



February 8, 2024

BCC Agenda Date/Item: _____

Board of County Commissioners
 Acting as the governing body of Water Environment Services
 Clackamas County

Approval of Amendment #2 with Carollo Engineers, INC for engineering services necessary to design the Clackamas Area Interceptor Project. Amendment Value is \$265,300.00, Total Contract Value is \$4,293,111.00 for 3.5 years. Funding through WES’ Sanitary Sewer Construction Fund. No County General Funds are involved.

Previous Board Action/Review	<ul style="list-style-type: none"> • Execution of Contract #7185 for Carollo Engineering Inc. to provide design services for the Clackamas Area Interceptor project – November 23, 2022 • Approval of Amendment #1 – January 5, 2023 • Presented at Issues – February 6, 2024 		
Performance Clackamas	<ol style="list-style-type: none"> 1. This project supports the County Strategic Plan of building a strong infrastructure that delivers services to customers and honors, utilizes, promotes and invest in our natural resources. 2. This project supports the WES Strategic Plan to provide Enterprise Resiliency, infrastructure Strategy and Performance and Operational Optimization. 		
Counsel Review	Yes	Procurement Review	Yes
Contact Person	Jessica Rinner	Contact Phone	503-484-0365

EXECUTIVE SUMMARY: WES’ Collection System Master Plan identified the Clackamas Area Interceptor system upstream of the Intertie 2 Pump Station, which serves Clackamas County and portions of the City of Happy Valley, as nearing its peak wet-weather capacity and needing to be upsized. In late 2022 WES entered into a contract with Carollo Engineering Inc. to provide the first phase of the project which included preliminary design, easement acquisition, and preliminary permitting for the project. When the project team completed the Hazardous Material Corridor Study as part of the original scope of work, it was recommended that 12 additional sites complete Limited Phase I Environmental Site Assessments (ESAs) and 6 sites complete Phase II ESAs. The proposed Phase I and II ESAs will identify additional investigation to determine worker safety and to support proper soil and groundwater disposal requirements during construction.

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RECOMMENDATION: Staff recommends that the Board of County Commissioners of Clackamas County, acting as the governing body of Water Environment Services, approve Amendment #2 with Carollo Engineers, Inc. for Engineering Services for the Clackamas Area Interceptor Project.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Greg Geist", with a long horizontal flourish extending to the right.

Greg Geist, Director
Water Environment Services

Attachment: Amendment #2 for Contract #7185 with Carollo Engineers, Inc.

Exhibit A
Scope of Work and Budget Detail

AMENDMENT NO.2

ENGINEERING SERVICES FOR CLACKAMAS COUNTY WES
CLACKAMAS AREA INTERCEPTOR IMPROVEMENTS PROJECT

BACKGROUND

Carollo and its subconsultants began the preliminary design of the Project on December 21, 2022. When the project team completed the Hazardous Material Corridor Study as part of the original scope of work, it was recommended that 12 additional sites complete Limited Phase I Environmental Site Assessments (ESAs) and 6 sites complete Phase II ESAs. These sites have historical soil and/or groundwater contamination, or the potential for contamination, at or in close proximity to the area of the proposed Clackamas Area Interceptor Improvement Project alignments. The proposed Phase I and II ESAs will help to determine if additional investigation is required to determine worker safety and to support proper soil and groundwater disposal practices during construction.

The District has requested additional scope to be added to support this additional scope.

