



Attachment B. Landscaping Plans

GENERAL NOTES:

1. Plant all trees beyond "clear zone"; verify with engineer prior to planting. Engineer shall approve all work outside designated work limits prior to construction. Do not plant trees within 20' of a bridge/viaduct or within 10' of a trail, waterline, or stormwater line.
2. Locate underground utility lines prior to any digging or ground disturbance.
3. Adjust planting locations so vegetation does not conflict with above- or below-ground utilities.
4. Adjust plant locations to avoid conflict with traffic sight lines and signs or other appurtenances. Verify location changes with Engineer.
5. All dimensions shown on details are minimum dimensions.
6. See Plant Schedule FA02, FA03 for plants and landscape material.
7. Plan is schematic. Planting may be adjusted to fit site conditions with prior Agency approval.
8. Lay out plant material in groups as indicated in plant and material schedule, details and plan sheets.
9. Stake all planting areas for review and approval by Engineer prior to planting.
10. Do not install plant material without prior inspection and approval as required by O1040.19(d).
11. Comply with Oregon Standard Specifications for Construction and Special Provisions for construction applicable to this project.
12. Thoroughly water all plant material (saturated backfill) within 24-hours of installation regardless of rainfall events.
13. Verify field conditions prior to construction with any adjustments to the plans made as directed by the Engineer.
14. Protect all trees and land areas marked for protection. Do not damage natural (non-invasive) vegetation.
15. Comply with erosion control measures per Section 00280 and all applicable permits during construction.
16. Where discrepancies between the Plant Schedule and the plans exist, plans shall prevail.
17. See Special Provision 01030.13(f) for seed mixes
18. Prepare all planting and seeding areas per Method B, see O1040.48(b) in the Oregon Standard Specifications for Construction.
19. Include Mycorrhizal inoculates for all seeding and individual plant installations. Apply per manufacturer's recommendation.
20. Flag all planted tree species with color-coded identification flags.

Mitigation and Restoration Permitting Requirements									
	Area (square feet)						Plant Totals		
	FA08	FA10	FA12	FA13*	FA14	FA15	TOTAL	TREES	SHRUBS
DSL Permit Requirements	-	-	-	19,187	42,555	148,187	209,929	1,004	2,031
NROD Permit Requirements	50,776	53,500	-	4,190	-	-	108,466	745*	3,954
							TOTAL	1,661	5,985

*DSL Restoration Numbers for FA13 are applied to NROD Permit Mitigation Total Requirements

PRELIMINARY COPY INFORMATION ONLY	 HDR ENGINEERING, INC 1050 SW 6TH AVENUE, SUITE 1800 PORTLAND, OR 97204-1134 503.423.3700	 OREGON DEPARTMENT OF TRANSPORTATION
	I-205: I-5 - OR213, PHASE 1 SEC. EAST PORTLAND FREEWAY CLACKAMAS COUNTY	
	Designer: David Goodyke Drafter: David Goodyke	Reviewer: Ben Ngan Checker: Ben Ngan
	ROADSIDE DEVELOPMENT GENERAL NOTES	

ROADSIDE DEVELOPMENT PLANT SCHEDULE

??V-???

Plant and Material Schedule

Trees																	
Key	Botanical Name	Common Name	Size	Spacing	Root Type	Percent Mix	Plant Condition	FA08	FA09	FA10	FA11	FA12	FA13	FA14	FA15	FA16	TOTAL
TARME	<i>Arbutus menziesii</i>	Madrone	1/2" Calip.	As Shown	Container	N/A	Single trunk	-	-	-	3	-	-	-	1	-	4
TCADE	<i>Calocedrus decurrens</i>	Incense Cedar	4' Height	As Shown	Container or B&B	N/A	Single trunk	-	-	-	-	-	-	-	6	8	14
TCONU	<i>Cornus nuttallii</i>	Pacific Dogwood	1" Calip.	As Shown	Container	N/A	Single trunk	-	-	-	-	-	-	-	7	-	7
TPIPO	<i>Pinus ponderosa 'Willamette Valley'</i>	Willamette Ponderosa Pine	4' Height	As Shown	Container or B&B	N/A	Single trunk	-	42	14	99	79	26	-	29	23	300
TPSME	<i>Pseudotsuga menziesii</i>	Douglas Fir	4' Height	As Shown	Container or B&B	N/A	Single trunk	-	-	-	-	-	-	-	29	-	29
TQUCH	<i>Quercus chrysolepis</i>	Canyon Live Oak	1" Calip.	As Shown	Container or B&B	N/A	Single trunk	-	-	-	-	34	-	-	-	15	49
TQUGA	<i>Quercus garryana</i>	Oregon White Oak	1" Calip.	As Shown	Container or B&B	N/A	Single trunk	-	-	-	5	69	12	-	24	12	116
TULAM	<i>Ulmus americana 'Valley Forge'</i>	Valley Forge American Elm	1" Calip.	As Shown	Container or B&B	N/A	Single trunk	-	-	-	-	-	7	-	-	-	7
TUMCA	<i>Umbellularia californica</i>	Oregon Myrtle	1" Calip.	As Shown	Container or B&B	N/A	Single trunk	-	-	-	-	31	-	-	-	-	31

 Broadleaf Evergreen Shrubs

 Deciduous Shrubs

Key	Botanical Name	Common Name	Size	Spacing	Root Type	Percent Mix	Plant Condition	FA08	FA09	FA10	FA11	FA12	FA13	FA14	FA15	FA16	TOTAL
ARCO	<i>Arctostaphylos columbiana x 'Patula'</i>	Manzanita	12" Height	5' O.C.	#1 Container	N/A	N/A	-	-	-	-	214	-	-	-	-	214
COSE	<i>Cornus sericea</i>	Red Osier Dogwood	12" Height	5' O.C.	#1 Container	N/A	N/A	-	-	-	-	1,005	-	-	-	-	1,005
FRCA	<i>Frangula californica 'Eve Case'</i>	Eve Case Coffeeberry	12" Height	10' O.C.	#1 Container	N/A	N/A	-	-	-	-	51	-	-	-	-	51
GAEL	<i>Garrya elliptica 'James Roof'</i>	Wavyleaf Silktassel	12" Height	10' O.C.	#1 Container	N/A	N/A	-	-	-	-	61	-	-	-	-	61
MAAQ	<i>Mahonia aquifolium</i>	Tall Oregon Grape	12" Height	5' O.C.	#1 Container	N/A	N/A	-	-	-	-	397	-	-	-	-	397
MOCA	<i>Morella californica</i>	Pacific Wax Myrtle	12" Height	10' O.C.	#1 Container	N/A	N/A	-	-	-	-	57	-	-	-	-	57

 Ornamental Grasses and Forbs

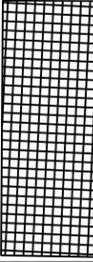
Key	Botanical Name	Common Name	Size	Spacing	Root Type	Percent Mix	Plant Condition	FA08	FA09	FA10	FA11	FA12	TOTAL
-	<i>Asclepias speciosa</i>	Showy milkweed	12" Height	2' O.C.	#1 Container	10%	N/A	-	-	-	-	1,248	1,248
-	<i>Calamagrostis x acutiflora 'Karl Foerster'</i>	Feather reed grass	12" Height	2' O.C.	#1 Container	15%	N/A	-	-	-	-	1,873	1,873
-	<i>Carex glauca</i>	Blue Sedge	12" Height	1' O.C.	#1 Container	15%	N/A	-	-	-	-	1,873	1,873
-	<i>Deschampsia cespitosa 'Goldtau'</i>	Tufted hairgrass	12" Height	3' O.C.	#1 Container	15%	N/A	-	-	-	-	1,873	1,873
-	<i>Juncus patens 'Carmen's Grey'</i>	Carman's Grey Blue Rush	12" Height	2' O.C.	#1 Container	10%	N/A	-	-	-	-	1,248	1,248
-	<i>Solidago 'Goldkind'</i>	Golden Baby goldenrod	12" Height	1' O.C.	#1 Container	10%	N/A	-	-	-	-	1,248	1,248
-	<i>Stipa gigantea</i>	Giant feather grass	12" Height	3' O.C.	#1 Container	15%	N/A	-	-	-	-	1,873	1,873
-	<i>Veratrum californicum</i>	California false hellebore	12" Height	2' O.C.	#1 Container	10%	N/A	-	-	-	-	1,248	1,248

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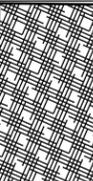
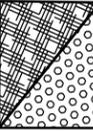
 HDR ENGINEERING, INC 1050 SW 6TH AVENUE, SUITE 1800 PORTLAND, OR 97204-1134 503.423.3700	 OREGON DEPARTMENT OF TRANSPORTATION
Designer: David Goodyke Drafter: David Goodyke	Reviewer: Ben Ngan Checker: Ben Ngan
ROADSIDE DEVELOPMENT GENERAL NOTES	
SHEET NO. FA02	

ROADSIDE DEVELOPMENT PLANT SCHEDULE

??V-???

City of Oregon NROD Mitigation Trees and Shrubs											
	Key	Botanical Name	Common Name	Size	Spacing	Root Type	Percent Mix	Plant Condition	FA08	FA10	TOTAL
NROD Trees & Shrubs		<i>Arbutus menziesii</i>	Pacific Madrone	1/2" Calip.	13.5' O.C.	Bareroot	20%	N/A	64	40	104
		<i>Pinus ponderosa var. willamettensis</i>	Ponderosa Pine	18" Height	13.5' O.C.	Bareroot	30%	N/A	96	60	156
		<i>Quercus garryana</i>	Oregon White Oak	1/2" Calip.	13.5' O.C.	Bareroot	30%	N/A	96	60	156
		<i>Rhamnus purshiana</i>	Cascara	1/2" Calip.	13.5' O.C.	Bareroot	10%	N/A	32	20	52
		<i>Salix scouleriana</i>	Scouler's Willow	1/2" Calip.	13.5' O.C.	Bareroot	10%	N/A	32	20	52
		<i>Arctostaphylos columbiana</i>	Hairy Manzanita	12" Height	6' O.C.	Bareroot	20%	N/A	277	174	451
		<i>Berberis (Mahonia) aquifolium</i>	Tall Oregongrape	12" Height	6' O.C.	Bareroot	30%	N/A	416	261	677
		<i>Ceanothus velutinus</i>	Snowbrush	12" Height	6' O.C.	Bareroot	20%	N/A	277	174	451
		<i>Corylus cornuta var. Californica</i>	Western Hazelnut	12" Height	6' O.C.	Bareroot	15%	N/A	208	130	338
		<i>Ribes lobbii</i>	Gummy Gooseberry	12" Height	6' O.C.	Bareroot	15%	N/A	208	130	338
NROD Shrubs		<i>Berberis (Mahonia) aquifolium</i>	Tall Oregongrape	12" Min.	6' O.C.	Bareroot	20%	N/A	-	118	118
		<i>Cornus sericea</i>	Redtwig Dogwood	12" Min.	6' O.C.	Bareroot	10%	N/A	-	177	177
		<i>Ribes sanguineum</i>	Redflowering Currant	12" Min.	6' O.C.	Bareroot	15%	N/A	-	118	118
		<i>Rubus parviflorus</i>	Thimbleberry	12" Min.	6' O.C.	Bareroot	15%	N/A	-	89	89
		<i>Spiraea douglasii</i>	Douglas Spiraea	12" Min.	6' O.C.	Bareroot	15%	N/A	-	89	89
		<i>Symphoricarpos albus</i>	Snowberry	12" Min.	6' O.C.	Bareroot	25%	N/A	-	148	148

Upland Riparian Restoration Mix												
	Key	Botanical Name	Common Name	Size	Spacing	Root Type	Percent Mix	Plant Condition	FA13	FA14	FA15	TOTAL
MIX A: Trees		<i>Acer macrophyllum</i>	Bigleaf Maple	1/2" Calip.	30' Min.	Bareroot	8%	N/A	-	-	36	36
		<i>Arbutus menziesii</i>	Pacific Madrone	1/2" Calip.	15'-20' Min.	Container	15%	N/A	-	-	67	67
		<i>Calocedrus decurrens</i>	Incense Cedar	18" Height	30' Min.	Bareroot	8%	N/A	-	-	36	36
		<i>Corylus cornuta var. californica</i>	Western Hazelnut	1/2" Calip.	15'-20' Min.	Bareroot	15%	N/A	-	-	67	67
		<i>Cornus nuttallii</i>	Western Dogwood	1/2" Calip.	15'-20' Min.	Bareroot	5%	N/A	-	-	22	22
		<i>Quercus garryana</i>	Oregon White Oak	1/2" Calip.	15'-20' Min.	Bareroot	26%	N/A	-	-	116	116
		<i>Pseudotsuga menziesii</i>	Douglas Fir	18" Height	30' Min.	Bareroot	8%	N/A	-	-	36	36
		<i>Rhamnus purshiana</i>	Cascara	1/2" Calip.	15'-20' Min.	Bareroot	15%	N/A	-	-	67	67
		MIX A & B: Shrubs		<i>Berberis (Mahonia) aquifolium</i>	Tall Oregongrape	12" Height	5' Min.	Bareroot	25%	N/A	-	-
<i>Oemleria cerasiformis</i>	Osoberry			12" Height	5' Min.	Bareroot	10%	N/A	-	-	148	148
<i>Rubus parviflorus</i>	Thimbleberry			12" Height	5' Min.	Bareroot	15%	N/A	-	-	222	222
<i>Sambucus racemosa</i>	Red Elderberry			12" Height	5' Min.	Bareroot	10%	N/A	-	-	148	148
<i>Spiraea douglasii</i>	Western Spiraea			12" Height	5' Min.	Bareroot	15%	N/A	-	-	222	222
<i>Symphoricarpos albus</i>	Snowberry			12" Height	5' Min.	Bareroot	25%	N/A	-	-	370	370

