# SANDY RIVERFRONT TRAIL

TROUTDALE, OREGON

## 60% SUBMITTAL

JULY 2021

NOT FOR CONSTRUCTION

### PROJECT TEAM


CITY OF TROUTDALE
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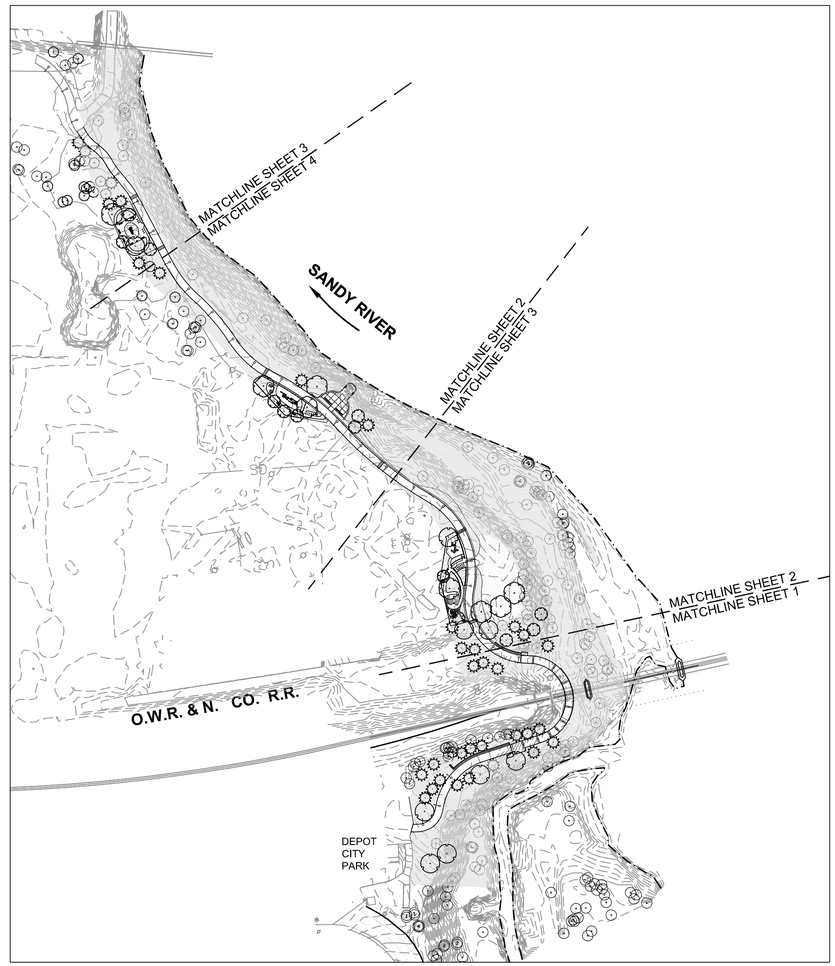


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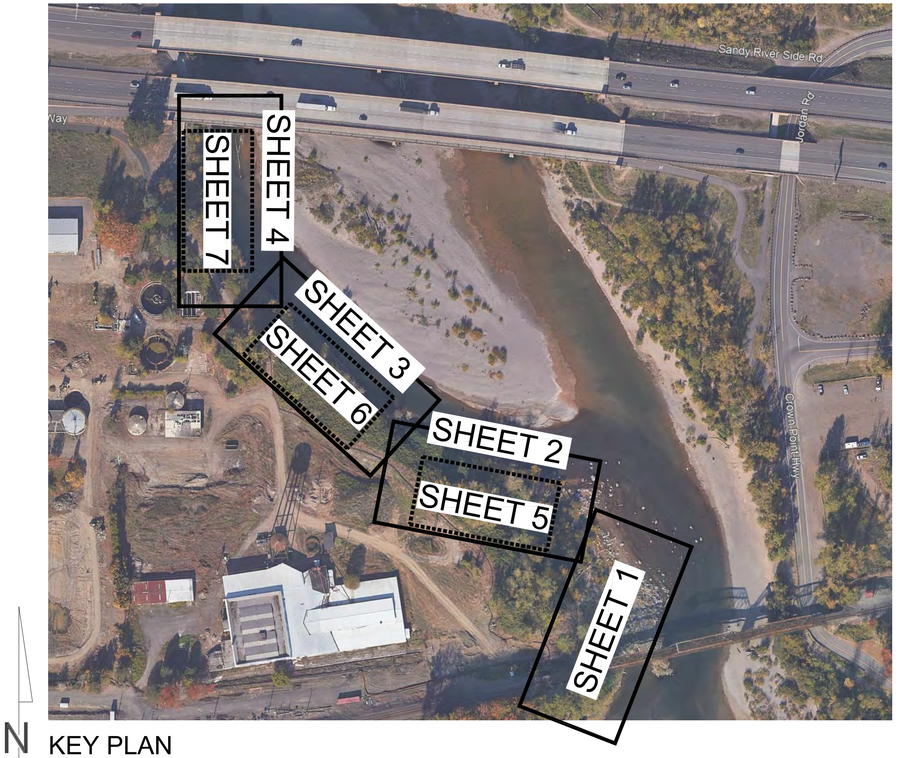
Not to Scale

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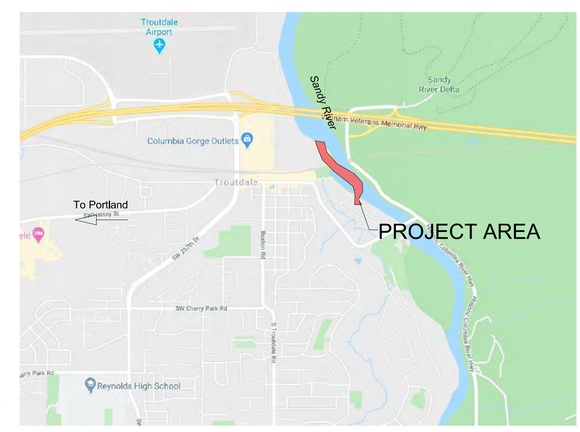


N VICINITY MAP
Not to Scale

CONTRACTOR RESPONSIBLE FOR UTILITY LOCATES ON PRIVATE PROPERTY:

NOTICE TO EXCAVATORS:
ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER. (NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503)-232-1987).

POTENTIAL UNDERGROUND FACILITY OWNERS

Dig Safely.
Call the Oregon One-Call Center
DIAL 811 or 1-800-332-2344

| DATE: | NO. | REVISION: |
|---|---|---|

DRAWN: CLW | DESIGNED: MHZ | CHECKED: MHZ
SCALE: AS SHOWN | DATE: 07.13.2021
PROJECT NO: 19.13
PACKAGE TITLE: 60% SET

STAMP:

CONSULTANT:
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o. 503.802.0031
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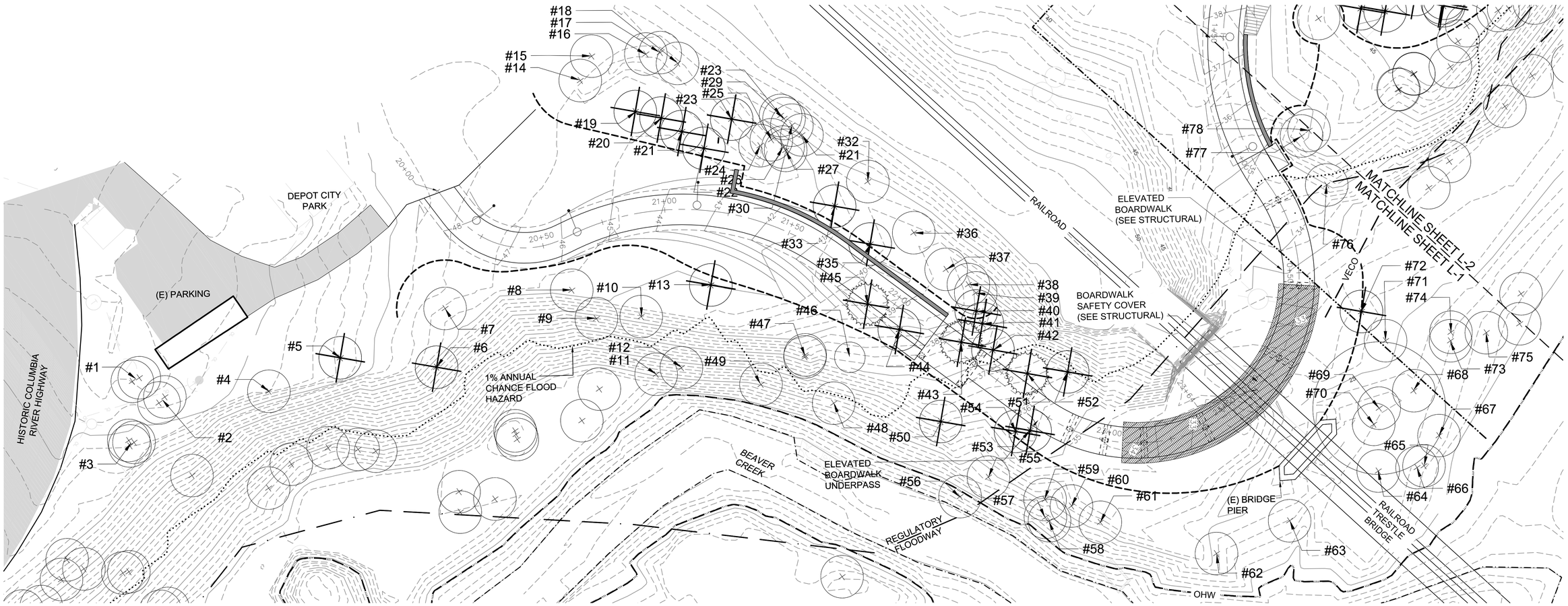
CLIENT:
CITY OF TROUTDALE
219 E. Historic Columbia River Highway
Troutdale, Oregon 97060

PROJECT:
SANDY RIVERFRONT TRAIL
473 E. Historic Columbia River Highway
Troutdale, Oregon 97060

SHEET:
COVER SHEET
CS-0




1 TP-1 TREE PLAN

N

KEY PLAN
Not to Scale

## LEGEND

- OHW (ORDINARY HIGH WATER MARK)
- REGULATORY FLOODWAY
- 1% ANNUAL CHANCE FLOOD HAZARD
- VECO (VEGETATION CORRIDOR)
- PROPERTY LINE
- EXISTING TREE TO REMAIN AND PROTECT* NO TREES DESIGNATED TO BE PROTECTED SHALL BE REMOVED WITHOUT PRIOR APPROVAL AND PERMISSION BY THE PROJECT ARBORIST.
- TREE PROTECTION FENCING* FOR EXECUTION OF WORK WITHIN TREE PROTECTION AREAS, REFER TO CIVIL.
- EXISTING TREE TO BE REMOVED*

* REFER TO ARBORIST'S REPORT PREPARED BY TERAGAN & ASSOCIATES ARBORICULTURAL CONSULTANTS DATED 5.12.2020.

| DATE: | NO. | REVISION: |
|---|---|---|

DRAWN: CLW | DESIGNED: MHZ | CHECKED: MHZ

SCALE: AS SHOWN | DATE: 07.13.2021

PROJECT NO: 19.13

PACKAGE TITLE: 60% SET

STAMP: REGISTERED 396 Marianne Zarkin OREGON 5/8/98 LANDSCAPE ARCHITECT — NOT FOR CONSTRUCTION

CONSULTANT:

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Troutdale, Oregon 97060

PROJECT:

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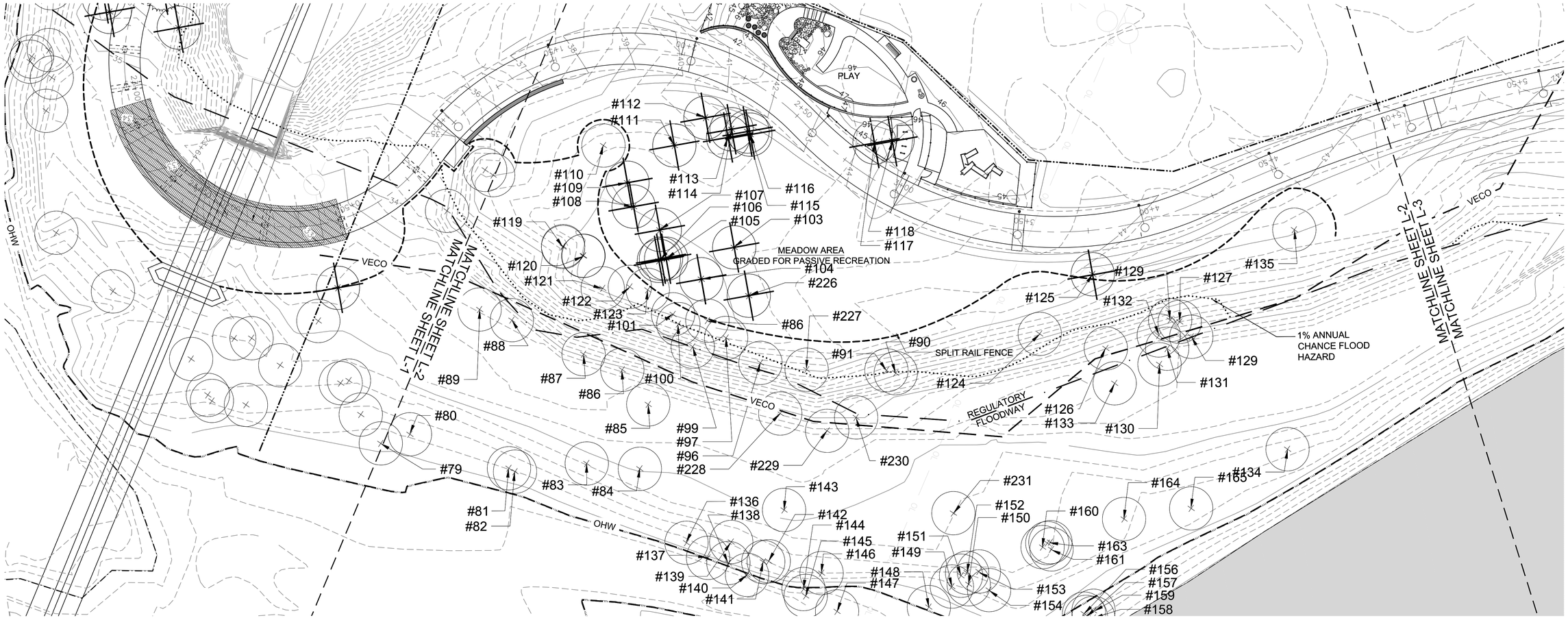
SHEET:

TREE PLAN

TP-1




1 TP-2 TREE PLAN

0 10 20 40 FEET

SCALE: 1" = 20'-0"

N

KEY PLAN
Not to Scale

LEGEND

- OHW (ORDINARY HIGH WATER MARK)
- REGULATORY FLOODWAY
- 1% ANNUAL CHANCE FLOOD HAZARD
- VECO (VEGETATION CORRIDOR)
- PROPERTY LINE
- EXISTING TREE TO REMAIN AND PROTECT* NO TREES DESIGNATED TO BE PROTECTED SHALL BE REMOVED WITHOUT PRIOR APPROVAL AND PERMISSION BY THE PROJECT ARBORIST.
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PROJECT:

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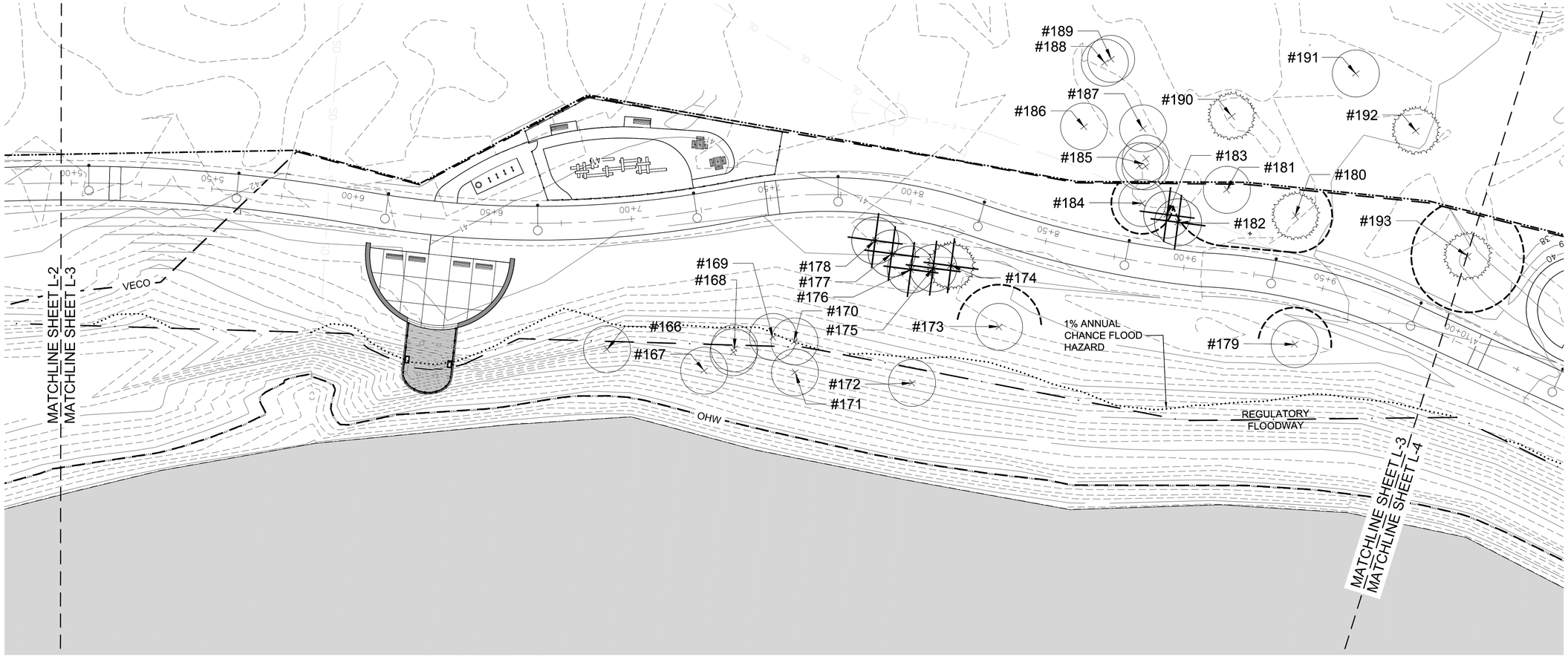
473 E. Historic Columbia River Highway
Troutdale, Oregon 97060

SHEET:

TREE PLAN

TP-2




1 TP-3 TREE PLAN

N KEY PLAN
Not to Scale

## LEGEND

- OHW — OHW (ORDINARY HIGH WATER MARK)
- REGULATORY FLOODWAY
- 1% ANNUAL CHANCE FLOOD HAZARD
- VECO (VEGETATION CORRIDOR)
- PROPERTY LINE
- EXISTING TREE TO REMAIN AND PROTECT* NO TREES DESIGNATED TO BE PROTECTED SHALL BE REMOVED WITHOUT PRIOR APPROVAL AND PERMISSION BY THE PROJECT ARBORIST.
- TREE PROTECTION FENCING* FOR EXECUTION OF WORK WITHIN TREE PROTECTION AREAS, REFER TO CIVIL.
- EXISTING TREE TO BE REMOVED*

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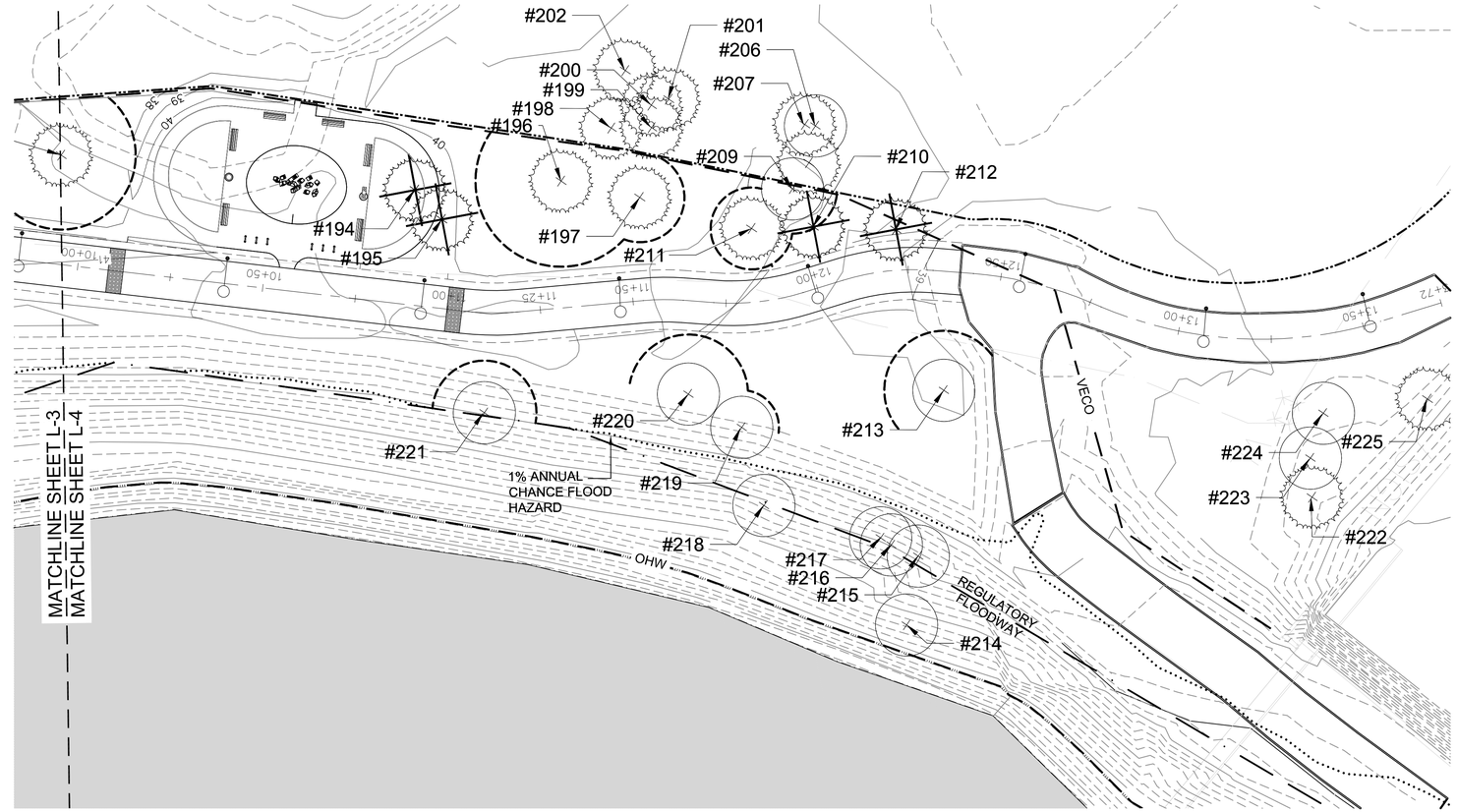
Troutdale, Oregon 97060

SHEET:
TREE PLAN
TP-3




1 TP-4 TREE PLAN

0 10 20 40 FEET
SCALE: 1" = 20'-0"

## LEGEND

- OHW (ORDINARY HIGH WATER MARK)
- REGULATORY FLOODWAY
- 1% ANNUAL CHANCE FLOOD HAZARD
- VECO (VEGETATION CORRIDOR)
- PROPERTY LINE
- EXISTING TREE TO REMAIN AND PROTECT* NO TREES DESIGNATED TO BE PROTECTED SHALL BE REMOVED WITHOUT PRIOR APPROVAL AND PERMISSION BY THE PROJECT ARBORIST.
- TREE PROTECTION FENCING* FOR EXECUTION OF WORK WITHIN TREE PROTECTION AREAS, REFER TO CIVIL.
- EXISTING TREE TO BE REMOVED*

* REFER TO ARBORIST'S REPORT PREPARED BY TERAGAN & ASSOCIATES ARBORICULTURAL CONSULTANTS DATED 5.12.2020.

N
KEY PLAN
Not to Scale

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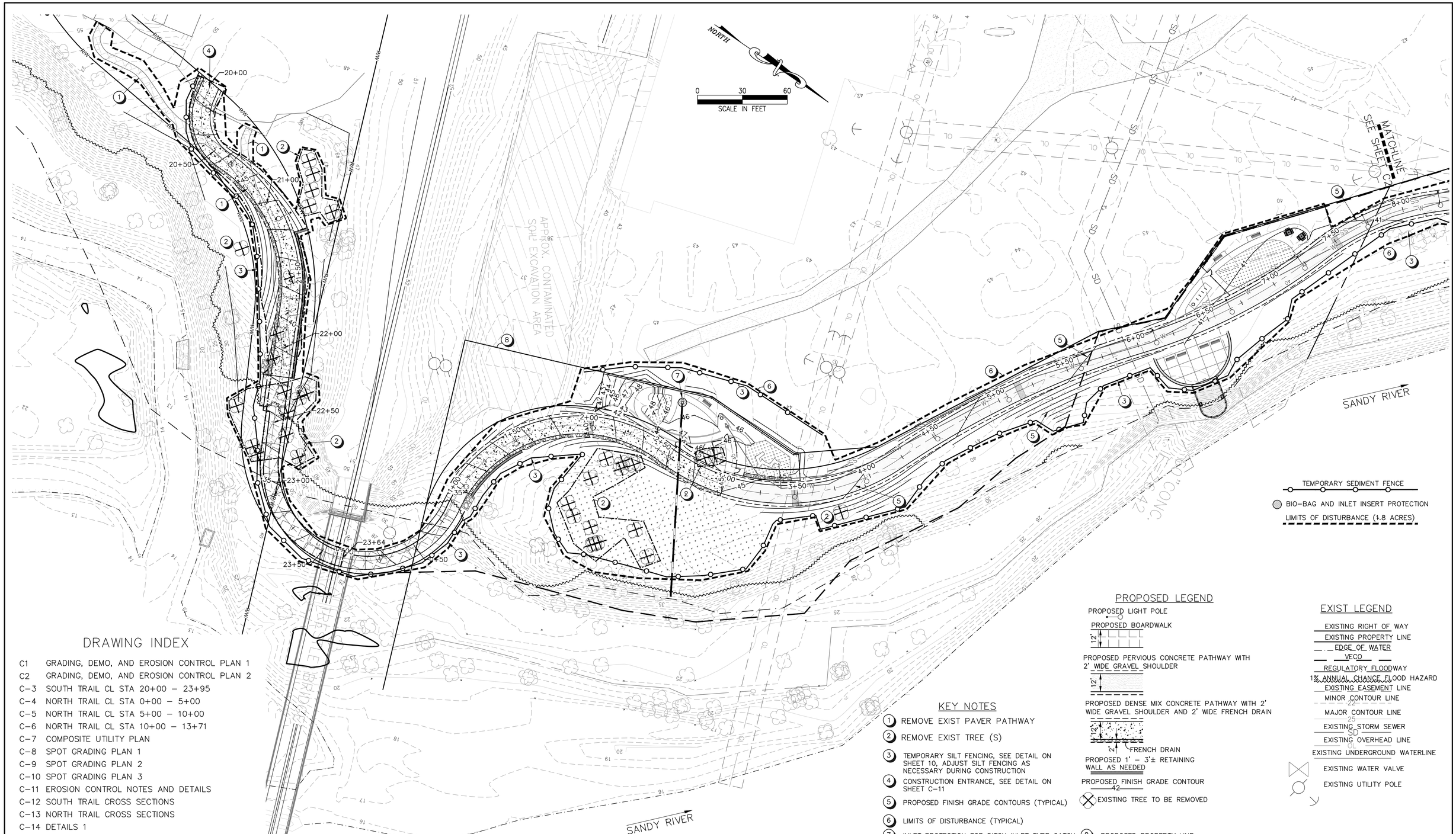
Troutdale, Oregon 97060

SHEET:
TREE PLAN
TP-4




## DRAWING INDEX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C-12 SOUTH TRAIL CROSS SECTIONS
C-13 NORTH TRAIL CROSS SECTIONS
C-14 DETAILS 1


## KEY NOTES

1. REMOVE EXIST PAVER PATHWAY
2. REMOVE EXIST TREE (S)
3. TEMPORARY SILT FENCING, SEE DETAIL ON SHEET 10, ADJUST SILT FENCING AS NECESSARY DURING CONSTRUCTION
4. CONSTRUCTION ENTRANCE, SEE DETAIL ON SHEET C-11
5. PROPOSED FINISH GRADE CONTOURS (TYPICAL)
6. LIMITS OF DISTURBANCE (TYPICAL)
7. INLET PROTECTION FOR DITCH INLET TYPE CATCH BASIN, SEE DETAILS ON SHEET C-11 (TYPICAL)
8. PROPOSED PROPERTY LINE

## PROPOSED LEGEND

PROPOSED LIGHT POLE
PROPOSED BOARDWALK
PROPOSED PERVIOUS CONCRETE PATHWAY WITH 2' WIDE GRAVEL SHOULDER
PROPOSED DENSE MIX CONCRETE PATHWAY WITH 2' WIDE GRAVEL SHOULDER AND 2' WIDE FRENCH DRAIN
FRENCH DRAIN
PROPOSED 1' – 3'± RETAINING WALL AS NEEDED
PROPOSED FINISH GRADE CONTOUR
EXISTING TREE TO BE REMOVED

## EXIST LEGEND

EXISTING RIGHT OF WAY
EXISTING PROPERTY LINE
EDGE OF WATER
VECO
REGULATORY FLOODWAY
1% ANNUAL CHANCE FLOOD HAZARD
EXISTING EASEMENT LINE
MINOR CONTOUR LINE
MAJOR CONTOUR LINE
EXISTING STORM SEWER
EXISTING OVERHEAD LINE
EXISTING UNDERGROUND WATERLINE
EXISTING WATER VALVE
EXISTING UTILITY POLE

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| DATE: | NO. | REVISION: |
|---|---|---|

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SCALE: AS SHOWN | DATE: 05.06.2021
PROECT NO: 19.13
PACKAGE TITLE: 60% SET

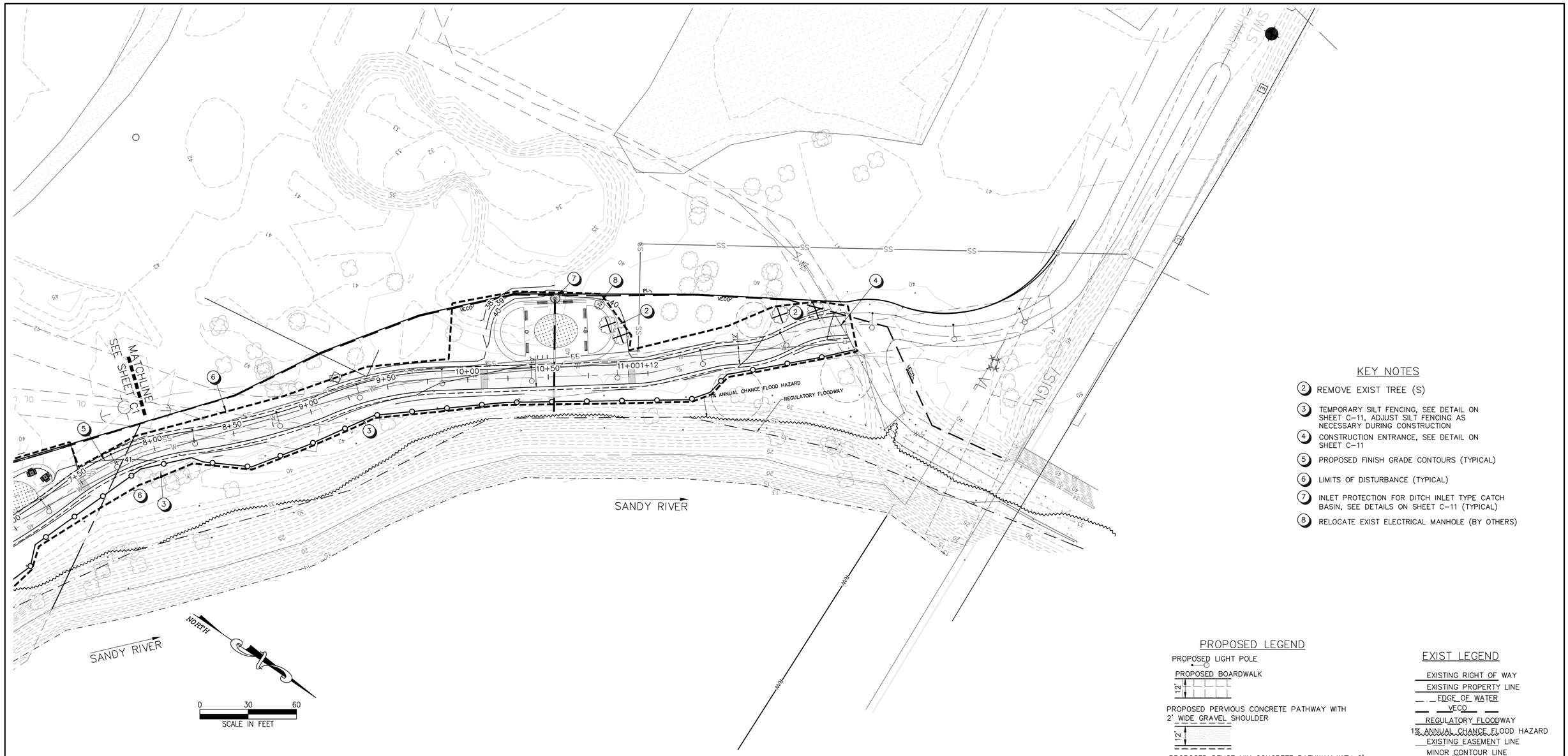
REGISTERED PROFESSIONAL ENGINEER 67149PE OREGON JULY 14, 2003 KELLY A. GROVER
EXPIRES: 06/30/23
SIGNATURE DATE:
NOT FOR CONSTRUCTION

FIRWOOD DESIGN GROUP
Reliable Engineering Solutions
359 EAST HISTORIC COLUMBIA RIVER HIGHWAY
TROUTDALE, OREGON 97060
(503) 668-3737

CITY OF TROUTDALE
219 E. Historic Columbia River Highway
Troutdale, Oregon 97060

GRADING, DEMO, AND EROSION CONTROL PLAN 1
SANDY RIVERFRONT TRAIL
473 E. Historic Columbia River Highway
Troutdale, Oregon 97060