CONSULTANT’S SERVICES

Consultant shall provide the following services:

TASK 200 – PRELIMINARY DESIGN

Subtask 270 – Environmental Assessments

Item 1 - Existing Environmental Data Review (Limited Phase I ESAs)

Consultant will perform an evaluation of existing environmental conditions at the following 12 sites. Current and historical business are listed below. These sites were identified in the Hazardous Materials Corridor Study Report and a table of contaminate details and map of locations from that report is presented in Attachment 2:

Site No.	Tax Lot No.	Address	Current Owner	Historical Owner
7	22E11DB00101	13488 SE Hwy 212	Space Age Fuel	Space Age Fuel
19	22E11C 01102	15651 SE 125th Court	MET-TEK Inc.	MET-TEK Inc.
28	22E15A 01200	16590 SE 114th Ave	Gentle John’s Moving	Clackamas Industrial Area Opportunity Site
	22E15A 01500	No Address	Cedar Moss	
	22E15A 01700	16710 SE 114th Ave	Pepsi Care Mark International	Clackamas Sand and Gravel

	22E15A 01800	11436 SE Capps Rd	Clackamas Business Park	Clackamas Compost
	22E15A 01900	11678 SE Capps Rd		DB Trucking
	22E15A 02100	11950 SE Capps Rd		
	22E15A 02101	11820 SE Capps Rd		
	22E15A 02202	12000 SE Capps Rd		
	22E15A 02200	12000 SE Capps Rd		
	22E15A 02301	12020 SE Capps Rd		
36	22E10DB00100	11843 SE Hwy 212	Emmert International – Leased to FMI Truck Sales and Service	Emmert International – Leased to Safety Kleen Corp
41	22E10C 03700	10560 SE Hwy 212	Texaco	Stein Oil Station
51	22E10C 00900	10287 SE Hwy 212	Twin Perks Espresso	ODOT 2121 INTX
52	22E09DA06700	10115 SE Hwy 212	Pacific Pride	Stein Oil Co.,
59	22E10C 00800	15670 SE 102nd Ave.	H.D. Fowler Clackamas Site	H.D. Fowler Clackamas Site
62/63	22E09A 00900	10101 SE Clackamas Rd	Camp Withycombe	Camp Withycombe
	22E10 00602	No address	Camp Withycombe Firing Range	Camp Withycombe Firing Range
87	22E04B 01801	13309 SE 84th Ave	PCC Structural Inc.	PCC Structural Inc.
	22E04B 01900	13340 SE 84th Ave		
93/94	22E04CB00500	13517 SE Ambler Rd	Monarc Transportation	ODOT Ambler Road East
	22E04CB00400	No Site address	Cascade Drilling	ODOT Ambler Road West
97	22E05AD00402	13345 SE Johnson Road	McFarlane’s Bark Inc	McFarlane’s Bark Inc

Data reviewed will include, but not limited to, the following:

- Available environmental data provided by the Oregon Department of Environmental Quality (ODEQ) and US Environmental Protection Agency (USEPA).
- Available historic aerial photographs and topographic maps, city or county maps and street directories, and local historical information to assess past uses of the site area.
- Listings from a subcontracted database service (Environmental Data Resources, Inc. [EDR]) of confirmed and suspected contaminated sites abstracted from EPA, and ODEQ environmental

databases.

- Information from the local health and fire departments on environmental conditions at and immediately adjacent to the proposed alignments.
- Available ODOT geotechnical information.

The data collected will be presented in Limited Phase I ESA reports for each site.

Item 2 - Phase II ESAs

For this Amendment, Consultant estimates that 6 of the sites where a Phase I ESA has been recommended will require a Phase II ESA. Phase II ESA activities would likely involve the collection and analysis of soil and groundwater samples. The precise number of sites will be determined subsequent to the completion of the Phase I ESAs and by written authorization from Owner.

