAPLE	16' DL		5228	12.0"DECIDUOUS	30' DL	5371	6.0"FIR	10' DL	
2770	16.0"MAPLE	16' DL		5229	60.0"REDWOOD	30' DL	5372	6.0"DOUG-FIR	4' DL	
2771	14.0"MAPLE	14' DL		5230	36.0"FIR	30' DL				
2772	14.0"MAPLE	8' DL		5231	12.0"DECIDUOUS	15' DL				

Nov 26, 2018 - 4:30pm
V:\PROJECT\18400\18408\CADD\ACAD\DWG\18408C-Tree removal.dwg

NO.	DATE	BY	REVISIONS

C. Green	11/26/2018
DESIGNED	DATE
S. Lozano	11/26/2018
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APPROVED	DATE



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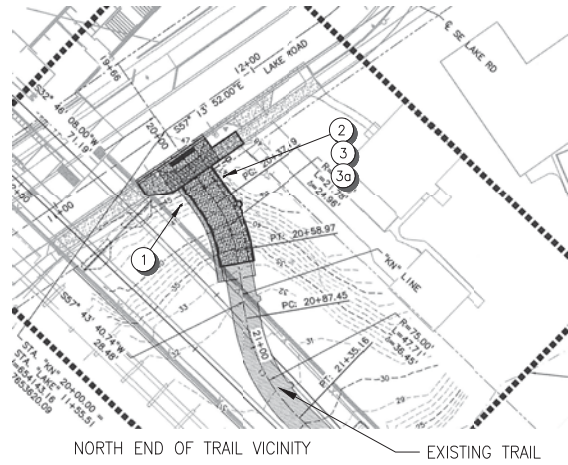
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FAX: 503-774-8236

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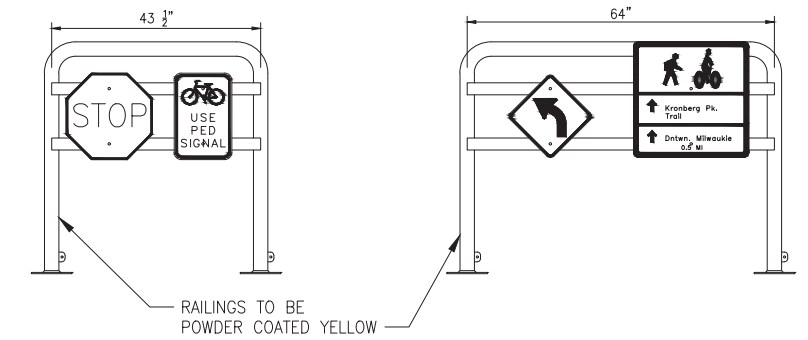
TREE LIST

PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.: TRO2
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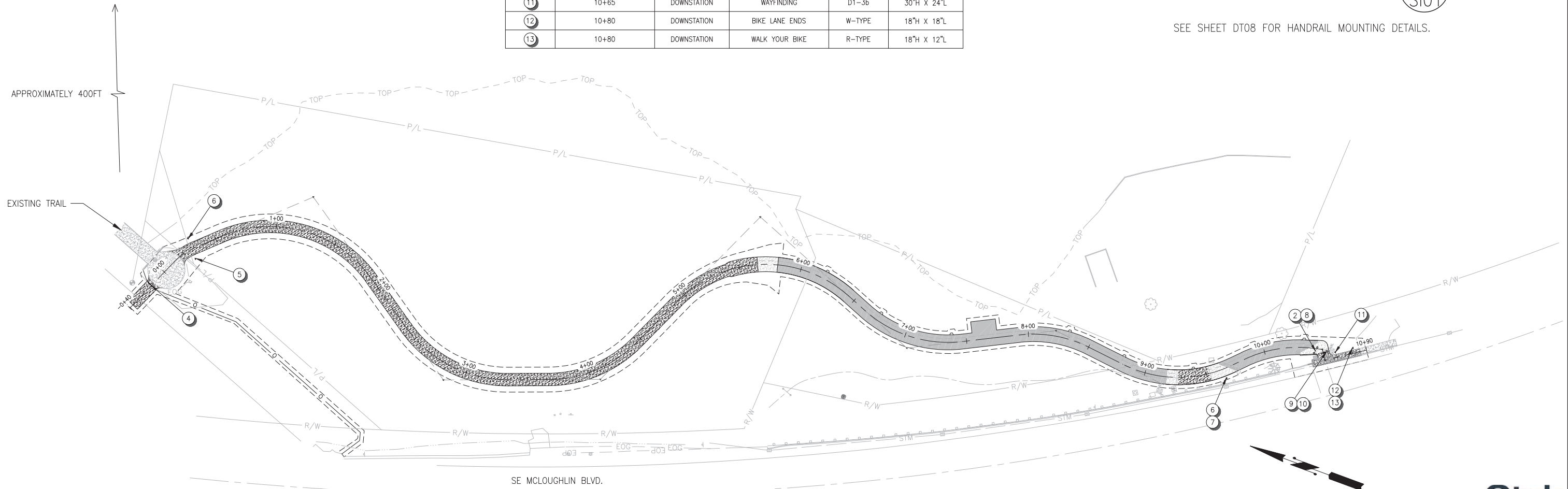


SIGN SCHEDULE					
SIGN NUMBER	STA.	DIRECTION	SIGN DESCRIPTION	MUTCD SIGN TYPE	DIMENSIONS
1	END OF EXISTING PATH	UPSTATION	WAYFINDING	D1-3b	30"H X 24"L
2	END OF EXISTING PATH	DOWNSTATION	STOP	R1-1	18"H X 18"L
3	END OF EXISTING PATH	DOWNSTATION	BIKE ROUTE	D11-1	18"H X 24"L
3a	END OF EXISTING PATH	DOWNSTATION	END	M4-6	6"H X 12"L
4	-00+15	DOWNSTATION	AUTHORIZED VEHICLES ONLY	R5-11	24"H X 30"L
5	00+29	UPSTATION	WAYFINDING	D1-3b	30"H X 24"L
6	00+30	DOWNSTATION	RIGHT-HAND CURVE	W1-1R	18"H X 18"L
6	09+65	DOWNSTATION	RIGHT-HAND CURVE	W1-1R	18"H X 18"L
7	09+65	UPSTATION	STOP AHEAD	W3-1	18"H X 18"L
2	10+42 ON METAL HANDRAIL	UPSTATION	STOP	R1-1	18"H X 18"L
8	10+42 ON METAL HANDRAIL	UPSTATION	BIKES USE PED SIGNAL	R9-5	18"H X 12"L
9	10+50 ON METAL HANDRAIL	DOWNSTATION	LEFT-HAND CURVE	W1-2L	18"H X 18"L
10	10+50 ON METAL HANDRAIL	DOWNSTATION	WAYFINDING	D1-3b	30"H X 24"L
11	10+65	DOWNSTATION	WAYFINDING	D1-3b	30"H X 24"L
12	10+80	DOWNSTATION	BIKE LANE ENDS	W-TYPE	18"H X 18"L
13	10+80	DOWNSTATION	WALK YOUR BIKE	R-TYPE	18"H X 12"L



METAL HANDRAIL SIGN LAYOUT A
NTS S101

SEE SHEET DT08 FOR HANDRAIL MOUNTING DETAILS.



Nov 20, 2018 - 12:03pm
V:\PROJECT\18400\18400\CADD\CADD\18400C-Wayfinding Plan.dwg

NO.	DATE	BY	REVISIONS

C. Green	11/20/2018
DESIGNED	DATE
S. Lozano	11/20/2018
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE



MILWAUKIE
Dogwood City of the West

6101 SE JOHNSON CREEK BLVD.
MILWAUKIE, OR 97206

PHONE: 503-786-7600
FAX: 503-774-8236

KRONBERG PARK MULTI-USE WALKWAY

WAYFINDING PLAN

PROJECT NO.: CIP2017-D29

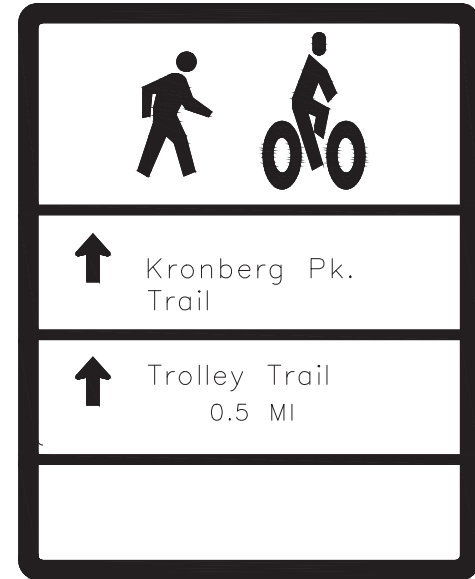
CONTRACT NO.:

DATE: NOV 2018

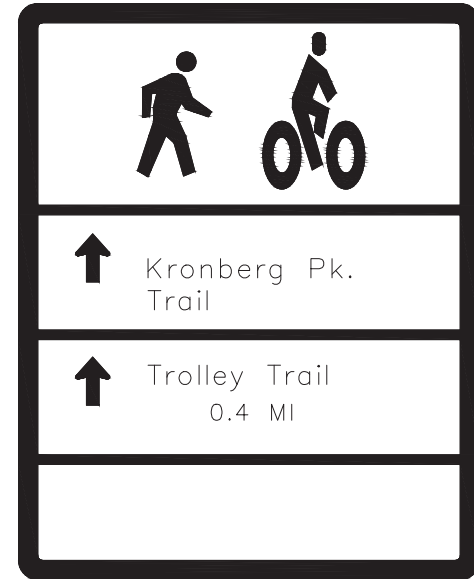
SHEET NO.: S101



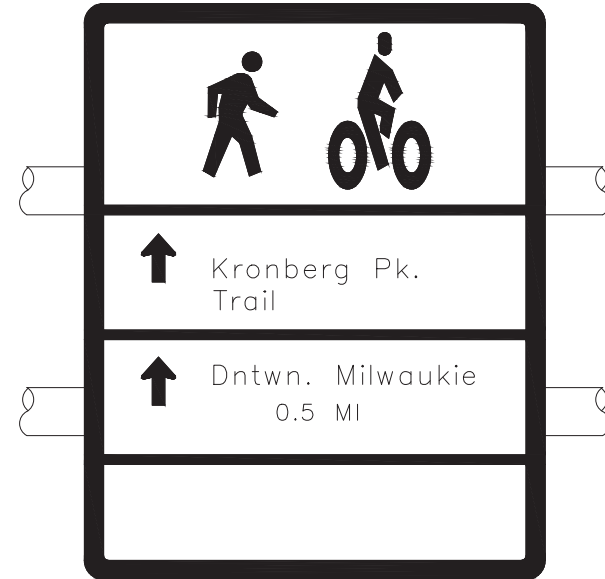
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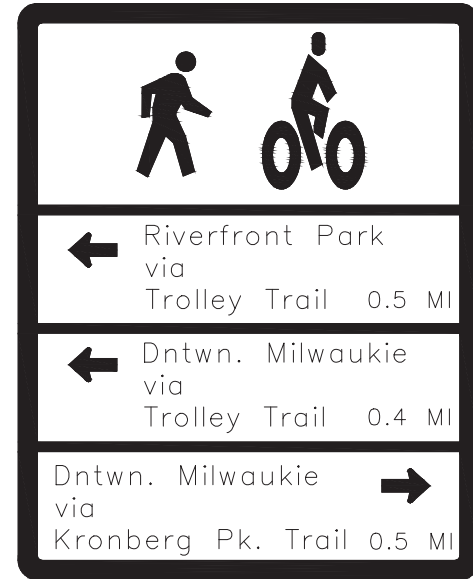
1 D1-3b
24" X 24"



5 D1-3b
24" X 24"



10 D1-3b
24" X 24"



11 D1-3b
30" X 24"


SIGN ASSEMBLY DETAILS B
NTS S102

- NOTES:
1. FOR SIGN ASSEMBLY 10 SEE SHEET DT08 FOR HANDRAIL MOUNTING AND PLACEMENT DETAILS.
 2. FOR SIGN ASSEMBLIES 1, 5, AND 10 SEE CITY DETAIL 525 ON SHEET DT07 FOR BURY MOUNTING DETAILS AND DETAIL G ON SHEET S105 FOR SIGN LETTERING AND DIMENSIONS.
 3. FOR SIGN ASSEMBLY 1 SEE DETAIL E ON SHEET S105 FOR PLACEMENT DETAILS.
 4. FOR SIGN ASSEMBLIES 5 AND 11 SEE DETAIL F ON SHEET S105 FOR PLACEMENT DETAILS.

Nov 20, 2018 - 12:03pm
V:\PROJECT\18400\18400\CADD\ACAD\DWG\18400C-Wayfinding Plan.dwg

NO.	DATE	BY	REVISIONS

C. Green	11/20/2018
DESIGNED	DATE
S. Lozano	11/20/2018
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE



MILWAUKIE

Dogwood City of the West

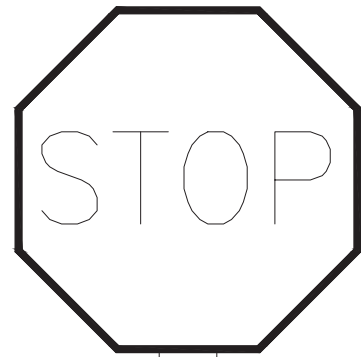
6101 SE JOHNSON CREEK BLVD.
MILWAUKIE, OR 97206

PHONE: 503-786-7600
FAX: 503-774-8236

KRONBERG PARK MULTI-USE WALKWAY

WAYFINDING DETAILS

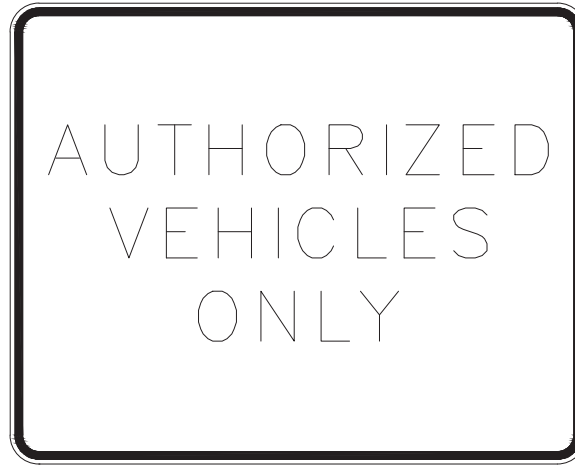
PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.: S102
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2 R1-1
18" X 18"

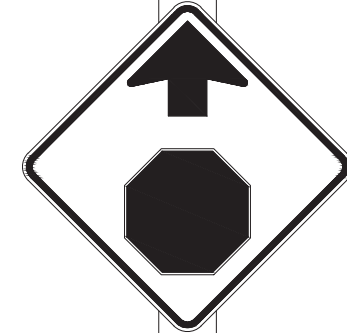
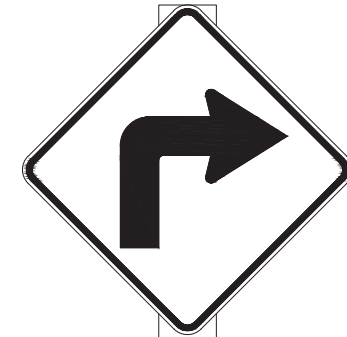
3 D11-1
18" X 24"

3a M4-6
6" X 12"



4 R5-11
30" X 24"

SIGN ASSEMBLY DETAILS C
NTS S103



6 W1-1R
18" X 18"

7 W3-1
18" X 18"

NOTES:

- FOR SIGN ASSEMBLIES 2, 3, 3a, 6, AND 7 SEE CITY DETAIL 525 ON SHEET DT07 FOR BURY MOUNTING DETAILS AND DETAIL F ON SHEET S105 FOR PLACEMENT DETAILS.
- FOR SIGN ASSEMBLY 4 MOUNT SIGNS ON CENTER OF GATE FRAME.

Nov 20, 2018 - 12:03pm
V:\PROJECT\18400\18408\CADD\ACAD\Dwg\18408C-Wayfinding Plan.dwg

NO.	DATE	BY	REVISIONS

C. Green	11/20/2018
DESIGNED	DATE
S. Lozano	11/20/2018
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE



MILWAUKIE
Dogwood City of the West

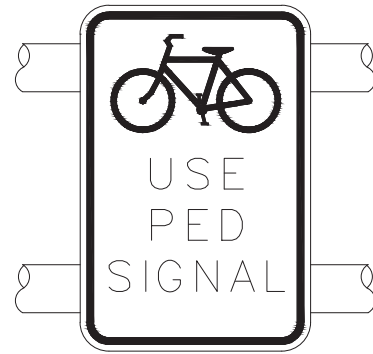
6101 SE JOHNSON CREEK BLVD.
MILWAUKIE, OR 97206

PHONE: 503-786-7600
FAX: 503-774-8236

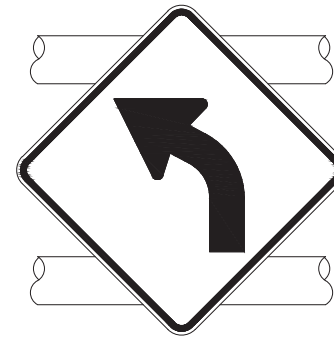
KRONBERG PARK MULTI-USE WALKWAY

WAYFINDING DETAILS

PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.: S103
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8 R9-5
18" X 12"



9 W1-2L
18" X 18"



12 W-TYPE
18" X 18"



13 R-TYPE
18" X 12"

SIGN ASSEMBLY DETAILS D
NTS S104

NOTES:

1. FOR SIGN ASSEMBLIES 8 AND 9 SEE SHEET DT08 FOR HANDRAIL MOUNTING AND PLACEMENT DETAILS.
2. FOR SIGN ASSEMBLIES 12 AND 13 SEE CITY DETAIL 525 ON SHEET DT07 FOR BURY MOUNTING DETAILS AND DETAIL F ON SHEET SI05 FOR PLACEMENT DETAILS.

Nov 20, 2018 - 12:03pm
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NO.	DATE	BY	REVISIONS

C. Green	11/20/2018
DESIGNED	DATE
S. Lozano	11/20/2018
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE



MILWAUKIE
Dogwood City of the West

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MILWAUKIE, OR 97206

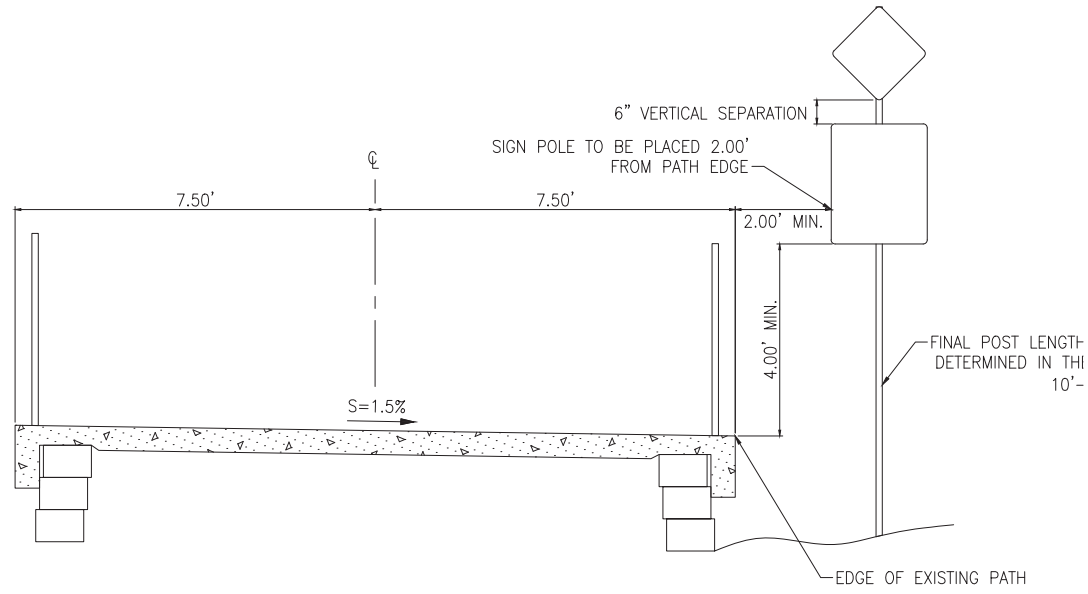
PHONE: 503-786-7600
FAX: 503-774-8236

KRONBERG PARK MULTI-USE WALKWAY

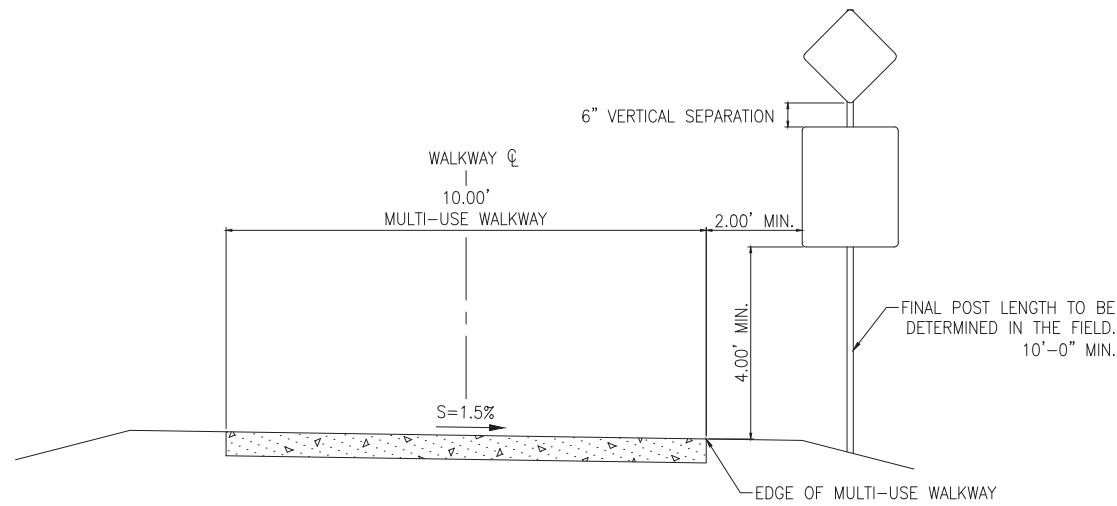
WAYFINDING DETAILS

PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.: S104
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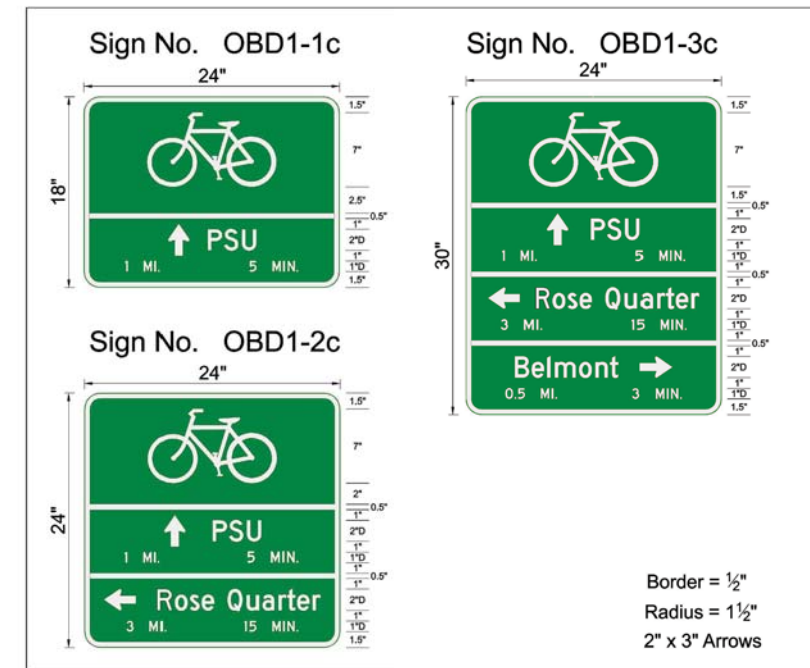
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360.737.9613
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NORTH END OF TRAIL
EXISTING PATH SIGN PLACEMENT
NTS E
SI05



MULTI-USE WALKWAY SIGN PLACEMENT
NTS F
SI05



Sign Background: Green, Retro-Reflective
Sign Legend: White, Retro-Reflective

The bike directional signs can be used as a replacement for the D1-1c, D1-2c and D1-3c signs shown in the MUTCD.

OREGON DEPARTMENT OF TRANSPORTATION

Approved By: S.T.E. Date: 7/08 Publication Date: 12/11

8-76

D1-3b SIGN DIMENSIONING
NTS G
SI05

Nov 20, 2018 - 12:04pm
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NO.	DATE	BY	REVISIONS

C. Green	11/20/2018
DESIGNED	DATE
S. Lozano	11/20/2018
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE



MILWAUKIE
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KRONBERG PARK MULTI-USE WALKWAY

WAYFINDING DETAILS

PROJECT NO.: CIP2017-D29 CONTRACT NO.: DATE: NOV 2018 SHEET NO.: SI05



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360.737.9613
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LEGEND

CABINETS

- (BMCL) INSTALL BASE MOUNTED CONTROL CABINET, 120/240 VOLT METERED, FOR ILLUMINATION SYSTEM.
- (PE) INSTALL PHOTO ELECTRONIC CONTROL RELAY ON LUMINAIRE.
- (PS 1) POWER SOURCE FOR 120V/240V, SINGLE PHASE.

POLES

- (LP N) INSTALL HAPCO LIGHT POLE (PART #SSAI5B4-4-BA) (N=NUMBER) WITH FOUNDATION AND LUMINAIRE. SEE LIGHT POLE TABLE.
- (LPB N) INSTALL LIGHT HAPCO POLE (PART #SSA(13/15)B4-4-BA) (N=NUMBER) ON BRIDGE STRUCTURE WITH LUMINAIRE. SEE LIGHT POLE TABLE AND SHEETS IL-5 AND BR07-BR08 FOR LIGHT POLE BRIDGE MOUNTING DETAILS.
- (EX LUM) MAINTAIN AND PROTECT EXISTING POLE AND LUMINAIRE.

JUNCTION BOX

- (JB 1A) INSTALL 17"x10"x12" (MIN. DIMENSION) PRECAST CONCRETE JUNCTION BOX WITH CONCRETE APRON.
- (JB 1) INSTALL 17"x10"x12" (MIN. DIMENSION) PRECAST CONCRETE JUNCTION BOX.
- (EX JB) RETAIN AND PROTECT EXISTING JUNCTION BOX.
- (A 6) INSTALL SURFACE MOUNT 12"x10"x8" GALV. CAST IRON JUNCTION BOX. SEE SHEET BR07 FOR BRIDGE MOUNTING DETAILS.

CONDUIT

- (S) INSTALL (S) IN. SCHEDULE 40 PVC ELECTRICAL CONDUIT.
- (W) INSTALL 3-INCH CONDUIT AND PULL LINE AS REQUIRED BY POWER COMPANY.
- (BC S) INSTALL (S=SIZE) INCH RIGID METALLIC, CONDUIT BODIES, EXPANSION FITTING, AND SURFACE MOUNTED JUNCTION BOXES AS REQUIRED. SUBMIT PROPOSED METHOD OF ATTACHMENT TO THE BRIDGE FOR APPROVAL.
- (EX EC S) RETAIN AND PROTECT EXISTING (S=SIZE WHEN SHOWN) CONDUIT.

WIRES

- (N G) INSTALL (N=NUMBER) NO. (G=AWG WIRE SIZE) THWN WIRES.
- (N G) INSTALL (N=NUMBER) NO. (G=AWG WIRE SIZE) XHHW WIRES.
- G(S) INSTALL ONE NO. (S=SIZE) BARE COPPER GROUND WIRE.
- L#NX ROADWAY ILLUMINATION CIRCUIT NO. (N) FROM SERVICE PANEL (X):
A= NEW SERVICE PANEL ON SE LAKE RD AT STA. 20+07

GENERAL NOTES:

1. ALL MATERIALS AND WORKMANSHIP OF THE ILLUMINATION SYSTEM SHALL CONFORM TO CITY OF MILWAUKIE SPECIFICATIONS, THESE PLANS, THE SPECIAL PROVISIONS, AND THE 2018 OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION.
2. ALL ELECTRICAL EQUIPMENT SHALL CONFORM TO THE CURRENT STANDARDS OF THE NATIONAL ELECTRIC MANUFACTURERS ASSOCIATION (NEMA) AND THE UNDERWRITERS LABORATORIES, INC. (U.L) WHEREVER APPLICABLE. IN ADDITION TO THE REQUIREMENTS OF THE PLANS, STANDARD SPECIFICATIONS, AND THE SPECIAL PROVISIONS, ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE CURRENT REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), THE NATIONAL ELECTRICAL SAFETY CODE, STANDARDS OF THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), AND ANY LOCAL ORDINANCES WHICH MAY APPLY.
3. LOCATION OF ILLUMINATION CONDUITS AND JUNCTION BOXES ARE APPROXIMATE. COORDINATE WITH OTHER UTILITIES TO ENSURE PROPER INSTALLATION.
4. COORDINATE POWER CONNECTION WITH JEFF WIESE OF P.G.E. AT (503) 742-8363. REFERENCE PGE WORK ORDER NO. M2520336.
5. EQUIPMENT SUBMITTALS AND POLE DRAWINGS SHALL BE PROVIDED TO CITY OF MILWAUKIE BY THE CONTRACTOR AFTER AN INITIAL REVIEW HAS BEEN COMPLETED BY THE PROJECT ENGINEER. CITY APPROVAL OF THESE SUBMITTALS MUST BE OBTAINED PRIOR TO CONSTRUCTION.
6. TO BE ACCOMPANIED BY ODOT STANDARD DRAWINGS TM472 AND TM485.

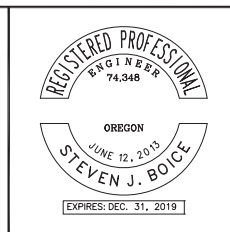
Light Levels		
Design Standard	Target Design Light	Achieved Light
Average Horizontal Illuminance (foot-candles)	≥1.0	1.00
Uniformity (Average/Minimum)	≤3:1	2.40
Maximum/Minimum	≤6:1	3.50
Minimum Vertical Illuminance (foot-candles)(5 ft above ground)	≥0.2	0.30

POLE NO.	STATION	OFFSET (FT)*	LUMINAIRE								MOUNTING HEIGHT (FT)
			LAMP (OR APPROVED EQUAL)	LINEVOLT	TYPE	WATTAGE	INITIAL LUMENS	CIRCUIT	LLF**	B.U.G RATING***	
1	EXISTING	-		240V	1 SHORT	38	4706	L#1A	0.80	1.0.1	15
2	EXISTING	-	LITHONIA LIGHTING D-SERIES SIZE 0 DSX0 LED P1 30K T1S MVOLT	240V	1 SHORT	38	4706	L#1A	0.80	1.0.1	15
3	EXISTING	-	LITHONIA LIGHTING D-SERIES SIZE 0 DSX0 LED P1 30K T1S MVOLT	240V	1 SHORT	38	4706	L#1A	0.80	1.0.1	15
4	EXISTING	-	LITHONIA LIGHTING D-SERIES SIZE 0 DSX0 LED P1 30K T1S MVOLT	240V	1 SHORT	38	4706	L#1A	0.80	1.0.1	13
5	EXISTING	-	LITHONIA LIGHTING D-SERIES SIZE 0 DSX0 LED P1 30K T1S MVOLT	240V	1 SHORT	38	4706	L#1A	0.80	1.0.1	13
6	EXISTING	-	LITHONIA LIGHTING D-SERIES SIZE 0 DSX0 LED P1 30K T1S MVOLT	240V	1 SHORT	38	4706	L#1A	0.80	1.0.1	13
7	EXISTING	-	LITHONIA LIGHTING D-SERIES SIZE 0 DSX0 LED P1 30K T1S MVOLT	240V	1 SHORT	38	4706	L#1A	0.80	1.0.1	13
8	EXISTING	-	LITHONIA LIGHTING D-SERIES SIZE 0 DSX0 LED P1 30K T1S MVOLT	240V	1 SHORT	38	4706	L#1A	0.80	1.0.1	13
9	EXISTING	-	LITHONIA LIGHTING D-SERIES SIZE 0 DSX0 LED P1 30K T1S MVOLT	240V	1 SHORT	38	4706	L#1A	0.80	1.0.1	13
10	EXISTING	-	LITHONIA LIGHTING D-SERIES SIZE 0 DSX0 LED P1 30K T1S MVOLT	240V	1 SHORT	38	4706	L#1A	0.80	1.0.1	13
11	EXISTING	-	LITHONIA LIGHTING D-SERIES SIZE 0 DSX0 LED P1 30K T1S MVOLT	240V	1 SHORT	38	4706	L#1A	0.80	1.0.1	13
12	EXISTING	-	LITHONIA LIGHTING D-SERIES SIZE 0 DSX0 LED P1 30K T1S MVOLT	240V	1 SHORT	38	4706	L#1A	0.80	1.0.1	13
13	"B" 0+33	7'-0"	LITHONIA LIGHTING D-SERIES POLE MOUNT DSXWPM LED 10C 700 30K T2M MVOLT	240V	2 MEDIUM	26	2684	L#1A	0.83	1.0.1	15
14	"B" 0+92	7'-0"	LITHONIA LIGHTING D-SERIES POLE MOUNT DSXWPM LED 10C 700 30K T2M MVOLT	240V	2 MEDIUM	26	2684	L#1A	0.83	1.0.1	15
15	"B" 1+50	7'-0"	LITHONIA LIGHTING D-SERIES POLE MOUNT DSXWPM LED 10C 700 30K T2M MVOLT	240V	2 MEDIUM	26	2684	L#1A	0.83	1.0.1	15
16	"B" 2+14	7'-0"	LITHONIA LIGHTING D-SERIES POLE MOUNT DSXWPM LED 10C 700 30K T2M MVOLT	240V	2 MEDIUM	26	2684	L#1A	0.83	1.0.1	15
17	"B" 2+83	7'-0"	LITHONIA LIGHTING D-SERIES POLE MOUNT DSXWPM LED 10C 700 30K T2M MVOLT	240V	2 MEDIUM	26	2684	L#1A	0.83	1.0.1	15
18	"B" 3+51	7'-0"	LITHONIA LIGHTING D-SERIES POLE MOUNT DSXWPM LED 10C 700 30K T2M MVOLT	240V	2 MEDIUM	26	2684	L#1A	0.83	1.0.1	15
19	"B" 4+16	7'-0"	LITHONIA LIGHTING D-SERIES POLE MOUNT DSXWPM LED 10C 700 30K T2M MVOLT	240V	2 MEDIUM	26	2684	L#1A	0.83	1.0.1	15
20	"B" 4+82	7'-0"	LITHONIA LIGHTING D-SERIES POLE MOUNT DSXWPM LED 10C 700 30K T2M MVOLT	240V	2 MEDIUM	26	2684	L#1A	0.83	1.0.1	15
21	"B" 5+59	7'-0"	LITHONIA LIGHTING D-SERIES POLE MOUNT DSXWPM LED 10C 700 30K T2M MVOLT	240V	2 MEDIUM	26	2684	L#1A	0.83	1.0.1	15
22	"B" 6+20	6'-1"	LITHONIA LIGHTING D-SERIES POLE MOUNT DSXWPM LED 10C 700 30K T2M MVOLT	240V	2 MEDIUM	26	2684	L#1A	0.83	1.0.1	15
23	"B" 6+74	6'-0"	LITHONIA LIGHTING D-SERIES POLE MOUNT DSXWPM LED 10C 700 30K T2M MVOLT	240V	2 MEDIUM	26	2684	L#1A	0.83	1.0.1	15
24	"B" 7+38	6'-0"	LITHONIA LIGHTING D-SERIES POLE MOUNT DSXWPM LED 10C 700 30K T2M MVOLT	240V	2 MEDIUM	26	2684	L#1A	0.83	1.0.1	15
25	"B" 8+32	5'-11"	LITHONIA LIGHTING D-SERIES POLE MOUNT DSXWPM LED 10C 700 30K T2M MVOLT	240V	2 MEDIUM	26	2684	L#1A	0.83	1.0.1	15
26	"B" 8+79	6'-0"	LITHONIA LIGHTING D-SERIES POLE MOUNT DSXWPM LED 10C 700 30K T2M MVOLT	240V	2 MEDIUM	26	2684	L#1A	0.83	1.0.1	15
27	"B" 9+40	6'-0"	LITHONIA LIGHTING D-SERIES POLE MOUNT DSXWPM LED 10C 700 30K T2M MVOLT	240V	2 MEDIUM	26	2684	L#1A	0.83	1.0.1	15
28	"B" 9+93	5'-11"	LITHONIA LIGHTING D-SERIES POLE MOUNT DSXWPM LED 10C 700 30K T2M MVOLT	240V	2 MEDIUM	26	2684	L#1A	0.83	1.0.1	15
29	"B" 10+32	6'-0"	LITHONIA LIGHTING D-SERIES POLE MOUNT DSXWPM LED 10C 700 30K T2M MVOLT	240V	2 MEDIUM	26	2684	L#1A	0.83	1.0.1	15

* OFFSET IS MEASURED FROM CENTER LINE TO CENTER OF POLE
 ** LLF (LIGHT LOSS FACTOR) = LAMP LUMEN DEPRECIATION X LUMINAIRE DIRT DEPRECIATION AT 100K OPERATING HOURS
 *** BUG RATING = BACKLIGHT.UPLIGHT.GLARE

NO.	DATE	BY	REVISIONS

ELV	7/9/18
DESIGNED	DATE
DKS CAD	7/9/18
DRAFTED	DATE
SJB	7/9/18
CHECKED	DATE
APPROVED	DATE



MILWAUKIE
Dogwood City of the West

6101 SE JOHNSON CREEK BLVD.
 MILWAUKIE, OR 97206

PHONE: 503-786-7600
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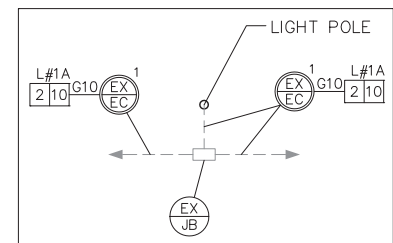
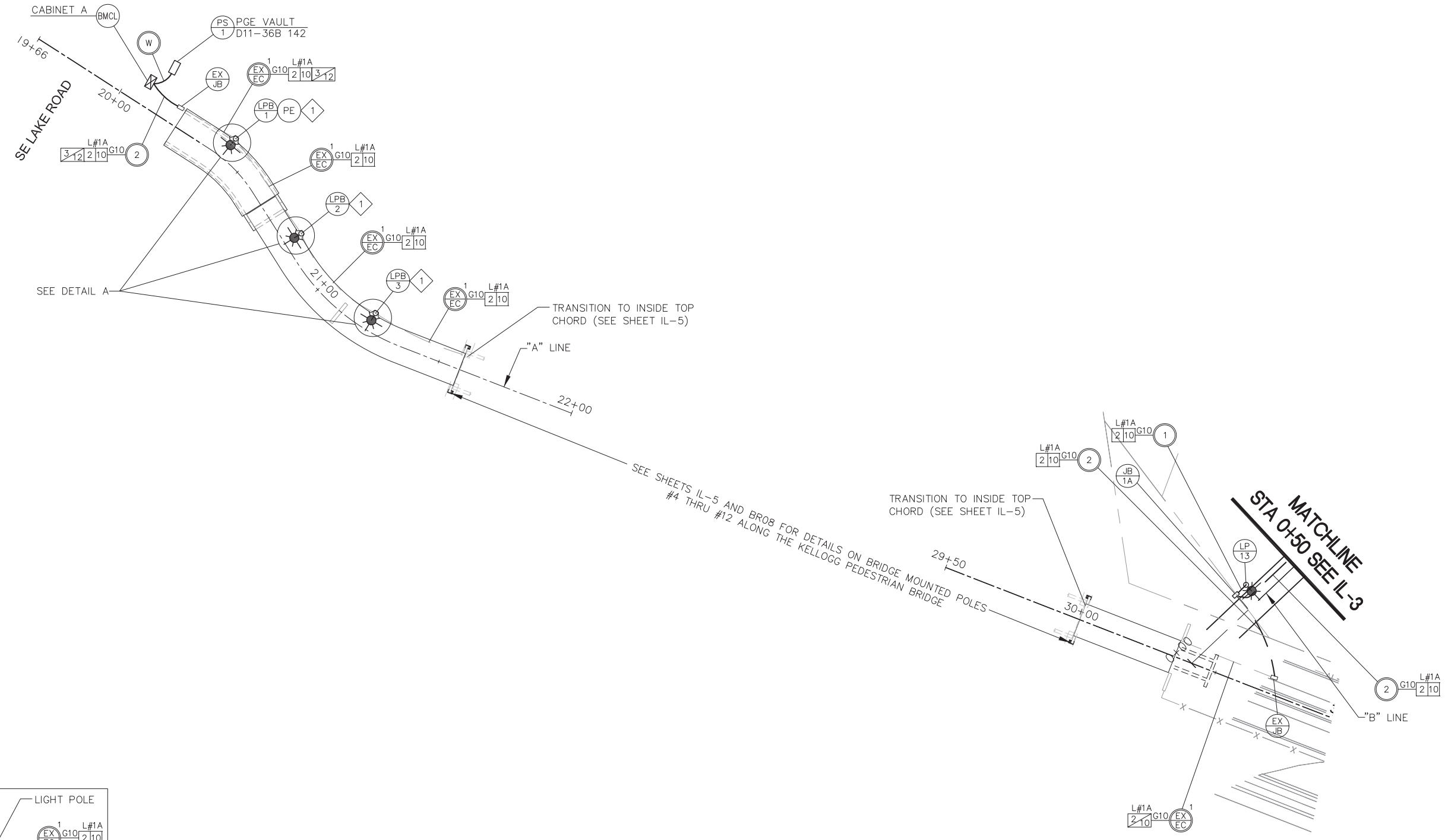
KRONBERG PARK MULTI-USE WALKWAY

ILLUMINATION PLAN LEGEND

720 SW Washington St, Suite 500
 Portland, Oregon 97205
 www.dksassociates.com

PROJECT NO.: CIP2017-D29 CONTRACT NO.:
 DATE: NOVEMBER 2018 SHEET NO.: IL-1

D
C
B
A

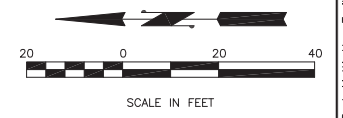


CONSTRUCTION NOTES:
 1 INSTALL NEW LIGHT POLE ON EXISTING LIGHT POLE BUMPOUT USING EXISTING (4) 1½ INCH (I.D.) PVC SLEEVES FOR ANCHORAGE. SEE SHEET BR07 FOR DETAILS.

"NOT ALL UTILITIES SHOWN"
 CONTACT UTILITY COMPANIES FOR FIELD LOCATIONS

NOTE:
 FIELD VERIFY MEASUREMENTS PRIOR TO CONSTRUCTION.

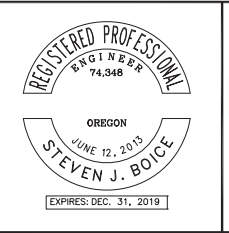
NOTE:
 SEE SHEET IL-1 FOR ILLUMINATION PLAN LEGEND.