C1




## KEY NOTES

2. REMOVE EXIST TREE (S)
3. TEMPORARY SILT FENCING, SEE DETAIL ON SHEET C-11, ADJUST SILT FENCING AS NECESSARY DURING CONSTRUCTION
4. CONSTRUCTION ENTRANCE, SEE DETAIL ON SHEET C-11
5. PROPOSED FINISH GRADE CONTOURS (TYPICAL)
6. LIMITS OF DISTURBANCE (TYPICAL)
7. INLET PROTECTION FOR DITCH INLET TYPE CATCH BASIN, SEE DETAILS ON SHEET C-11 (TYPICAL)
8. RELOCATE EXIST ELECTRICAL MANHOLE (BY OTHERS)

## PROPOSED LEGEND

PROPOSED LIGHT POLE

PROPOSED BOARDWALK

PROPOSED PERVIOUS CONCRETE PATHWAY WITH 2' WIDE GRAVEL SHOULDER

PROPOSED DENSE MIX CONCRETE PATHWAY WITH 2' WIDE GRAVEL SHOULDER AND 2' WIDE FRENCH DRAIN

FRENCH DRAIN

PROPOSED 1' – 3'± RETAINING WALL AS NEEDED

PROPOSED FINISH GRADE CONTOUR 42

EXISTING TREE TO BE REMOVED

## EXIST LEGEND

EXISTING RIGHT OF WAY

EXISTING PROPERTY LINE

EDGE OF WATER

VECO

REGULATORY FLOODWAY

1% ANNUAL CHANCE FLOOD HAZARD

EXISTING EASEMENT LINE

MINOR CONTOUR LINE 22

MAJOR CONTOUR LINE 25

EXISTING STORM SEWER SD

EXISTING OVERHEAD LINE OL

EXISTING UNDERGROUND WATERLINE

EXISTING WATER VALVE

EXISTING UTILITY POLE

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| DATE: | NO. | REVISION: |
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| | | |

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SCALE: AS SHOWN | DATE: 05.06.2021

PROECT NO: 19.13

PACKAGE TITLE: 60% SET

REGISTERED PROFESSIONAL ENGINEER 67149PE OREGON JAN. 14, 2003 KELLY A. GROVER EXPIRES: 06/30/23 SIGNATURE DATE:

NOT FOR CONSTRUCTION

FIRWOOD DESIGN GROUP
Reliable Engineering Solutions
359 EAST HISTORIC COLUMBIA RIVER HIGHWAY
TROUTDALE, OREGON 97060
(503) 668-3737

CITY OF TROUTDALE
219 E. Historic Columbia River Highway
Troutdale, Oregon 97060

GRADING, DEMO, AND EROSION CONTROL PLAN 2
SANDY RIVERFRONT TRAIL
473 E. Historic Columbia River Highway
Troutdale, Oregon 97060

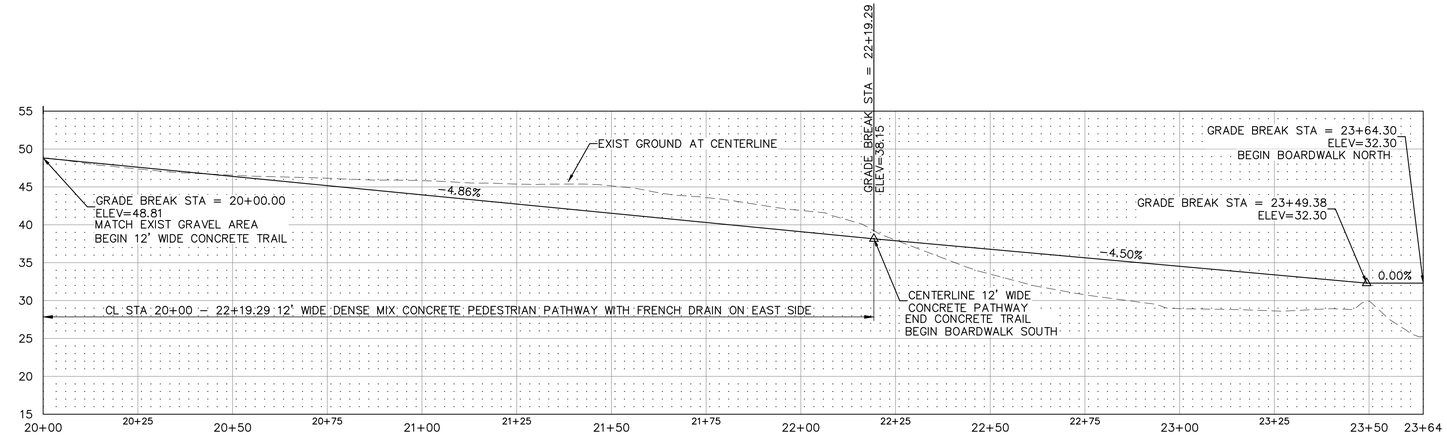
C2

## EXIST LEGEND

- EXISTING RIGHT OF WAY (R/W)
- EXISTING PROPERTY LINE
- EDGE OF WATER (VECO)
- REGULATORY FLOODWAY
- 1% ANNUAL CHANCE FLOOD HAZARD
- EXISTING EASEMENT LINE
- MINOR CONTOUR LINE
- MAJOR CONTOUR LINE
- EXISTING STORM SEWER (SD)
- EXISTING OVERHEAD LINE (OL)
- EXISTING UNDERGROUND WATERLINE (W)
- EXISTING WATER VALVE
- EXISTING UTILITY POLE

## PROPOSED LEGEND

- PROPOSED LIGHT POLE
- PROPOSED BOARDWALK (12')
- PROPOSED PERVIOUS CONCRETE PATHWAY WITH 2' WIDE GRAVEL SHOULDER (12')
- PROPOSED DENSE MIX CONCRETE PATHWAY WITH 2' WIDE GRAVEL SHOULDER AND 2' WIDE FRENCH DRAIN (12', 2', 2')
- FRENCH DRAIN
- PROPOSED 1' – 3'± RETAINING WALL AS NEEDED

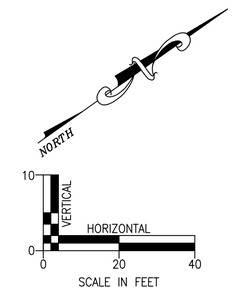


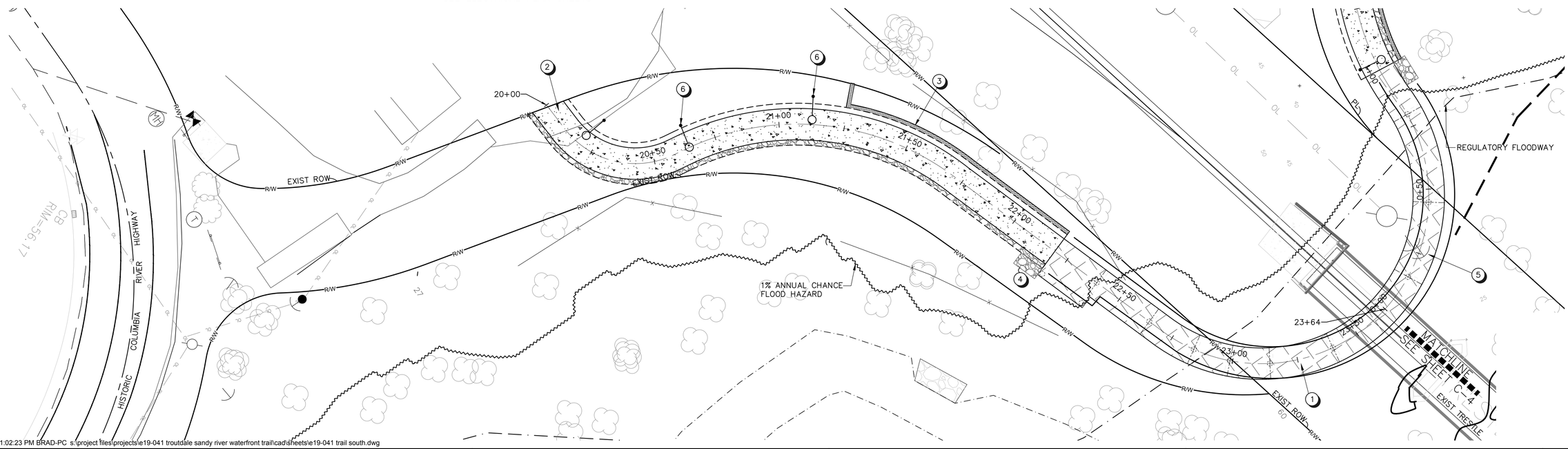

**BOARDWALK AND TRAIL SOUTH PROFILE**

SCALE: SEE SCALE BAR

## KEY NOTES

1. BOARDWALK, SEE PROFILE THIS SHEET, SEE STRUCTURAL PLAN SHEETS
2. 12' WIDE DENSE MIX CONCRETE PATHWAY WITH 2' WIDE FRENCH DRAIN AT EAST EDGE, SEE TYPICAL SECTION DETAILS ON SHEET C–14 MATCH EXIST EDGE OF PAVEMENT, SEE PROFILE THIS SHEET
3. 2.5' ± SPLIT FACE CMU BLOCK RETAINING WALL AS NEEDED, SEE PROFILE AND TYPICAL SECTION ON SHEET C–14
4. FRENCH DRAIN PIPE TO DAYLIGHT INTO 7' WIDE X 10' LONG BY 2' DEEP CLASS 50 RIP RAP BASIN, SEE DETAIL ON SHEET C–14
5. EXIST GUY ANCHORS TO BE RELOCATED BY OTHERS, CONTRACTOR TO COORDINATE AS NECESSARY
6. PROPOSED LIGHT POLE LOCATIONS, TYPICAL, SEE ELECTRICAL PLAN SHEETS

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PROECT NO: 19.13

PACKAGE TITLE: 60% SET

REGISTERED PROFESSIONAL ENGINEER 67149PE OREGON JAN. 14, 2003 KEITH A. GROVER

EXPIRES: 06/30/23

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SOUTH TRAIL CL STA 20+00 - 23+95
SANDY RIVERFRONT TRAIL
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Troutdale, Oregon 97060

C-3

## PROPOSED LEGEND

PROPOSED LIGHT POLE

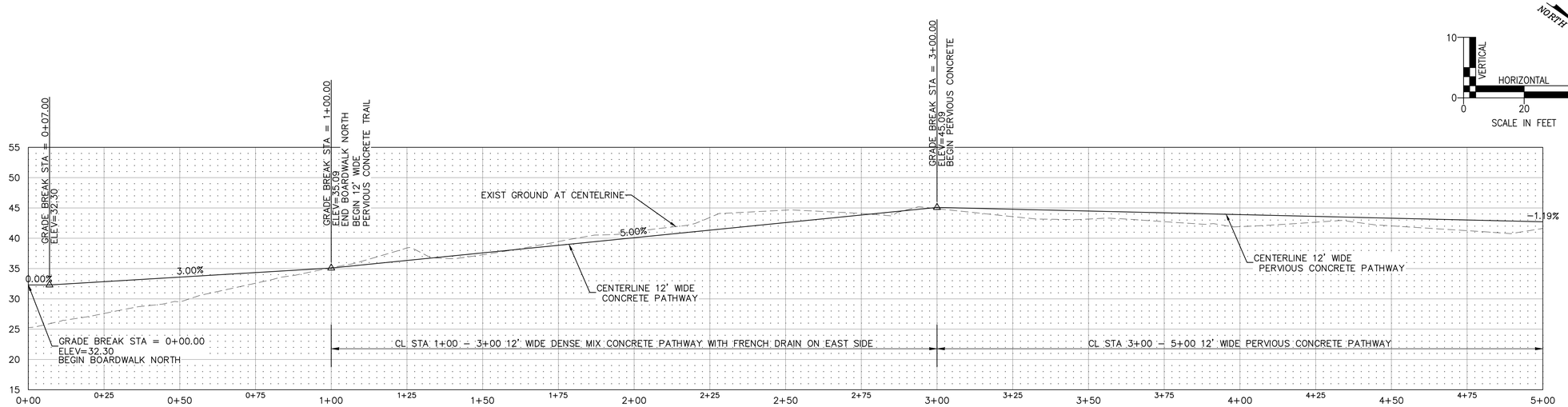
PROPOSED BOARDWALK

PROPOSED PERVIOUS CONCRETE PATHWAY WITH 2' WIDE GRAVEL SHOULDER

PROPOSED DENSE MIX CONCRETE PATHWAY WITH 2' WIDE GRAVEL SHOULDER AND 2' WIDE FRENCH DRAIN

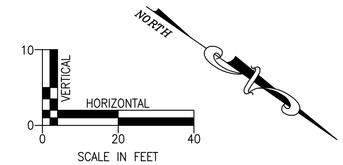
FRENCH DRAIN

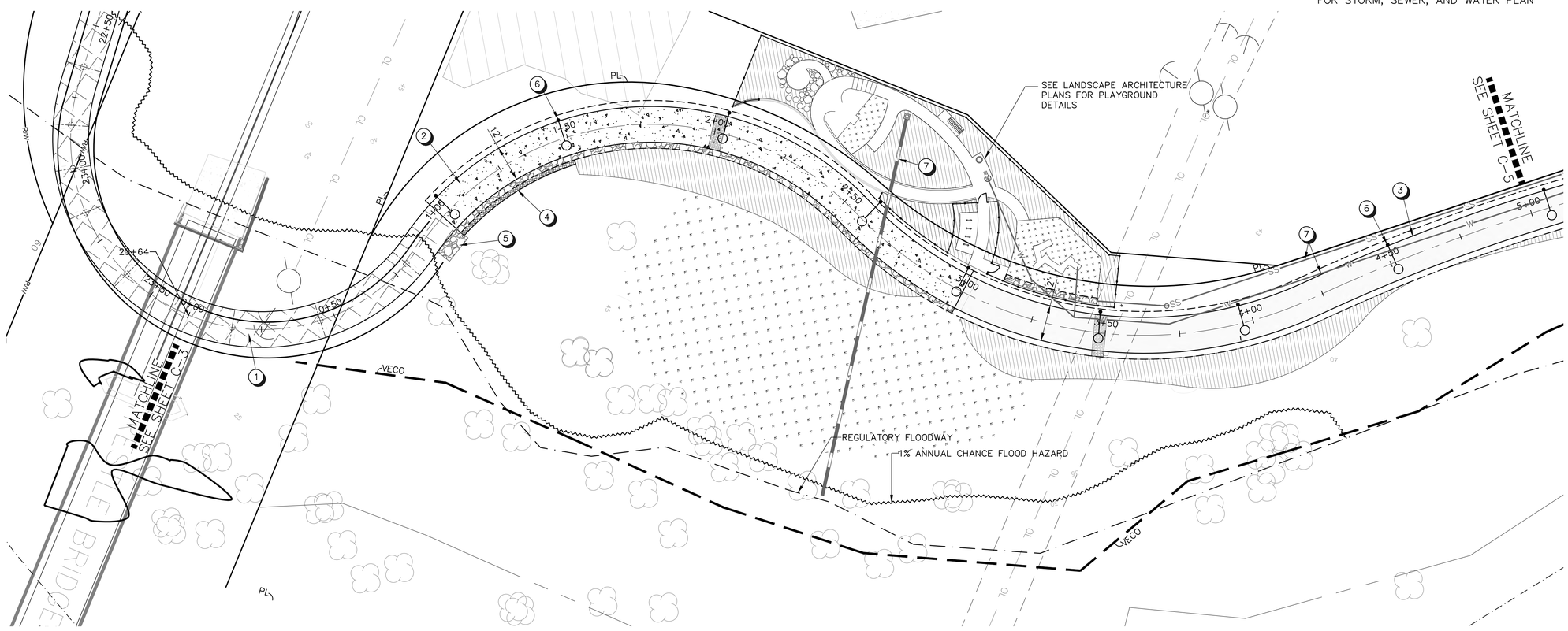
PROPOSED 1' – 3'± RETAINING WALL AS NEEDED




## BOARDWALK AND TRAIL NORTH PROFILE

SCALE: SEE SCALE BAR




## KEY NOTES

1. BOARDWALK, SEE PROFILE THIS SHEET, SEE STRUCTURAL PLAN SHEETS
2. 12' WIDE DENSE MIX CONCRETE PATHWAY WITH 2' WIDE FRENCH DRAIN AT EAST EDGE, SEE TYPICAL SECTION DETAILS ON SHEETS C–12 AND C–14, SEE PROFILE THIS SHEET
3. 12' WIDE PERVIOUS CONCRETE PATHWAY, SEE PROFILE THIS SHEET, SEE TYPICAL SECTION DETAIL ON SHEET C–14
4. 2' ± SPLIT FACE CMU BLOCK RETAINING WALL AS NEEDED, SEE TYPICAL SECTION DETAIL AND PROFILE ON SHEET C–14
5. FRENCH DRAIN PIPE TO DAYLIGHT INTO 5' WIDE X 10' LONG BY 3' DEEP CLASS 50 RIP RAP BASIN, SEE DETAILS ON SHEET C–14
6. PROPOSED LIGHT POLE LOCATIONS, TYPICAL, SEE ELECTRICAL PLAN SHEETS
7. SEE COMPOSITE UTILITY PLAN SHEET C–7 FOR STORM, SEWER, AND WATER PLAN

## EXIST LEGEND

EXISTING RIGHT OF WAY

EXISTING PROPERTY LINE

EDGE OF WATER

VECO

REGULATORY FLOODWAY

1% ANNUAL CHANCE FLOOD HAZARD

EXISTING EASEMENT LINE

MINOR CONTOUR LINE

MAJOR CONTOUR LINE

EXISTING STORM SEWER

EXISTING OVERHEAD LINE

EXISTING UNDERGROUND WATERLINE

EXISTING WATER VALVE

EXISTING UTILITY POLE

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SCALE: AS SHOWN | DATE: 05.06.2021

PROECT NO: 19.13

PACKAGE TITLE: 60% SET

REGISTERED PROFESSIONAL ENGINEER 67149PE OREGON JULY 14, 2003 MICHAEL A. GROVER

EXPIRES: 06/30/23

SIGNATURE DATE:

NOT FOR CONSTRUCTION


FIRWOOD DESIGN GROUP
Reliable Engineering Solutions
359 EAST HISTORIC COLUMBIA RIVER HIGHWAY
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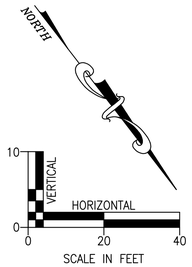
C-4

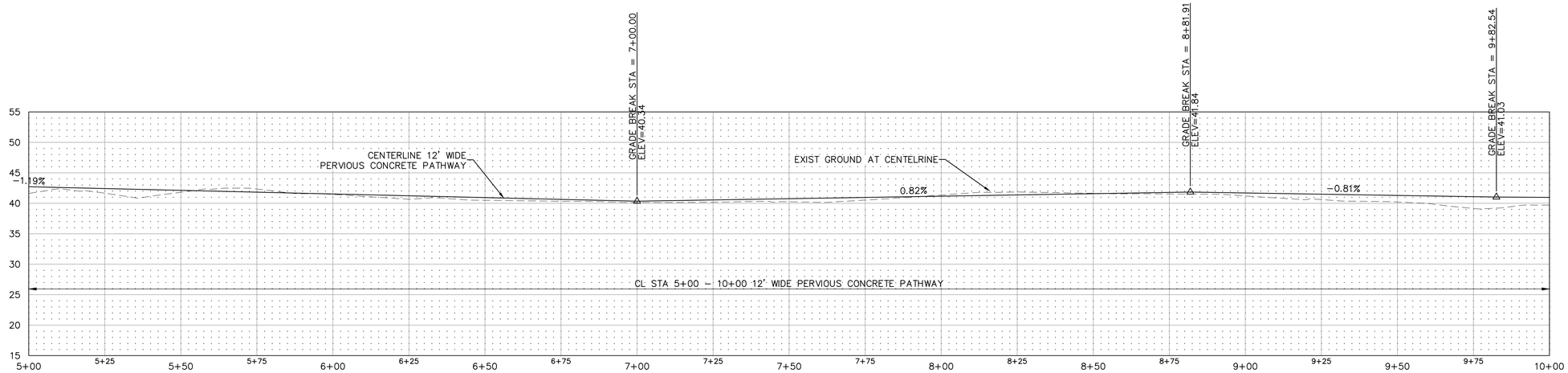



## EXIST LEGEND

- EXISTING RIGHT OF WAY (R/W)
- EXISTING PROPERTY LINE
- EDGE OF WATER
- VECO
- REGULATORY FLOODWAY
- 1% ANNUAL CHANCE FLOOD HAZARD
- EXISTING EASEMENT LINE
- MINOR CONTOUR LINE
- MAJOR CONTOUR LINE
- EXISTING STORM SEWER (SD)
- EXISTING OVERHEAD LINE (OL)
- EXISTING UNDERGROUND WATERLINE (W)
- EXISTING WATER VALVE
- EXISTING UTILITY POLE

## PROPOSED LEGEND

- PROPOSED LIGHT POLE
- PROPOSED BOARDWALK (12')
- PROPOSED PERVIOUS CONCRETE PATHWAY WITH 2' WIDE GRAVEL SHOULDER (12')
- PROPOSED DENSE MIX CONCRETE PATHWAY WITH 2' WIDE GRAVEL SHOULDER AND 2' WIDE FRENCH DRAIN (12', 2' FRENCH DRAIN)
- PROPOSED 1' – 3'± RETAINING WALL AS NEEDED




## TRAIL NORTH PROFILE

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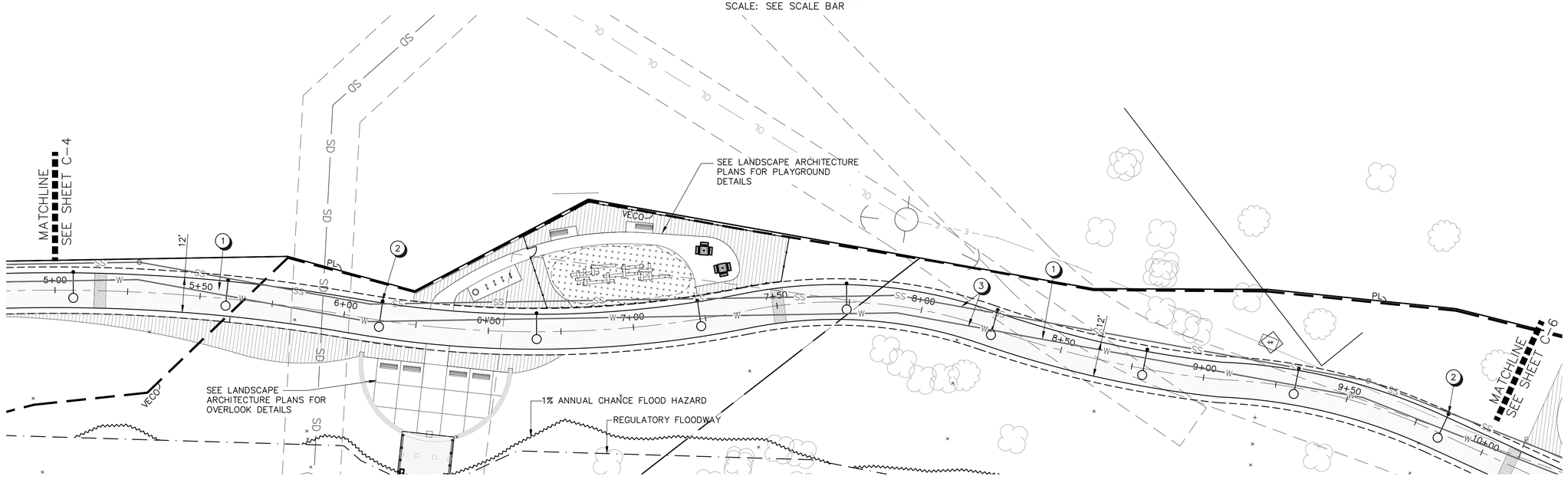


## KEY NOTES

1. 12' WIDE PERVIOUS CONCRETE PATHWAY, SEE PROFILE THIS SHEET, SEE TYPICAL SECTION DETAILS ON SHEET C–12, AND C–14
2. PROPOSED LIGHT POLE LOCATION, TYPICAL, SEE ELECTRICAL PLAN SHEETS
3. SEE COMPOSITE UTILITY PLAN SHEET C–7 FOR STORM, SEWER, AND WATER PLAN

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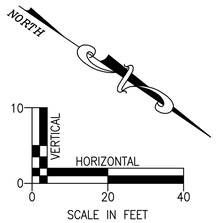
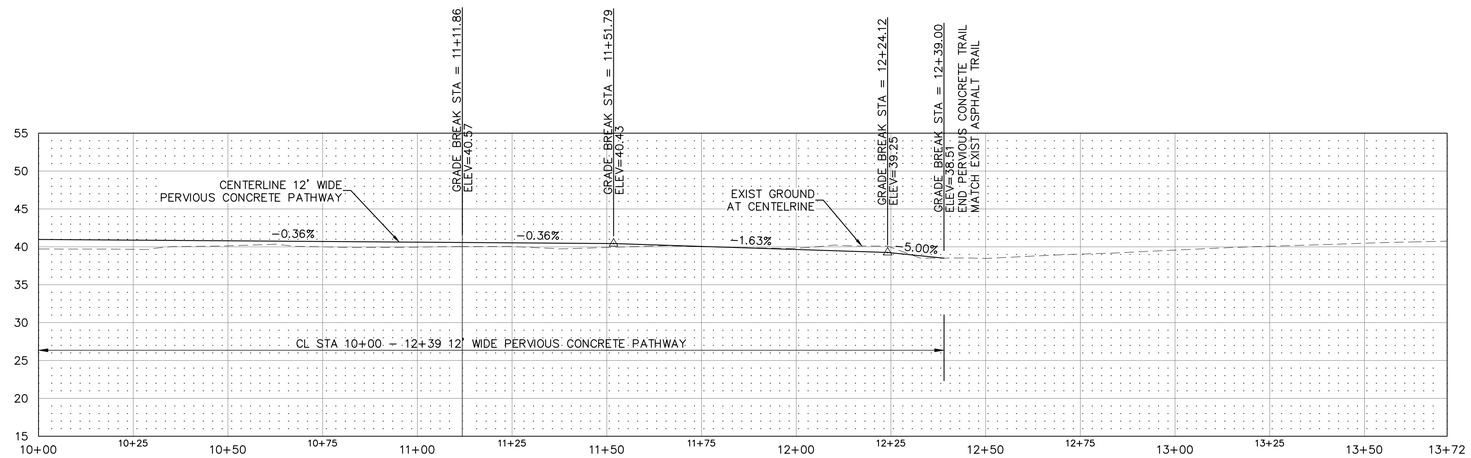



EXECUTING CONSTRUCTION WORK IN TREE PROTECTION ZONES

1. FOR EXISTING TREES REQUIRING PROTECTION, REFER TO ARBORIST'S REPORT PREPARED BY TERAGAN & ASSOCIATES ARBORICULTURAL CONSULTANTS.
2. ANY DEMOLITION OF PAVEMENT OR OTHER IMPROVEMENTS WITHIN THE CRITICAL ROOT ZONES SHALL OCCUR UNDER PROJECT ARBORIST SUPERVISION. HEAVY EQUIPMENT SHALL BE POSITIONED OUTSIDE THE CRITICAL ROOT ZONES AND CARE SHALL BE TAKEN NOT TO DISTURB THE EXISTING SOIL SURFACE WITHIN THE CRITICAL ROOT ZONES DURING DEMOLITION ACTIVITIES.
3. EXCAVATION WITHIN THE CRITICAL ROOT ZONES OF TREES TO BE RETAINED SHALL OCCUR UNDER PROJECT ARBORIST SUPERVISION AS FOLLOWS:
   - CAREFULLY EXCAVATE ADJACENT TO THE TREES BY PULLING SHALLOW LAYERS OF SOIL AWAY FROM THE TREES WITH THE PROJECT ARBORIST PROBING THE SOIL IN BETWEEN LAYER REMOVAL TO IDENTIFY ROOTS GREATER THAN 2-INCHES IN DIAMETER. IF ROOTS GREATER THAN 2-INCHES IN DIAMETER ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE HAND EXCAVATED AND RETAINED IN PLACED UNTIL THE FULL EXTENT OF STRUCTURAL ROOTS CAN BE DETERMINED.
   - IF THE PROJECT ARBORIST DETERMINES THAT CERTAIN ROOTS ARE NOT CRITICAL TO TREE HEALTH AND/OR STABILITY, THEY MAY BE APPROVED FOR REMOVAL WITH SHARP PRUNING EQUIPMENT.
   - IF THE ROOTS ARE CRITICAL TO TREE HEALTH AND/OR STABILITY, THE IMPROVEMENTS MAY NEED TO BE MODIFIED TO RETAIN THE CRITICAL ROOTS IF POSSIBLE AND APPROVED BY THE PROJECT TEAM.
   - IF MODIFYING THE IMPROVEMENTS IS NOT FEASIBLE, ADDITIONAL TREES MAY NEED TO BE REMOVED.
4. WHEN REPAVING OCCURS WITHIN THE TREE PROTECTION ZONES WHERE EXISTING PAVEMENT WAS REMOVED, REUSE OR CAREFULLY REPLACE THE EXISTING BASE ROCK MATERIALS UNDER PROJECT ARBORIST SUPERVISION WITHOUT EXCAVATING BELOW THE EXISTING NATIVE SOIL GRADE.
5. THE STUMPS OF TREES ARE TO BE REMOVED FROM WITHIN THE CRITICAL ROOT ZONES OF RETAINED TREES. STUMPS WILL NEED TO BE CAREFULLY GROUND OUT OR HAVE THEIR STRUCTURAL ROOTS CUT BEFORE PULLING WITH AN EXCAVATOR IN ORDER TO PROTECT THE ROOT SYSTEMS OF THE TREES TO BE RETAINED.
6. PROTECT TREE CROWNS BY MINIMIZING CONTACT OR OTHERWISE DAMAGE THE CROWNS OR BRANCHES OF RETAINED TREES THAT EXTEND OUTSIDE OF THE TREE PROTECTION ZONES.
7. CLEARANCE PRUNING OF CROWNS MAY BE REQUIRED FOR THE TREES DIRECTLY ADJACENT TO CONSTRUCTION. ALL PRUNING SHALL BE COMPLETED BY A QUALIFIED TREE SERVICE WITH AN ISA CERTIFIED ARBORIST ON SITE. ALL PRUNING SHALL BE IN ACCORDANCE WITH ANSI A300 PRUNING STANDARDS AND Z133.1 SAFETY STANDARDS. NO MORE THAN 20 PERCENT OF THE LIVE FOLIAGE OF A TREE SHOULD BE REMOVED IN ANY ONE GROWING SEASON AND THE LIVE CROWN SHALL COMPRISE AT LEAST THE TOP 50 PERCENT OF THE TOTAL TREE HEIGHT AFTER CLEARANCE PRUNING IS COMPLETE. THE PRUNING SHALL BE THE MINIMUM NEEDED TO ACHIEVE THE REQUIRED CLEARANCE.
8. ARBORIST OVERSIGHT ON SITE IS REQUIRED DURING THE PROPOSED DEMOLITION AND CONSTRUCTION FOR TREES #211, 213 AND #220.