ASSUMPTIONS

- Project management for this effort is included within each task and will include subcontractor management, staff management, client communication, meetings and invoicing.
- For Item 1, sites will only be inspected from neighboring rights-of-way.
- For Item 2, it is estimated that 6 of the sites where a Phase I ESA has been recommended will require a Phase II ESA. This number may decrease or increase.
- For Item 2, Phase II ESA costs are approximated and will be finalized subsequent to the completion of Phase I ESA activities. This includes finalizing the number of sites included in the Phase II tasks and the drilling effort required.
- Costs do not include a contingency amount for unanticipated out-of-scope activities, such as direct drilling costs.
- Electronic versions of the Phase I and II ESA reports will be provided.
- Recommendations or conclusions made by Consultant and subconsultants are based on research, inspections, fieldwork and laboratory testing and on-Site information provided to us by the Owner. It is important to recognize that even the most comprehensive scope of services may fail to detect environmental liabilities on a particular site. Therefore, Consultant cannot “certify” that a site is free of environmental contamination. No expressed or implied representation or warranty is included or intended in our reports, except that our services were performed as described by our scope of services in accordance with the standard of care of our profession. Additionally, subsurface conditions will vary between exploration locations, perhaps significantly. The impacts of future events may require further investigation of the site and subsequent data analysis along with revision of recommendations or conclusions. In preparation of site assessment and investigation reports, Consultant will rely upon, and assume to be accurate, site information provided by the client and other persons. Except as otherwise stated in the reports, Consultant will not attempt to verify the accuracy or completeness of any such information. Reports may be used only by the Owner for this project. Any party other than the client who wishes to use reports must notify Consultant that they are using the reports. Based on the intended use of the report, Consultant may require supplemental work to be performed and may require that the report be revised and reissued.

SCOPE OF WORK DETAIL

This work shall be completed 6 months after completion of the field work.

COST

Estimated cost for the proposed services is presented as Attachment 1 – Budget Estimate.

Task Cost Detail:

Limited Phase I ESAs:

Environmental Data Resources (EDR) Database Access:	\$350
EDR Database Review:	\$1,000
Regulatory Agency File Review:	\$1,200
Historical Data Review:	\$800
Reporting (including Figures and Tables)	\$1,150
<u>Project Management</u>	<u>\$625</u>
Total per site:	\$5,125
Total x 12 sites:	\$61,500

Phase II ESAs:

Field Preparation (Planning/Health and Safety/Subs)	\$3,500
Field Labor	\$7,100
Equipment	\$1,500
Laboratory	\$5,200
Drilling	\$8,000
Reporting (including Figures and Tables)	\$4,700
<u>Project Management</u>	<u>\$1,250</u>
Total per Site:	\$31,250
Total x 6 sites:	\$187,500

Carollo Management and Coordination

Limited Phase I ESA	\$1,925
Phase II ESA	\$1,925
Total	\$3,850

Total Costs:

Terraphase	\$249,000
Sub 5% Mark up:	\$12,450
<u>Carollo:</u>	<u>\$3,850</u>
Total:	\$265,300

Attachment 1

Amendment 2 Budget Detail

Attachment 1 – Budget Estimate for Amendment 2

Clackamas County Water Environment Services										
Clackamas Area Interceptor Project - Amendant 02										
Level of Effort Estimate Detail - Carollo and Subconsultants										
WORK TASKS	Project Manager	Deputy Project Manager	Project Engineer	Carollo Hours	Carollo DL Cost	ODCs	Subtotal Carollo Cost	Subs		Total Cost
								Terraphase		
	Waligorski	Burnett	Mannion							
TASK 200 - PRELIMINARY DESIGN										
Subtask 270 - Environmental Assessments	4	10	4	18	\$3,756	\$94	\$3,850	\$249,000	\$252,850	
Limited Phase I ESA (12 Sites)	2	5	2	9	\$1,878	\$47	\$1,925	\$61,500	\$63,425	
Phase II ESA (6 Sites)	2	5	2	9	\$1,878	\$47	\$1,925	\$187,500	\$189,425	
				0	\$0	\$0	\$0	\$0	\$0	
				0	\$0	\$0	\$0	\$0	\$0	
				0	\$0	\$0	\$0	\$0	\$0	
				0	\$0	\$0	\$0	\$0	\$0	
				0	\$0	\$0	\$0	\$0	\$0	
				0	\$0	\$0	\$0	\$0	\$0	
				0	\$0	\$0	\$0	\$0	\$0	
Task 200 Subtotal	4	10	4	18	3,756	94	3,850	249,000	252,850	
Subconsultant Markup (5%)									\$12,450	
TOTAL AMENDMENT 2 AMOUNT	4	10	4	18	\$3,756	\$94	\$3,850	\$249,000	\$265,300	