Lowland Riparian Restoration Mix														
	Key	Botanical Name	Common Name	Size	Spacing	Root Type	Percent Mix	Plant Condition	FA13	FA14	FA15	TOTAL		
MIX C: Trees		<i>Abies grandis</i>	Grand Fir	18" Height	30' Min.	Bareroot	10%	N/A	8	21	-	29		
		<i>Acer macrophyllum</i>	Bigleaf Maple	1/2" Calip.	30' Min.	Bareroot	10%	N/A	8	21	-	29		
		<i>Alnus rubra</i>	Red Alder	1/2" Calip.	15'-20' Min.	Bareroot	26%	N/A	22	54	-	76		
		<i>Fraxinus latifolia</i>	Oregon Ash	1/2" Calip.	30' Min.	Bareroot	6%	N/A	5	13	-	18		
		<i>Prunus emarginata</i>	Bitter Cherry	1/2" Calip.	15'-20' Min.	Bareroot	15%	N/A	13	31	-	44		
		<i>Rhamnus purshiana</i>	Cascara	1/2" Calip.	15'-20' Min.	Bareroot	10%	N/A	8	21	-	29		
		<i>Salix lucida</i>	Shining Willow	1/2" Calip.	15'-20' Min.	Bareroot	15%	N/A	13	31	-	44		
		<i>Thuja plicata</i>	Western Redcedar	18" Height	30' Min.	Bareroot	8%	N/A	7	17	-	24		
		MIX C & D: Shrubs		<i>Cornus sericea</i>	Redtwig Dogwood	12" Height	5' Min.	Bareroot	25%	N/A	46	115	-	161
				<i>Physocarpus capitatus</i>	Pacific Ninebark	12" Height	5' Min.	Bareroot	10%	N/A	18	46	-	64
<i>Rubus spectabilis</i>	Salmonberry			12" Height	5' Min.	Bareroot	15%	N/A	28	69	-	97		
<i>Sambucus racemosa</i>	Red Elderberry			12" Height	5' Min.	Bareroot	10%	N/A	18	46	-	64		
<i>Spiraea douglasii</i>	Western Spiraea			12" Height	5' Min.	Bareroot	15%	N/A	28	69	-	97		
<i>Symphoricarpos albus</i>	Snowberry	12" Height	5' Min.	Bareroot	25%	N/A	46	115	-	161				

Roadside Riparian Restoration Mix												
	Key	Botanical Name	Common Name	Size	Spacing	Root Type	Percent Mix	Plant Condition	FA13	FA14	FA15	TOTAL
MIX E: Trees & Shrubs		<i>Pinus ponderosa var. willamettensis</i>	Willamette Ponderosa Pine	3'-4' Height	25'	#5 Container	50%	N/A	2	-	21	23
		<i>Quercus garryana</i>	Oregon White Oak	1/2" caliper	25'	Bareroot	40%	N/A	2	-	16	18
		<i>Arbutus menziesii</i>	Pacific Madrone	1'-2' Height	25'	#1 Container	10%	N/A	-	-	4	4
		<i>Berberis (Mahonia) aquifolium</i>	Tall Oregon Grape	12" Height	5' Min.	#1 Container	60%	N/A	14	-	53	64
		<i>Ceanothus velutinus</i>	Snowbrush	12" Height	5' Min.	#1 Container	10%	N/A	2	-	9	11
		<i>Ribes sanguineum</i>	Redflowering Currant	12" Height	5' Min.	#1 Container	15%	N/A	3	-	13	16
		<i>Symphoricarpos albus</i>	Snowberry	12" Height	5' Min.	#1 Container	15%	N/A	3	-	13	16

SHRUB PLANTING NOTES FOR MIXES A,B,C,D, and E

1. Install shrubs at a density of 108 shrubs per 10,000 s.f.
2. Install shrubs 5' O.C. in groups of three to nine plants per species. Space shrub groups no closer than 15' apart and no closer than 5' to an adjacent tree stem.
3. Spread species throughout the planting area to avoid a monoculture; a random 10,000 s.f. sample shall contain all species.
4. Maintain a 1' diameter plant-free area around each stem and mulch with shredded wood to prevent weeds.
5. See Sheet FA04 for Tree Planting details.
6. See Sheet FA05 for Shrub Planting details.

	Seed Mix*	See Special Provisions 01030.13(f) for Seed Mix								Area (square feet)	
Key		FA08	FA09	FA10	FA11	FA12	FA13	FA14	FA15	FA16	TOTAL
	Permanent Seeding	2,066	-	-	1,273	175,749	-	-	-	129,854	308,942
	Water Quality Seeding	787	-	-	1,294	4,934	440	-	9,971	14,616	31,226
Varies	Riparian Seeding	-	-	-	-	-	23,824	42,555	-	-	66,379
	Wildflower Seeding	64,818	-	75,645	-	1,379	31,172	-	142,999	6,082	314,943
Varies	Native Shade Seeding	-	-	-	-	-	-	-	80,985	-	80,985
	Wetland Seeding	-	-	-	-	-	-	-	410	-	410
	Upland Shrub Seeding	-	-	-	-	-	7,672	-	46,091	-	53,763

* Verify compost erosion blanket is installed prior to applying seed

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503.423.3700



I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke

Reviewer: Ben Ngan

Drafter: David Goodyke

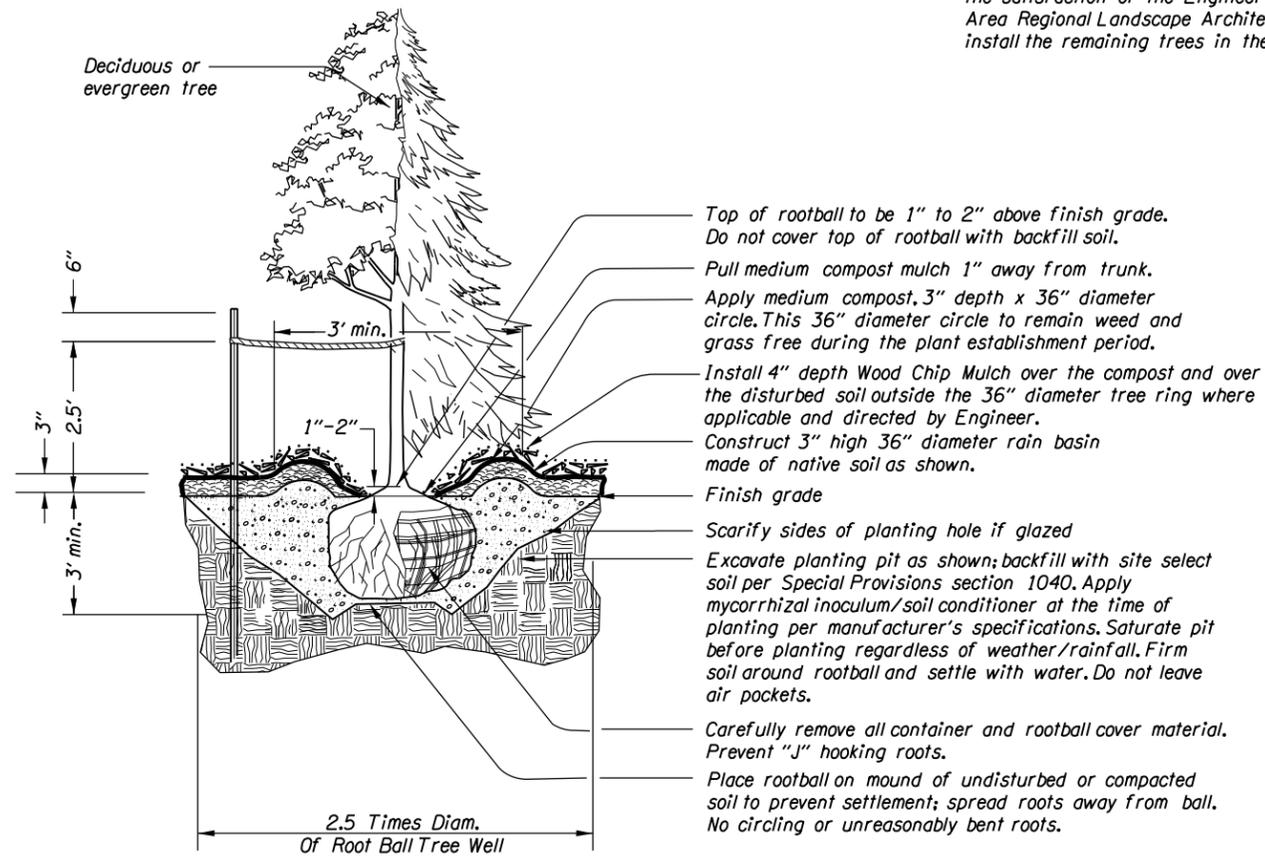
Checker: Ben Ngan

ROADSIDE DEVELOPMENT GENERAL NOTES

SHEET NO.
FA03

NOTE:

After tree location staking is complete and prior to planting any trees, Contractor shall construct two typical tree planting and staking installations per details and specifications, with Engineer and Area Regional Landscape Architect present. When the installations are complete to the satisfaction of the Engineer in coordination with Area Regional Landscape Architect, the Contractor shall install the remaining trees in the same manner.



TREE PLANTING and STAKING
On Terrain Flatter Than 5H:1V

Not To Scale

TREE STAKING NOTES:

1) Tree ties to be either:

Rigid guy system. Galvanized wire to be approximately 1/8" thickness and 24" length with a plastic sleeve over the portion that contacts the tree. The wire tie is to go through the wood stake and be securely fastened.

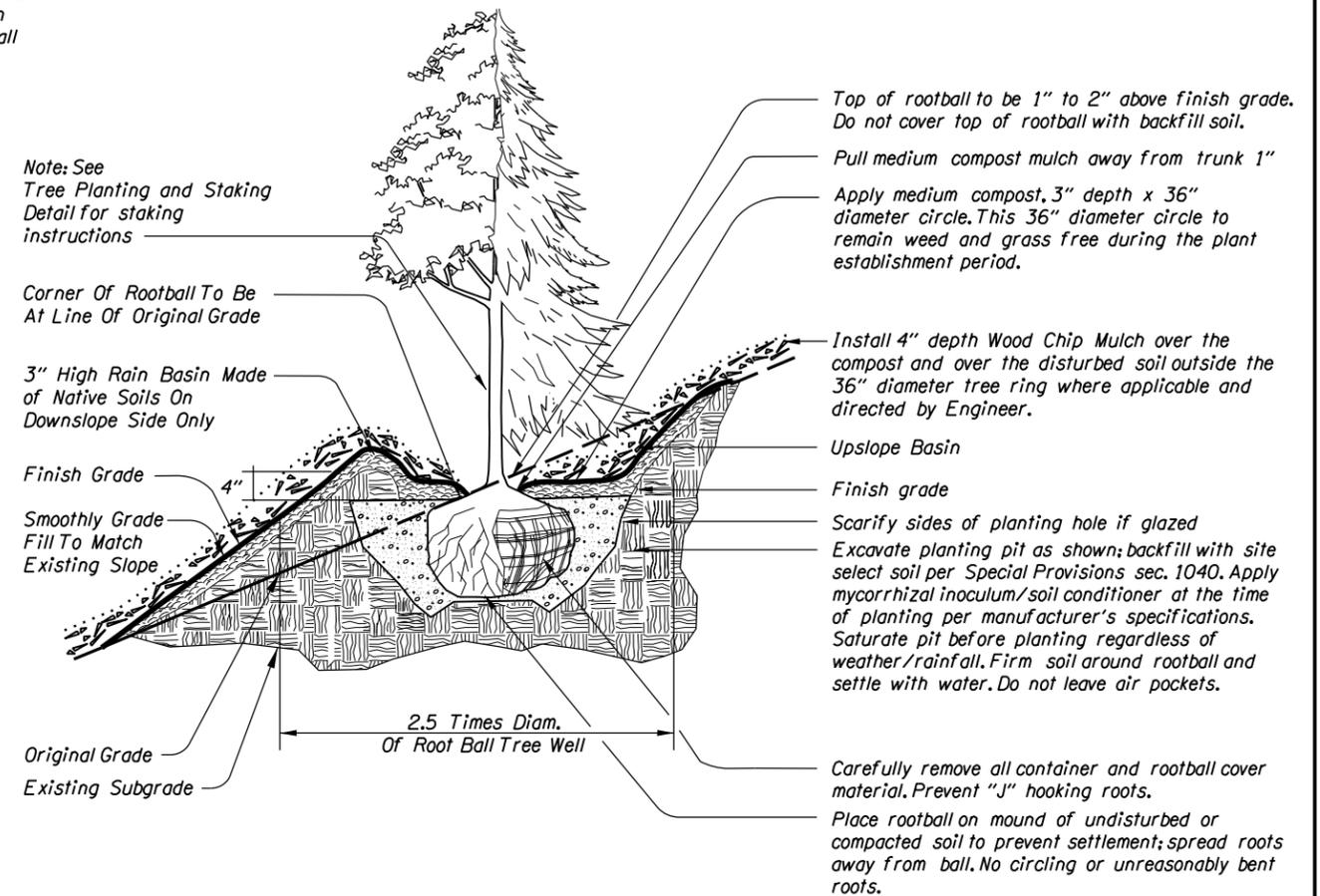
Plastic chain type, approximately 1" width by 1/8" thickness where two stakes are required. Cross ties between stakes and wrap tie around tree. Fasten securely to stake.

2) Furnish tree stakes on all tree plantings.

Stakes to be construction grade, rough sawn or finished Douglas Fir or Pine. Stain with approved green penetrating oil. Stake size is to be 1 1/2" x 1 1/2" by following lengths:

Trees 36" and shorter - Use one - 6' (approximate) stake
Trees taller than 36" - Use one - 8' (approximate) stake

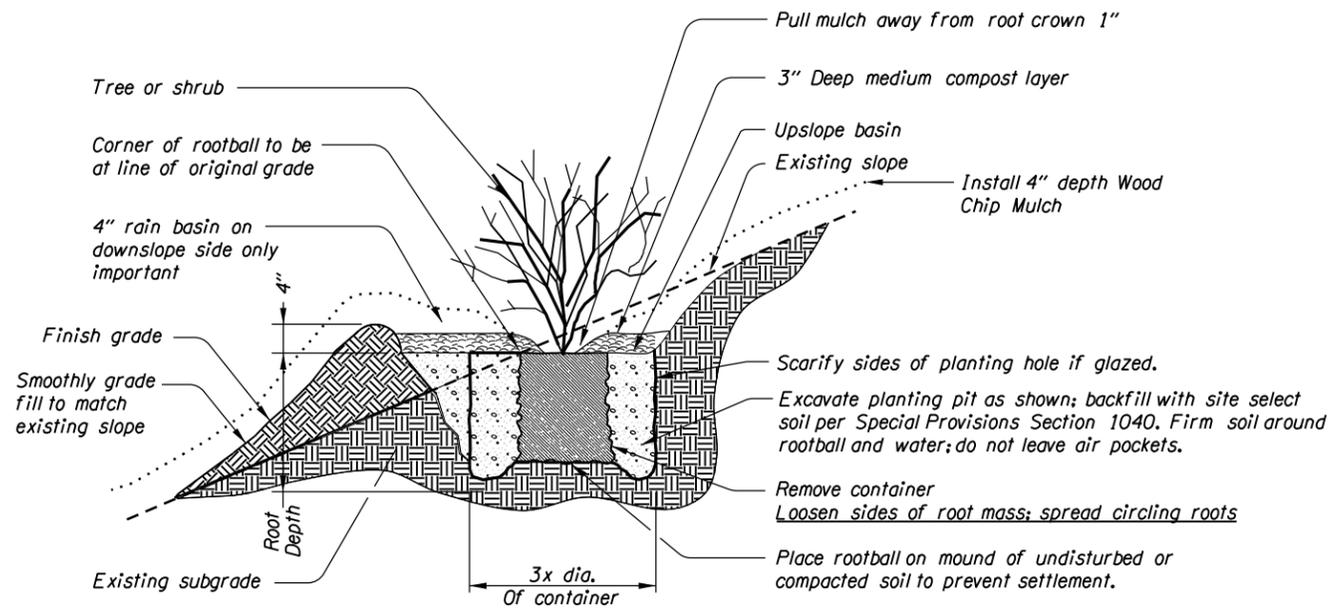
Drive stakes vertically and at least 24" into undisturbed soil. Do not drive stakes through root ball. Locate stakes to best resist prevailing winds.