TRAIL NORTH PROFILE

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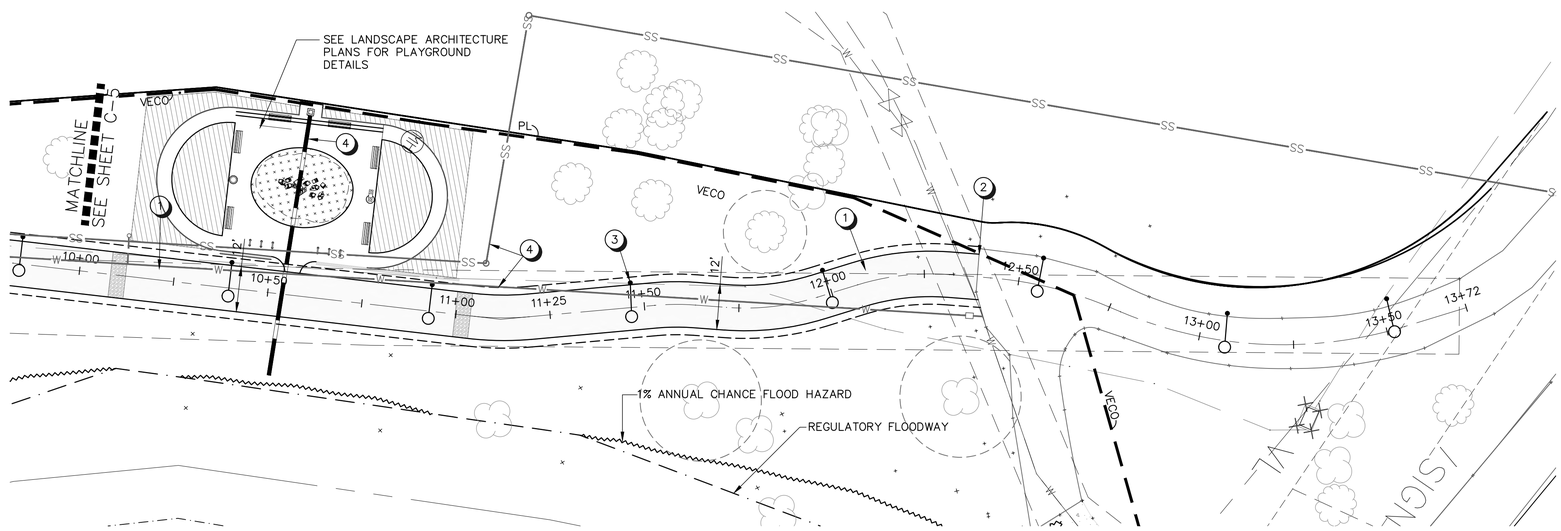


## KEY NOTES

1. 12' WIDE PERVIOUS CONCRETE PATHWAY, SEE PROFILE THIS SHEET, SEE TYPICAL SECTION DETAIL ON SHEETS C-12, AND C-14
2. END OF NEW TRAIL, CONNECT TO EXIST TRAIL
3. PROPOSED LIGHT POLE LOCATIONS, TYPICAL, SEE ELECTRICAL PLAN SHEETS
4. SEE COMPOSITE UTILITY PLAN SHEET C-7 FOR STORM, SEWER, AND WATER PLAN

## EXIST LEGEND

- EXISTING RIGHT OF WAY (R/W)
- EXISTING PROPERTY LINE
- EDGE OF WATER
- VECO
- REGULATORY FLOODWAY
- 1% ANNUAL CHANCE FLOOD HAZARD
- EXISTING EASEMENT LINE
- MINOR CONTOUR LINE
- MAJOR CONTOUR LINE
- EXISTING STORM SEWER (SD)
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Reliable Engineering Solutions
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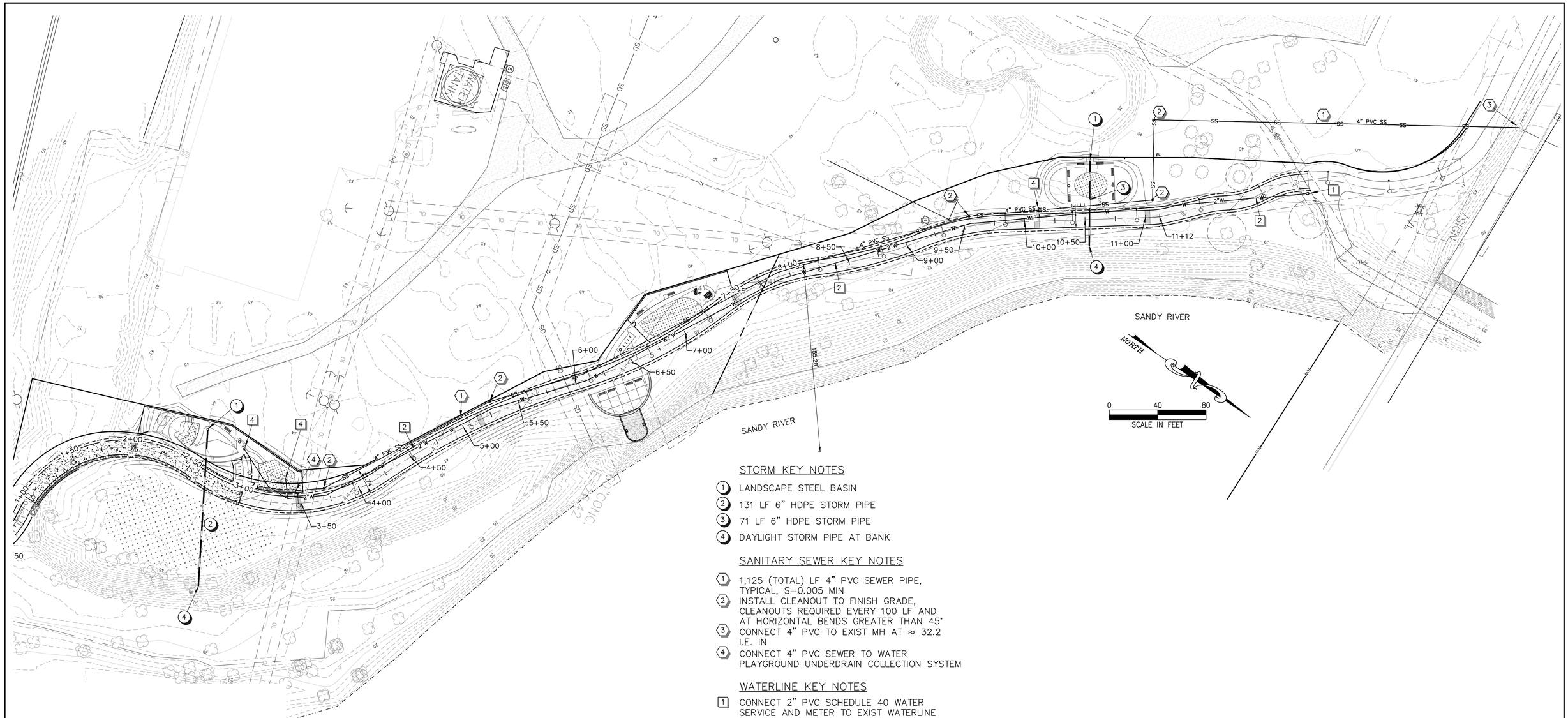


## STORM KEY NOTES

1. LANDSCAPE STEEL BASIN
2. 131 LF 6" HDPE STORM PIPE
3. 71 LF 6" HDPE STORM PIPE
4. DAYLIGHT STORM PIPE AT BANK

## SANITARY SEWER KEY NOTES

1. 1,125 (TOTAL) LF 4" PVC SEWER PIPE, TYPICAL, S=0.005 MIN
2. INSTALL CLEANOUT TO FINISH GRADE, CLEANOUTS REQUIRED EVERY 100 LF AND AT HORIZONTAL BENDS GREATER THAN 45°
3. CONNECT 4" PVC TO EXIST MH AT ≈ 32.2 I.E. IN
4. CONNECT 4" PVC SEWER TO WATER PLAYGROUND UNDERDRAIN COLLECTION SYSTEM

## WATERLINE KEY NOTES

1. CONNECT 2" PVC SCHEDULE 40 WATER SERVICE AND METER TO EXIST WATERLINE
2. 915 LF (TOTAL) 2" PVC WATERLINE
3. CONNECT WATERLINE TO PROPOSED PLAY STRUCTURE AND WATER FOUNTAIN
4. CONNECT TO PROPOSED WATER FOUNTAIN

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COMPOSITE UTILITY PLAN
SANDY RIVERFRONT TRAIL
473 E. Historic Columbia River Highway
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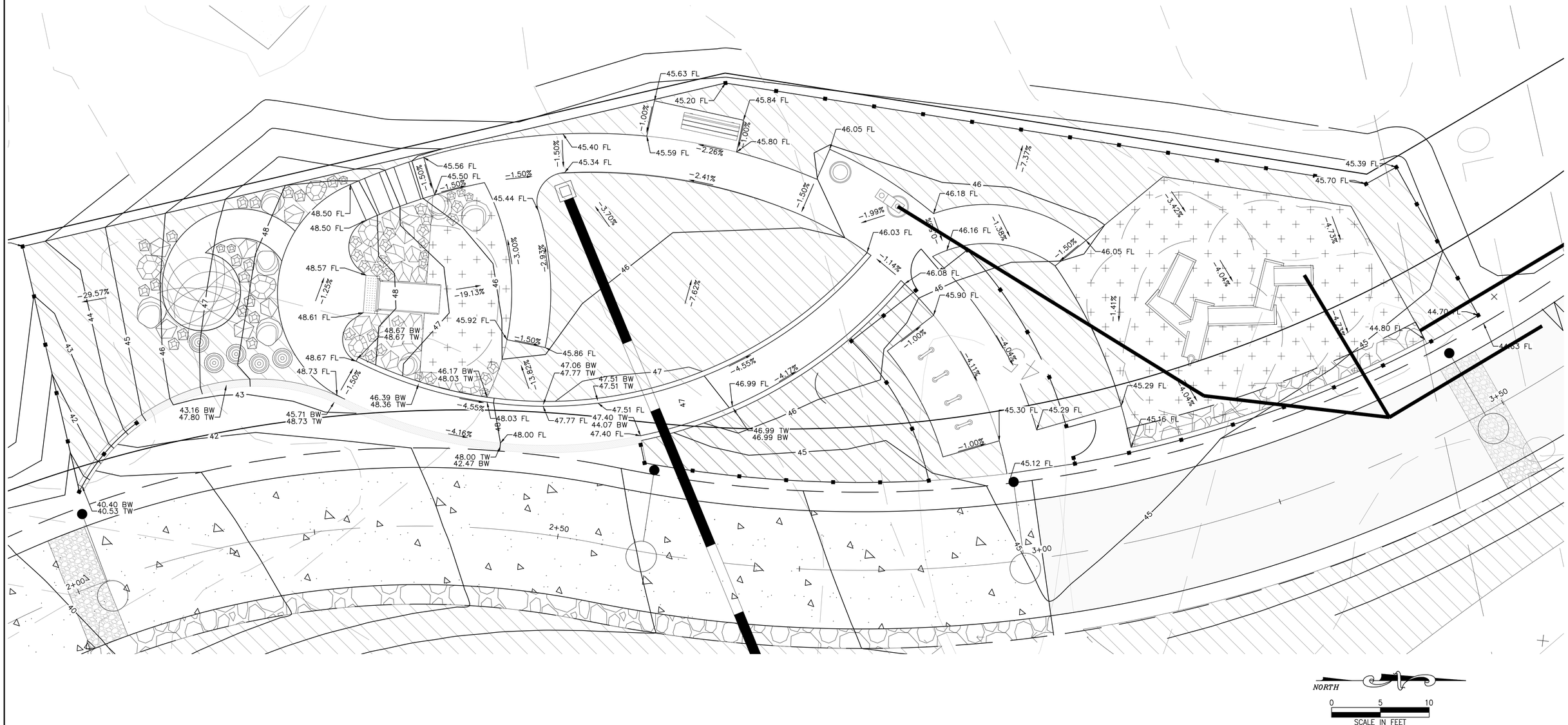


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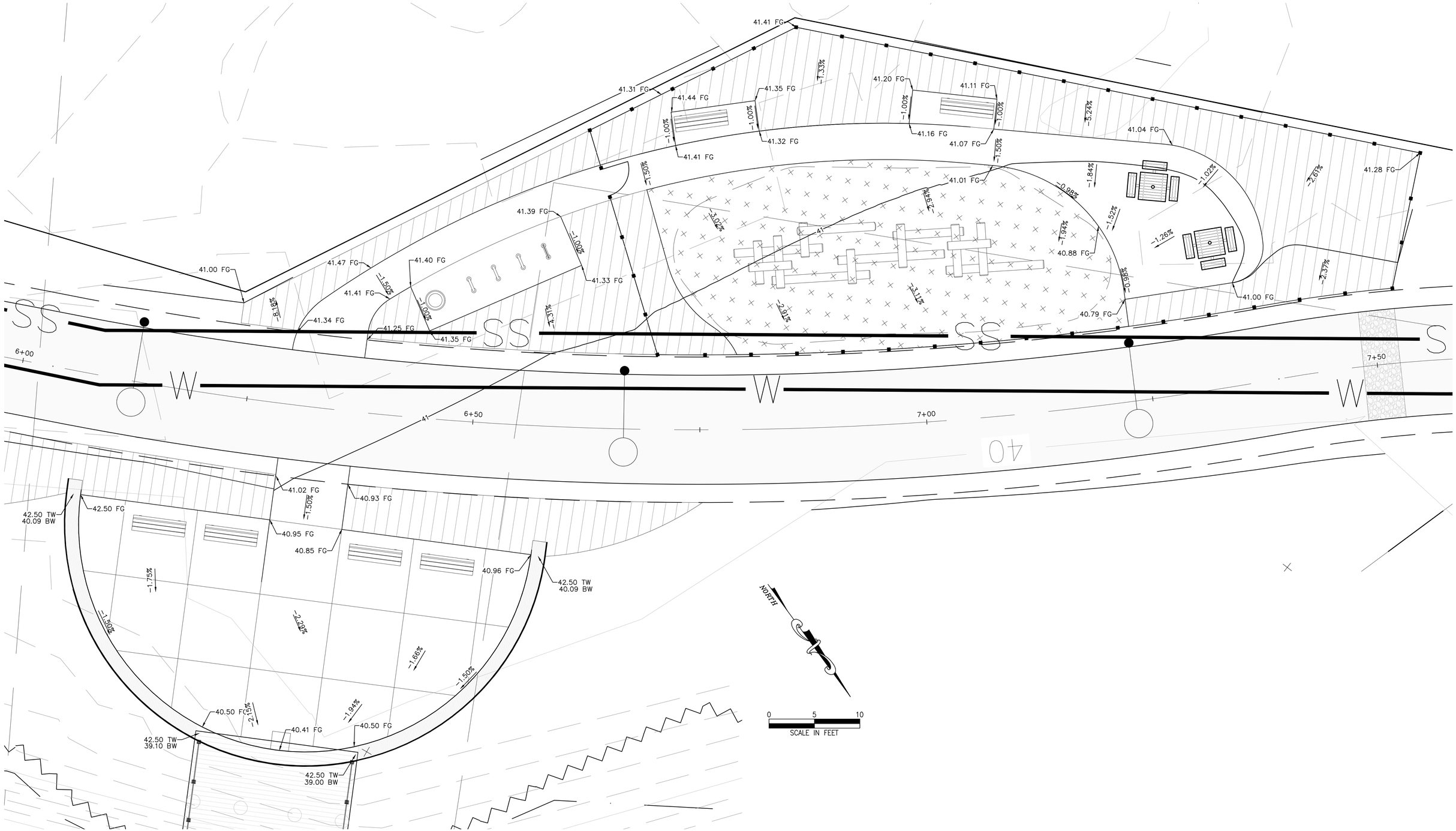
SPOT GRADING PLAN 1

SANDY RIVERFRONT TRAIL
473 E. Historic Columbia River Highway
Troutdale, Oregon 97060

C-8

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SPOT GRADING PLAN 2

SANDY RIVERFRONT TRAIL
473 E. Historic Columbia River Highway
Troutdale, Oregon 97060

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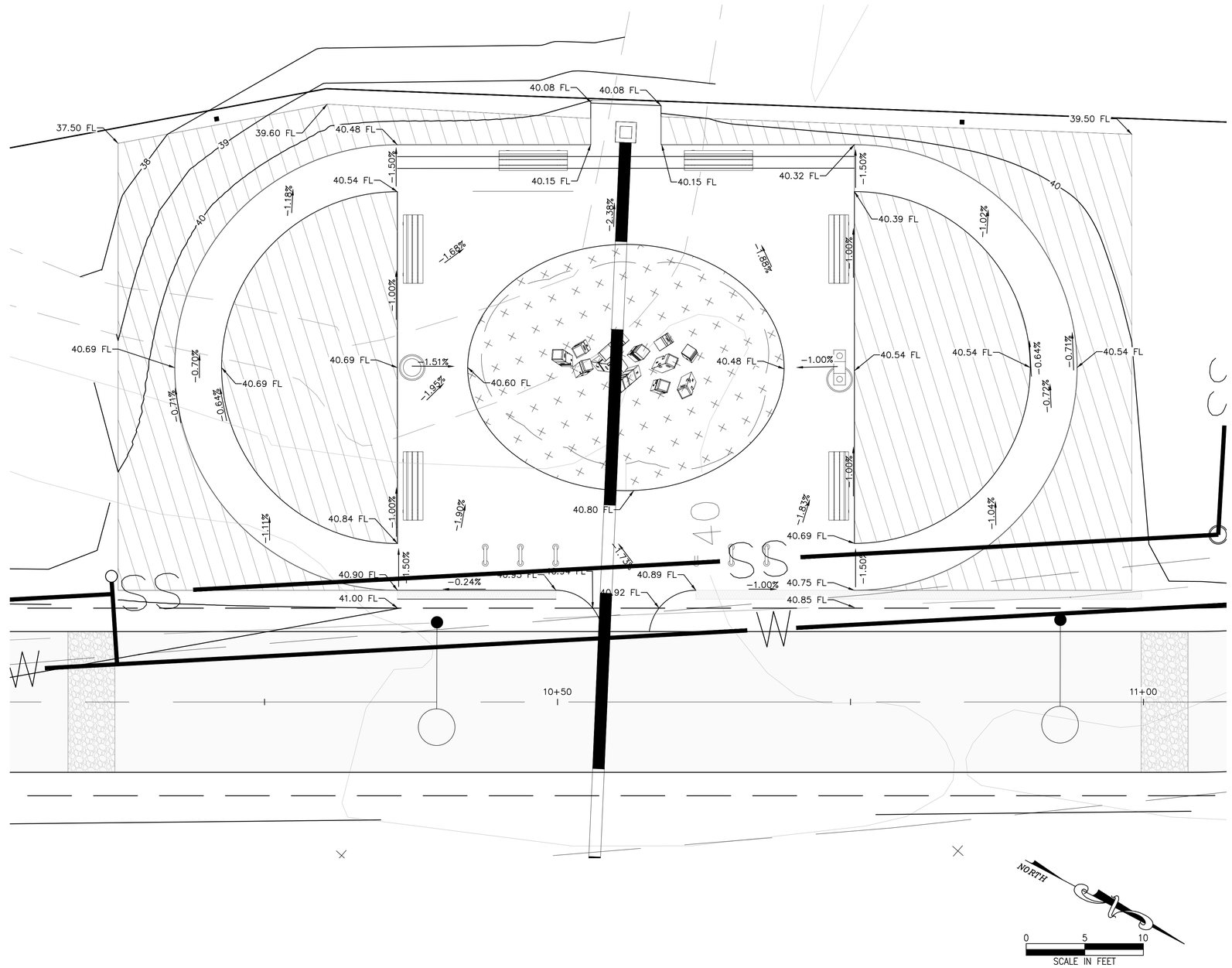


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SPOT GRADING PLAN 3

SANDY RIVERFRONT TRAIL
473 E. Historic Columbia River Highway
Troutdale, Oregon 97060

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## EROSION AND SEDIMENT CONTROL NOTES

### GENERAL :

ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE MOST CURRENT CITY OF TROUTDALE'S' EROSION AND SEDIMENT CONTROL STANDARDS, ORDINANCES & REFERENCED DOCUMENTS.

2. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM, ROADWAYS, OR VIOLATE APPLICABLE WATER STANDARDS.

3. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENT FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR EXPECTED STORM EVENTS AND TO ENSURE THE SEDIMENT LADEN WATER DOES NOT LEAVE THE SITE.

4. NO VISIBLE AND MEASURABLE SEDIMENT OR POLLUTANT SHALL EXIT THE SITE, ENTER THE PUBLIC RIGHT–OF–WAY, OR BE DEPOSITED INTO ANY WATER BODY OR STORM DRAINAGE SYSTEM.

5. ANY SOIL THAT ENTERS THE PUBLIC RIGHT–OF–WAY SHALL BE REMOVED WITHIN 24 HOURS.

6. CONTRACTOR SHALL PROVIDE ANY ADDITIONAL EROSION CONTROL MEASURES AS MAY BE REQUIRED TO MEET DEQ AND CITY OF CITY OF TROUTDALE'S' STANDARDS AS NECESSARY TO PREVENT SEDIMENT DISCHARGE FROM THE SITE.

7. ESC FACILITIES SHALL BE INSPECTED EVERY 24 HOURS DURING STORM OR RAIN EVENTS TO ENSURE THE MEASURES ARE FUNCTIONING PROPERLY.

8. PERMANENT OR TEMPORARY SOIL STABILIZATION MEASURES SHALL BE APPLIED TO DENUDED DEVELOPMENT SITES IN CONFORMANCE WITH THE FOLLOWING SCHEDULE:

a. BETWEEN OCTOBER 1 AND APRIL 30, ALL DENUDED SITES SHALL IMMEDIATELY BE PROVIDED WITH EITHER TEMPORARY OR PERMANENT SOIL STABILIZATION.
b. BETWEEN MAY 1 AND SEPTEMBER 30, TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES TO REDUCE DUST AND SEDIMENT TRANSPORT SHALL BE APPLIED AS SOON AS PRACTICABLE, BUT IN NO CASE MORE THAN SEVEN DAYS AFTER GROUND DISTURBING ACTIVITY OCCURS.
c. GROUND COVER SHALL BE INSTALLED ON ANY PORTION OF A SITE THAT IS DENUDED FOR MORE THAN 6 MONTHS.
d. TEMPORARY MEASURES SHALL BE MAINTAINED UNTIL PERMANENT MEASURES ARE ESTABLISHED.
e. STOCKPILES SHALL BE SECURED OR PROTECTED THROUGHOUT THE PROJECT WITH TEMPORARY OR PERMANENT SOIL STABILIZATION MEASURES.
f. EROSION CONTROL MEASURES SHALL BE MAINTAINED DURING CONSTRUCTION AND FOR 1 YEAR AFTER DEVELOPMENT IS COMPLETED (MAY BE REDUCED BY THE BUILDING OFFICIAL UPON FINDING THAT SOILS ARE COMPLETELY STABILIZED).

9. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING.

10. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE EVERY TWO WEEKS, OR WITHIN 24 HOURS FOLLOWING A STORM EVENT. DAILY INSPECTIONS SHALL BE PERFORMED DURING PROLONGED RAINFALL. LOG OF INSPECTIONS TO BE KEPT AVAILABLE AT THE SITE.

### SEDIMENT CONTROL FENCES :

1. AT NO TIME SHALL SEDIMENT BE ALLOWED TO ACCUMULATE BEHIND A SEDIMENT FENCE MORE THAN ONE–THIRD OF THE FENCE HEIGHT ABOVE GROUND. SEDIMENT SHOULD BE REMOVED OR REGRADED ONTO SLOPES, AND THE SEDIMENT FENCES REPAIRED AND REESTABLISHED AS NEEDED.

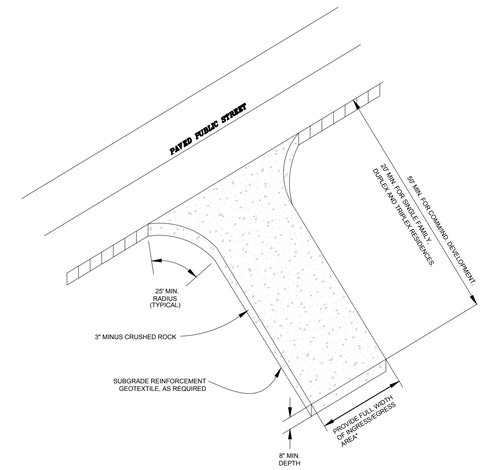
2. FENCE SHALL BE REMOVED ONLY WHEN UPSLOPE AREAS ARE PERMANENTLY STABILIZED.

### GRAVEL CONSTRUCTION ENTRANCES :

1. STABILIZED CONSTRUCTION ENTRANCE(S) SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

2. ALL VEHICLES LEAVING THE SITE SHALL LEAVE BY DRIVING ACROSS THE GRAVEL CONSTRUCTION ENTRANCE(S) IF GRAVEL ENTRANCE BECOME FILLED WITH MUD AND IS NO LONGER FUNCTIONAL, ADDITIONAL GRAVEL SHALL BE PLACED. VEHICLE TIRES SHALL BE FREE FROM DIRT BEFORE LEAVING THE SITE.

3. IF ACCESS IS NEEDED FROM A PAVED SURFACE OVER A CURB TO A GRAVEL SITE ENTRANCE. A WOODEN RAMP SHALL BE BUILT FROM THREE OR MORE PLANKS OF INCREASING SIZE WOOD, OFFSET TO ALLOW FOR DRAINAGE. NO GRAVEL OR ROAD BASE RAMPS ALLOWED.

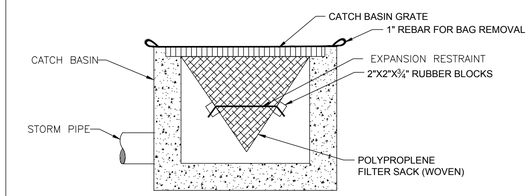



GENERAL NOTES

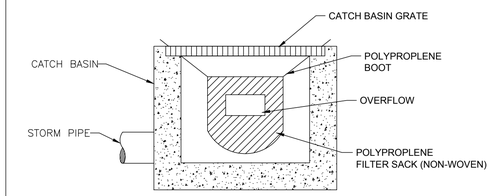
1. A CONSTRUCTION ENTRANCE MUST BE PROVIDED AT ANY CONSTRUCTION SITE WHERE TRAFFIC WILL BE LEAVING THE SITE AND MOVING DIRECTLY ONTO PUBLIC ROADS OR OTHER PAVED AREAS.
2. ADDITIONAL GRAVEL (OR LARGER CRUSHED ROCK AS REQUIRED) MAY HAVE TO BE ADDED PERIODICALLY TO MAINTAIN PROPER FUNCTION OF THE PAD.

| CITY OF TROUTDALE | |
|---|---|
| *GRAVEL CONSTRUCTION ENTRANCE* | |
| DATE: UPDATED 1997 | DRAWING NO: II-26 |

FILENAME: APWA0133.DWG



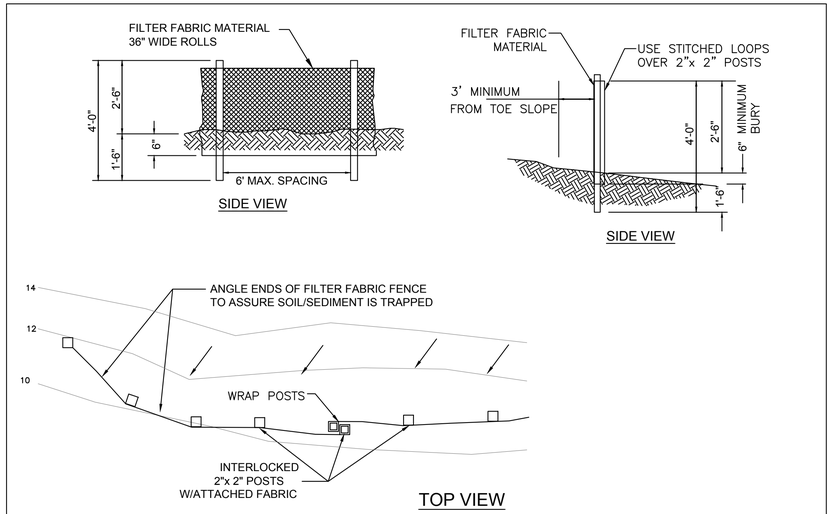

WOVEN POLYPROPLENE SACK




NON-WOVEN POLYPROPLENE SACK

NOTE:
1. RECESSED CURB INLET CATCH BASINS MUST BE BLOCKED WHEN USING FILTER FABRIC INLET SACKS. SIZE OF FILTER FABRIC INLET SACKS TO BE DETERMINED BY MANUFACTURER.

| INLET PROTECTION TYPE 5 | Detail Drawing 4–25 |
|---|---|




TEMPORARY SEDIMENT FENCE

N.T.S.

7/20/2021 1:09:10 PM BRAD-PC s:\project files\projects\e19-041 troutdale sandy river waterfront trail\cad\sheets\e19-041 erosion control notes and details.dwg

| DATE: | NO. | REVISION: |
|---|---|---|

DRAWN: CLW | DESIGNED: MH | CHECKED: MH

SCALE: AS SHOWN | DATE: 05.06.2021

PROECT NO: 19.13

PACKAGE TITLE: 60% SET

REGISTERED PROFESSIONAL ENGINEER 67149PE OREGON Nov. 14, 2003 KELLY A. GROVER

EXPIRES: 06/30/23

SIGNATURE DATE:

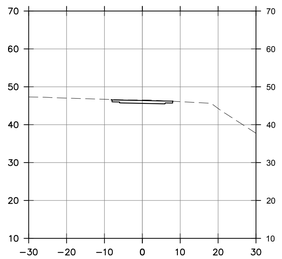
NOT FOR CONSTRUCTION

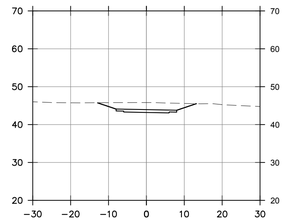

FIRWOOD DESIGN GROUP
Reliable Engineering Solutions
359 EAST HISTORIC COLUMBIA RIVER HIGHWAY
TROUTDALE, OREGON 97060
(503) 668-3737

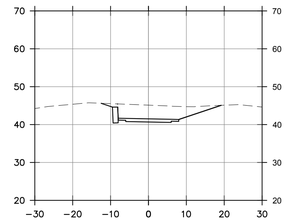

CITY OF TROUTDALE
219 E. Historic Columbia River Highway
Troutdale, Oregon 97060

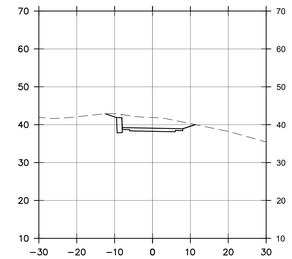
EROSION CONTROL NOTES AND DETAILS
SANDY RIVERFRONT TRAIL
473 E. Historic Columbia River Highway
Troutdale, Oregon 97060

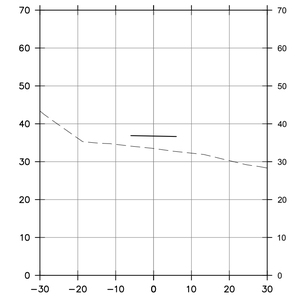
C-11

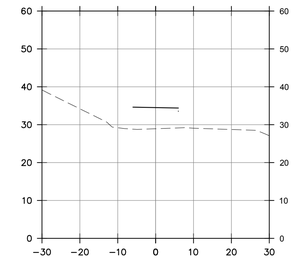


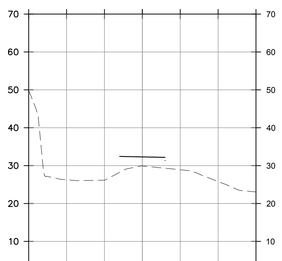



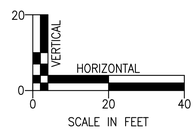



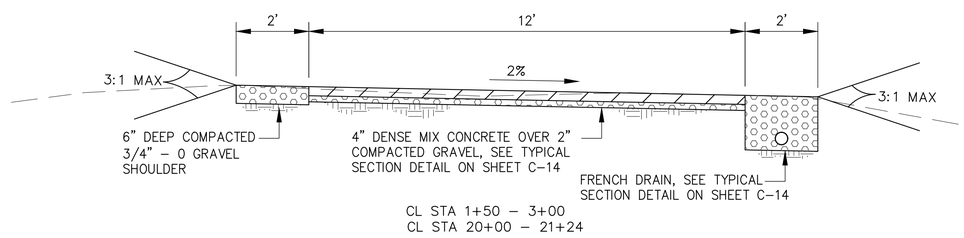



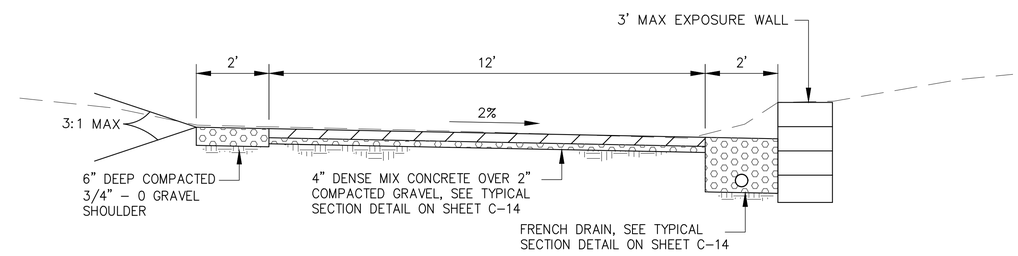



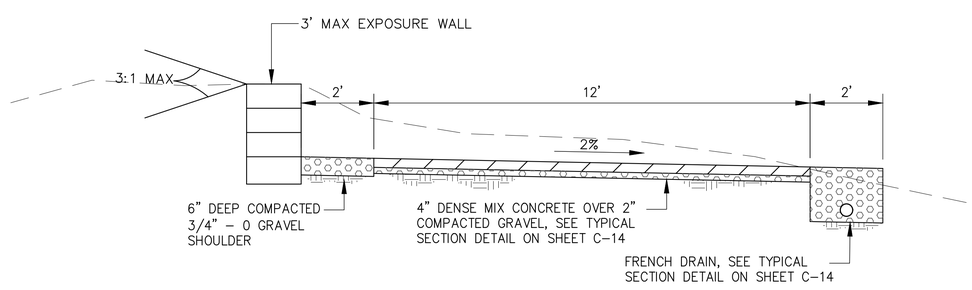



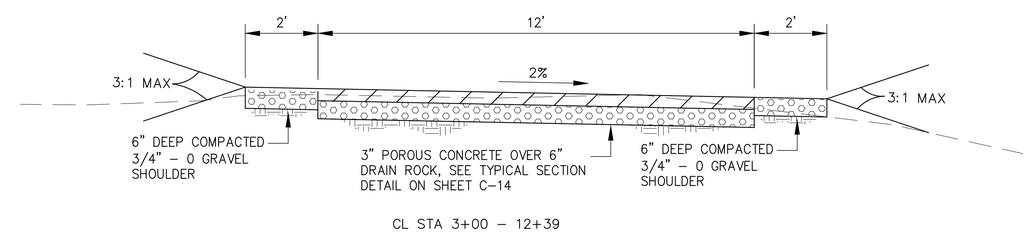




TYPICAL SECTION DETAILS
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7/20/2021 1:09:40 PM BRAD-PC s:\project files\projects\e19-041 troutdale sandy river waterfront trail\cad\sheets\e19-041 xsections 2.dwg

| DATE: | NO. | REVISION: |
|---|---|---|

DRAWN: CLW | DESIGNED: MH | CHECKED: MH
SCALE: AS SHOWN | DATE: 05.06.2021
PROECT NO: 19.13
PACKAGE TITLE: 60% SET

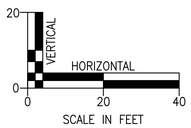
REGISTERED PROFESSIONAL ENGINEER 67149PE OREGON JULY 14, 2003 KELLY A. GROVER
EXPIRES: 06/30/23
SIGNATURE DATE:
NOT FOR CONSTRUCTION