Attachment 2

Hazardous Materials Corridor Study Report
Table of Site details and map of Site locations

Table 1
Environmental Hazard Evaluation
Hazardous Materials Corridor Study
Clackamas Area Interceptor, Clackamas, Oregon

Site	Listing	Alignment Section	Database	Distance from Alignment (feet)	Media Impacted	Contaminant	Location of Listing Relative to Groundwater Flow (Estimated)	Regulatory Status	Comments ^{1,2}	Additional Assessment Limited Phase I and possible Phase II ESA (Y/N)
1	Rock Creek Industrial Park (ID: 12231) (16163 SE Highway 212)	Upper Clackamas	US Brownfield	870	Unknown	Unknown	Upgradient	Phase I ESA completed, but not accepted	Assessment in progress. No environmental data available but sufficiently distant from the alignment	No
2	HOT (ID: 03-03-0062) (14878 Highway 212)	Upper Clackamas	LUST	155	Soil	TPH	Downgradient	Closed (4/3/2003)	Case closed and downgradient	No
3	Smith Masonry Contractors, Inc. (ID: 03-94-0235) (14489 SE Highway 212)	Upper Clackamas	LUST	200	Soil, Groundwater	TPH, VOCs	Upgradient	Closed (5/22/1995)	Case closed with remaining contamination below RBC levels in 1993 and 200 feet from alignment	No
4	ADCOA Gases & Equipment LLC (13601 SE Highway 212, Driveway N)	Upper Clackamas	AST	Adjacent	Unknown	Nitrogen	Upgradient	Unknown	No release of nitrogen reported and not a concern for alignment	No
5	Custom Commercial Fabric Restoration (15312 SE 135th Avenue)	Upper Clackamas	Drycleaner	250	Unknown	Unknown	Upgradient	N/A	Upgradient dry cleaner immediately upgradient of alignment but operational 2002-2004 and unlikely to have used PCE	No
6	Space Age Fuel (ID: 2017-2982) (13488 SE Highway 212)	Upper Clackamas	Spill	Adjacent	Pavement, Soil	TPH, VOCs, metals	Upgradient	Closed	Case closed with likely minor diesel spill on roadway near intersection of SE Hubbard and Highway 212/224 at the Space Age fuel station	No
7	Space Age Fuel (13488 SE Highway 212)	Upper Clackamas	EDR Hist Auto	Adjacent	Unknown	TPH, VOCs, metals	Downgradient	N/A	Immediately downgradient but adjacent with no investigation.	Yes
8	Tim's Automotive Repair (ID: 3088) (15688 SE 135th Avenue)	Upper Clackamas	ECSI, AST	520	Groundwater, Surface Water	TPH, VOCs, lead	Downgradient	Site Screening Recommended	Ongoing discharges could pose a risk to ecological receptors, and possibly shallow groundwater but listing is downgradient from alignment	No
9	D&M Pallets (Site ID: 2596) (13150 SE Highway 212)	Upper Clackamas	ECSI	Adjacent	Soil, Groundwater	TPH, VOCs, BTEX, PAH, metals	Downgradient	NFA	Case closed with no significant remaining soil and groundwater contamination but adjacent to alignment with reported impacts to sediments in off site drainage ditch.	No
10	Clackamas County Fire District #1 (ID: 6447) (15800 SE 130th Avenue)	Upper Clackamas	ECSI, AST, Aqueous Foam	470	Soil, Groundwater	PFAs, others associated with fuels and fire accelerants	Downgradient	Basic Preliminary Assessment	Assessment not completed, sufficient downgradient distance from alignment	No
11	Ruan Leasing Company (15800 SE 130th Avenue)	Upper Clackamas	EDR Hist Auto	490	Unknown	TPH	Downgradient	N/A	Not adjacent to alignment and sufficiently downgradient	No
12	Clackamas Fire District #1 Training Facility (ID: 03-91-0474) (15990 SE 130th Ave)	Upper Clackamas	LUST	750	Soil, Groundwater	TPH, VOCs, PFAS	Cross gradient	Closed (7/17/2000)	No contamination remaining, 750 feet cross gradient from alignment.	No
13	Safety Kleen Systems Inc. (ID: 6450) (16540 SE 130th Avenue)	Upper Clackamas	ECSI, SPILLS	1800	Unknown	Unknown	Downgradient	NFA (Conditional)	Cleanup complete with case closure. Groundwater plume migration controlled and downgradient from alignment. Hazardous waste storage permit current. No additional information.	No
14	Sunrise Corridor Business (ID: 3862) (16237 SE 130th Avenue)	Middle Clackamas	ECSI	770	Soil, Groundwater	CVOCs	Downgradient	NFA	Case closed but with contamination remaining in soil and groundwater. However, sufficiently downgradient from alignment.	No