DKS 720 SW Washington St, Suite 500
 Portland, Oregon 97205
 www.dksassociates.com

NO.	DATE	BY	REVISIONS

ELV	7/9/18
DESIGNED	DATE
DKS_CAD	7/9/18
DRAFTED	DATE
SJB	7/9/18
CHECKED	DATE
APPROVED	DATE



MILWAUKIE
Dogwood City of the West

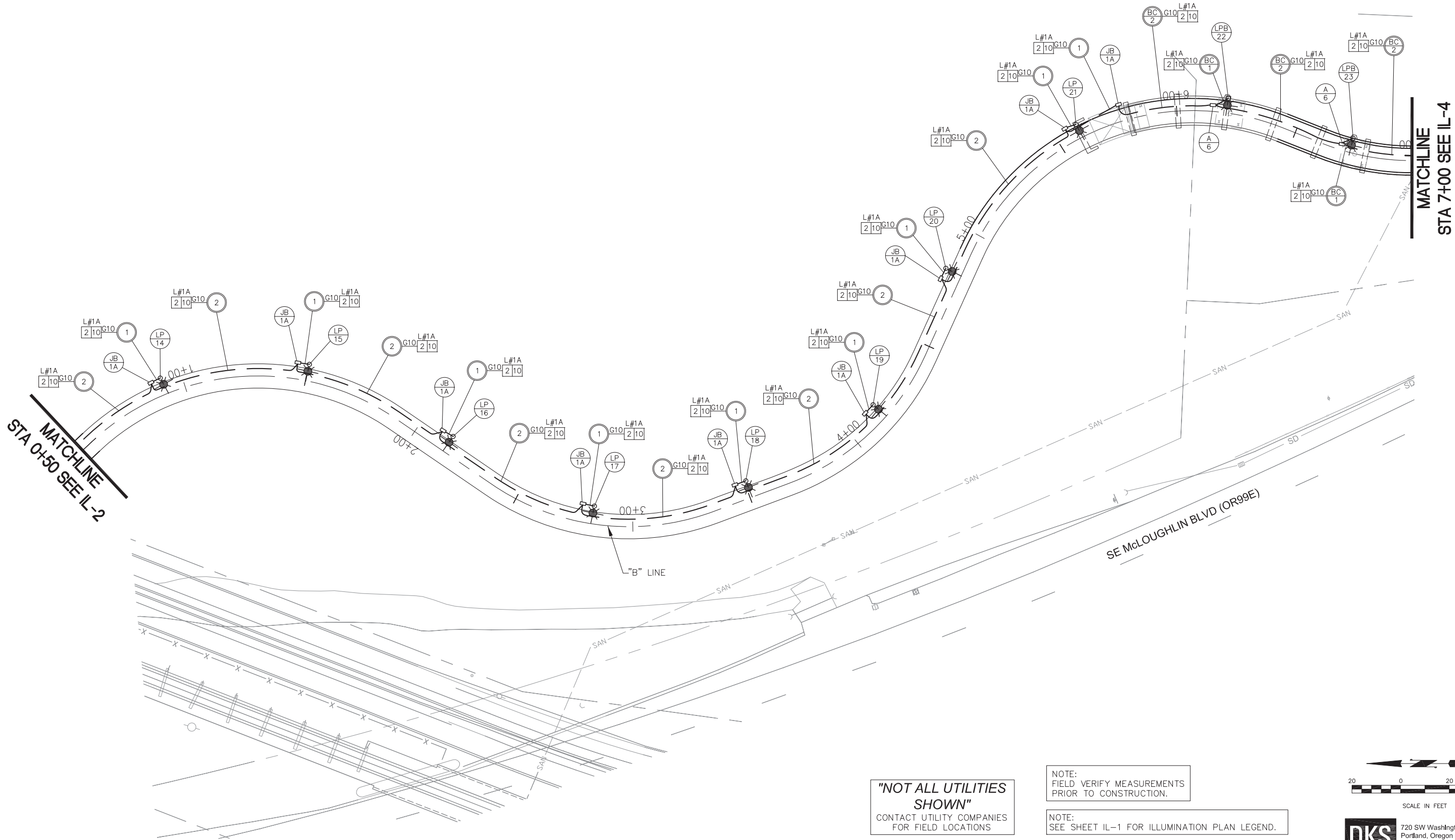
6101 SE JOHNSON CREEK BLVD.
 MILWAUKIE, OR 97206

PHONE: 503-786-7600
 FAX: 503-774-8236

KRONBERG PARK MULTI-USE WALKWAY
 ILLUMINATION PLAN
 STA. "A" 19+66 TO 30+95
 STA. "B" 0+00 TO 0+50

PROJECT NO.: CIP2017-D29 CONTRACT NO.: DATE: NOVEMBER 2018 SHEET NO.: **IL-2**

D
C
B
A



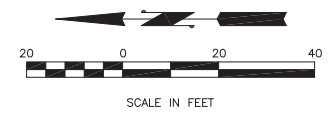
MATCHLINE
STA 0+50 SEE IL-2

MATCHLINE
STA 7+00 SEE IL-4

"NOT ALL UTILITIES SHOWN"
CONTACT UTILITY COMPANIES FOR FIELD LOCATIONS

NOTE:
FIELD VERIFY MEASUREMENTS PRIOR TO CONSTRUCTION.

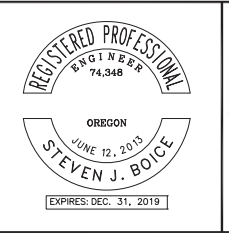
NOTE:
SEE SHEET IL-1 FOR ILLUMINATION PLAN LEGEND.



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NO.	DATE	BY	REVISIONS

ELV DESIGNED	7/9/18	DATE
DKS CAD DRAFTED	7/9/18	DATE
SJB CHECKED	7/9/18	DATE
APPROVED	DATE	



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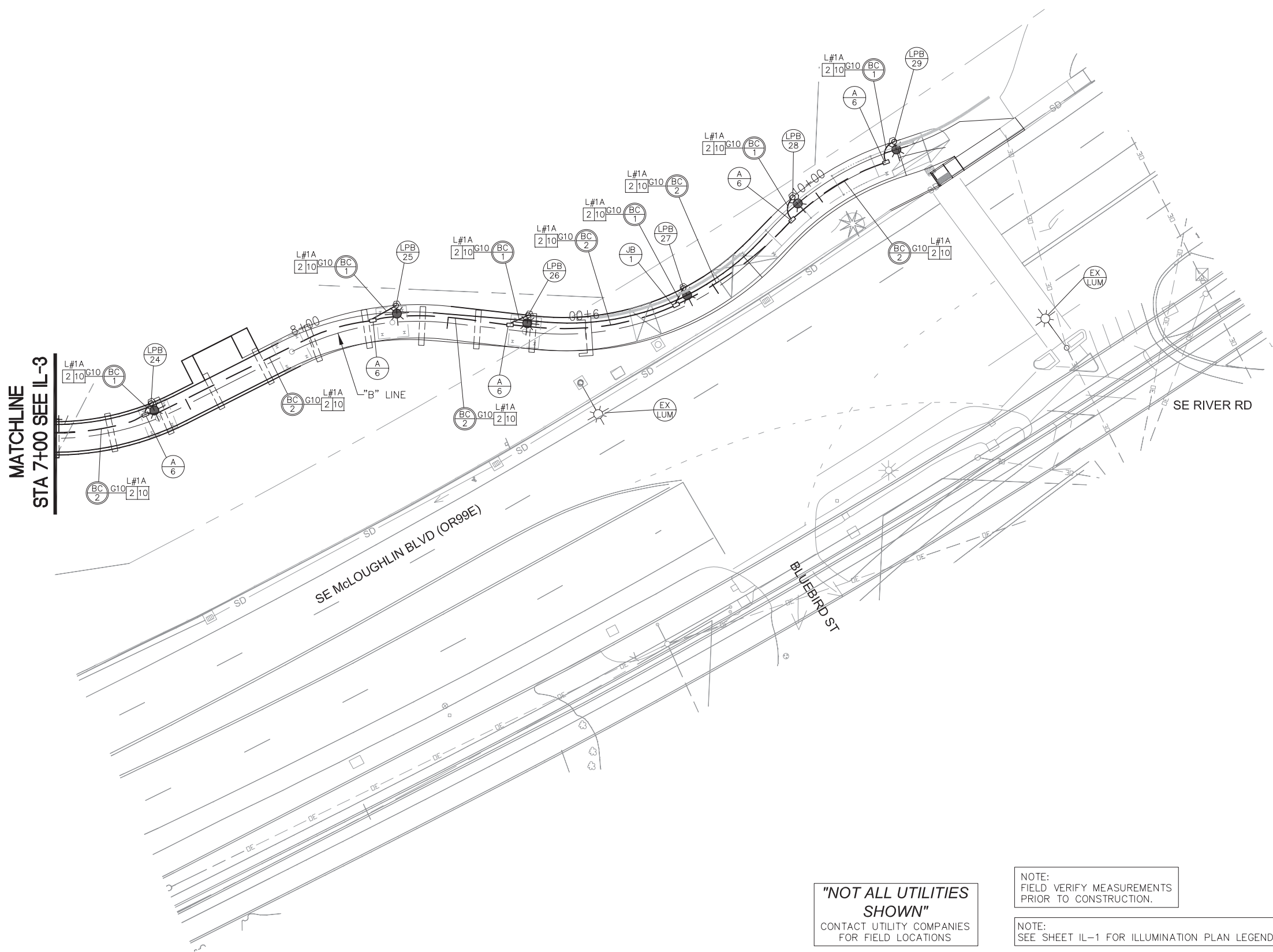
PHONE: 503-786-7600
FAX: 503-774-8236

KRONBERG PARK MULTI-USE WALKWAY

ILLUMINATION PLAN
STA. "B" 0+50 TO 7+00

PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOVEMBER 2018	SHEET NO.: IL-3
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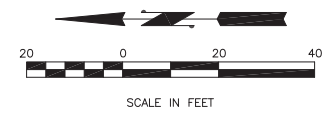
D
C
B
A



"NOT ALL UTILITIES SHOWN"
CONTACT UTILITY COMPANIES FOR FIELD LOCATIONS

NOTE:
FIELD VERIFY MEASUREMENTS PRIOR TO CONSTRUCTION.

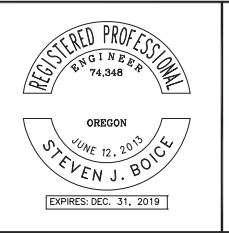
NOTE:
SEE SHEET IL-1 FOR ILLUMINATION PLAN LEGEND.



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NO.	DATE	BY	REVISIONS

ELV DESIGNED	7/9/18	DATE
DKS CAD DRAFTED	7/9/18	DATE
SJB CHECKED	7/9/18	DATE
APPROVED	DATE	



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Dogwood City of the West

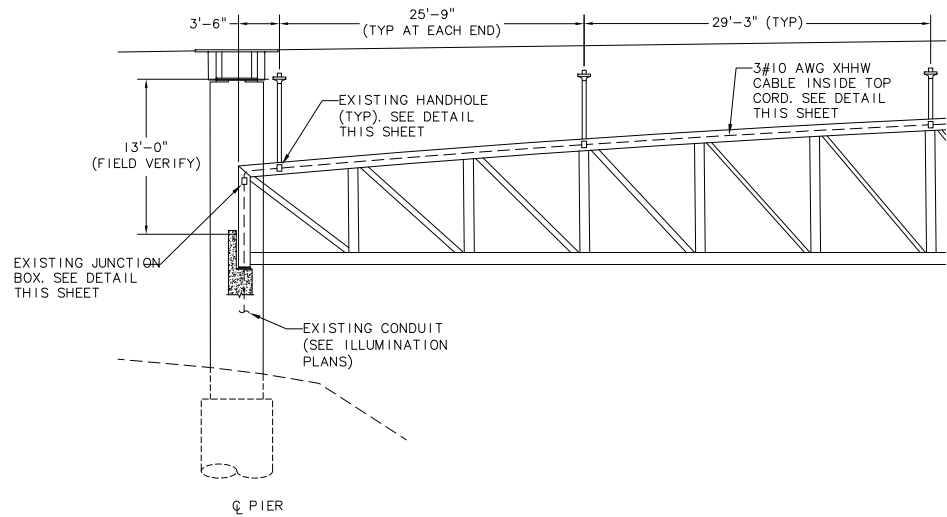
6101 SE JOHNSON CREEK BLVD.
MILWAUKIE, OR 97206

PHONE: 503-786-7600
FAX: 503-774-8236

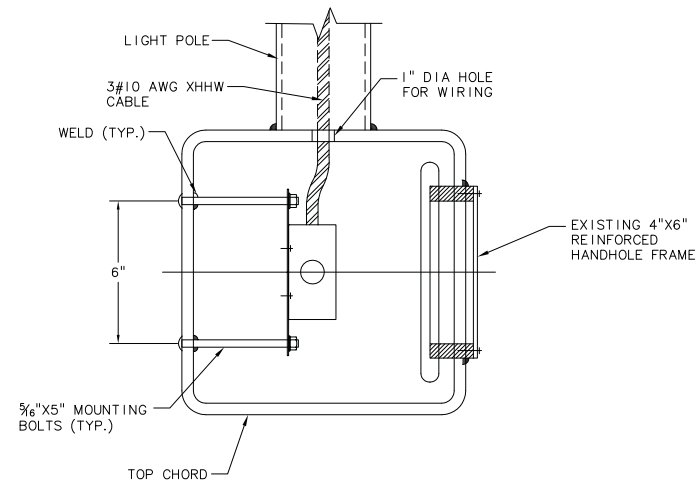
KRONBERG PARK MULTI-USE WALKWAY

ILLUMINATION PLAN
STA. "B" 7+00 TO 10+64

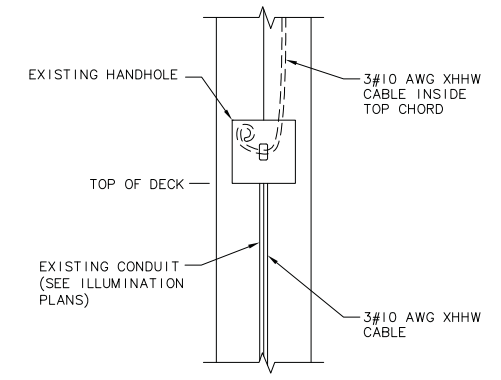
PROJECT NO.: CIP2017-D29 CONTRACT NO.: DATE: NOVEMBER 2018 SHEET NO.: **IL-4**



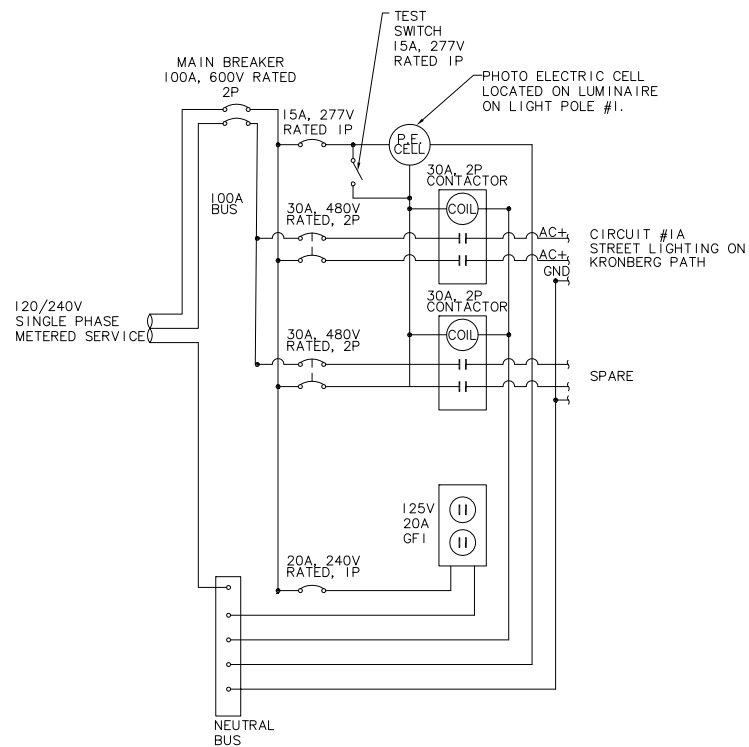
ELEVATION VIEW
POLES #4-12



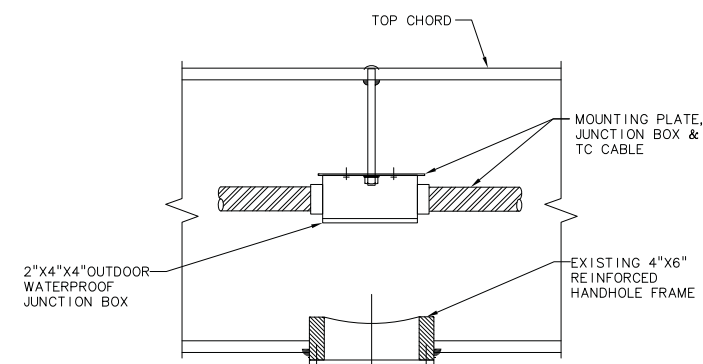
END VIEW
POLES #4-12



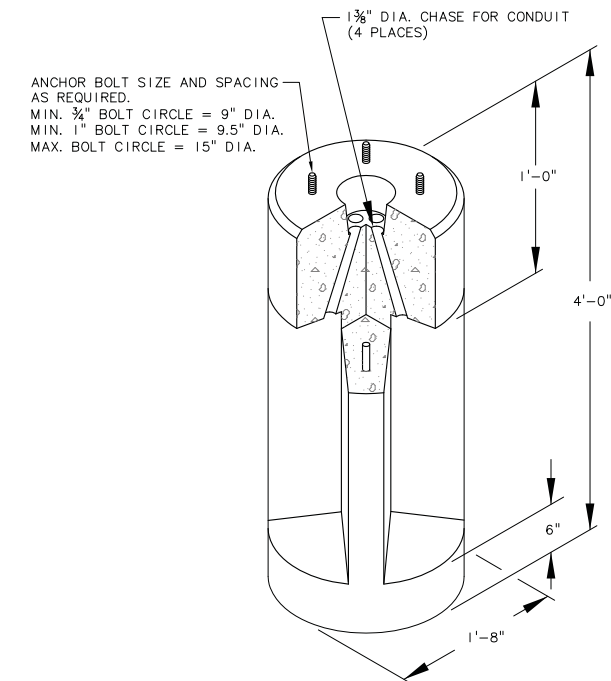
JUNCTION BOX
FARSIDE



SCHEMATIC - ROADWAY LIGHTING PANEL A
SE LAKE RD, STA "A" 20+07, 8'-6"

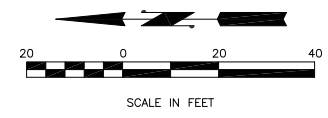


HANDHOLE DETAIL
POLES #4-12

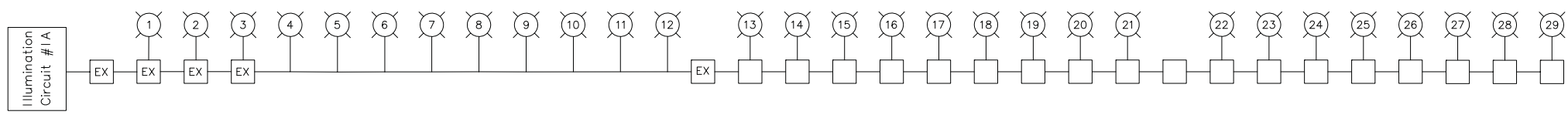


NOTE:
1. PRECAST LIGHT POLE FOOTING SHALL BE UTILITY VAULT 20R-LB-4 OR APPROVED EQUAL.
2. VERIFY BOLT PROJECTION AND BOLT SIZE WITH POLE BASE.

PRECAST LIGHT POLE FOOTING
NOT TO SCALE



- LEGEND:
- (N) New Light Pole No. (N)
 - EX Existing Junction Box
 - New Junction Box



NO.	DATE	BY	REVISIONS

ELV DESIGNED	7/9/18	DATE
DKS CAD	7/9/18	DATE
SJB CHECKED	7/9/18	DATE
APPROVED	DATE	



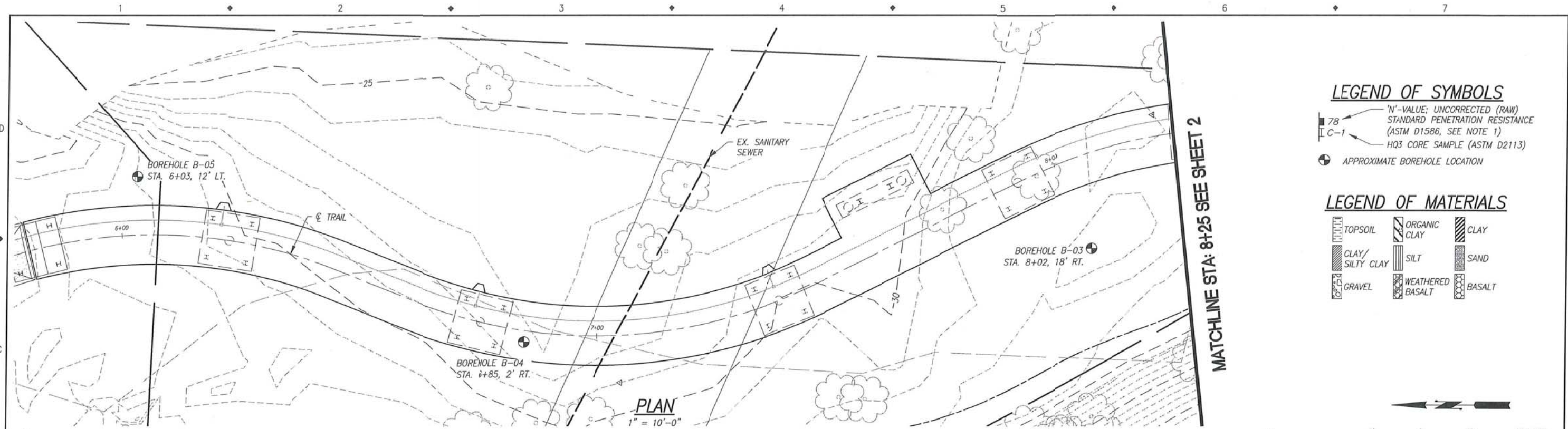
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Dogwood City of the West
6101 SE JOHNSON CREEK BLVD.
MILWAUKIE, OR 97206
PHONE: 503-786-7600
FAX: 503-774-8236

KRONBERG PARK MULTI-USE WALKWAY

ILLUMINATION PLAN DETAILS

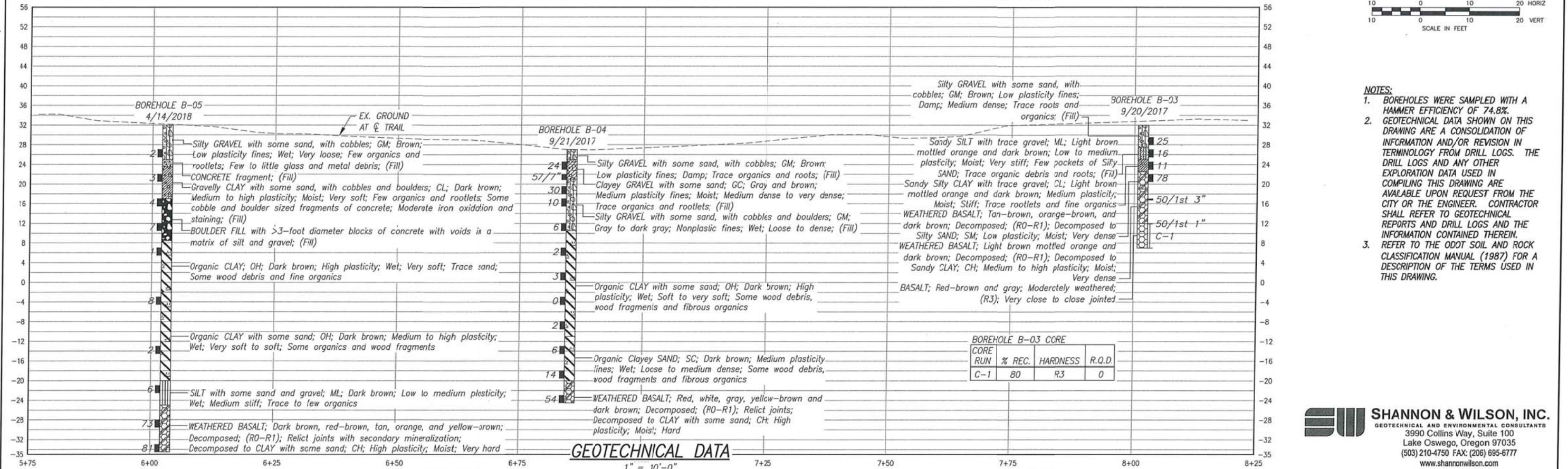
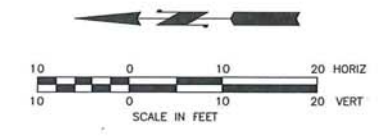
PROJECT NO.: CIP2017-D29 CONTRACT NO.: DATE: JULY 2018 SHEET NO.: IL-5

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- LEGEND OF SYMBOLS**
- 78 ← N-VALUE; UNCORRECTED (RAW) STANDARD PENETRATION RESISTANCE (ASTM D1586, SEE NOTE 1)
 - C-1 ← HQ3 CORE SAMPLE (ASTM D2113)
 - ⊕ APPROXIMATE BOREHOLE LOCATION

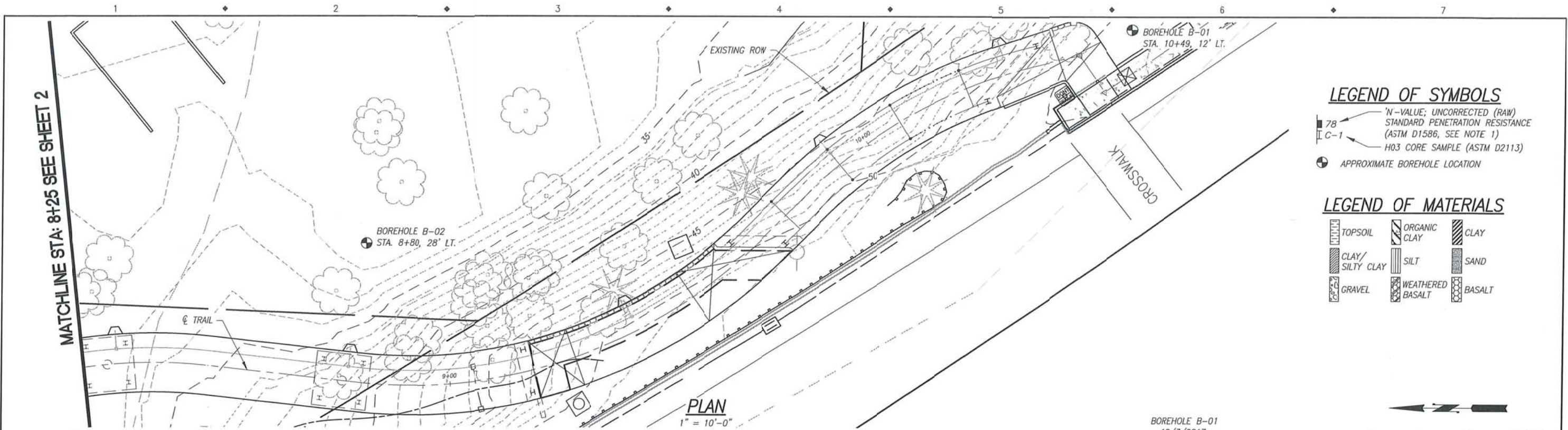
- LEGEND OF MATERIALS**
- TOPSOIL
 - ORGANIC CLAY
 - CLAY
 - CLAY/SILTY CLAY
 - SILT
 - SAND
 - GRAVEL
 - WEATHERED BASALT
 - BASALT



- NOTES:**
- BOREHOLES WERE SAMPLED WITH A HAMMER EFFICIENCY OF 74.8%.
 - GEOTECHNICAL DATA SHOWN ON THIS DRAWING ARE A CONSOLIDATION OF INFORMATION AND/OR REVISION IN TERMINOLOGY FROM DRILL LOGS. THE DRILL LOGS AND ANY OTHER EXPLORATION DATA USED IN COMPILING THIS DRAWING ARE AVAILABLE UPON REQUEST FROM THE CITY OR THE ENGINEER. CONTRACTOR SHALL REFER TO GEOTECHNICAL REPORTS AND DRILL LOGS AND THE INFORMATION CONTAINED THEREIN.
 - REFER TO THE ODOT SOIL AND ROCK CLASSIFICATION MANUAL (1987) FOR A DESCRIPTION OF THE TERMS USED IN THIS DRAWING.

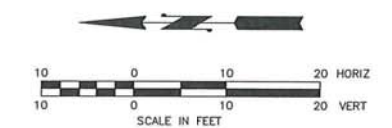
SHANNON & WILSON, INC.
 GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
 3990 Collins Way, Suite 100
 Lake Oswego, Oregon 97035
 (503) 210-4750 FAX: (206) 695-6777
 www.shannonwilson.com

TTN DESIGNED 6/13/18 DATE AEH DRAFTED 6/13/18 DATE CKS CHECKED 6/13/18 DATE RPP APPROVED 7/2/18 DATE				6101 SE JOHNSON CREEK BLVD. MILWAUKIE, OR 97206 PHONE: 503-786-7600 FAX: 503-774-8236	KRONBERG PARK MULTI-USE PATHWAY GEOTECHNICAL DATA STA. 5+75 TO STA. 8+25	PROJECT NO.: CIP2017-D29 CONTRACT NO.: DATE: JULY 2018 SHEET NO.: BR03
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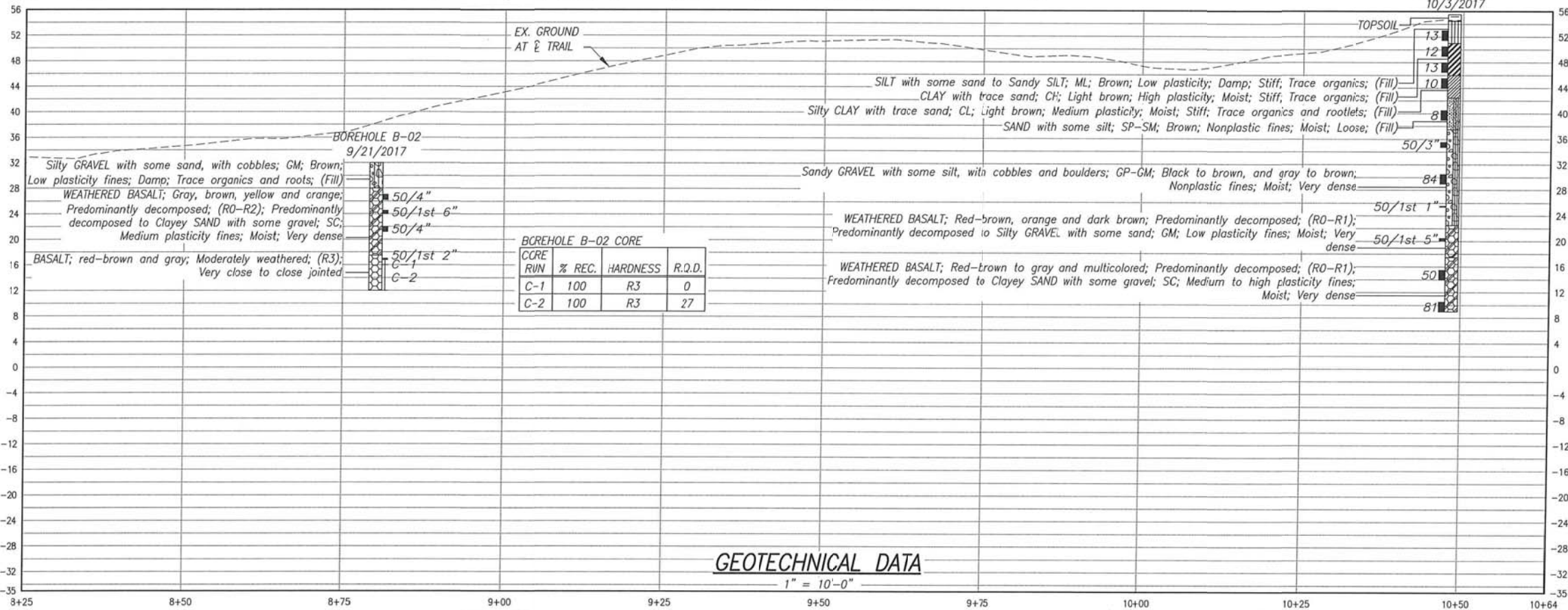


- LEGEND OF SYMBOLS**
- 78 ← N-VALUE; UNCORRECTED (RAW) STANDARD PENETRATION RESISTANCE (ASTM D1586, SEE NOTE 1)
 - C-1 ← H03 CORE SAMPLE (ASTM D2113)
 - ⊕ ← APPROXIMATE BOREHOLE LOCATION

- LEGEND OF MATERIALS**
- TOPSOIL
 - CLAY/SILTY CLAY
 - GRAVEL
 - ORGANIC CLAY
 - SILT
 - WEATHERED BASALT
 - CLAY
 - SAND
 - BASALT



- NOTES:**
1. BOREHOLES WERE SAMPLED WITH A HAMMER EFFICIENCY OF 74.8%.
 2. GEOTECHNICAL DATA SHOWN ON THIS DRAWING ARE A CONSOLIDATION OF INFORMATION AND/OR REVISION IN TERMINOLOGY FROM DRILL LOGS. THE DRILL LOGS AND ANY OTHER EXPLORATION DATA USED IN COMPILING THIS DRAWING ARE AVAILABLE UPON REQUEST FROM THE CITY OR THE ENGINEER. CONTRACTOR SHALL REFER TO GEOTECHNICAL REPORTS AND DRILL LOGS AND THE INFORMATION CONTAINED THEREIN.
 3. REFER TO THE ODOT SOIL AND ROCK CLASSIFICATION MANUAL (1987) FOR A DESCRIPTION OF THE TERMS USED IN THIS DRAWING.



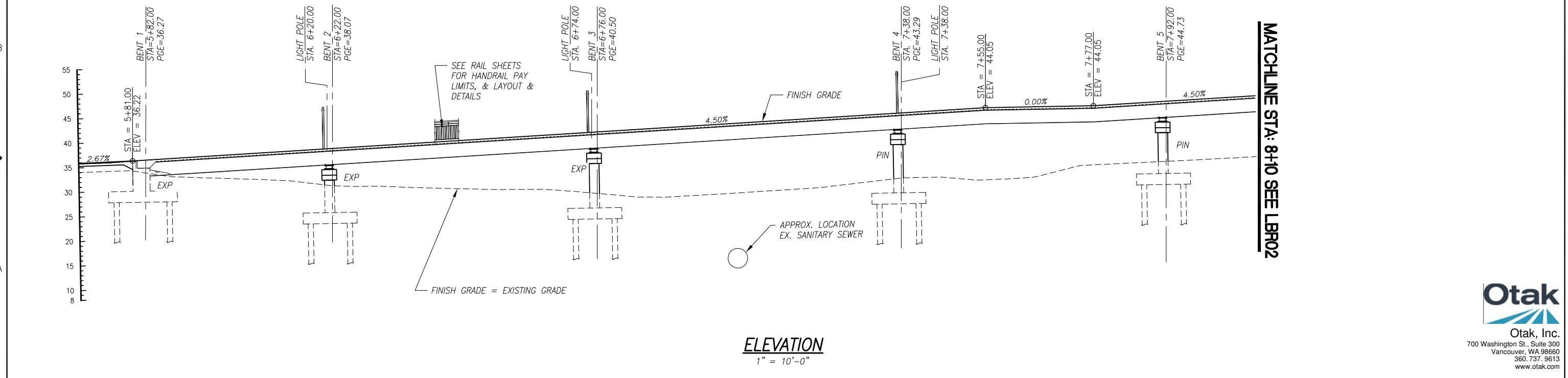
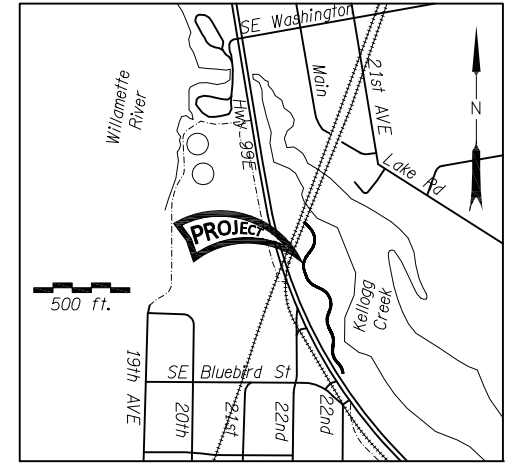
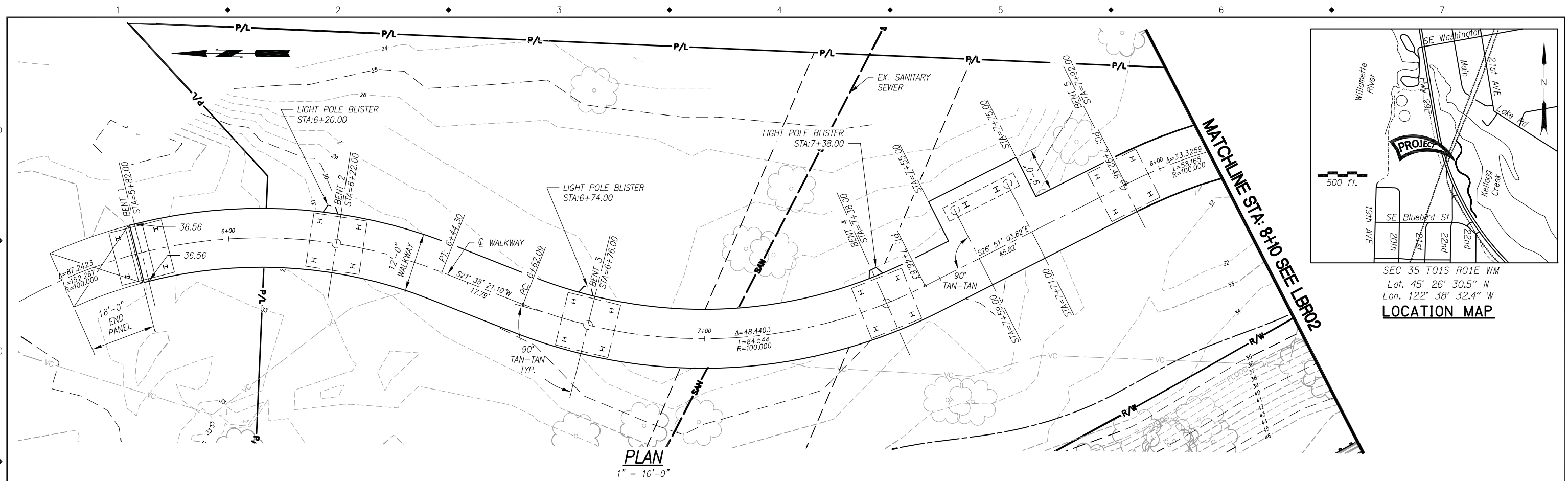
SHANNON & WILSON, INC.
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 (503) 210-4750 FAX: (206) 695-6777
 www.shannonwilson.com

KRONBERG PARK MULTI-USE PATHWAY
GEOTECHNICAL DATA
 STA. 8+25 TO STA. 10+64

TTN DESIGNED 6/13/18 AEH DRAFTED 6/13/18 CKS CHECKED 6/13/18 RPP APPROVED 7/2/18		<p>6101 SE JOHNSON CREEK BLVD. MILWAUKIE, OR 97206</p>	PHONE: 503-786-7600 FAX: 503-774-8236	PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: JULY 2018	SHEET NO.: BR04
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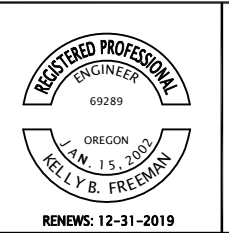
NO.	DATE	BY	REVISIONS

Nov 14, 2018 - 6:56pm
 V:\PROJECT\18400\18408\CADD\ACAD\DWG\18408T-Plan-Elevation.dwg



NO.	DATE	BY	REVISIONS

K. Freeman	DESIGNED	11/14/2018	DATE
J. Pope	DRAFTED	11/14/2018	DATE
	CHECKED		DATE
	APPROVED		DATE



MILWAUKIE
Dogwood City of the West

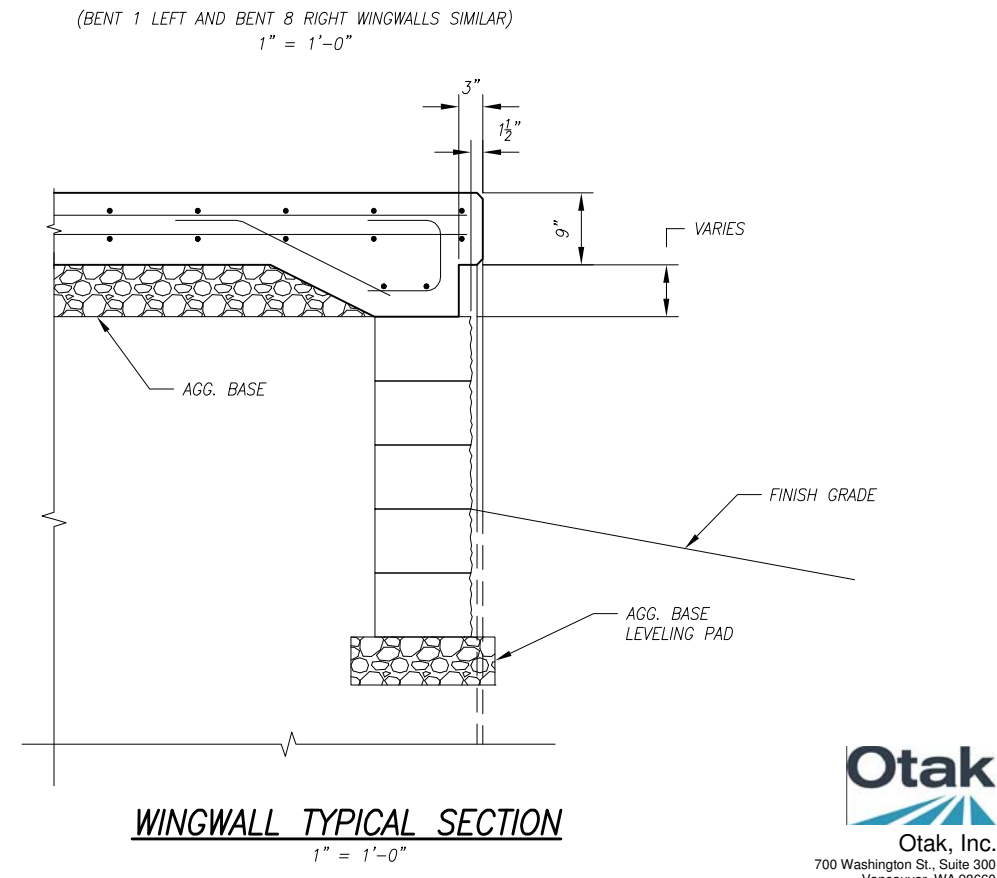
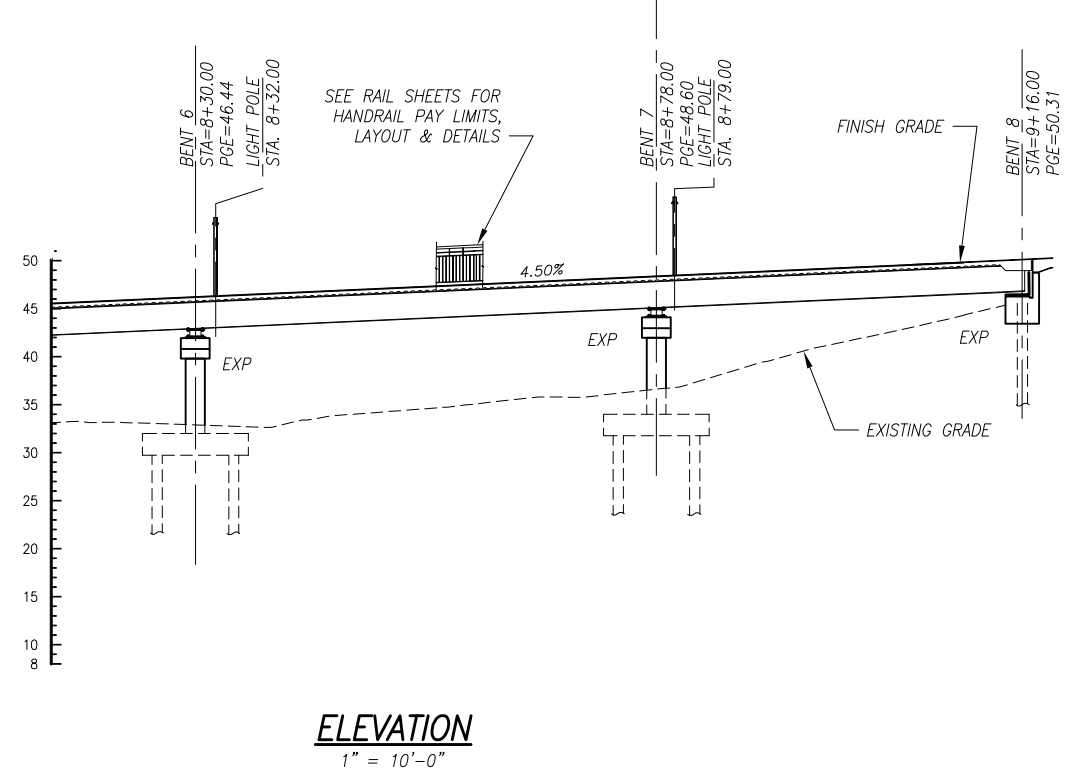
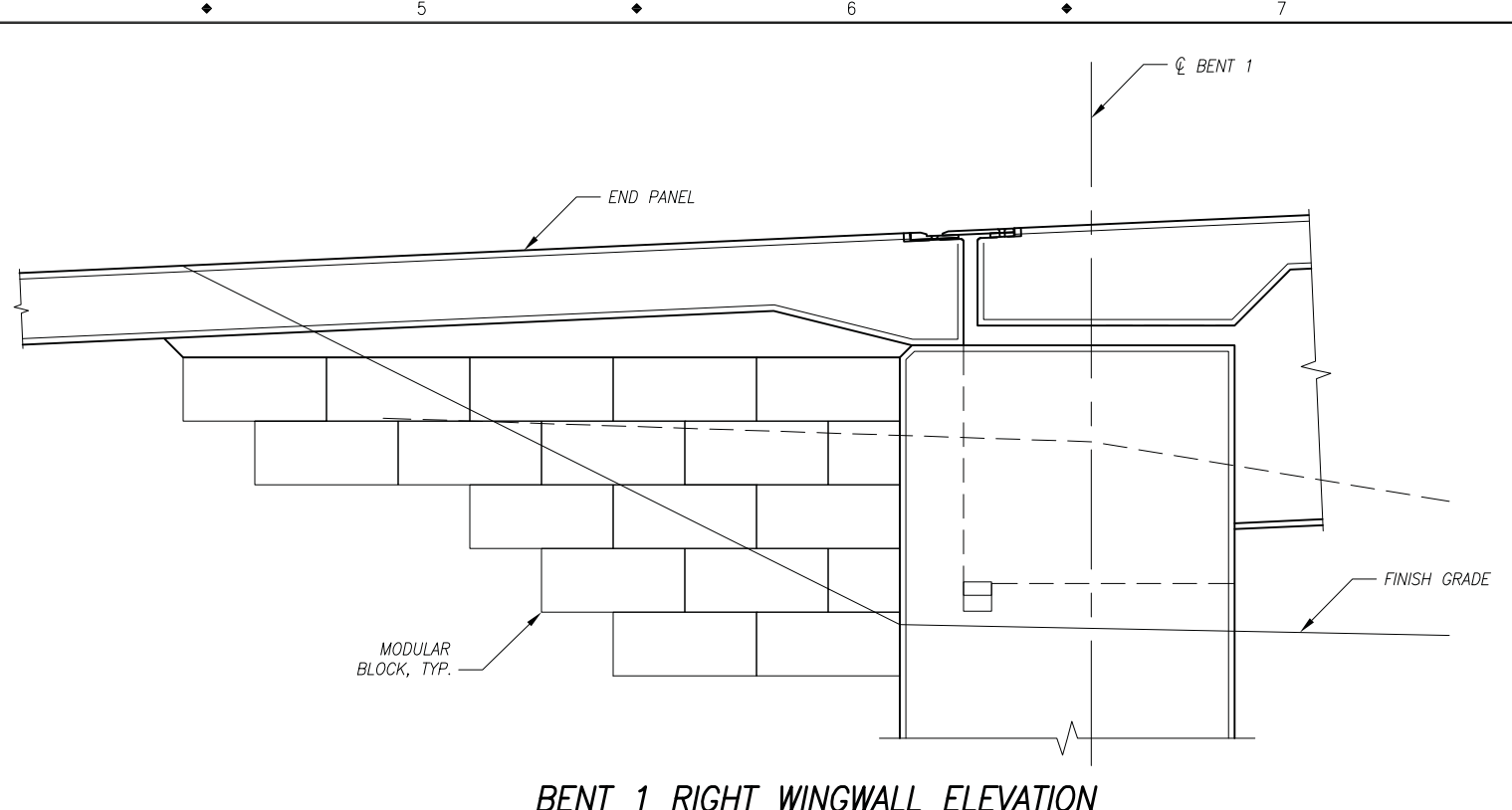
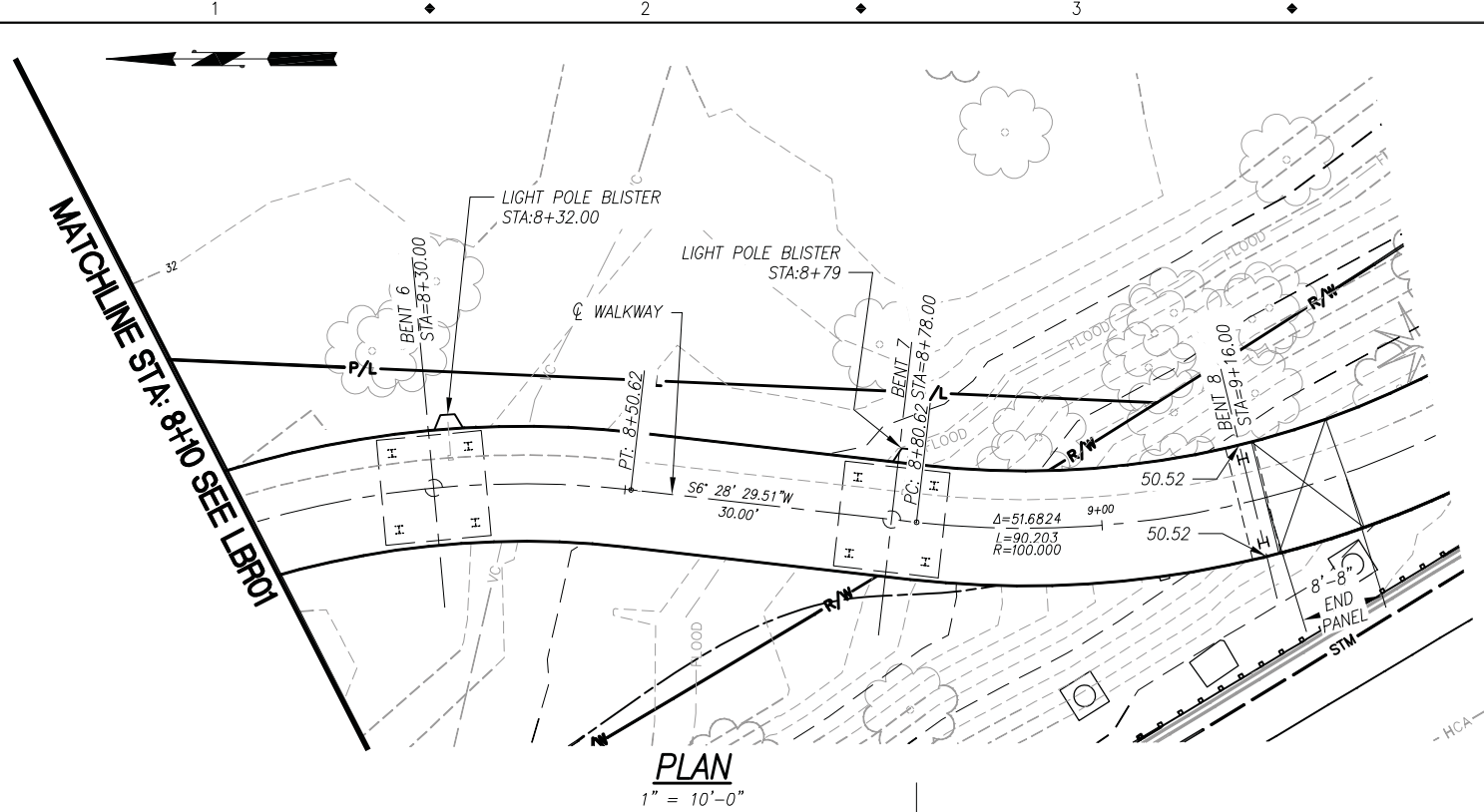
6101 SE JOHNSON CREEK BLVD. MILWAUKIE, OR 97206
 PHONE: 503-786-7600 FAX: 503-774-8236