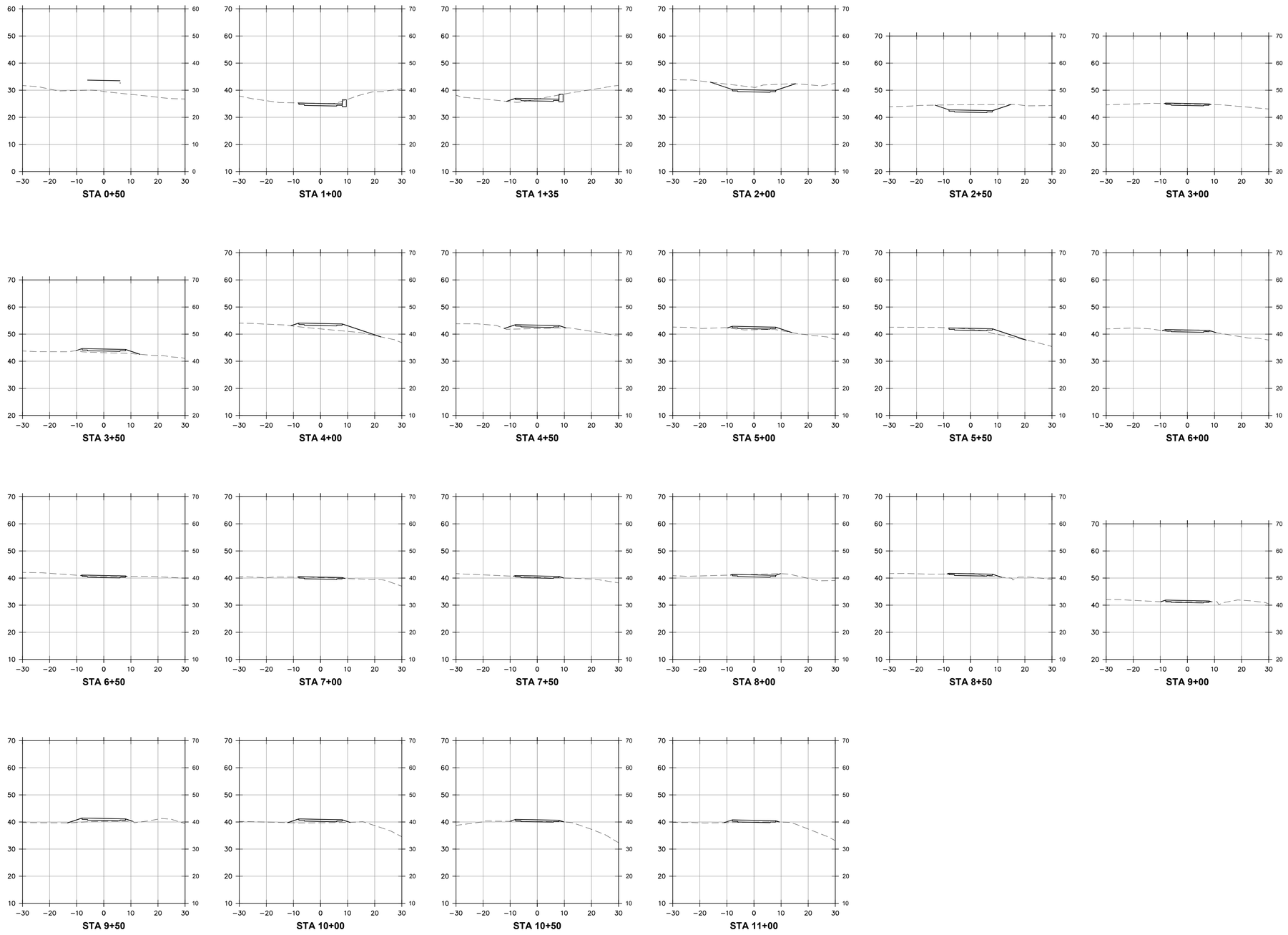
FIRWOOD DESIGN GROUP
Reliable Engineering Solutions
359 EAST HISTORIC COLUMBIA RIVER HIGHWAY
TROUTDALE, OREGON 97060
(503) 668-3737

CITY OF TROUTDALE
219 E. Historic Columbia River Highway
Troutdale, Oregon 97060

SOUTH TRAIL CROSS SECTIONS
SANDY RIVERFRONT TRAIL
473 E. Historic Columbia River Highway
Troutdale, Oregon 97060

C-12

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| | | |
|---|---|---|
| DATE: | NO. | REVISION: |

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PROECT NO: 19.13

PACKAGE TITLE: 60% SET

REGISTERED PROFESSIONAL ENGINEER 67149PE OREGON JULY 14, 2003 KEVIN A. GROVER
NOT FOR CONSTRUCTION
EXPIRES: 06/30/23
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219 E. Historic Columbia River Highway
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NORTH TRAIL CROSS SECTIONS
SANDY RIVERFRONT TRAIL
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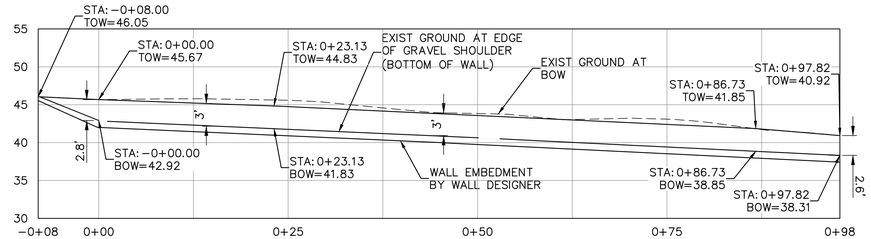
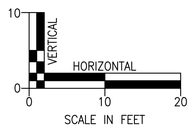
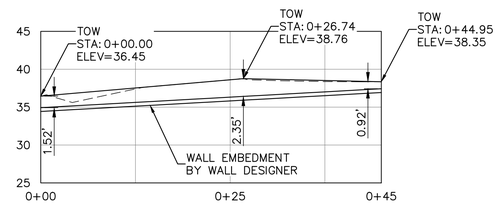



SOUTH WALL PROFILE
SCALE: SEE SCALE BAR




NORTH WALL PROFILE
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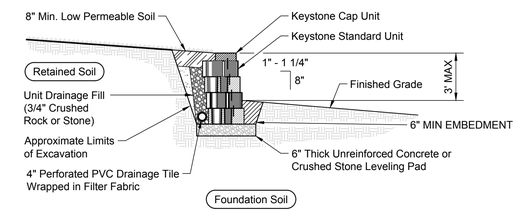
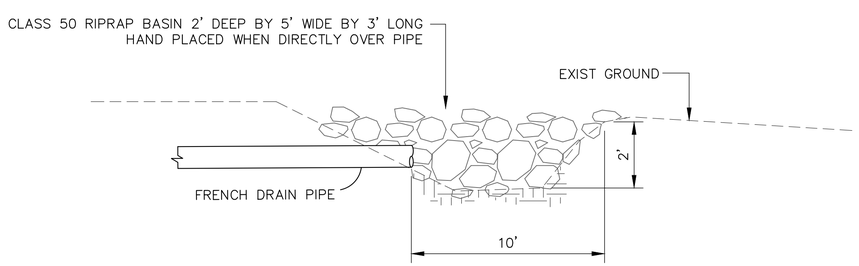



Typical Gravity Wall Section
Standard Unit - 1" Setback




OUTFALL BASIN DETAIL
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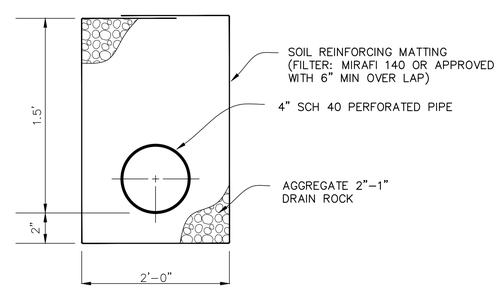


FRENCH DRAIN
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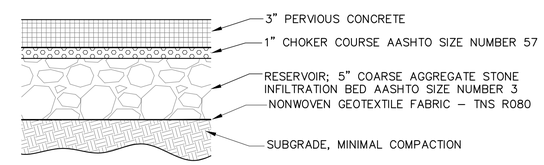


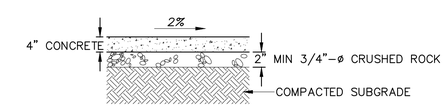

PERVIOUS CONCRETE DETAIL
SCALE: NTS

PERVIOUS CONCRETE CONSTRUCTION MANAGEMENT NOTES:

1. NO CONSTRUCTION TRAFFIC, CONSTRUCTION STAGING, OR VEHICLES ASSOCIATED WITH CONSTRUCTION ALLOWED ON PERVIOUS CONCRETE. WHERE CONSTRUCTION ACCESS, STAGING, OR PARKING IS REQUIRED ON PERVIOUS CONCRETE TRAIL, PERVIOUS PAVEMENT SHALL BE PROTECTED WITH PLACEMENT OF NON WOVEN GEOTEXTILE FABRIC (US 380 NW) AND PLYWOOD OVER THE ENTIRE LENGTH OF THE TRAIL PRIOR TO CONSTRUCTION USE
2. PERVIOUS CONCRETE DRIVE TO BE BLOCKED/BARRICADED AFTER PERVIOUS PAVEMENT IS CONSTRUCTED. BARRICADES ARE NOT REQUIRED WHERE PAVEMENT IS PROTECTED IN ACCORDANCE WITH CONSTRUCTION MANAGEMENT NOTE 1

NOTE:

ACI SPEC. 522.1–13 PERVIOUS CONCRETE SPECIFICATIONS SHALL BE ADHEARD TO




DENSE MIX CONCRETE PATHWAY SECTION
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SCALE: AS SHOWN | DATE: 05.06.2021
PROECT NO: 19.13
PACKAGE TITLE: 60% SET

REGISTERED PROFESSIONAL ENGINEER 67149PE OREGON JULY 14, 2003 KELLY A. GROVER
NOT FOR CONSTRUCTION
EXPIRES: 06/30/23
SIGNATURE DATE:

FIRWOOD DESIGN GROUP
Reliable Engineering Solutions
359 EAST HISTORIC COLUMBIA RIVER HIGHWAY
TROUTDALE, OREGON 97060
(503) 668-3737

CITY OF TROUTDALE
219 E. Historic Columbia River Highway
Troutdale, Oregon 97060

DETAILS 1
SANDY RIVERFRONT TRAIL
473 E. Historic Columbia River Highway
Troutdale, Oregon 97060

C-14

# PLANT SCHEDULE

| TREES | CODE | BOTANICAL / COMMON NAME | SIZE | QTY |
|---|---|---|---|---|
| | ACMA | ACER MACROPHYLLUM<br>BIGLEAF MAPLE | 2" CAL., MIN, | 9 |
| | COKN | CORNUS KOUSA X NUTTALLII<br>STARLIGHT KOUSA DOGWOOD | 1.5" CAL., MIN. | 2 |
| | PSME | PSEUDOTSUGA MENZIESII<br>DOUGLAS FIR | 5-6` HT. MIN, | 34 |
| | QUGA | QUERCUS GARRYANA<br>OREGON OAK | 2" CAL., MIN. | 8 |
| | SALU | SALIX LUCIDA LASIANDRA<br>PACIFIC WILLOW | 2" CAL., MIN. | 11 |

| SHRUB PLANTING | CODE | BOTANICAL / COMMON NAME | SIZE | QTY | SPACING |
|---|---|---|---|---|---|
| | COSE | CORNUS SERICEA `KELSEYII<br>KELSEY REDTWIG DOGWOOD | | | |
| | DEGR | DEUTZIA GRACILIS `NIKKO`<br>SLENDER DEUTZIA | | | |
| | ITVI | ITEA VIR. `HENRY`S GARNET`<br>HENRY`S GARNET SWEETSPIRE | | | |
| | LOPI | LONICERA PILEATA<br>PRIVET HONEYSUCKLE | | | |
| | MAAQ | MAHONIA AQU. `COMPACTA`<br>COMPACT OREGON GRAPE | | | |
| | MARE | MAHONIA REPENS<br>CREEPING MAHONIA | | | |
| | SEAU | SESLERIA AUTUMNALIS<br>AUTUMN MOOR GRASS | | | |
| | RONO | ROSA X 'NOAMEL'<br>FLOWER CARPET ROSE | | | |
| | SPBE | SPIRAEA BETULIFOLIA `TOR`<br>TOR BIRCHLEAF SPIRAEA | | | |
| | SPBU | SPIRAEA X `MAGIC CARPET`<br>MAGIC CARPET SPIRAEA | | | |

| RESTORATION PLANTING | CODE | BOTANICAL / COMMON NAME | SIZE | QTY | SPACING |
|---|---|---|---|---|---|
| | ACCI | ACER CIRCINATUM<br>VINE MAPLE | | | |
| | COSE | CORNUS SERICEA<br>REDTWIG DOGWOOD | | | |
| | GASH | GAULTHERIA SHALLON<br>SALAL | | | |
| | LOIN | LONICERA INVOLUCRATA<br>TWINBERRY | | | |
| | MARE | MAHONIA REPENS<br>CREEPING MAHONIA | | | |
| | PHCA | PHYSOCARPUS CAPITATUS<br>PACIFIC NINEBARK | | | |
| | RISA | RIBES SANGUINEUM<br>RED FLOWERING CURRANT | | | |
| | ROGY | ROSA GYMNOCARPA<br>DWARF ROSE | | | |
| | SASC | SALIX SCOULERIANA<br>SCOULER`S WILLOW | | | |
| | SPDO | SPIRAEA DOUGLASII<br>WESTERN SPIREA | | | |
| | SYAL | SYMPHORICARPOS ALBUS<br>COMMON WHITE SNOWBERRY | | | |
| | VAOV | VACCINIUM OVATUM<br>EVERGREEN HUCKLEBERRY | | | |

NOTE:
RESTORATION PLANTING INCLUDES REMOVAL OF INVASIVE SPECIES AND POCKET PLANTING IN CLEARED AREAS. RESTORATION AREAS WILL NOT BE CLEARED AND GRUBBED OR IRRIGATED.

| WILDFLOWER SEEDING (MEADOW)* | BOTANICAL / COMMON NAME | PERCENTAGE OF MIX |
|---|---|---|
| | ACHIILLEA MILLEFOLIUM<br>WESTERN YARROW | 10% |
| | BROMUS CARINATUS<br>CALIFORNIA BROME | 20% |
| | CLARKIA AMOENA<br>FAREWELL TO SPRING | 10% |
| | ESCHSCHOLZIA CALIFORNICA<br>CALIFORNIA POPPY | 10% |
| | HORDEUM BRACHYANTHERUM<br>MEADOW BARLEY | 20% |
| | LUPINUS RIVULARIS<br>STREAMBANK LUPINE | 10% |
| | NEMOPHILA MENZIESII<br>BABY BLUE EYES | 10% |
| | PRUNELLA V. LANCEOLATA<br>LANCE SELF-HEAL | 10% |

* SEEDING RATE:
2 POUNDS PER 1,000 SF OR 80 POUNDS PER ACRE.

| DATE: | NO. | REVISION: |
|---|---|---|

DRAWN: CLW | DESIGNED: MHZ | CHECKED: MHZ
SCALE: AS SHOWN | DATE: 07.13.2021
PROJECT NO: 19.13
PACKAGE TITLE: 60% SET

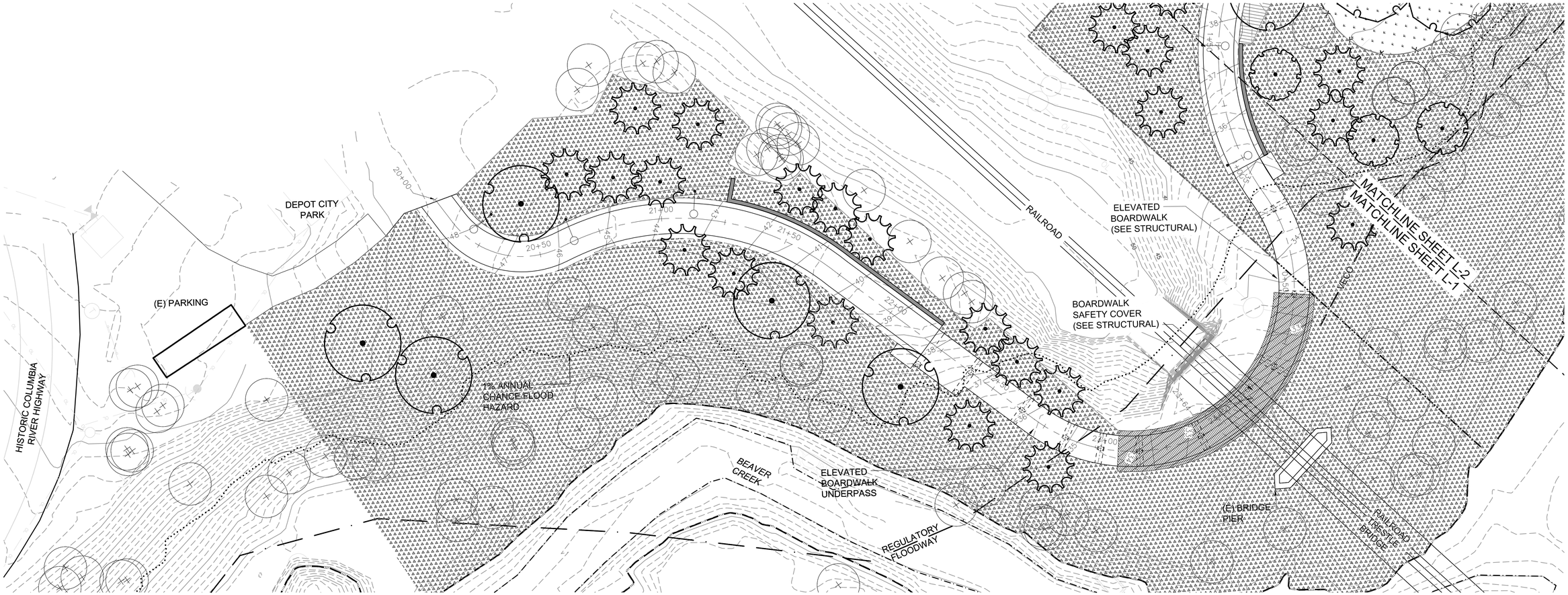
STAMP: REGISTERED 396 Marianne Zarkin OREGON 5/8/98 LANDSCAPE ARCHITECT
NOT FOR CONSTRUCTION

CONSULTANT:
Marianne Zarkin LANDSCAPE ARCHITECTS
mzla
1326 NE 63rd AVE.
Portland, OR 97213
c. 503.758.3131
o. 503.802.0031
MARIANNE ZARKIN, ASLA
marianne@mz-la.com

CLIENT:
CITY OF TROUTDALE
219 E. Historic Columbia River Highway
Troutdale, Oregon 97060

PROJECT:
SANDY RIVERFRONT TRAIL
473 E. Historic Columbia River Highway
Troutdale, Oregon 97060

SHEET:
PLANT SCHEDULE
L-0




1 L-1 LANDSCAPE PLAN

SCALE: 1" = 20'-0"

0 10 20 40 FEET

N

## LEGEND

- OHW (ORDINARY HIGH WATER MARK)
- REGULATORY FLOODWAY
- 1% ANNUAL CHANCE FLOOD HAZARD
- VECO (VEGETATION CORRIDOR)
- PROPERTY LINE
- EXISTING TREE TO REMAIN AND PROTECT* NO TREES DESIGNATED TO BE PROTECTED SHALL BE REMOVED WITHOUT PRIOR APPROVAL AND PERMISSION BY THE PROJECT ARBORIST.
- PROPOSED TREES REFER TO SHEET L-0 FOR PLANT SCHEDULE
- ORNAMENTAL SHRUB AREA - FULLY IRRIGATED REFER TO SHEET L-0 FOR PLANT SCHEDULE
- MEADOW SEED AREA - FULLY IRRIGATED REFER TO SHEET L-0 FOR PLANT SCHEDULE
- RESTORATION / MITIGATION AREA REFER TO SHEET L-0 FOR PLANT SCHEDULE
- RUBBERIZED PLAYGROUND SAFETY SURFACING SEE DETAIL 7/L-8
- PLAYGROUND FENCING - SEE DETAIL 3/L-9
- SPLIT RAIL FENCING - 42" HT
- BENCH
- PICNIC TABLE
- BIKE PARKING
- DRINKING FOUNTAIN - SEE DETAIL 6/L-8
- TRASH RECEPTACLE

* FOR EXISTING TREES REQUIRING PROTECTION, REFER TO ARBORIST'S REPORT PREPARED BY TERAGAN & ASSOCIATES ARBORICULTURAL CONSULTANTS DATED 5.12.2020.

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KEY PLAN
Not to Scale

| DATE: | NO. | REVISION: |
|---|---|---|

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PROJECT NO: 19.13

PACKAGE TITLE: 60% SET

STAMP: REGISTERED LANDSCAPE ARCHITECT OREGON 396 Marianne Zarkin 5/8/98 — NOT FOR CONSTRUCTION

CONSULTANT:

Marianne Zarkin LANDSCAPE ARCHITECTS
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MARIANNE ZARKIN, ASLA
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CLIENT:

CITY OF TROUTDALE
219 E. Historic Columbia River Highway
Troutdale, Oregon 97060

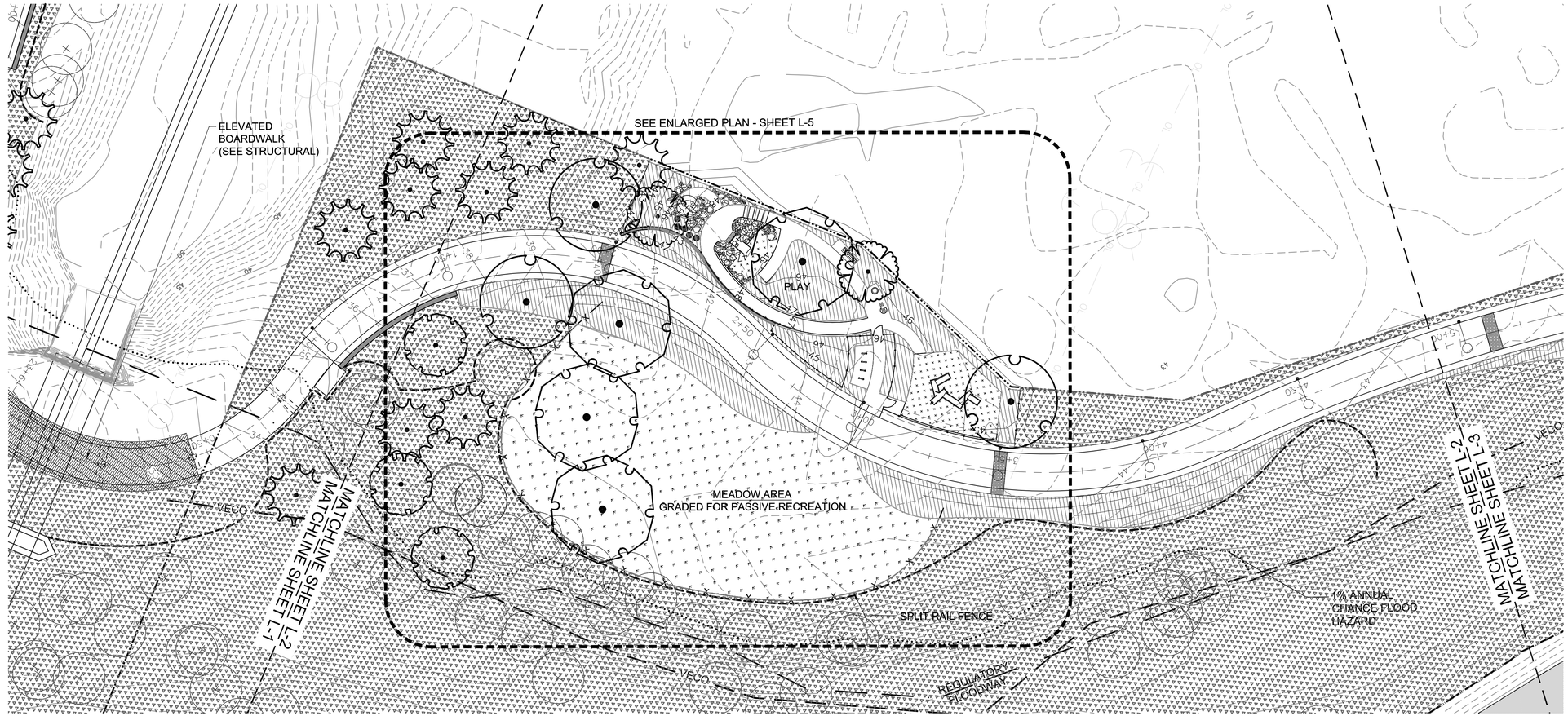
PROJECT:

SANDY RIVERFRONT TRAIL
473 E. Historic Columbia River Highway
Troutdale, Oregon 97060

SHEET:

LANDSCAPE PLAN

L-1




1
L-2
## LANDSCAPE PLAN

### LEGEND

- OHW (ORDINARY HIGH WATER MARK)
- REGULATORY FLOODWAY
- 1% ANNUAL CHANCE FLOOD HAZARD
- VECO (VEGETATION CORRIDOR)
- PROPERTY LINE
- EXISTING TREE TO REMAIN AND PROTECT* NO TREES DESIGNATED TO BE PROTECTED SHALL BE REMOVED WITHOUT PRIOR APPROVAL AND PERMISSION BY THE PROJECT ARBORIST.
- PROPOSED TREES REFER TO SHEET L-0 FOR PLANT SCHEDULE
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- MEADOW SEED AREA - FULLY IRRIGATED REFER TO SHEET L-0 FOR PLANT SCHEDULE
- RESTORATION / MITIGATION AREA REFER TO SHEET L-0 FOR PLANT SCHEDULE
- RUBBERIZED PLAYGROUND SAFETY SURFACING SEE DETAIL 7/L-8
- PLAYGROUND FENCING - SEE DETAIL 3/L-9
- SPLIT RAIL FENCING - 42" HT
- BENCH
- PICNIC TABLE
- BIKE PARKING
- DRINKING FOUNTAIN - SEE DETAIL 6/L-8
- TRASH RECEPTACLE

* FOR EXISTING TREES REQUIRING PROTECTION, REFER TO ARBORIST'S REPORT PREPARED BY TERAGAN & ASSOCIATES ARBORICULTURAL CONSULTANTS DATED 5.12.2020.

N
## KEY PLAN
Not to Scale

| DATE: | NO. | REVISION: |
|---|---|---|

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SCALE: AS SHOWN | DATE: 07.13.2021
PROJECT NO: 19.13
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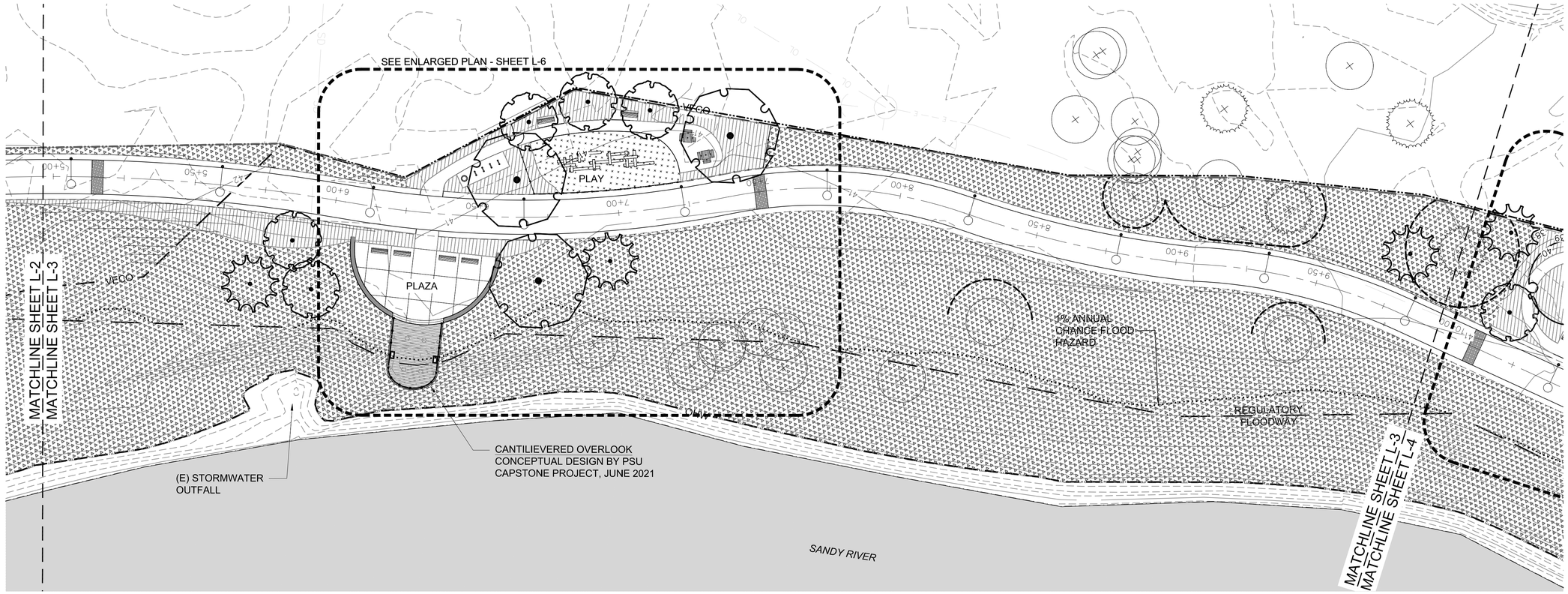
SHEET:
LANDSCAPE PLAN
L-2




1
L-3

# LANDSCAPE PLAN

0 10 20 40 FEET
SCALE: 1" = 20'-0"

## LEGEND

- OHW — OHW (ORDINARY HIGH WATER MARK)
- REGULATORY FLOODWAY
- 1% ANNUAL CHANCE FLOOD HAZARD
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- RUBBERIZED PLAYGROUND SAFETY SURFACING SEE DETAIL 7/L-8
- PLAYGROUND FENCING - SEE DETAIL 3/L-9
- SPLIT RAIL FENCING - 42" HT
- BENCH
- PICNIC TABLE
- BIKE PARKING
- DRINKING FOUNTAIN - SEE DETAIL 6/L-8
- TRASH RECEPTACLE

N
KEY PLAN
Not to Scale

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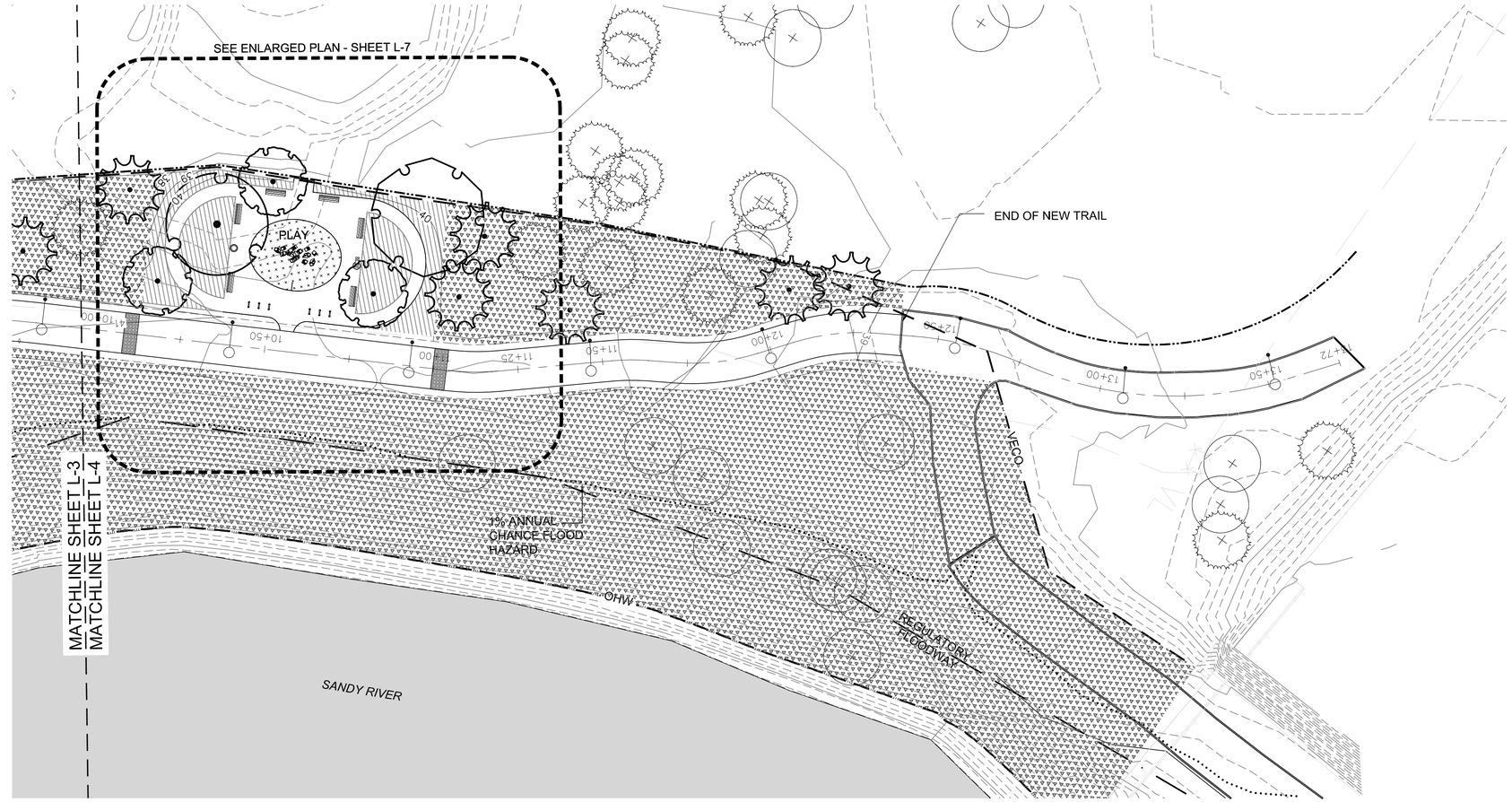
SHEET:
LANDSCAPE PLAN
L-3




1 L-4 LANDSCAPE PLAN

## LEGEND

- OHW — OHW (ORDINARY HIGH WATER MARK)
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N

KEY PLAN
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SHEET:
LANDSCAPE PLAN
L-4