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15	Space Age Fuels, Inc. (15525 SE For Mor Court)	Middle Clackamas	EDR Hist Auto	160	Unknown	Unknown	Upgradient	Unknown	Likely related to Space Age Fuels, Listing 7. Possibly office space, not likely to represent an environmental risk	No
16	American Wood Dryers Inc. (ID: 1102) (15495 SE For-More Court)	Middle Clackamas	ECSI	560	Unknown	Solvents	Upgradient	NFA	Case closed and waste (paint and paint thinner) generated at facility is "contained" with sufficient distance from the alignment	No
17	Etling Pekkola Properties (ID: 03-90-0436) (12441 and 12623 Highway 212)	Middle Clackamas	LUST	Adjacent	Soil, Groundwater	TPH, VOCs	Upgradient	Closed (12/21/1990)	Case closed with remaining soil contamination below cleanup standard in 1990. No visible evidence of groundwater contamination	No
18	Ray's Food Service, Inc. (ID: 03-95-0243) (12601 SE Highway 212 PO Box 919)	Middle Clackamas	LUST	Adjacent	Soil, Groundwater	TPH, VOCs	Upgradient	Closed (9/25/1996)	Case closed with no soil contamination detected. Groundwater contamination detected after tank break during decommission but at low concentrations (1.7 ppm TPH)	No
19	MET-TEK Inc. (ID: 2024) (15651 SE 125th Court)	Middle Clackamas	ECSI, AST, SPILLS	405	Soil, Groundwater	TPH, PCBs	Upgradient	Remedial Investigation Recommended	Open case upgradient of the alignment with contamination remaining in soil below 2 feet bgs (max 10,000 ppm TPH) and shallow groundwater impacts	Yes
20	Knez Building Supply (ID: 03-90-0116) (12301 SE Highway 212)	Middle Clackamas	LUST	Adjacent	Soil, Groundwater	TPH, VOCs	Upgradient	Closed (1/22/1991)	Case closed with 15 ppm TPH remaining in soil post remediation and reused as fill. However, upgradient and groundwater impacts may remain	No
21	XPO Logistics Freight UPO (12250 SE Ford Street)	Middle Clackamas	AST	Adjacent	Unknown	Unknown	Up/cross gradient	Unknown	No release reported from AST	No
22	SW Highway 212 and 122nd Avenue	Middle Clackamas	Spill	Adjacent	Pavement, Surface Water	TPH	Upgradient	Open	50 gallons of diesel released from truck accident, some entered the storm-drain. Soil impacts possible but unlikely to be extensive	No
23	Portland Marine Electronics (12125 & 11485 SE Highway 212)	Middle Clackamas	EDR Hist Auto	150	Unknown	Unknown	Upgradient	Unknown	Marine fishing equipment supplier immediately upgradient of alignment and no releases or spills reported	No
24	Fred Meyer Distribution Center (LUST ID: 03-90-0456) (12108 SE Highway 212)	Middle Clackamas	LUST, SPILLS	Adjacent	Soil, Groundwater, Surface Water	TPH	Cross gradient	NFA (1992)	Adjacent to alignment with remaining soil contamination in area of current tanks (up to 8,200 ppm TPH) below the current building footprint but case closed and likely downgradient of alignment	No
25	CMD Transportation (ECSI ID: 1214, LUST ID: 03-90-0248) (12340 SE Jennifer Street)	Middle Clackamas	ECSI, LUST	770	Soil, Groundwater	TPH, VOCs, lead	Cross/upgradient	NFA	Case closed with low concentrations of contaminants remaining but sufficiently distant from alignment	No