KRONBERG PARK MULTI-USE WALKWAY
 LONG BRIDGE
 PLAN AND ELEVATION

PROJECT NO.: CIP2017-D29 CONTRACT NO.: DATE: MAY 2018 SHEET NO.: **LBR01**



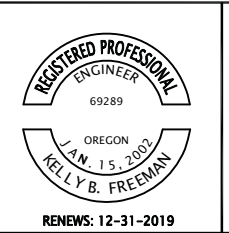
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 700 Washington St., Suite 300
 Vancouver, WA 98660
 360.737.9613
 www.otak.com

NO.	DATE	BY	REVISIONS

K. Freeman	DESIGNED	11/14/2018	DATE
J. Pope	DRAFTED	11/14/2018	DATE
	CHECKED		DATE
	APPROVED		DATE



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Dogwood City of the West

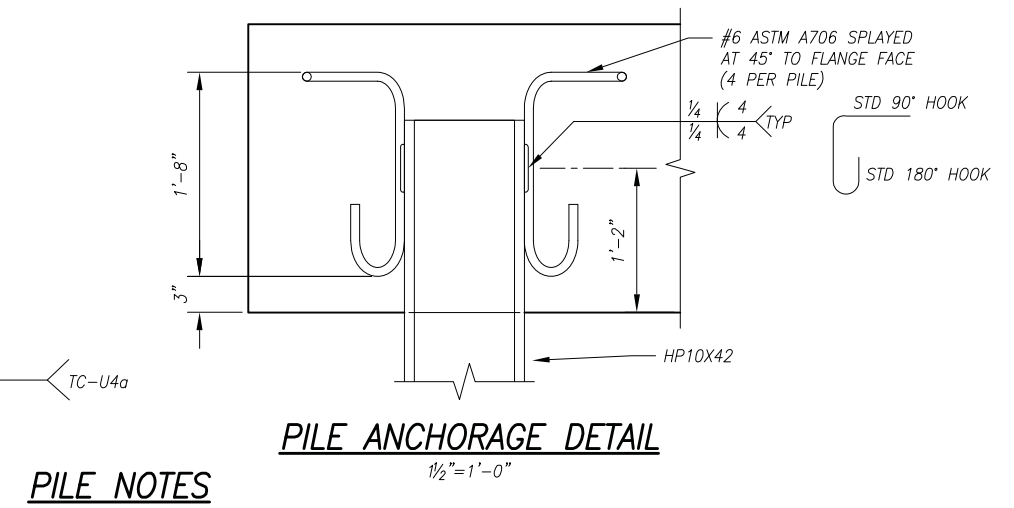
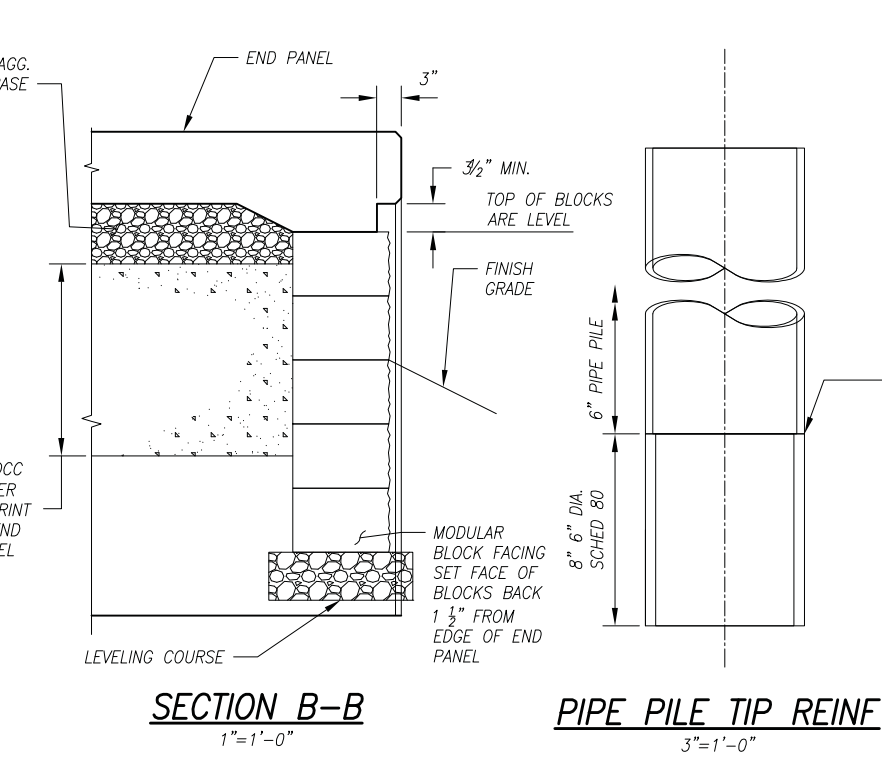
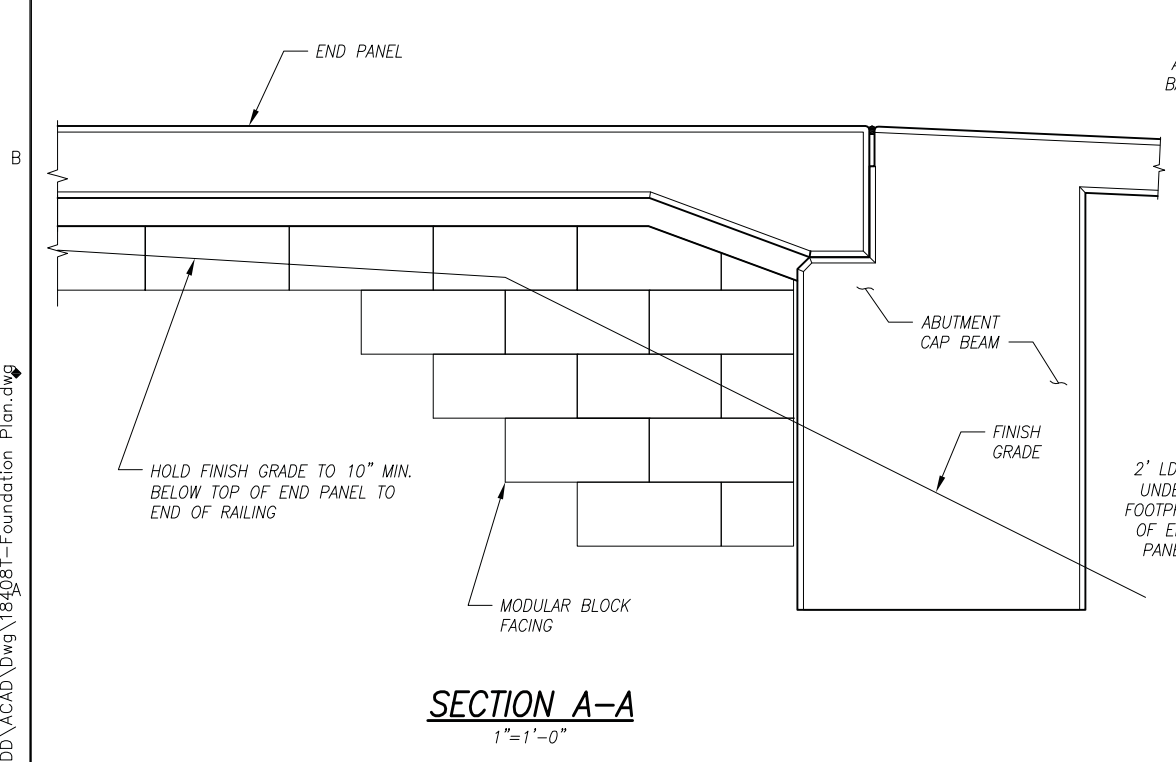
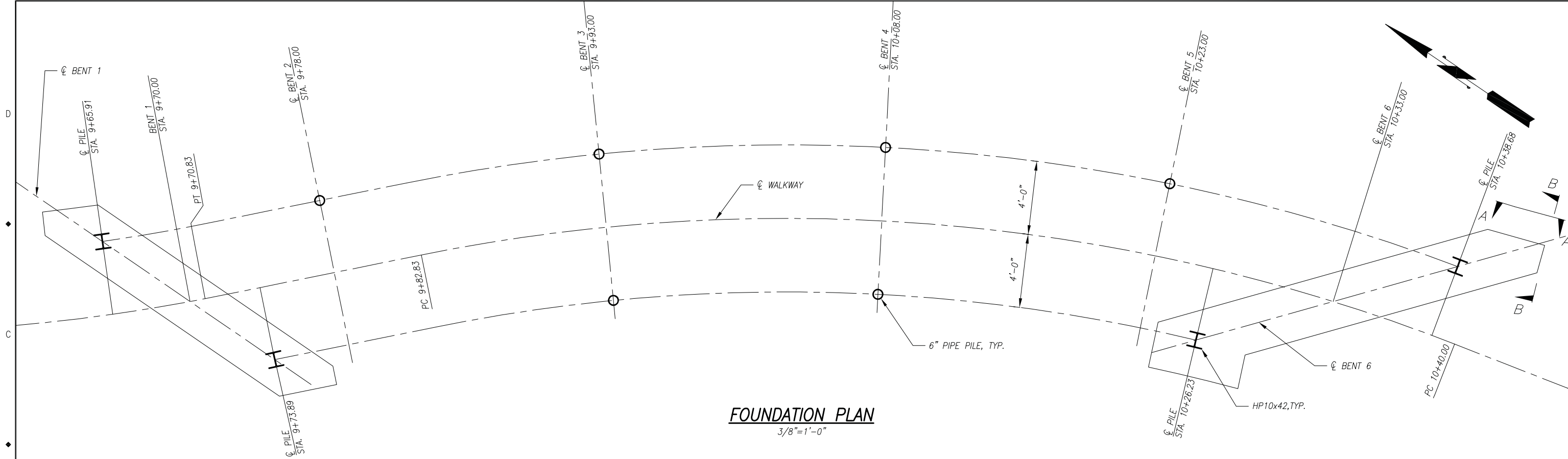
6101 SE JOHNSON CREEK BLVD.
MILWAUKIE, OR 97206

PHONE: 503-786-7600
FAX: 503-774-8236

KRONBERG PARK MULTI-USE WALKWAY

LONG BRIDGE
PLAN AND ELEVATION 2

PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: MAY 2018	SHEET NO.: LBR02
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PILE NOTES

BENTS 1 AND 6 PROVIDE HP10x42 ASTM A572, GRADE 50 PILING WITH REINFORCED TIPS DRIVEN TO A NOMINAL RESISTANCE OF 100 KIPS PER PILE.

BENTS 2 THRU 5 PROVIDE 6" PIPE PILE API 5L SCH.40 WITH REINFORCED TIPS (SEE DETAIL THIS SHEET) DRIVEN TO A NOMINAL RESISTANCE OF 100 KIPS PER PILE.

DRIVE ALL PILING TO THE SPECIFIED NOMINAL RESISTANCE USING DRIVING CRITERIA DEVELOPED FROM A WAVE EQUATION ANALYSIS.

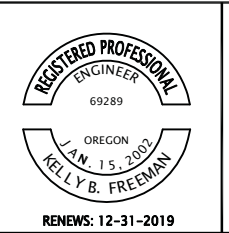
TOP OF PILE CUTOFF ELEVATIONS OF 6" PIPE PILES WILL BE PROVIDED BY THE ENGINEER BASED ON THE SURVEYED LOCATION OF EACH PILE. SUBMIT PILE LOCATIONS TO THE ENGINEER AFTER DRIVING IS COMPLETE.



Nov 14, 2018 - 6:59pm V:\PROJECT\18400\18408\CADD\ACAD\DWG\18408T-FOUNDATION Plan.dwg

NO.	DATE	BY	REVISIONS

K. Freeman	DESIGNED	11/14/2018	DATE
J. Pope	DRAFTED	11/14/2018	DATE
	CHECKED		DATE
	APPROVED		DATE



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Dogwood City of the West

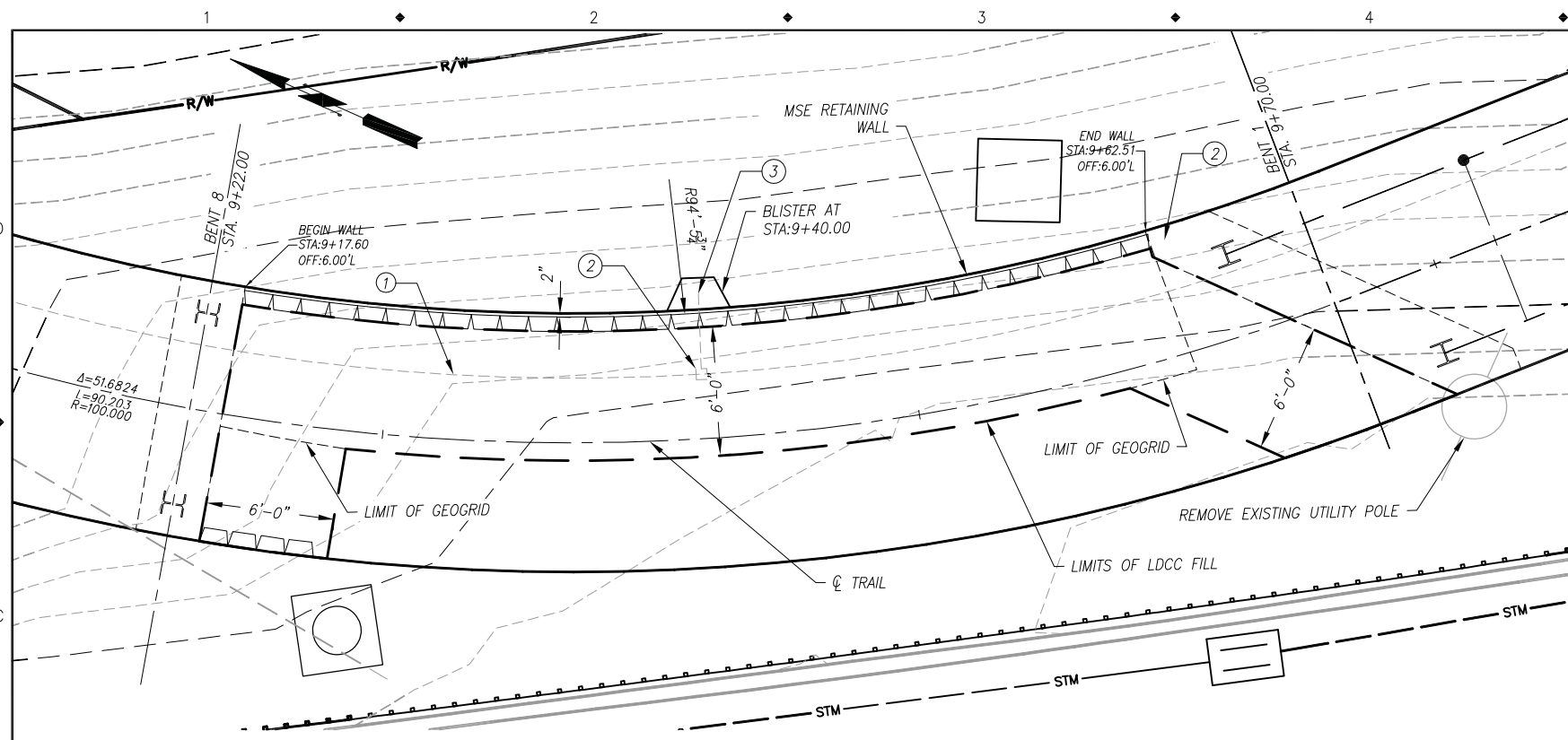
6101 SE JOHNSON CREEK BLVD. MILWAUKIE, OR 97206

PHONE: 503-786-7600
FAX: 503-774-8236

KRONBERG PARK MULTI-USE WALKWAY

SHORT BRIDGE FOUNDATION PLAN

PROJECT NO.: CIP2017-D29 CONTRACT NO.: DATE: MAY 2018 SHEET NO.: **SBR02**



PLAN
1/4" = 1'-0"

WALL NOTES

ALL MATERIAL AND WORKMANSHIP FOR MODULAR BLOCK WALLS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION.

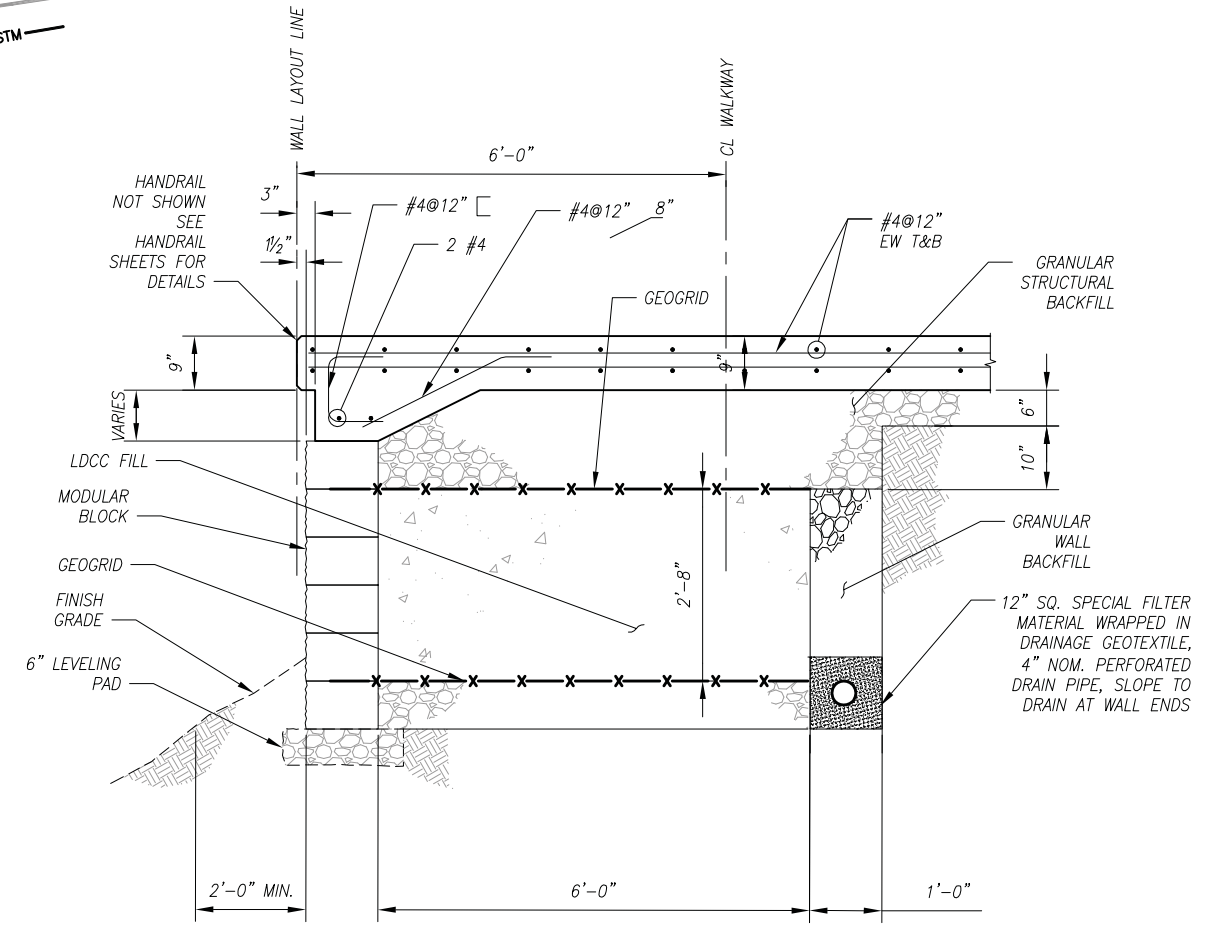
SUBMIT MODULAR BLOCK WALL FOR APPROVAL. BLOCK SHALL BE 8 INCHES HIGH BY 18 INCHES WIDE STRAIGHT FACED UNITS WITH CONCRETE COLORED, SPLIT-FACE TEXTURE.

CONSTRUCT WALL WITH VERTICAL OR NEAR-VERTICAL BATTER (3 DEGREES MAXIMUM BATTER).

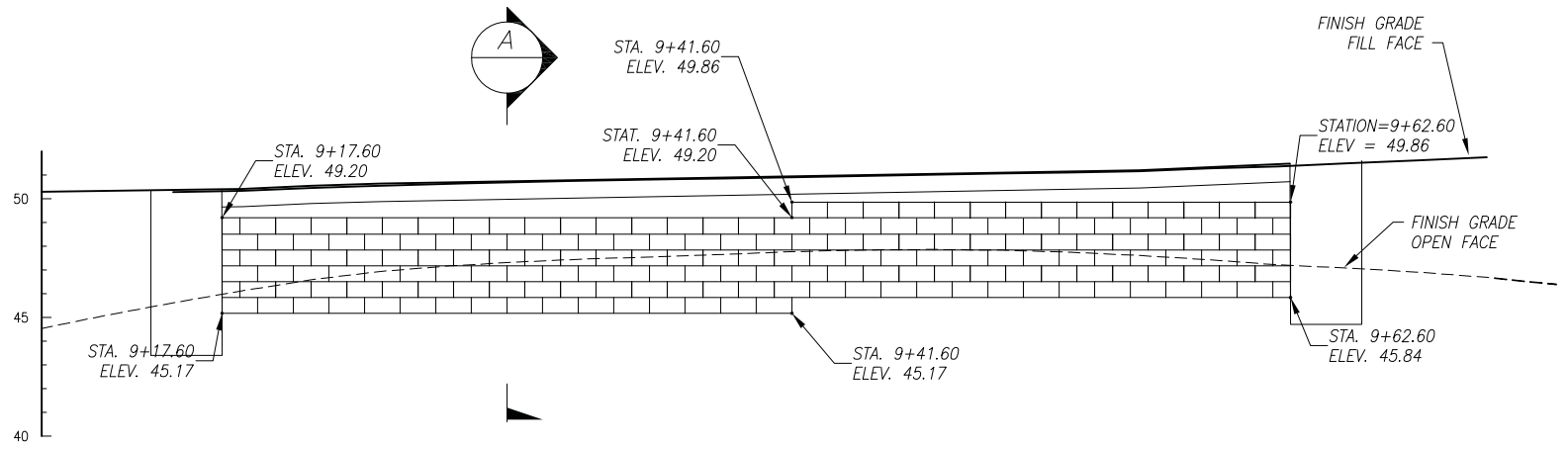
SUBMIT GEOGRID FOR APPROVAL. GEOGRID SHALL MEET BLOCK MANUFACTURER'S SPECIFICATIONS FOR USE WITH BLOCKS PROPOSED FOR USE IN WALL CONSTRUCTION.

PROVIDE CLASS II LOW DENSITY CELLULAR CONCRETE (LDCC). PLACE LDCC OVER LOWER GEOGRID SHEET AFTER COMPACTING BASE LAYER OF ROCK. PLACE UPPER GEOGRID SHEET INTO TOP OF FLUID LDCC.

- ① 2" ELECTRICAL CONDUIT FOR LIGHTING
- ② IN GROUND JUNCTION BOX, SEE LIGHTING DETAILS
- ③ 1" CONDUIT TO LUMINAIRE



SECTION A
3/4" = 1'-0"



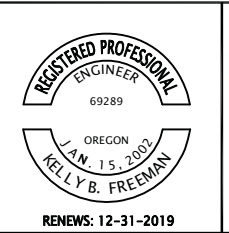
ELEVATION
(BACK FACE OF WALL SHOWN)
1/4" = 1'-0"



Nov 14, 2018 - 7:00pm V:\PROJECT\18400\18408\CADD\ACAD\DWG\18408T-Wall.dwg

NO.	DATE	BY	REVISIONS

K. Freeman	DESIGNED	11/14/2018	DATE
J. Pope	DRAFTED	11/14/2018	DATE
	CHECKED		DATE
	APPROVED		DATE



MILWAUKIE
Dogwood City of the West

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PHONE: 503-786-7600 FAX: 503-774-8236

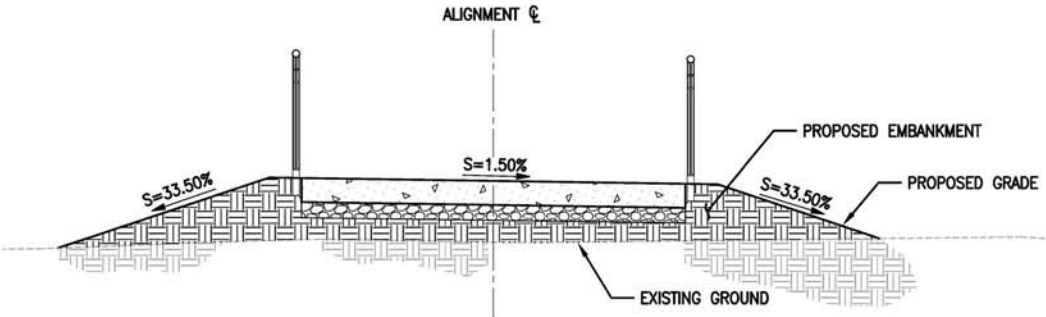
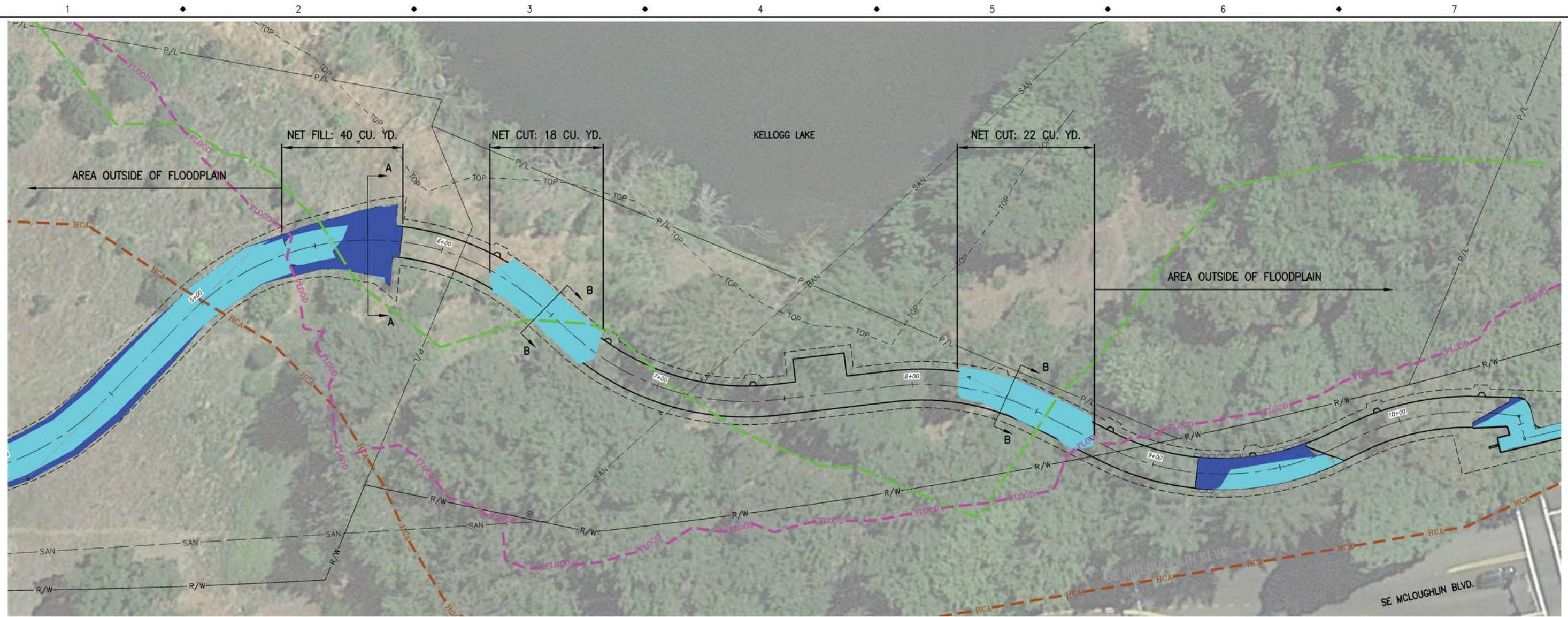
KRONBERG PARK MULTI-USE WALKWAY

RETAINING WALL PLAN AND ELEVATION

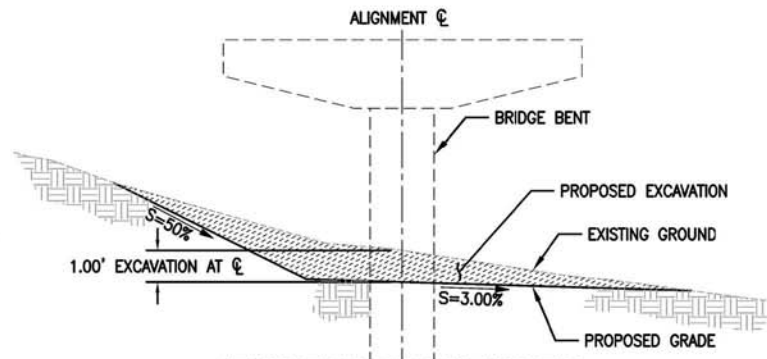
PROJECT NO.: CIP2017-D29 CONTRACT NO.: DATE: MAY 2018 SHEET NO.: **WL1**

Appendix D

Dec 14, 2018 - 9:45am
 V:\PROJECT\18400\18400\CADD\ACAD\DWG\Exhibits\18408-Embankment Exhibit.dwg

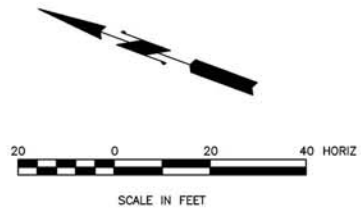


A-A WALKWAY EMBANKMENT GRADING
N.T.S.



B-B FLOODPLAIN EXCAVATION GRADING
N.T.S.

- FLOOD --- FLOOD
 - VC
 - HCA --- HCA
 - TOP --- TOP
 - R/W
 - P/L
 - SAN
 - RETAINING WALL
- FLOODPLAIN
 - VEGETATED CORRIDOR
 - HABITAT CONSERVATION AREA
 - TOP OF BANK
 - ODOT RIGHT-OF-WAY
 - PROPERTY LINE
 - EXISTING SANITARY LINE
 - RETAINING WALL



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NO.	DATE	BY	REVISIONS

DESIGNED	DATE
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE



MILWAUKIE

Dogwood City of the West

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MILWAUKIE, OR 97206

PHONE: 503-786-7600
FAX: 503-774-8236

KRONBERG PARK MULTI-USE WALKWAY

EXHIBIT

PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.:
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Appendix E



December 12, 2018

Robert Kronberg Multi-Use Walkway
Stormwater Management Report

Prepared for: City of Milwaukie
Prepared by: Beth Britell, P.E.

Project Overview and Description

The proposed Robert Kronberg Multi-Use Walkway, located in the Robert Kronberg Natural Area between Kellogg Lake and SE McLoughlin Boulevard, will connect the Kellogg Creek Bike-Pedestrian Bridge, downtown Milwaukie, and the Trolley Trail. The walkway includes two bridges with concrete decking. The 340-foot and 60-foot long bridge are referred to as the Long Span Bridge and Short Span Bridge, respectively.

The proposed 1,036-foot long walkway will be comprised of both pervious and impervious concrete sections. The pervious section of the path is 10-foot wide and 569-foot long. The impervious section of the walkway, which includes bridge decking, is 12-foot wide and 467-foot long. The impervious section of walkway also includes a 182 square foot viewing platform.

Proposed Impervious Areas

Walkway = 5,604 square feet

Viewing Platform = 182 square feet

Total Proposed Impervious Area = 5,786 square feet

The site is currently undeveloped. The northern portion of the site is a grassy meadow and the southern portion of the site is heavily forested with mature trees. The site slopes to Kellogg Lake, which drains to Kellogg Creek and ultimately to the Willamette River.

Stormwater Management Requirements

Water Quality Treatment

Water quality treatment is required for all new or redeveloped projects that create 500 square feet or more impervious surface (City of Milwaukie Stormwater Management Plan, 2011). City of Milwaukie water quality facilities are designed to City of Portland Bureau of Environmental Services (BES) Stormwater Management Manual standards.

The BES Stormwater Management Manual requires total onsite infiltration through vegetation when infiltration is feasible.

Discharge

Pre-development runoff volume, duration and rates cannot be increased post-development (National Pollutant Discharge Elimination System Municipal Separate Storm System Discharge Permit, 2012). Based on the lack of existing channelized drainage features within Robert Kronberg Natural Area, it is assumed that rainfall infiltrates into site soils and pre-development runoff is negligible.

Analysis

Runoff from the impervious portions of the walkway, including bridge decking, will infiltrate into existing soil immediately adjacent to the downslope side of the walkway. The water quality treatment potential of the existing soils and vegetation can be modeled using the BES Stormwater Presumptive Approach Calculator (PAC). Existing site soils are assumed to have a minimal infiltration rate of 0.5 inches per hour. The natural surface roughness of native vegetation and local topography were modeled as a 1-inch deep basin located immediately adjacent to the impervious portion of the walkway.

Water quality treatment, or pollution reduction, is achieved through infiltration as runoff from the walkway flows across and through the first 1-foot of vegetation located downslope of the walkway. Post-development runoff volume, duration and rates are maintained through complete infiltration in a 6-foot vegetated strip adjacent to the walkway. Calculations are attached in Appendix A and summarized below.

Assumed Native Soil Design Infiltration Rate = 0.5 inch per hour

Infiltration Basin

Width = 6 feet

Length = 467 feet

Area = 2,802 square feet

Depth = 1 inch

Water Pollution Reduction = Pass

Infiltration = 100%

Conclusions

The impervious portions of the proposed Robert Kronberg Multi-Use Walkway meet water quality and discharge requirements through complete infiltration of post-development runoff.

Appendix F



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MEMORANDUM

EXPIRES: 12/31/18

DATE: August 17, 2018

TO: Chuck Green, OTAK
Sheri Markwardt, City of Milwaukie

FROM: Steve Boice, P.E., PTOE
Edith Lopez Victoria

SUBJECT: Milwaukie Kronberg Park Multi-Use Trail - Lighting Analysis

P#17170-000

This memorandum summarizes the lighting analysis conducted for the Kronberg Park multi-use trail in the City of Milwaukie, Oregon. The lighting analysis was conducted along the trail between SE McLoughlin Boulevard (OR99E) and the Kellogg Bridge adjacent to TriMet's MAX Light Rail station. This 1,070-foot trail will provide an important connection between the Milwaukie/Main Street MAX Station and the Trolley Trail connection at SE McLoughlin Boulevard. SE McLoughlin Boulevard is under the jurisdiction of the Oregon Department of Transportation (ODOT). Pedestrians will cross the street at the existing traffic signal at the intersection of SE McLoughlin Boulevard/SE River Road.

Lighting Analysis Procedure

The lighting analysis was performed using the AGi32 lighting analysis software. Targeted illuminance light levels along the trail based on the IES (Illuminating Engineering Society) standards¹. The City of Milwaukee defaults to IES standards for facilities not specified on the City's Public Works Standards (2015). The average maintained illuminance in foot-candles, the average to minimum illuminance (uniformity), maximum to minimum ratio and maximum average spill over in foot-candles were calculated to determine luminaire wattage, mounting height, and pole spacing (See Table 1). The design criteria along with the surface width, luminaire type and wattage, and pole height determine desirable luminaire spacing. The vertical illuminance along the trail was also analyzed for safety purposes (facial recognition).

The lighting analysis assumes a Light Loss Factor (LLF) of 0.83, which was calculated based on a Lamp Lumen Depreciation (LLD) of 0.88 and a Luminaire Dirt Depreciation (LLD) of 0.95. The LLF values were calculated at an operating temperature of 25°C and 100,000 hours of operation. The luminaire analyzed is a 27-watt Lithonia D-Series Pole Mount LED luminaire with type I short cutoff and house-side shield to minimize light spill onto the

¹ (IESNA) Illuminating Engineering Society of North America, light level values published on the RP-8-00 American National Standard Practice for Roadway Lighting, 2014.



park. Light spill over was reviewed at 15 feet from the edge of the trail on each side. Analysis assumes a luminaire mounting height of 15 feet, with the luminaire mounted directly onto the pole and color temperature of 4000 Kelvin. Material sheets for both the luminaire and pole are attached.

The Kellogg Bridge lighting analysis was previously determined during the Kellogg Bridge design project and was not included in this lighting analysis. A different wattage (38 watt) luminaire will be used for the lighting along the Kellogg Bridge, see attached for luminaire sheets. There are nine bridge mounted luminaires proposed to be mounted to the top of every cord at every third vertical support along one side with a pole on each end of the bridge. The infrastructure is in place however the poles have not been installed. There are another three poles proposed at the north end of the bridge. These foundations are currently in place however the poles and luminaires have not been installed.

Results

The lighting analysis indicates that minimum targeted design light levels can be achieved by using the LED luminaire previously described at approximately 65-foot spacing on one side of the trail, the east side. Table 1 summarizes the lighting analysis results. A total of 17 LED luminaires and poles would be needed along the trail segment to meet the City's trail lighting standards. Eight of the 17 poles will need to be mounted on the new structure, one in front of a retaining wall and one on the boardwalk area.

Table 1: Milwaukie Kronberg Trail Illumination Values

Design Standard	Target Design Light Levels	Achieved Light Levels
Average Foot-candles (Minimum)	≥1.0	1.5
Uniformity Average/Minimum (Maximum)	≤4:1	4.5***
Vertical Illuminance Foot-candles (Minimum)*	≥0.2	0.2
East Side Maximum Average Spillover Foot-candles*	≤0.5	0.2
West Side Maximum Average Spillover Foot-candles*	≤0.5	0.5

*Measured 5 feet above pavement

**15 feet offset from edge of the trail

***Uniformity constraints because the location of luminaire supports could only be located on bridge bents



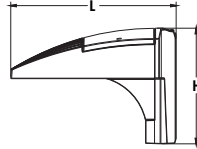
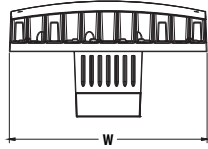
d^{series}

D-Series Pole Mount LED Area Luminaire



Specifications Luminaire

- EPA:** 0.8 ft² (.07 m²)
- Width:** 13-3/4" (34.9 cm)
- Length:** 11.5" (29.2 cm)
- Height:** 8" (20.3 cm)
- Weight:** 16.03 lbs (7.3 kg)



Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Introduction

The D-Series Pole Mount luminaire is a stylish, fully integrated LED solution for area and site applications. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 74% in energy savings over comparable 250W metal halide luminaires, the D-Series Pole Mount is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Ordering Information

EXAMPLE: DSXWPM LED 20C 1000 40K T5M MVOLT SPUMBA DDBXD

DSXWPM LED	Series	LEDs	Drive current	Color temperature	Distribution	Voltage	Mounting ³
DSXWPM LED	10C	10 LEDs (one engine)	350 350 mA 530 530 mA	30K 3000K 40K 4000K	T2S Type II short T2M Type II medium	MVOLT ¹ 120 ¹ 208 ¹ 240 ¹ 277 ¹ 347 ² 480 ²	Shipped included SPUMBA Square pole universal mounting adapter RPUMBA Round pole universal mounting adapter PUMBA Square and round universal mounting adapters
	20C	20 LEDs (two engines)	700 700 mA 1000 1000 mA (1 A)	50K 5000K AMBPC Amber phosphor converted	T5M Type V medium T5S Type V short T5A Type V area T5W Type V wide ASYDF Asymmetric diffuse SYMDF Symmetric diffuse		

Control Options	Other Options	Finish (required)
Shipped installed PE Photoelectric cell, button type ⁴ DMG 0-10V dimming driver (no controls) PIR Motion/ambient light sensor, <15' mtg ht ^{5,6} PIRH Motion/ambient light sensor, 15-30' mtg ht ^{5,6} PIR1FC3V Motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc ⁷ PIRH1FC3V Motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc ⁷	Shipped installed SF Single fuse (120, 277, 347V) ⁸ DF Double fuse (208, 240, 480V) ⁸ HS House-side shield ⁹	Shipped separately⁹ BSW Bird-deterrent spikes WG Wire guard VG Vandal guard DDL Diffused drop lens
		DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DDBTXD Textured dark bronze DBLTXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white DSSTXD Textured sandstone

NOTES

- 1 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options), or photocontrol (PE option).
- 2 Only available with 20C, 700mA or 1000mA. Not available with PIR, PIRH.
- 3 Not available with 90 degree mounting. Not recommended for 3" poles.
- 4 Photocontrol (PE) requires 120, 208, 240, 277 or 347 voltage option. Not available with motion/ambient light sensors (PIR or PIRH).
- 5 PIR specifies the SensorSwitch SBGR-10-ODP control; PIRH specifies the SensorSwitch SBGR-6-ODP control; see Motion Sensor Guide for details. Dimming driver standard. Includes ambient light sensor. Not available with "PE" option (button type photocell).
- 6 Not available with 20 LED/1000 mA configuration (DSXWPM LED 20C 1000).
- 7 PIR and PIR1FC3V specify the SensorSwitch SBGR-10-ODP control; PIRH and PIRH1FC3V specify the SensorSwitch SBGR-6-ODP control; see Motion Sensor Guide for details. Dimming driver standard. Not available with PER5 or PER7. Ambient sensor disabled when ordered with DCR. Separate on/off required.
- 8 Single fuse (SF) requires 120, 277, or 347 voltage option. Double fuse (DF) requires 208, 240, or 480 voltage option.
- 9 Also available as a separate accessory; see Accessories information.