TREE PLANTING and STAKING on SLOPES
On slopes 5H:1V or steeper

Not To Scale

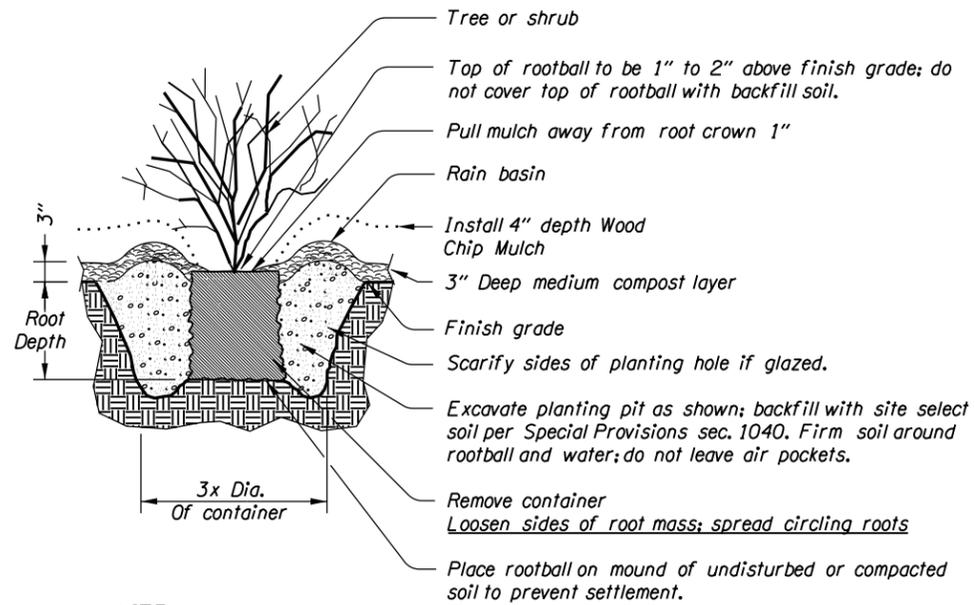
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	I-205: I-5 - OR213, PHASE 1 SEC.		
	EAST PORTLAND FREEWAY CLACKAMAS COUNTY		
	Deslgnr: David Goodyke	Revlwer: Ben Ngan	
Drafter: David Goodyke	Checker: Ben Ngan		
ROADSIDE DEVELOPMENT GENERAL NOTES			SHEET NO. FA04



- NOTE:
- 1) 3" Medium Compost layer to be uniform and completely cover planting holes.
 - 2) Apply Mycorrhizae per specifications.

SLOPE PLANTING FOR #1 & #2 CONTAINERS

Not To Scale

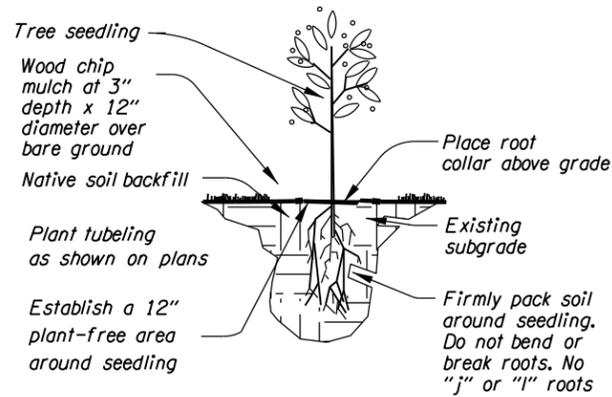


- NOTE:
- 1) 3" Medium Compost layer to be uniform and completely cover planting holes.
 - 2) Apply Mycorrhizae per specifications.

GENERAL PLANTING FOR #1 & #2 CONTAINERS

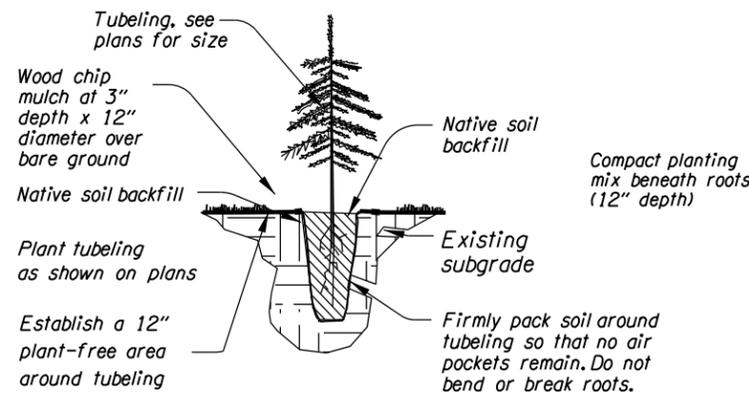
Not To Scale

- GENERAL NOTES:
- 1) All dimensions shown on details are minimum dimensions.
 - 2) See "American Standard for Nursery Stock" for plant quality minimum standards such as size of root ball or caliper of trunk.
 - 3) See plant list or special provisions and identify plant material that may need to be ordered early or contract-grown.
 - 4) Excavate all plant wells per detail at 3x diameter of rootball or container & backfill with site select topsoil free of noxious weeds plant material including roots & sprigs.
 - 5) After shrub location staking is complete and prior to planting any shrubs, Contractor shall construct a typical shrub planting per detail and specifications with Engineer and Area Regional Landscape Architect present. When the installation is complete to the satisfaction of the Engineer in coordination with Area Regional Landscape Architect, the Contractor shall install the remaining shrubs in the same manner.
 - 6) Apply Mycorrhizae per specifications.



SEEDLING PLANTING

Not To Scale



TUBELING PLANTING

Not To Scale

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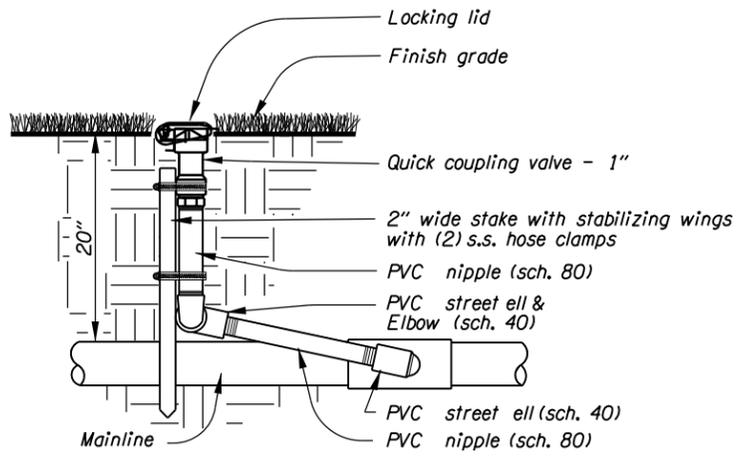
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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke Reviewer: Ben Ngan
Drafter: David Goodyke Checker: Ben Ngan

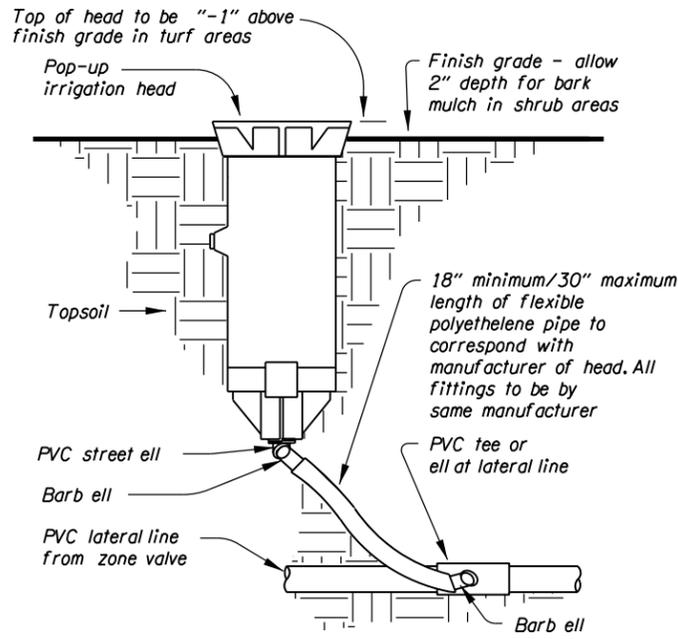
ROADSIDE DEVELOPMENT GENERAL NOTES

SHEET NO.
FA05



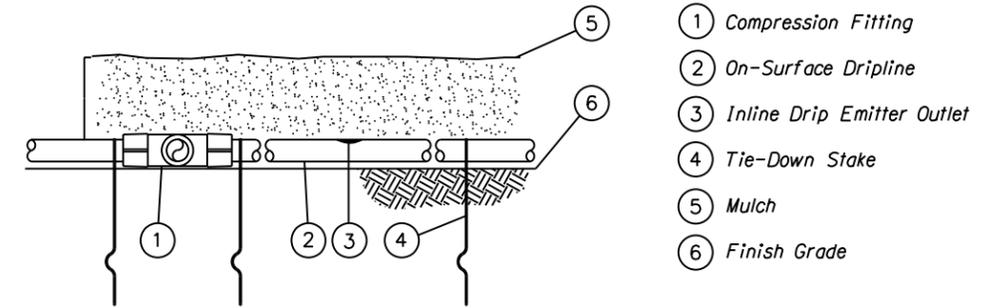
QUICK COUPLING VALVE

Not To Scale



SPRINKLER HEAD AND JOINTS

Not To Scale



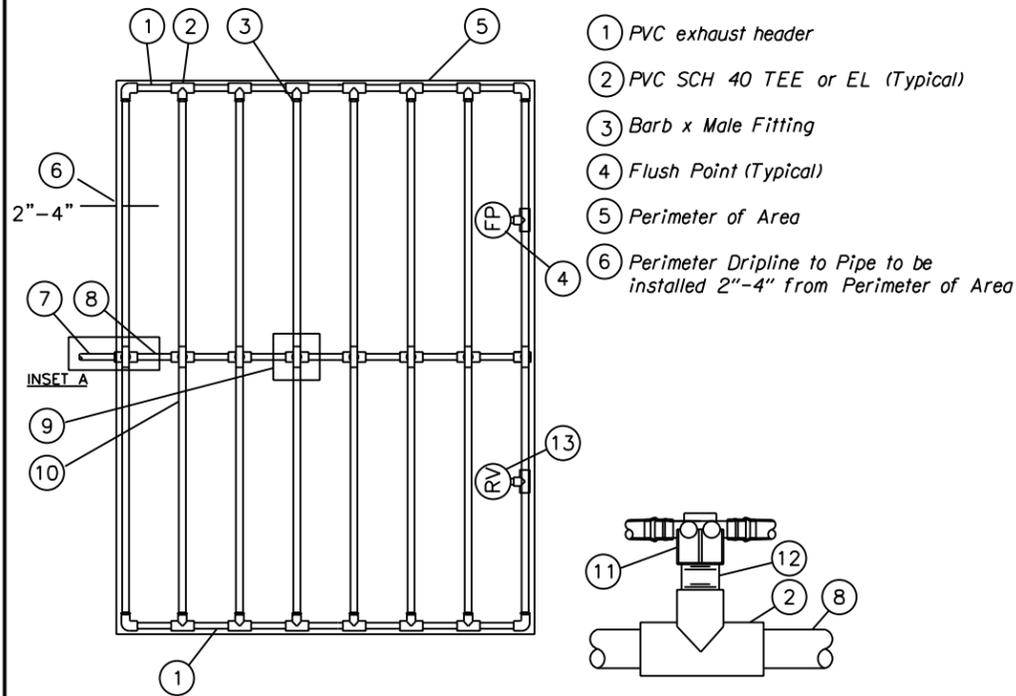
DRIPLINE AT GRADE

Not To Scale

NOTES:

1) Place tie-down stakes every 3' in sand, 4' in loam, and 5' in clay.

2) At fittings where there is a change of direction, such as tees or elbows, use tie-down stakes on each leg of the change of direction.



LOW VOLUME (DRIP) TUBING

Not To Scale

- ① PVC exhaust header
- ② PVC SCH 40 TEE or EL (Typical)
- ③ Barb x Male Fitting
- ④ Flush Point (Typical)
- ⑤ Perimeter of Area
- ⑥ Perimeter Dripline to Pipe to be installed 2"-4" from Perimeter of Area
- ⑦ PVC Supply Pipe from Existing Valve
- ⑧ PVC Supply Manifold
- ⑨ Connection from Supply Manifold to Dripline (Typical) - see Inset A
- ⑩ On-Surface Dripline
- ⑪ Barb x Female Fitting
- ⑫ 3/4" PVC Nipple, length as necessary
- ⑬ At ends of area, add air relief valve

NOTE:

1) Provide Low Volume (Drip) Tubing with emitters spaced at 18" and providing a flow rate of 0.9 gallons/hour and spaced at 24", or approved equal.