Table 1
Environmental Hazard Evaluation
Hazardous Materials Corridor Study
Clackamas Area Interceptor, Clackamas, Oregon

Site	Listing	Alignment Section	Database	Distance from Alignment (feet)	Media Impacted	Contaminant	Location of Listing Relative to Groundwater Flow (Estimated)	Regulatory Status	Comments ^{1,2}	Additional Assessment Limited Phase I and possible Phase II ESA (Y/N)
26	Etling Northwest Inc. (16751 SE 120th Avenue)	Middle Clackamas	AST	Adjacent	Unknown	TPH-d	Upgradient	Unknown	No release reported from AST	No
27	Pioneer Recycling Services LLC (16810 SE 120th Avenue)	Middle Clackamas	AST	Adjacent	Unknown	Unknown	Upgradient	Unknown	No release reported from AST	No
28	Clackamas Industrial Area Opportunity Site (Site ID: 5771) (12000 SE Capps Road)	Middle Clackamas	ECSI	Adjacent	Soil, Groundwater	TPH, lead	Upgradient	NFA	NFA granted but adjacent with possible groundwater impacts	Yes
	3 Kings Environmental, Inc. (CA #BF96043201) (12000 SE Capps Road)	Middle Clackamas	US Brownfield	Adjacent	Soil	metals, PAH, TPH	Upgradient	Open Phase II Requested	Soil impacts reported adjacent to alignment, no groundwater data and open case with no cleanup completed	
29	Fire Marshall (Site ID: 4623) (11620 SE Capps Road)	Middle Clackamas	Spill	Adjacent	Not Reported	Unknown	Cross gradient	Not Reported	Adjacent to alignment with spill volume and response not reported (see below)	No
	11620 SE Capps Road (Report #1051555)	Middle Clackamas	ERNS	Adjacent	Groundwater	TPH	Cross gradient	Not Reported	Spill of diesel adjacent to alignment. Spill volume unknown but reportedly released into Clackamas River	
30	Pepsi Beverage Company (11650 SE Capps Road)	Middle Clackamas	AST	Adjacent	Unknown	Carbon dioxide	Cross/upgradient	N/A	Carbon dioxide not a concern for the alignment and no release reported.	No
31	Clackamas Industrial Area Opportunity Phase II (ID: 6107) (16590 SE 114th Avenue)	Middle Clackamas	ECSI	750	Soil, Groundwater	TPH, chromium	Cross/downgradient	Site Screening Recommended	Shallow and deep groundwater plumes downgradient and SW of alignment, TPH in surficial soils.	No
32	Surgichrome Inc. (ID: 1526) (16569 SE 115th Avenue)	Middle Clackamas	ECSI	880	Soil, Groundwater	TPH, chromium	Cross/downgradient	NFA (Conditional)	Soil contamination remains in areas covered by buildings and pavement. Chromium VI present in groundwater but downgradient of alignment	No
33	Precision Roof Trusses, Inc. (IDs: 03-93-0135, 03-93-0021, 03-19-0935) (11550 SE Jennifer Street)	Middle Clackamas	LUST, AST	400	Soil	TPH, VOCs	Downgradient	Closed (12/10/1993, 5/23/1996, 1/17/2020)	Multiple cases closed, soil only impacts and downgradient from alignment. Site referred to ODEQ's Site Assessment Section (2020 closure related to HOT)	No
34	CB Equipment Co. (12001 SE Jennifer Street)	Middle Clackamas	AST	Adjacent	Unknown	Propane	Cross gradient	N/A	No release of propane reported and any release unlikely to have impacted the alignment	No
35	Clutch Doctors, Inc. (11773 SE Highway 212)	Middle Clackamas	EDR Hist Auto	180	Unknown	TPH, VOCs, metals	Upgradient	Unknown	Autobody facility immediately upgradient of the alignment but no reported release	No
36	Safety Kleen Corp 7-148-01 (Site ID: 1315) (11843 SE Highway 212)	Middle Clackamas	ECSI	Adjacent	Soil, Groundwater	TPH, VOCs, HVOCS, TCE, TCA	Upgradient	NFA (Conditional)	Case closed with residual contamination, groundwater impacts and immediately upgradient	Yes
37	Pritchard's Truck Repair (ECSI ID: 1683, LUST ID: 03-93-0104) (11857 SE Highway 212)	Middle Clackamas	ECSI, LUST	140	Soil, Groundwater	TPH, VOCs, metals	Upgradient	ECSI: Site Confirmatory Sampling Recommended LUST File Closed 9/23/1999	Soil contamination with no TPH and very low levels of xylenes in groundwater as of 1994. No regulatory closure but 140 feet from alignment	No