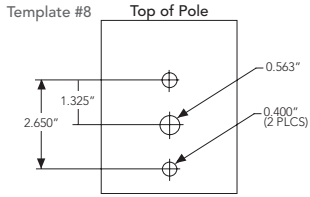
Accessories

Ordered and shipped separately.

DSXWHS U	House-side shield (one per light engine)
DSXWBSW U	Bird-deterrent spikes
DSXW1WG U	Wire guard accessory
DSXW1VG U	Vandal guard accessory
DSXWDDL U	Diffused drop lens



Drilling



Visit Lithonia Lighting's **POLES CENTRAL** to see our wide selection of poles, accessories and educational tools.

If ordering new poles, specify the AERIS™ drilling pattern, per the table below.

DM19AS Single unit **DM28AS** 2 at 180°

Example: SSA 20 4C DM19AS DDBXD

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual performance may differ as a result of end-user environment and application. Actual wattage may differ by +/- 8% when operating between 120-480V +/- 10%. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	System Watts	Dist. Type	30K					40K					50K					AMBPC (Amber Phosphor Converted)				
				Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
10C (10 LEDs)	350mA	14W	T2S	1,415	0	0	1	101	1,520	0	0	1	109	1,529	0	0	1	109	894	0	0	1	64
			T2M	1,349	0	0	1	96	1,449	0	0	1	103	1,458	0	0	1	104	852	0	0	1	61
			T3S	1,400	0	0	1	100	1,503	0	0	1	107	1,512	0	0	1	108	884	0	0	1	63
			T3M	1,386	0	0	1	99	1,488	0	0	1	106	1,497	0	0	1	107	876	0	0	1	63
			T4M	1,358	0	0	1	97	1,458	0	0	1	104	1,467	0	0	1	105	858	0	0	1	61
			TF1M	1,411	0	0	1	101	1,515	0	0	1	108	1,525	0	0	1	109	892	0	0	1	64
			T5M	1,486	1	0	0	106	1,595	1	0	0	114	1,605	1	0	0	115	939	1	0	0	67
			T5S	1,516	1	0	0	108	1,627	1	0	0	116	1,638	1	0	0	117	958	1	0	0	68
			T5A	1,425	1	0	1	102	1,531	1	0	1	109	1,540	1	0	1	110	901	1	0	1	64
			T5W	1,423	1	0	1	102	1,528	1	0	1	109	1,538	1	0	1	110	899	1	0	1	64
			ASYDF	1,262	0	0	1	90	1,355	1	0	1	97	1,363	1	0	1	97	797	0	0	1	57
			SYMDF	1,299	1	0	1	93	1,394	1	0	1	100	1,403	1	0	1	100	821	1	0	1	59
	530mA	20W	T2S	2,054	1	0	1	103	2,205	1	0	1	110	2,219	0	0	1	111	1,264	0	0	1	63
			T2M	1,957	1	0	1	98	2,102	1	0	1	105	2,115	0	0	1	106	1,205	0	0	1	60
			T3S	2,031	0	0	1	102	2,181	0	0	1	109	2,195	0	0	1	110	1,250	0	0	1	63
			T3M	2,010	1	0	1	101	2,159	1	0	1	108	2,172	0	0	1	109	1,237	0	0	1	62
			T4M	1,970	1	0	1	98	2,115	1	0	1	106	2,128	0	0	1	106	1,212	0	0	1	61
			TF1M	2,047	0	0	1	102	2,198	0	0	1	110	2,212	0	0	1	111	1,260	0	0	1	63
			T5M	2,156	1	0	0	108	2,315	2	0	0	116	2,329	1	0	0	116	1,326	1	0	0	66
			T5S	2,199	1	0	0	110	2,361	1	0	0	118	2,376	1	0	0	119	1,353	1	0	0	68
			T5A	2,068	2	0	1	103	2,221	2	0	1	111	2,235	1	0	1	112	1,272	1	0	1	64
			T5W	2,065	2	0	1	103	2,217	2	0	1	111	2,231	1	0	1	112	1,271	1	0	1	64
			ASYDF	1,830	1	0	1	92	1,966	1	0	1	98	1,978	0	0	1	99	1,127	0	0	1	56
			SYMDF	1,884	1	0	1	94	2,023	1	0	1	101	2,036	1	0	1	102	1,160	1	0	1	58
	700mA	27W	T2S	2,623	1	0	1	97	2,816	1	0	1	104	2,834	0	0	1	105	1,544	0	0	1	57
			T2M	2,499	1	0	1	93	2,684	1	0	1	99	2,701	0	0	1	100	1,472	0	0	1	55
			T3S	2,593	1	0	1	96	2,785	1	0	1	103	2,802	0	0	1	104	1,527	0	0	1	57
			T3M	2,567	1	0	1	95	2,757	1	0	1	102	2,774	0	0	1	103	1,512	0	0	1	56
			T4M	2,515	1	0	1	93	2,701	1	0	1	100	2,718	0	0	1	101	1,481	0	0	1	55
			TF1M	2,614	1	0	1	97	2,807	1	0	1	104	2,825	0	0	1	105	1,539	0	0	1	57
			T5M	2,753	2	0	0	102	2,956	2	0	0	109	2,974	1	0	0	110	1,621	1	0	0	60
			T5S	2,808	1	0	0	104	3,015	1	0	0	112	3,034	1	0	0	112	1,654	1	0	0	61
			T5A	2,641	2	0	1	98	2,836	2	0	1	105	2,854	1	0	1	106	1,555	1	0	1	58
			T5W	2,637	2	0	1	98	2,831	2	0	1	105	2,849	1	0	1	106	1,553	1	0	1	58
			ASYDF	2,337	1	0	1	87	2,510	1	0	1	93	2,526	1	0	1	94	1,376	1	0	1	51
			SYMDF	2,406	1	0	1	89	2,584	1	0	1	96	2,600	1	0	1	96	1,417	1	0	1	52
	1000mA	40W	T2S	3,685	1	0	1	92	3,957	1	0	1	99	3,982	1	0	1	100	2,235	1	0	1	58
			T2M	3,512	1	0	1	88	3,771	1	0	1	94	3,795	1	0	1	95	2,130	1	0	2	55
			T3S	3,644	1	0	1	91	3,913	1	0	1	98	3,938	1	0	1	98	2,210	1	0	2	57
			T3M	3,607	1	0	1	90	3,874	1	0	1	97	3,898	1	0	1	97	2,187	1	0	2	56
			T4M	3,534	1	0	1	88	3,795	1	0	1	95	3,819	1	0	1	95	2,143	1	0	2	55
			TF1M	3,674	1	0	1	92	3,945	1	0	1	99	3,969	1	0	1	99	2,228	1	0	2	57
			T5M	3,868	2	0	1	97	4,153	2	0	1	104	4,179	3	0	1	104	2,345	3	0	1	60
			T5S	3,946	1	0	0	99	4,237	2	0	0	106	4,264	2	0	0	107	2,393	2	0	1	62
			T5A	3,711	2	0	1	93	3,985	2	0	1	100	4,010	3	0	1	100	2,250	3	0	2	58
			T5W	3,705	2	0	1	93	3,978	2	0	1	99	4,003	3	0	1	100	2,247	3	0	2	58
			ASYDF	3,284	1	0	1	82	3,527	1	0	1	88	3,549	1	0	1	89	1,991	1	0	2	51
			SYMDF	3,381	1	0	1	85	3,630	1	0	1	91	3,653	2	0	1	91	2,050	2	0	2	53

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual performance may differ as a result of end-user environment and application. Actual wattage may differ by +/- 8% when operating between 120-480V +/- 10%. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)					AMBPC (Amber Phosphor Converted)				
				Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
20C (20 LEDs)	350mA	24W	T2S	2,820	1	0	1	118	3,028	1	0	1	126	3,047	1	0	1	127	1,777	1	0	1	74
			T2M	2,688	1	0	1	112	2,886	1	0	1	120	2,904	1	0	1	121	1,693	1	0	1	71
			T3S	2,789	1	0	1	116	2,995	1	0	1	125	3,013	1	0	1	126	1,757	0	0	1	73
			T3M	2,761	1	0	1	115	2,964	1	0	1	124	2,983	1	0	1	124	1,739	1	0	1	72
			T4M	2,705	1	0	1	113	2,904	1	0	1	121	2,922	1	0	1	122	1,704	1	0	1	71
			TFTM	2,811	1	0	1	117	3,019	1	0	1	126	3,038	1	0	1	127	1,771	0	0	1	74
			TSM	2,960	2	0	1	123	3,178	2	0	1	132	3,198	2	0	1	133	1,865	1	0	0	78
			T5S	3,020	1	0	0	126	3,242	1	0	0	135	3,263	1	0	0	136	1,903	1	0	0	79
			T5A	2,840	2	0	1	118	3,049	2	0	1	127	3,068	2	0	1	128	1,789	2	0	1	75
			T5W	2,835	2	0	1	118	3,044	2	0	1	127	3,063	2	0	1	128	1,786	2	0	1	74
			ASYDF	2,513	1	0	1	105	2,699	1	0	1	112	2,716	1	0	1	113	1,584	1	0	1	66
			SYMDF	2,587	1	0	1	108	2,778	1	0	1	116	2,796	1	0	1	116	1,630	1	0	1	68
			T2S	4,079	1	0	1	113	4,380	1	0	1	122	4,408	1	0	1	122	2,504	1	0	1	70
			T2M	3,887	1	0	1	108	4,174	1	0	1	116	4,200	1	0	1	117	2,387	1	0	1	66
			T3S	4,034	1	0	1	112	4,332	1	0	1	120	4,359	1	0	1	121	2,477	1	0	1	69
	T3M	3,993	1	0	1	111	4,288	1	0	1	119	4,315	1	0	1	120	2,451	1	0	1	68		
	T4M	3,912	1	0	2	109	4,201	1	0	2	117	4,227	1	0	1	117	2,402	1	0	1	67		
	TFTM	4,066	1	0	1	113	4,367	1	0	1	121	4,394	1	0	1	122	2,496	1	0	1	69		
	TSM	4,281	3	0	1	119	4,597	3	0	1	128	4,626	3	0	1	129	2,629	3	0	1	73		
	T5S	4,368	2	0	1	121	4,690	2	0	1	130	4,719	2	0	1	131	2,682	2	0	1	75		
	T5A	4,108	3	0	2	114	4,411	3	0	2	123	4,438	3	0	2	123	2,522	3	0	2	70		
	T5W	4,101	3	0	2	114	4,403	3	0	2	122	4,431	3	0	2	123	2,518	3	0	2	70		
	ASYDF	3,635	1	0	2	101	3,904	1	0	2	108	3,928	1	0	2	109	2,232	1	0	1	62		
	SYMDF	3,742	2	0	2	104	4,018	2	0	2	112	4,044	2	0	2	112	2,297	2	0	2	64		
	T2S	5,188	1	0	1	110	5,571	1	0	1	119	5,606	1	0	1	119	3,065	1	0	1	65		
	T2M	4,945	1	0	1	105	5,310	1	0	1	113	5,343	1	0	1	114	2,921	1	0	1	62		
	T3S	5,131	1	0	1	109	5,510	1	0	2	117	5,544	1	0	2	118	3,031	1	0	1	64		
	T3M	5,079	1	0	2	108	5,454	1	0	2	116	5,488	1	0	2	117	3,000	1	0	1	64		
	T4M	4,976	1	0	2	106	5,343	1	0	2	114	5,377	1	0	2	114	2,939	1	0	1	63		
	TFTM	5,172	1	0	2	110	5,554	1	0	2	118	5,589	1	0	2	119	3,055	1	0	1	65		
	TSM	5,446	3	0	1	116	5,848	3	0	1	124	5,884	3	0	1	125	3,217	3	0	1	68		
	T5S	5,555	2	0	1	118	5,966	2	0	1	127	6,003	2	0	1	128	3,282	2	0	1	70		
	T5A	5,225	3	0	2	111	5,610	3	0	2	119	5,645	3	0	2	120	3,086	3	0	2	66		
	T5W	5,216	3	0	2	111	5,601	3	0	2	119	5,636	3	0	2	120	3,081	3	0	2	66		
	ASYDF	4,624	1	0	2	98	4,966	1	0	2	106	4,997	1	0	2	106	2,732	1	0	1	58		
	SYMDF	4,760	2	0	2	101	5,111	2	0	2	109	5,143	2	0	2	109	2,812	2	0	2	60		
	T2S	7,205	1	0	1	97	7,736	1	0	1	105	7,785	1	0	1	105	4,429	1	0	1	61		
	T2M	6,866	1	0	2	93	7,373	1	0	2	100	7,419	1	0	2	100	4,221	1	0	2	58		
	T3S	7,124	1	0	2	96	7,650	1	0	2	103	7,698	1	0	2	104	4,380	1	0	2	60		
	T3M	7,052	1	0	2	95	7,573	1	0	2	102	7,620	1	0	2	103	4,335	1	0	2	59		
	T4M	6,909	1	0	2	93	7,420	1	0	2	100	7,466	1	0	2	101	4,248	1	0	2	58		
	TFTM	7,182	1	0	2	97	7,712	1	0	2	104	7,760	1	0	2	105	4,415	1	0	2	60		
	TSM	7,562	3	0	1	102	8,120	3	0	1	110	8,171	3	0	1	110	4,648	3	0	1	63		
	T5S	7,714	2	0	1	104	8,284	2	0	1	112	8,335	2	0	1	113	4,742	2	0	1	64		
	T5A	7,255	3	0	2	98	7,790	3	0	2	105	7,839	3	0	2	106	4,460	3	0	2	62		
T5W	7,243	3	0	2	98	7,777	3	0	2	105	7,826	3	0	2	106	4,452	3	0	2	61			
ASYDF	6,421	1	0	2	87	6,895	2	0	2	93	6,938	1	0	2	94	3,947	1	0	2	54			
SYMDF	6,609	2	0	2	89	7,097	2	0	2	96	7,142	2	0	2	97	4,063	2	0	2	55			

Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	1.00
40°C	104°F	0.98

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **DSXWPM LED 20C 1000** platform in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.95	0.93	0.88

Electrical Load

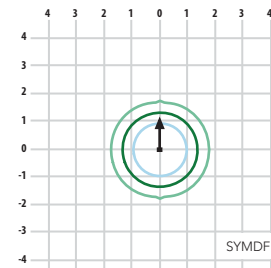
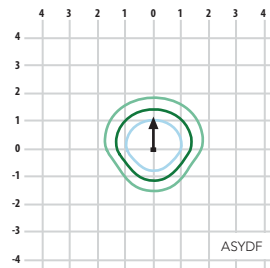
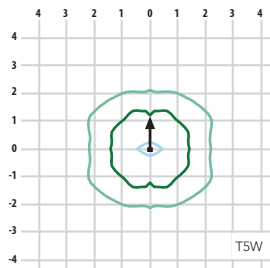
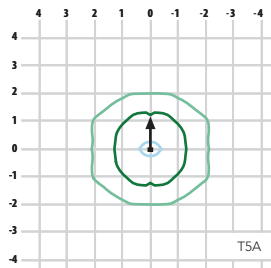
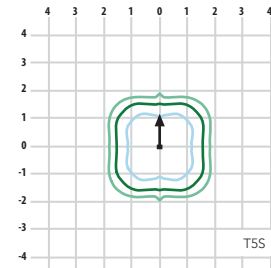
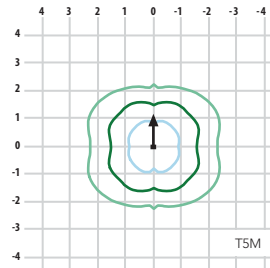
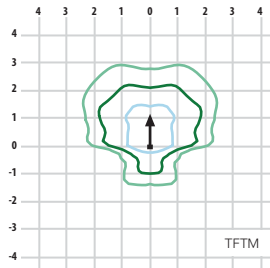
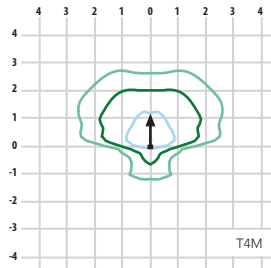
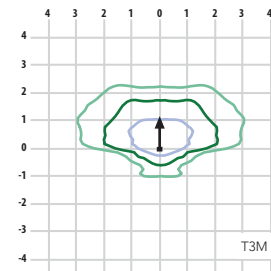
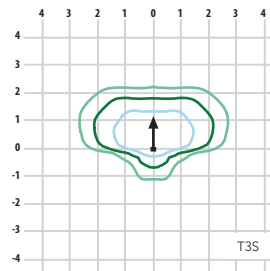
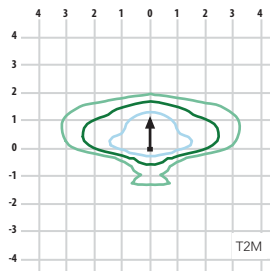
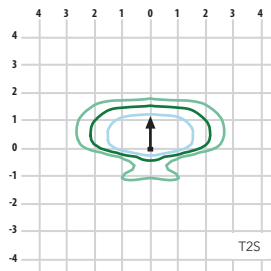
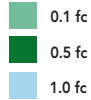
LEDs	Drive Current (mA)	System Watts	Current (A)					
			120	208	240	277	347	480
10C	350	14 W	0.13	0.07	0.06	0.06	-	-
	530	20 W	0.19	0.11	0.09	0.08	-	-
	700	27 W	0.25	0.14	0.13	0.11	-	-
	1000	40 W	0.37	0.21	0.19	0.16	-	-
20C	350	24 W	0.23	0.13	0.12	0.10	-	-
	530	36 W	0.33	0.19	0.17	0.14	-	-
	700	47 W	0.44	0.25	0.22	0.19	0.15	0.11
	1000	74 W	0.69	0.40	0.35	0.30	0.23	0.17

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's D-Series Wall Pole Mount homepage.

Isofootcandle plots for the DSXWPM LED 20C 1000 40K. Distances are in units of mounting height (20').

LEGEND



Options and Accessories



Mounting detail



ASYDF - Asymmetric diffuse (left engine is T3M, right engine is diffused)



HS - House-side shields



BSW - Bird-deterrent spikes



WG - Wire guard



VG - Vandal guard



DDL - Diffused drop lens

FEATURES & SPECIFICATIONS

INTENDED USE

The energy savings, long life and easy-to-install design of the D-Series Pole Mount make it the smart choice for area and site illumination for nearly any facility.

CONSTRUCTION

Two-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance. The LED driver is mounted to the door to thermally isolate it from the light engines for low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65).

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in textured and non-textured finishes.

OPTICS

Precision-molded proprietary acrylic lenses provide multiple photometric distributions tailored specifically to area lighting applications. Light engines are available in 3000K, 4000K or 5000K with 70 min. CRI configurations.

ELECTRICAL

Light engine(s) consist of 10 high-efficacy LEDs mounted to a metal-core circuit board to maximize heat dissipation and promote long life (L88/100,000 hrs at 25°C). Class 1 electronic drivers have a power factor >90%, THD <20%, and a minimum 6KV surge rating. The luminaire meets a minimum Category C Low (per ANSI/IEEE C62.41.2).

INSTALLATION

Includes universal mounting plate, which utilizes existing drill patterns and allows for quick and easy installation. Stainless steel bolts fasten the mounting block securely to poles.

LISTINGS

CSA certified to U.S. and Canadian standards. Rated for -40°C minimum ambient.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

WARRANTY

Five-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Actual performance may differ as a result of end-user environment and application.

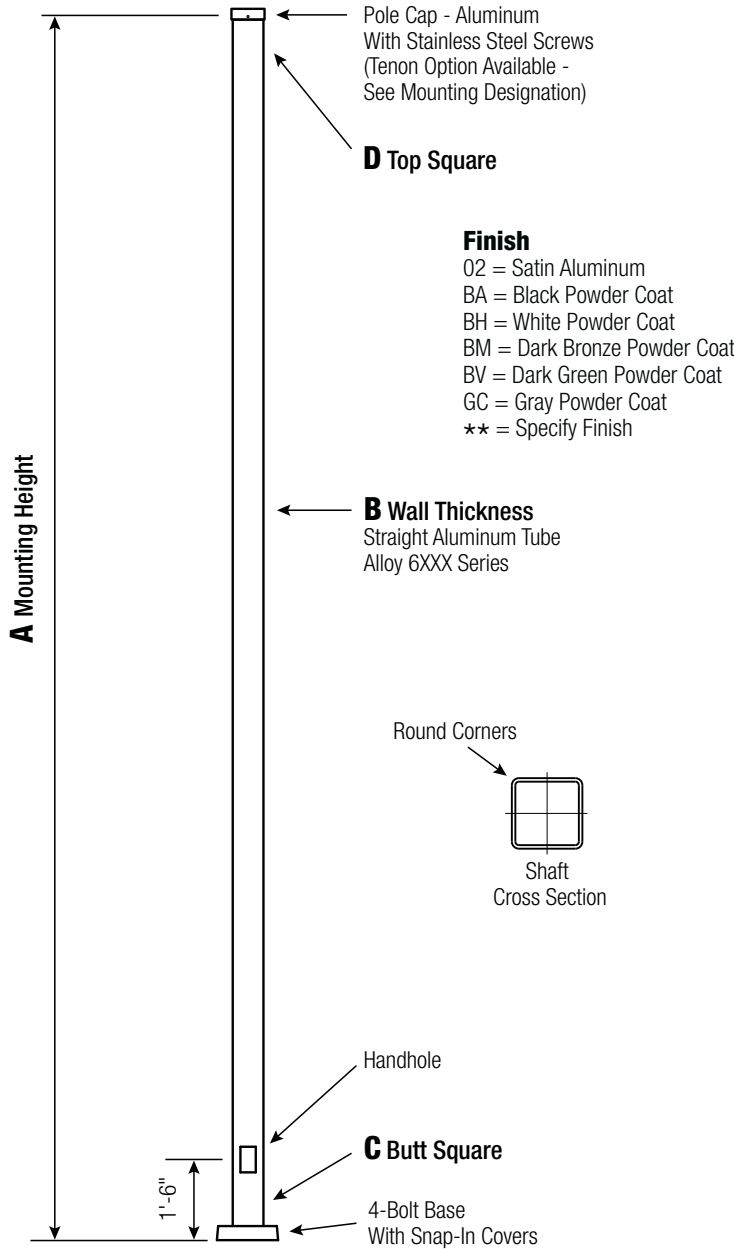
All values are design or typical values, measured under laboratory conditions at 25 °C.

Specifications subject to change without notice.



SSA

Square Straight Aluminum Pole No Arm — 4-Bolt Base



WARNING:
Do not install light pole without luminaire.

Satin Aluminum or Powder Coated
Finish per Customer Specification.

A Mtg. Hgt.	B Wall Thickness	C Butt Square	TOTAL LUM. WEIGHT	MAXIMUM EPA					OLD CAT. NUMBER	CATALOG NUMBER
				90	100	110	120	130		
15	0.125"	4	70	9.8	7.2	6.6	5.0	3.8	11-123	SSA15B4-4-**

C Butt Sq.	D Top Sq.	F Bolt Cir. Dia.	G Base Sq.	H Bolt Proj.	I Bolt Size
4	4	8.5 - 9.5	9.875	1.5	.75 x 17 x 3

Dimensions in Inches

CUSTOMER NAME:	
PROJECT:	LOCATION:
NOTES:	QUANTITY:

SSA15B4-4

CATALOG NUMBER

FINISH

Pole

The pole shaft will be constructed of seamless extruded tube of 6XXX Series Aluminum Alloy per the requirements of ASTM B221. The shaft assembly shall be full-length heat treated after base weld.

Base Style

4-Bolt Cast Aluminum Base Flange of Alloy 356-T6 with Aluminum Snap-In Bolt Covers.

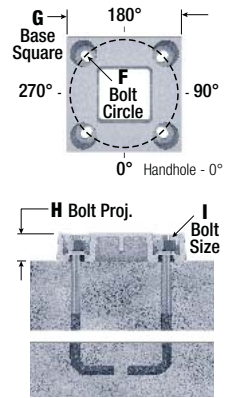


Handhole

2" x 4" Handhole with curved Lap Style Aluminum Door and two (2) Stainless Steel Self-Tapping Attaching Screws. A Grounding Provision incorporating a tapped 11/4"-20NC hole is provided opposite the Handhole.

Anchorage

Anchorage Kit will include four (4) L-shaped Steel Anchor Bolts conforming to AASHTO M314-90 Grade 55. Ten inches (10") of threaded end will be galvanized per ASTM A153. Kits will contain four (4) Hex Nuts, four (4) Lock Washers, and four (4) Flat Washers (all components Galvanized Steel). A bolt circle template will be provided.

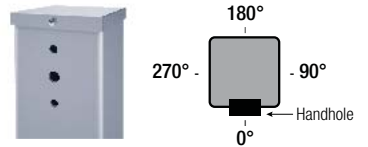


Vibration Damper

When determined necessary by Hapco, a Vibration Damper will be factory-installed inside the pole shaft. Customer specification of the damper is available.

Mounting Designation

Side Drill Mount - For Side Drill Mount applications specify luminaire type, quantity and orientation. A luminaire drilling template must be supplied at time of order.



Tenon Mount

For Tenon Mount applications specify both Tenon diameter (2.375", 2.875", 3.5", etc.) and length (3", 4", etc.).



EPA Notes: Effective Projected Area (EPA) in square feet. EPA's calculated using wind velocity (mph) indicated in accordance with 2009 AASHTO LTS-5 using a 25 year design life. Maximum EPA is based on the luminaire weight shown. Increased luminaire weight may reduce the maximum EPA. If weight is exceeded, or if other design life or code is required, please consult the factory.



26252 Hillman Highway
Abingdon, VA 24210
800.368.7171
www.hapco.com



D-Series Size 0 LED Area Luminaire



Catalog Number
Notes
Type

Hit the Tab key or mouse over the page to see all interactive elements.

A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and system-level interoperability.

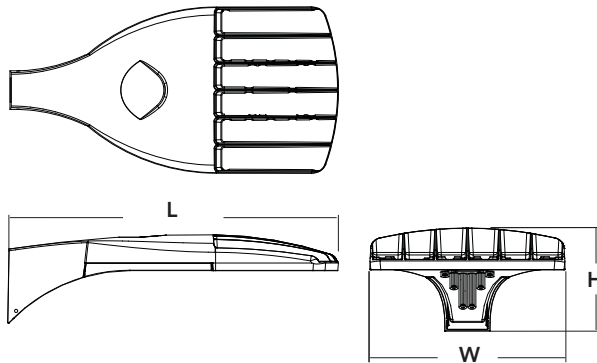
- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is A+ Certified when ordered with DTL® controls marked by a **shaded background**. DTL DLL equipped luminaires meet the A+ specification for luminaire to photocontrol interoperability¹
- This luminaire is part of an A+ Certified solution for ROAM® or XPoint™ Wireless control networks, providing out-of-the-box control compatibility with simple commissioning, when ordered with drivers and control options marked by a **shaded background**¹

To learn more about A+, visit www.acuitybrands.com/aplus.

- See ordering tree for details.
- A+ Certified Solutions for ROAM require the order of one ROAM node per luminaire. Sold Separately: [Link to Roam](#); [Link to DTL DLL](#)

Specifications

- EPA:** 0.95 ft²
(.09 m²)
- Length:** 26"
(66.0 cm)
- Width:** 13"
(33.0 cm)
- Height:** 7"
(17.8 cm)
- Weight (max):** 16 lbs
(7.25 kg)



A+ Capable options indicated by this color background.

Ordering Information

EXAMPLE: DSX0 LED P6 40K T3M MVOLT SPA DDBXD

Series	LEDs	Color temperature	Distribution	Voltage	Mounting
DSX0 LED	Forward optics P1 P4 P7 P2 P5 P3 P6 Rotated optics P10 ¹ P12 ¹ P11 ¹ P13 ¹	30K 3000 K 40K 4000 K 50K 5000 K AMBPC Amber phosphor converted ²	T1S Type I short T2S Type II short T2M Type II medium T3S Type III short T3M Type III medium T4M Type IV medium TFTM Forward throw medium TSVS Type V very short T5S Type V short T5M Type V medium T5W Type V wide BLC Backlight control ^{2,3} LCCO Left corner cutoff ³ RCCO Right corner cutoff ³	MVOLT ⁴ 120 ⁵ 208 ⁵ 240 ⁵ 277 ⁵ 347 ^{5,6} 480 ^{5,6}	Shipped included SPA Square pole mounting RPA Round pole mounting WBA Wall bracket SPUMBA Square pole universal mounting adaptor ⁷ RPUMBA Round pole universal mounting adaptor ⁷ Shipped separately KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish) ⁸

Control options	Other options	Finish (required)
Shipped installed PER NEMA twist-lock receptacle only (control ordered separate) ⁹ PER5 Five-wire receptacle only (control ordered separate) ^{9,10} PER7 Seven-wire receptacle only (control ordered separate) ^{9,10} DMG 0-10V dimming extend out back of housing for external control (control ordered separate) PIR Bi-level, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 5fc ^{11,12} PIRH Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc ^{11,12} PIR1FC3V Bi-level, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc ^{11,12}	PIRH1FC3V Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc ^{11,12} BL30 Bi-level switched dimming, 30% ^{13,14} BL50 Bi-level switched dimming, 50% ^{13,14} PNMTDD3 Part night, dim till dawn ¹⁵ PNMT5D3 Part night, dim 5 hrs ¹⁵ PNMT6D3 Part night, dim 6 hrs ¹⁵ PNMT7D3 Part night, dim 7 hrs ¹⁵ FAO Field adjustable output ¹⁶ HS House-side shield ¹⁷ SF Single fuse (120, 277, 347V) ⁵ DF Double fuse (208, 240, 480V) ⁵ L90 Left rotated optics ¹ R90 Right rotated optics ¹ DDL Diffused drop lens ¹⁷ Order separately BS Bird spikes EGS External glare shield	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white

Ordering Information

Accessories

Ordered and shipped separately.

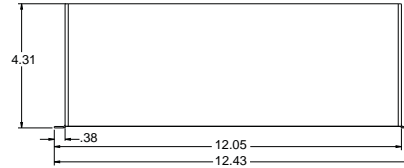
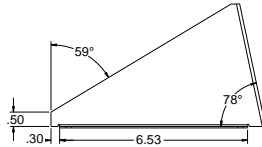
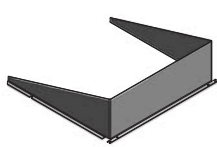
DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) ¹⁸
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) ¹⁸
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) ¹⁸
DSHORT SBK U	Shorting cap ¹⁸
DSX0HS 20C U	House-side shield for 20 LED unit ¹⁷
DSX0HS 30C U	House-side shield for 30 LED unit ¹⁷
DSX0HS 40C U	House-side shield for 40 LED unit ¹⁷
DSX0DDL U	Diffused drop lens (polycarbonate) ¹⁷
PUMBA DDBXD U*	Square and round pole universal mounting bracket adaptor (specify finish) ¹⁹
KMA8 DDBXD U	Mast arm mounting bracket adaptor (specify finish) ²

For more control options, visit [DTL](#) and [ROAM](#) online.

NOTES

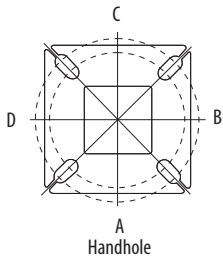
- P10, P11, P12 and P13 and rotated options (L90 or R90) only available together.
- AMBPC is not available with BLC, LCCO, RCCO, P4, P7 or P13.
- Not available with HS or DDL.
- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
- Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
- Not available in P4, P7 or P13. Not available with BL30, BL50 or PNMT options.
- Existing drilled pole only. Available as a separate combination accessory; for retrofit use only: PUMBA (finish) U; 1.5 G vibration load rating per ANCI C136.31.
- Must order fixture with SPA mounting. Must be ordered as a separate accessory; see Accessories information. For use with 2-3/8" mast arm (not included).
- Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting Cap included.
- If ROAM® node required, it must be ordered and shipped as a separate line item from Acuity Brands Controls. Shorting Cap included.
- Reference Motion Sensor table on page 3.
- Reference PER Table on page 3 to see functionality.
- Requires (2) separately switched circuits.
- Not available with 347V, 480V or PNMT. For PER5 or PER7 see PER Table on page 3.
- Not available with 347V, 480V, BL30 and BL50. For PER5 or PER7 see PER Table on page 3. Separate Dusk to Dawn required.
- Not available with other dimming controls options.
- Not available with BLC, LCCO and RCCO distribution. Also available as a separate accessory; see Accessories information.
- Requires luminaire to be specified with PER, PER5 or PER7 option. See PER Table on page 3.
- For retrofit use only.

External Glare Shield



Drilling

HANDHOLE ORIENTATION



Tenon Mounting Slipfitter**

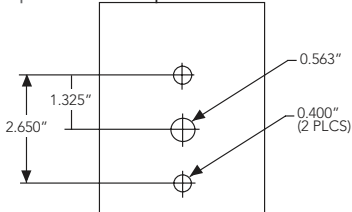
Tenon O.D.	Single Unit	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2-3/8"	AST20-190	AST20-280	AST20-290	AST20-320	AST20-390	AST20-490
2-7/8"	AST25-190	AST25-280	AST25-290	AST25-320	AST25-390	AST25-490
4"	AST35-190	AST35-280	AST35-290	AST35-320	AST35-390	AST35-490

Pole drilling nomenclature: # of heads at degree from handhole (default side A)					
DM19AS	DM28AS	DM29AS	DM32AS	DM39AS	DM49AS
1 @ 90°	2 @ 280°	2 @ 90°	3 @ 120°	3 @ 90°	4 @ 90°
Side B	Side B & D	Side B & C	Round pole only	Side B, C, & D	Sides A, B, C, D

Note: Review luminaire spec sheet for specific nomenclature

Template #8

Top of Pole



Pole top or tenon O.D.	4.5" @ 90°	4" @ 90°	3.5" @ 90°	3" @ 90°	4.5" @ 120°	4" @ 120°	3.5" @ 120°	3" @ 120°
DSX SPA	Y	Y	Y	N	-	-	-	-
DSX RPA	Y	Y	N	N	Y	Y	Y	Y
DSX SPUMBA	Y	N	N	N	-	-	-	-
DSX RPUMBA	N	N	N	N	-	Y	Y	N

*3 fixtures @ 120 require round pole top/tenon.

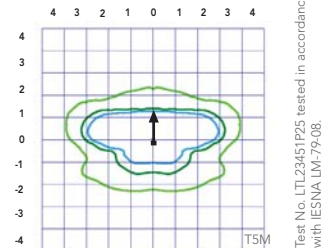
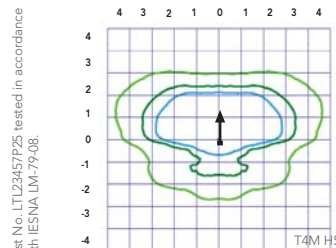
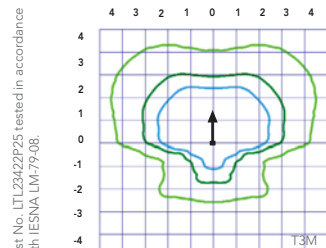
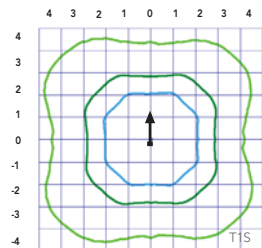
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit [Lithonia Lighting's D-Series Area Size 0 homepage](#).

Isofootcandle plots for the DSX0 LED 40C 1000 40K. Distances are in units of mounting height (20').

LEGEND

- 0.1 fc
- 0.5 fc
- 1.0 fc



Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.04
5°C	41°F	1.04
10°C	50°F	1.03
15°C	59°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	25000	50000	100000
Lumen Maintenance Factor	0.96	0.92	0.85

Electrical Load

	Performance Package	LED Count	Drive Current	Wattage	Current (A)					
					120	208	240	277	347	480
Forward Optics (Non-Rotated)	P1	20	530	38	0.32	0.18	0.15	0.15	0.10	0.08
	P2	20	700	49	0.41	0.23	0.20	0.19	0.14	0.11
	P3	20	1050	71	0.60	0.37	0.32	0.27	0.21	0.15
	P4	20	1400	92	0.77	0.45	0.39	0.35	0.28	0.20
	P5	40	700	89	0.74	0.43	0.38	0.34	0.26	0.20
	P6	40	1050	134	1.13	0.65	0.55	0.48	0.39	0.29
	P7	40	1300	166	1.38	0.80	0.69	0.60	0.50	0.37
Rotated Optics (Requires L90 or R90)	P10	30	530	53	0.45	0.26	0.23	0.21	0.16	0.12
	P11	30	700	72	0.60	0.35	0.30	0.27	0.20	0.16
	P12	30	1050	104	0.88	0.50	0.44	0.39	0.31	0.23
	P13	30	1300	128	1.08	0.62	0.54	0.48	0.37	0.27

Motion Sensor Default Settings

Option	Dimmed State	High Level (when triggered)	Photocell Operation	Dwell Time	Ramp-up Time	Ramp-down Time
PIR or PIRH	3V (37%) Output	10V (100%) Output	Enabled @ 5FC	5 min	3 sec	5 min
*PIR1FC3V or PIRH1FC3V	3V (37%) Output	10V (100%) Output	Enabled @ 1FC	5 min	3 sec	5 min

*for use with Inline Dusk to Dawn or timer.

PER Table

Control	PER (3 wire)	PERS (5 wire)		PER7 (7 wire)	
		Wire 4/Wire5	Wire 4/Wire5	Wire 6/Wire7	Wire 6/Wire7
Photocontrol Only (On/Off)	✓	⚠	⚠	⚠	⚠
ROAM	⊘	✓	⚠	⚠	⚠
ROAM with Motion (ROAM on/off only)	⊘	⚠	⚠	⚠	⚠
Future-proof*	⊘	⚠	✓	✓	⚠
Future-proof* with Motion	⊘	⚠	✓	✓	⚠

✓	Recommended
⊘	Will not work
⚠	Alternate

*Future-proof means: Ability to change controls in the future.