## LEGEND

- OHW — OHW (ORDINARY HIGH WATER MARK)
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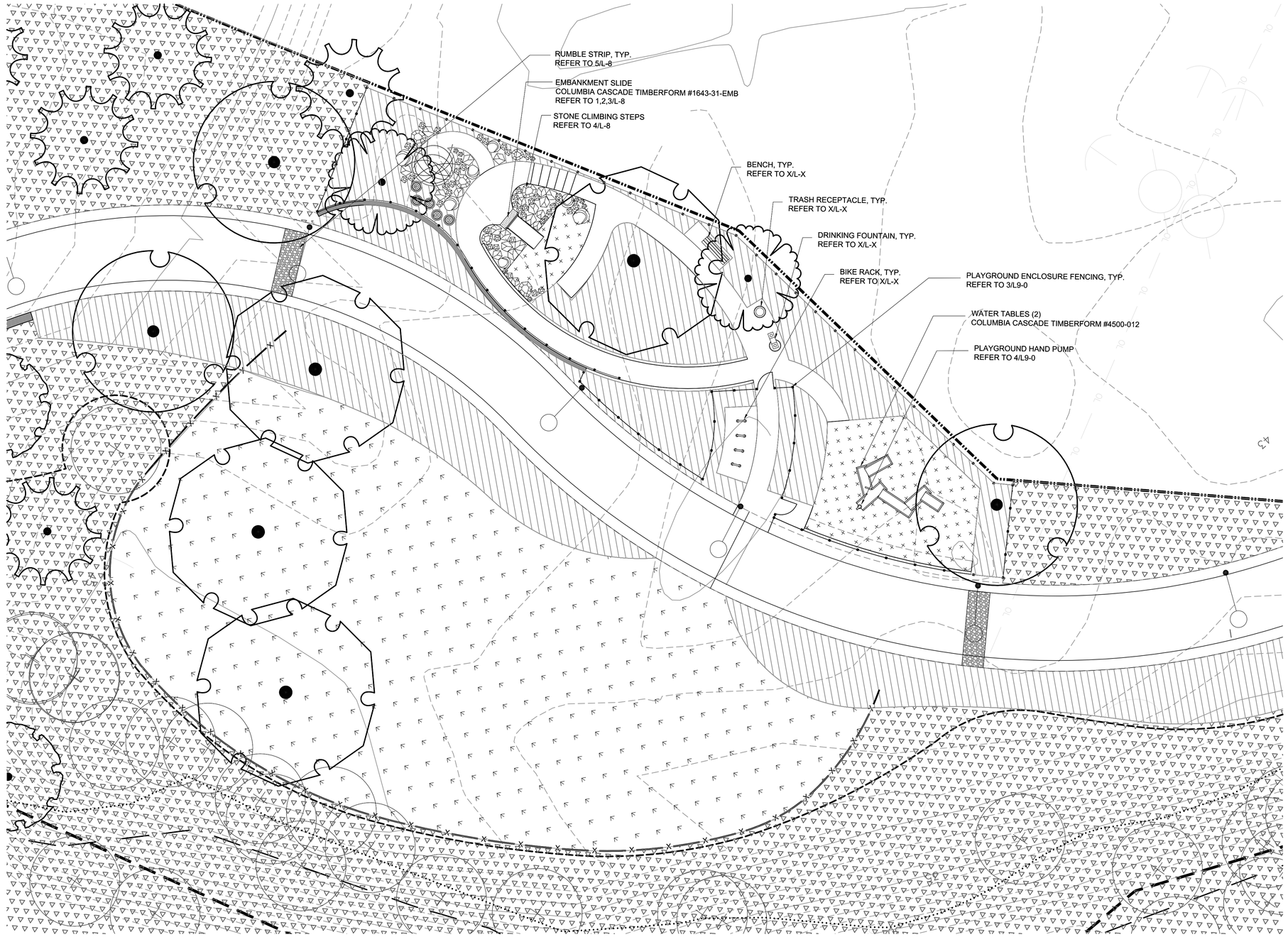

N

KEY PLAN
Not to Scale

1
L-5

LANDSCAPE PLAN - ENLARGEMENT

SCALE: 1" = 8'-0"

0 4 8 16 FEET

N

| DATE: | NO. | REVISION: |
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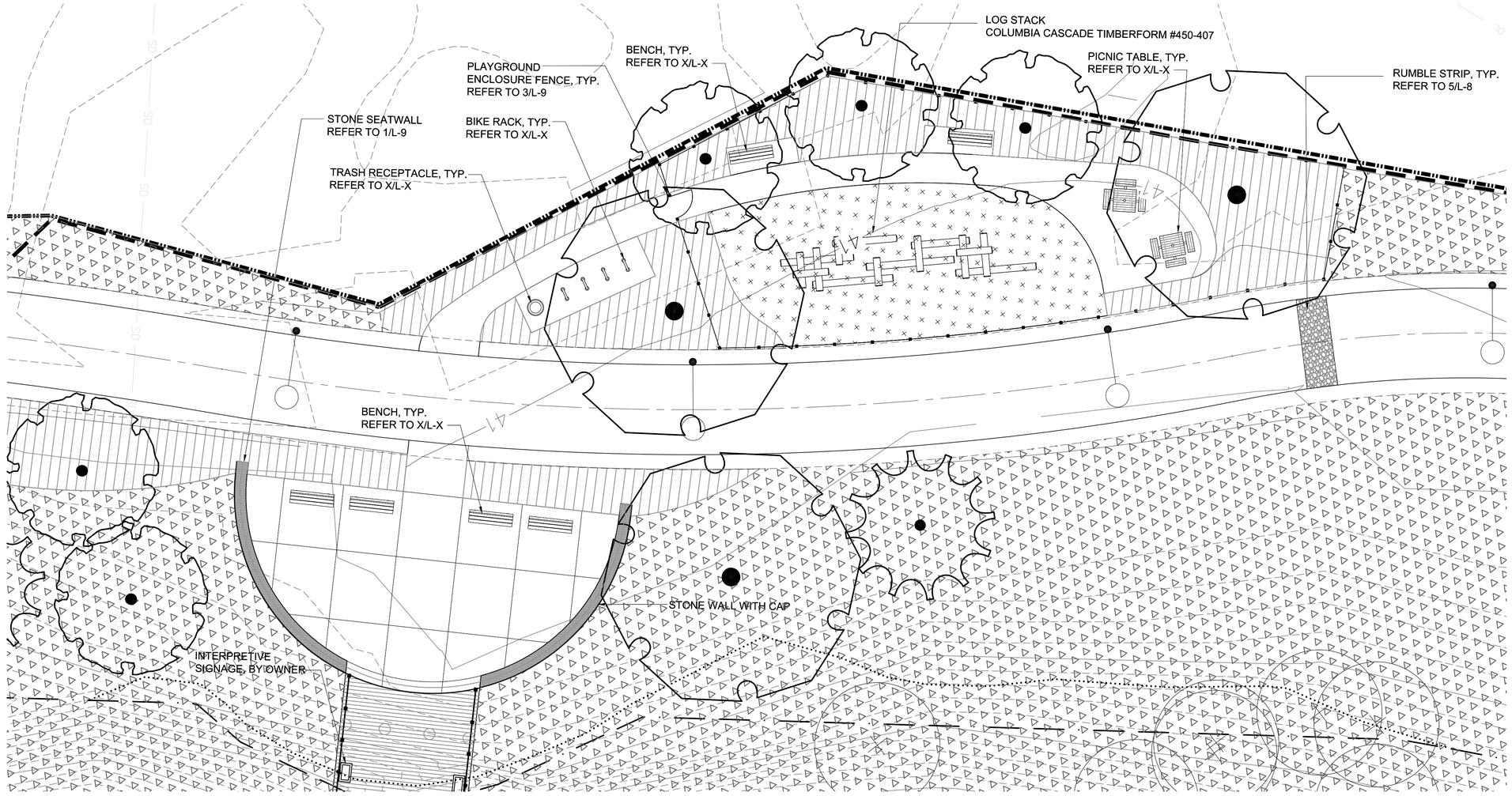
SHEET:

PLAN

L-5




1
L-6

## LANDSCAPE PLAN - ENLARGEMENT

SCALE: 1" = 8'-0"

0 4 8 16 FEET

N

N

KEY PLAN
Not to Scale

### LEGEND

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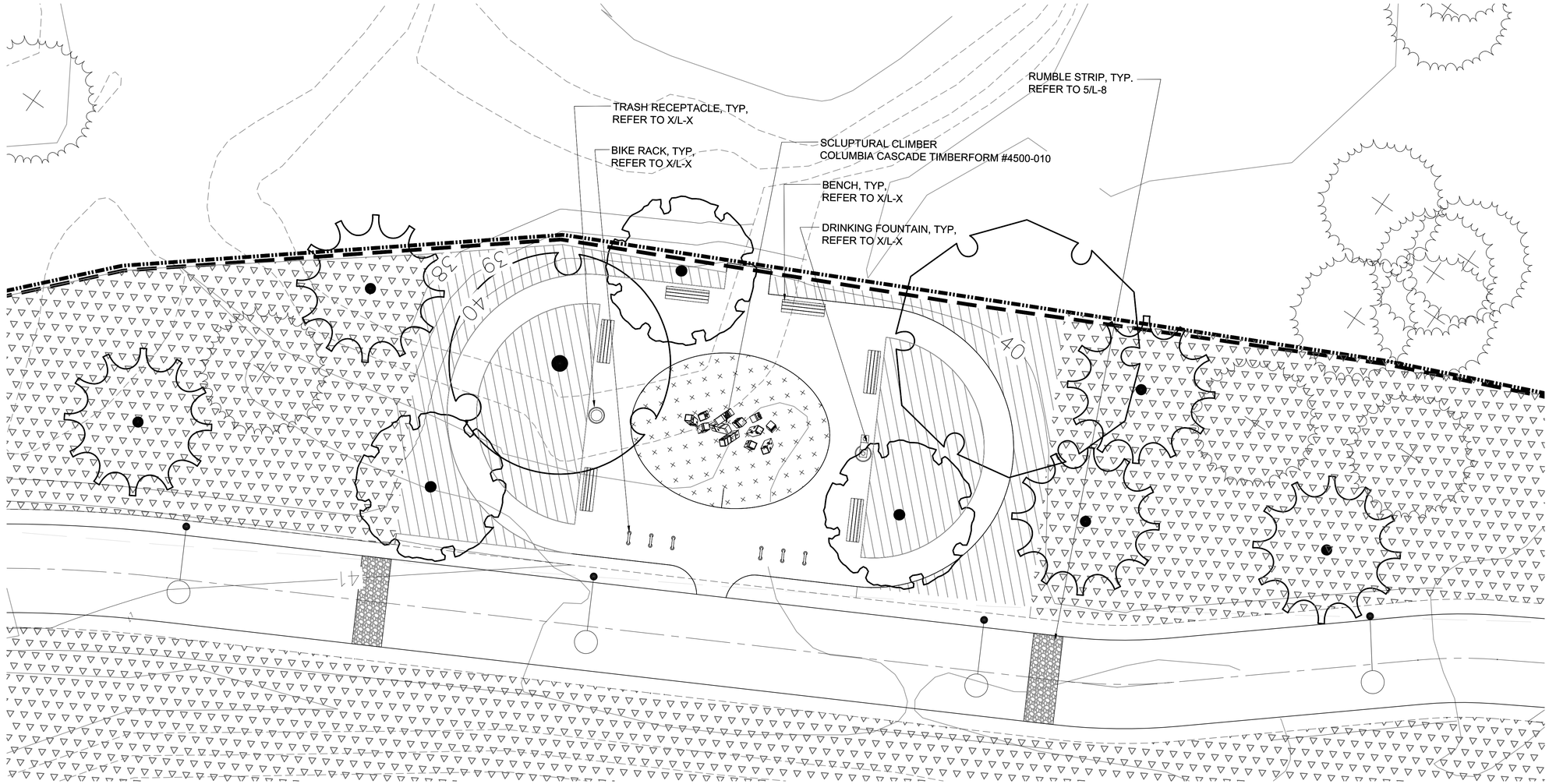
SHEET:
PLAN
L-6



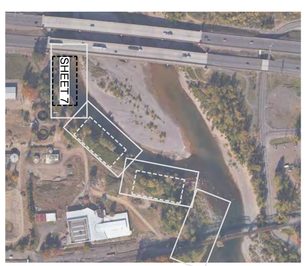

1
L-7

## LANDSCAPE PLAN - ENLARGEMENT

SCALE: 1" = 8'-0"

0 4 8 16 FEET

N




N

KEY PLAN
Not to Scale

### LEGEND

- OHW (ORDINARY HIGH WATER MARK)
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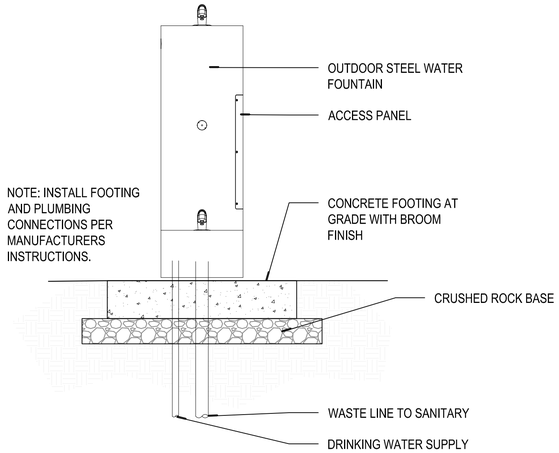
SHEET:

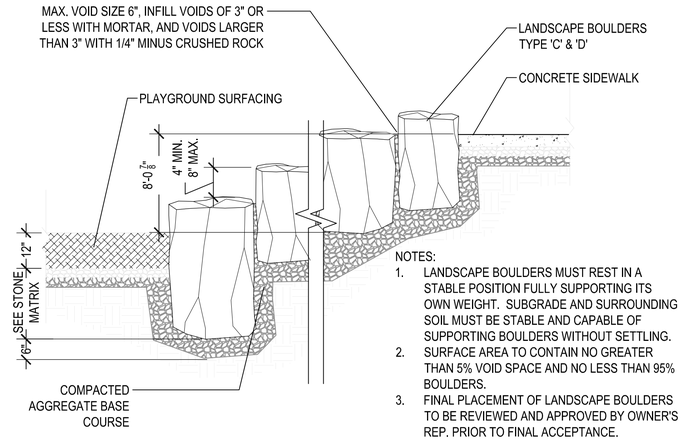
PLAN

L-7




## 6 L-8 DRINKING FOUNTAIN

SECTION | ELEVATION — 1" = 1'-0"

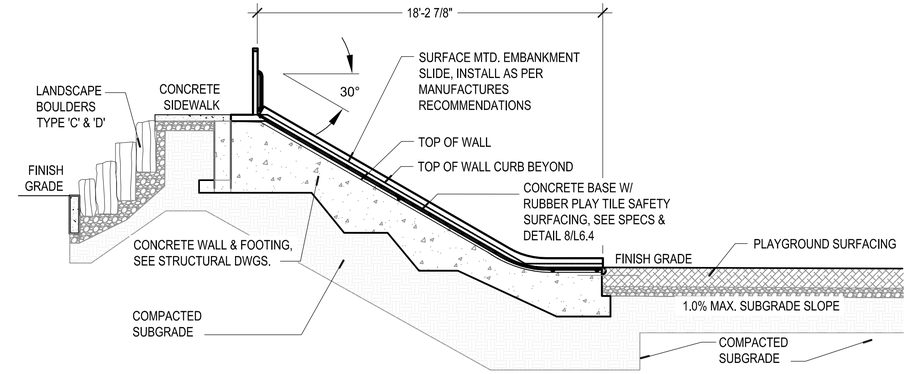



NOTES:

1. LANDSCAPE BOULDERS MUST REST IN A STABLE POSITION FULLY SUPPORTING ITS OWN WEIGHT. SUBGRADE AND SURROUNDING SOIL MUST BE STABLE AND CAPABLE OF SUPPORTING BOULDERS WITHOUT SETTLING.
2. SURFACE AREA TO CONTAIN NO GREATER THAN 5% VOID SPACE AND NO LESS THAN 95% BOULDERS.
3. FINAL PLACEMENT OF LANDSCAPE BOULDERS TO BE REVIEWED AND APPROVED BY OWNER'S REP. PRIOR TO FINAL ACCEPTANCE.

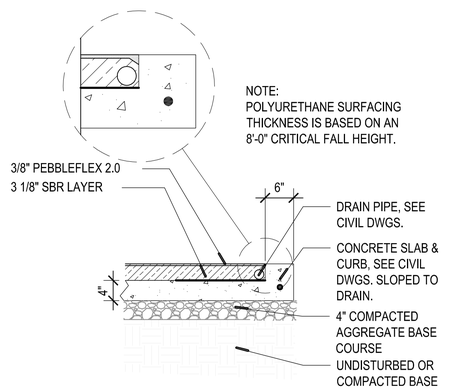
## 4 L-8 STONE CLIMBING STEPS

SECTION | ELEVATION — 3/8" = 1'-0"



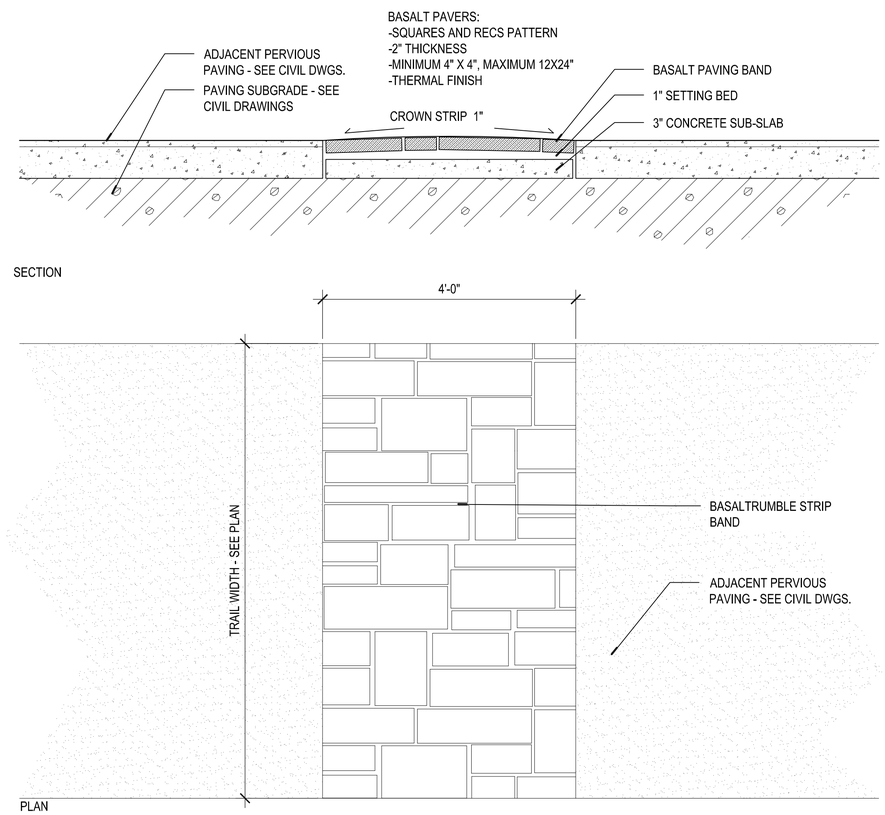

## 1 L-8 EMBANKMENT SLIDE

SECTION — 1/4" = 1'-0"



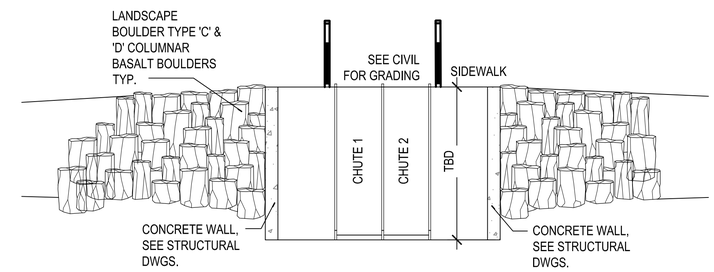

## 7 L-8 PLAYGROUND SURFACING

SECTION | ELEVATION — 3/8" = 1'-0"



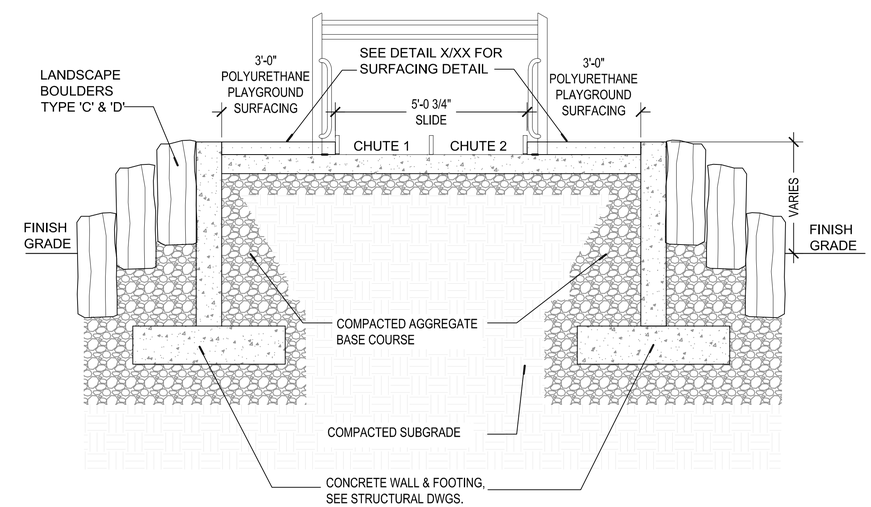

## 5 L-8 RUMBLE STRIP PAVING

PLAN | SECTION — 3/8" = 1'-0"




## 2 L-8 EMBANKMENT SLIDE

ELEVATION — 1/4" = 1'-0"




## 3 L-8 EMBANKMENT SLIDE

SECTION — 1/2" = 1'-0"

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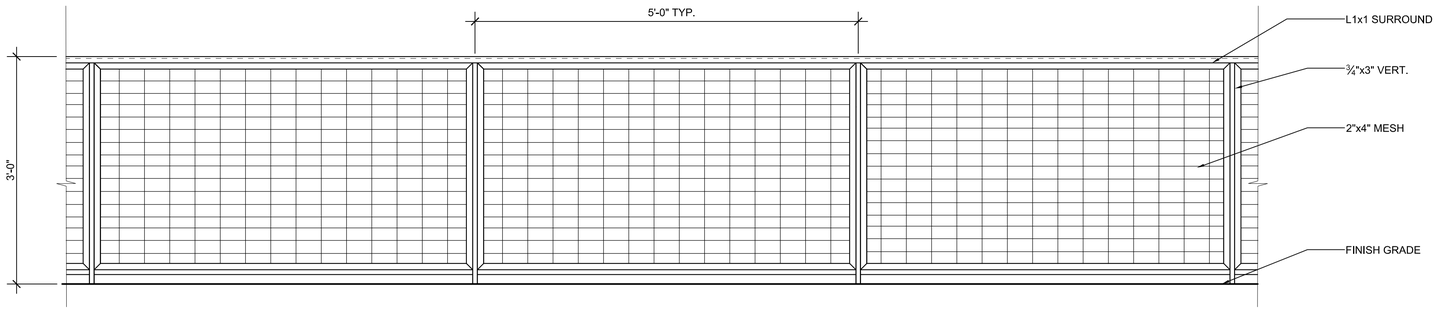
LANDSCAPE DETAILS

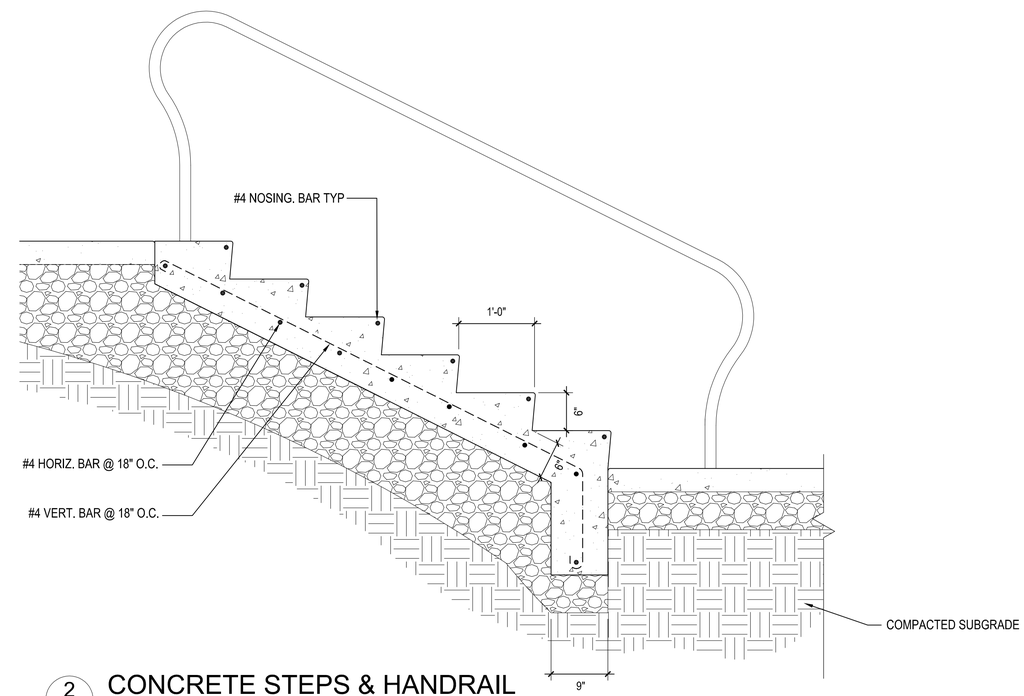
L-8




3 L-9 PLAYGROUND ENCLOSURE FENCE
ELEVATION
1" = 1'-0"

1 L-9 STONE WALL CHARACTER
IMAGE
NOT TO SCALE

4 L-9 PLAYGROUND HAND PUMP
IMAGE
NOT TO SCALE




2 L-9 CONCRETE STEPS & HANDRAIL
SECTION | ELEVATION
1" = 1'-0"

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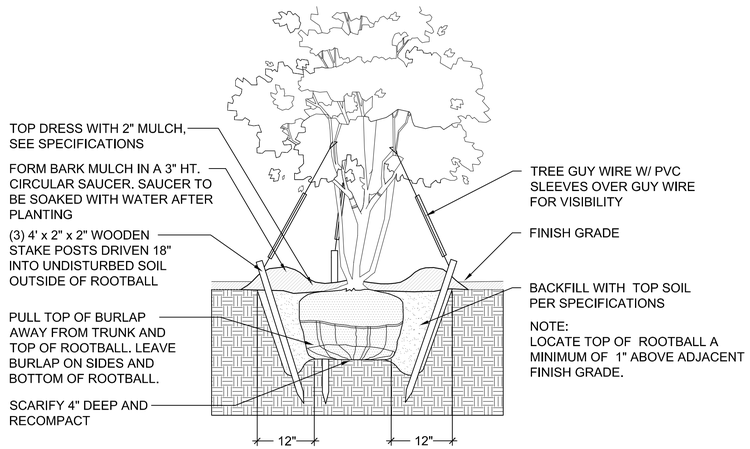
L-9

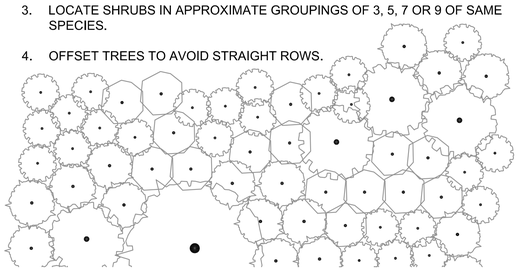



6 L-10 MULTI-STEM TREE PLANTING

SECTION | ELEVATION — NOT TO SCALE

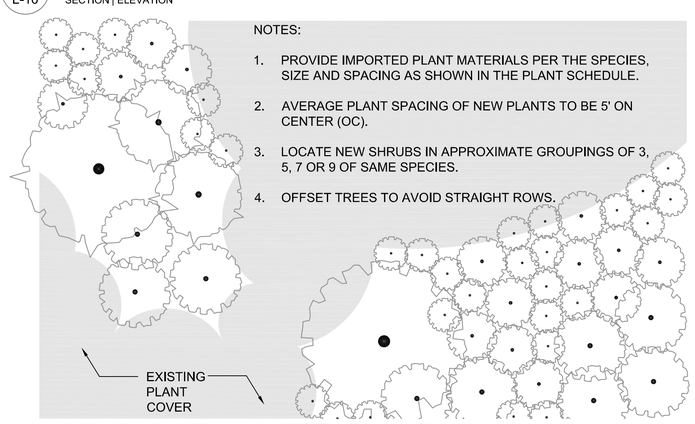
NOTES:

1. PROVIDE IMPORTED PLANT MATERIALS PER THE SPECIES, SIZE AND SPACING AS SHOWN IN THE PLANT SCHEDULE.
2. AVERAGE PLANT SPACING TO BE 5' ON CENTER (OC).
3. LOCATE SHRUBS IN APPROXIMATE GROUPINGS OF 3, 5, 7 OR 9 OF SAME SPECIES.
4. OFFSET TREES TO AVOID STRAIGHT ROWS.



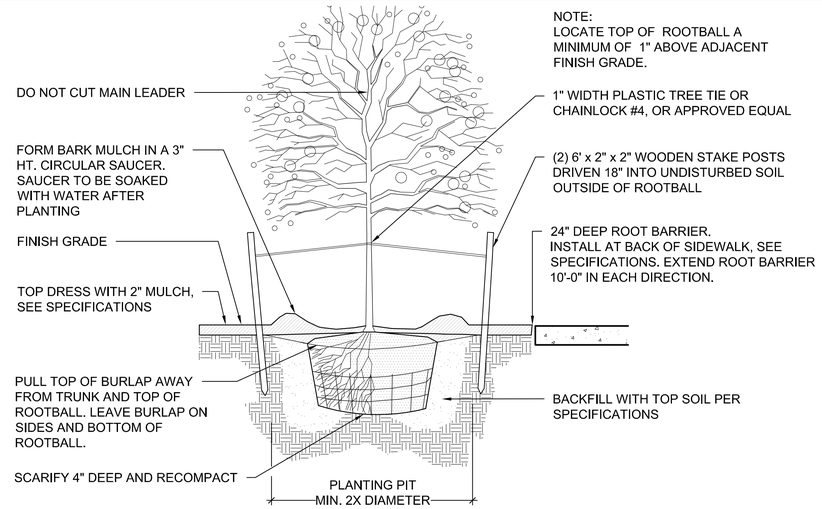
7 L-10 RESTORATION PLANTING

SECTION | ELEVATION — NOT TO SCALE



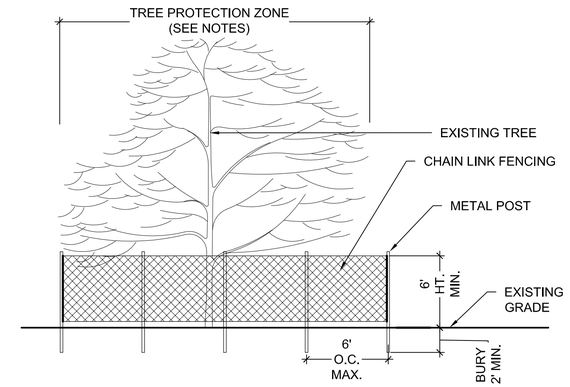

8 L-10 RESTORATION INTER-PLANTING

SECTION | ELEVATION — NOT TO SCALE



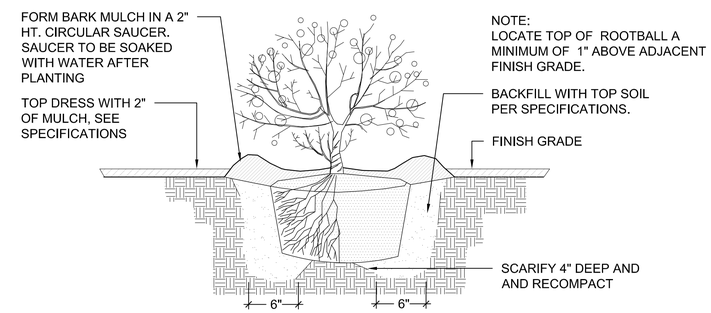

4 L-10 TREE PLANTING WITH ROOT BARRIER

SECTION | ELEVATION — NOT TO SCALE



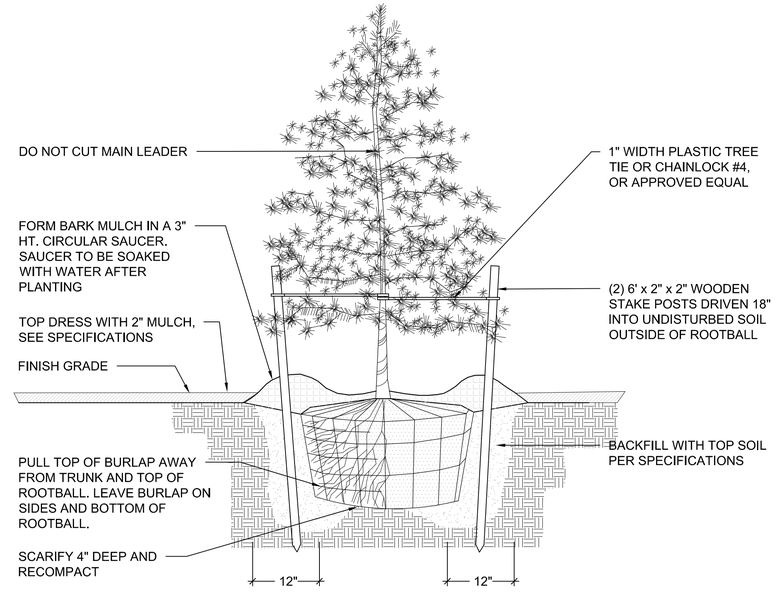

1 L-10 TREE PROTECTION FENCING

SECTION | ELEVATION — NOT TO SCALE



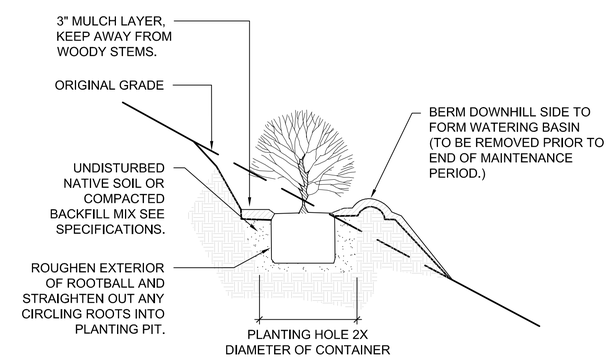

2 L-10 SHRUB PLANTING

SECTION | ELEVATION — NOT TO SCALE




5 L-10 CONIFER TREE PLANTING

SECTION | ELEVATION — NOT TO SCALE




3 L-10 PLANTING ON A SLOPE

SECTION | ELEVATION — NOT TO SCALE

| DATE: | NO. | REVISION: |
|---|---|---|

DRAWN: CLW | DESIGNED: MHZ | CHECKED: MHZ

SCALE: AS SHOWN | DATE: 07.13.2021

PROJECT NO: 19.13

PACKAGE TITLE: 60% SET

STAMP: REGISTERED 396 Marianne Zarkin OREGON 5/8/98 LANDSCAPE ARCHITECT — NOT FOR CONSTRUCTION

CONSULTANT:


Marianne Zarkin
LANDSCAPE ARCHITECTS
mzla
1326 NE 63rd AVE.
Portland, OR 97213
c. 503.758.3131
o. 503.802.0031
MARIANNE ZARKIN, ASLA
marianne@mz-la.com