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Hazardous Materials Corridor Study
Clackamas Area Interceptor, Clackamas, Oregon

Site	Listing	Alignment Section	Database	Distance from Alignment (feet)	Media Impacted	Contaminant	Location of Listing Relative to Groundwater Flow (Estimated)	Regulatory Status	Comments ^{1,2}	Additional Assessment Limited Phase I and possible Phase II ESA (Y/N)
38	Clackamas Distribution Center Gen MDSE (LUST ID: 03-93-6054, SPILLS IDs: 1995-0608, 1997-2616, 1997-2616, 2002-2818, 2008-2314, 2014-1851) (11500 SE Highway 212)	Middle Clackamas	LUST, SPILLS, AST	Adjacent	Soil, Groundwater	TPH, polypropylene ethylene glycol	Downgradient	NFA, Closed (2/12/2001)	Case closed, no contamination detected in confirmatory soil samples following decommissioning of UST and downslope from alignment. In addition, 6 spills reported unrelated to USTs (diesel, food-grade polypropylene ethylene glycol, liquid ammonia)	No
39	Premier Dry Cleaners (15865 SE 114th Avenue, Suite O)	Middle Clackamas	Drycleaner	410	Unknown	Unknown	Upgradient	N/A	Dry cleaner immediately upgradient of alignment but operated from 2002 - 2008 suggesting unlikely source of PCE	No
40	Mustang Gas & Oil, Inc. (Highway 212 & 106th Avenue)	Middle Clackamas	EDR Hist Auto	Adjacent	Unknown	TPH, VOCs, metals	Downgradient	Unknown	Autobody facility immediately downgradient of the alignment but no reported release. Likely the same Site as Stein Oil (#41)	No
41	Stein Oil Station (ID: 03-89-0078) (10560 SE Highway 212)	Middle Clackamas	LUST, AST, EDR Hist Auto	Adjacent	Soil, Groundwater	TPH, VOCs, SVOCs, metals	Downgradient	NFA, Closed (4/1/2010)	Case closed, however, adjacent and cross gradient to alignment with soil removal and groundwater pump and treat in progress or completed	Yes
42	Portland Road and Driveway East Parcel (ID: 5177) (10500 SE Jennifer Street) (45.4027, -122.5543)	Middle Clackamas	ECSI	1700	Soil, Groundwater	TPH, VOCs, lead	Downgradient	NFA	Case closed with some contamination remaining, however, downgradient from the alignment	No
	Portland Road and Driveway Company Inc. (ID: 6519) (10500 SE Jennifer Street) (45.4028, -122.5551)	Middle Clackamas	ECSI, SPILLS	1700	Unknown	Unknown	Downgradient	Remedial Investigation	Active release case but sufficiently downgradient of alignment	
43	SA Piazza & Associates LLC (15815 SE Piazza Avenue)	Middle Clackamas	AST	Adjacent	Unknown	Nitrogen	Cross gradient	N/A	Nitrogen not a concern for the alignment and no release reported.	No