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Forward Optics																								
LED Count	Drive Current	Power Package	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)					AMBPC (Amber Phosphor Converted)				
					lumens	R	II	G	IPW	lumens	R	II	G	IPW	lumens	R	II	G	IPW	lumens	R	II	G	IPW
20	530	P1	38W	T1S	4,369	1	0	1	115	4,706	1	0	1	124	4,766	1	0	1	125	2,541	1	0	1	73
				T2S	4,364	1	0	1	115	4,701	1	0	1	124	4,761	1	0	1	125	2,589	1	0	1	74
				T2M	4,387	1	0	1	115	4,726	1	0	1	124	4,785	1	0	1	126	2,539	1	0	1	73
				T3S	4,248	1	0	1	112	4,577	1	0	1	120	4,634	1	0	1	122	2,558	1	0	1	73
				T3M	4,376	1	0	1	115	4,714	1	0	1	124	4,774	1	0	1	126	2,583	1	0	1	74
				T4M	4,281	1	0	1	113	4,612	1	0	2	121	4,670	1	0	2	123	2,570	1	0	1	73
				TFTM	4,373	1	0	1	115	4,711	1	0	2	124	4,771	1	0	2	126	2,540	1	0	1	73
				TSVS	4,548	2	0	0	120	4,900	2	0	0	129	4,962	2	0	0	131	2,650	1	0	0	76
				TSS	4,552	2	0	0	120	4,904	2	0	0	129	4,966	2	0	0	131	2,690	1	0	0	77
				TSM	4,541	3	0	1	120	4,891	3	0	1	129	4,953	3	0	1	130	2,658	2	0	0	76
				TSW	4,576	3	0	2	120	4,929	3	0	2	130	4,992	3	0	2	131	2,663	2	0	1	73
				BLC	3,586	1	0	1	94	3,863	1	0	1	102	3,912	1	0	1	103					
				LCCO	2,668	1	0	1	70	2,874	1	0	2	76	2,911	1	0	2	77					
				RCCO	2,668	1	0	1	70	2,874	1	0	2	76	2,911	1	0	2	77					
				20	700	P2	49W	T1S	5,570	1	0	1	114	6,001	1	0	1	122	6,077	2	0	2	124	3,144
T2S	5,564	1	0					2	114	5,994	1	0	2	122	6,070	2	0	2	124	3,203	1	0	1	71
T2M	5,593	1	0					1	114	6,025	1	0	1	123	6,102	1	0	1	125	3,141	1	0	1	70
T3S	5,417	1	0					2	111	5,835	1	0	2	119	5,909	2	0	2	121	3,165	1	0	1	70
T3M	5,580	1	0					2	114	6,011	1	0	2	123	6,087	1	0	2	124	3,196	1	0	1	71
T4M	5,458	1	0					2	111	5,880	1	0	2	120	5,955	1	0	2	122	3,179	1	0	1	71
TFTM	5,576	1	0					2	114	6,007	1	0	2	123	6,083	1	0	2	124	3,143	1	0	1	70
TSVS	5,799	2	0					0	118	6,247	2	0	0	127	6,327	2	0	0	129	3,278	2	0	0	73
TSS	5,804	2	0					0	118	6,252	2	0	0	128	6,332	2	0	1	129	3,328	2	0	0	74
TSM	5,789	3	0					1	118	6,237	3	0	1	127	6,316	3	0	1	129	3,288	2	0	1	73
TSW	5,834	3	0					2	119	6,285	3	0	2	128	6,364	3	0	2	130	3,295	2	0	1	73
BLC	4,572	1	0					1	93	4,925	1	0	1	101	4,987	1	0	1	102					
LCCO	3,402	1	0					2	69	3,665	1	0	2	75	3,711	1	0	2	76					
RCCO	3,402	1	0					2	69	3,665	1	0	2	75	3,711	1	0	2	76					
20	1050	P3	71W					T1S	7,833	2	0	2	110	8,438	2	0	2	119	8,545	2	0	2	120	
				T2S	7,825	2	0	2	110	8,429	2	0	2	119	8,536	2	0	2	120					
				T2M	7,865	2	0	2	111	8,473	2	0	2	119	8,580	2	0	2	121					
				T3S	7,617	2	0	2	107	8,205	2	0	2	116	8,309	2	0	2	117					
				T3M	7,846	2	0	2	111	8,452	2	0	2	119	8,559	2	0	2	121					
				T4M	7,675	2	0	2	108	8,269	2	0	2	116	8,373	2	0	2	118					
				TFTM	7,841	2	0	2	110	8,447	2	0	2	119	8,554	2	0	2	120					
				TSVS	8,155	3	0	0	115	8,785	3	0	0	124	8,896	3	0	0	125					
				TSS	8,162	3	0	1	115	8,792	3	0	1	124	8,904	3	0	1	125					
				TSM	8,141	3	0	2	115	8,770	3	0	2	124	8,881	3	0	2	125					
				TSW	8,204	3	0	2	116	8,838	4	0	2	124	8,950	4	0	2	126					
				BLC	6,429	1	0	2	91	6,926	1	0	2	98	7,013	1	0	2	99					
				LCCO	4,784	1	0	2	67	5,153	1	0	2	73	5,218	1	0	2	73					
				RCCO	4,784	1	0	2	67	5,153	1	0	2	73	5,218	1	0	2	73					
				20	1400	P4	92W	T1S	9,791	2	0	2	106	10,547	2	0	2	115	10,681	2	0	2	116	
T2S	9,780	2	0					2	106	10,536	2	0	2	115	10,669	2	0	2	116					
T2M	9,831	2	0					2	107	10,590	2	0	2	115	10,724	2	0	2	117					
T3S	9,521	2	0					2	103	10,256	2	0	2	111	10,386	2	0	2	113					
T3M	9,807	2	0					2	107	10,565	2	0	2	115	10,698	2	0	2	116					
T4M	9,594	2	0					2	104	10,335	2	0	3	112	10,466	2	0	3	114					
TFTM	9,801	2	0					2	107	10,558	2	0	2	115	10,692	2	0	2	116					
TSVS	10,193	3	0					1	111	10,981	3	0	1	119	11,120	3	0	1	121					
TSS	10,201	3	0					1	111	10,990	3	0	1	119	11,129	3	0	1	121					
TSM	10,176	4	0					2	111	10,962	4	0	2	119	11,101	4	0	2	121					
TSW	10,254	4	0					3	111	11,047	4	0	3	120	11,186	4	0	3	122					
BLC	8,036	1	0					2	87	8,656	1	0	2	94	8,766	1	0	2	95					
LCCO	5,979	1	0					2	65	6,441	1	0	2	70	6,523	1	0	3	71					
	5,979	1	0					2	65	6,441	1	0	2	70	6,523	1	0	3	71					

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Forward Optics																								
LED Count	Drive Current	Power Package	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)					AMBPC (Amber Phosphor Converted)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
40	700	P5	89W	T1S	10,831	2	0	2	122	11,668	2	0	2	131	11,816	2	0	2	133					
				T2S	10,820	2	0	2	122	11,656	2	0	2	131	11,803	2	0	2	133					
				T2M	10,876	2	0	2	122	11,716	2	0	2	132	11,864	2	0	2	133					
				T3S	10,532	2	0	2	118	11,346	2	0	2	127	11,490	2	0	2	129					
				T3M	10,849	2	0	2	122	11,687	2	0	2	131	11,835	2	0	2	133					
				T4M	10,613	2	0	3	119	11,434	2	0	3	128	11,578	2	0	3	130					
				TFTM	10,842	2	0	2	122	11,680	2	0	2	131	11,828	2	0	2	133					
				TSVS	11,276	3	0	1	127	12,148	3	0	1	136	12,302	3	0	1	138					
				TSS	11,286	3	0	1	127	12,158	3	0	1	137	12,312	3	0	1	138					
				TSM	11,257	4	0	2	126	12,127	4	0	2	136	12,280	4	0	2	138					
				TSW	11,344	4	0	3	127	12,221	4	0	3	137	12,375	4	0	3	139					
				BLC	8,890	1	0	2	100	9,576	1	0	2	108	9,698	1	0	2	109					
				LCCO	6,615	1	0	3	74	7,126	1	0	3	80	7,216	1	0	3	81					
				RCCO	6,615	1	0	3	74	7,126	1	0	3	80	7,216	1	0	3	81					
				40	1050	P6	134W	T1S	14,805	3	0	3	110	15,949	3	0	3	119	16,151	3	0	3	121	6,206
T2S	14,789	3	0					3	110	15,932	3	0	3	119	16,134	3	0	3	120	6,322	2	0	2	69
T2M	14,865	3	0					3	111	16,014	3	0	3	120	16,217	3	0	3	121	6,201	2	0	2	68
T3S	14,396	3	0					3	107	15,509	3	0	3	116	15,705	3	0	3	117	6,247	1	0	2	69
T3M	14,829	2	0					3	111	15,975	3	0	3	119	16,177	3	0	3	121	6,308	2	0	2	69
T4M	14,507	2	0					3	108	15,628	3	0	3	117	15,826	3	0	3	118	6,275	1	0	2	69
TFTM	14,820	2	0					3	111	15,965	3	0	3	119	16,167	3	0	3	121	6,203	1	0	2	68
TSVS	15,413	4	0					1	115	16,604	4	0	1	124	16,815	4	0	1	125	6,671	2	0	0	73
TSS	15,426	3	0					1	115	16,618	4	0	1	124	16,828	4	0	1	126	6,569	2	0	0	72
TSM	15,387	4	0					2	115	16,576	4	0	2	124	16,786	4	0	2	125	6,491	3	0	1	71
TSW	15,506	4	0					3	116	16,704	4	0	3	125	16,915	4	0	3	126	6,504	3	0	2	71
BLC	12,151	1	0					2	91	13,090	1	0	2	98	13,255	1	0	2	99					
LCCO	9,041	1	0					3	67	9,740	1	0	3	73	9,863	1	0	3	74					
RCCO	9,041	1	0					3	67	9,740	1	0	3	73	9,863	1	0	3	74					
40	1300	P7	166W					T1S	17,023	3	0	3	103	18,338	3	0	3	110	18,570	3	0	3	112	
				T2S	17,005	3	0	3	102	18,319	3	0	3	110	18,551	3	0	3	112					
				T2M	17,092	3	0	3	103	18,413	3	0	3	111	18,646	3	0	3	112					
				T3S	16,553	3	0	3	100	17,832	3	0	3	107	18,058	3	0	3	109					
				T3M	17,051	3	0	3	103	18,369	3	0	3	111	18,601	3	0	3	112					
				T4M	16,681	3	0	3	100	17,969	3	0	3	108	18,197	3	0	3	110					
				TFTM	17,040	3	0	3	103	18,357	3	0	4	111	18,590	3	0	4	112					
				TSVS	17,723	4	0	1	107	19,092	4	0	1	115	19,334	4	0	1	116					
				TSS	17,737	4	0	2	107	19,108	4	0	2	115	19,349	4	0	2	117					
				TSM	17,692	4	0	2	107	19,059	4	0	2	115	19,301	4	0	2	116					
				TSW	17,829	5	0	3	107	19,207	5	0	3	116	19,450	5	0	3	117					
				BLC	13,971	2	0	2	84	15,051	2	0	2	91	15,241	2	0	2	92					
				LCCO	10,396	1	0	3	63	11,199	1	0	3	67	11,341	1	0	3	68					
					10,396	1	0	3	63	11,199	1	0	3	67	11,341	1	0	3	68					

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Rotated Optics																													
LED Count	Drive Current	Power Package	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)					AMBPC (Amber Phosphor Converted)									
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW					
30	530	P10	53W	T1S	6,727	2	0	2	127	7,247	3	0	3	137	7,339	3	0	3	138										
				T2S	6,689	3	0	3	126	7,205	3	0	3	136	7,297	3	0	3	138										
				T2M	6,809	3	0	3	128	7,336	3	0	3	138	7,428	3	0	3	140										
				T3S	6,585	3	0	3	124	7,094	3	0	3	134	7,183	3	0	3	136										
				T3M	6,805	3	0	3	128	7,331	3	0	3	138	7,424	3	0	3	140										
				T4M	6,677	3	0	3	126	7,193	3	0	3	136	7,284	3	0	3	137										
				TFTM	6,850	3	0	3	129	7,379	3	0	3	139	7,472	3	0	3	141										
				T5VS	6,898	3	0	0	130	7,431	3	0	0	140	7,525	3	0	0	142										
				T5S	6,840	2	0	1	129	7,368	2	0	1	139	7,461	2	0	1	141										
				T5M	6,838	3	0	1	129	7,366	3	0	2	139	7,460	3	0	2	141										
				T5W	6,777	3	0	2	128	7,300	3	0	2	138	7,393	3	0	2	139										
				BLC	5,626	2	0	2	106	6,060	2	0	2	114	6,137	2	0	2	116										
				LCCO	4,018	1	0	2	76	4,328	1	0	2	82	4,383	1	0	2	83										
				RCCO	4,013	3	0	3	76	4,323	3	0	3	82	4,377	3	0	3	83										
				30	700	P11	72W	T1S	8,594	3	0	3	119	9,258	3	0	3	129	9,376	3	0	3	130						
								T2S	8,545	3	0	3	119	9,205	3	0	3	128	9,322	3	0	3	129						
T2M	8,699	3	0					3	121	9,371	3	0	3	130	9,490	3	0	3	132										
T3S	8,412	3	0					3	117	9,062	3	0	3	126	9,177	3	0	3	127										
T3M	8,694	3	0					3	121	9,366	3	0	3	130	9,484	3	0	3	132										
T4M	8,530	3	0					3	118	9,189	3	0	3	128	9,305	3	0	3	129										
TFTM	8,750	3	0					3	122	9,427	3	0	3	131	9,546	3	0	3	133										
T5VS	8,812	3	0					0	122	9,493	3	0	0	132	9,613	3	0	0	134										
T5S	8,738	3	0					1	121	9,413	3	0	1	131	9,532	3	0	1	132										
T5M	8,736	3	0					2	121	9,411	3	0	2	131	9,530	3	0	2	132										
T5W	8,657	4	0					2	120	9,326	4	0	2	130	9,444	4	0	2	131										
BLC	7,187	3	0					3	100	7,742	3	0	3	108	7,840	3	0	3	109										
LCCO	5,133	1	0					2	71	5,529	1	0	2	77	5,599	1	0	2	78										
RCCO	5,126	3	0					3	71	5,522	3	0	3	77	5,592	3	0	3	78										
30	1050	P12	104W					T1S	12,149	3	0	3	117	13,088	3	0	3	126	13,253	3	0	3	127						
								T2S	12,079	4	0	4	116	13,012	4	0	4	125	13,177	4	0	4	127						
				T2M	12,297	3	0	3	118	13,247	3	0	3	127	13,415	3	0	3	129										
				T3S	11,891	4	0	4	114	12,810	4	0	4	123	12,972	4	0	4	125										
				T3M	12,290	3	0	3	118	13,239	4	0	4	127	13,407	4	0	4	129										
				T4M	12,058	4	0	4	116	12,990	4	0	4	125	13,154	4	0	4	126										
				TFTM	12,369	4	0	4	119	13,325	4	0	4	128	13,494	4	0	4	130										
				T5VS	12,456	3	0	1	120	13,419	3	0	1	129	13,589	4	0	1	131										
				T5S	12,351	3	0	1	119	13,306	3	0	1	128	13,474	3	0	1	130										
				T5M	12,349	4	0	2	119	13,303	4	0	2	128	13,471	4	0	2	130										
				T5W	12,238	4	0	3	118	13,183	4	0	3	127	13,350	4	0	3	128										
				BLC	10,159	3	0	3	98	10,944	3	0	3	105	11,083	3	0	3	107										
				LCCO	7,256	1	0	3	70	7,816	1	0	3	75	7,915	1	0	3	76										
				RCCO	7,246	3	0	3	70	7,806	4	0	4	75	7,905	4	0	4	76										
				30	1300	P13	128W	T1S	14,438	3	0	3	113	15,554	3	0	3	122	15,751	3	0	3	123						
								T2S	14,355	4	0	4	112	15,465	4	0	4	121	15,660	4	0	4	122						
T2M	14,614	3	0					3	114	15,744	4	0	4	123	15,943	4	0	4	125										
T3S	14,132	4	0					4	110	15,224	4	0	4	119	15,417	4	0	4	120										
T3M	14,606	4	0					4	114	15,735	4	0	4	123	15,934	4	0	4	124										
T4M	14,330	4	0					4	112	15,438	4	0	4	121	15,633	4	0	4	122										
TFTM	14,701	4	0					4	115	15,836	4	0	4	124	16,037	4	0	4	125										
T5VS	14,804	4	0					1	116	15,948	4	0	1	125	16,150	4	0	1	126										
T5S	14,679	3	0					1	115	15,814	3	0	1	124	16,014	3	0	1	125										
T5M	14,676	4	0					2	115	15,810	4	0	2	124	16,010	4	0	2	125										
T5W	14,544	4	0					3	114	15,668	4	0	3	122	15,866	4	0	3	124										
BLC	7,919	3	0					3	62	8,531	3	0	3	67	8,639	3	0	3	67										
LCCO	5,145	1	0					2	40	5,543	1	0	2	43	5,613	1	0	2	44										
									5,139	3	0	3	40	5,536	3	0	3	43	5,606	3	0	3	44						

FEATURES & SPECIFICATIONS

INTENDED USE

The sleek design of the D-Series Size 0 reflects the embedded high performance LED technology. It is ideal for many commercial and municipal applications, such as parking lots, plazas, campuses, and pedestrian areas.

CONSTRUCTION

Single-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance and future light engine upgrades. The LED driver is mounted in direct contact with the casting to promote low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65). Low EPA (0.95 ft²) for optimized pole wind loading.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in both textured and non-textured finishes.

OPTICS

Precision-molded proprietary acrylic lenses are engineered for superior area lighting distribution, uniformity, and pole spacing. Light engines are available in 3000 K, 4000 K or 5000 K (70 CRI) configurations. The D-Series Size 0 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL

Light engine(s) configurations consist of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L85/100,000 hours at 25°C). Class 1 electronic drivers are designed to have a power factor >90%, THD <20%, and an expected life of

100,000 hours with <1% failure rate. Easily serviceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

INSTALLATION

Included mounting block and integral arm facilitate quick and easy installation. Stainless steel bolts fasten the mounting block securely to poles and walls, enabling the D-Series Size 0 to withstand up to a 3.0 G vibration load rating per ANSI C136.31. The D-Series Size 0 utilizes the AERIS™ series pole drilling pattern (template #8). Optional terminal block and NEMA photocontrol receptacle are also available.

LISTINGS

UL Listed for wet locations. Light engines are IP66 rated; luminaire is IP65 rated. Rated for -40°C minimum ambient. U.S. Patent No. D672,492 S. International patent pending.

DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

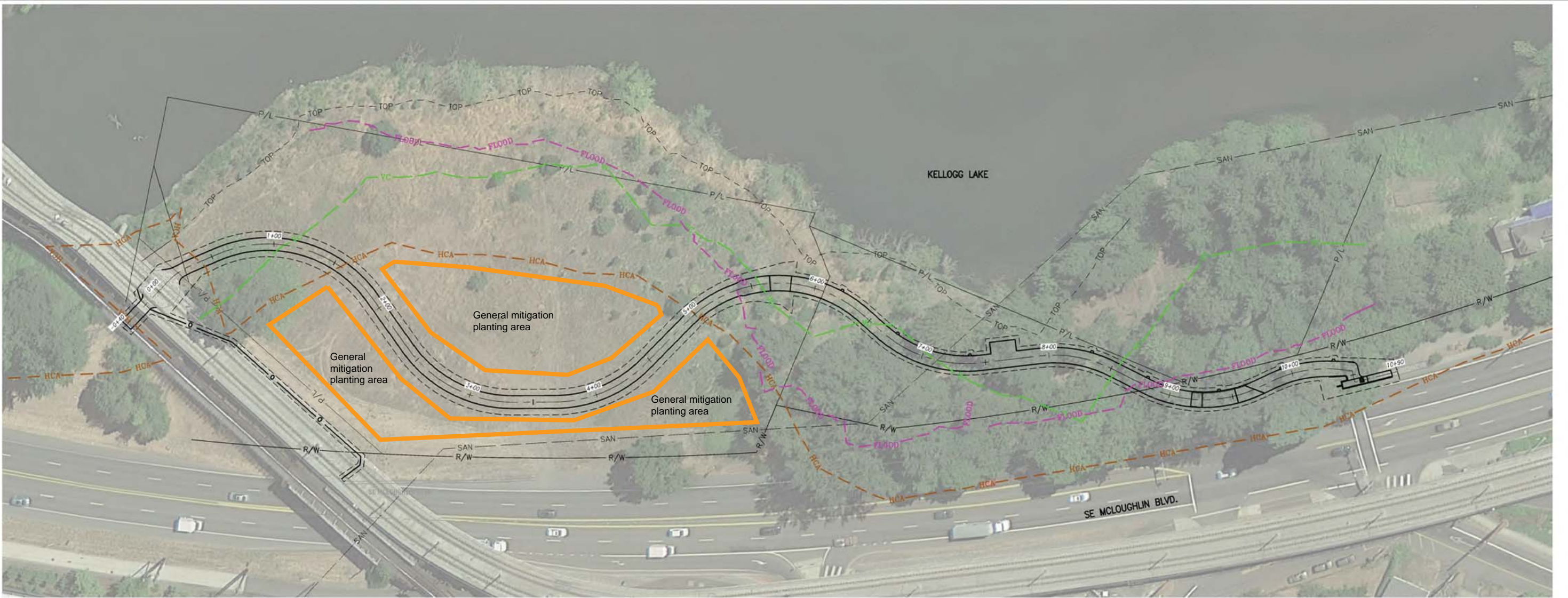
WARRANTY

5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

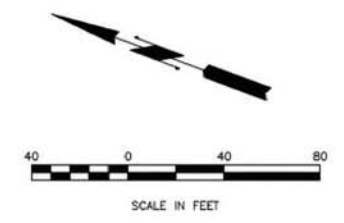
Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.



Appendix G



- FLOODPLAIN
- VEGETATED CORRIDOR
- HABITAT CONSERVATION AREA
- TOP OF BANK
- ODOT RIGHT-OF-WAY
- PROPERTY LINE
- EXISTING SANITARY LINE



Jan 02, 2019 - 8:43am V:\PROJECT\18400\18408\CADD\ACAD\dwg\Exhibits\18408-Environmental\Overlays.dwg

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MILWAUKIE, OR 97206

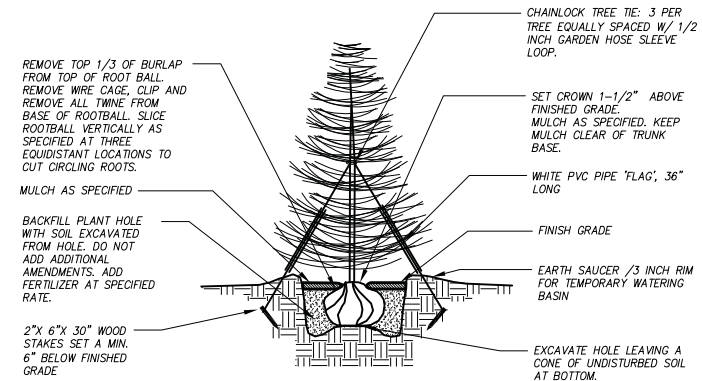
PHONE: 503-786-7600
FAX: 503-774-8236

KRONBERG PARK MULTI-USE WALKWAY

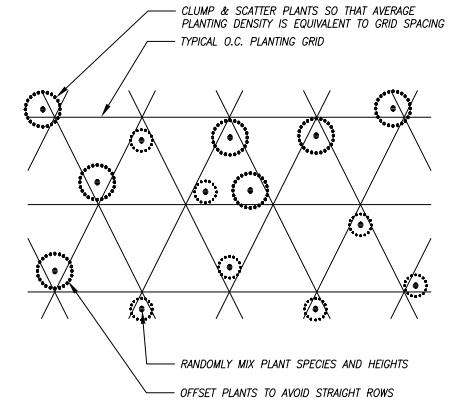
ENVIRONMENTAL OVERLAYS EXHIBIT

PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.:
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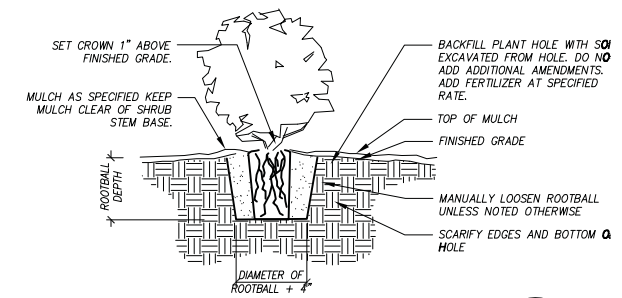
PLANTING SCHEDULE					
BOTANICAL NAME	COMMON NAME	QTY	SIZE	SPACING	COMMENTS
*Acer macrophylla	Big-leaf Maple	12	No. 2 Cont.	As Shown	Randomly Spaced
*Pinus ponderosa	Ponderosa Pine	30	2' Height	As Shown	Groups of 5-7, Random Spacing
*Pseudotsuga menziesii	Douglas Fir	40	2' Height	As Shown	Groups of 3-5, Random Spacing
**Cornus sericea	Red-osier Dogwood	75	No. 1 Cont.	3-5' OC	Groups of 5, Random Spacing
**Corylus cornutta	Beaked Hazelnut	50	No. 1 Cont.	10' OC	Groups of 3-5, Random Spacing
**Lonicera involucrata	Twinberry	80	No. 1 Cont.	3' OC	Groups of 5, Random Spacing
**Mahonia aquifolium	Tall Oregon Grape	55	No. 1 Cont.	3' OC	Groups of 5-7, Random Spacing
**Polystichum munitum	Sword Fern	75	No. 1 Cont.	4-5' OC	Groups of 3-5, Random Spacing
**Symphoricarpos alba	Snowberry	75	No. 1 Cont.	2-3' OC	Groups of 5, Random Spacing
BOTANICAL NAME	COMMON NAME	PLS/ACRE	ACRE	QTY	COMMENTS
NATIVE SEEDING (Vegetated Corridor)					
Agrostis exarata	Spike Bentgrass	0.004	0.55	0.002	Note: contractor to install Water Quality
Bromus carinatus	California Brome	7.251	0.55	3.988	seeding beyond five (5) feet of gravel
Elymus glaucus	Blue Wildrye	32.301	0.55	17.766	shoulder, pavement, or back of curb
Festuca rubra var. rubra	Red Fescue	3.876	0.55	2.132	and sidewalks.
PERMANENT SEEDING (Lawn Areas)					
Festuca rubra spp. Fallax var. Winward	Winward Chewings Fescue	13.153	0.49	6.445	Note: Contractor to install Permanent
Festuca rubra var. commutata 'Garnett'	Garnett Creeping Chewings Fescue	12.423	0.49	6.087	Seeding within five (5) feet of gravel shoulder, pavement, or back of curb and
Lolium perenne Blazer 4	Blazer 4 Perennial Ryegrass	37.268	0.49	18.261	sidewalks.
Lolium perenne Express II	Express II Perennial Ryegrass	37.268	0.49	18.261	
* Trees from City of Milwaukie Native Tree List.					
* Shrubs from City of Portland Plant list.					
Required vegetation per Wendy Marshall of City of Milwaukie 12/14/18: 82 trees and 410 shrubs.					



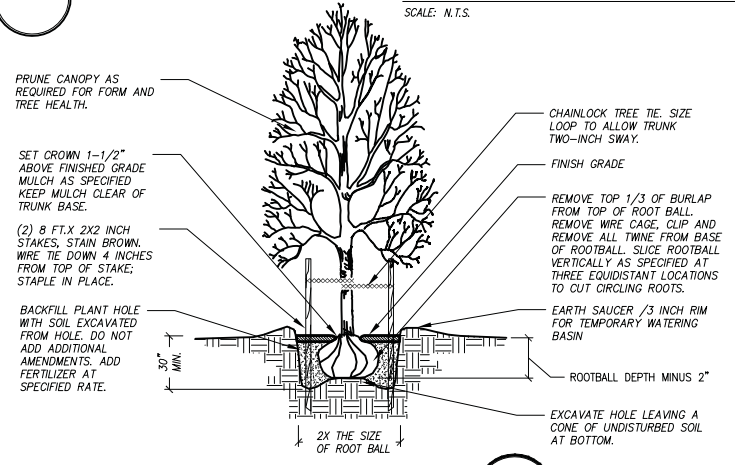
EVERGREEN TREE PLANTING 2
SCALE: N.T.S.



RANDOM PLANTING PATTERN 3
SCALE: N.T.S.



SHRUB PLANTING DETAIL 1
SCALE: N.T.S.



TREE PLANTING DETAIL 4
SCALE: N.T.S.

UTILITY NOTE:
CONTRACTOR IS CAUTIONED THAT EXISTING UNDERGROUND FACILITIES OCCUR THROUGHOUT THE WORK AREAS INCLUDING BUT NOT LIMITED TO POWER, GAS, TELEPHONE, WATER SUPPLY, AND IRRIGATION. CONTRACTOR SHALL MARK THE FACILITIES BEFORE WORK. POTHOLES WHERE NECESSARY, AND PROTECT DURING CONSTRUCTION. IMMEDIATELY NOTIFY OWNER'S REPRESENTATIVE IF ANY CONFLICTS ARE FOUND.

- LANDSCAPE NOTES:**
- GENERAL: SEVERAL OF THE FOLLOWING NOTES SUMMARIZE THE PROJECT SPECIFICATIONS FOR THE CONTRACTORS CONVENIENCE. IF A DISCREPANCY EXISTS BETWEEN THESE NOTES AND THE PROJECT SPECIFICATIONS THE SPECIFICATIONS SHALL OVERRIDE.
 - THE LANDSCAPE CONTRACTOR IS TO THOROUGHLY REVIEW THE SITE. IF THERE ARE ANY DISCREPANCIES BETWEEN THE PLAN AND THE EXISTING CONDITIONS THE OWNERS REPRESENTATIVE IS TO BE NOTIFIED IMMEDIATELY.
 - IF THE LANDSCAPE CONTRACTOR STARTS WORK BEFORE SITE CONDITIONS ARE READY OR CONTINUES WORK IN ADVERSE CONDITIONS WITHOUT PRIOR APPROVAL THEY WILL BE RESPONSIBLE FOR ANY ADDITIONAL COSTS RELATING TO THE CONDITION.
 - IMMEDIATELY NOTIFY OWNERS REPRESENTATIVE CONCERNING ANY CONDITION AT ANY TIME DURING CONSTRUCTION THAT IS DETRIMENTAL TO THE HEALTH AND VIGOROUS GROWTH OF THE SPECIFIED PLANT MATERIAL.
 - PROVIDE QUANTITY OF PLANT MATERIAL INDICATED IN PLANT LIST OR THE QUANTITY REQUIRED TO COVER AREAS INDICATED AT SPECIFIED SPACING, WHOEVER IS GREATER.
 - IF AN AREA DIFFERS SIGNIFICANTLY IN SIZE FROM THAT SCALED ON DRAWING AND REQUIRES MORE OR LESS MATERIAL THE OWNERS REPRESENTATIVE IS TO BE INFORMED.
 - TOPSOIL: 2" DEPTH IMPORT TOPSOIL TYPE A SHALL BE PREPARED AND AMENDED IN ACCORDANCE WITH THE DETAILS AND SPECIFICATIONS. APPLY TOPSOIL TYPE A AT STORMWATER FACILITIES ACCORDING TO CIVIL PLANS AND DETAILS AND DISTURBED AREAS TO BE SEEDING.
 - SCARIFY ALL SEEDING AREAS TO A DEPTH OF 6 INCHES PRIOR TO PLACEMENT OF 2" OF TOPSOIL TYPE A.
 - FERTILIZER: APPLY FERTILIZER TO ALL PLANT HOLES AND TURF AREAS OF THE TYPE, QUANTITY, APPLICATION METHOD, AND TIMING NOTED IN THE SPECIFICATIONS. DO NOT APPLY FERTILIZER AT STORM FACILITIES.
 - BARK MULCH: SPREAD 2 INCH DEPTH FINE-MEDIUM GRADE FIR/HEMLOCK BARK IN 2" DIAMETER CIRCLES AROUND ALL TREES AND SHRUBS. NO BARK MULCH TO BE INSTALLED IN STORM FACILITIES. KEEP BARK CLEAR OF TREE AND SHRUB STEM BASE.
 - PLANTING POCKETS: BACK FILL PLANT HOLE WITH SOIL EXCAVATED FROM HOLE. DO NOT ADD ADDITIONAL AMENDMENTS.
 - PLANT MATERIAL: ALL PLANT MATERIAL SHALL MEET MINIMUM QUALITY AND SIZE REQUIREMENTS ESTABLISHED IN THE AMERICAN STANDARD FOR NURSERY STOCK GUIDELINES.
 - LEAVE PLANT NAME IDENTIFICATION TAGS ON TEN PERCENT OF ALL TREES AND SHRUBS INSTALLED TO AID INSPECTORS IN VERIFYING THAT SPECIFIED PLANTS HAVE BEEN INSTALLED.
 - SEE SPECIFICATIONS FOR FINAL INSPECTION, MAINTENANCE, AND WARRANTY REQUIREMENTS UNIQUE TO THIS PROJECT.
 - SEE SPECIFICATIONS FOR OTHER LANDSCAPE CONSTRUCTION REQUIREMENTS.
 - APPLY MOISTURE RETENTION CHEMICALS TO ALL TREES, SHRUBS, AND SEEDING AREAS ACCORDING TO MANUFACTURERS RECOMMENDATIONS.

Jan 02, 2019 - 11:18am
V:\PROJECT\18400\18408\CADD\ACAD\DWG\18408C-Planting.dwg

NO.	DATE	BY	REVISIONS

C. Green	DESIGNED	1/2/2019	DATE
S. Lozano	DRAFTED	1/2/2019	DATE
	CHECKED		DATE
S. Banker	APPROVED	12/12/18	DATE



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Dogwood City of the West

6101 SE JOHNSON CREEK BLVD. MILWAUKIE, OR 97206

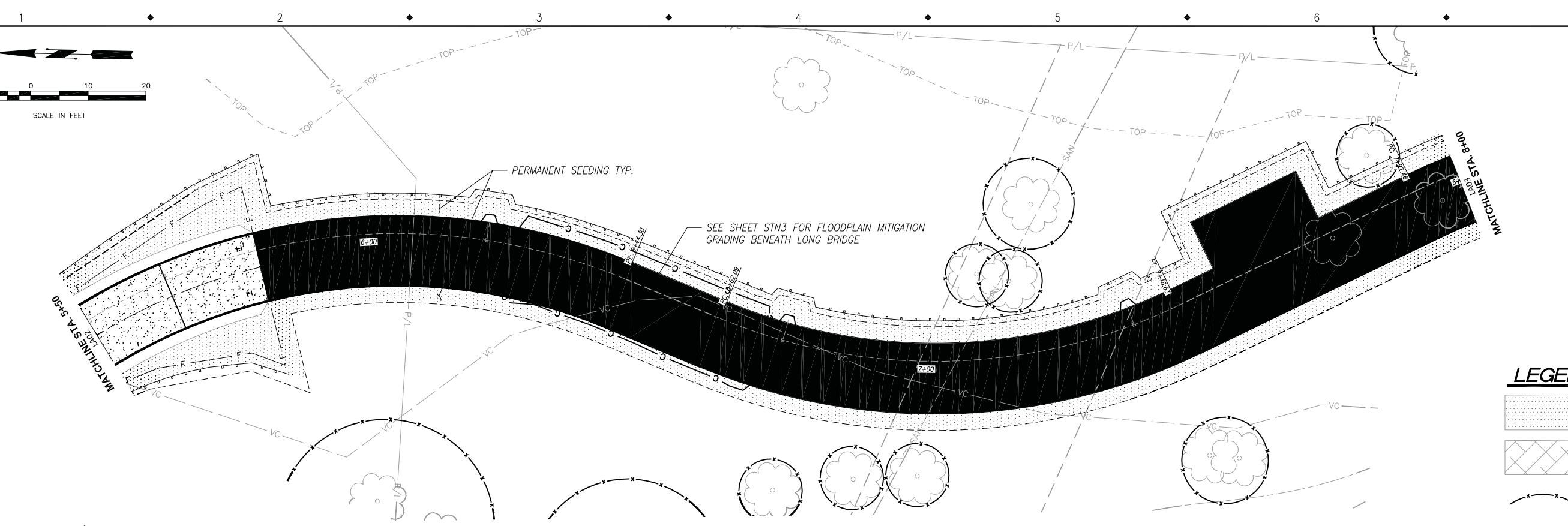
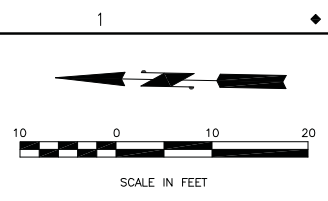
PHONE: 503-786-7600
FAX: 503-774-8236

KRONBERG PARK MULTI-USE WALKWAY

PLANTING DETAILS

PROJECT NO.: CIP2017-D29 CONTRACT NO.: DATE: NOV 2018 SHEET NO.: LA04

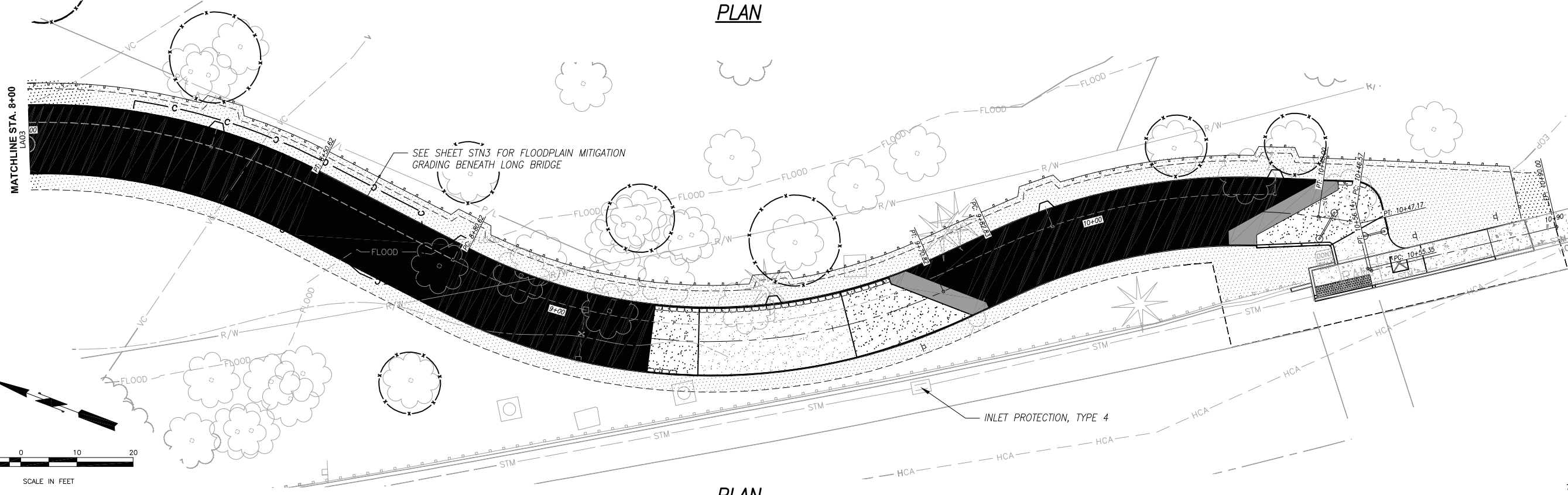
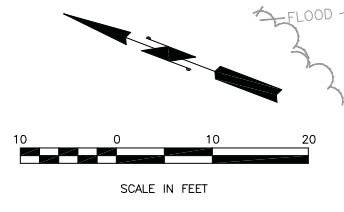




PLAN

LEGEND

	PERMANENT SEEDING
	VEGETATED CORRIDOR MITIGATION PLANTINGS AND NATIVE SEEDING
	TREE PROTECTION FENCING



PLAN

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NO.	DATE	BY	REVISIONS

C. Green	1/2/2019	DESIGNED	DATE
S. Lozano	1/2/2019	DRAFTED	DATE
CHECKED	DATE		
S. Banker	12/12/18	APPROVED	DATE

REGISTERED
 672
 06/30/19
 PRELIMINARY
 Scott W. Banker
 OREGON
 06/19/08
 LANDSCAPE ARCHITECT

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 MILWAUKIE, OR 97206
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KRONBERG PARK MULTI-USE WALKWAY

PLANTING PLAN



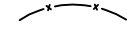
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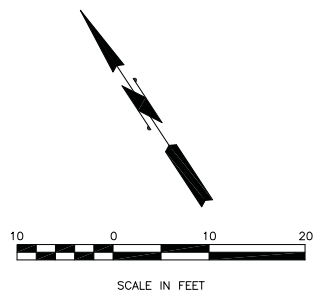
D
C
B

- MITIGATION AREA B**
- 6 - BIG LEAF MAPLE
 - 13 - PONDEROSA PINE
 - 17 - DOUGLAS FIR
 - 33 - RED OSIER DOGWOOD
 - 22 - BEAKED HAZELNUT
 - 35 - TWINBERRY
 - 24 - TALL OREGON GRAPE
 - 33 - SWORD FERN
 - 33 - SNOWBERRY

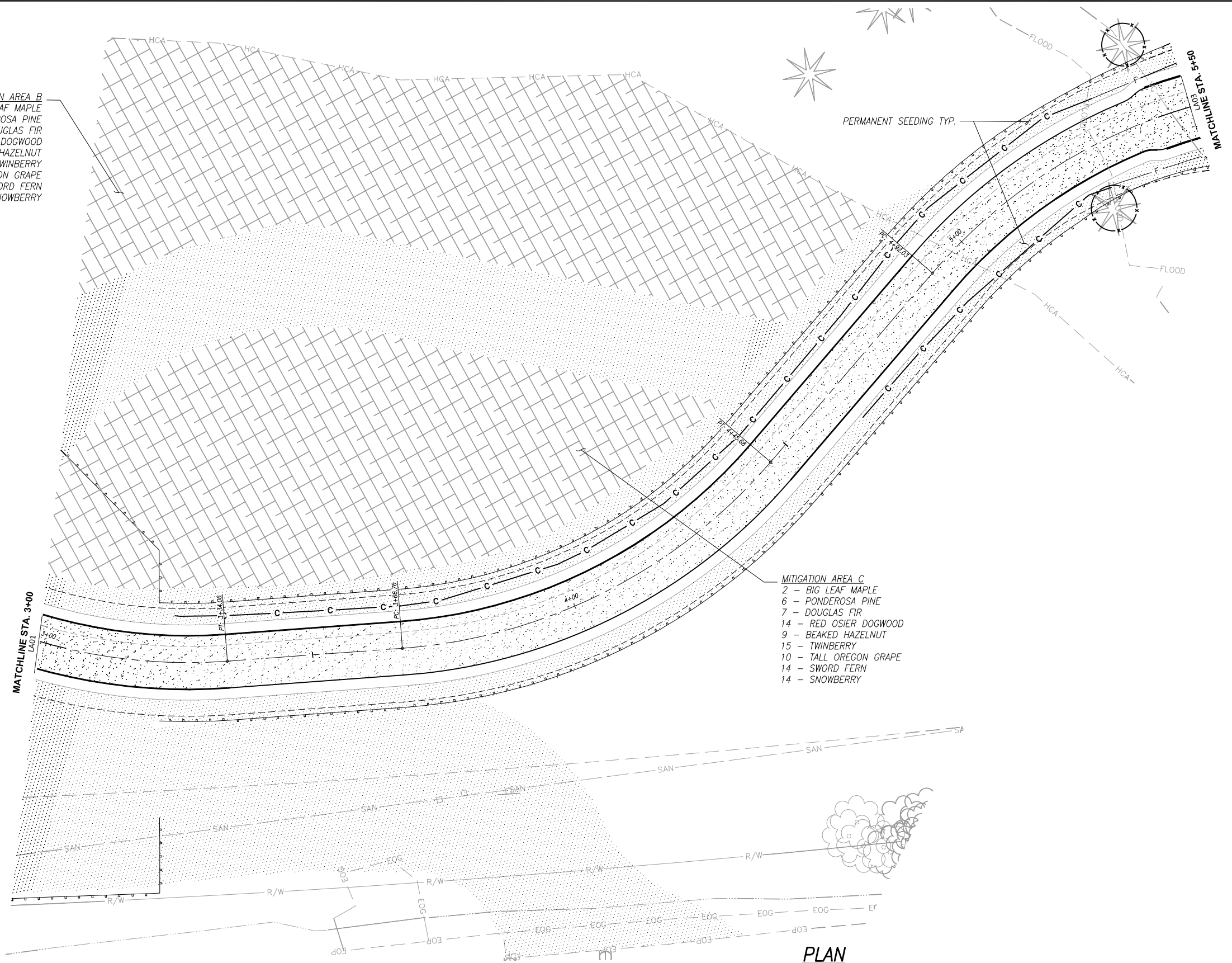
- MITIGATION AREA C**
- 2 - BIG LEAF MAPLE
 - 6 - PONDEROSA PINE
 - 7 - DOUGLAS FIR
 - 14 - RED OSIER DOGWOOD
 - 9 - BEAKED HAZELNUT
 - 15 - TWINBERRY
 - 10 - TALL OREGON GRAPE
 - 14 - SWORD FERN
 - 14 - SNOWBERRY

LEGEND

-  PERMANENT SEEDING
-  VEGETATED CORRIDOR
MITIGATION PLANTINGS
AND NATIVE SEEDING
-  TREE PROTECTION FENCING.