CLIENT:

CITY OF TROUTDALE
219 E. Historic Columbia River Highway
Troutdale, Oregon 97060

PROJECT:

SANDY RIVERFRONT TRAIL
473 E. Historic Columbia River Highway
Troutdale, Oregon 97060

SHEET:

PLANTING DETAILS

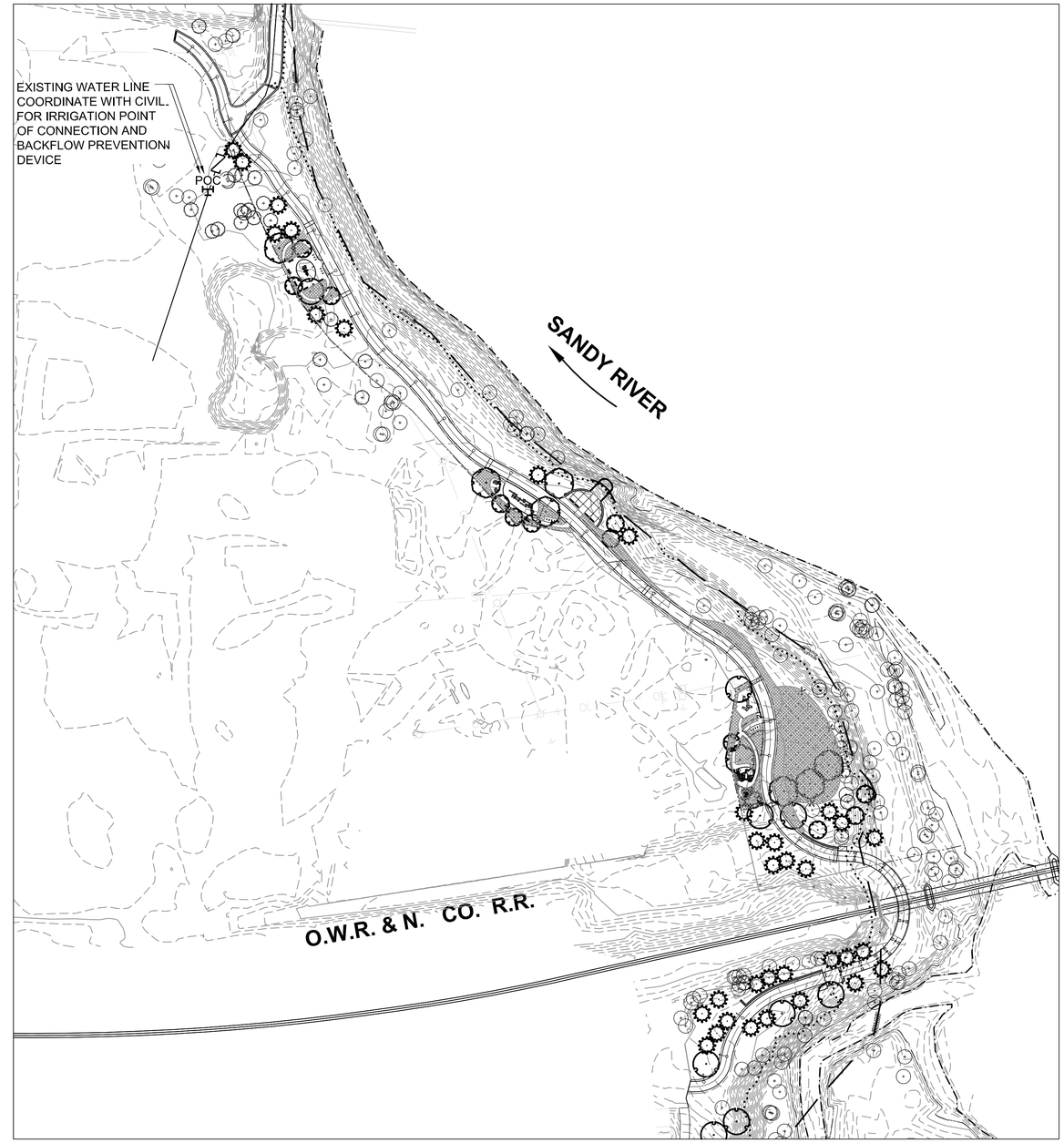
L-10

## LEGEND

NEW IRRIGATED AREA

## IRRIGATION NOTES

1. VERIFY THAT THE CONDITIONS ARE SUITABLE TO PROVIDE A COMPLETE WORKING SYSTEM. DO NOT PROCEED IF CONDITIONS ARE PRESENT THAT ARE DETRIMENTAL TO THE EQUIPMENT OR WILL NOT SUPPORT A HEALTHY GROWING ENVIRONMENT FOR PLANTS.
2. COORDINATE WITH OTHER SUBCONTRACTORS AND TRADES TO ENSURE PROTECTION OF THE SYSTEM INCLUDING BUT NOT LIMITED TO, WATER SERVICE, WATER METER, BACKFLOW DEVICES, CONTROLLER LOCATION, AND ELECTRICAL SUPPLY.
3. INSTALL IRRIGATION SYSTEM IN COMPLIANCE WITH ALL STATE AND LOCAL CODES.
4. IRRIGATION WATERING DEVICES ARE GRAPHICALLY SHOWN IN THE DESIRED LOCATIONS; PIPE AND OTHER SUPPORT EQUIPMENT MAY BE SHOWN IN PAVED AREAS FOR GRAPHIC CLARITY. INSTALL ALL IRRIGATION EQUIPMENT IN LANDSCAPE AREAS UNLESS OTHERWISE INDICATED. PLACE PIPE AND CONTROL WIRE IN COMMON TRENCHES WHERE POSSIBLE.
5. LOCATE VALVE BOXES TO ALLOW EASE OF ACCESS FOR MAINTENANCE, CONSIDERING PLANT MATERIAL AND OBSTRUCTIONS. SIZE BOXES TO ACCOMMODATE COMPLETE VALVE ASSEMBLY INCLUDING WIRE, ISOLATION VALVES, AND UNIONS. SET VALVE BOXES IN A UNIFORM MANNER, SQUARE TO ADJACENT PAVING. ALIGN AND EVENLY SPACE GROUPS OF BOXES IN A UNIFORM AND ORDERLY FASHION. ONLY ONE VALVE PER BOX.
6. INSTALL ALL IRRIGATION PIPE AND WIRE IN SCH 40 PVC SLEEVES BELOW ALL PAVED SURFACES OR STRUCTURES SUCH AS WALLS, STAIRS, AND OTHER IMPROVEMENTS. SIZE OF SLEEVES SHALL BE MINIMUM TWICE (2X ) THE COMBINED DIAMETER OF PIPE TO BE PLACED IN SLEEVE. MINIMUM SIZE 4" WITH 24" COVER, MINIMUM. COORDINATE PLACEMENT OF SLEEVES WITH OTHER TRADES.
7. SIZE PIPE TO ENSURE THAT MAXIMUM WATER VELOCITY DOES NOT EXCEED 5 FT./SEC.
8. NOT ALL LATERAL PIPING REQUIRED FOR DRIP IRRIGATION HEADERS IS SHOWN. SEE DETAIL 4/L4.00 FOR REQUIREMENTS.




1 / L-11 IRRIGATION PLAN - OVERALL

SCALE: 1" = 80'-0"

0 40 80 160 FEET

N

| DATE: | NO. | REVISION: |
|---|---|---|

DRAWN: CLW | DESIGNED: MHZ | CHECKED: MHZ

SCALE: AS SHOWN | DATE: 07.13.2021

PROJECT NO: 19.13

PACKAGE TITLE: 60% SET

STAMP: REGISTERED 396 Marianne Zarkin OREGON 5/8/98 LANDSCAPE ARCHITECT — NOT FOR CONSTRUCTION

CONSULTANT:


Marianne Zarkin LANDSCAPE ARCHITECTS
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Portland, OR 97213
c. 503.758.3131
o. 503.802.0031
MARIANNE ZARKIN, ASLA
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CLIENT:

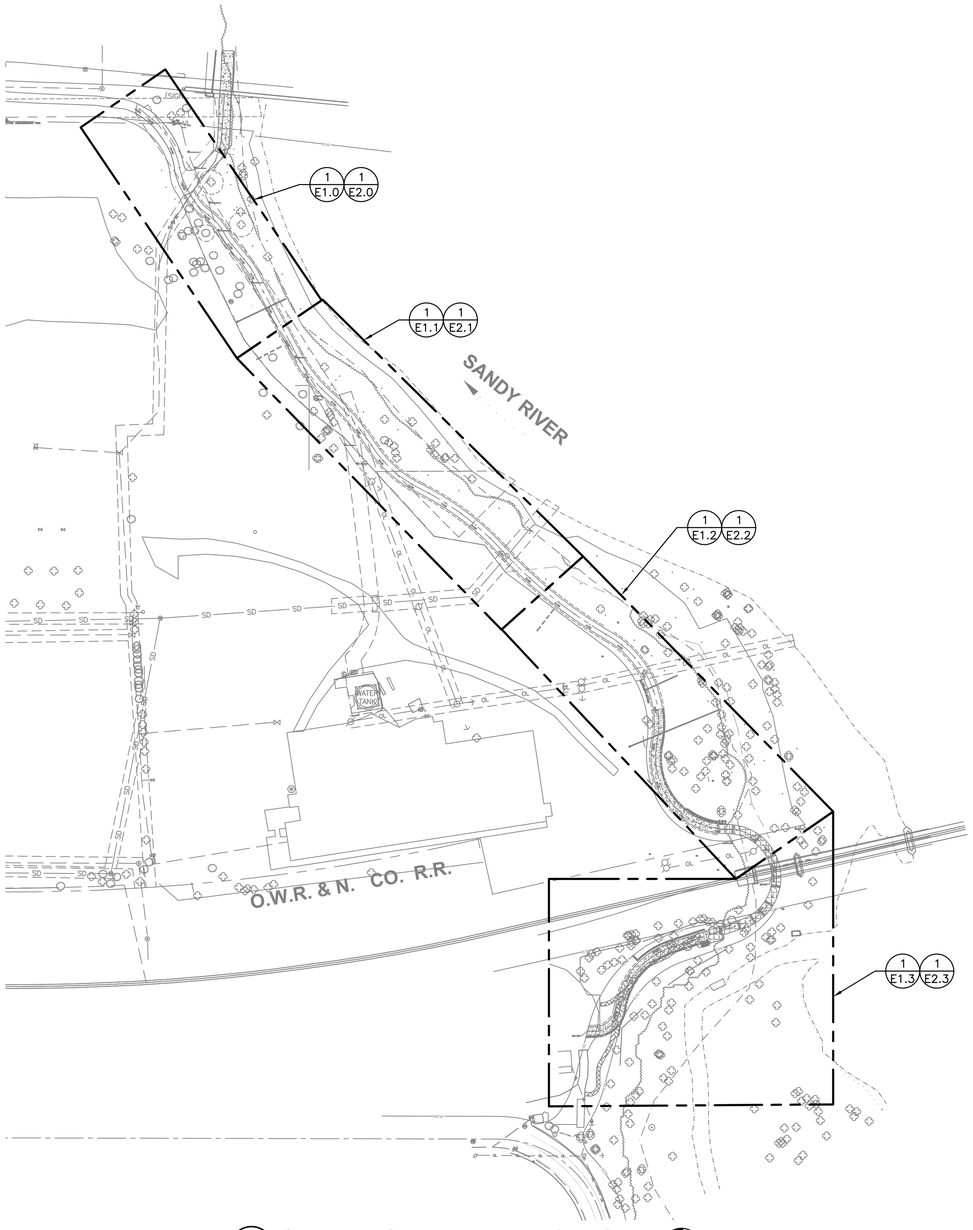
CITY OF TROUTDALE
219 E. Historic Columbia River Highway
Troutdale, Oregon 97060

PROJECT:

SANDY RIVERFRONT TRAIL
473 E. Historic Columbia River Highway
Troutdale, Oregon 97060

SHEET:

IRRIGATION PLAN & NOTES
L-11




1 E0.1 OVERALL SITE PLAN - ELECTRICAL
SCALE: 1" = 100'

## ELECTRICAL SYMBOL LIST

| | |
|---|---|
| A | AMP |
| AF | AMP FUSE |
| AS | SWITCH |
| ALC | AUTOMATIC LIGHTING CONTROLLER |
| AWG | AMERICAN WIRE GUAGE |
| C | CONDUIT |
| CU | COPPER |
| (D) | EXISTING TO BE REMOVED |
| (E) | EXISTING TO REMAIN |
| (R) | EXISTING TO RELOCATE |
| D.B. | DIRECT BURIED |
| DISC | DISCONNECT |
| EMT | ELECTRIC METAL TUBING |
| N.I.C. | NOT IN CONTRACT |
| F | FLEX CONDUIT |
| G | GROUND WIRE |
| GFI | GROUND FAULT INTERUPTER |
| GND | GROUND |
| HP | HORSE POWER |
| IG | ISOLATED GROUND |
| MCA | MINIMUM CIRCUIT AMPS |
| MH | MOUNTING HEIGHT |
| OP | OVERHEAD POWER |
| OT | OVERHEAD TELCO |
| P | POLE |
| PH | PHASE |
| RTU | ROOF TOP UNIT |
| SCA | SHORT CIRCUIT AMPS SYMMETRICAL |
| SPD | S-O CORD |
| S-O | SURGE PROTECTION DEVICE |
| UON | UNLESS OTHERWISE NOTED |
| UP | UNDERGROUND POWER |
| UNSW | UNSWITCHED |
| V | VOLT |
| W | WATTS |
| WP | WEATHERPROOF |
| — — — — | CONDUIT – BELOW GRADE |
| — —CATV— — | CONDUIT – BROADBAND, CABLE TV |
| — —C— — | CONDUIT – COMMUNICTIONS |
| — — FO — — | CONDUIT – FIBER OPTIC |
| — —P— — | CONDUIT – PRIMARY POWER |
| — —T— — | CONDUIT – TELEPHONE |
| — —S— — | CONDUIT – SECONDARY POWER |
| ——— | CONDUIT – CONCEALED |
| ——— | CONDUIT – EXPOSED |
| ~~~~ | CONDUIT – FLEXIBLE |
| ——• | CONDUIT – STUB-DOWN |
| ——⊣ | CONDUIT – STUB-OUT |
| ——○ | CONDUIT – STUB-UP |
| | HOME RUN. HASH MARKS INDICATE (2)#12 WIRE AND (1)#12 GND UNLESS NOTED OTHERWISE |
| | CONDUCTORS IN CONDUIT, (3)#12 OR AS NOTED (QUANTITY AS INDICATED BY HASH MARKS) |
| | GROUND CONNECTION |
| | EQUIPMENT CONNECTION |
| | COMBINATION EXIT SIGN/ EMERGENCY LIGHTING UNIT |
| ○ | LIGHT FIXTURE – SURFACE-MOUNTED |
| | LIGHT FIXTURE – WALL-MOUNTED |
| | LIGHT FIXTURE – POLE-MOUNTED |
| | LIGHT FIXTURE – FLUORESCENT STRIP |
| | PANEL – 208Y/120V BRANCH CIRCUIT (SURFACE-MOUNTED) |
| | RECEPTACLE – DUPLEX, MOUNT 18" AFF, UON |
| | RECEPTACLE – MOUNTED ABOVE COUNTER |
| | RECEPTACLE – ISOLATED GROUND |
| $a | SWITCH DESIGNATOR |
| $ | SWITCH – SINGLE-POLE, MOUNT 48" AFF, UON |
| $OD | SWITCH – OCCUPANCY SENSOR/DIMMER |
| $T | THERMAL MOTOR SWITCH, |
| $3 | SWITCH – THREE-WAY, MOUNT 48" AFF UON. |
| $K | SWITCH – KEYED |
| $D | SWITCH – DIMMER, MOUNT 48" AFF, UON |
| $O | SWITCH – OCCUPANCY SENSOR, MOUNT 48" AFF, UON |
| F | SWITCH – FUSED DISCONNECT |
| ▽ | OUTLET – THREE PORT DATA/PHONE |
| ▼ | OUTLET – COMBINATION DATA/CATV |
| # # | NUMBER ADJACENT TO DEVICE INDICATES QUANTITY OF CAT 6 DEDICATED CABLES AND PORTS. |
| | NOTE: OUTLET – DATA/TELEPHONE/CATV, MOUNT 18" AFF UON & PROVIDE 3/4"C. TO CEILING OR TRUSS SPACE, UON |
| | TELEPHONE PEDESTAL |
| | MOTOR CONNECTION |
| PB | PULLBOX – SEE DETAIL 4/E1.1. |
| J | JUNCTION BOX – CEILING-MOUNTED |
| M | METER BASE – UTILITY COMPANY APPROVED |
| M | MOTION SENSOR |
| OS | OCCUPANCY SENSOR |
| T | THERMOSTAT |
| T | TRANSFORMER |
| DS | DAYLIGHT SENSOR |
| PES | DAYLIGHT SENSOR |
| FACP | FIRE ALARM CONTROL PANEL |
| F | HORN AND STROBE |
| S | STROBE UNIT ONLY |
| F | MANUAL PULL STATION |
| S | SMOKE DETECTOR |
| H | AUTOMATIC HEAT DETECTOR (135°F RATE OF RISE) |
| | MECHANICAL EQUIPMENT TAG NUMBER REFER TO MECHANICAL EQUIPMENT SCHEDULE |
| | EQUIPMENT TAG NUMBER, REFER TO MECHANICAL EQUIPMENT SCHEDULE "K" = KITCHEN, "C" = COMPUTER |
| 1 | NOTE SYMBOL, REFER TO NOTE AS INDICATED |
| XXXX | FEEDER NUMBER, REFER TO "FEEDER SCHEDULE" |
| X/XX TITLE SCALE | DETAIL HEADER |
| X/XX | SECTION IDENTIFIER |
| X/XX | DETAIL INDENTIFIER |

## GENERAL REQUIREMENTS

1. CONFORM TO CURRENT CODE INCLUDING OSSC, NEC, BUILDING CODE, AND LOCAL REQUIREMENTS.
2. PROVIDE COMPLETE AND FUNCTIONAL ELECTRICAL SYSTEMS AS SPECIFIED, AS SHOWN ON DRAWINGS, AS REQUIRED, AND AS INTENDED.
3. EQUIPMENT SHALL BE NEW AND OR LIKE MATERIALS THROUGH AUTHORIZED DISTRIBUTORS. PROVIDE EQUIPMENT OF SAME SYSTEM AND TYPE BY SAME MANUFACTURER. EQUIPMENT SHALL BE LISTED FOR ITS USE AND SHALL MEET OREGON LISTING REQUIREMENTS.
4. WARRANT WORK, MATERIALS, AND EQUIPMENT FOR NOT LESS THAN 1-YEAR. THIS REQUIREMENT SHALL NOT LIMIT, RESTRICT, OR OTHERWISE LESSEN ANY WARRANTY PROVIDED BY EQUIPMENT MANUFACTURER'S STANDARD WARRANTY IF GREATER THAN 1-YEAR.
5. PROVIDE SUBMITTALS FOR ELECTRICAL EQUIPMENT. PROVIDE STANDARD CUT-SHEETS CLEARLY INDICATING MODELS TO BE INSTALLED.
6. GROUND SYSTEMS PER NEC, AS INDICATED, AND AS SHOWN.
7. SEE CIVIL PLANS FOR ADDITIONAL REQUIREMENTS.
8. ALL ELECTRICAL WORK TO COMPLY WITH NFPA 70E ARC FLASH RULES, WHICH WILL INCLUDE AN ARC FLASH ANALYSIS AND ARC FLASH LABEL FOR THE CONTROLLER CABINET.
9. UNLESS THE CITY DETERMINES IN ITS SOLE DISCRETION THAT A CONTRACTOR'S ATTENDANCE IS NOT NECESSARY, CONTRACTORS WILL BE REQUIRED TO ATTEND A PRE-TASK MEETING WITH THE PROJECT MANAGER AND ELECTRICAL SUPERVISOR OR DESIGNEE TO DISCUSS THE HAZARDS AND SAFE WORK PROCEDURES FOR ALL ELECTRICAL WORK TO BE PERFORMED ON THE PROJECT.
10. ELECTRICAL WORK SHALL BE PERFORMED UNDER ELECTRICALLY SAFE WORK CONDITIONS WITH LOCK-OUT TAG-OUT PER NFPA 70E. KEEP POWER DISRUPTIONS TO A MINIMUM AND NOTIFY OWNER IN ADVANCE OF POWER DISRUPTIONS.
11. CALL U-DIG 811 AT LEAST 2-BUSINESS DAYS BEFORE DIG OR TRENCH PER OAR 952-001-0010 THROUGH -0090 (RCW 19.122). SCAN & MARK SUGGESTED ROUTING FOR UTILITIES & IRRIGATION PRIOR TO TRENCHING ACTIVITIES; DO NOT DISTURB UTILITIES OR PIPING, AVOID CONFLICTS. WHERE FEASIBLE, MARK THE ANTICIPATED ROUTE(S) WITH WHITE PAINT; THIS HELPS LOCATING PERSONNEL FIND THE RIGHT AREA AND LOCATE NEARBY FACILITIES AS ACCURATELY AS POSSIBLE.

## DRAWING LIST


E0.1 – SYMBOL LEGEND
E0.2 – LUMINAIRE SCHEDULE/DETAILS
E0.3 – SERVICE ENCLOSURE DETAILS
E1.0 – PARTIAL SITE PLAN – ELECTRICAL
E1.1 – PARTIAL SITE PLAN – ELECTRICAL
E1.2 – PARTIAL SITE PLAN – ELECTRICAL
E1.3 – PARTIAL SITE PLAN – ELECTRICAL
E2.0 – PARTIAL SITE PLAN – PHOTOMETRIC
E2.1 – PARTIAL SITE PLAN – PHOTOMETRIC
E2.2 – PARTIAL SITE PLAN – PHOTOMETRIC
E2.3 – PARTIAL SITE PLAN – PHOTOMETRIC
E3.0 – ELECTRICAL DETAILS
E4.0 – ELECTRICAL SPECIFICATIONS


| DATE: | NO. | REVISION: |
|---|---|---|

DRAWN: R&W | DESIGNED: DHS | CHECKED: DHS
SCALE: AS SHOWN | DATE: 07.12.2021
PROJECT NO: 19.13
PACKAGE TITLE: 60% SET

STAMP: REGISTERED PROFESSIONAL ENGINEER 88445PE OREGON NOVEMBER 12, 2021 JONATHAN P. LILLY
PRELIMINARY
EXPIRES 12/31/22

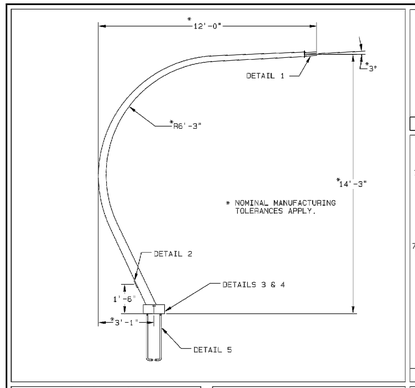
CONSULTANT:

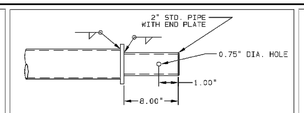
R&W ENGINEERING, INC. "Engineering Integrated Solutions"
9615 S.W. Allen Boulevard
Suite 107
Beaverton, Oregon 97005
Phone: (503) 726-3317
Fax: (503) 726-3326
E-mail: nweng@rweng.com
Project No.: 1179.016.001 Contact: DENNIS HALL


CLIENT:
CITY OF TROUTDALE
219 E. Historic Columbia River Highway
Troutdale, Oregon 97060

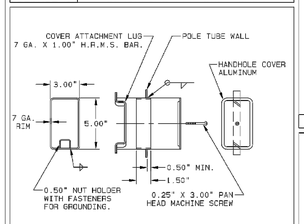
PROJECT:
SANDY RIVERFRONT TRAIL
473 E. Historic Columbia River Highway
Troutdale, Oregon 97060

SHEET:
SYMBOL LEGEND
E0.1

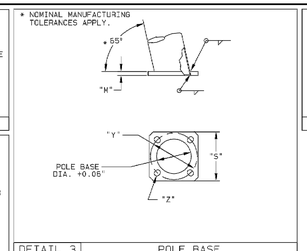


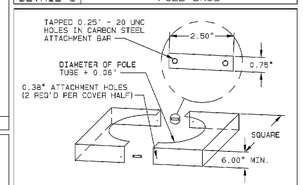

DETAIL 1 | LUMINAIRE ARM END TENON




DETAIL 2 | 3" X 5" HANDHOLE



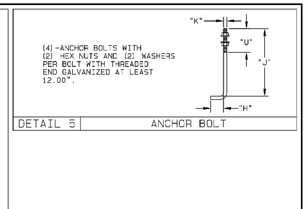

DETAIL 3 | POLE BASE




*(1) SET OF FULL BASE COVERS COME COMPLETE WITH (2) HALF 11 GAUGE STEEL COVERS, (2) ATTACHMENT BARS & (4) 0.25" X 0.63" STAINLESS STEEL SCREWS.

| QTY | FULL BASE COVER |
|---|---|
| | (1) SET * |

DETAIL 4 | STEEL FULL BASE COVER ASSEMBLY




DETAIL 5 | ANCHOR BOLT

MATERIAL DATA

| COMPONENT | ASTM DESIGNATION | MIN. YIELD (KSI) |
|---|---|---|
| TAPERED TUBES | A595 GR.A | 55 |
| POLE BASE | A36 | 36 |
| ANCHOR BOLTS | F1554 GR.55 | 55 |
| GALVANIZING-HARDWARE | F2329 | |
| | | |
| | | |

SYSTEM: GALVANIZED (GV)
BASE COAT: HOT-DIP GALVANIZED TO ASTM A123
PRIME COAT: NONE
FINISH COAT: NONE
COLOR: NONE
SPEC: F-1

FINISH

ALTHOUGH RARE, VIBRATIONS SEVERE ENOUGH TO CAUSE DAMAGE CAN OCCASIONALLY OCCUR IN STRUCTURES OF ALL TYPES. BECAUSE THEY ARE INFLUENCED BY MANY INTERACTING VARIABLES, VIBRATIONS ARE GENERALLY UNPREDICTABLE. THE USER'S MAINTENANCE PROGRAM SHOULD INCLUDE OBSERVATION FOR EXCESSIVE VIBRATION AND EXAMINATION FOR ANY STRUCTURAL DAMAGE OR BOLT LOOSENING. THE VALMONT WARRANTY SPECIFICALLY EXCLUDES FATIGUE FAILURE OR SIMILAR PHENOMENA RESULTING FROM INDUCED VIBRATION, HARMONIC OSCILLATION OR RESONANCE ASSOCIATED WITH MOVEMENT OF AIR CURRENTS AROUND THE PRODUCT.

VIBRATION DISCLAIMER

POLE DATA

| ITEM | POLE TUBE | | | | POLE BASE | | | | ANCHOR BOLT | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BASE DIA. (IN) | TOP DIA. (IN) | OVERALL LENGTH (FT) | GAUGE OR THK. (IN) | SQUARE "S" (IN) | BOLT CIRCLE "Y" (IN) | THK. "M" (IN) | SLOT "Z" (IN) | DIA. "K" (IN) | LENGTH "J" (IN) | HOOK "H" (IN) | THREAD LENGTH "U" (IN) |
| 1 | 6.16 | 3.00 | 23.35 | 11 | 13.00 | 13.00 | 1.50 | 1.38 X 1.94 | 1.00 | 36.00 | 4.00 | 6.00 |

NOTE: SEE DETAILS 2/E0.2 AND 3/E3/E0.2 FOR POLE BASE AND FUSES.

| REV | DRAWN BY-DATE | CHECK BY-DATE | DESCRIPTION |
|---|---|---|---|
| — | RBC2 06/30/21 | RBC2 07/01/21 | — — — — — — — — — — — — — — — — — — — — |

SOLD TO:
SHIP TO:
P.O. #:
AGENT: COLUMBIA PACIFIC SALES

JOB: SANDY RIVERFRONT TRAIL ANGLED DAVIT LIGHTNG
TITLE: LIGHTING STRUCTURES

VALMONT INDUSTRIES, INC. RESERVES THE RIGHT TO INSTALL VARIOUS, ENGINEER APPROVED, MATERIAL HANGING ACCOMMODATIONS TO FACILITATE THE MANUFACTURING PROCESS.

valmont
Valley, NE 68064
(402) 359-2201

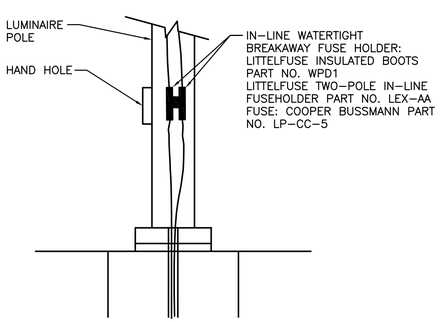
ORDER NUMBER: 518543-P2
PAGE NUMBER: 1 OF 1
DRAWING NUMBER: OR518543P2
REV

# LUMINAIRE SCHEDULE

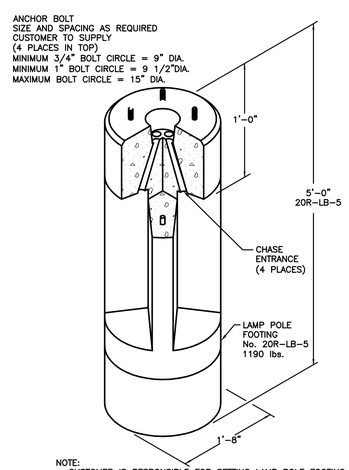
| LUMINAIRE TYPE | DESCRIPTION | LAMP TYPE | INPUT WATTS | DRIVER | MANUFACTURER AND MODEL SERIES |
|---|---|---|---|---|---|
| 'A' | 14-FOOT PEDESTRIAN PATH LED, CAST ALUMINUM HOUSING, (1) LIGHT ENGINE, SILICON GASKET, IP66, POWDER COAT FINISH, TYPE 1 DISTRIBUTION, TOOL-LESS ACCESS, DARK SKY COMPLIANT, TO MATCH POLE FINISH. POWDER COAT GALVINIZED POLE. SEE DETAIL 1/E0.2 FOR POLE SPECIFICATIONS. | LED LUMENS 70 CRI 3000K | 32W | STANDARD 240V 0-10V DIMMING | LUMINAIRE: OVAALI OL30 SERIES OR APPROVED.<br>POLE: VALMONT OR APPROVED. SEE DETAIL 1/E0.2 FOR POLE INFORMATION. |
| 'B1' | MOUNTED LED IN THE HAND RAIL, LED POD THREADED STAINLESS STEEL BODY, 70 DEGREE ASYMMETRICAL LIGHT DISTRIBUTION, IP 67 RATED, PROVIDE DRIVER FOR LEDS MOUNTED IN RAILING, SEE PLAN FOR AIMING DIRECTION. DRIVER, LEDS AND RAILING IS ONE COMPLETE SYSTEM, LED PODS MOUNTED 2-FEET ON CENTER. AIM 90 DEGREES OFF RAILING AND LED TOWARDS PEDESTIAN STAIR. | LED 116 LM/FT 80+CRI 3000K | 2W PER FT | STANDARD 500MA 24VDC DRIVER | WAGNER ARCHITECTURAL SYSTEMS: LUMENPOD 16 LULF-30K-70-5-116LM/W LED-80+ OR APPROVED. |
| 'C' | 20" x 5" STEP LIGHT, STAINLESS STEEL FACE PLATE, VANDEL RESISTANT STAINLESS STEEL HARDWARE, WET LOCATION RATED, BACKBOX, ASYMMETRICAL FORWARD THROW, SILVER FINISH, | LED 1,463 LUMENS 80 CRI 3000K | 24W | STANDARD MVOLT 0-10V DIMMING | BEGA: 24062 SERIES OR APPROVED. |
| 'D' | 1-INCH DIAMETER RECESS LUMINAIRE, 50 DEGREE BEAM ANGLE, IP68 RATED, STAINLESS STEEL CLIPS, DOWN LIGHT APPLICATION, STAINLESS STEEL CONSTRUCTION, STAINLESS STEEL FINISH, | LED 80 LUMENS 85CRI 3000K | 1.9W | LOW VOLTAGE DRIVER 600W 70% DIMMING | WAC LIGHTING: 1021 SERIES OR APPROVED.<br>REMOTE TRANSFORMER: LUTRON SKYLARK SLV-600P OR APPROVED. |

NOTES:
1.
2.

## 1 / E0.2 TYPE 'A' LIGHT POLE
NOT TO SCALE




## 2 / E0.2 IN-LINE FUSE DISCONNECT FOR OPTION 'C' POLES AND FIXTURES
NOT TO SCALE




NOTE:
- CUSTOMER IS RESPONSIBLE FOR SETTING LAMP POLE FOOTING.
- FOOTINGS SHOULD BE SELECTED USING STRUCTURAL CODE AND/OR CONSULTATION WITH PROFESSIONAL ENGINEER.