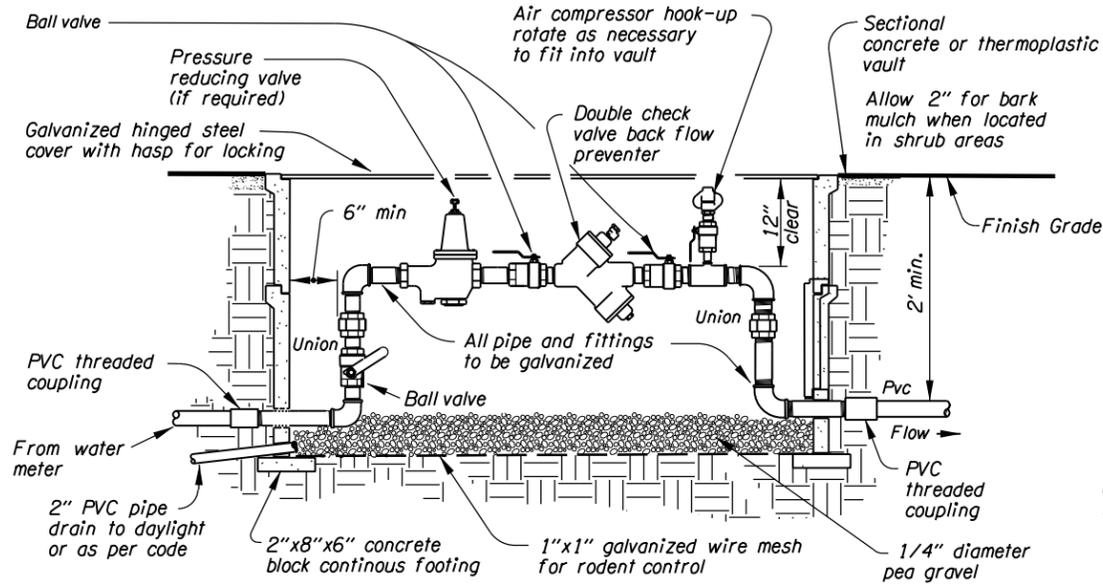
2) Modify detail to meet the specific requirements of the selected equipment brand's manufacturer and the specific shape and size of the plant bed to be irrigated.

NOTE:
Irrigation details are placeholders for 60%

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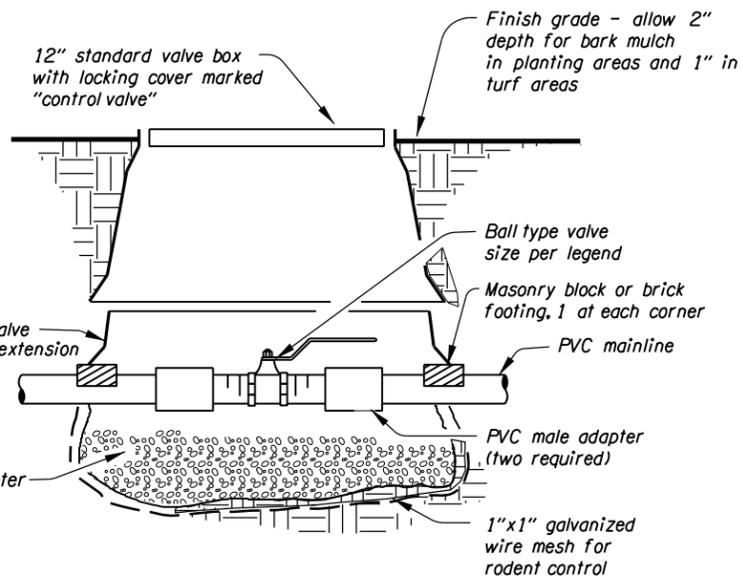
Designer: David Goodyke Drafter: David Goodyke	Reviewer: Ben Ngan Checker: Ben Ngan	SHEET NO. FA06
ROADSIDE DEVELOPMENT GENERAL NOTES		



BACKFLOW PREVENTION ASSEMBLY

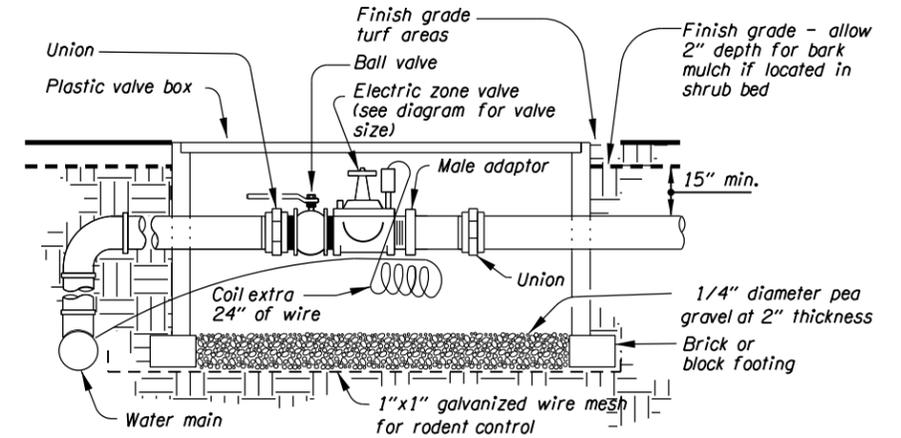
Not To Scale

- NOTES:**
- 1) Install backflow prevention assembly in accordance with "accepted procedure and practice in cross connection control manual"
 - 2) Comply with local jurisdiction requirements. These may vary from those shown on drawings, verify compliance.
 - 3) Provide 6" access clearance for devices 2" and smaller.
 - 4) Size of double check valve shown on plans or specifications.



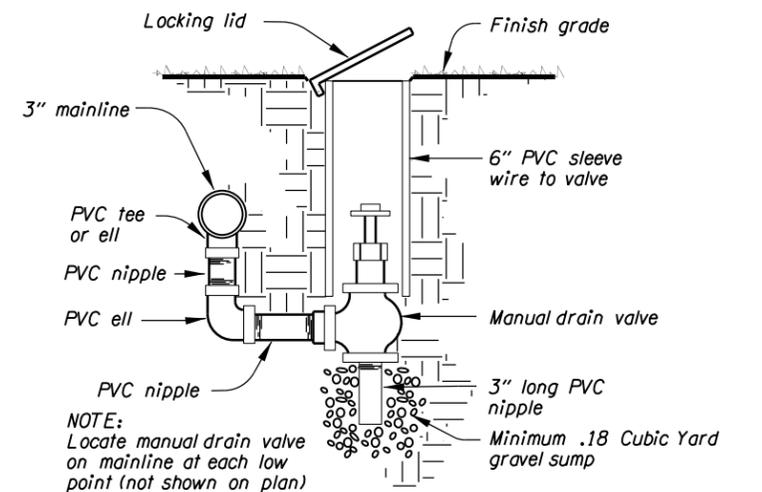
ISOLATION VALVE & BOX

Not To Scale



ELECTRIC ZONE VALVE

Not To Scale



MANUAL DRAIN VALVE

Not To Scale

NOTE:
Irrigation details are placeholders for 60%

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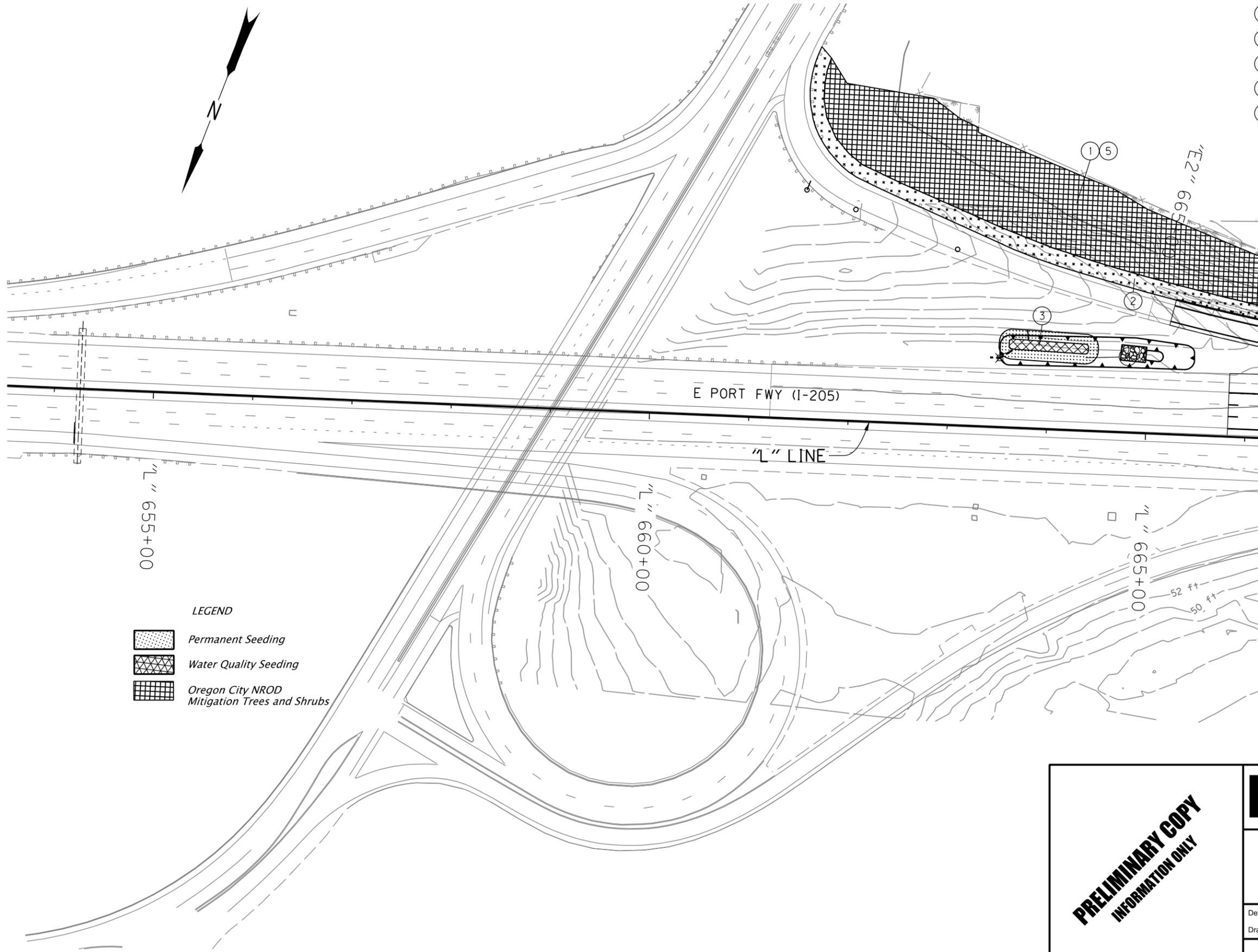
	HDR ENGINEERING, INC 1050 SW 6TH AVENUE, SUITE 1800 PORTLAND, OR 97204-1134 503.423.3700	
	I-205: I-5 - OR213, PHASE 1 SEC. EAST PORTLAND FREEWAY CLACKAMAS COUNTY	

Designer: David Goodyke Drafter: David Goodyke	Reviewer: Ben Ngan Checker: Ben Ngan	SHEET NO. FA07
ROADSIDE DEVELOPMENT GENERAL NOTES		

Sec. 29, T. 2 S, R. 2 E, W.M.

??V-???

- ① Install 50,776 s.f. Wildflower Seeding
- ② Install 14,042 s.f. Wildflower Seeding
- ③ Install 787 s.f. Water Quality Seeding
- ④ Install 2,066 s.f. Permanent Seeding
- ⑤ Install 50,776 s.f. NROD Mitigation Trees and Shrubs

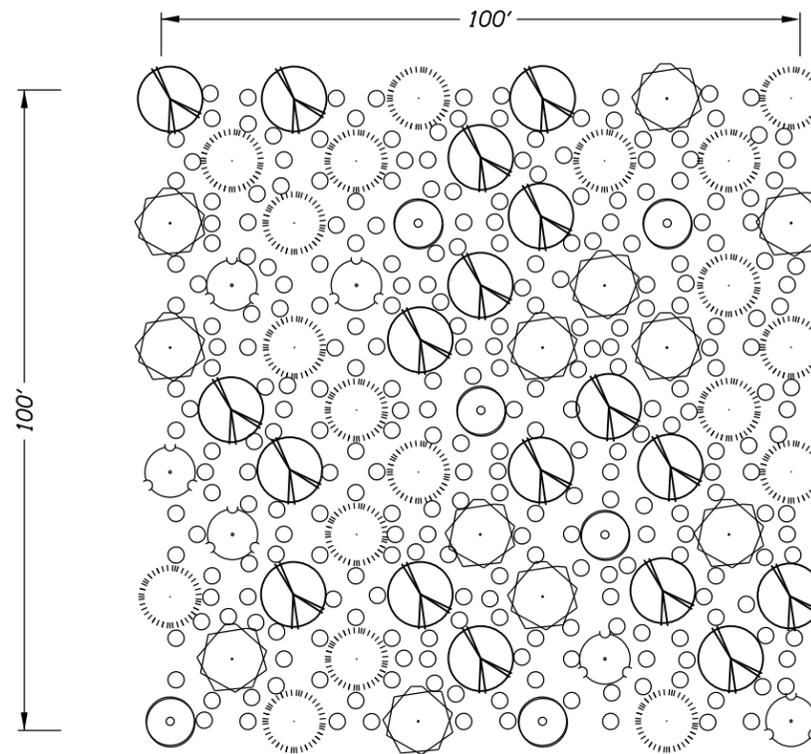


LEGEND

-  Permanent Seeding
-  Water Quality Seeding
-  Oregon City NROD Mitigation Trees and Shrubs

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	I-205: I-5 - OR213, PHASE 1 SEC. EAST PORTLAND FREEWAY CLACKAMAS COUNTY	
Designer: David Goodyke Drafter: David Goodyke	Reviewer: Ben Ngan Checker: Ben Ngan	SHEET NO. FA08
ROADSIDE DEVELOPMENT PLANTING PLAN/SECTION		



NROD Mitigation Planting Trees and Shrubs

Key	Tree	Approximate Planting Density	Planting Percentage
Large, Slow-Growing Trees			
	<i>Arbutus menziesii</i>	13 stems / 10,000 s.f.	20%
	<i>Pinus ponderosa</i>	18 stems / 10,000 s.f.	30%
	<i>Quercus garryana</i>	18 stems / 10,000 s.f.	30%
Small Trees			
	<i>Rhamnus purshiana</i>	6 stems / 10,000 s.f.	10%
	<i>Salix scouleriana</i>	6 stems / 10,000 s.f.	10%
Shrubs*			
	<i>Arctostaphylos columbiana</i>	55 stems / 10,000 s.f.	20%
	<i>Berberis (Mahonia) aquifolium</i>	82 stems / 10,000 s.f.	30%
	<i>Ceanothus velutinus</i>	55 stems / 10,000 s.f.	20%
	<i>Corylus cornuta var. Californica</i>	41 stems / 10,000 s.f.	15%
	<i>Ribes lobbii</i>	41 stems / 10,000 s.f.	15%

* Groupings required

NOTE:
Total quantity of species per sheet shown on FA03.