SCALE IN FEET



PLAN

Jan 02, 2019 - 11:22am
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	CHECKED		DATE
S. Banker	APPROVED	12/18/27	DATE

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PRELIMINARY
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 OREGON
 06/19/08
 LANDSCAPE ARCHITECT



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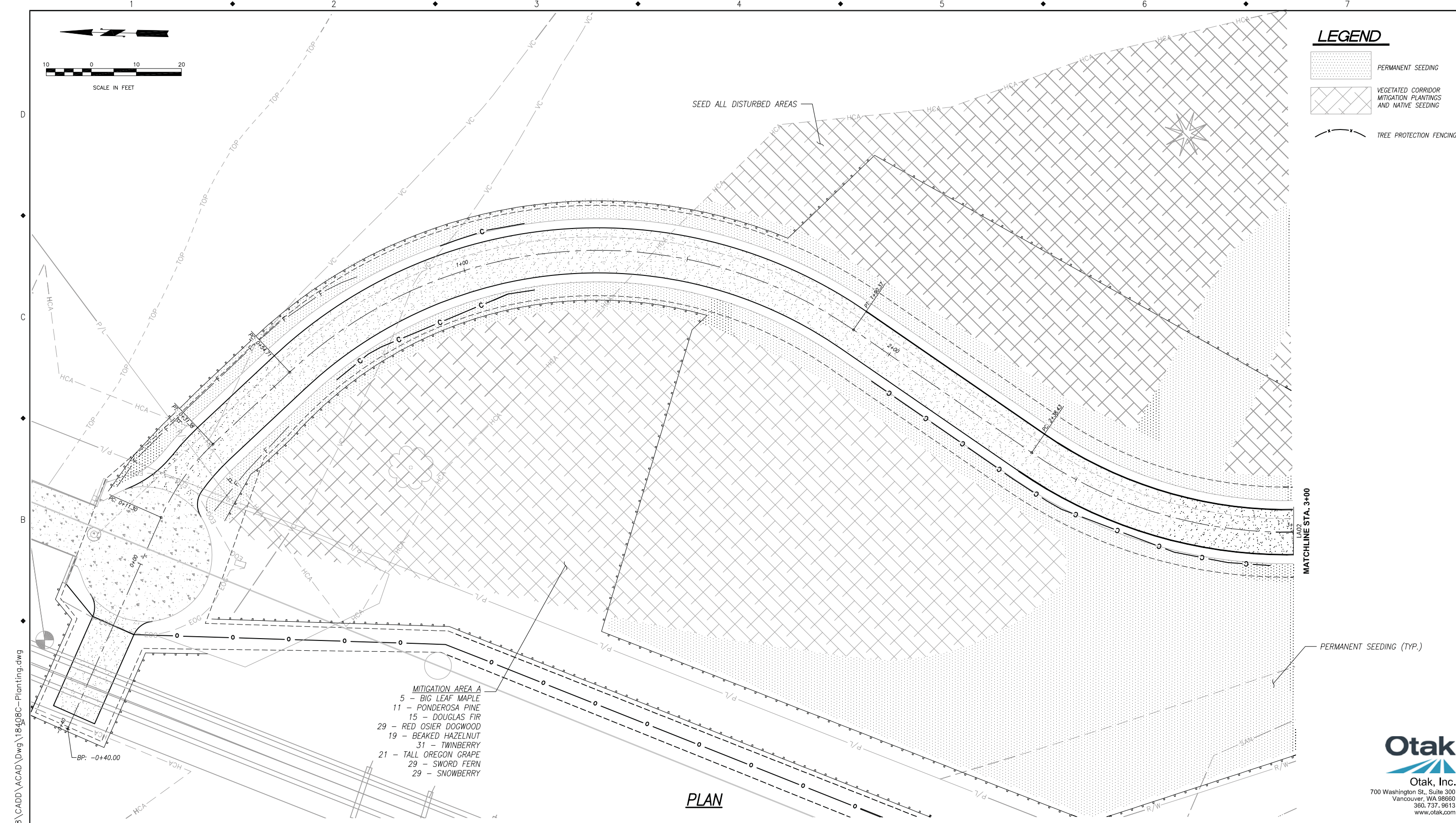
KRONBERG PARK MULTI-USE WALKWAY

PLANTING PLAN

PROJECT NO.: CIP2017-D29	CONTRACT NO.:	DATE: NOV 2018	SHEET NO.: LA02
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C. Green	1/2/2019	DESIGNED	DATE
S. Lozano	1/2/2019	DRAFTED	DATE
		CHECKED	DATE
S. Banker	12/27/18	APPROVED	DATE



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KRONBERG PARK MULTI-USE WALKWAY			
PLANTING PLAN			
PROJECT NO.:	CIP2017-D29	CONTRACT NO.:	
DATE:	NOV 2018	SHEET NO.:	LA01

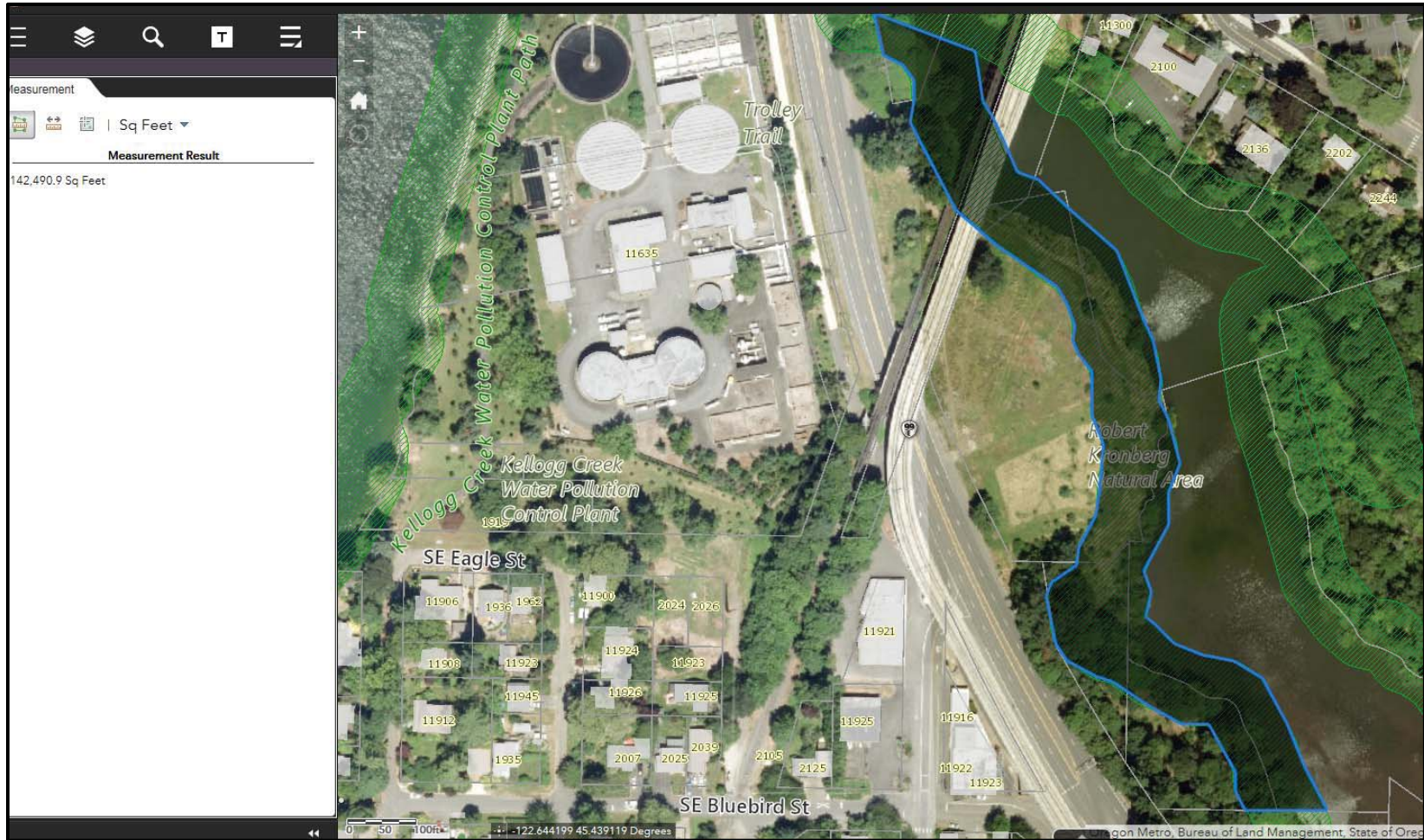
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Appendix H

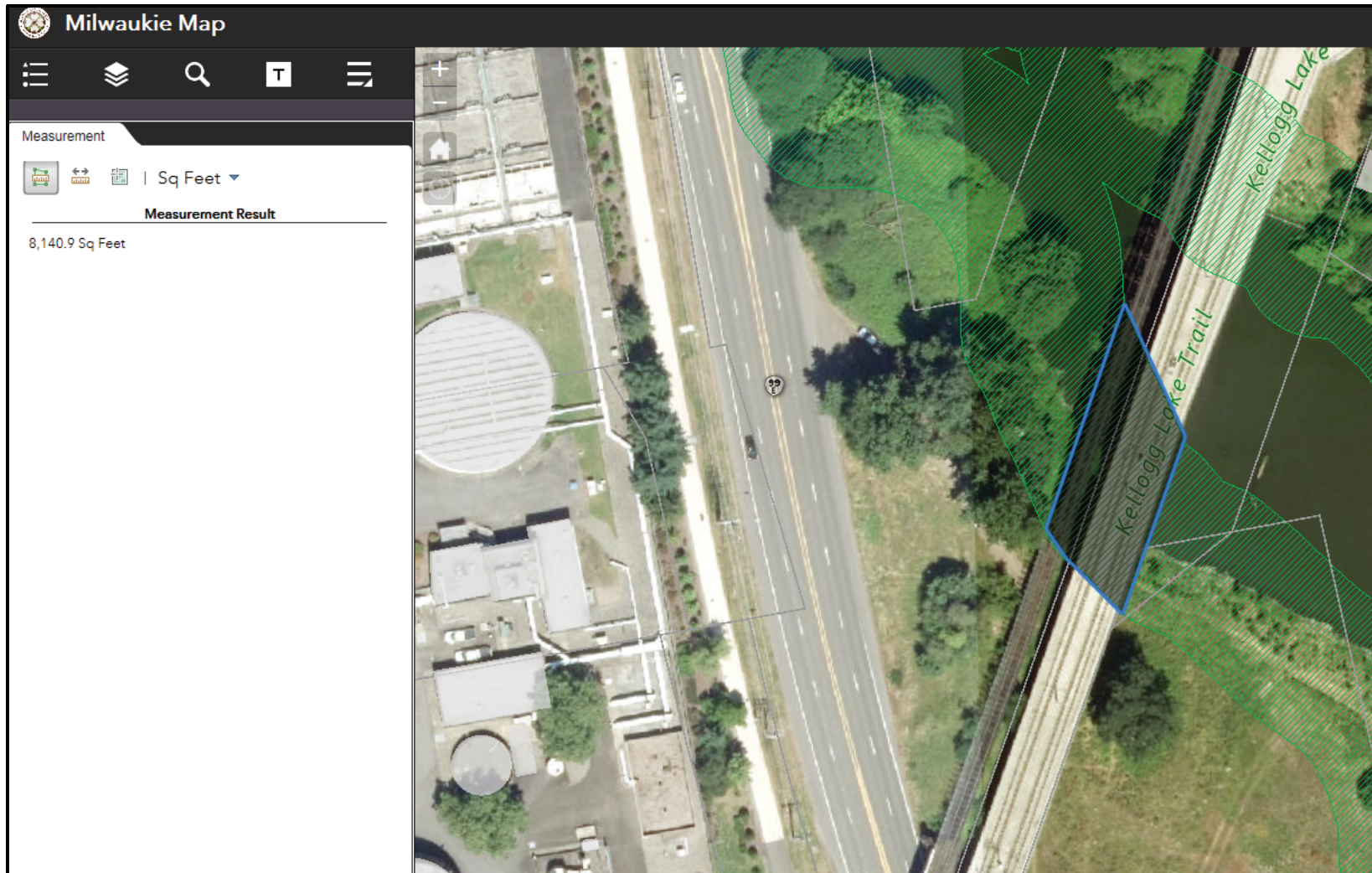
WQR Classification Measurement

COMPONENT	QUANTITY	METHOD OF MEASUREMENT
WQR total over site	142,491 sf	Measured from map
No ground cover	8141 sf	Measured from map
% ground cover	94.3%	$(142,491 - 8141) / 142,491$
Class A WQR ground cover	>80%	Table 19.402.11.C
Class B WQR ground cover	> 80%	Table 19.402.11.C
Class C WQR ground cover	<80%	Table 19.402.11.C
Tree cover	46,081 sf	8616 + 37,465
% tree cover in WQR	32%	$46,081 / 142,491$
Class A WQR tree canopy	>50%	Table 19.402.11.C
Class B WQR tree canopy	25% - 50%	Table 19.402.11.C
Class C WQR tree canopy	<25%	Table 19.402.11.C
WQR ON SUBJECT SITE IS DESIGNATED AS CLASS B		

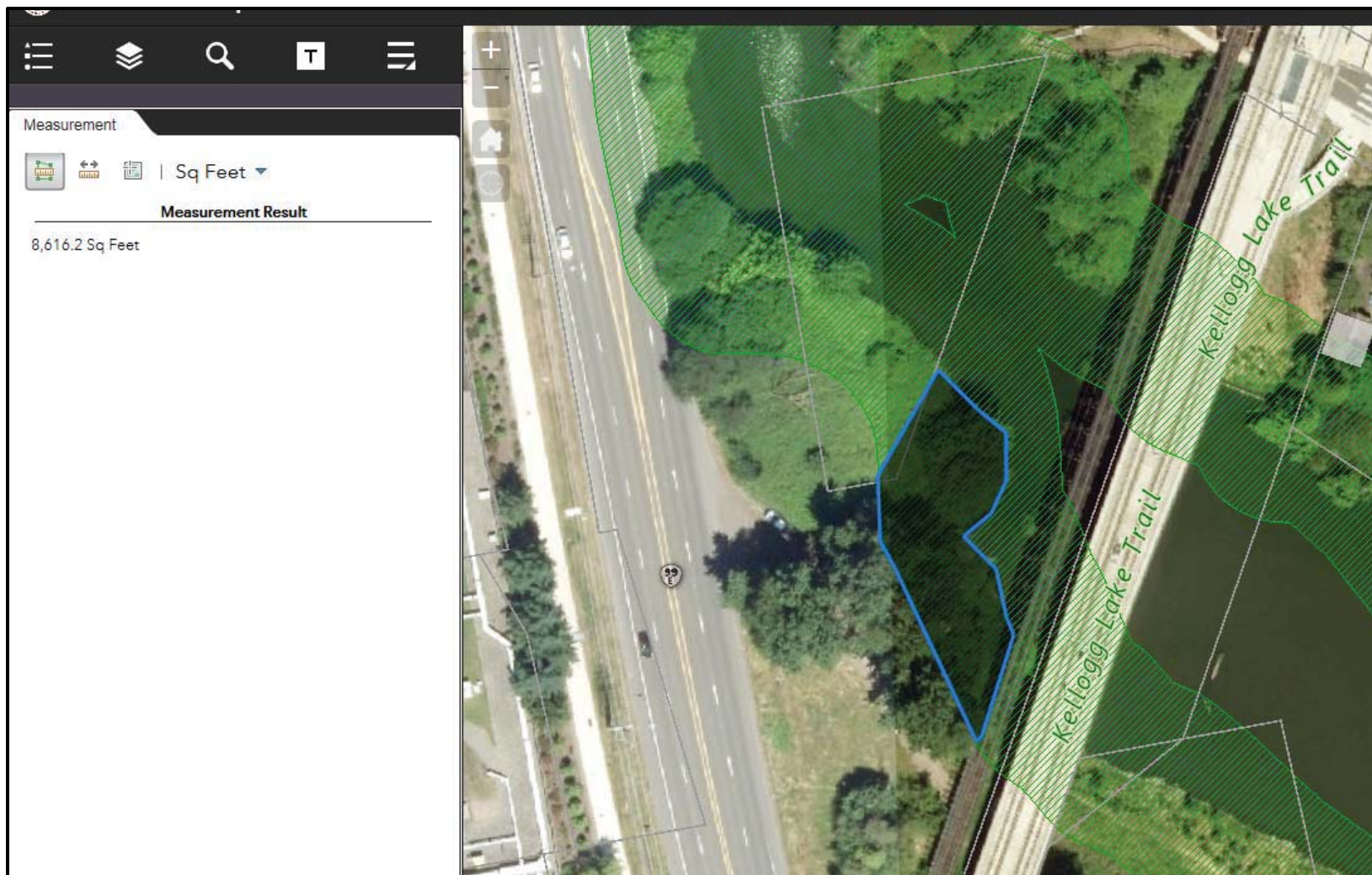
Measurement of WQR (Water Quality Resource) on subject site



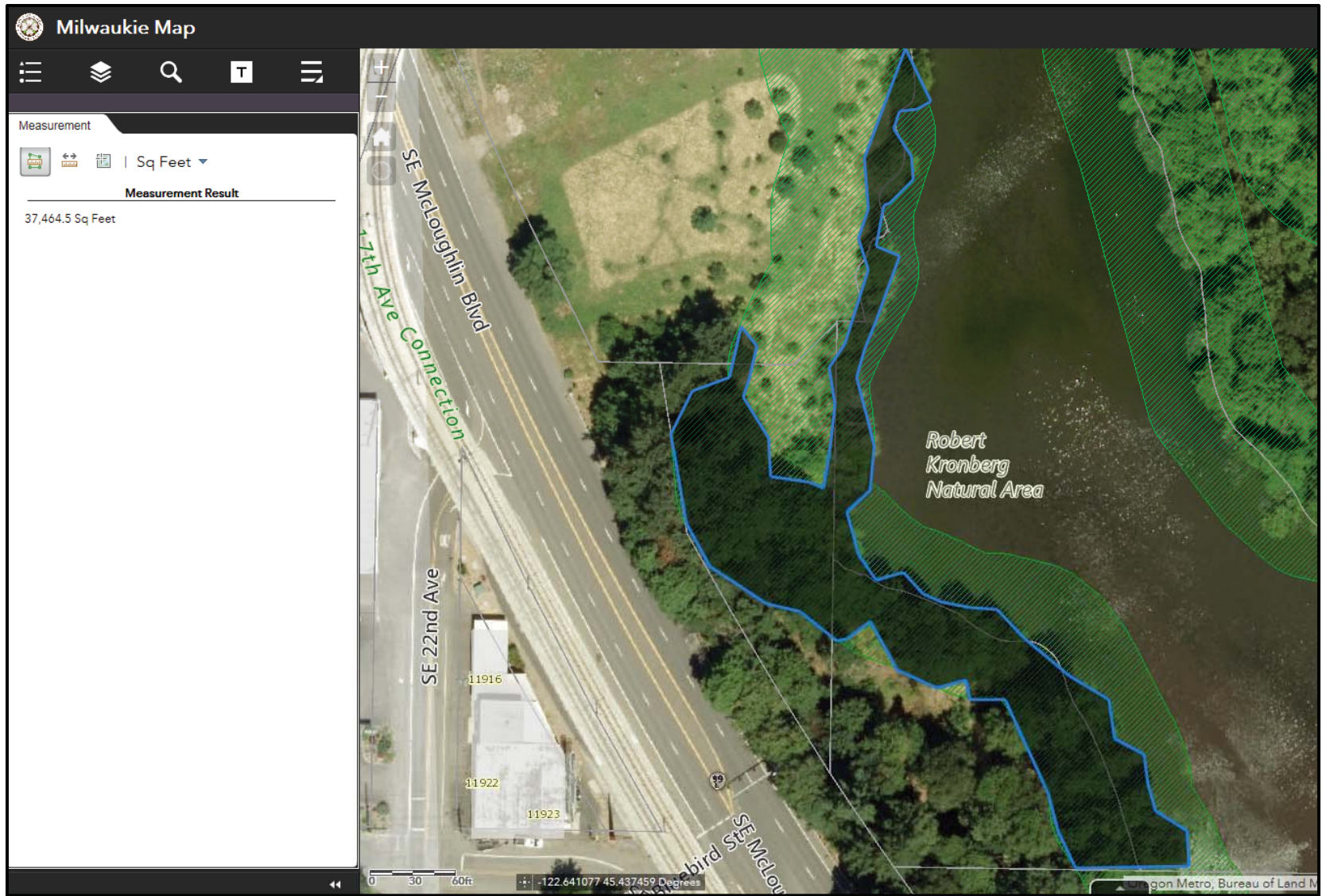
Measurement of no-groundcover area at railroad bridge



Measurement of Tree Canopy coverage, northerly portion of site

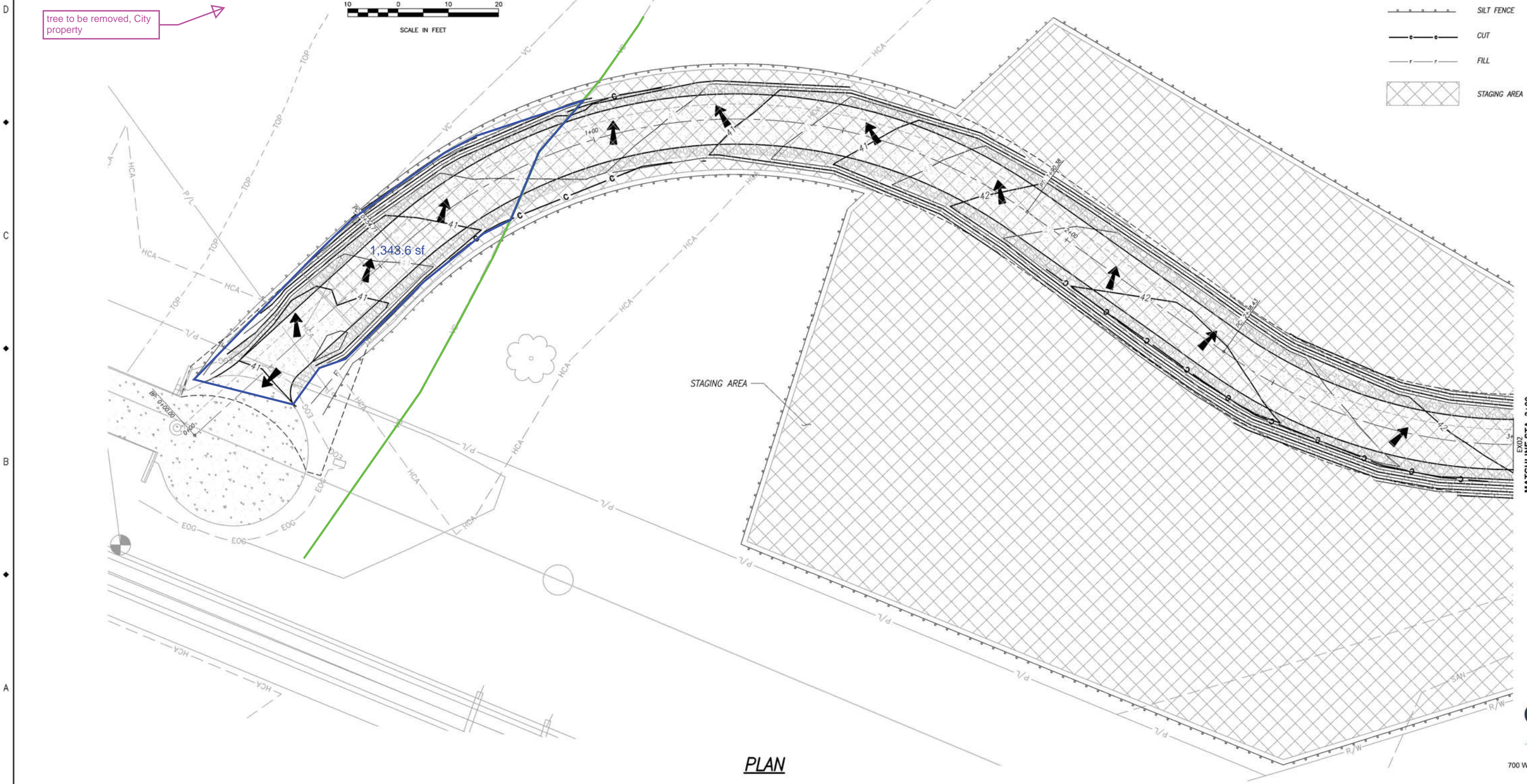
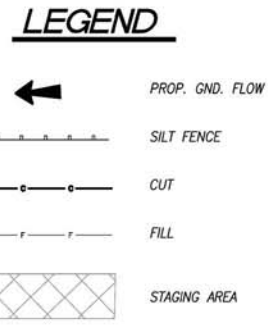
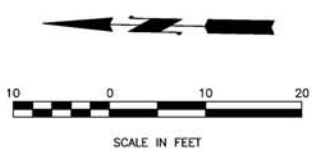


Measurement of Tree Canopy coverage, southerly portion of site



WQR Disturbance:
 1343.6
 478
 3213
 5035 sf

tree to be removed, City property



PLAN

MATCHLINE STA. 3+00

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DESIGNED	DATE
N. Redinger	5/31/2018
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE

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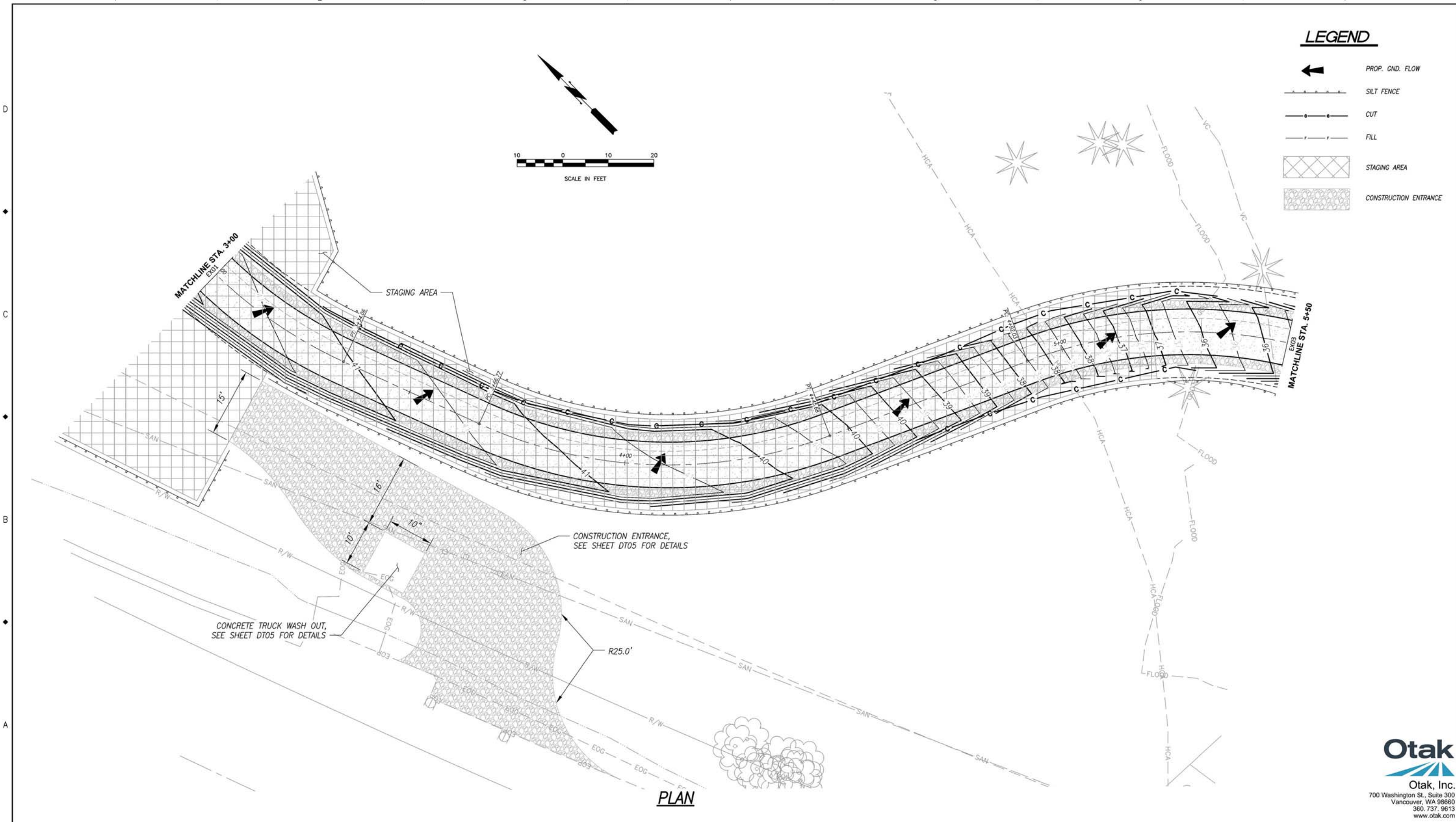
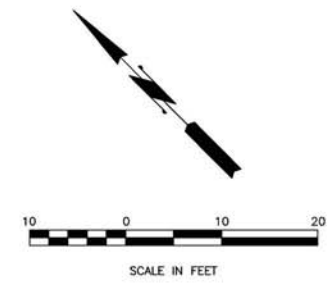
KRONBERG PARK MULTI-USE WALKWAY

GRADING AND EROSION CONTROL

PROJECT NO.: CIP2017-D29 CONTRACT NO.: DATE: MAY 2018 SHEET NO.: **EC01**

LEGEND

-  PROP. GND. FLOW
-  SILT FENCE
-  CUT
-  FILL
-  STAGING AREA
-  CONSTRUCTION ENTRANCE



DATE	BY	REVISIONS

C. Green	5/31/2018
DESIGNED	DATE
N. Redinger	5/31/2018
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE

**PRELIMINARY
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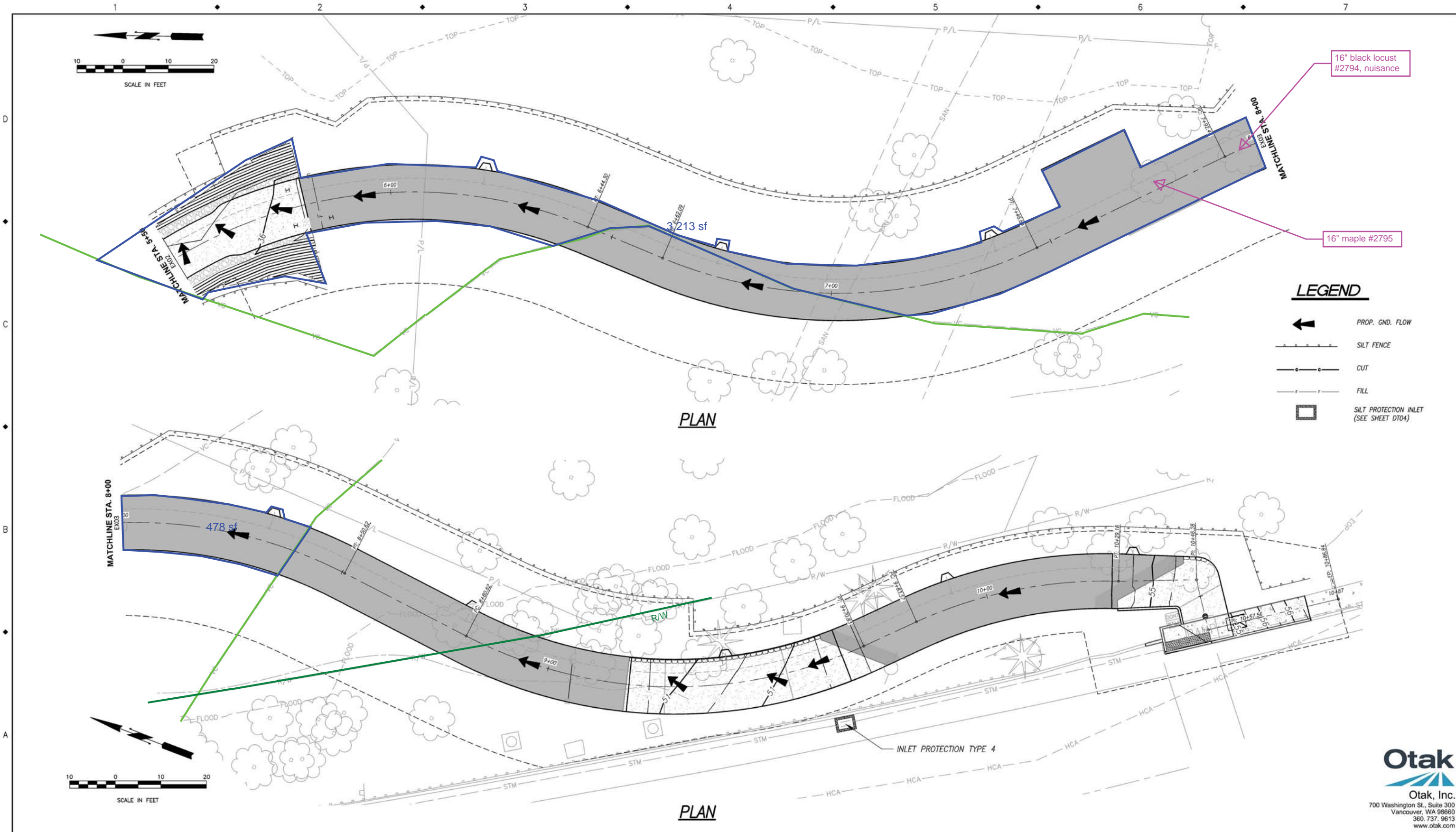
KRONBERG PARK MULTI-USE WALKWAY

GRADING AND EROSION CONTROL

PROJECT NO.: CIP2017-D29 CONTRACT NO.: DATE: MAY 2018 SHEET NO.: **EC02**

LEGEND





LEGEND

- ← PROP. GND. FLOW
- SILT FENCE
- CUT
- FILL
- SILT PROTECTION INLET (SEE SHEET DT04)

16" black locust #2794, nuisance

16" maple #2795

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 Vancouver, WA 98660
 360.737.9613
 www.otak.com

NO.	DATE	BY	REVISIONS

C. Green	5/31/2018
DESIGNED	DATE
N. Redinger	5/31/2018
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE

**PRELIMINARY
 NOT FOR
 CONSTRUCTION**

 **MILWAUKIE**
Dogwood City of the West
 6101 SE JOHNSON CREEK BLVD.
 MILWAUKIE, OR 97206
 PHONE: 503-786-7600
 FAX: 503-774-8236

KRONBERG PARK MULTI-USE WALKWAY
GRADING AND EROSION CONTROL

PROJECT NO.: CIP2017-D29 CONTRACT NO.: DATE: MAY 2018 SHEET NO.: **EC03**

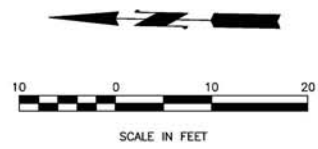
Appendix I

HCA Disturbance:

1044.9
 988.6
 563.6
 566.5
 3164 sf

Total HCA on property:
 120,104 sf

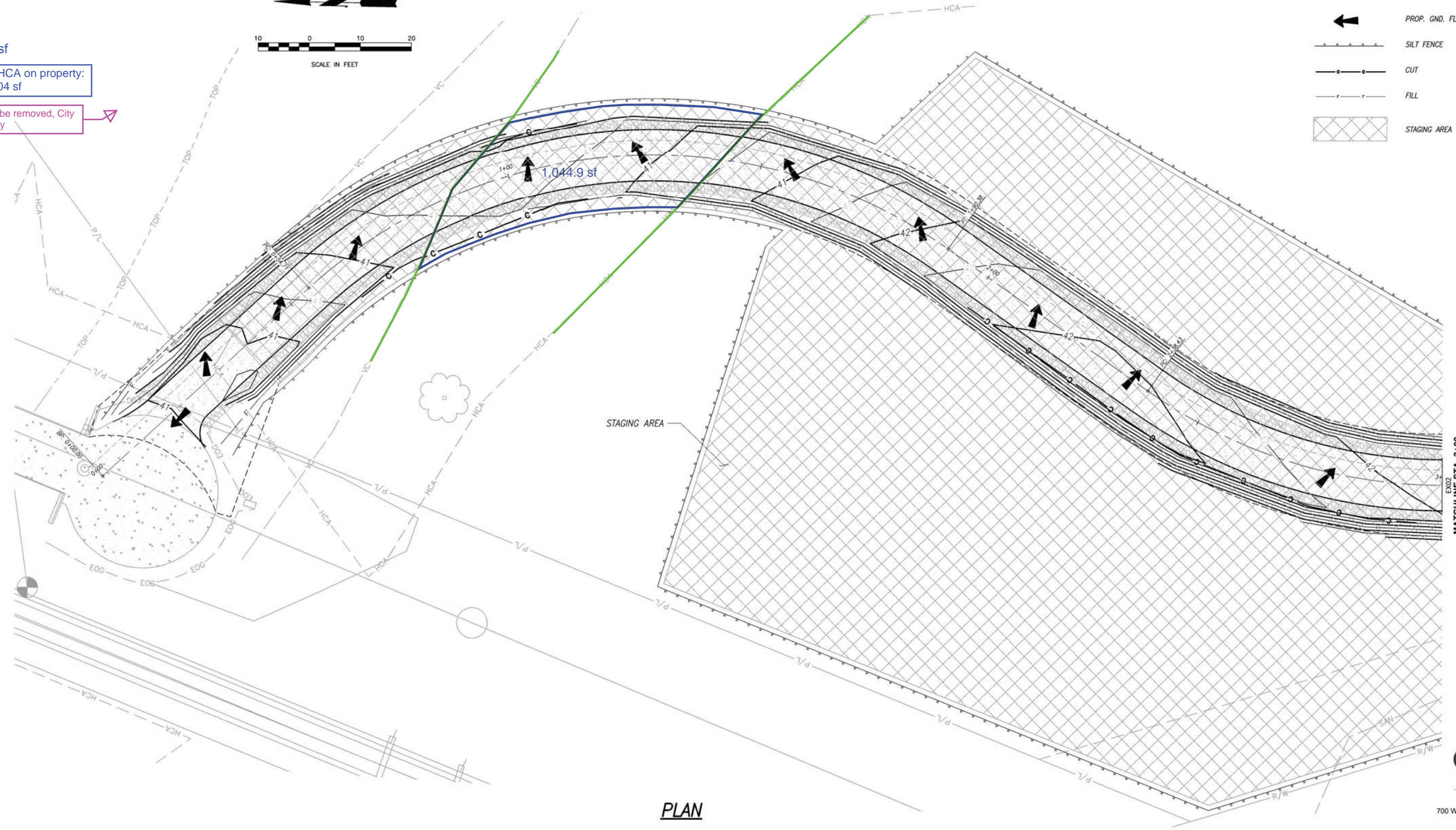
tree to be removed, City property



LEGEND

- ← PROP. GND. FLOW
- SILT FENCE
- CUT
- FILL
- ▨ STAGING AREA

D
 C
 B
 A



EX02
 MATCHLINE STA. 3+00

PLAN

Otak
 Otak, Inc.
 700 Washington St., Suite 300
 Vancouver, WA 98660
 360.737.9613
 www.otak.com

NO.	DATE	BY	REVISIONS

C. Green	5/31/2018
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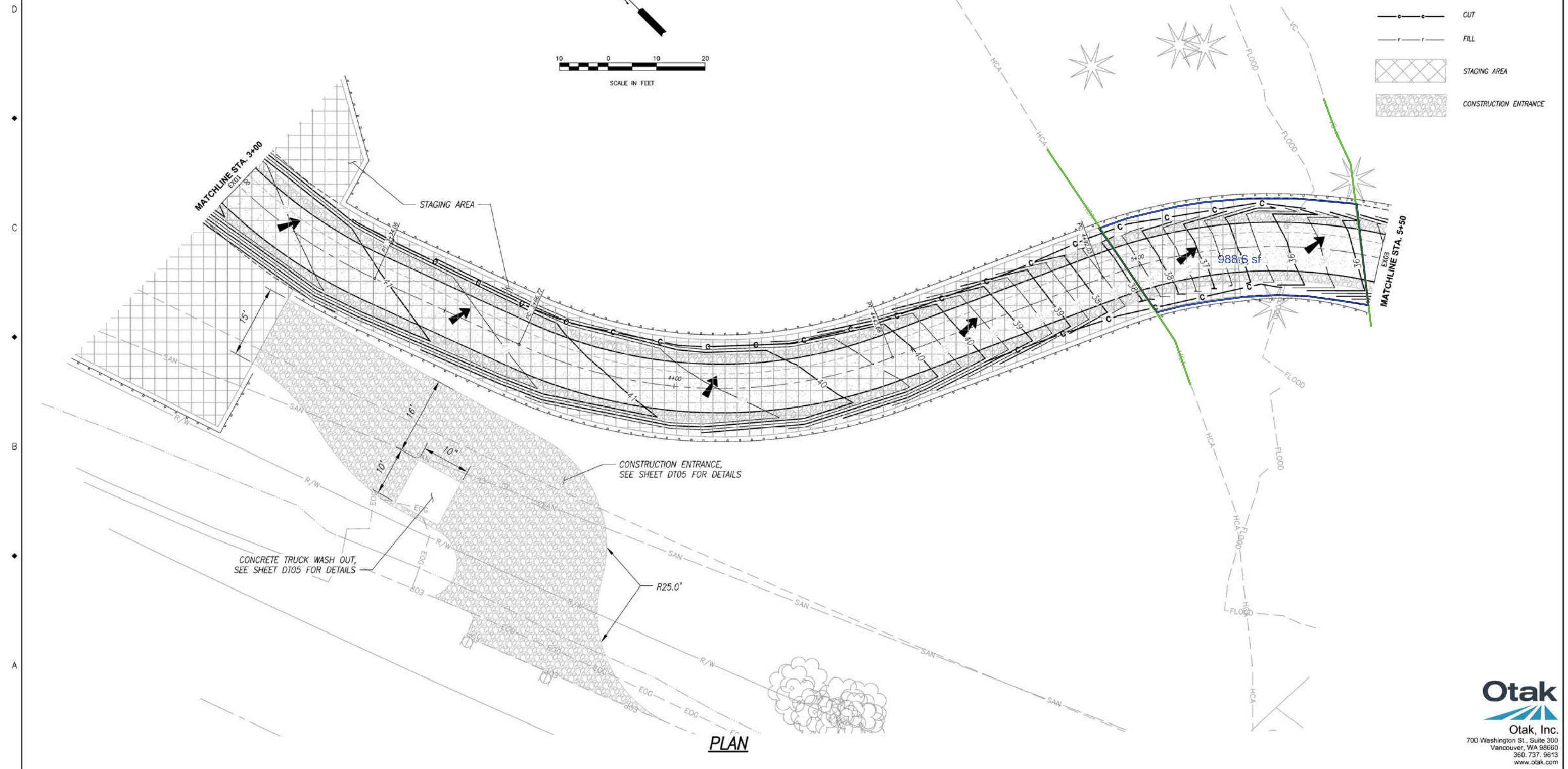
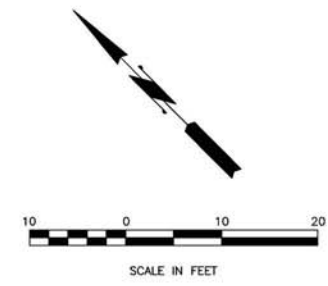
KRONBERG PARK MULTI-USE WALKWAY

GRADING AND EROSION CONTROL

PROJECT NO.: CIP2017-D29 CONTRACT NO.: DATE: MAY 2018 SHEET NO.: **EC01**

LEGEND

- ← PROP. GND. FLOW
- SILT FENCE
- CUT
- FILL
- ▨ STAGING AREA
- ▨ CONSTRUCTION ENTRANCE



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 700 Washington St., Suite 300
 Vancouver, WA 98660
 360.737.9613
 www.otak.com

DATE	BY	REVISIONS

C. Green	5/31/2018
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PHONE: 503-786-7600
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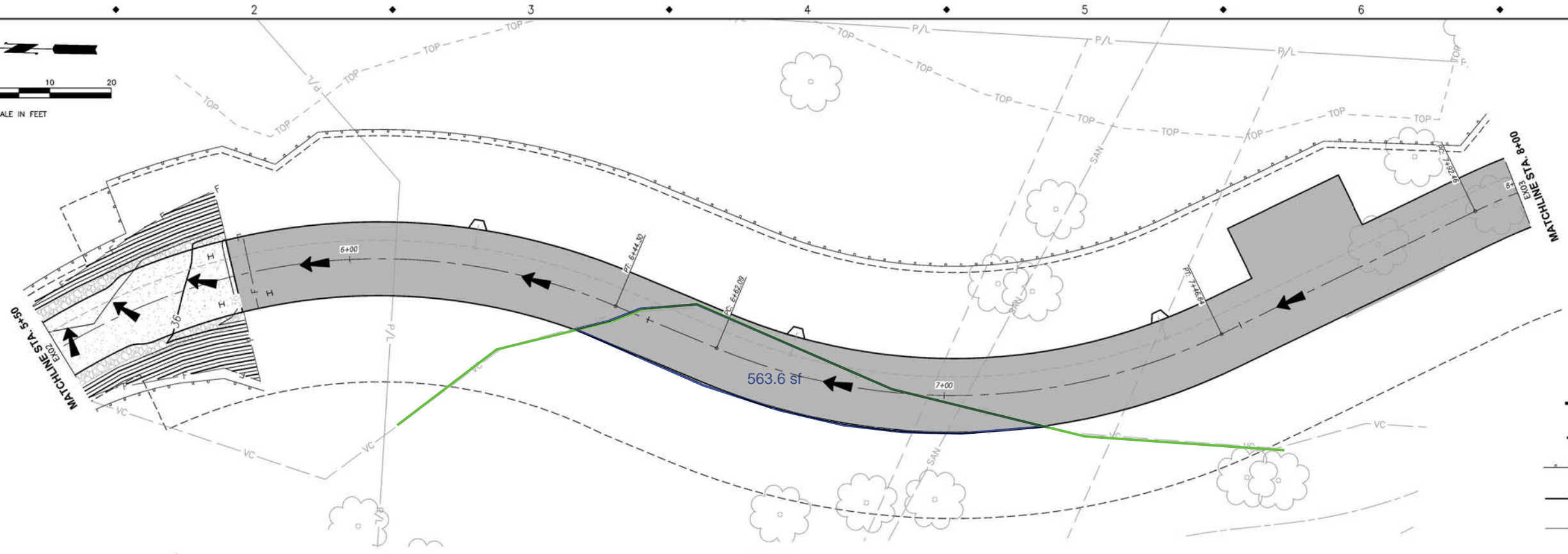
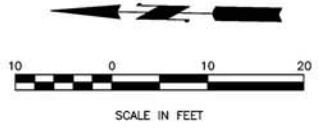
KRONBERG PARK MULTI-USE WALKWAY

GRADING AND EROSION CONTROL

PROJECT NO.: CIP2017-D29 CONTRACT NO.: DATE: MAY 2018 SHEET NO.: **EC02**

LEGEND

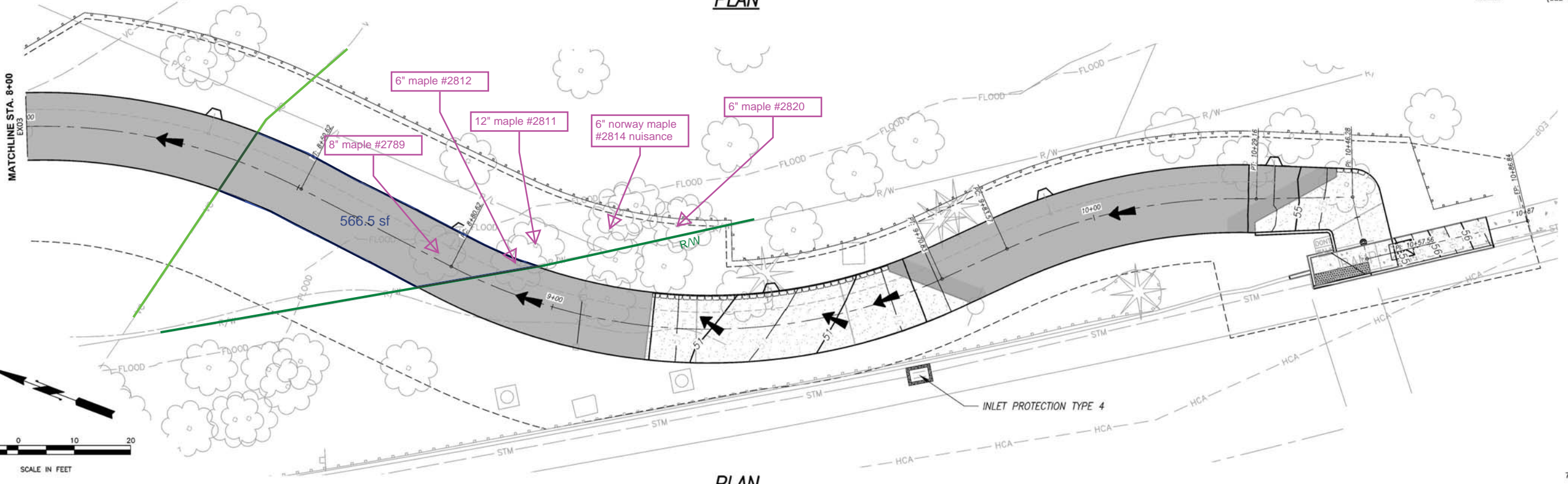
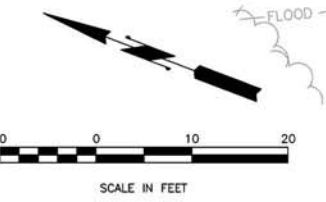
—•—•— SILT FENCE



PLAN

LEGEND

- PROP. GND. FLOW
- SILT FENCE
- CUT
- FILL
- SILT PROTECTION INLET (SEE SHEET DT04)



PLAN



NO.	DATE	BY	REVISIONS

C. Green	5/31/2018
DESIGNED	DATE
N. Redinger	5/31/2018
DRAFTED	DATE
CHECKED	DATE
APPROVED	DATE

PRELIMINARY
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MILWAUKIE, OR 97206

PHONE: 503-786-7600
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KRONBERG PARK MULTI-USE WALKWAY	
GRADING AND EROSION CONTROL	
PROJECT NO.: CIP2017-D29	CONTRACT NO.:
DATE: MAY 2018	SHEET NO.: EC03

Measurement



Sq Feet

Measurement Result

120,103.7 Sq Feet

Clear

Press CTRL to enable snapping



Appendix J



CITY OF MILWAUKIE & NORTH CLACKAMAS PARKS AND RECREATION DISTRICT

ROBERT KRONBERG NATURE PARK MASTER PLAN

FINAL REPORT 04.20.2015

lango . hansen



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ACKNOWLEDGEMENTS

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CITY OF MILWAUKIE

Steve Butler, Community Development Director
Jason Rice, Engineering Director

SPECIAL THANKS TO:

Residents of NCPRD and the City of Milwaukie who
contributed to this master planning process.

For more information, contact:
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Oregon City, OR 97045
503-742-4348
www.ncprd.com

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ROBERT KRONBERG NATURE PARK MASTER PLAN

INTRODUCTION

Robert Kronberg Park is an undeveloped natural area park located just south of downtown Milwaukie, Oregon. The property is owned by the City of Milwaukie and maintained by North Clackamas Parks and Recreation District (NCPRD). The central location of the park site, intrinsic natural resources, potential for improvements, and citizen interest and investment in the site all provide an excellent opportunity for the creation of a truly unique and important natural area park close to downtown Milwaukie. This Master Plan will provide direction for future improvements and restoration efforts, will help establish a framework for visitor use and appropriate activities within the park, and will provide a basis for securing funding for park development.

MISSION STATEMENT

The purpose of this Master Plan process is two-fold: first, to create a linear park and link between downtown Milwaukie and the Island Station Neighborhood; and second, to preserve and restore the vital habitats in this natural area park.