## 3 / E0.2 POLE BASE
NOT TO SCALE

| DATE: | NO. | REVISION: |
|---|---|---|
| | | |

DRAWN: R&W | DESIGNED: DHS | CHECKED: DHS
SCALE: AS SHOWN | DATE: 07.12.2021
PROJECT NO: 19.13
PACKAGE TITLE: 60% SET

STAMP:

CONSULTANT:
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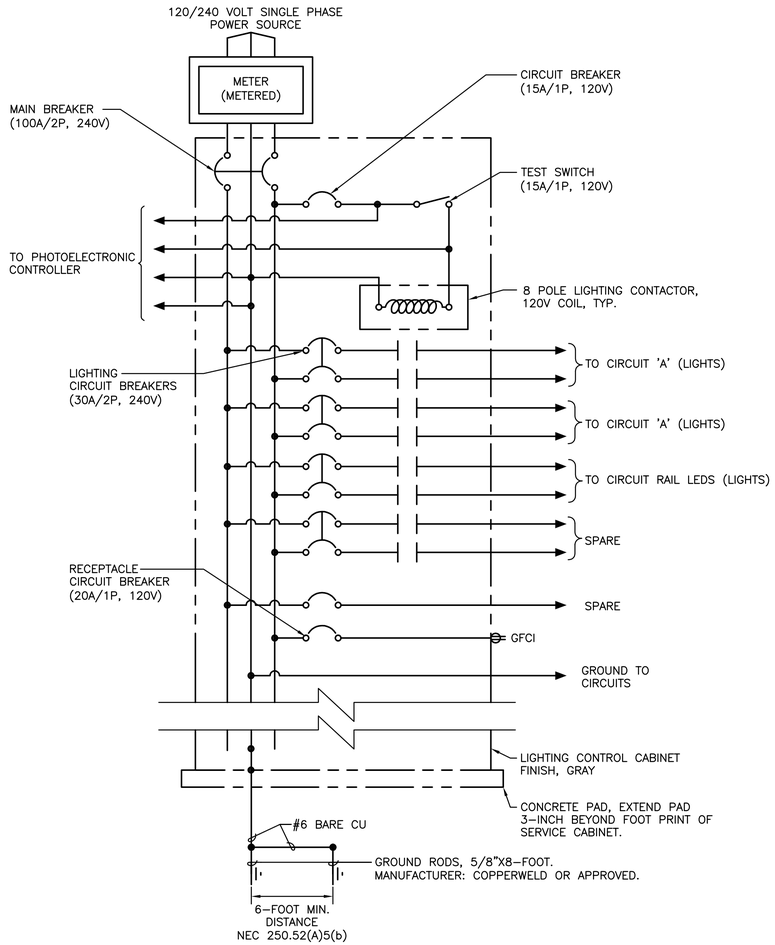
E-mail: rweng@rweng.com
Project No.: 1179.016.001 Contact: DENNIS HALL

CLIENT:
CITY OF TROUTDALE
219 E. Historic Columbia River Highway
Troutdale, Oregon 97060

PROJECT:
SANDY RIVERFRONT TRAIL
473 E. Historic Columbia River Highway
Troutdale, Oregon 97060

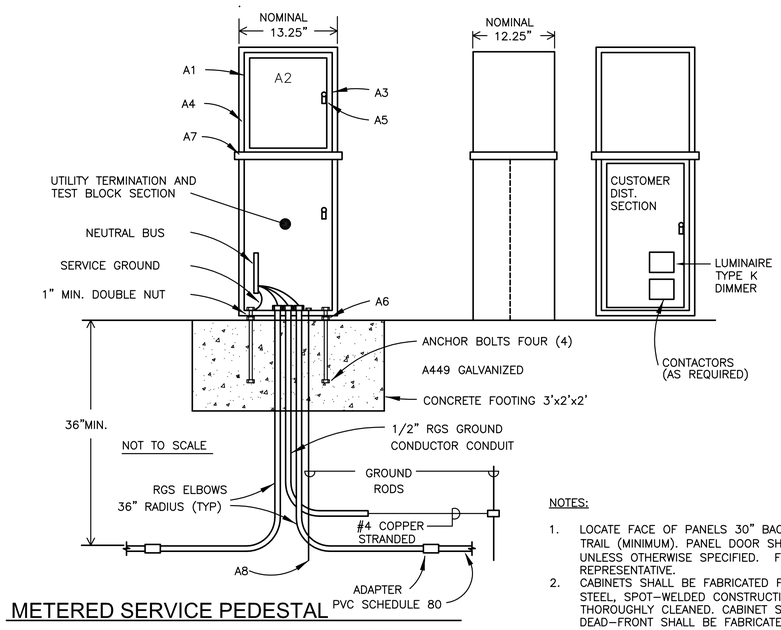
SHEET:
LUMINAIRE SCHEDULE/ DETAILS
E0.2




1 E0.3 METERED STREET LIGHTING CONTROLLER CABINET - CIRCUIT DIAGRAM
NOT TO SCALE

## GENERAL NOTES

A. SEE DRAWING E0.1 FOR SYMBOL LEGEND.




## METERED SERVICE PEDESTAL

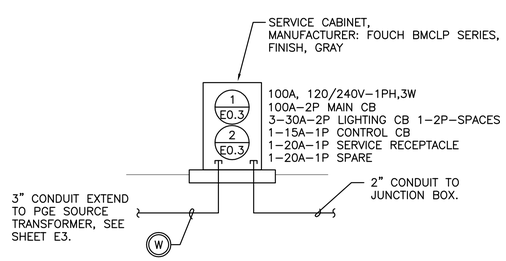
A1. COORDINATE INSTALLATION WITH OTHER RELATED WORK AS NECESSARY FOR COMPLETE AND FULLY FUNCTIONAL SYSTEM.
A2. CABINET: 14 GA., 304 STAINLESS STEEL, #4 FINISH VANDAL-PROOF.
A3. DEAD-FRONT PLATE: 14 GA. STAINLESS STEEL.
A4. DOOR TO BE FULLY GASKETED.
A5. CABINET HANDLES: 3-POINT, VAULT TYPE WITH PADLOCK PROVISIONS.
A6. RAISE THE PANEL A MINIMUM OF ONE INCH, INSTALL DOUBLE NUT BENEATH, AND GROUT IN SPACE.
A7. FINISH : UNPAINTED BRUSHED STAINLESS STEEL.

**MANUFACTURER SHALL BE COOPER B-LINE CMP SERIES OR APPROVED EQUIVALENT COMPLIANT WITH CPU REQUIREMENTS FOR SERVICE EQUIPMENT**

NOTES:

1. LOCATE FACE OF PANELS 30" BACK FROM FACE OF CURB/EDGE OF TRAIL (MINIMUM). PANEL DOOR SHALL BE ON TRAIL SIDE OF CABINET, UNLESS OTHERWISE SPECIFIED. FIELD COORDINATE WITH OWNER'S REPRESENTATIVE.
2. CABINETS SHALL BE FABRICATED FROM 14 GAUGE, 304 STAINLESS STEEL, SPOT-WELDED CONSTRUCTION, #4 FINISH. ALL WELDS SHALL BE THOROUGHLY CLEANED. CABINET SHALL BE DEAD-FRONT CONSTRUCTION DEAD-FRONT SHALL BE FABRICATED FROM 14 GAUGE STAINLESS STEEL. NO ELECTRICAL EQUIPMENT SHALL BE ATTACHED TO THE DEAD-FRONT PANEL.
3. CABINET SHALL BE U.L. LISTED FOR USE AS SERVICE EQUIPMENT AND SHALL BE RATED NEMA 3R. CIRCUIT BREAKERS SHALL BE 240 VOLT, 2-POLE OR 120 VOLT, 1-POLE, AS REQUIRED. ALL INTERNAL WIRING, EXCEPT FIELD WIRING, SHALL BE DONE BY A U.L. LISTED FACILITY. ALL SCREWS SHALL BE STAINLESS STEEL.
4. TERMINALS SHALL BE SIZED FOR CONDUCTOR SIZES SHOWN ON PLANS.
5. CONTRACTOR SHALL VERIFY AVAILABLE GROUND FAULT CURRENT FOR MAIN BREAKER INTERRUPT CAPACITY.

2 E0.3 METERED STREET LIGHTING CONTROLLER CABINET DETAIL
NOT TO SCALE




3 E0.3 METERED DISTRIBUTION PEDESTAL
NOT TO SCALE

| DATE: | NO. | REVISION: |
|---|---|---|

DRAWN: R&W | DESIGNED: DHS | CHECKED: DHS
SCALE: AS SHOWN | DATE: 07.12.2021
PROJECT NO: 19.13
PACKAGE TITLE: 60% SET

STAMP: REGISTERED PROFESSIONAL ENGINEER 88445PE OREGON NOVEMBER 12, 2021 JONATHAN P. LILLY
PRELIMINARY
EXPIRES 12/31/22

CONSULTANT:
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9615 S.W. Allen Boulevard Suite 107 Beaverton, Oregon 97005
Phone: (503) 726-3317 Fax: (503) 726-3326 E-mail: rweng@rweng.com
Project No.: 1179.016.001 Contact: DENNIS HALL

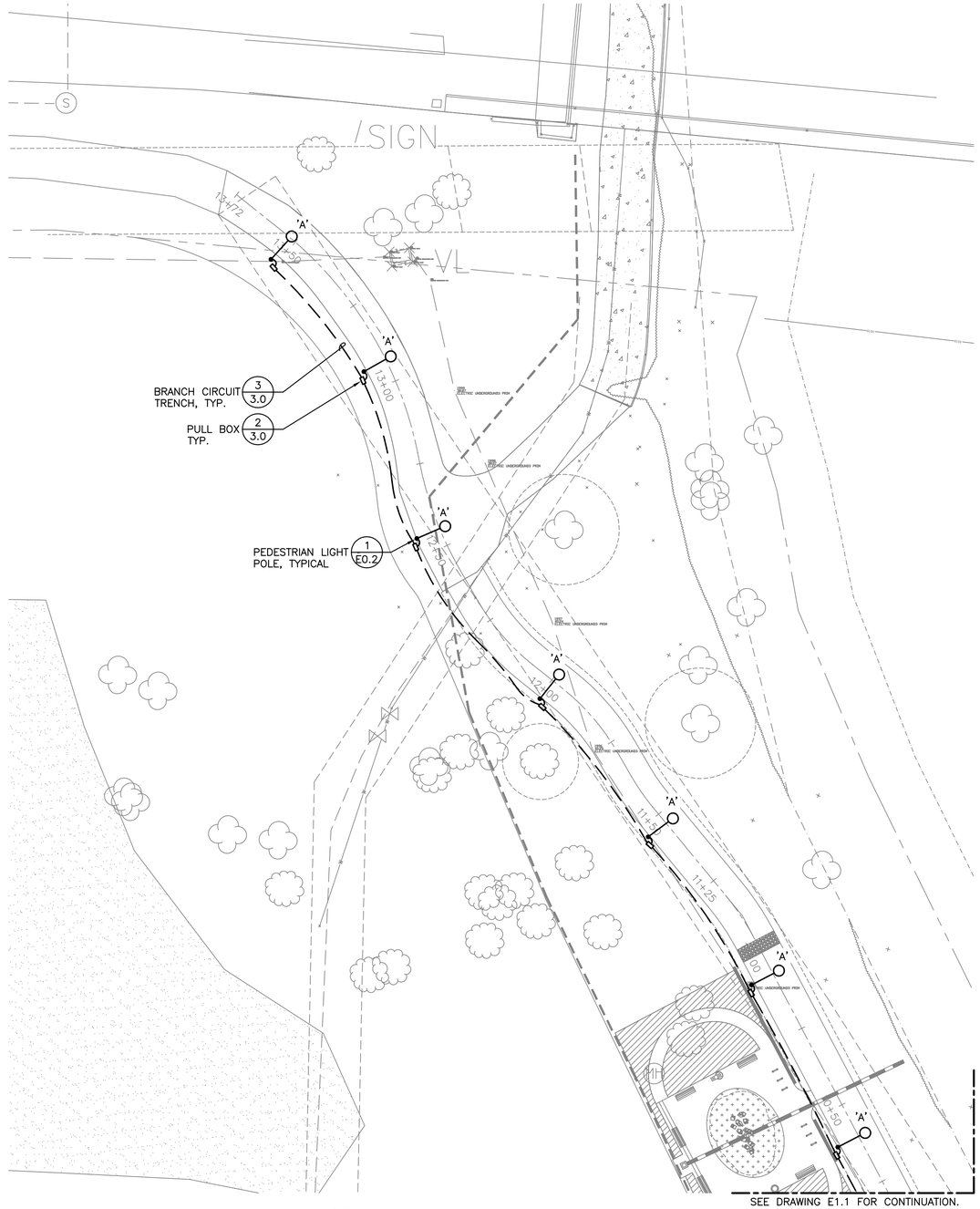
CLIENT:
CITY OF TROUTDALE
219 E. Historic Columbia River Highway
Troutdale, Oregon 97060

PROJECT:
SANDY RIVERFRONT TRAIL
473 E. Historic Columbia River Highway
Troutdale, Oregon 97060

SHEET:
SERVICE ENCLOSURE DETAILS
E0.3

## GENERAL NOTES

A. SEE DRAWING E0.1 FOR SYMBOL LEGEND.




1 / E1.0 PARTIAL SITE PLAN - ELECTRICAL
SCALE: 1" = 20'

| | | |
|---|---|---|
| DATE: | NO. | REVISION: |

DRAWN: R&W | DESIGNED: DHS | CHECKED: DHS

SCALE: AS SHOWN | DATE: 07.12.2021

PROJECT NO: 19.13

PACKAGE TITLE: 60% SET

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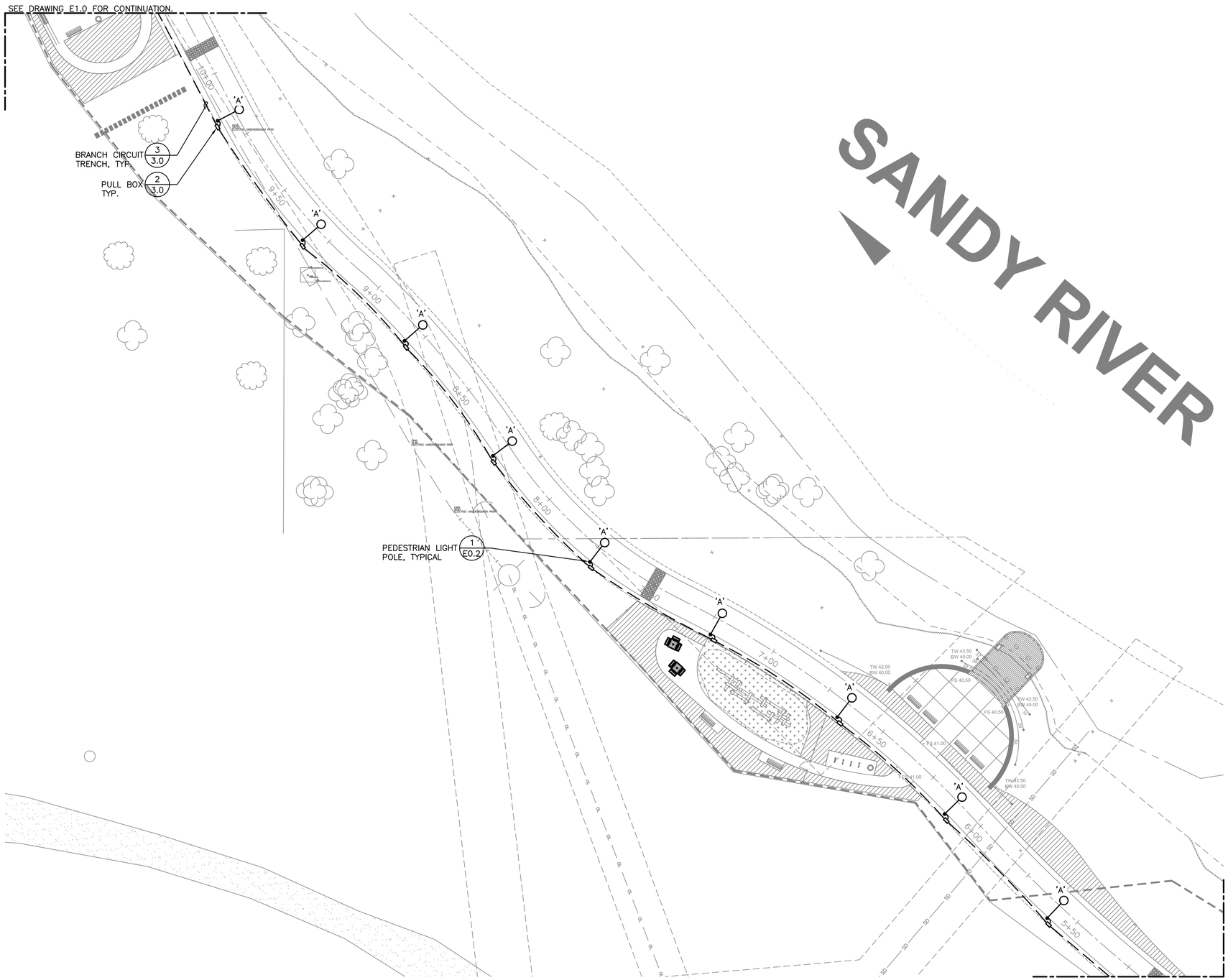
SHEET:

PARTIAL SITE PLAN ELECTRICAL
E1.0

## GENERAL NOTES

A. SEE DRAWING E0.1 FOR SYMBOL LEGEND.




1 E1.1 PARTIAL SITE PLAN - ELECTRICAL
SCALE: 1" = 20'

| DATE: | NO. | REVISION: |
|---|---|---|

DRAWN: R&W | DESIGNED: DHS | CHECKED: DHS

SCALE: AS SHOWN | DATE: 07.12.2021

PROJECT NO: 19.13

PACKAGE TITLE: 60% SET

STAMP: REGISTERED PROFESSIONAL ENGINEER 88445PE OREGON NOVEMBER 12, 2013 JONATHAN P. LILLY
PRELIMINARY
EXPIRES 12/31/22

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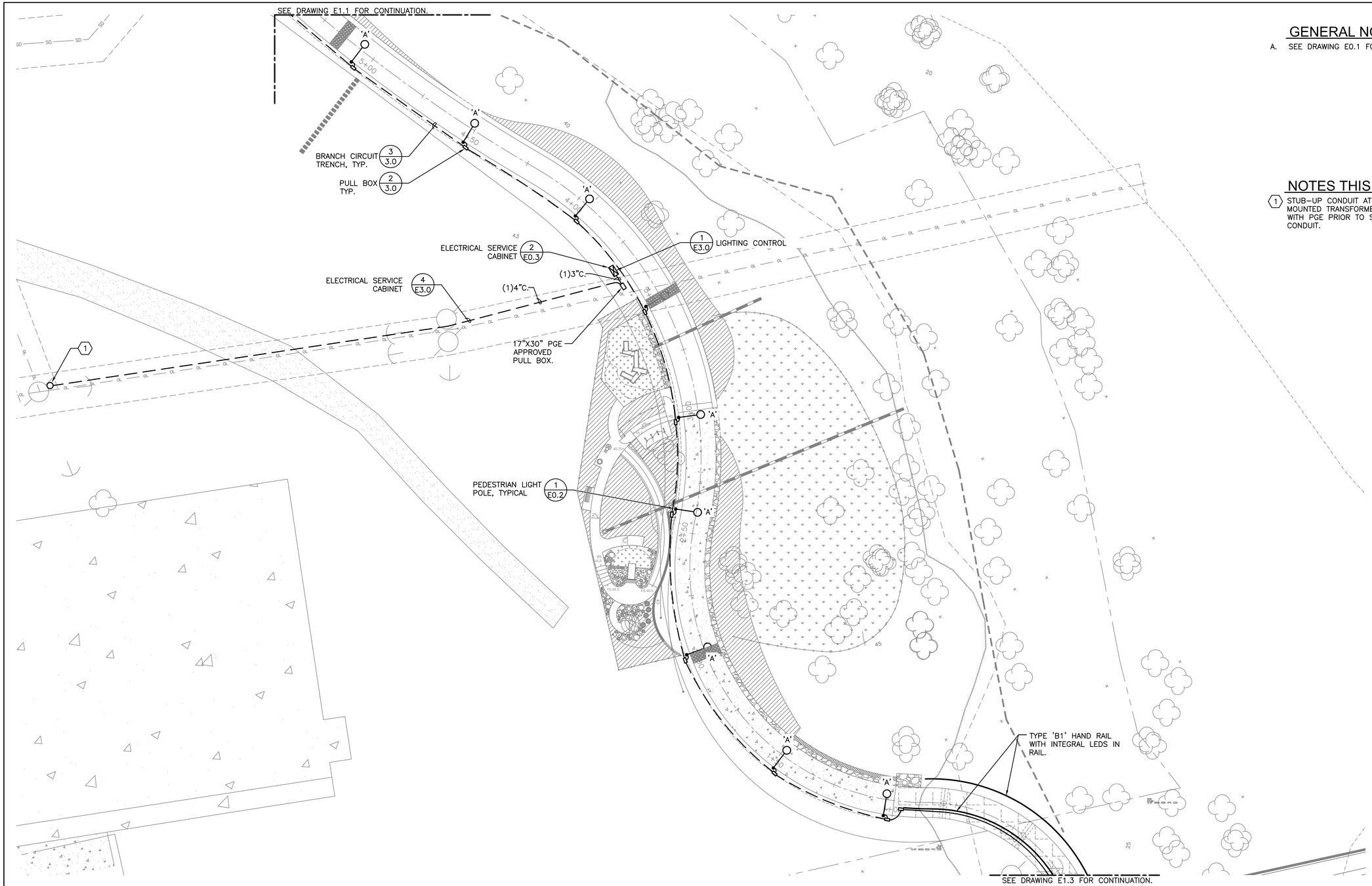
Troutdale, Oregon 97060

SHEET:

PARTIAL SITE PLAN ELECTRICAL
E1.1




1 / E1.2 PARTIAL SITE PLAN - ELECTRICAL
SCALE: 1" = 20'

## GENERAL NOTES

A. SEE DRAWING E0.1 FOR SYMBOL LEGEND.

## NOTES THIS SHEET

1. STUB-UP CONDUIT AT BOTTOM OF POWER POLE WITH PGE POLE MOUNTED TRANSFORMERS. CONTRACTOR TO COORDINATE INSTALLATION WITH PGE PRIOR TO START OF WORK. PROVIDE PULL STRING IN CONDUIT.

| DATE: | NO. | REVISION: |
|---|---|---|

DRAWN: R&W | DESIGNED: DHS | CHECKED: DHS
SCALE: AS SHOWN | DATE: 07.12.2021
PROJECT NO: 19.13
PACKAGE TITLE: 60% SET

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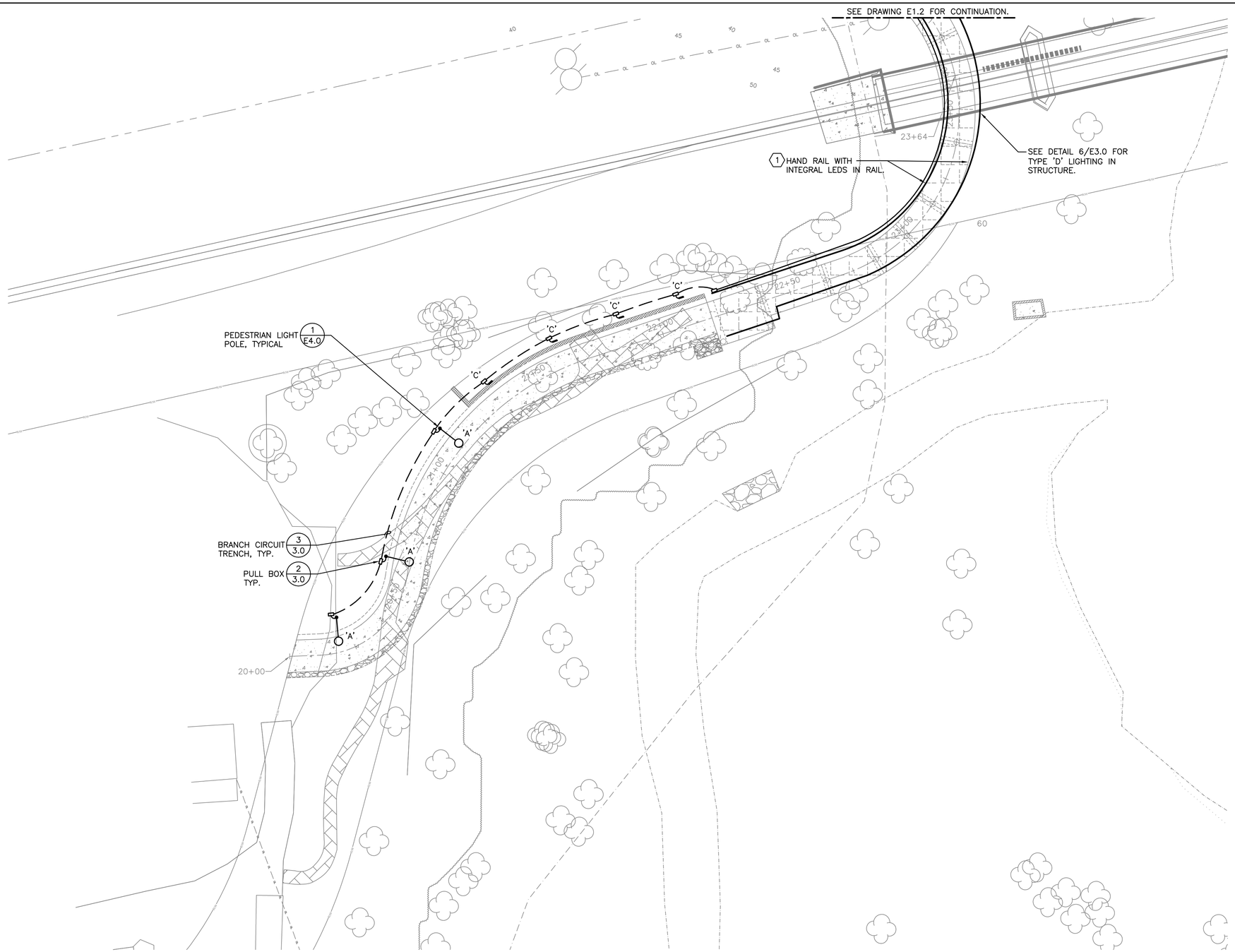
SHEET:
PARTIAL SITE PLAN ELECTRICAL
E1.2




1 E1.3 PARTIAL SITE PLAN - ELECTRICAL
SCALE: 1" = 20'

## GENERAL NOTES

A. SEE DRAWING E0.1 FOR SYMBOL LEGEND.

## NOTES THIS SHEET

1. TYPE 'D' LED LUMENPOD LIGHT ENGINES INSTALLED EVER 5-FEET IN RAILING.

| DATE: | NO. | REVISION: |
|---|---|---|

DRAWN: R&W | DESIGNED: DHS | CHECKED: DHS

SCALE: AS SHOWN | DATE: 07.12.2021

PROJECT NO: 19.13

PACKAGE TITLE: 60% SET

STAMP: REGISTERED PROFESSIONAL ENGINEER 88445PE OREGON NOVEMBER 12, 2014 JONATHAN P. LILLY
PRELIMINARY
EXPIRES 12/31/22

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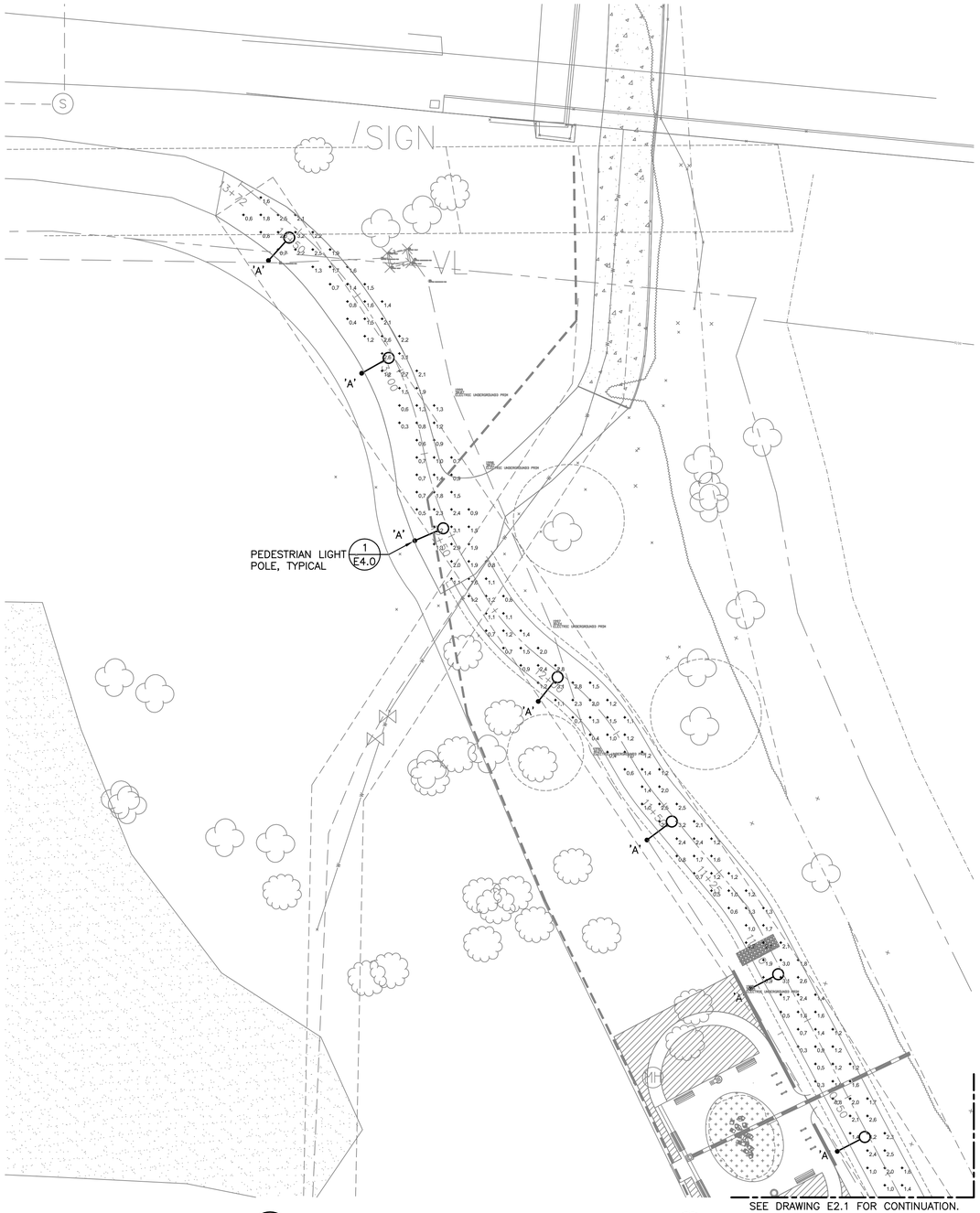
Troutdale, Oregon 97060

PROJECT:
SANDY RIVERFRONT TRAIL
473 E. Historic Columbia River Highway
Troutdale, Oregon 97060

SHEET:
PARTIAL SITE PLAN ELECTRICAL
E1.3

## GENERAL NOTES

A. SEE DRAWING E0.1 FOR SYMBOL LEGEND.




1 E2.0 PARTIAL SITE PLAN - PHOTOMETRIC
SCALE: 1" = 20'

| PHOTOMETRIC ANALYSIS SUMMARY TABLE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| STATISTICS | | DESIGN VALUES | | | | | | TARGET VALUES | |
| DESCRIPTION | CLASSIFICATION | SYMBOL | AVG | MAX | MIN | MAX/MIN | AVG/MIN | AVG (≥) | AVG/MIN (≤) |
| NORTH PEDESTRIAN PATH | BUSINESS | + | 1.5 fc | 3.3 fc | 0.3 fc | 11.0:1 | 3.3:1 | 1.5 | 6.0:1 |
| PEDESTRIAN PATH RAISED PATH | BUSINESS | + | 1.7 fc | 7.0 fc | 0.3 fc | 23.3:1 | 5.0:1 | 1.5 | 6.0:1 |
| SOUTH PEDESTRIAN PATH | BUSINESS | + | 2.3 fc | 17.5 fc | 0.4 fc | 43.8:1 | 5.8:1 | 1.5 | 6.0:1 |

| DATE: | NO. | REVISION: |
|---|---|---|

DRAWN: R&W | DESIGNED: DHS | CHECKED: DHS

SCALE: AS SHOWN | DATE: 07.12.2021

PROJECT NO: 19.13

PACKAGE TITLE: 60% SET

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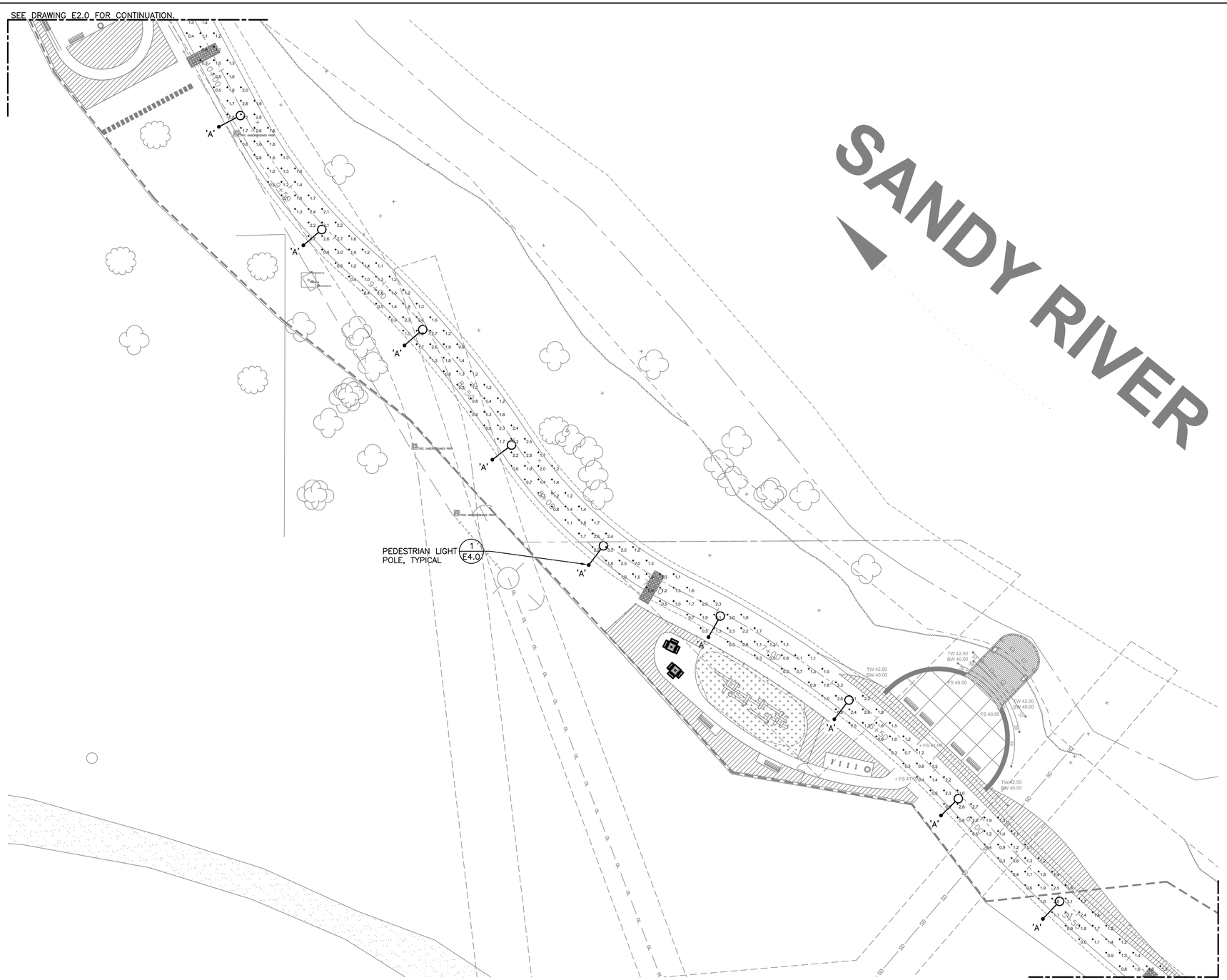
SHEET:
PARTIAL SITE PLAN PHOTOMETRIC
E2.0