LEGEND

- | | | |
|--|---|---|
| <p>Large, Slow-Growing Trees</p> <ul style="list-style-type: none"> <i>Arbutus menziesii</i> (TARME), 20% <i>Pinus ponderosa</i> (TPIPO), 30% <i>Quercus garryana</i> (TQUGA), 30% | <p>Small Trees</p> <ul style="list-style-type: none"> <i>Rhamnus purshiana</i> (TRHPU), 10% <i>Salix scouleriana</i> (TSASC), 10% | <p>Shrubs</p> <ul style="list-style-type: none"> Assorted Species |
|--|---|---|

DETAIL: NROD MITIGATION TREES AND SHRUBS

Not To Scale

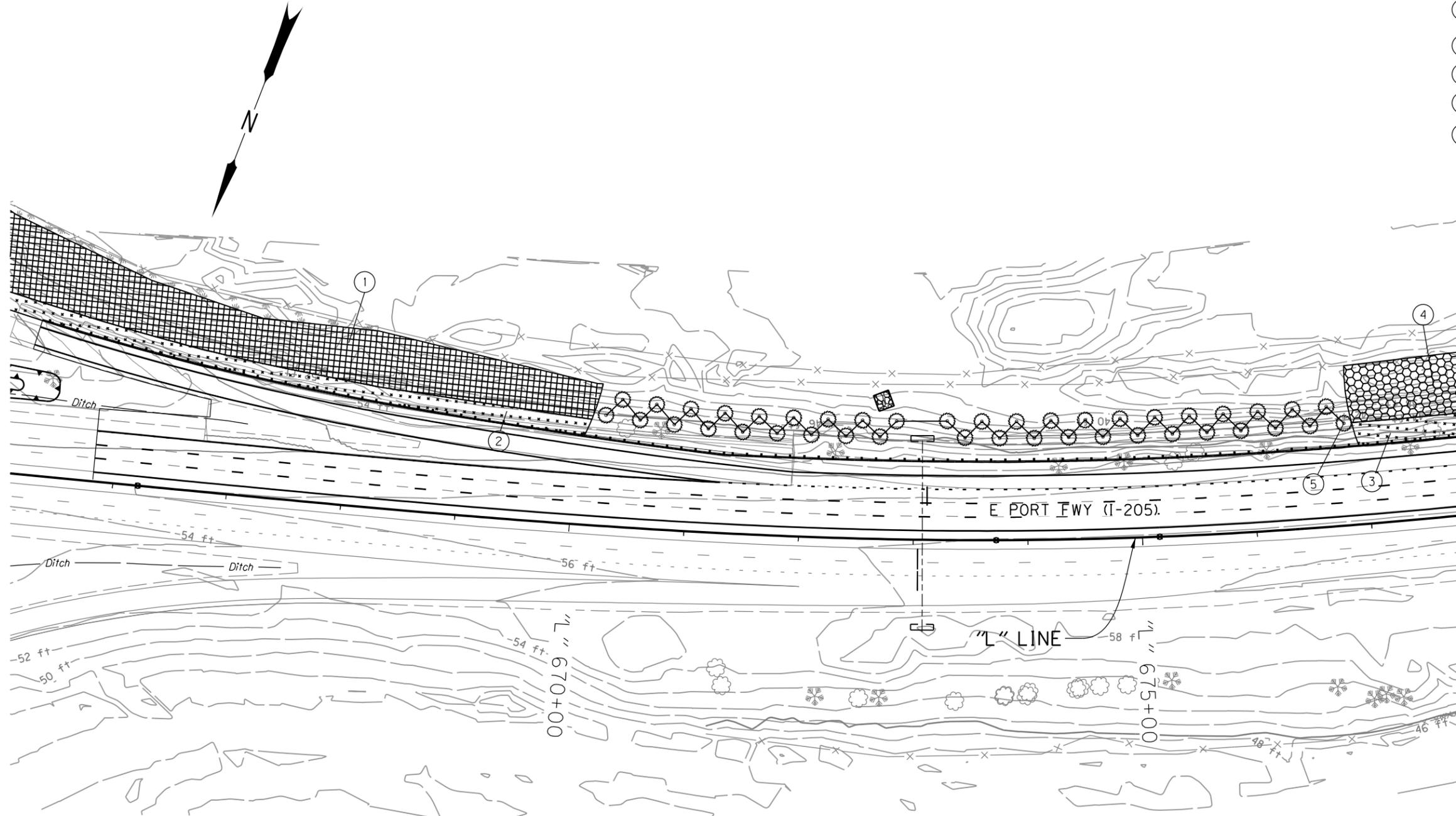
TREE PLANTING NOTES

- 1) Install trees at an overall density of 61 trees/10,000 s.f.
- 2) Install trees at an average of 13.75' O.C. with triangular spacing
- 3) Install shrubs at an overall density of 273 shrubs/10,000 s.f.
- 4) Concentrate TQUGA in areas with most southern and western sun exposure.
- 5) Install trees in groups of up to 4 specimens per species.
- 6) Install shrubs at an average of 6'.5 O.C. with triangular spacing, no closer than 3' O.C.. Install shrubs in groups of up to 4 specimens per species. Install shrubs 5' minimum from adjacent tree stems.
- 7) Spread species throughout the given planting area to avoid monocultures, a random 10,000 s.f. sample should contain all species.
- 8) Maintain a 1' diameter plant-free area around all stems and mulch with wood chip mulch to prevent weeds.

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I-205: I-5 - OR213, PHASE 2 SEC. EAST PORTLAND FREEWAY CLACKAMAS COUNTY		
Designer: David Goodyke Drafter: David Goodyke		Reviewer: Ben Ngan Checker: Ben Ngan
ROADSIDE DEVELOPMENT PLANTING PLAN/SECTION		SHEET NO. FA08A

- ① Total area on FA08 and FA09, shown on FA08, notes 1 & 5
- ② Total area on FA08 and FA09, shown on FA08, note 2
- ③ Total area on FA09 and FA10, shown on FA10, note 2
- ④ Total area on FA09 and FA10, shown on FA10, notes 1 & 4
- ④ Install 42 TPIPO



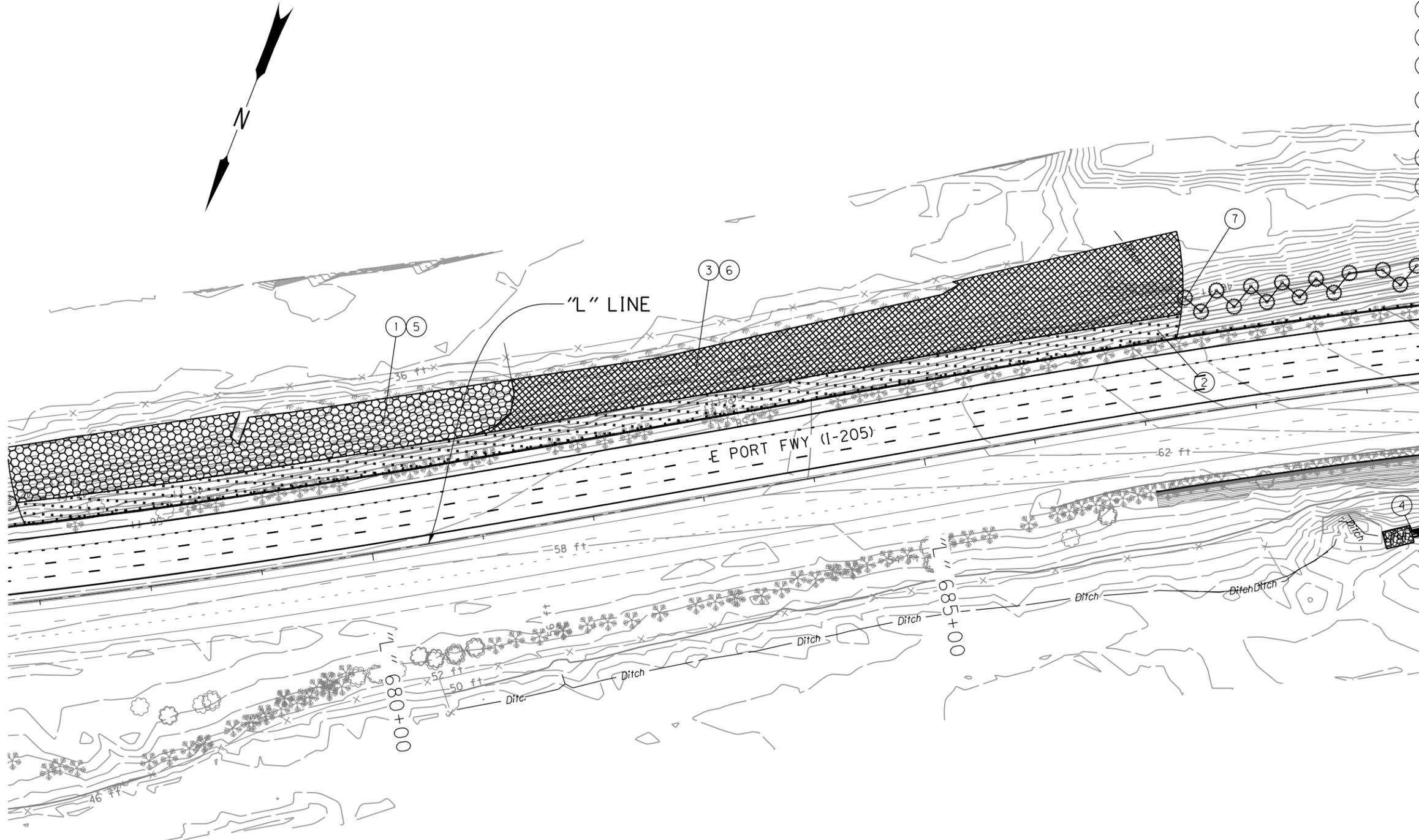
LEGEND

-  Oregon City NROD
-  Mitigation Trees and Shrubs
-  Existing Trees

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 HDR ENGINEERING, INC 1050 SW 6TH AVENUE, SUITE 1800 PORTLAND, OR 97204-1134 503.423.3700	 OREGON DEPARTMENT OF TRANSPORTATION
Designer: David Goodyke Drafter: David Goodyke	Reviewer: Ben Ngan Checker: Ben Ngan
ROADSIDE DEVELOPMENT PLANTING PLAN/SECTION	
SHEET NO. FA09	

- ① Install 31,833 s.f. Wildflower Seeding
- ② Install 22,145 s.f. Wildflower Seeding
- ③ Install 21,615 s.f. Wildflower Seeding
- ④ Total quantity for area on FA10 and FA11, shown on FA11, note 1
- ⑤ Install 31,833 s.f. NROD Mitigation Trees and Shrubs
- ⑥ Install 21,615 s.f. NROD Mitigation Trees and Shrubs
- ⑦ Install 14 TPIPO



LEGEND

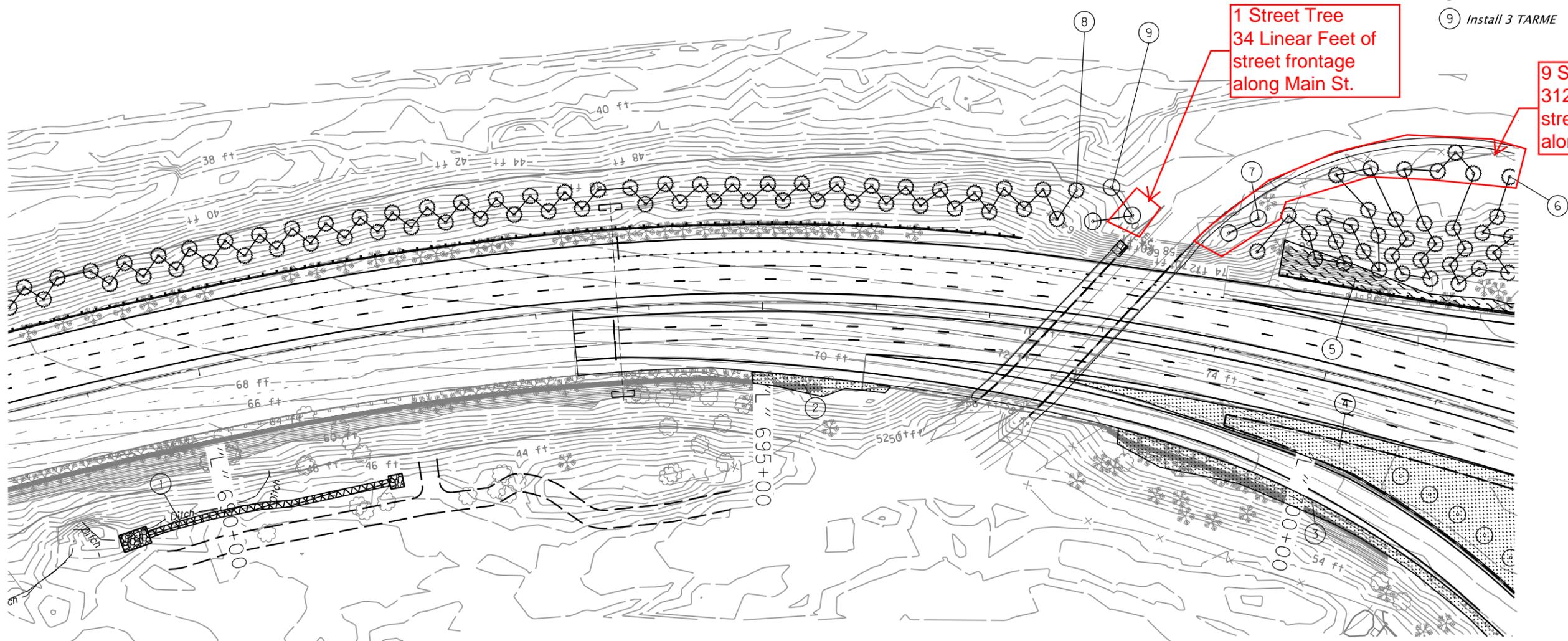
- Water Quality Seeding
- Oregon City NROD Mitigation Trees and Shrubs
- Existing Trees

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	I-205: I-5 - OR213, PHASE 1 SEC. EAST PORTLAND FREEWAY CLACKAMAS COUNTY	
Designer: David Goodyke Drafter: David Goodyke	Reviewer: Ben Ngan Checker: Ben Ngan	SHEET NO. FA10



- ① Install 1,294 s.f. Water Quality Seeding
- ② Install 1,273 s.f. Permanent Seeding
- ③ Total area on FA11 and FA12, shown on FA12, note 1
- ④ Total area on FA11 and FA12, shown on FA12, note 2
- ⑤ Total area on FA11 and FA12, shown on FA12, note 33
- ⑥ Install 37 TPIPO
- ⑦ Install 2 TQUGA
- ⑧ Install 62 TPIPO
- ⑨ Install 3 TARME