This Master Plan community involvement process confirmed that Robert Kronberg Park is a Natural Area, as defined within the NCPRD Master Plan: “Natural areas are minimally developed and primarily intended to conserve land for environmental benefit. Many of the sites conserve habitat for wildlife...passive recreation uses are secondary to protecting natural resources, but natural areas may include picnic facilities, trails, interpretive signage, and view points.”



Vicinity Map

SITE DESCRIPTION

SITE HISTORY AND NATURAL ELEMENTS



Photo of Kellogg Lake, early 20th century

Prior to American settlement, the park site contained a variety of upland, wetland and estuary habitats where Kellogg Creek met the Willamette River. Habitat areas in the project site included upland mixed Oregon white oak and Douglas fir woodland, Oregon ash and cottonwood riparian floodplain forest, and creek and wetland habitats. The creek provided habitat for anadromous and freshwater fish species, waterfowl, beaver, and other animals. Kellogg Lake was created in 1858 when the creek was dammed to power a flour mill. The original dam was replaced with a concrete dam in the 1930's when McLoughlin Boulevard was widened to a four-lane highway.

The lake had some recreational and scenic appeal in the early 1900's, but it deteriorated beginning in the 1950's as some of the properties on the lake were filled with concrete, gravel, rock, and other fill. The extent and makeup of the fill at the site is unknown and may impact future development. There has also been significant sedimentation of the lakebed; a 2002 Army Corps of Engineers study estimated that the original creek bed is now covered by 17,500 cubic yards of contaminated sediment.

At present, all of the existing habitats in the site have all been classified as habitats in decline or of concern within state and regional conservation strategies. Each type of habitat is currently in degraded condition within the site area, due in part to the neglect noted above but also including widespread colonization of the site by invasive plant species. There have also been issues with transients camping on site, illegal dumping, and vandalism.

In the 1970's, citizen groups successfully lobbied for preservation of the area around the lake as a natural area. These efforts took another step forward in 1991 when Robert and Dena Kronberg deeded three properties to the City with the understanding that the properties would be used to create a park named after Robert Kronberg. More cohesive restoration efforts become possible when the City purchased three additional properties adjacent to the lake. Restoration of the park site above the waterline began in earnest in 2008 with work by NCPRD staff, adjacent landowners, and other volunteers. These restoration activities included invasive species control, trash removal, and planting events. These activities, along with increased patrols by the Milwaukie Police Department, have helped to ameliorate some of the problems affecting the site. The City and Wildlands have also begun planning for the future removal of the Kellogg dam and restoration of the creek.



Existing Conditions

*Site history from An Oral History of Kellogg Lake, City of Milwaukie, 2010:
<http://www.milwaukieoregon.gov/sites/default/files/fileattachments/oralhistory.pdf>

SITE DESCRIPTION

SITE DESCRIPTION AND EXISTING CONDITIONS



Site Aerial and Property Map

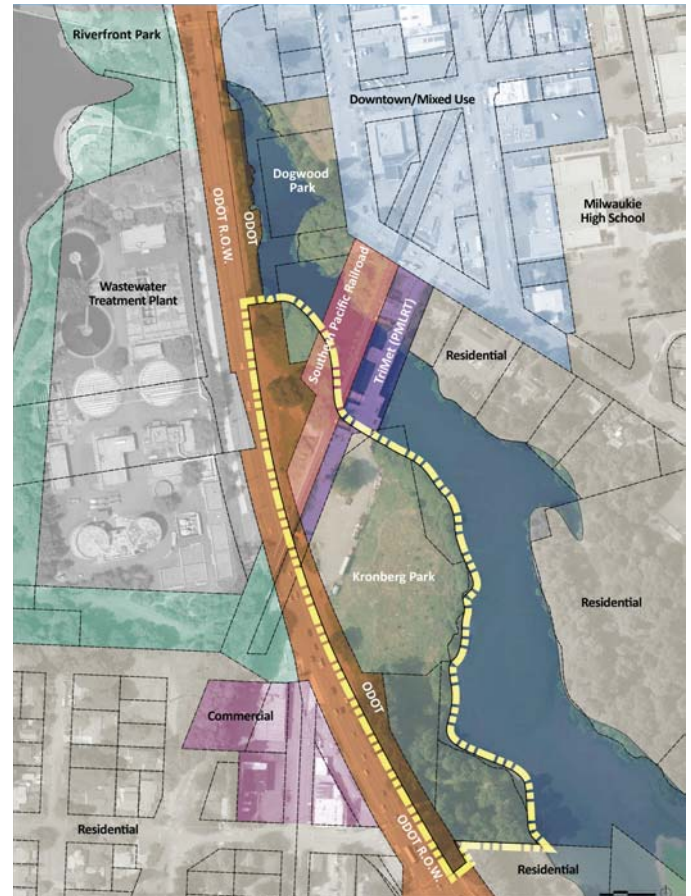
The park site is bounded on the west side by McLaughlin Boulevard, on the east and north sides by Kellogg Lake, and on the south side by private residential property. The site is also bisected by the Union Pacific/Portland-Western Railroad (UPRR) trestle and the TriMet Portland-Milwaukie light rail line (PMLRT). The site is composed of six parcels which are owned by the City of Milwaukie and are zoned as Downtown Open Space (DOS): Tax Assessor Map 11E36CB Lots 2800, 2801, 3000, 3100, 3300, and 4500. The six City-owned parcels total 6.48 acres; approximately 2 acres is currently covered by Kellogg Lake, leaving about 4.5 acres of land to be planned as part of this process. The site also includes properties and right-of-ways which are owned by Oregon Department of Transportation (ODOT), TriMet, and Union Pacific/Portland-Western Railroad, respectively. The northernmost parcel (lot 2801) is separated from the rest of the park properties by the railroad and TriMet properties.

The three parcels (4.75 acres) that make up the central part of the site were deeded to the City by Robert and Dena Kronberg in 1991. Of the three Kronberg-deeded properties, the largest (lot 3100) makes up the central part of the site and is primarily open meadow with

some existing trees, including a large Oregon white oak and many small trees which have been planted as part of habitat restoration efforts over the last ten years. Lot 2800 is mostly covered by the lake, and the remaining portions are generally steep hillside with varying plant types and conditions. Lot 3000 is a very small triangular parcel adjacent to the TriMet property which is primarily steep hillside, most of which will be replanted as part of TriMet habitat mitigation requirements.

The two lots on the south end of the park site (lots 3300 and 4500, 1.25 acres) are wooded areas that are as much as 20 feet lower than both the central part of the site and McLaughlin Boulevard. This is the only part of the site that currently allows direct access to the lake. There is also an unimproved dirt trail which was blocked by NCPRD to limit illegal dumping on the site. NCPRD has also done restoration and cleanup work in this area over the last ten years, including removal of trash and invasive species and planting of native species.

The last parcel (lot 2801, 0.5 acres) is located on the north side of the railroad trestle and was purchased with Metro local share funds in 1998; according to the IGA with Metro, this parcel must be used for open space. The parcel is bisected by the lake, with steep



Properties and Zoning

SITE ASSESSMENT AND ANALYSIS

hillsides on both sides of the lake; the south side is mostly invasive plants, while the north side is a highly-disturbed wooded hillside that is part of Dogwood Park. Given the physical separation of the northern part of lot 2801 from the rest of the site and the proximity to Dogwood Park, NCPRD staff will not consider this portion of the property as part of Kronberg Park for the purposes of this Master Plan.

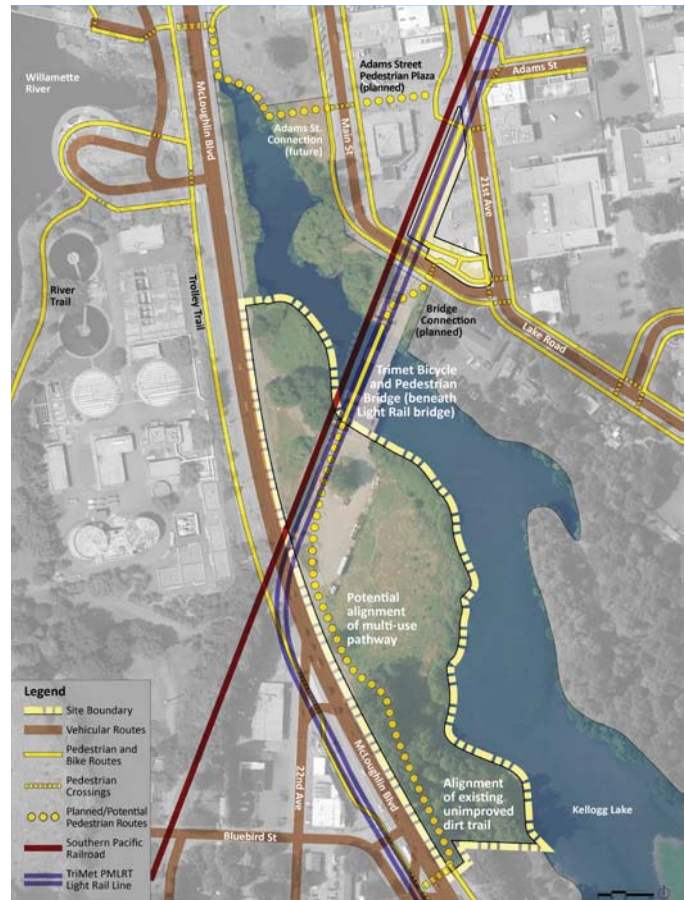
The portion of the park property currently beneath Kellogg Lake is planned to be restored as part of a separate creek and wetlands restoration project that will be developed by Wildlands for the City. The possibility for dam removal and improvement of Kellogg Creek was considered as part of this plan project process. The Robert Kronberg Natural Area Master Plan is designed to coexist with these future improvements regardless of when these future improvements occur. The land below the current lake would be restored as a riparian zone and not developed further.



Existing Sequoia at the south end of the site

SITE ACCESS

Access to the site is very limited. There is no formal vehicular access, although there is currently a construction entrance used by TriMet for the PMLRT construction on the south side of the railroad trestle. There is also an ODOT access and a TriMet/UPRR permanent access easement on the north side of the railroad trestle, but use of this access point is currently limited to emergency and maintenance vehicles. There is currently on-street parking north of the park on the other side of Kellogg Lake and to the southwest of the park on the other side of McLoughlin Blvd. On-street ADA public parking spaces could be provided in those areas in the future to provide ADA access for park users. Parking is anticipated to be limited in and around the park into the future and there are no plans to add parking as a part of this future park project.



Transportation and Site Access

There is currently no direct pedestrian access to the site, in part because there is not an existing sidewalk on the east side of McLoughlin adjacent to the park. The shoulder/bike lane on McLoughlin is occasionally used by pedestrians as a route to downtown, but it is not a safe route for walking. There are two potential pedestrian access points to the site. At the south end of the site, a curb-tight sidewalk on the east side of McLoughlin Boulevard meets a crosswalk that connects to River Road, Bluebird Street, and the Trolley Trail on the west side of McLoughlin. At present, the sidewalk does not continue north of that intersection, and direct connection to the site is inhibited to the north and east of the crosswalk by a guardrail, a steep embankment, and many existing trees, including a very large mature sequoia directly north of the sidewalk.

On the north side of the main part of the park site, a bicycle-pedestrian bridge was installed beneath the light rail viaduct and over Kellogg Lake as part of the Portland-Milwaukie light rail line work which will eventually connect to downtown Milwaukie. However, there is currently no path connection at either end of the bridge; once the connections are made at both ends of the bridge, it will function as the north entrance

SITE ASSESSMENT AND ANALYSIS

to the future park. There is currently no funding or timetable for the completion of this work. There is also an existing underpass beneath the railroad trestle which could potentially allow access to the north parcel of the site, but due to ODOT, TriMet, and Railroad restrictions, it cannot currently be used as an access point and is unlikely to be available for use in the foreseeable future.

CONSTRAINTS TO PARK DEVELOPMENT

Regulatory Constraints

There are a number of local, state, and federal regulations that currently apply to the site. The restrictions noted here are current as of 2015, but may change in the future. Future park development should refer to current standards. A summary of these regulations are as follows.

The entire site is within the Willamette Greenway Overlay Zone (City of Milwaukie Code Chapter 19.401). Significant portions of the site are also covered by Natural Resource Overlay Zones (City of Milwaukie Code Chapter 19.402) that designates Water Quality Resource Areas (WQR) and Habitat Conservation Areas (HCA). Portions of the site also are within the FEMA-designated 100-year flood zone, so any improvements within these areas must comply with the requirements of City of Milwaukie Code Chapter 18.04 – Flood Hazard Areas.



Water Quality Resource and Habitat Conservation Areas

Any development which impacts the lake itself will require permits from Oregon Department of State Lands, the U.S. Army Corps of Engineers, and potentially the Oregon Department of Environmental Quality. Any habitat restoration work should be coordinated with the Oregon Department of Fish and Wildlife, planned Kellogg Creek restoration work by Wildlands, and related work done by other groups (e.g., the Portland Harbor Draft Restoration Plan produced by the Portland Harbor National Trustee Council).

Another consideration is that any park improvements should be planned to avoid significant grading, particularly excavation in the central part of the site where the majority of the concrete and rubble fill was placed. Disturbance of these materials may trigger additional mitigation or remediation.



TriMet pedestrian bridge at north end of the site

Restrictions to Site Access

In addition to regulatory restrictions, there are limitations to park development that are governed by the agencies which control the right-of-ways and properties adjacent to park property. Access to the site will need to be coordinated with ODOT, TriMet and/or Union Pacific/Portland and Western Railroad. Any park improvements on adjacent properties, including planting and maintenance, will also require an Intergovernmental Agreement (IGA) with the agency or organization that owns the property. A summary of these restrictions is as follows:

- ODOT controls the right-of-way along McLoughlin. Any park improvements, including vehicular and pedestrian access to the site, will be strictly limited per ODOT guidelines. Any improvements within the park and the ODOT Right-of-Way need to consider possible future highway widening.

SITE ASSESSMENT AND ANALYSIS

- TriMet owns the bicycle-pedestrian bridge and the property below the PMLRT viaduct. Any improvements in this area will need to be coordinated with TriMet. As of March 2015, TriMet and the City were coordinating design, construction and funding of the landings of the bicycle and pedestrian bridge to the north of the park and Kellogg Lake near Lake Road, and at the south end of the bridge within Robert Kronberg Natural Area.
- The railroad right-of-way is owned by Union Pacific Railroad and leased by Portland and Western Railroad. They currently do not allow any public access or park improvements on their property.

SAFETY AND EMERGENCY ACCESS

Safety and emergency access are a major considerations for the park. The park design and future management of the park should consider CPTED (Crime Prevention Through Environmental Design) techniques to help maintain the park as a safe environment, day or night. Some of these considerations include:

- Visibility is very important. This includes visibility both into the site from roadways and within the site from pathways and other site amenities. To the greatest extent practicable, vegetation will need to be both planned and managed to limit hiding spots near publicly accessible areas.
- The park should have amenities which attract the general public. If the park is used on a daily basis by the general public, it is less likely that it will be used or abused by transients or vandals.
- Areas which are not publicly accessible need to be clearly demarcated to discourage access. These areas will need to be checked periodically for undesirable activity.
- Lighting is another consideration. Providing lighting will provide additional security at night and will also help encourage use of the park by the general



McLoughlin Boulevard right-of-way



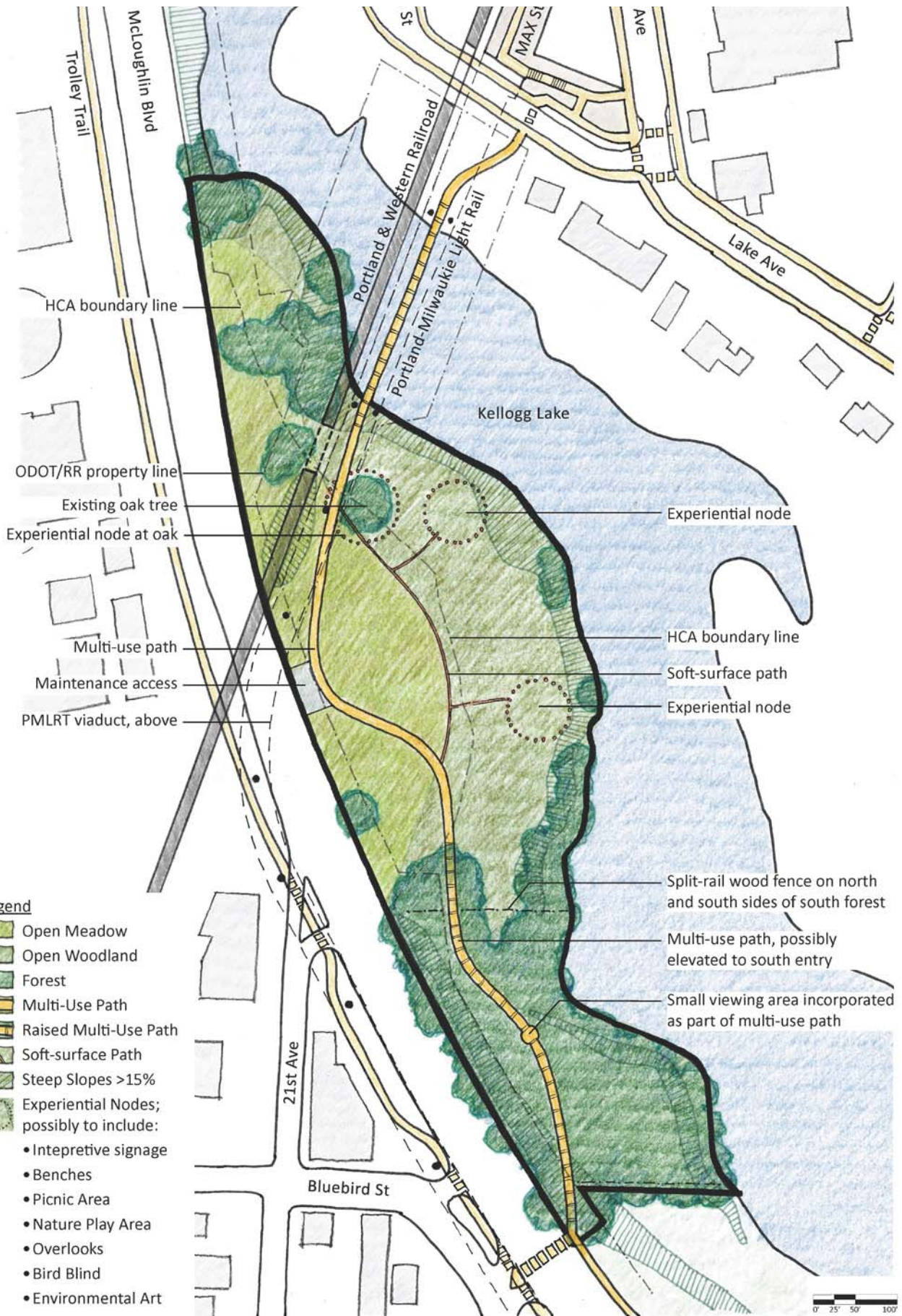
Railroad bridge and access road at north end of site

public after sunset. However, lighting will need to be balanced with habitat restoration requirements.

- The entire site must be accessible by emergency vehicles including police, fire, and ambulance.

Each part of the park site has different safety and access characteristics. The general security and accessibility of each area of the site is as follows:

- The central portion of the site generally offers good visibility from McLoughlin, with the exception of the steep bank at the edge of the lake. Visibility into the site is constrained in areas closer to the railroad trestle and the TriMet bridge. The TriMet pedestrian bridge and approaches are visible from Lake Road. In terms of access, the central portion of the site can be accessed directly from McLoughlin. It will also be accessible from the north once the connection to the TriMet pedestrian bridge is completed.
- The south forested area is largely hidden by both the existing vegetation and the steep embankment along McLoughlin. This portion of the site has historically had the most problems with transients, illegal dumping, and vandalism. As previously noted, these problems have been mitigated somewhat with increased police patrols. Some additional improvement may also be possible through the removal of invasive trees and shrubs, but in general the south forest will remain relatively hidden. This part of the site currently can only be accessed via the central part of the site.
- Although it is visible from McLoughlin and accessible via an existing ODOT service road, the north parcel is overgrown with invasive plants which will need to be removed to open up the site. The bank along the lake is mostly hidden from view. There is also an informal path down to the lake adjacent to McLoughlin in the ODOT right-of-way which is hidden by the embankment and vegetation.



MASTER PLAN PROCESS AND SCOPE

Lango Hansen Landscape Architects, NCPRD staff, and City staff met to discuss project scope and goals in August, 2014. At that time it was decided that the primary scope of the project would be on the parcels to the south of the trestle, with the option of including the north parcel if desired and if found to be feasible for future development. It was also agreed that there would be three public meetings, both to present information on the park planning process and to provide an opportunity for the public to provide input.

The first meeting was conducted on October 1st, 2014, and focused on site assessment and analysis. The second meeting on November 5th, 2014, focused on presentation of three options for park development which ranged from a fairly minimal level of improvements to a highly developed program. Some suggestions from the public, such as sound-mitigating berms, were found to be infeasible or unnecessary and were not included in the preferred park master plan. The preferred park master plan, based on public feedback and input from NCPRD and City staff, was presented in the final public meeting on December 9th, 2014.

As part of this master plan process, the future park was confirmed and identified as a “Natural Preserve” with a “Linear Park” running through the property, as identified in the Milwaukie Comprehensive Plan, Chapter 4, Land Use. The future park will also be defined as a “Natural Area” in the NCPRD system.

PREFERRED MASTER PLAN PARK ELEMENTS

The physical and programmatic elements in the Preferred Park Master Plan are as follows:

Multi-use pathway. This is the highest priority for park development. This paved pathway will connect the TriMet bicycle-pedestrian bridge and downtown Milwaukie with the sidewalk, crosswalk and Trolley Trail at the south end of the park. The width of the pathway should be designed so that the path can accommodate both bicycle and pedestrian traffic; a 12' width is preferred, but the width may be adjusted through future design processes. Where the multi-use path traverses the south part of the site, some or all of the pathway will be elevated to limit disturbance within the south forest area, provide a consistent and gentle grade to the south entrance of the park, achieve accessibility standards, and set the path above the 100-year flood line. The exact alignment of the path through the south forest will need to avoid existing trees to the greatest extent possible, especially the sequoia near the south



Example of a multi-use pathway at grade



Example of a multi-use pathway, elevated through south forest area

park entry. The elevated portion of the path could also include a wider viewing area, generally located where the elevated path is closest to the lake. Lighting is preferred for safety along the entire length of the path, and would need to be designed to balance the need for user safety with habitat requirements. Lighting will be considered as part of future planning and design. Finally, the design and construction of the pathway will need to be coordinated with the connection to the TriMet bridge.

Maintenance access. A right-in-right-out maintenance-only access will need to be provided to connect McLoughlin to the multi-use pathway. The maintenance access will need to be sized to accommodate a typical NCPRD maintenance truck and trailer. It will also allow TriMet to access the bicycle-pedestrian bridge. The access will include a typical concrete driveway apron (width to be determined), and may include a vehicle-rated permeable unit paving, grasscrete, or similar permeable treatments to limit the visual impact of the maintenance access point on the site. The access will be signed to show that no public parking is allowed.



Example of a soft-surface path through forest area

Soft surface pathways. The soft surface pathways are intended to form a secondary circulation system within the park and will also provide access to the experiential nodes. They are proposed to be gravel paths, although the width and material may be adjusted through future design processes. While the paths are primarily shown outside of the Habitat Conservation Area (HCA), the exact alignment of the paths may be adjusted to include more or less of the HCA. There was also public interest in creating a soft-surface pathway connection to the north parcel; if the opportunity becomes available, NCPRD could work with others to create the preferred soft-surface pathway connection to the north portion of the site.

Experiential nodes. These may include any of the following elements: interpretive signage, benches, picnic tables, a single small nature play area, overlooks, bird blinds, and/or environmental art. The exact makeup, size, and location of each of these elements within the experiential nodes will be determined at the time of park design. If the elements in the experiential nodes are situated within HCA's, care should be taken to minimize the impact of the element within the HCA.



Example of a nature play element

Habitat preservation and restoration. Existing habitat areas on site will be preserved and habitat restoration will be enhanced. Fencing and signage will be added where appropriate to discourage the public from entering critical habitat areas; for instance, split-rail wood fencing is proposed for the north and south borders of the south forest area to discourage access.



Example of interpretive signage

Phasing of Park Development. Park improvements will likely need to be implemented in phases, depending on the availability of funding, coordination with partners and stakeholders, and regulatory requirements. The multi-use pathway and the secondary loop path could be Phase 1 improvements. The Experiential Node improvements could be built in future phases. Habitat restoration may occur in all phases; for instance, habitat improvements for the north parcel could be done with cooperation from neighbors and stakeholders, independent of development elsewhere in the park.

This plan is conceptual in nature. Initial cost estimates were developed and given to NCPRD to provide an assessment of construction cost for project budgeting and planning purposes. The cost estimates and project elements are subject to change due to further refinements that may occur as the final park design is completed. Final decisions, materials and precise locations of improvements will be determined per all applicable regulatory requirements and as funding is available.



Example of a picnic area

NEXT STEPS

The final step of this master plan process is to submit the Master Plan for review and approval by the City Planning Commission and City Council and adoption into the City's comprehensive plan. After approval of the Master Plan, based upon circumstances including funding and other considerations, and with mutual agreement by NCPRD and the City of Milwaukie, future steps could include:

1. NCPRD and the City can use the approved Master Plan to apply for grants and solicit partnerships to help complete improvements. Possible funding sources include NCPRD, the City of Milwaukie, Oregon Parks and Recreation grants, and/or Metro Nature in Neighborhood grants.
2. When funding has been secured, NCPRD will work with the City to develop final construction plans and specifications. This phase will include Intergovernmental Agreements (IGAs/MOUs), soil testing, and permitting and fees. NCPRD will follow necessary land use processes to ensure elements are consistent with all City policies and codes. NCPRD is also committed to acquiring all other regulatory permits as necessary prior to project commencement (e.g. Army Corps of Engineers, Division of State Lands, etc.).
3. Construction will follow after construction drawings and permits have been completed. This will include a Request for Proposals (RFP), selection of a contractor, and the construction of park improvements.

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APPENDICES

Appendix A: Master Plan and Public Process

Appendix B: Regulatory Constraints to Development

Appendix C: Habitat Preservation and Restoration, Pacific Habitat Services Report

Appendix D: Habitat Preservation and Restoration, NCPRD Staff Report

Appendix E: Cost Estimate

Appendix F: Meeting Minutes

MASTER PLAN PROCESS AND SCOPE

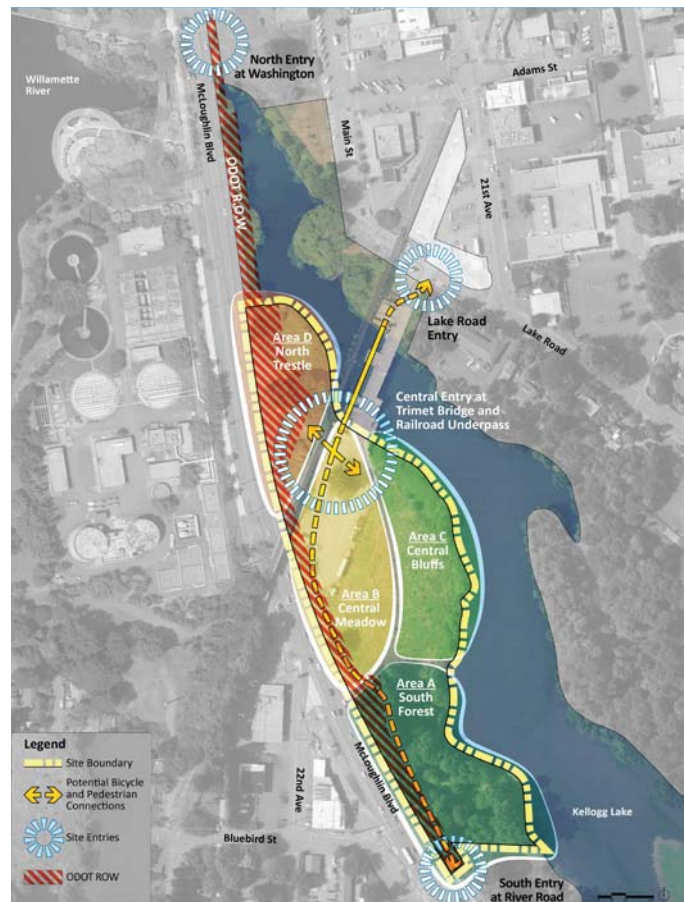
Lango Hansen Landscape Architects, NCPRD staff, and City staff met to discuss project scope and project goals in August, 2014. At that time it was decided that the primary scope of the project would be on the parcels to the south of the trestle, with the option of including the north parcel if desired and if found to be feasible for future development. It was also agreed that there would be three public meetings; in addition to presenting information on the park planning process, each meeting included an opportunity for the public to provide input and feedback.

The first meeting was conducted on October 1st, 2014, and was focused on site assessment and analysis. The second meeting was held on November 5th, 2014, and was focused on the presentation of three options for the development of the park development, based in part on the site analysis presented in the previous meeting. These options presented a range of programmatic options ranging from a fairly minimal level of improvements to a highly developed program. The preferred park master plan, based on public feedback and input from NCPRD and City staff, was presented in the final public meeting on December 9th, 2014.

FIRST PUBLIC MEETING: SITE ASSESSMENT AND ANALYSIS

As part of the site analysis process, the project team walked the site together at the end of August. Based on multiple site walkthroughs, data collection, and other research, Lango Hansen presented the site analysis findings for the project at the first public meeting on October 1st, 2014. The presentation included most of the information noted above, as well as the general program guidelines for the park, and included time for public feedback. General findings included the following:

- The area of the site with the most development opportunity was the open area south of the trestle and outside the Habitat Conservation Area (Area B, Central Meadow). Other parts of the site have restrictions due to access limitations, environmental regulations, and/or physical constraints such as steep slopes or existing trees. However, there were portions of each of the other areas which had areas for potential improvements, such as potential overlooks of the lake from the tops of the hillsides



Site Assessment and Analysis Diagram

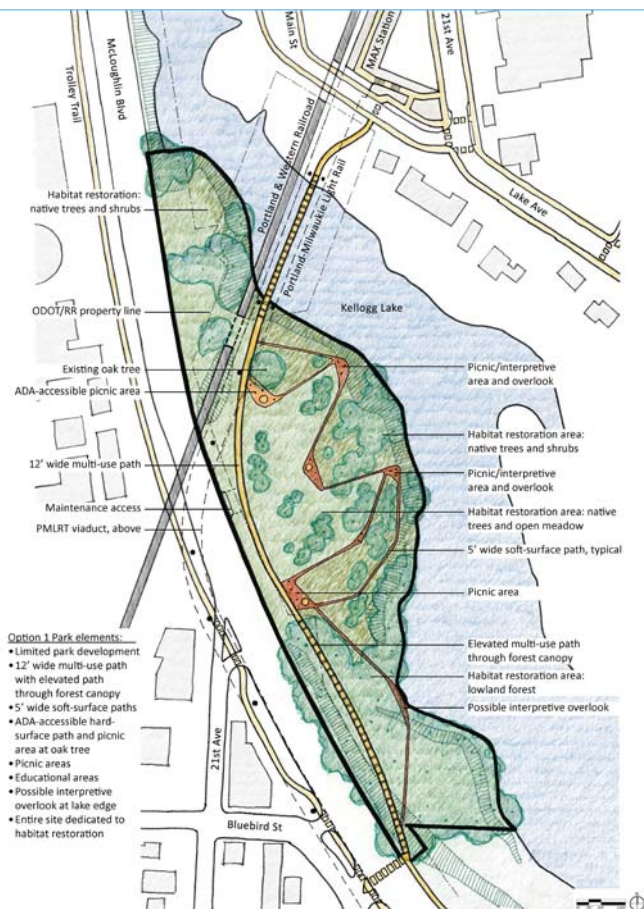
(Areas C and D), or direct access to the lake (Area A, South Forest).

- The analysis also confirmed that the primary entries to the site would need to be at the very south end of the site, at the existing crosswalk at McLoughlin and River Road, and at the TriMet bicycle-pedestrian bridge. An additional entry closer to Riverfront Park was seen as desirable; however, since this would be contingent on ODOT work and access beneath the railroad trestle, it is highly unlikely this connection could be made at this time.
- Public comments generally indicated that the preference was to keep the site as natural as possible and to improve habitat as much as possible without compromising public access use and improvements. The multi-use pathway was also seen as a priority, and that it needed to be designed to accommodate both bicycle and pedestrian traffic. There was also some interest in passive recreational uses and in having a nature play area for kids.

SECOND PUBLIC MEETING: THREE OPTIONS

Following the first public meeting, Lango Hansen prepared three options for the design of the site. The options provided a range of development options, different alignments for the multi-use pathway, different approaches for both the north parcel and the south forest area, and a range of programmatic elements. The project team met in early October, prior to the second public meeting, to discuss the options and provide feedback. Lango Hansen subsequently refined the options and presented them at the second public meeting on November 5th, 2014. The presentation included a recap of the first public meeting and the presentation of each of the options. A more detailed description of each option, as well as a summary of the discussion and feedback from the public, is as follows.

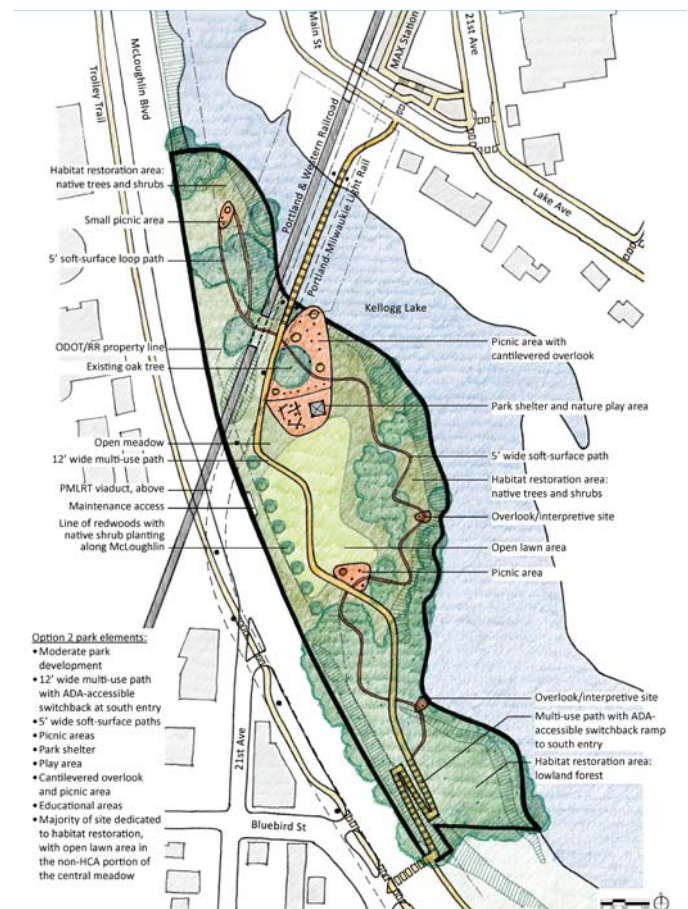
Option 1 - Least Development



Option 1 was designed as the option with the least amount of development on the site, with the intent of providing the most opportunity for habitat conservation and restoration. It provides a multi-use pathway through the site which would be constructed at grade through

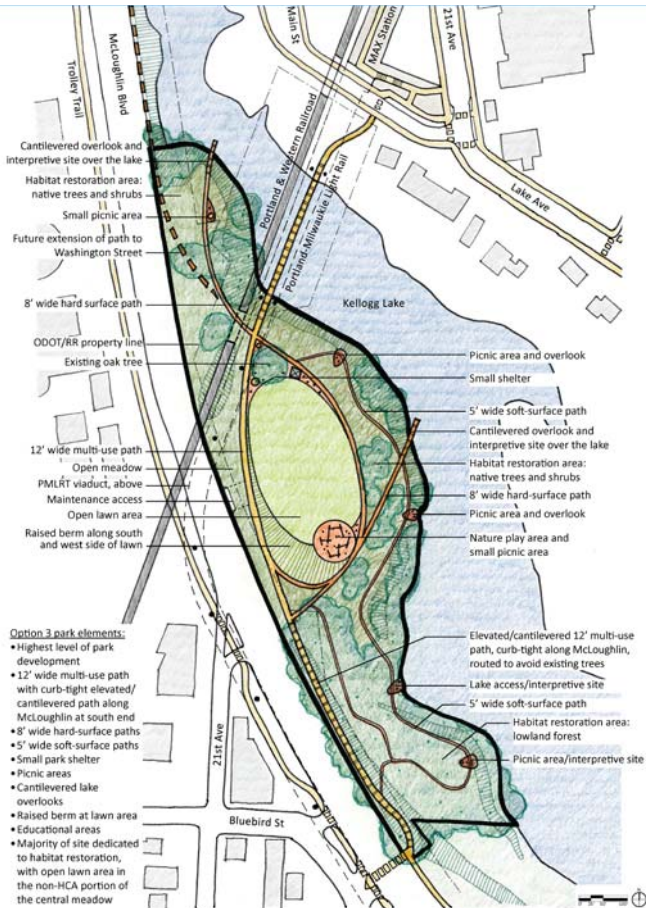
the central part of the site and elevated through the south forest area in order to limit disturbance and provide a gentler grade to the south entry. A secondary system of soft-surface paths wind in and out of the habitat areas on the east side of the site, with picnic areas, overlooks and interpretive sites along the paths. A possible interpretive site was also shown at the lake edge in the south part of the site. No access was shown to the north parcel.

Option 2 - Moderate Development



Option 2 includes a multi-use pathway which meanders through the site, down into the south forest area at grade, and then up to the south entry via a ramp with switchbacks. A soft-surface path snakes from the north side of the site, through habitat area on the east side, connecting with the main path in the south forest area. This option has a more developed, centrally-located picnic area and nature play area near the existing oak tree, along with a cantilevered overlook at the lake. Additional picnic areas, overlooks, and interpretive sites are sprinkled throughout the site. This option also includes a manicured lawn area in the central part of the site.

Option 3 - Most Development



Option 3 is the most highly developed of the three options presented. As with the other options, it includes a multi-use path which connects the north and south entries; in this option, however, the multi-use path is shown curb-tight along McLoughlin, which would require the pathway to be constructed on piers to account for the steep slope. In addition, a secondary system of hard-surface paths swing through the site, culminating in cantilevered overlooks over the lake at the north and east-central parts of the site. This secondary system would also eventually be connected along McLoughlin to the north. There is also a third system of soft-surface paths which loop through the south forest.

Like Option 2, Option 3 also has a picnic area and park shelter near the oak tree. This anchors the north end of a large oval lawn area; the south end of the lawn area is anchored by a moderately-sized nature play area and picnic area. To partially mitigate the noise from McLoughlin, a short berm would be constructed on the west and south sides of the lawn area. As with the other options, habitat restoration would still be a priority for much of the site.

Public Feedback on the Three Options

In general, Option 1 was overwhelmingly preferred to the other two options. There were two elements which were cited as key to the park design: first, and most important, was the construction and completion of the multi-use path; and second, the preservation and restoration of habitat throughout the park. According to the feedback received from the public, these two elements were best expressed in Option 1. However, there were some elements of other options which were also identified as possibilities or characteristics to incorporate in the preferred option:

- The more sinuous multi-use path shown in Option 2 was preferred to the long arc shown in Option 1, although people generally agreed that the elevated pathway through the south forest area was preferable to an at-grade pathway with a ramp at the end.
- There was also interest in a connection to the north parcel as shown in Option 2.
- There was some interest in including a nature play area in the park, although it was not seen as a priority or a critical feature of the park.
- Finally, the multi-use path should be lit for safety, if possible.



Public Meeting

PREFERRED OPTION

Lango Hansen proceeded with refinements to the park design based on a scaled back version of Option 1. During the process, NCPRD staff raised a number of concerns. One concern was that the development of the park could be restricted by land use regulations. In a similar vein, there was a desire for more flexibility in the master plan document to allow for changes when the park is actually developed. Another concern was that habitat improvements should be a priority for the park. These concerns were raised in response to the issues inherent to the site: development costs and regulations; mitigation costs related to habitat conservation areas; use of the site by transients or the homeless; and uncertainty regarding the Kellogg Creek restoration. Finally, NCPRD staff met with ODOT, TriMet, and the Railroad, and learned that public access to the north parcel via the railroad bridge would not be permitted.

Based on this input, it was agreed that the Preferred Option should show a level of development even more limited than what was shown in Option 1, with only minimal incursions into the HCA areas with the exception of the multi-use path. The paths to the north parcel were also deleted. Finally, non-path park elements were designated as “experiential nodes” to allow for flexibility in programming in the future when the formal design of the park begins.

PARK DEFINITION

This master plan process confirmed and identified the future park as a "Natural Preserve" (as opposed to a “Neighborhood Park”) as identified in the Milwaukie Comprehensive Plan, Chapter 4, Land Use. This is defined as "a publicly owned area of scenic or natural character serving the entire community, for environmental education and contemplative opportunities. Preservation and enhancement of the resource is the primary objective. Access is primarily by foot or bike, with limited provisions for auto parking. Amenities may include permeable pathways, seating at viewing locations, interpretive displays or markers. No specified minimum size". Additionally, the park will have a “Linear Park” which runs through the property, as defined in the Comprehensive Plan.

As part of the NCPRD system, this future park will be defined as a “Natural Area”, as follows: “Natural areas are minimally developed and primarily intended to conserve land for environmental benefit. Many of the sites conserve habitat for wildlife. These areas often include wetlands, steep hillsides, stream corridors.

Passive recreation uses are secondary to protecting the natural resources, but natural areas may include picnic facilities, trails, interpretive signage, and view points. Parking and restroom facilities are provided where appropriate”. Other nearby Natural Areas in the NCPRD system include Minthorn North Natural Area, Mount Talbert Nature Park, Rivervilla Park, and Spring Park; natural areas within the District range from .6 acres to 247 acres.

THIRD PUBLIC MEETING: PUBLIC RESPONSE

The preferred park master plan, based on public feedback and input from NCPRD and City staff, was presented in the final public meeting on December 9th, 2014. The public response at the third public meeting was favorable, and consensus was reached in favor of the plan presented. Additional comments were as follows:

- People liked that the preferred plan was more flexible than the initial three options, and felt that a more flexible master plan would allow for more public input as the park moves toward development.
- The multi-use path is the highest priority for the park. The elevated path was also seen as positive because it would be less disruptive to the south forest area. An overlook was also suggested for the multi-use pathway where it was closest to the lake. Lighting on the multi-use path was again cited as a need, but the lighting should be designed to minimize its impact on the site.
- Habitat preservation and restoration were seen as important characteristics for the park.
- Overlooks and/or bird blinds were desired.
- The soft-surface path was seen as a Phase 1 improvement.
- A soft-surface path connection under the light rail bridge and the railroad bridge to the north part of the park toward downtown Milwaukie along Highway 99E was seen as a desirable connection. However, due to uncertainty of timing and opportunity, this element was not included in the final master plan document. However, the northern connection is still a priority of the City and the community if opportunity comes up (i.e. if the Kellogg Dam gets removed, and ODOT is widened, and/or the RR bridge is replaced) then the City of Milwaukie and NCPRD could work to create this pathway connection with partners.

ENVIRONMENTAL, SCENIC AND HABITAT REGULATIONS AND REQUIREMENTS

There are a variety of environmental, scenic and habitat regulations and requirements which apply to the park site. The entire site is within the Willamette Greenway Overlay Zone (City of Milwaukie Code Chapter 19.401). Significant portions of the site are also covered by Natural Resource Overlay Zones (City of Milwaukie Code Chapter 19.402) that designates Water Quality Resource Areas (WQR) and Habitat Conservation Areas (HCA). Portions of the site also are within the FEMA-designated 100-year flood zone, so any improvements within these areas must comply with the requirements of City of Milwaukie Code Chapter 18.04 – Flood Hazard Areas.

Any development which impacts the lake itself will require permits from Oregon Department of State Lands, the U.S. Army Corps of Engineers, and potentially the Oregon Department of Environmental Quality. Any habitat restoration work should be coordinated with the Oregon Department of Fish and Wildlife, planned Kellogg Creek restoration work by Wildlands, and related work done by other groups (e.g., the Portland Harbor Draft Restoration Plan produced by the Portland Harbor National Trustee Council). Park development will likely need to comply with the requirements of fish recovery plans completed by the Oregon Department of Fish and Wildlife (ODFW) in 2010 and 2011; this is described in more detail in Appendix C.

Water Quality Resource Areas and Habitat Conservation Areas described in City of Milwaukie Code Chapter 19.402 establish a number of requirements and restrictions to development within the park. These requirements and restrictions are current as of 2015 and may change in the future. At a minimum, an approved Construction Management Plan (19.402.9) and a Natural Resource Management Plan (19.402.10 or 19.402.11) will be required. Development within WQR's and HCA's also requires an Impacts Evaluation and Alternatives Analysis by the City (19.402.12). In general, this review asks the following questions: first, whether or not there are practicable alternatives to the proposed development; second, if no alternatives exist, if the disturbance within the WQR or HCA has been limited as much as possible; and third, that any disturbance has been mitigated according to the requirements of Chapter 19.402. The requirements vary depending on the type of development, as follows:

- There are a number of activities which require Type I review (19.402.6), including Construction Management Plans and Natural Resource Plans.
- Some activities which require Type II Review include new utility work and construction of new pathways that are no greater than 10' wide.
- All other development will generally require a Type III review by the City. This includes construction of new pathways that are greater than 10' wide.
- Development standards are detailed in 19.402.11, including: site protection (section 11.A); mitigation standards (sections 11.B and C); nondiscretionary standards for HCA's (11.D), including disturbance limitations; and special uses, which includes utilities and trails (section 11.E).