## GENERAL NOTES

A. SEE DRAWING E0.1 FOR SYMBOL LEGEND.

B. SEE DRAWING E2.0 FOR PHOTOMETRIC SCHEDULE FOR ILLUMINATION TARGET VALUES.




1 E2.1 PARTIAL SITE PLAN - PHOTOMETRIC
SCALE: 1" = 20'

| | | | | | | |
|---|---|---|---|---|---|---|
| DATE: | NO. | REVISION: | DRAWN: R&W | DESIGNED: DHS | CHECKED: DHS | STAMP: |
| | | | SCALE: AS SHOWN | DATE: 07.12.2021 | | |
| | | | PROJECT NO: 19.13 | | | |
| | | | PACKAGE TITLE: 60% SET | | | |

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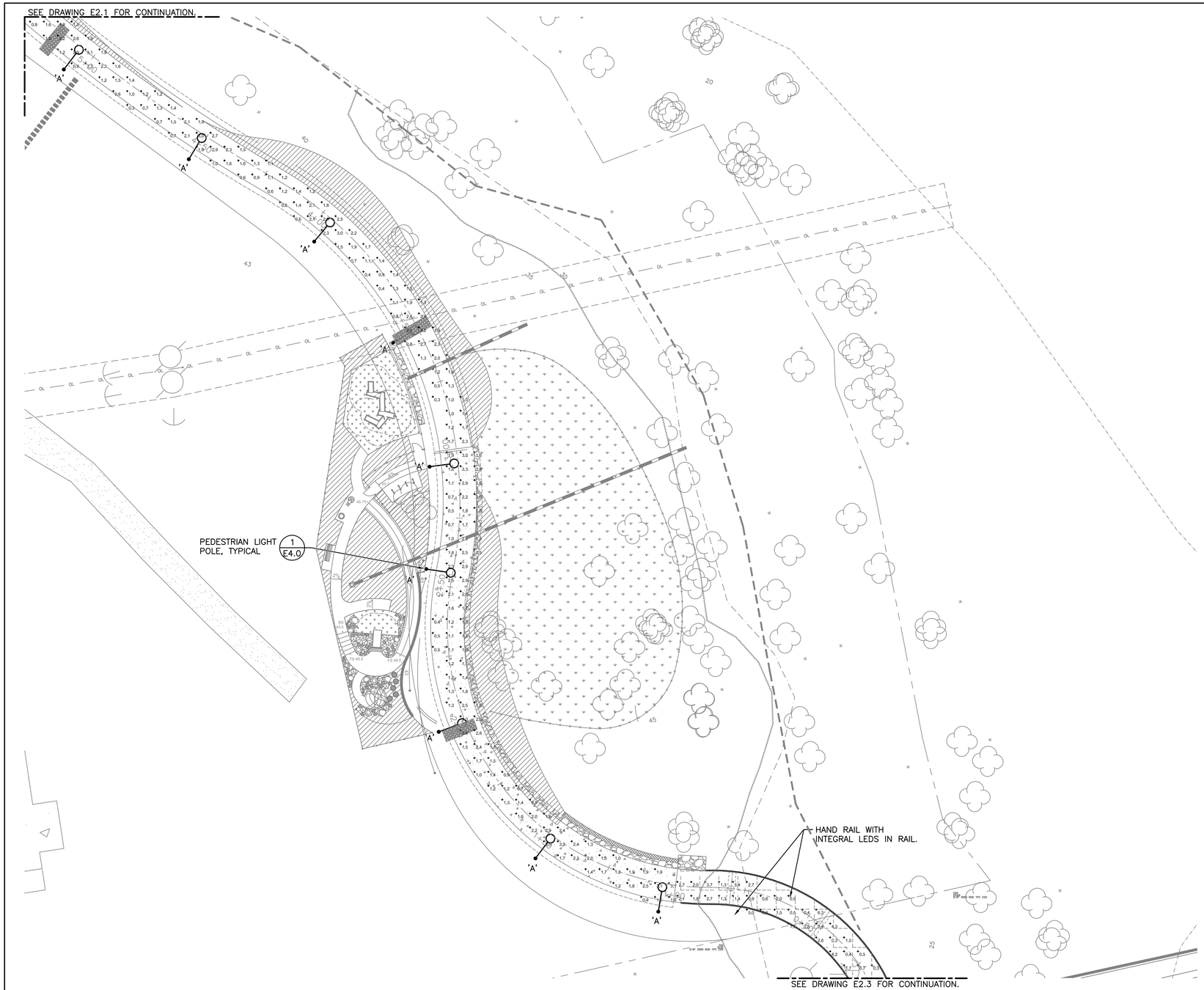
SHEET:

PARTIAL SITE PLAN PHOTOMETRIC
E2.1




1 E2.2 PARTIAL SITE PLAN - ELECTRICAL
SCALE: 1" = 20'

## GENERAL NOTES

A. SEE DRAWING E0.1 FOR SYMBOL LEGEND.

B. SEE DRAWING E2.0 FOR PHOTOMETRIC SCHEDULE FOR ILLUMINATION TARGET VALUES.

| DATE: | NO. | REVISION: |
|---|---|---|

DRAWN: R&W | DESIGNED: DHS | CHECKED: DHS

SCALE: AS SHOWN | DATE: 07.12.2021

PROJECT NO: 19.13

PACKAGE TITLE: 60% SET

STAMP:

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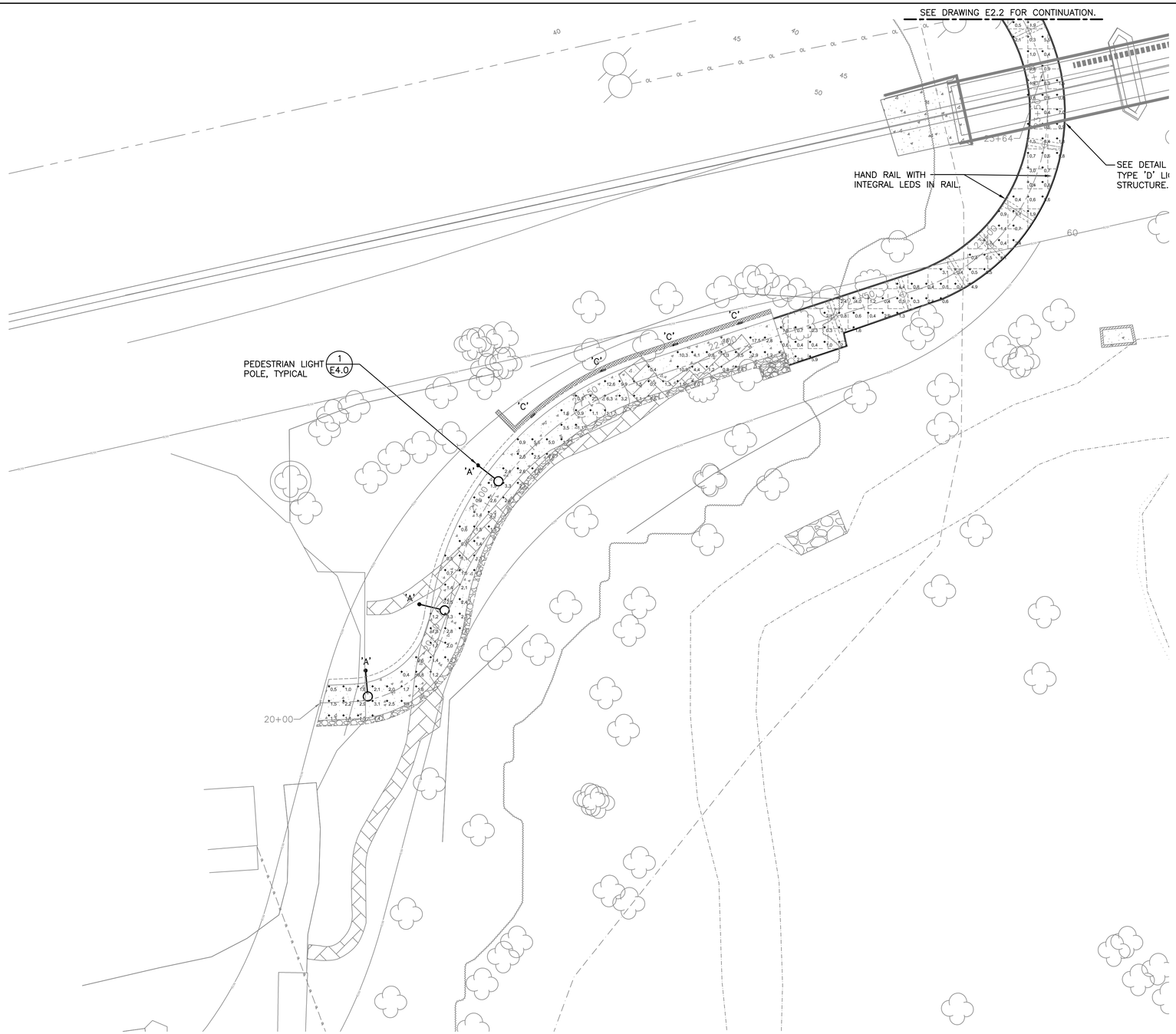
SHEET:

PARTIAL SITE PLAN PHOTOMETRIC
E2.2




1 E2.3 PARTIAL SITE PLAN - PHOTOMETRIC
SCALE: 1" = 20'

## GENERAL NOTES

A. SEE DRAWING E0.1 FOR SYMBOL LEGEND.

B. SEE DRAWING E2.0 FOR PHOTOMETRIC SCHEDULE FOR ILLUMINATION TARGET VALUES.

| DATE: | NO. | REVISION: |
|---|---|---|

DRAWN: R&W | DESIGNED: DHS | CHECKED: DHS

SCALE: AS SHOWN | DATE: 07.12.2021

PROJECT NO: 19.13

PACKAGE TITLE: 60% SET

STAMP:

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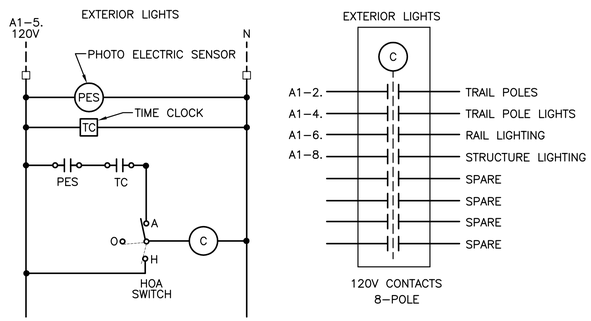
SHEET:

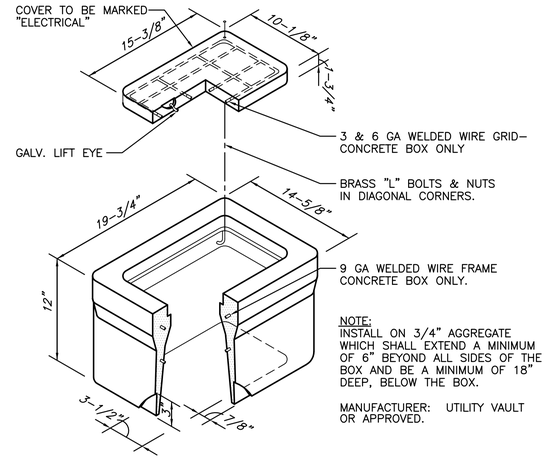
PARTIAL SITE PLAN PHOTOMETRIC
E2.3




NOTES THIS DETAIL

1. CONTROLS SHALL BE LOCATED IN SERVICE POWER PEDESTAL. SEE DRAWING E2.2 FOR LOCATION.
2. AIM PHOTO CELL NORTH, SO THAT IT IS NEVER IN DIRECT SUN LIGHT.
3. SEE DRAWINGS DETAIL 1/E0.3, 2/E0.3 AND 3/E0.3 FOR MORE INFORMATION.
4. TIME CLOCK TO BE ELECTRONIC TIMER, ASTRONOMICAL 7 DAY, NEMA 1. MANUFACTURER: INTERMATIC ET8215C OR APPROVED.

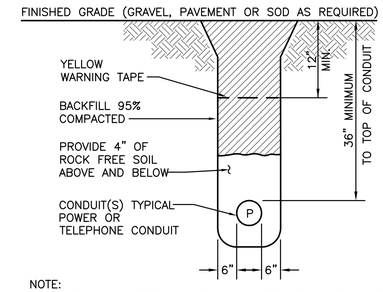
1 / E3.0 LIGHTING CONTROL DIAGRAM
NO SCALE




NOTE:
INSTALL ON 3/4" AGGREGATE WHICH SHALL EXTEND A MINIMUM OF 6" BEYOND ALL SIDES OF THE BOX AND BE A MINIMUM OF 18" DEEP, BELOW THE BOX.

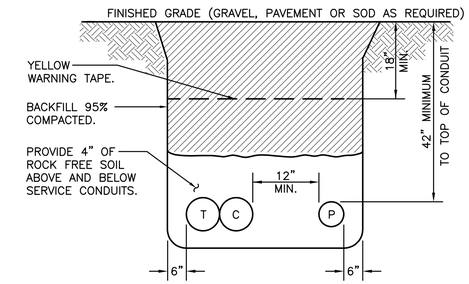
MANUFACTURER: UTILITY VAULT OR APPROVED.

2 / E3.0 FLUSH HANDHOLE/SPLICE BOX
NO SCALE



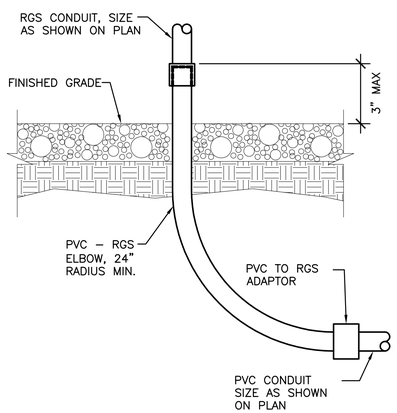

NOTE:
A. MAINTAIN 12" VERTICAL AND 24" HORIZONTAL CLEARANCE BETWEEN GAS AND OTHER UTILITIES.

3 / E3.0 CONDUIT TRENCH DETAIL
NO SCALE

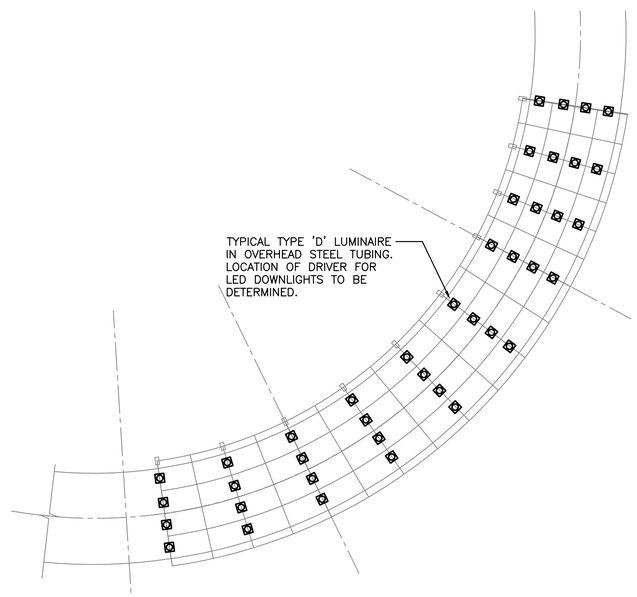



P = POWER
T = TELEPHONE
C = CABLE TELEVISION

4 / E3.0 CONDUIT TRENCH DETAIL
NO SCALE




5 / E3.0 CONDUIT GRADE TRANSITION DETAIL
NOT TO SCALE




NOTE: SEE DRAWING E1.2 AND E1.3 FOR MORE ROUTING OF POWER CONDUITS FROM ELECTRICAL SERVICE AND LIGHTING CONTROL.

6 / E3.0 RAISED PATH OVERHEAD STRUCTURE - LIGHTING
NO SCALE

| DATE: | NO. | REVISION: |
|---|---|---|

DRAWN: R&W | DESIGNED: DHS | CHECKED: DHS
SCALE: AS SHOWN | DATE: 07.12.2021
PROJECT NO: 19.13
PACKAGE TITLE: 60% SET

STAMP: REGISTERED PROFESSIONAL ENGINEER 88445PE OREGON NOVEMBER 12, 2013 JONATHAN P. LILLY
PRELIMINARY
EXPIRES 12/31/22

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PROJECT:
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473 E. Historic Columbia River Highway
Troutdale, Oregon 97060

SHEET:
ELECTRICAL DETAILS
E3.0

# ELECTRICAL SPECIFICATION

SECTION 16000
ELECTRICAL

PART 1—GENERAL

1.1 SUMMARY
A. Electrical systems required for this work includes labor, materials, equipment, and services necessary to complete installation of electrical work shown on Drawings, specified herein or required for a complete operable facility and not specifically described in other Sections of these Specifications. Among the items required are:
1. Service and distribution equipment shown on Drawings.
2. Branch circuit wiring from the distribution panel for lighting, receptacles, signal systems and other detailed circuit wiring.
3. Luminaires, control switches, receptacles, relays, supports and other accessory items.
B. Fees:
1. Obtain and pay for electrical permits and inspections from local authorities having jurisdiction (AHJs).

1.2 DEFINITIONS
A. Provide: To furnish and install, complete and ready for the intended use.
B. Furnish: Supply and deliver to the project site, ready for unpacking, assembly and installation.
C. Install: Includes unloading, unpacking, assembling, erecting, installation, applying, finishing, protecting, cleaning and similar operations at the project site as required to complete items of work furnished by others.

1.3 SUBMITTALS
A. Operation and Maintenance Documentation: Provide copies of certificates of code authority acceptance, test data, product data, guarantees, warranties, and the like.
B. Shop Drawings: Provide shop drawings which include physical characteristics, electrical characteristics, device layout plans, wiring diagrams, and the like.
C. Record Drawings: Show changes and deviations from the Drawings. Include written Addendum and change order items. Make changes to Drawings in a neat, clean, and legible manner.

1.4 QUALITY ASSURANCE
A. Conform to requirements of the National Electric Code (NEC), latest adopted version with amendments by local AHJs.
B. Conform to latest adopted version of the Uniform Building Code (UBC) with amendments by local AHJs.
C. Furnish products listed by Underwriters' Laboratories, Inc. (UL) or other testing firm acceptable to AHJ.
D. Conform to requirements of the serving electric, telephone, [and cable television] utilities.'

1.5 SEQUENCING AND SCHEDULING
A. For the proper execution of the work cooperate with other crafts and contracts as needed.
B. To avoid installation conflicts, thoroughly examine the complete set of Contract Documents. Resolve conflicts prior to installation.
C. Prior to installation of feeders to equipment requiring electrical connections, examine the manufacturer's shop drawings, wiring diagrams, product data, and installation instructions. Verify that the electrical characteristics detailed in the Contract Documents are consistent with the electrical characteristics of the actual equipment being installed.

1.6 WARRANTY
A. Driver Manufacturer's Warranty: Not less 5 years, based on date of manufacturer embossed on ballast, current with installation date. Warranty includes normal cost of labor for replacement of ballast.

PART 2—PRODUCTS

2.1 MATERIALS
A. Provide new electrical materials of the type and quality detailed, listed by UL, bearing their label wherever standards have been established. Indicated brand names and catalog numbers are used to establish standards of performance and quality. The description of materials listed herein governs in the event that catalog numbers do not correspond to materials described herein.
B. Include special features, finishes, accessories, and other requirements as described in the Contract Documents regardless of the item's listed catalog number.
C. Provide incidentals not specifically mentioned herein or noted on Drawings, but needed to complete the system or systems, in a safe and satisfactory working condition.

2.2 RACEWAYS
A. Galvanized Rigid Steel Conduit (GRC): Federal Specification WWC—581 and American National Standards Institute (ANSI) C80.1.
B. Intermediate Metal Conduit (IMC): Federal Specification WWC—581.
C. Electrical Metallic Tubing (EMT): Federal Specification WWC—563 and ANSI C80.3.
D. POLYVINYL CHLORIDE (PVC)
E. Flexible Conduit: Reduced wall flexible steel conduit. Federal Specification WWC—566.
F. Conduit Fittings:
1. Bushings: Malleable iron with plastic insulator lining, 150C rated.
2. Ground Bushings: Malleable iron with plastic insulating liner and aluminum grounding lug rated for copper or aluminum conductor, 150C rated.
3. EMT Connectors and Couplings:
a. Set Screw Type: Zinc plated steel, insulated throat connectors.
b. Compression Type: Zinc plated steel, insulated throat connectors, raintight up to 2—inch.

2.3 WIRES AND CABLES
A. Copper, 600 volt rated throughout. Conductors 14AWG to 10AWG, solid or stranded. Conductors 8AWG and larger, stranded. Phase color to be consistent at feeder terminations; A—B—C, top to bottom, left to right, front to back. Conductors 3AWG and larger, minimum insulation rating of 75C. Insulation types THWN, THHN or XHHW. Minimum insulation rating of 90C for branch circuits.

2.4 BOXES
A. Device Outlet: Minimum 4—inch square, minimum 1—1/2—inches deep. Single or 2—gang flush device raised covers. Raco Series 681 and 686 or Bowers.
B. Multiple Devices: Three or more devices at common location. Install 1—piece gang boxes with 1—piece device cover, one device per gang.
C. Junction and Pull Boxes: Galvanized sheet steel junction and pull boxes, with screw—on covers; of the type shape and size, to suit each respective location and installation; with welded seams and equipped with steel nuts, bolts, screws and washers.

2.5 WIRING DEVICES
A. Finish: Grey.
B. Switches: Toggle type, quiet acting, 20 amp, 120/277 volt, UL listed for motor loads up to 80 percent of rated amperage. Arrow—Hart 1221, Leviton 1221, Pass & Seymour 20AC1, Bryant 4901, Hubbell 1221.
C. Pilot Light Switches: Lighted handle, toggle type, red, neon pilot lamp. Pilot lamp energized when load is energized. 20 amp/120 volt, Arrow—Hart 1991—PL, Leviton 1221—PL, Pass & Seymour 20ACI—PL, Bryant 4901—PL, Hubbell 1221—PL.
D. Receptacles: Straight parallel blade 20 amp, 125 volt, 2—pole — 3 wire grounding. Arrow—Hart 5352, Leviton 5352, Pass & Seymour 5352, Bryant 5352, Hubbell 5352.
E. Ground Fault Interrupter Receptacle: Feed through type, 20 amp, 125VAC. Hubbell IG—5362, Arrow—Hart IG—5362, Leviton, Pass & Seymour, Bryant.
F. Finish Plates: Smooth thermoplastic, same finish as device.

2.6 SAFETY DISCONNECTS
A. Toggle Type Disconnect Switches: 120 volt, 1—pole, 20 amp, 1 HP maximum. NEMA 1 enclosure for indoors, NEMA 3R enclosure for outdoors.

2.7 SUPPORTING DEVICES
A. Hangers: Kindorf B—905—2A channel, H—119—D washer, C105 strap, 3/8—inch rod with ceiling flange.
B. Pipe Straps: Two—hole galvanized or malleable iron.

2.8 ELECTRICAL IDENTIFICATION
A. Engraved Labels: Melamine plastic laminate, white with black core, 1/16—inch thick, manufactured by Lamicoid. Engravers standard letter style, minimum 3/16—inch high letters. Drill or punch labels for mechanical fastening except where adhesive mounting is necessary because of substrate. Use self tapping stainless steel screws.
B. Conductor Numbers: Manufacturers standard vinyl—cloth self—adhesive cable and conductor markers of the wraparound type.
C. Branch Circuit Schedules: Provide branch circuit identification schedules, typewritten, clearly filled out, to identify load connected to each circuit and location of load.

2.9 GROUNDING MATERIALS
A. Ground Rods: Copperclad steel, 3/4—inch diameter, [10] [20]—feet long, tapered point, chamfered top.
B. Grounding Connectors: Hydraulic compression tool applied connectors or exothermic welding process connectors or powder actuated compression tool applied connectors. Mechanical type of connectors are not acceptable. Manufacturers: Burndy Hyground Compression System, Erico/Cadweld, Amp Ampact Grounding System or approved.
C. Pipe Grounding Clamp: Mechanical ground connector with cable parallel or perpendicular to pipe.

2.9 OVERCURRENT PROTECTIVE DEVICES
A. Molded Case Circuit Breakers: One, two or three—pole bolt on, single handle common trip, rated 15 to 800 amp, as indicated on Drawings. Overcenter toggle—type mechanism, quick—make, quick—break action. Trip indication is by handle position. Calibrate for operation in 40C ambient temperature.

2.10 CONTROL DEVICES
A. Lighting Contactors:
1. Continuously rated 20 amp per pole for all types of ballast and tungsten lighting and resistance loads, do not derate for use on high—inrush loads.
2. Contacts: Double break, silver—cadmium—oxide. Auxiliary arcing contacts not acceptable. Convertible Contacts, N.O. or N.C. Contact status, N.O. or N.C., clearly visible.
3. Approved per UL 508. Design in accordance with NEMA ICS2—211B, rated for application to 600 volt.
4. Electrically Held Contactor Coil: Continuously rated and encapsulated.
5. Contactor Enclosures: Provide NEMA enclosure suitable for location and use, flush or surface mount as indicated on Drawings.
B. Electronic Time Switches: Double pole, single throw; one N.O. contact, one N.C. contact. 24—hour digital. Battery power source to provide minimum of 3 years of memory back—up. Eight event setpoints. Provide enclosure with separate hinged door, recessed or surface as indicated on Drawings. Intermatic, Paragon, Tork, Sangamo, or approved.
C. Photoelectric Switches: Hermetically sealed light sensitive element installed in die—cast weatherproof enclosure. Adjustable external light level slide. Swivel adjustable enclosure. 20VAC, 1800VA, connected for pilot duty unless otherwise indicated. Paragon, Tork, Precision, or approved.

2.11 LUMINAIRES
A. Luminaires: Refer to description and manufacturers in Luminaire Schedule.
B. Light Transmitting Components: Prismatic acrylic, extruded, flat diffusers, 0.125—inch overall thickness, unless otherwise noted.

PART 3—EXECUTION

3.1 EXAMINATION
A. Drawings are diagrammatic with symbols representing electrical equipment, outlets, luminaires, and wiring. Examine the entire set of Drawings to avoid conflicts with other systems. Determine exact route and installation of electrical wiring and equipment with conditions of construction.
B. Clarification:
1. The Drawings govern in matters of quantity, the Specification in matters of quality. In event of conflict on Drawings or in the Specifications, the greater quantity and the higher quality apply.
2. Should the Electrical Documents indicate a condition conflicting with the governing codes and regulations, refrain from installing that portion of the work until clarified by Architect.

3.2 MOTORS/APPLIANCE/UTILIZATION BRANCH CIRCUIT WIRING
A. Electrical Connections: Connect equipment, whether furnished by Owner or other Divisions of the Contract, electrically complete.
B. Connect motor branch circuits complete from panel to motor as required by code and manner herein described.
C. Appliance/Utilization Equipment: Provide appropriate cable and cord cap for final connection unless equipment is provided with same. Verify special purpose outlet NEMA configuration and ampere rating with equipment supplier prior to ordering devices and coverplates.

3.3 INSTALLATION
A. Install electrical equipment complete as directed by manufacturer's installation instructions. Obtain installation instructions from manufacturer prior to rough—in of the electrical equipment, examine the instructions thoroughly.
B. Noise Control: Do not place outlet boxes at opposite side of partitions or walls back to back. Do not place contactors, transformers, starters or similar noise producing devices on walls which are common to occupied spaces unless specifically called for on Drawings. Where such devices must be mounted on walls common to occupied spaces, mount or isolate in such a manner as to effectively prevent the transmission of their inherent noise to the occupied space.
C. Conduit:
1. Conceal conduits. Exposed conduits are permitted only in the following areas: Mechanical rooms, electrical rooms or spaces where walls, ceilings and floors will not be covered with finished materials. Existing walls that are concrete or block construction and where specifically noted on the Drawings.
2. Do not install conduits on surface of building exterior, across roof, on top of parapet walls, or across floors.
3. Below Grade Conduit and Cables: Place a minimum 3—inch cover of sand or clean earth fill around the cable or conduit on a leveled trench bottom. Lay conduit on a smooth level trench bottom, so that contact is made for its entire length. Remove water from trench before electrical conduit is installed.
4. Conduit Terminations: Provide conduits shown on Drawings which terminate without box, panel, cabinet or conduit fitting with conduit connector or bushing.
5. Conduit Size: Minimum trade size 1/2—inch.
6. Provide pull cord in empty conduits.
7. Conduit Use Locations:
a. Underground: PVC.
b. Cast—in—Place Concrete, Masonry, Damp Locations and Subject to Mechanical Damage: GRC or IMC.
c. Dry, Protected: GRC, IMC, EMT.
d. Sharp Bends and Elbows: GRC, EMT use factory elbows.
e. Motors, recessed luminaires and equipment connections subject to movement or vibration, use flexible metallic conduit.
f. Motors and equipment connections subject to movement or vibration and subjected to the following conditions; exterior location, moist or humid atmosphere, water spray, oil or grease use PVC coated liquid tight flexible metallic conduit.
g. MC cable to be installed vertically in wall from j—box up to accessible building void space unless other wise noted.
8. Branch Circuits: Do not change the intent of the branch circuits or controls without approval. Homeruns for 20 amp branch circuits may be combined to a maximum of six conductors in a homerun. Apply derating factors as required by NEC 310. Increase conductor size as needed.
F. Wires and Cables:
1. Conductor Installation: Install conductors with care to avoid damage to insulation. Do not apply greater tension on conductors than recommended by manufacturer during installation.
2. Conductor Size and Quantity: Install no conductors smaller than 12AWG unless otherwise shown. Provide required conductors for a fully operable system.
3. MC Cable Allowed in the Following Locations Only: In areas where there is an accessible ceiling. Do not use in areas where there is no accessible ceiling.
G. Boxes:
1. Anchoring: Secure boxes rigidly to the substrate upon which they are being mounted, or solidly embed boxes in concrete or masonry.
2. Provide weatherproof outlets for locations exposed to weather or moisture.
3. Code Compliance: Comply with NEC as applicable to construction and installation of electrical boxes and fittings and size boxes according to NEC 370, except as noted otherwise.
4. Mount Center of Outlet Boxes as Required by Americans With Disabilities Act (ADA), or Noted on Drawings, the Following Distance above the Floor:
a. Control Switches: 48—inches.
b. Receptacles: 18—inches.
c. Other Outlets: As indicated in other Sections of Specifications or as detailed on Drawings.
H. Provide NEC—required disconnect switches whether specifically shown on Drawings or not. Provide disconnect switch at each motor location within 5—feet unless otherwise noted. Coordinate fuse ampere rating with installed equipment. Fuse ampere rating variance between original design information and installed equipment, size in accordance with Bussmann Fusetron 40C recommendations.
I. Supporting Devices:
1. Safety factor of 4 required for every fastening device or support for electrical equipment installed. Support to withstand four times weight of equipment it supports. Bracing to comply with Seismic Zone 3 requirements.
2. Provide vertical support members for equipment and luminaires, straight and parallel to building walls. Provide independent supports to structural member for electrical luminaires, materials, or equipment installed in or on ceiling, walls or in void spaces or over furred or suspended ceilings.
J. Electrical Identification:
1. Conductor Identification: Apply markers on each conductor for power, control, signaling and communications circuits.
2. Provide an engraved label on each major unit of electrical equipment, including but not limited to the following items: Disconnect switches, relays, contactors, time switches, override switches, service disconnects, distribution switches, branch circuit panelboards, and central or master unit of each electrical system including communication/signal systems.
K. Service and Distribution: New 100Amp, 120/240v, 1 phase, 3 wire service cabinet.
Grounding:
1. Performance Requirements: Supplement the grounded neutral of the secondary distribution system with an equipment grounding system to properly safeguard the equipment and personnel. Install equipment grounding such that metallic structures, enclosures, raceways, junction boxes, outlet boxes, cabinets, machine frames, portable equipment and other conductive items in close proximity with electrical circuits operate continuously at ground potential and provide a low impedance path for possible ground fault currents.
2. Raceway Grounding: Ground metallic raceway systems. Bond to ground terminal with code size jumper except where code size or larger grounding conductor is included with circuit, use grounding bushing with lay—in lug. Install ground bushings on metallic raceway terminations in pull boxes, panelboards and the like for circuits with overcurrent protection set at 60 amp and greater.
3. Install equipment grounding conductor, code size minimum in nonmetallic and metallic raceway systems.
4. Motors, Equipment and Appliances: Install code size equipment grounding conductor from outlet box to (motor) equipment frame or manufacturer's designated ground terminal.
5. Receptacles: Connect ground terminal of receptacle to equipment ground system by No. 14 conductor bolted to outlet box. Self grounding nature of receptacle devices does not eliminate conductor bolted to outlet box.
M. Fuses: For each class and ampere rating of fuse installed, provide three spare fuses.
N. Control Devices:
1. Install photoelectric control devices at such locations as necessary to be most effective. Avoid locating photoelectric devices in or at locations where they can be influenced by other than natural light or under eaves. Verify location of equipment with Architect.
O. Lighting:
1. Install luminaire of types indicated where shown and at indicated heights; in accordance with manufacturer's written instructions and with recognized industry practices.
2. Avoid interference with and provide clearance for equipment. Where the indicated locations for the luminaires conflict with the locations for equipment, change the locations for the luminaire as directed by Engineer.

| DATE: | NO. | REVISION: |
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STAMP: REGISTERED PROFESSIONAL ENGINEER 88445PE OREGON NOVEMBER 12, 2013 JONATHAN P. LILLY
PRELIMINARY
EXPIRES 12/31/22

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