LEGEND

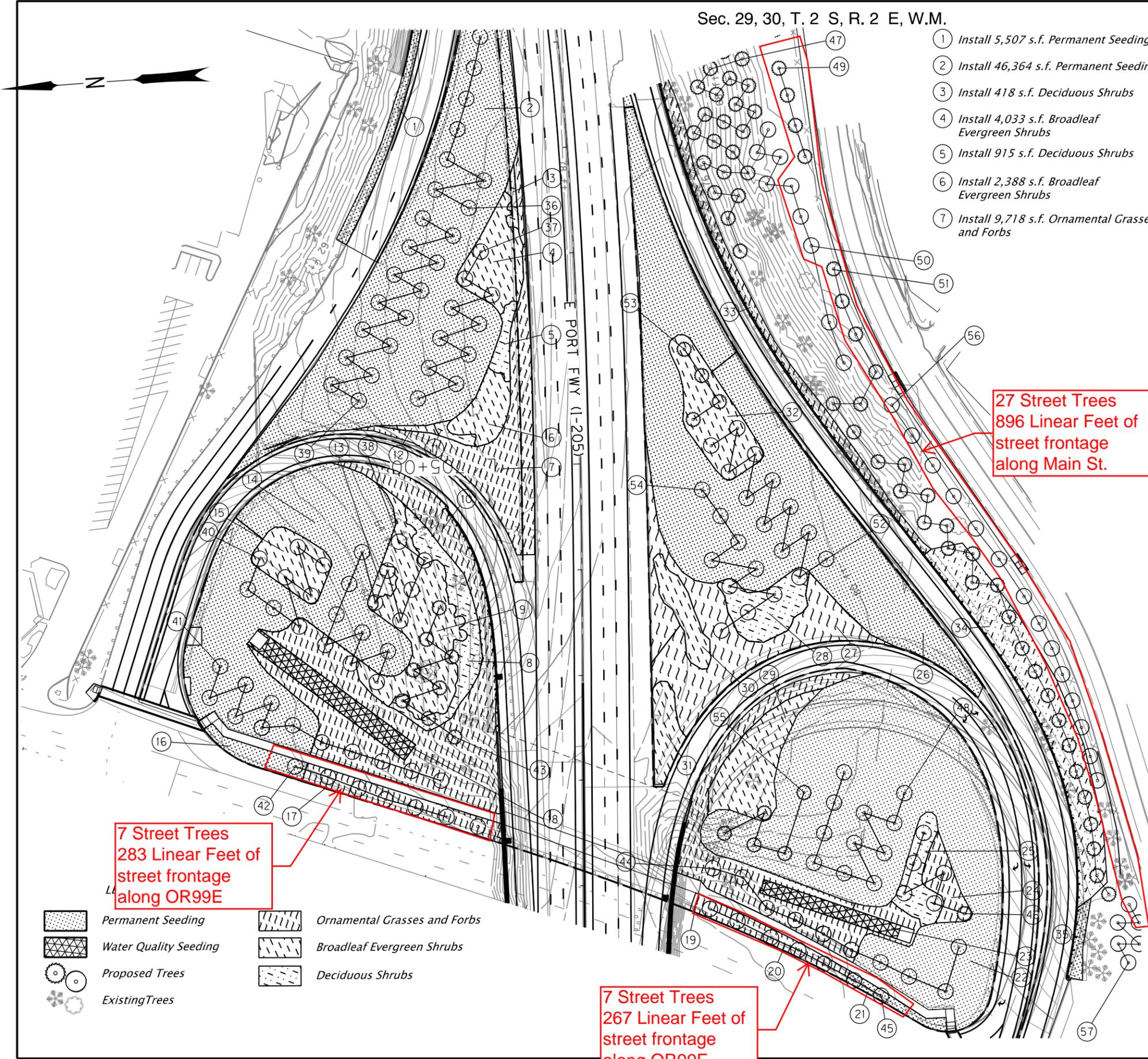
- Permanent Seeding
- Water Quality Seeding
- Ornamental Grasses and Forbs
- Proposed Trees
- Existing Trees

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	I-205: I-5 - OR213, PHASE 1 SEC. EAST PORTLAND FREEWAY CLACKAMAS COUNTY	
Designer: David Goodyke Drafter: David Goodyke	Reviewer: Ben Ngan Checker: Ben Ngan	SHEET NO. FA11
ROADSIDE DEVELOPMENT PLANTING PLAN/SECTION		

Sec. 29, 30, T. 2 S, R. 2 E, W.M.

??V-???



- 1 Install 5,507 s.f. Permanent Seeding
- 2 Install 46,364 s.f. Permanent Seeding
- 3 Install 418 s.f. Deciduous Shrubs
- 4 Install 4,033 s.f. Broadleaf Evergreen Shrubs
- 5 Install 915 s.f. Deciduous Shrubs
- 6 Install 2,388 s.f. Broadleaf Evergreen Shrubs
- 7 Install 9,718 s.f. Ornamental Grasses and Forbs
- 8 Install 4,239 s.f. Deciduous Shrubs
- 9 Install 9,712 s.f. Broadleaf Evergreen Shrubs
- 10 Install 20,139 s.f. Ornamental Grasses and Shrubs
- 11 Install 375 s.f. Deciduous Shrubs
- 12 Install 260 s.f. Broadleaf Evergreen Shrubs
- 13 Install 648 s.f. Deciduous Shrubs
- 14 Install 30,343 s.f. Permanent Seeding
- 15 Install 3,362 s.f. Broadleaf Evergreen Shrubs
- 16 Install 1,603 s.f. Permanent Seeding
- 17 Install 3,471 s.f. Ornamental Grasses and Forbs
- 18 Install 3,153 s.f. Water Quality Seeding
- 19 Install 10,277 s.f. Ornamental Grasses and Forbs
- 20 Install 2,319 s.f. Ornamental Grasses and Forbs
- 21 Install 989 s.f. Permanent Seeding
- 22 Install 46,511 s.f. Permanent Seeding
- 23 Install 1,781 s.f. Water Quality Seeding
- 24 Install 1,923 s.f. Ornamental Grasses and Forbs
- 25 Install 2,523 s.f. Broadleaf Evergreen Shrubs
- 26 Install 43,636 s.f. Permanent Seeding
- 27 Install 12,295 s.f. Ornamental Grasses and Forbs
- 28 Install 3,629 s.f. Deciduous Shrubs
- 29 Install 5,407 s.f. Broadleaf Evergreen Shrubs
- 30 Install 2,113 s.f. Broadleaf Evergreen Shrubs
- 31 Install 1,994 s.f. Broadleaf Evergreen Shrubs
- 32 Install 5,574 s.f. Broadleaf Evergreen Shrubs
- 33 Install 7,431 s.f. Ornamental Grasses and Shrubs
- 34 Install 11,524 s.f. Deciduous Shrubs
- 35 Install 1,379 s.f. NROD Mitigation Shrubs
- 36 Install 796 s.f. Permanent Seeding
- 37 Install 8 TPIPO
- 38 Install 10 TQUGA
- 39 Install 14 TUMCA
- 40 Install 14 TQUCH
- 41 Install 8 TQUCH
- 42 Install 12 TQUGA
- 43 Install 6 TQUGA
- 44 Install 8 TPIPO
- 45 Install 10 TQUGA
- 46 Install 6 TQUGA
- 47 Install 21 TPIPO
- 48 Install 11 TUMCA
- 49 Install 4 TPIPO
- 50 Install 9 TQUGA
- 51 Install 29 TPIPO
- 52 Install 12 TQUCH
- 53 Install 4 TPIPO
- 54 Install 9 TQUGA
- 55 Install 5 TPIPO
- 56 Install 14 TQUGA
- 57 Install 6 TUMCA

27 Street Trees
896 Linear Feet of street frontage along Main St.

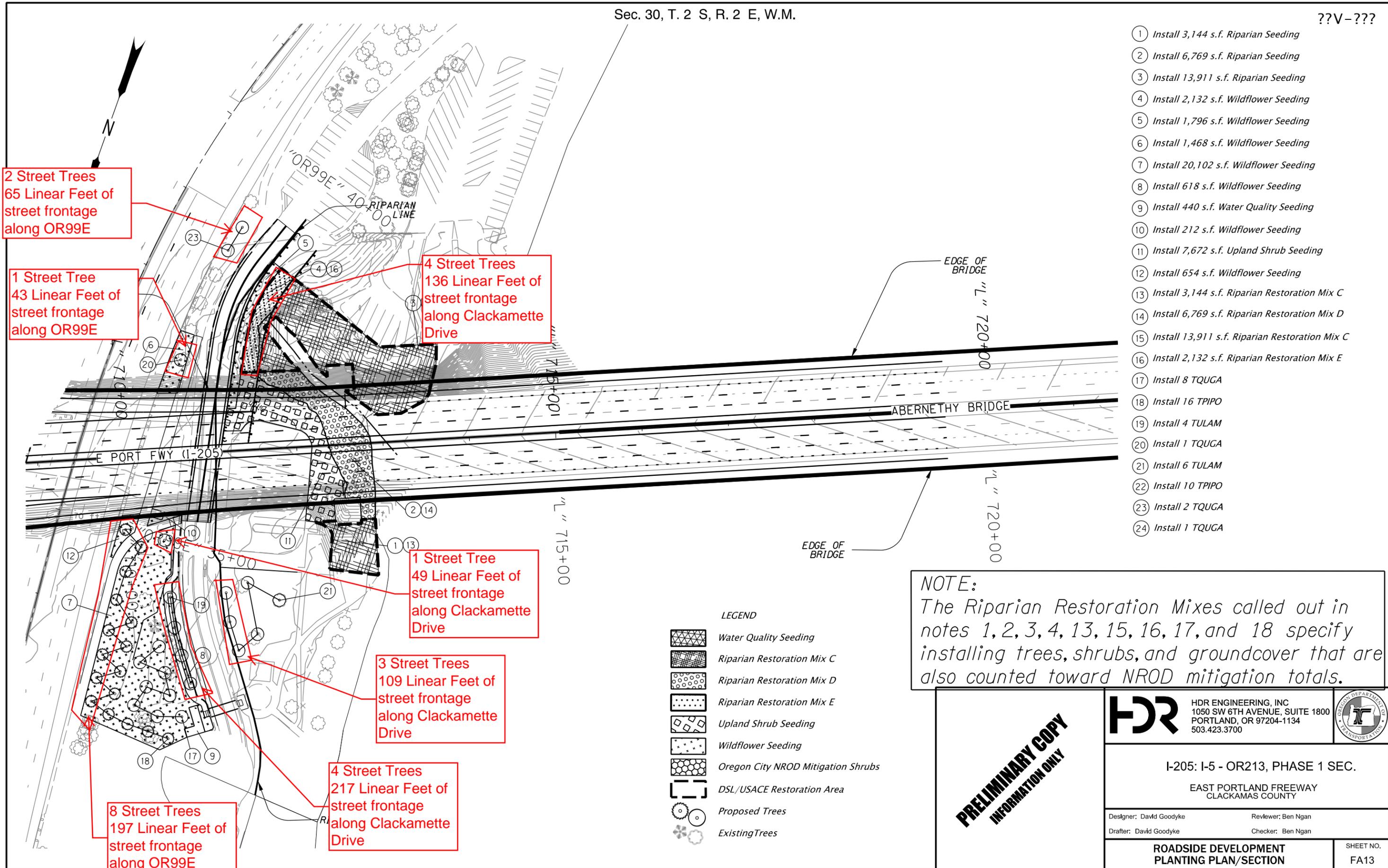
7 Street Trees
283 Linear Feet of street frontage along OR99E

7 Street Trees
267 Linear Feet of street frontage along OR99E

- Permanent Seeding
- Water Quality Seeding
- Proposed Trees
- Existing Trees
- Ornamental Grasses and Forbs
- Broadleaf Evergreen Shrubs
- Deciduous Shrubs

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Designer: David Goodyke	Reviewer: Ben Ngan	
Drafter: David Goodyke	Checker: Ben Ngan	
ROADSIDE DEVELOPMENT PLANTING PLAN/SECTION		SHEET NO. FA12



2 Street Trees
65 Linear Feet of
street frontage
along OR99E

1 Street Tree
43 Linear Feet of
street frontage
along OR99E

4 Street Trees
136 Linear Feet of
street frontage
along Clackamette
Drive

1 Street Tree
49 Linear Feet of
street frontage
along Clackamette
Drive

3 Street Trees
109 Linear Feet of
street frontage
along Clackamette
Drive

4 Street Trees
217 Linear Feet of
street frontage
along Clackamette
Drive

8 Street Trees
197 Linear Feet of
street frontage
along OR99E

- ① Install 3,144 s.f. Riparian Seeding
- ② Install 6,769 s.f. Riparian Seeding
- ③ Install 13,911 s.f. Riparian Seeding
- ④ Install 2,132 s.f. Wildflower Seeding
- ⑤ Install 1,796 s.f. Wildflower Seeding
- ⑥ Install 1,468 s.f. Wildflower Seeding
- ⑦ Install 20,102 s.f. Wildflower Seeding
- ⑧ Install 618 s.f. Wildflower Seeding
- ⑨ Install 440 s.f. Water Quality Seeding
- ⑩ Install 212 s.f. Wildflower Seeding
- ⑪ Install 7,672 s.f. Upland Shrub Seeding
- ⑫ Install 654 s.f. Wildflower Seeding
- ⑬ Install 3,144 s.f. Riparian Restoration Mix C
- ⑭ Install 6,769 s.f. Riparian Restoration Mix D
- ⑮ Install 13,911 s.f. Riparian Restoration Mix C
- ⑯ Install 2,132 s.f. Riparian Restoration Mix E
- ⑰ Install 8 TQUGA
- ⑱ Install 16 TPIPO
- ⑲ Install 4 TULAM
- ⑳ Install 1 TQUGA
- ㉑ Install 6 TULAM
- ㉒ Install 10 TPIPO
- ㉓ Install 2 TQUGA
- ㉔ Install 1 TQUGA

- LEGEND
- Water Quality Seeding
 - Riparian Restoration Mix C
 - Riparian Restoration Mix D
 - Riparian Restoration Mix E
 - Upland Shrub Seeding
 - Wildflower Seeding
 - Oregon City NROD Mitigation Shrubs
 - DSL/USACE Restoration Area
 - Proposed Trees
 - Existing Trees

NOTE:
The Riparian Restoration Mixes called out in notes 1, 2, 3, 4, 13, 15, 16, 17, and 18 specify installing trees, shrubs, and groundcover that are also counted toward NROD mitigation totals.