RIGHT-OF-WAY AND ACCESS

There are a number of limitations to park development which are governed by the public and private agencies which control the right-of-ways and properties adjacent to and within the overall park site. As noted above, ODOT, TriMet and Union Pacific/Portland and Western Railroad all control right-of-ways and properties adjacent to the park properties, and any access to the park will need to be coordinated with one or more of these agencies.

ODOT

- ODOT controls the right-of-way along McLoughlin Boulevard, including several sections of property that extend well beyond the typical right-of-way lines. Since McLoughlin is a state highway (Highway 99E), there are strict guidelines which limit improvements within the right-of-way.
- In general, the only park improvements that will be allowed within the ODOT right-of-way are multimodal paths designated as transportation facilities, a single access point for maintenance vehicles, and planting (subject to ODOT requirements and a future IGA for maintenance). Any improvements will need to consider future road widening. No other park improvements are likely to be allowed on ODOT property.
- While it may be technically feasible to allow a vehicle access point for public on-site parking, ODOT has indicated they would strongly prefer to limit public vehicle access to the site given the roadway restrictions, sight distance limitations and general safety concerns.

- The existing vehicle access on ODOT and railroad property north of the trestle is not available for public park use, and any use by NCPRD vehicles for maintenance use would require an agreement with ODOT for access and approval by the railroad owner and leasee.
- ODOT has a long-term plan for widening McLoughlin to a five-lane roadway (similar to the condition north of Washington Street in Downtown Milwaukie) which would include removal of Kellogg Dam and the replacement of the bridge over Kellogg Creek. However, there is not a timetable for this work, and it is unlikely that it will happen within the next ten to twenty years.

TriMet

- TriMet owns the existing bicycle-pedestrian bridge over Kellogg Lake, as well as a strip of property on either side of the lake. Any path connection to the bridge will need to be coordinated with TriMet. Likewise, an Intergovernmental Agreement (IGA) will be required to address planting and maintenance adjacent to the park.
- TriMet has an agreement with the railroad to gate and lock the existing underpass beneath the railroad bridge. Any future pedestrian access beneath the railroad bridge will need to be coordinated with both TriMet and the railroad.

Railroad

- The railroad is owned by Union Pacific and is currently leased by Portland and Western Railroad. They have indicated that they do not want any public access beneath the railroad bridge on site, or on any other portion of their property. However, it may be possible to negotiate access in the future, similar to the underpass for the Trolley Trail just to the west. Current safety and security policies would prevent this type of use.

January 8, 2015

Pacific Habitat Services, Inc.

This memo provides an overview of vegetation communities within the Robert Kronberg Park study area, along with recommendations for future enhancements to each habitat type. Figure 1 depicts the approximate boundaries of each habitat area.

CURRENT VEGETATION CONDITIONS

Area A: South Forest

The South Forest area has a mostly open understory, likely due to recent clearing of blackberries and other invasives in preparation for enhancement plantings. The terrace appears to be upland and well elevated above the impounded creek; however, much of it still falls within the 100-year flood elevation. Several large older trees are located along the McLoughlin roadfill, with most of the trees on the terrace below being comparatively young. The few evergreens include a large redwood and a few smaller Douglas firs along the road bank. Several large black cottonwoods (reaching 48" dbh or greater) are clumped near the north end of Area A. The primarily deciduous overstory is otherwise comprised of bigleaf maple, black locust, and red oak, with red alder and Oregon ash also noted along the shoreline of Kellogg Creek.

Understory plants include both ornamental and native species, especially to the south nearer to the privately owned land. Portuguese laurel, camellia, and English ivy are present, along with snowberry and tall Oregon grape. Numerous native shrubs or saplings have been planted within the recently cleared understory as well, including seedling alder, cedar, Douglas fir, grand fir, bigleaf maple, Indian plum, and snowberry.

Groundcover identifiable at this time of year includes a small amount of Himalayan blackberry, mint, nipplewort, dock, geranium, and wood avens. Numerous cottonwood sprouts are coming up in the vicinity of the older tree clump. Yellow flag is also apparent in places along the flooded edge of Kellogg Creek.

Area B: Central Meadow

This large, level open area is dominated by common introduced grasses and forbs (e.g. orchardgrass, tall fescue, bentgrass, geranium, and tansy, among others). In addition, a variety of maturing, widely scattered native trees and shrubs (including ponderosa pine, madrone, Douglas fir, and western red cedar) have been planted within Area B. The wide spacing between individual plants currently provides little habitat diversity within this open space.



Figure 1: Vegetation Areas

Area C: Central Bluffs

The steep fill bank along Kellogg Creek has been cleared of invasives (primarily blackberries), but there is also evidence of previous virgins-bower infestation in the scattered red alder and Oregon ash trees along the lower bank. A large Pacific ninebark also persists near the bank. Yellow flag is apparent in places along the flooded edge of the creek.

The bank closest to the TriMet construction site in the north end of Area C has been most recently cleared of blackberries, and erosion control measures are in place. However, the cleared bank to the south (which is partly comprised of non-soil fill materials such as concrete chunks) is becoming reinfested with such weedy species as teasel, poison hemlock, and thistles, along with common pasture grasses.

Area D: North Trestle

The area north of the trestle includes several tree clumps comprised of black cottonwood, black locust, red oak, bigleaf maple, western red cedar, and Lombardi poplar. The clumps are definitely a weedy mix, including both native and invasive species. Understory shrubs include Himalayan blackberry, Scots broom, multiflora rose, English hawthorn, English ivy, and English holly.

A small open grassy area closest to the highway includes common pasture grasses and forbs such as orchardgrass, bentgrass, tall fescue, oxeye daisy, Queen Anne's lace, and plantain.

HABITAT PRESERVATION AND RESTORATION CONCEPTS

Area A South Forest

Since a mature tree overstory along a riparian zone provides high habitat value for a variety of species, the overstory should be preserved, despite the presence of several non-native species. Understory enhancement is already underway with the recent clearing and planting activities; however the planting area could be expanded and/or densities may be increased. In addition, several pieces of debris (e.g. vehicle undercarriage, a stovepipe, and concrete chunks) should be removed from the site.

In terms of further understory enhancement, however, maintaining a relatively open understory near the future path may be the preferred course given the potential path safety/visibility concerns for this below grade area. Plantings of lower profile shrubs and groundcover (snowberry, Oregon grape, sword fern, and other shade tolerant grasses and forbs) would basically maintain the open condition within a certain distance of the path, while taller and denser native plantings could be concentrated closer to the streambank to provide the greatest wildlife value. Additional plantings of shade tolerant conifers (especially western red cedar and grand fir) would provide effective year round cover closer to the creek. Continuing control of invasive species is also warranted for this area.

Area B Central Meadow

This area has significant potential for enhancement through both plantings and park elements, depending on the preferred uses for the park. Since the soil quality is unknown, sampling is advisable prior to any extensive regrading or planting of the site.

The upland conditions could support plantings to emulate oak savanna (i.e. concentrations of native trees/shrubs with wide spaces between). The clumping pattern could help maintain the current park-like visibility for safety's sake, while the tightly grouped native plantings would establish more structural diversity of value to a variety of wildlife.

Area C Central Bluffs

Area C provides immediate access to the edge of Kellogg Lake; any future riparian restoration activities will necessarily involve this transition area. There are substantial chunks of mostly buried concrete along this edge; these could be considered a safety concern due

to several holes that have formed from erosion or other factors within the concrete. Some regrading should be considered (along with soil amendments) to clean up this bank, both to enable more effective replanting efforts and to address potential safety concerns.

With the bank substrate evaluated and possibly enhanced for replanting efforts, a variety of native riparian to wetland trees and shrubs may be considered, depending on their placement relative to prevailing water levels. Although the riparian planting zone will be increased significantly when water levels are lowered by dam removal, until that time plantings will necessarily be restricted to the immediate top of bank down to the elevation of existing alder and ash trees along this edge. Red alder, Oregon ash, and Pacific ninebark are already present near the base of the slope, and willows, red-osier dogwood, four line honeysuckle, Nootka rose, tall Oregon grape, black hawthorn, and snowberry are among other species suitable to various positions on this slope. Tree plantings should be clustered to maintain visual gaps along this edge to enable wildlife viewing, placement of viewing platforms, or other water-dependent activities.

Area D North Trestle

A paved roadway passes between several tree clumps in this area, and likely provided access to points south of the trestle prior to the recent light rail construction. Currently the short paved area is being utilized to store building materials. Area D has relatively poor public access as compared to the other areas south of the trestle. However, this area could be cleaned up through a combination of weed control (given the extensive patch of Himalayan blackberry and several other invasives within the tree clumps) and trash removal. These efforts would need to be coordinated with owners of the adjacent properties (ODOT and the railroad).

Summary

The above discussion provides conceptual approaches to improving habitats within each of the designated areas. More specific plant lists will be provided for each area as planning progresses and more is known about substrate conditions in the filled areas. Recommendations may need to be adjusted based on future conditions, Kellogg Creek restoration efforts, funding for improvements and maintenance, and regulatory and mitigation requirements.

Current Species List

Table 1 below provides a partial species list for each community, along with whether the species is native or has been introduced to the site. Several species are considered especially noxious or invasive, and may warrant continued control to avoid reinfestations.

Table 1: Partial Species List (compiled during site visit 12/30/2014)

Species name	Common name	Area	Native/ Introduced?*
TREES			
<i>Acer macrophyllum</i>	Bigleaf maple	A	N
<i>Alnus rubra</i>	Red alder	A,C	N
<i>Fraxinus latifolia</i>	Oregon ash	C	N
<i>Populus balsamifera ssp trichocarpa</i>	Black cottonwood	A,D	N
<i>Populus nigra 'Italica'</i>	Lombardi poplar	D	I
<i>Pseudotsuga menziesii</i>	Douglas fir	A, D	N
<i>Quercus rubra</i>	Red oak	A, D	I
<i>Robinia pseudoacacea</i>	Black locust	A, D	I
<i>Sequoia sempervirens</i>	Coast redwood	A	I
<i>Thuja plicata</i>	Western red cedar	A, B, D	N
SHRUBS			
<i>Berberis aquifolium</i>	Tall Oregon grape	A	N
<i>Camellia sp. (C. japonica?)</i>	Garden camellia	A	I
<i>Clematis vitalpa</i>	Virgin's bower	C	I*
<i>Crataegus monogyna</i>	One-seed hawthorn	D	I
<i>Cytisus scoparius</i>	Scots' broom	D	I*
<i>Hedera helix</i>	English ivy	A, D	I*
<i>Ilex aquifolium</i>	English holly	A, D	I
<i>Physocarpus capitatus</i>	Pacific ninebark	C	N
<i>Prunus lusitanica (?)</i>	Portuguese laurel	A	I
<i>Rosa multiflora</i>	Multiflora rose	D	I
<i>Rubus armeniacus</i>	Himalayan blackberry	A, C, D	I*
<i>Symphoricarpos albus</i>	Common snowberry	A, D	N
HERBS			
<i>Agrostis capillaris</i>	Colonial bentgrass	B, C, D	I
<i>Cirsium spp. (C. arvense, C. vulgare)</i>	Canada and bull thistles	C	I*
<i>Conium maculatum</i>	Poison hemlock	C	I*
<i>Dactylus glomerata</i>	Orchardgrass	B, C, D	I
<i>Daucus carota</i>	Queen Anne's lace	D	
<i>Dipsacus fullonum</i>	Teasel	C	I*
<i>Elymus glaucus</i>	Blue wildrye	A, C	N
<i>Festuca arundinacea (=Schedonorus arundinaceus)</i>	Tall fescue	B, D	I
<i>Geranium sp.</i>	Geranium sp.	A, B	I
<i>Geum urbanum</i>	Wood avens	A	I
<i>Holcus lanatus</i>	Common velvetgrass	B, C	I
<i>Iris pseudocorus</i>	Yellow flag	A, C	I*
<i>Lapsana communus</i>	Nipplewort	A	I
<i>Leucanthemum vulgare</i>	Oxeye daisy	D	I
<i>Mentha sp.</i>	Mint sp.	A	I
<i>Plantago lanceolata</i>	English plantain	B, D	I
<i>Rumex sp.</i>	Dock sp.	A	I
<i>Tanacetum vulgare</i>	Common tansy	B	I

*These species tend to be especially invasive in disturbed habitats, warranting control efforts whenever possible.

Site Natural Elements

The Kronberg site contains many natural elements including water features and various habitat types. The significance of these natural elements is based on their rarity, diversity, function and ability to create habitat for wildlife species of concern. Habitat types include upland mixed Oregon white oak and Douglas fir woodland, Oregon ash cottonwood riparian floodplain forest, and lake/creek. All of these habitat types have been classified as habitats in decline or of concern within state and regional conservation strategies. This site contains essential rearing habitat for migrating fish species that are included on the federal endangered species act (ESA) list because many of these floodplain off channel rearing habitats have been removed or are severely degraded by human development. ESA listed species within this site include: Lower Columbia River (LCR) Coho, Lower Columbia River (LCR) and Upper Willamette River (UWR) Chinook, LCR and UWR Steelhead, LCR chum, LCR eulachon. Species of concern include Pacific lamprey. The Oregon white oak habitat type has been listed as in peril because Oregon oak once dominated the Willamette Valley and now only 3% of this habitat type remains (even less in the urban area).

Oregon Department of Fish and Wildlife (ODFW) completed fish recovery plans in 2010 and 2011 to guide the implementation of actions needed to conserve and recover ESA listed salmon and steelhead. The plans help natural resources managers prioritize projects, activities and future investments. Specific recommended actions include: 1) establish or improve access to off-channel habitats; 2) protect intact riparian areas, floodplains, and high-quality off-channel habitats; and 3) restore areas that are degraded. ODFW characterized the Kronberg site as a high priority for both fish and wildlife. ODFW recommended actions include; enhancement floodplain/riparian enhancement for migrating ESA listed fish species, enhance the habitat for ESA listed and non-listed species of wildlife related to the Oregon white oak habitat, wetlands and floodplain/upland habitat among others.

Site Habitat Descriptions

The Kronberg site contains various habitat types which are all in a degraded condition. After a through inventory of site conditions NCPRD lead trash cleanups, invasive species control and planting events. A great deal of work still needs to be implemented in order to rehabilitate the natural environment, however, the

invasive plant species that once dominated the site are now knocked back and the native species are starting to gain ground giving site stakeholders and volunteers hope for the future.

Area A: South Forest

The South Forest Oregon ash and cottonwood riparian floodplain forest, which was once dominated by many nasty invasive species and party to frequent trash dumping and homeless camps, has been cleaned up. Implementation of invasive species control prepared the site for plantings with volunteer groups. ODOT owns a stretch along McLoughlin that is a small sliver of more upland habitat type including Oregon white oak and Douglas fir woodland. This area has been taken over by various laurel species and Norway maple. NCPRD has been slowly removing invasive trees and replanting with natives, both to meet regulatory requirements and to not open this sensitive riparian-floodplain habitat to southwest sun and heat. The direct sun and warmer temperatures would inhibit and could kill the native plants growing in this area that are adapted to cooler, moist and relatively shady environments. This higher upland area is well elevated above the impounded creek; however, much of Area A still falls within the 100-year flood elevation. Enhancement of the habitat should continue within this area. In addition, several pieces of debris (e.g. vehicle undercarriage, a stovepipe, and concrete chunks) should be removed from the site.

In terms of further understory enhancement, maintaining plantings of lower profile shrubs and groundcover near the future trail may be the preferred course given the potential trail safety/visibility concerns for this below grade area. Taller native plantings could be concentrated away from the trail especially closer to the lake to provide the greatest wildlife value.

Several large older trees are located along the McLoughlin roadfill, with most of the trees in the riparian forest and floodplain being comparatively young. The few evergreens include a large redwood and a few smaller Douglas firs along the road bank. Several large black cottonwoods (reaching 48" dbh or greater) are clumped near the north end of Area A.

Area B: Central Meadow

This large, level open area once dominated by blackberry and knotweed has gone through a first stage of habitat enhancement toward Oregon white

Oak and Douglas fir woodland. NCPRD planted a few large diameter native trees (including Oregon white oak, Douglas fir, and ponderosa pine) in 2009, once blackberry was controlled and knotweed was knocked back. Additional plantings have occurred annually since that time as more ground is cleared of invasives or replaced because of mortality. Some of these trees are now five to ten feet in height and the understory is dominated by common introduced grasses and forbs (e.g. orchardgrass, tall fescue, bentgrass, geranium, teasel, and tansy, among others). The wide spacing between individual plants was agreed upon by NCPRD and the City of Milwaukie to keep the woodland open prior to the finalizing the master plan. Woodlands are defined by their more open canopy allowing trees such as Oregon white oak to form the more traditional mushroom shaped crown structure. The soil layer in this area is thin and fairly porous with cement chunks and other fill popping out of the very uneven terrain. Testing soil conditions will help guide future habitat enhancement and development decisions.

Area C: Central Bluffs

The steep bank along Kellogg Lake has a short transition from upland habitat to riparian to the lakes edge. Therefore, this area has the potential for species at the top of the slope that are consistent the Oregon white oak and Douglas fir woodland, transitioning downslope, to Oregon ash cottonwood riparian. This bank has been cleared of invasives (primarily blackberries), but there is also evidence of previous virgins-bower infestation in the scattered red alder and Oregon ash trees along the lower bank.

The bank closest to the TriMet construction site in the north end of Area C has been recently cleared of blackberries, and erosion control measures are in place. The cleared bank to the south is now infested with weedy species including teasel, poison hemlock, and thistles, along with common pasture grasses. Habitat enhancement should continue in this area taking into consideration the information gained from future soil testing. Adaptive management of vegetation may need to occur after development decisions determine the objectives and locations of the possible experimental nodes.

Area D: North Trestle

The area north of the trestle has similar habitat types as Area B and C, transitioning between the Oregon white oak and Douglas fir woodland and Oregon ash and Cottonwood riparian. Several tree clumps compromised of black cottonwood, black locust, red oak, bigleaf maple, western red cedar, and Lombardi poplar are present. The clumps are a mix, including both native and invasive species. Understory shrubs are dominated by invasive plants include Himalayan blackberry, Scots broom, multiflora rose, English hawthorn, English ivy, and English holly. A small open grassy area closest to the highway includes common pasture grasses and forbs such as orchardgrass, bentgrass, tall fescue, oxeeye daisy, Queen Anne's lace, and plantain. This area has been used for many years for construction staging and parking.

This area is in need of invasive species control prior to any revegetation efforts. Similar vegetation species to Areas B and C can be planted in this area, however, all habitat enhancement activities would need to be agreed upon by the multiple owners to ensure that access, and other issues are mitigated. NCPRD has not performed any work in this area due to the multiple owners and lack of clarity of future visioning.

Summary

The above discussion provides conceptual approaches to improving habitats within each of the designated areas. More specific plant lists will be provided for each area as planning progresses and more is known about substrate conditions in the filled areas. Pacific Habitat Services, Inc. completed a site visit on December 30, 2014 and has provided additional recommendations to NCPRD.

APPENDIX E: COST ESTIMATE

Robert Kronberg Nature Park
 Master Plan Design Estimate, April 20, 2015
 Lango Hansen Landscape Architects

Item	Quantity	Unit	Cost/Unit	Cost	Subtotal	Comments
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Phase 1 Improvements

General						\$156,000
Mobilization	1	ls	\$24,000.00	\$24,000		
Tree Protection	1	ls	\$18,000.00	\$18,000		
Erosion and Sediment Control	1	ls	\$18,000.00	\$18,000		
Site Clearing, General	1	ls	\$48,000.00	\$48,000		clearing, grubbing, general debris removal
Grading, General	1	ls	\$48,000.00	\$48,000		

Pathway and Access Improvements						\$1,144,800
Multi-use Path: 12' wide, 4" thick concrete w/ base	600	lf	\$58.00	\$34,800		
Elevated Multi-use Path: 12' wide concrete w/ railings	450	lf	\$1,920.00	\$864,000		includes overlook at midpoint of elevated path
Path Abutment at South Entry	1	ls	\$90,000.00	\$90,000		abutment at TriMet bridge not included
Maintenance Access: 6" concrete w/ base	2,000	sf	\$12.00	\$24,000		option: permeable pavement +\$12,000
Stormwater Facilities (required with hardscape)	1	ls	\$36,000.00	\$36,000		utility connections not included
Lighting along Multi-Use Path (option)	1	ls	\$96,000.00	\$96,000		includes elevated portion of path

Phase 1 Subtotal: \$1,300,800

Phase 2 Improvements

General						\$270,000
Mobilization	1	ls	\$18,000.00	\$18,000		
Tree Protection	1	ls	\$12,000.00	\$12,000		
Erosion and Sediment Control	1	ls	\$12,000.00	\$12,000		
Site Clearing, General	1	ls	\$24,000.00	\$24,000		clearing, grubbing, general debris removal
Fill Removal (option)	1	ls	\$180,000.00	\$180,000		remove subgrade fill and restore as necessary
Grading, General	1	ls	\$24,000.00	\$24,000		

Furnishings and Other Park Improvements						\$220,100
Gravel Loop Path: 5' wide	350	lf	\$34.00	\$11,900		
Gravel Path to Experiential Nodes: 5' wide	300	lf	\$34.00	\$10,200		
Experiential Node Options; will probably not include all options						configuration and quantities TBD
Option 1: Benches w/ concrete pads	3	ea	\$1,440.00	\$4,300		NCPRD standard
Option 2: Picnic Tables w/ concrete pads	3	ea	\$960.00	\$2,900		NCPRD standard, includes at least 1 ADA table
Option 3: Interpretive Signage	3	ea	\$10,800.00	\$32,400		
Option 4: Overlook	2	ea	\$7,200.00	\$14,400		
Option 5: Bird Blind	1	ls	\$60,000.00	\$60,000		
Option 6: Nature Play Element	1	ls	\$36,000.00	\$36,000		rocks, logs or other climbable features; surfacing
Option 7: Environmental Art	1	ls	\$18,000.00	\$18,000		
Site Signage, General	1	ls	\$18,000.00	\$18,000		
Split Rail Fence	400	lf	\$30.00	\$12,000		NCPRD standard

Phase 2 Subtotal: \$490,100

Habitat Improvements

Habitat Improvements						\$190,400
Open Meadow Areas, Central Site	0.88	ac	\$21,600.00	\$19,000		includes soil prep and seeding
Open Woodland Areas, North Site	0.16	ac	\$36,000.00	\$5,800		includes soil prep, seeding and planting
Open Woodland Areas, Central Site	1.76	ac	\$36,000.00	\$63,400		includes soil prep, seeding and planting
Forest Area, South Site	1.50	ac	\$28,800.00	\$43,200		includes spot planting
Habitat Improvements on ODOT, TriMet, RR Property	1.64	ac	\$36,000.00	\$59,000		includes soil prep, seeding and planting

Habitat Improvements Subtotal: \$190,400

Fees for Design and Construction Documentation

\$158,500

Note: contingency included in all costs	Project Total: \$2,139,800
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This cost estimate is an estimate of the cost of developing the park as shown on the conceptual plan. It was developed by professionals with information available at the time. Additional work to refine the cost estimate will occur when construction plans and specifications are developed. Final project cost is unknown until the project is bid.

Meeting Minutes – Site Visit

Date: Tuesday, August 26, 2014

Project: Four Milwaukie Parks – Kronberg Walkthrough

Site Visit Date: Monday, August 25, 2014

Attendees: Lango Hansen Landscape Architects: Kurt Lango, Andy Sheie

Pacific Habitat Services: John Van Staveren

NCPRD: Katie Dunham, Tonia Burns

City of Milwaukie: Steve Butler

Prepared by: Andy Sheie, LHLA

The following represents Lango Hansen Landscape Architect’s understanding of discussions held, required action items and decisions reached during the meeting. The minutes are organized by subject.

- No tree survey has been done for the park property, so there isn’t an inventory of what trees are currently on site or what condition they are in.
- A lot of the trees along the McLoughlin right-of-way on the south side of the site are invasive tree species.
- Much of the NCPRD maintenance work in the south (forested) part of the site has been focused on removal of invasive species, especially ivy, clematis, knotweed, laurel, and invasive tree species. In addition to those species, removal and management of invasives in the more open areas of the site include blackberry, poison hemlock, and thistle. Mowing is also done to reduce fire risk.
- NCPRD and volunteers have done a fair amount of planting over the years, especially trees in the open area of the park (Oregon white oak, conifers, and madrone in particular). Tonia said that she may have a list of what has been planted.
- Plant removal and plant installation needs to take CPTED principles into account. Removal of invasive species can certainly help, although new planting of natives can introduce new visibility issues.
- There is not much transient use or illegal dumping in the park, particularly since the access points were limited by dropping a tree across the old driveway.
- Current pedestrian and bicycle access to the site is very limited:

- On the west side of McLoughlin, construction of the Riverfront Park and the PMLRT project have blocked easy access south from downtown.
- The only potential pedestrian access to the park is on the south side where the Bluebird/River Rd. crosswalk meets the existing sidewalk near the south property line of the park. However, there is no direct route from the park from this point. Additional crossing points (if any) would need to be coordinated with ODOT.
- There is no existing pedestrian pathway on the east side of McLoughlin between Washington on the north end and the crosswalk at Bluebird/River Road on the south end. Any alignment of a new path through the park site to connect with the new TriMet bike/ped bridge would need to be studied with regard to grades, existing trees, etc., especially through the south part of the site.
- There is no sidewalk along McLoughlin, although bicycles do use the shoulder. Adding a sidewalk in the ODOT right-of-way on the east side of McLoughlin would face a number of problems: 1.) there are many existing trees adjacent to the roadway, mostly on the south end of the site (although many of these are invasive species, according to Tonia), with one particularly large tree just north of the Bluebird/River Rd crosswalk; 2.) there would be alignment issues around the TriMet overpass and railroad bridge abutment; 3.) the bridge over Kellogg Creek would need to be replaced to add pedestrian access; and 4.) any improvements would need to be coordinated with ODOT, on their timetable, and therefore may not be able to be integrated with other park improvements.
- The TriMet bike/ped bridge currently does not have funding for trail connections on either side of the bridge.
- A Kellogg Creek trail on the north side of Kellogg Creek may be a possibility after the dam is removed.
- A number of neighbors have been identified as stakeholders. Some of these neighbors have also been proactive in doing their own remediation work along the Creek.
- The neighbor adjacent to the south side of the site is generally supportive of the park, but may also be concerned about what kind of activities will be planned for the park. They also built an apparently rarely-used horseshoe pitch on city property which has been there at least since 2008.
- The scope of the Wildlands work needs to be identified. Since their scope often depends on what kinds of credits they can get for their work, it isn't clear if or how much of the park property – the south lots in particular – might be included. The timetable for their work is also in question since the removal of the dam depends on ODOT. It is possible that the dam and lake could remain for many years, in which case the park master plan may need to consider what would

happen if the lake does remain. A meeting needs to be set up with Wildlands to get a better sense of their plans and work.

- Some built remnants in the forested area – the remains of a building foundation, a low segment concrete retaining wall near the water line – could also be removed for credits (Wildlands).
- One important consideration for the park master plan: when the lake is removed, the creek restored to its former course and the former lake bed is revegetated, most of the current viewsheds will no longer exist.
- Mitigation planting will also be done as part of the PMLRT project. The limits of this work has not been staked on site as of yet.
- According to Tonia, plants in the railroad right-of-way may be subject to herbicide application or removal at any time.
- During the walkthrough, we met a representative of the railroad who was on site as part of the PMLRT work. He mentioned that whenever the dam is removed and the lake is drawn down, the wood pilings for the trestle may be subject to rot. This would require a new railroad bridge.
- General scope: focus on the area to the south of Kellogg Creek. Areas to the north including Dogwood Park, the Adams Street connector and other city-owned property may be addressed in a separate planning effort in the future.
- Project needs:
 - Stakeholder list. Need to determine what meetings with stakeholders will be needed prior to first public meeting.
 - Wildlands coordination: graphics/plans; also need to set up a meeting to discuss scope of work.
 - Graphics/Plans: Riverfront Park and Trolley Trail.

Meeting Minutes

Date: Monday, September 22, 2014

Project: Four Milwaukie Parks – Kronberg Park ODOT coordination

Meeting Date: Monday, September 22, 2014

Attendees: Lango Hansen Landscape Architects: Kurt Lango, Andy Sheie

NCPRD: Katie Dunham

City of Milwaukie: Steve Butler, Jason Rice

ODOT: Joseph Auth, Jessica Horning, Lawrence Krettler, Martin Jensvold,
Basil Christopher

Prepared by: Andy Sheie, LHLA

The following represents Lango Hansen Landscape Architect's understanding of discussions held, required action items and decisions reached during the meeting. The minutes are organized by subject.

- Introduction: Lango Hansen and NCPRD discussed the ownership of the properties in and around the overall site, as well as the general opportunities and constraints for the site.
- On-site parking and public vehicular access:
 - Per NCPRD, the park will be classified as a neighborhood park and/or a natural area, neither of which typically have on-site parking provided as part of site improvements. Given the park standards and anticipated ODOT limitations, the design team is not currently planning on including on-site parking.
 - Per ODOT, vehicular access to the site is constrained by a combination of site distance limitations, the narrow span of the existing railroad trestle, and existing vegetation. Left turns into the site cannot be accommodated with the current road width. Additionally, a right-turn-in and right-turn-out scenario requires a wider median to prevent left turns out from the site.
- Dam removal scenarios are not being considered as part of this master planning process.
- The segment of McLoughlin Blvd adjacent to the site is currently part of a Special Transportation Area (STA). The PMLRT bridge was constructed so that McLoughlin could be widened to the width specified in the STA: 5 lanes, 16' median, 11' lanes, 5' shoulder. However, the road cannot be widened without

replacing the railroad trestle, and there is a possibility that the trestle is considered a historic structure (this needs to be verified). The current roadway width is 37' from centerline to gutter line.

- Path/Boardwalk:
 - Terminology used for trail may trigger Federal Highway Administration 4F compliance issues. The multi-use trail which connects the Trimet bridge to the south end of the site (River Road crosswalk) should be considered and described as a transportation facility (as opposed to, for instance, a recreational facility – a loop trail within the park would be a recreational facility). It may be possible to have create a temporary/interim trail to connect the bridge to the south end of the site via the existing old driveway alignment.
 - Per ODOT, a curb-tight sidewalk is not possible on the south side of the site (north of the River Road crosswalk); constructing a sidewalk in that location would require a retaining wall and removal of many trees. A boardwalk structure was conceived by the City and Trimet (ODOT grant application) for the connection to the Trimet pedestrian bridge, and would likely be cheaper and would require the removal of fewer trees than a traditional sidewalk and retaining wall. ODOT does not necessarily need a boardwalk, but does need the connection to be made; the boardwalk is an idea, not a requirement.
 - Sidewalks or trails do not need to be immediately adjacent to the roadway to be considered a sidewalk for ODOT; for instance, the Trolley Trail is considered a sidewalk for the west side of McLoughlin.
 - Per ODOT and City, no specific accessibility requirements are anticipated for the trail, although the intent will be to make the trail as accessible as possible.
 - Lighting will not be required along the trail. However, lighting is planned for the Trimet pedestrian bridge, so additional lighting may be needed so that the bridge doesn't lead people to a lengthy unlit portion of the pathway.
- Maintenance: ODOT probably will not maintain any planting on their property, although ODOT does have maintenance agreements with many municipalities, including the City of Milwaukie.
- North parcel:
 - Old road: it isn't clear whose road that is or was. Trimet used it when bringing in girders for the PMLRT bridge. Southern Pacific Railroad (SPR) may use it for access; need to contact SPR to find out.
 - There is (or was, prior to PMLRT construction) a stormwater facility which ran from the area south of the trestle, under the trestle, to the north. This will need to remain. It could also be improved as part of the park work.

- Improvements within the ODOT ROW: need to look at 5-lane cross-section for future McLoughlin widening (per ODOT and City of Milwaukie STA). Any areas outside of 5-lane cross-section (including slope and stormwater facilities) and 10' easement would be considered “surplus” and could be used for some park improvements such as trails or planting. Structures, play equipment, etc. would probably not be allowed within ODOT ROW. Current STA includes 10' sidewalk, but this could be removed with a design exception.
- Trees may be planted per ODOT design standards. In this case, since McLoughlin is 30mph, there is not a specific setback requirement. However, sightlines will need to be maintained as required.
- HAWK signal/additional crosswalk: per ODOT, another crosswalk and HAWK signal would be too difficult to install because of sightline constraints.
- Current maintenance access point is acceptable – no median separator needed.
- Trimet does not currently have a permit for maintenance access to the site.
- Railroad contact: talk to Richard Shenkel (railroad safety and crossings) at ODOT: Richard.A.Shenkle@odot.state.or.us

Meeting Minutes

Date: Thursday, October 2, 2014

Project: Four Milwaukie Parks – Kronberg Park First Public Meeting

Meeting Date: Wednesday, October 1, 2014

Attendees: Lango Hansen Landscape Architects: Kurt Lango, Andy Sheie

N CPRD: Katie Dunham, Joeren Kok

City of Milwaukie: Steve Butler

Number of attendees signed in: 20

Prepared by: Andy Sheie, LHLA

The following represents Lango Hansen Landscape Architect’s understanding of discussions held, required action items and decisions reached during the meeting. The minutes are organized by subject.

- Meeting Summary:
 - Steve Butler gave the initial welcome and introduction.
 - Katie Dunham talked through the overall process for the Four Parks project, the process for Kronberg Park, and other information on N CPRD.
 - Kurt Lango gave a brief synopsis of the park analysis and assessment as shown on the presentation boards, and then opened the floor for people to come up and discuss directly with the project team.
 - After people had had a chance to look at the boards more closely and discuss their suggestions, concerns, and other comments with the project team, Kurt summarized the comments and asked for any additional comments or questions.
- General comments on the park:
 - Keep park as native/natural/green as possible (multiple comments)
 - Keep as green as possible, no playground
 - Keep as open space, with passive recreation
 - What are the plans for lighting in the park?
 - Need safe access/crossing across McLoughlin
 - Native/Nature play area
 - Need to define difference between “natural area” and “nature park”

- Maintain/improve habitat
- Overlooks above the lake
- Plan for global warming: plant drought-tolerant plants
- Plantings that have interest throughout the year, and which are healthy for birds, insects, wildlife
- Save the tree (sequoia) and other trees
- Protect all trees
- Clean up nuisance plants
- Comfort for people, not geese; design to discourage geese from using any lawn areas
- Need place to experience and access the water – not really any good natural places to experience the water in Riverfront Park.
- Mitigate for noise on McLoughlin. Construct a berm?
- Set aside a place in the park for a self-regulated homeless encampment.
- Include a dog park
- Make bicycle and pedestrian friendly
- Make park unique; don't duplicate things which are in Riverfront Park or which will be in the south downtown area.
- Need to design with visibility and safety in mind (CPTED). Especially important with new light rail station and new trail opening up access to the park property.
- Will there be lighting in the park? Main path/commuter route? Need to show lighting related to McLoughlin, too.
- Educational signage is good. Also need play area to give kids something to do in the park – nature play.
- Future Wildlands work – once the creek is restored there won't be much access for kayakers in the creek, anyway.
- How will this master plan address/influence near-term (2-5 year) decisions about what happens in the park?
- Boards: need to show more specific ownership information (for instance, church property on north side of lake) and Wildlands work.
- History: used to be a footbridge across the lake roughly where the TriMet construction bridge was. Also used to be a footbridge attached to the train trestle to cross McLoughlin.
- Comments on specific areas:
 - Area A, South Forest:
 - Kayak access to lake

- Wildlands: access to remove silt from the lake
 - Waterfowl, eagles, beaver, deer, coyotes
 - Need some trails in the forested area
 - Leave forested area as habitat
- Area B, Central Meadow:
 - Noise travels over lake, no noisy activities (aka skatepark, etc.); open to play area
 - Community garden
 - Tree buffer for visual impact of light rail
 - History interpretation
 - Need a trail soon to connect the bridge to McLoughlin
- Area C, Central Bluff:
 - Make plan flexible to include current lake bed
 - Open and natural, focus down
- Area D, North Trestle:
 - Plant some redwood trees
 - Clean it up
- Trails:
 - The main trail through the park will be/needs to be a commuter route; it is/will be an important bicycle route.
 - Move bike lane off McLoughlin to encourage on-site trail use
 - Meandering trails, no straight paths
 - Lots of trails
 - Minimal impervious surfaces
 - Trails should be ADA-compliant
 - How do we safely cross the highway? We need a highway crossing!
- Other questions/comments:
 - Are there plans to engage with Wildlands on their work?
 - What are the connections between Dogwood Park, downtown, etc.?
 - Is there a need for on-site parking to meet ADA requirements?
- Next Steps
 - Review adjacent plans and proposals to avoid duplication
 - Develop three options for the next public meeting (Wednesday, Nov. 5th)

Meeting Minutes

Date: Wednesday, November 19, 2014

Project: Four Milwaukie Parks – Kronberg Park Second Public Meeting

Meeting Date: Wednesday, November 5, 2014

Attendees: Lango Hansen Landscape Architects: Kurt Lango, Andy Sheie

N CPRD: Katie Dunham, Jeroen Kok

City of Milwaukie: Steve Butler

Number of attendees signed in: 14

Prepared by: Andy Sheie, LHLA

The following represents Lango Hansen Landscape Architect's understanding of discussions held, required action items and decisions reached during the meeting. The minutes are organized by subject.

- Meeting Summary:
 - Steve Butler gave the initial welcome and introduction.
 - Katie Dunham talked through the overall process for the Four Parks project, the process for Kronberg Park, and other information on N CPRD.
 - Kurt Lango and Andy Sheie discussed the first meeting, including a synopsis of the park analysis and assessment and a summary of the public comments.
 - Following the summary of the first meeting, Kurt Lango presented the three park options. In general, the options ranged from the least amount of impact (Option 1) to the most impact (Option 3). Kurt then invited people up to take a closer look at the designs and to discuss with the project team members. People were also given two stickers to vote for their preferred design option and second place design option.
 - After people had had a chance to look at the boards more closely and discuss their suggestions, concerns, and other comments with the project team, and vote on their preferred option, Kurt summarized the comments and asked for any additional comments or questions.
- General comments on the park:
 - Meeting attendees overwhelmingly preferred Option 1. Option 1 had 12 first-place votes and 3 second-place votes; Option 2 had 1 first place vote and 10 second-place votes; Option 3 had no votes at all.

- There was a fair amount of discussion about the route of the 12' multi-use path through the south forest area of the park. The alignment of Option 1 shows an elevated walkway with a gentle slope through the forest; Option 2 shows the path at grade, with a switchback at the south end; and Option 3 shows the structured path along McLoughlin. In general, people did not like alignment shown in Option 3 (along McLoughlin), both because they wanted to preserve the trees along the slope and to discourage people from trying to cross McLoughlin somewhere other than the crosswalk. Option 1 was generally seen as having some benefits in that: 1.) it potentially had better safety/visibility; 2.) was better for bike commuting (no switchback, gentle grade); and 3.) would help control where people went on-site. However, Option 2 was generally seen as being the less expensive option, and since many people felt that the path connection was the number one priority in the park, it might be easier to achieve with a less expensive option.
- A number of people said they preferred the more meandering/sinuous multi-use path through the main part of the site as shown in Option 2 to the sweeping arc of Options 1 or 3.
- People also generally liked having a soft-surface trail connection to the north side of the site, similar to what was shown in Option 2.
- There was also interest in having a very natural (not off-the-shelf) play area incorporated into the park, similar to Option 2. It was also noted that a traditional play area could be installed in Dogwood Park, which would be more accessible than one in Kronberg Park.
- A manicured grass lawn area was a subject for debate. Some felt that, on one hand, it would help draw people to the park; on the other hand, it would increase maintenance costs and would also attract unwanted geese. In addition, it was pointed out that both Dogwood Park and Riverfront Park had (or will have) large lawn areas. The general consensus was that lawn areas were not necessary for Kronberg Park.
- A short-course disc golf course was suggested as one means of bringing people to the park without requiring much infrastructure or negative impact on the natural areas of the park.
- There was also some interest in incorporating the row of sequoia as shown in Option 2.
- People felt strongly that the park improvements should seek to minimize any impact in the habitat conservation area (HCA): limit to soft-surface trails and overlooks.
- The design team should consult with conservation organizations and agencies to coordinate habitat restoration needs as the park improvement work moves forward.

- People wanted lighting on the multi-use trail only; they felt that it would be a safety issue if lighting was not included. It would need to be designed with the natural areas of the park in mind.
- It was agreed that on-site ADA parking would be problematic due to ODOT restrictions, problems with enforcement, and space requirements, and therefore was not a priority to include in the park. Consultants evaluated existing on-street parking to the northwest of Robert Kronberg Park, west of Highway 99 (McLoughlin) and to the northeast of the park, across the bicycle-pedestrian bridge near Dogwood Park. On-street ADA public parking spaces could be provided in those areas in the future. Parking is anticipated to be limited in and around the park into the future. There are no plans to add parking as a part of this future park project.
- Next Steps
 - Develop preferred option for the next public meeting (Tuesday, Dec. 9th)

Meeting Minutes

Date: Friday, December 19, 2014

Project: Four Milwaukie Parks – Kronberg Park Third Public Meeting

Meeting Date: Tuesday, December 9, 2014

Attendees: Lango Hansen Landscape Architects: Kurt Lango, Andy Sheie

N CPRD: Katie Dunham, Jeroen Kok

City of Milwaukie: Steve Butler

Number of attendees signed in: 10

Prepared by: Andy Sheie, LHLA

The following represents Lango Hansen Landscape Architect's understanding of discussions held, required action items and decisions reached during the meeting. The minutes are organized by subject.

- Meeting Summary:
 - Steve Butler gave the initial welcome and introduction.
 - Katie Dunham recapped the overall process for the Four Parks project and gave a general summary of the Kronberg Park project. Katie Dunham and Kurt Lango went on to discuss the process in more detail, including the need to craft a master plan which allows for program flexibility and the potential for phasing improvements as funding becomes available.
 - Kurt Lango and Andy Sheie discussed the second meeting, including a synopsis of each of the three options and a summary of public feedback.
 - Following the summary of the second meeting, Kurt Lango presented the preferred option for Kronberg Park.
 - After people had had a chance to look at the boards more closely and discuss their suggestions, concerns, and other comments with the project team, Kurt summarized the comments and asked for any additional comments or questions.
- General comments on the park:
 - People generally liked that the preferred plan was more flexible than the three options presented in the second public meeting, and felt that the more flexible, open master plan would allow for more public input as the park was developed over time.

- People also liked that the south forest part of the site would be preserved as habitat, and that restoration efforts should continue. A number of people felt that leaving it off-limits would also enhance bird viewing opportunities from other parts of the site.
- The multi-use path was cited again as the number one priority for the park.
- The elevated multi-use trail was also seen as positive, both because it would be less disruptive to the south forest area and because it would help keep the public out of the south forest area.
- It was suggested that an overlook could be built into the raised multi-use pathway where it was closest to the lake; this would allow for better views of the habitat and lake.
- Lighting on the multi-use path was again cited as a need, but people also said that they wanted to make sure that the lighting was designed to minimize its impact on the site.
- People wanted overlooks or bird blinds, but also felt it was important to have developed paths to them so people did not create their own trails.
- The secondary soft-surface trail was suggested as a “phase 1” improvement along with the multi-use path.
- Signage and wayfinding were cited as needs, especially at the north and south entries to the park.
- There were some comments about improving the pedestrian crossing at McLoughlin and River Road.
- “Go for it!”

Appendix K

From: Kelper, Brett

Sent: Tuesday, August 15, 2017 3:54 PM

To: Markwardt, Sheri <MarkwardtS@milwaukieoregon.gov>; Garbely, Jennifer <GarbelyJ@milwaukieoregon.gov>

Cc: Egner, Dennis <EgnerD@milwaukieoregon.gov>; Eaton, Chuck <EatonC@milwaukieoregon.gov>; Aman, Leila <AmanL@milwaukieoregon.gov>

Subject: follow-up on Kronberg Park project

Sheri & Jennifer,
(And will you guys forward this to Adrian?)

I got a chance to check in with Denny about our pre-app meeting last week for the Kronberg Park project and I have some answers to the outstanding questions I said I'd follow-up on:

- Willamette Greenway review (Type III) will be required. This element was not addressed as part of adopting the park master plan and does need to be addressed with the proposed trail construction.
- I confirmed that we can waive the requirement of a formal preapplication conference. We can coordinate and talk more with you as needed to make sure you have the forms you need and understand the elements that should comprise the application package.
- I believe that application fees are probably to be waived for this as well, since it is a General Fund project. *(confirmed by Planning Director)*
- It is not a problem that you are working with ESA as your natural resource consultant. If we determine that peer review of the natural resource part of the application is necessary, we will contract with someone else.
- There is a Type II path for natural resource review, but for walkways and bike paths to qualify for this level of review, they can be no wider than 10 ft and must be at least 10 ft from the boundary of the protected water feature (as per MMC 19.402.11.E.4).
- Depending on what you sort out for the actual locations of the Water Quality Resource (WQR) area and Habitat Conservation Area (HCA), if it turns out you can stay in Type I review for natural resources, we would probably tie that review to the Type I Development Review that will be needed in conjunction with the actual building permit submittal for the project.
- I confirmed with Denny that any natural resource area under an elevated portion of the pathway will be considered as disturbance, regardless of how high above grade the pathway is.
- I have not checked with Leila to see if she wants/needs to be kept in the loop about this project, as part of her work to facilitate and coordinate on the City's development projects. I'm copying her on this e-mail and had thought that she might have some helpful suggestions about how to frame some of the issues for the public hearing.

Let me know if you have any questions or what else you would like to discuss or go over as you prepare the application materials.

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