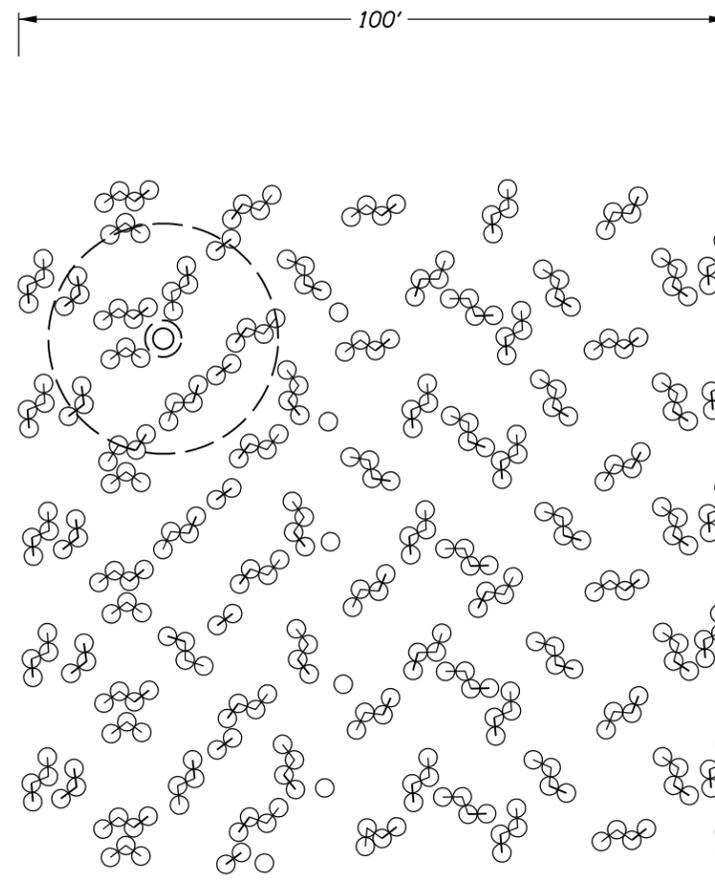
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PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke Reviewer: Ben Ngan
Drafter: David Goodyke Checker: Ben Ngan

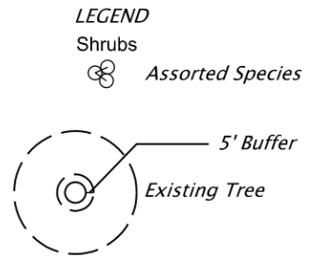
**ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION** SHEET NO.
FA13



NROD Mitigation Planting Shrubs			
Key	Shrubs*	Approximate Planting Density	Planting Percentage
	<i>Berberis (Mahonia) aquifolium</i>	55 stems / 10,000 s.f.	20%
	<i>Cornus sericea</i>	27 stems / 10,000 s.f.	10%
	<i>Ribes sanguineum</i>	41 stems / 10,000 s.f.	15%
	<i>Rubus parviflorus</i>	41 stems / 10,000 s.f.	15%
	<i>Spiraea douglasii</i>	41 stems / 10,000 s.f.	15%
	<i>Symphoricarpos albus</i>	68 stems / 10,000 s.f.	25%

* Groupings required

NOTE:
Total quantity of species per sheet shown on FA03.



DETAIL: NROD MITIGATION SHRUBS

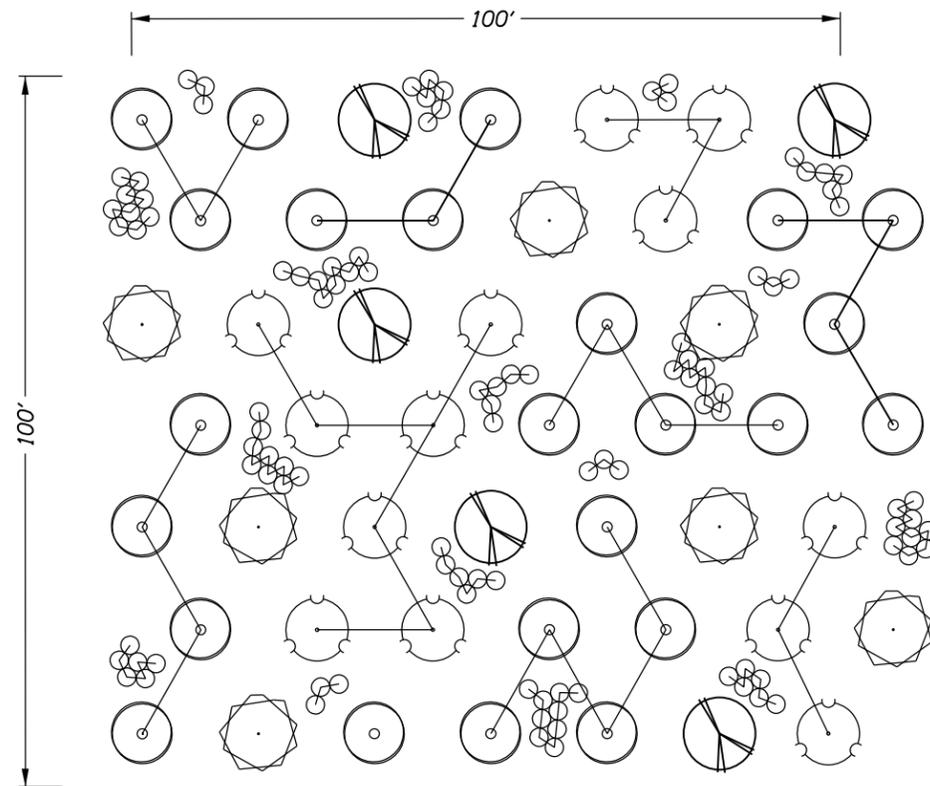
Not To Scale

TREE PLANTING NOTES

- 1) Install shrubs at an overall density of 273 shrubs/10,000 s.f.
- 2) Install shrubs at an average of 6'.5 O.C. with triangular spacing, no closer than 3' O.C.. Install shrubs in groups of up to 4 specimens per species. Install shrubs 5' minimum from adjacent tree stems.
- 3) Spread species throughout the given planting area to avoid monocultures, a random 10,000 s.f. sample should contain all species.
- 4) Maintain a 1' diameter plant-free area around all stems and mulch with wood chip mulch to prevent weeds.
- 5) In areas where existing trees are to be preserved, maintain a 5' distance from the adjacent trees trunks to the edge of shrubs.
- 6) Adjust planting locations as necessary to avoid disturbing mature tree roots over 2" diameter.

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Designer: David Goodyke Reviewer: Name		SHEET NO. FA13A
Drafter: David Goodyke Checker: Name		
ROADSIDE DEVELOPMENT PLANTING PLAN/SECTION		



NOTE:
Total quantity of species per sheet shown on FA03.

LEGEND

<p>Large, Slow-Growing Trees</p> <ul style="list-style-type: none"> <i>Acer macrophyllum</i> (TACMA), 10% <i>Abies grandis</i> (TABGR), 10% <i>Thuja plicata</i> (TTHPL), 8% 	<p>Small Trees</p> <ul style="list-style-type: none"> <i>Fraxinus latifolia</i> (TFRLA), 6% <i>Prunus emarginata</i> (TPREM), 15% <i>Salix lucida ssp. lasiandra</i> (TSALU), 15% <i>Rhamnus purshiana</i> (TRHPU), 10% 	<p>Fast-Growing Trees</p> <ul style="list-style-type: none"> <i>Alnus rubra</i> (TALRU), 26%
<p>Shrubs</p> <ul style="list-style-type: none"> <i>Lowland Shrubs</i> 		

Riparian Restoration Mix C: Lowland Trees and Shrubs			
Key	Tree	Approximate Planting Density	Planting Percentage
	Large, Slow-Growing Trees		
	<i>Abies grandis</i>	5 stems / 10,000 s.f.	10%
	<i>Acer macrophyllum</i>	4 stems / 10,000 s.f.	10%
	<i>Thuja plicata</i>	4 stems / 10,000 s.f.	8%
	Small Trees		
	<i>Fraxinus latifolia</i>	3 stems / 10,000 s.f.	6%
	<i>Prunus emarginata</i>	7 stems / 10,000 s.f.	15%
	<i>Salix lucida ssp. lasiandra</i>	7 stems / 10,000 s.f.	15%
	<i>Rhamnus purshiana</i>	6 stems / 10,000 s.f.	10%
	Fast-Growing Trees (13)*		
<i>Alnus rubra</i>	13 stems / 10,000 s.f.	26%	
Riparian Restoration Mix C and D: Lowland Shrubs			
		Approximate Planting Density	Planting Percentage
Key	Shrubs*		
	<i>Cornus sericea</i>	27 stems / 10,000 s.f.	25%
	<i>Physocarpus capitatus</i>	11 stems / 10,000 s.f.	10%
	<i>Rubus spectabilis</i>	16 stems / 10,000 s.f.	15%
	<i>Sambucus racemosa</i>	11 stems / 10,000 s.f.	10%
	<i>Spiraea douglasii</i>	16 stems / 10,000 s.f.	15%
	<i>Symphoricarpos albus</i>	27 stems / 10,000 s.f.	25%

* Groupings required

DETAIL: LOWLAND TREES AND PLANTING MIX C AND D

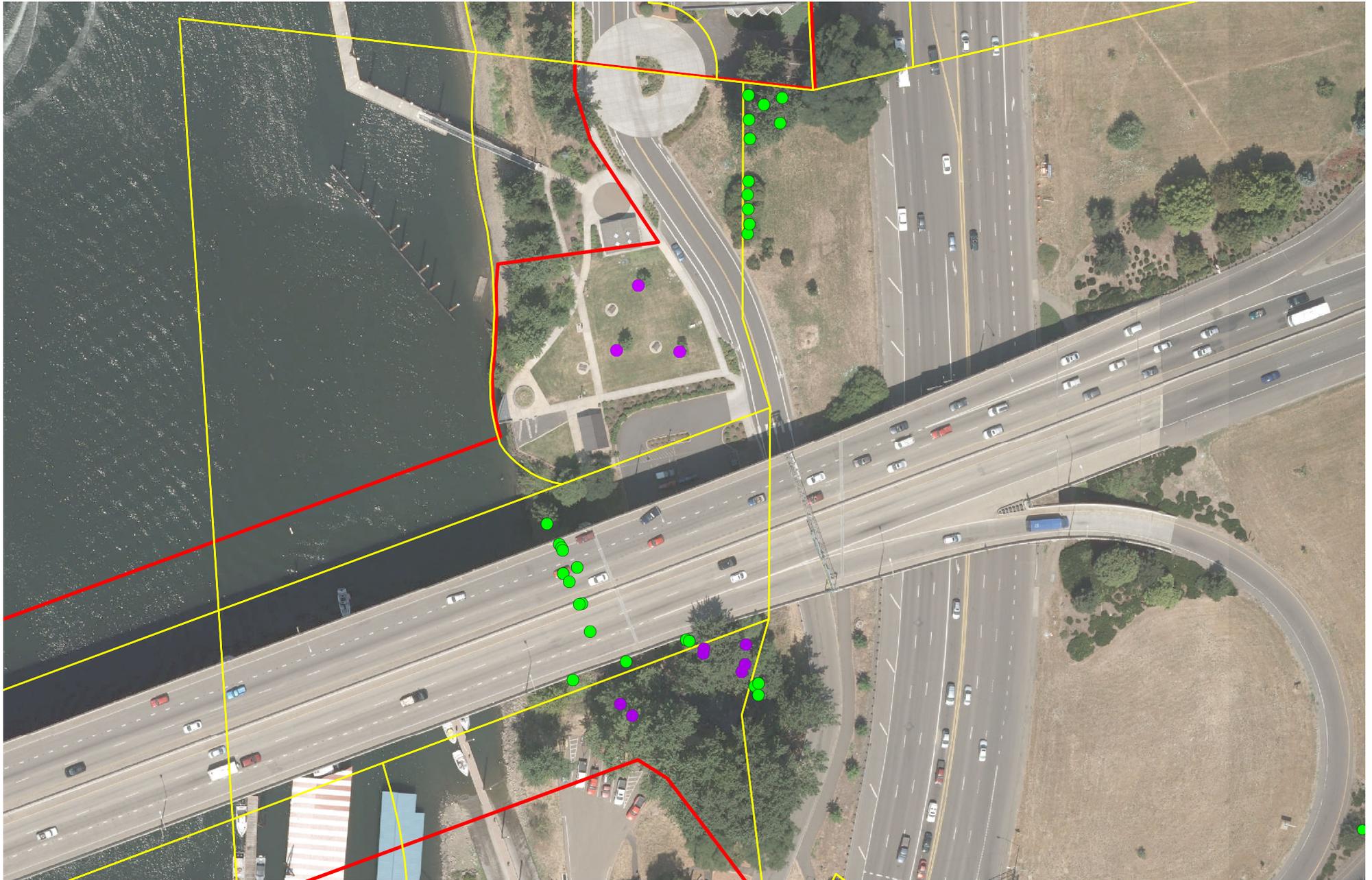
Not To Scale

TREE PLANTING NOTES

- 1) Install trees at an overall density of 49 trees/10,000 s.f.
- 2) Install trees at an average of 15' O.C. with triangular spacing, 49 trees/10,000 s.f. Large, Slow-Growing Trees must be planted at minimum 30' O.C. from one another. Fast-Growing and Small Trees shall be installed at a 10 - 20' O.C. average spacing from others.
- 3) Install Fast-Growing Trees in groups of 2 - 7
- 4) Install Small Trees in groups of 2 - 5
- 5) Install shrubs at an overall density of 108 shrubs/10,000 s.f.
- 6) Install shrubs 5' O.C. in groups of three to nine plants per species. Space shrub groups no closer than 15' apart and no closer than 5' to adjacent tree stems.
- 7) Spread species throughout the given planting area to avoid monocultures, a random 10,000 s.f. sample should contain all species.
- 8) Maintain a 1' diameter plant-free area around all stems and mulch with wood chip mulch to prevent weeds.

**PRELIMINARY COPY
INFORMATION ONLY**

	HDR ENGINEERING, INC 1050 SW 6TH AVENUE, SUITE 1800 PORTLAND, OR 97204-1134 503.423.3700	
	I-205: I-5 - OR213, PHASE 2 SEC. EAST PORTLAND FREEWAY CLACKAMAS COUNTY	
Designer: David Goodyke Drafter: David Goodyke	Reviewer: Name Checker: Name	SHEET NO. FA13B
ROADSIDE DEVELOPMENT PLANTING PLAN/SECTION		



TREE REMOVAL



0 62.5 125 Feet



12.08 Trees to be removed



17.41 Trees to be removed



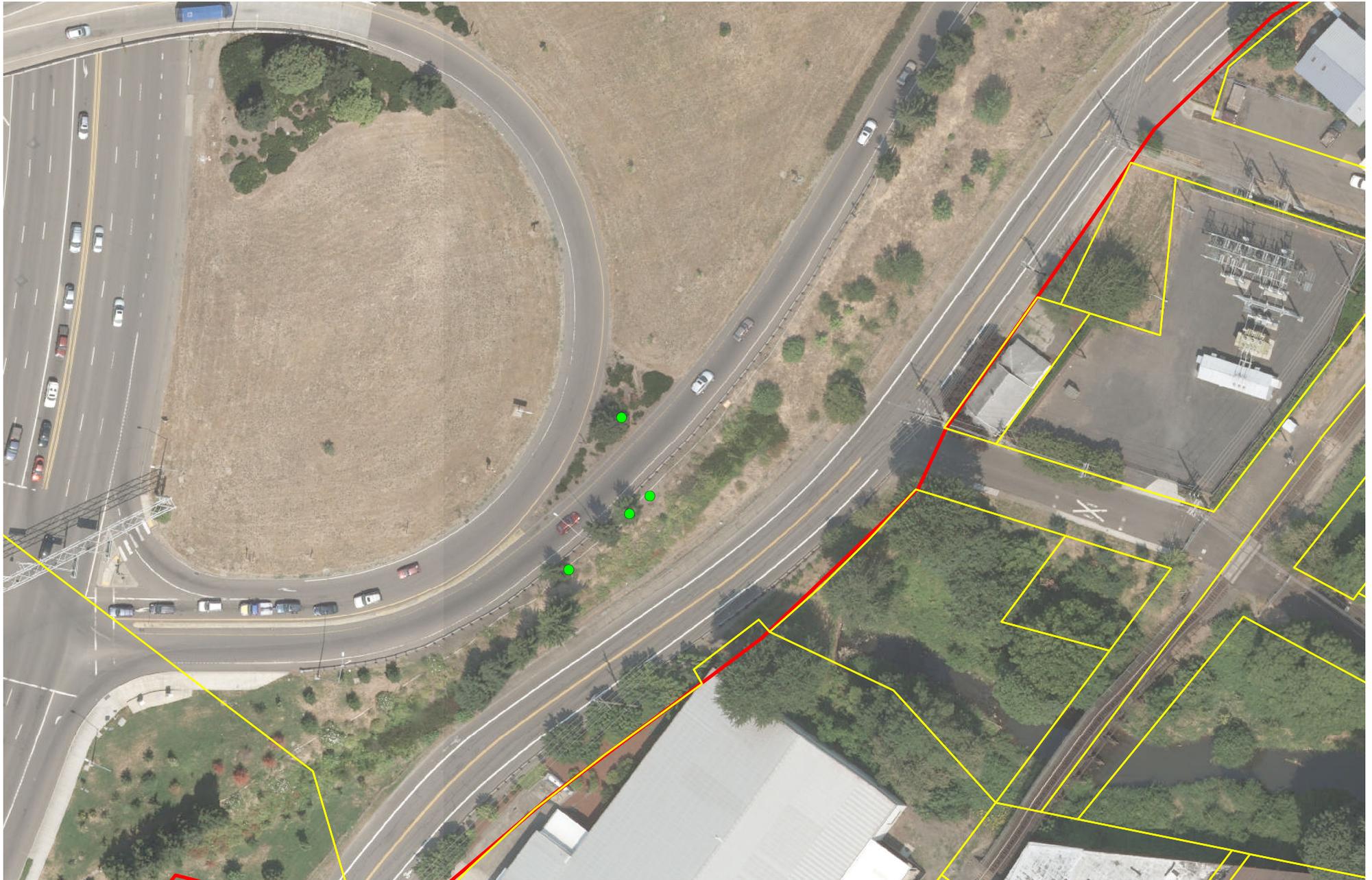
Project Area



Tax Lots

DATA SOURCE: ESRI, HDR, City of Oregon City

FIGURE 1



TREE REMOVAL



0 50 100 Feet



12.08 Trees to be removed



17.41 Trees to be removed



Project Area



Tax Lots

DATA SOURCE: ESRI, HDR, City of Oregon City

FIGURE 2



TREE REMOVAL



0 90 180 Feet



12.08 Trees to be removed



17.41 Trees to be removed



Project Area



Tax Lots

DATA SOURCE: ESRI, HDR, City of Oregon City

FIGURE 3



TREE REMOVAL



0 90 180 Feet



12.08 Trees to be removed



17.41 Trees to be removed



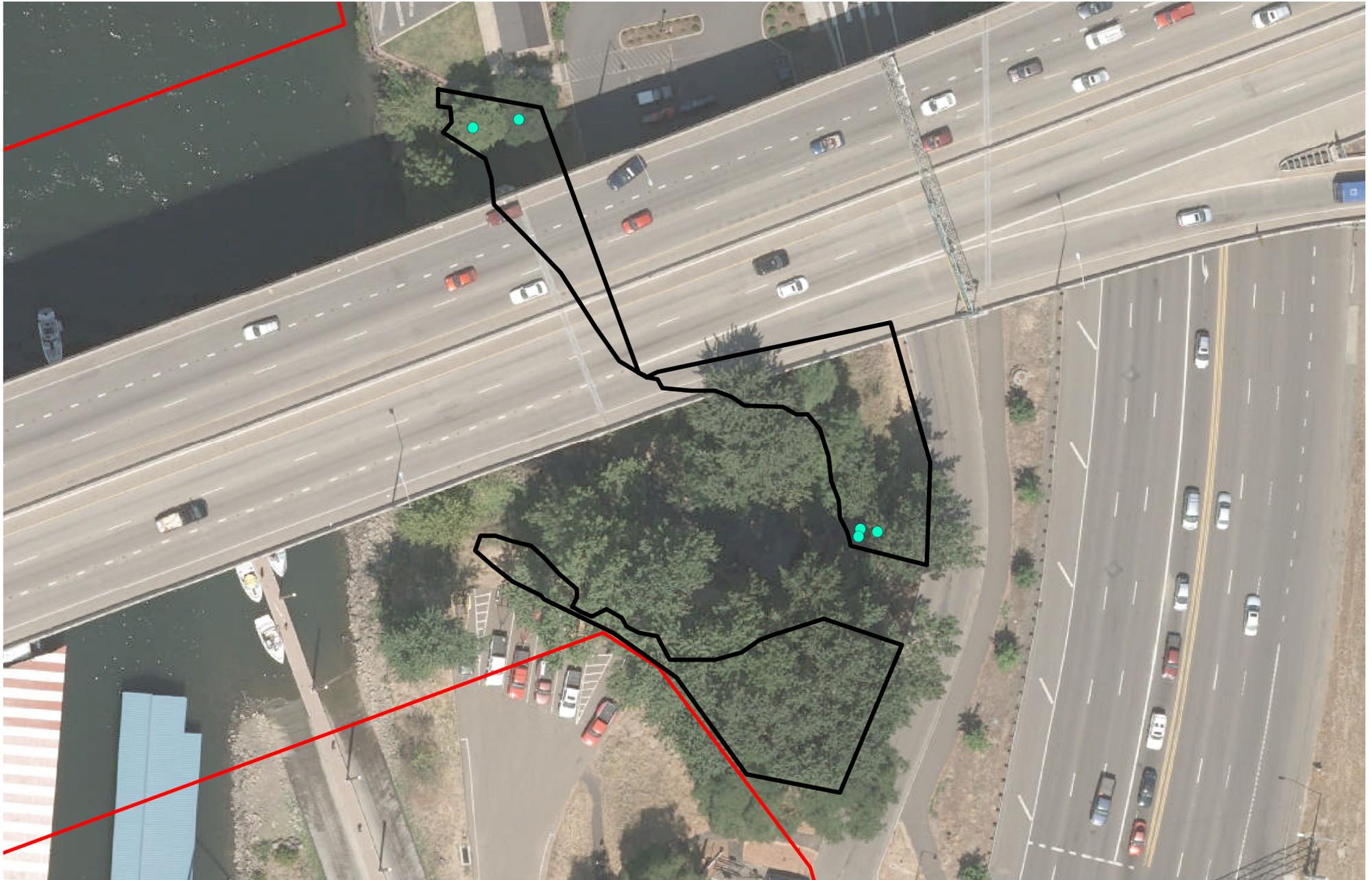
Project Area



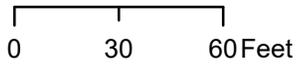
Tax Lots

DATA SOURCE: ESRI, HDR, City of Oregon City

FIGURE 4



TREE REMOVAL - NROD



Project Area



NROD



17.49 Trees to be Removed

DATA SOURCE: ESRI, HDR, City of Oregon City

Note: All cedar trees shown are incense cedar



TREE REMOVAL - NROD



0 105 210 Feet



Project Area



NROD



17.49 Trees to be Removed

DATA SOURCE: ESRI, HDR, City of Oregon City

FIGURE 6

12.08.035 Tree Removal – Trees within right-of-way

Trees that are dead, diseased, or hazardous				Trees that are not dead, diseased, or hazardous			
<i>Diameter of tree to be Removed (Inches of diameter at 4-ft height)</i>	Proposed # for removal	<i>Number of Replacement Trees to be Planted</i>	Proposed # for replacement	<i>Diameter of tree to be Removed (Inches of diameter at 4-ft height)</i>	Proposed # for removal	<i>Number of Replacement Trees to be Planted</i>	Proposed # of replacement trees
<i>Any Diameter</i>	0	<i>1 Tree</i>	0	<i>Less than 6"</i>	11	<i>1 Tree</i>	11
				<i>6" to 12"</i>	69	<i>2 Trees</i>	138
				<i>13" to 18"</i>	44	<i>3 Trees</i>	132
				<i>19" to 24"</i>	9	<i>4 Trees</i>	36
				<i>25" to 30"</i>	4	<i>5 Trees</i>	20
				<i>31" and over</i>	0	<i>8 Trees</i>	0
TOTAL					(137)		337

17.41.060 Tree Replacement Requirements – trees on public property

Size of tree removed (DBH)	<i>Column 1</i> Number of trees to be planted. (If removed Outside of construction area)	Proposed # of Trees for removal outside construction area	<i>Column 2</i> Number of trees to be planted. (If removed Within the construction area)	Proposed # of trees for removal within construction area	Proposed # of replacement trees
6 to 12"	3	0	1	5	5
13 to 18"	6	0	2	3	6
19 to 24"	9	0	3	1	3
25 to 30"	12	0	4	0	0
31 and over"	15	0	5	0	0
TOTAL				(9)	14

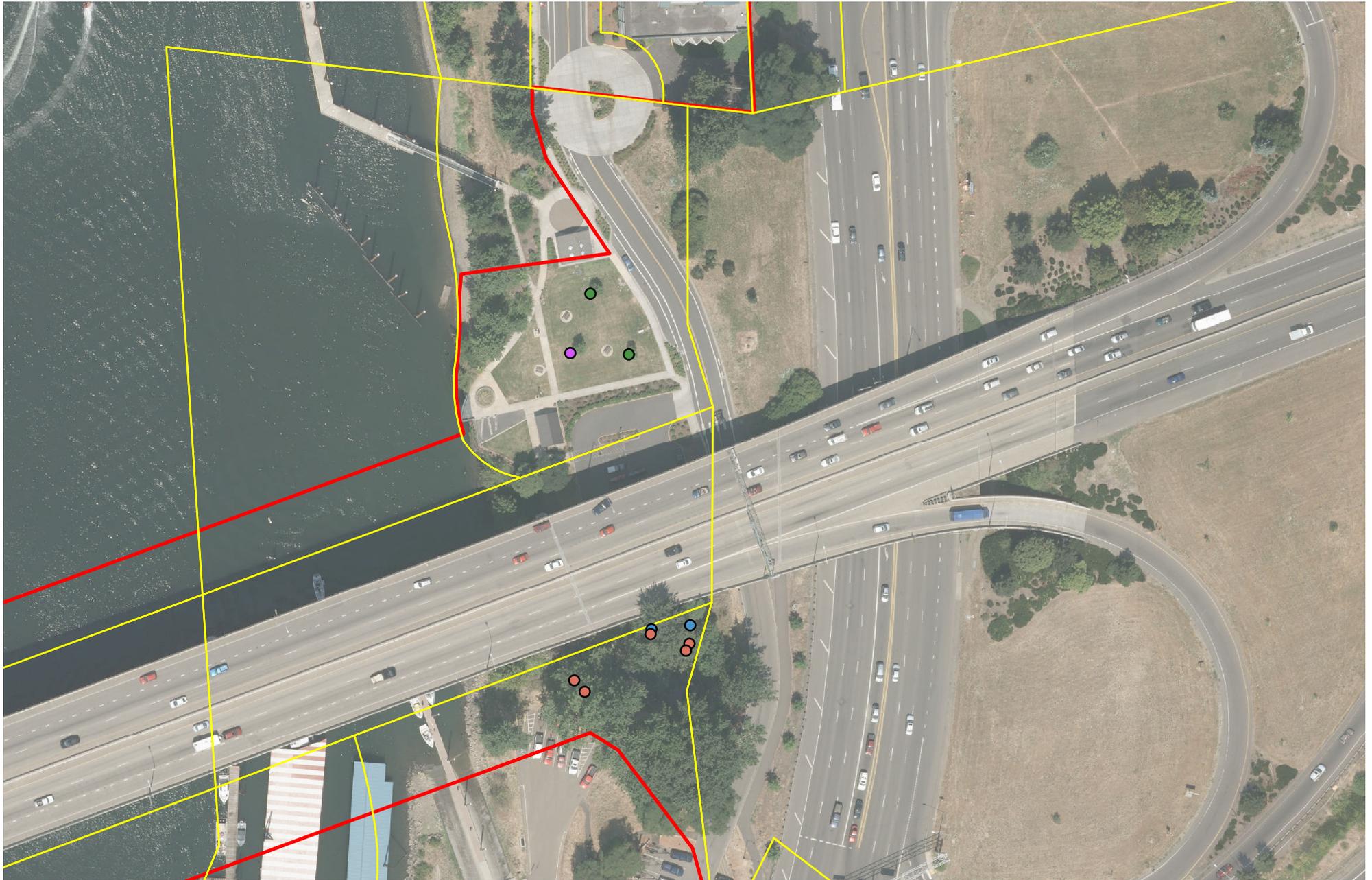
17.49.180 NROD tree removal mitigation – trees within NROD

Size of tree (DBH) being removed	Proposed # of trees for removal	Proposed # of replacement trees
6-12	8	
13-18	19	
19-24	16	
25-30	2	
31+	0	
TOTAL	(45)	587

Mitigation Option 2 requirements are based on the size of the disturbance area.

Total proposed tree removal and replacement

OCMC Tree removal section	Proposed # of trees for removal	Proposed # of trees for replacement
12.08	137	337
17.41	9	14
17.49	45	587
TOTAL	(191)	938



0 65 130 Feet



DATA SOURCE: ESRI, HDR, City of Oregon City

- Black locust
- Oregon ash
- Trident maple
- White ash

Tax Lots

Project Area

TREE REMOVAL

17.62.040(B)