44	Mutual Materials Co. (IDs: 03-91-0183, 03-92-0024) (15791 SE Piazza Avenue)	Middle Clackamas	LUST, AST	170	Soil, Groundwater	VOCs	Upgradient	Closed (1/3/1997)	Case closed and no contamination reportedly remaining	No
45	Bell Heating, Inc. (ID: 03-90-0256) (15550 SE Piazza Avenue)	Middle Clackamas	LUST	620	Soil	TPH, VOCs	Upgradient	Closed (11/20/1990)	Case closed with concentrations in soil below cleanup level and groundwater samples nondetect	No
46	Steinman Bros Drilling Co. (ID: 03-94-0027) (15530 SE Piazza Avenue)	Middle Clackamas	LUST	620	Soil	TPH, VOCs	Upgradient	Closed (8/9/2000)	Case closed and remaining soil contamination below cleanup level of 80 ppm. Groundwater not encountered but sufficiently distant from alignment	No
47	Pacific Seafood Co., Inc. (ID: 03-98-0001) (15501 SE Piazza Ave)	Middle Clackamas	LUST, AST	620	Soil, Groundwater	TPH, VOCs	Upgradient	Closed (9/23/2003)	Case close with concentrations below cleanup levels and sufficiently distant from alignment	No
48	Consolidated Metco, Inc. (10448 Highway 212)	Middle Clackamas	AST	Adjacent	Unknown	Argon	Upgradient	Unknown	Argon not a concern for the alignment	No
49	Masa Industries (ID: 03-93-0087) (10320 SE Highway 212)	Middle Clackamas	LUST	160	Soil, Groundwater	TPH, VOCs	Downgradient	Closed (9/1/1994)	Case closed, groundwater contamination detected with no remedial action recorded, and downgradient of alignment.	No

Table 1
Environmental Hazard Evaluation
Hazardous Materials Corridor Study
Clackamas Area Interceptor, Clackamas, Oregon

Site	Listing	Alignment Section	Database	Distance from Alignment (feet)	Media Impacted	Contaminant	Location of Listing Relative to Groundwater Flow (Estimated)	Regulatory Status	Comments ^{1,2}	Additional Assessment Limited Phase I and possible Phase II ESA (Y/N)
50	Plaid Pantry (10218 SE Highway 212)	Middle Clackamas	EDR Hist Auto	220	Unknown	TPH, VOCs, metals	Downgradient	N/A	No additional information and no release reported but located downgradient from alignment	No
51	ODOT 2121 INTX (ID: 03-00-0849) (10287 SE Highway 212)	Middle Clackamas	LUST	Adjacent	Soil, Groundwater	TPH, VOCs, PAH	Upgradient	Closed (2/26/2003)	Case closed but adjacent to alignment with contamination reported to remain below 3 feet bgs and groundwater originally reported to be impacted	Yes, based on possible change in alignment
52	Stein Oil Co. (ID: 03-15-1561) (10111 S Highway 212)	Middle Clackamas	LUST, AST	95	Soil, Groundwater	TPH, VOCs	Upgradient	Closed (10/17/2016)	Case closed but no information on environmental conditions and appears to be a fueling firm facility immediately upgradient of alignment	Yes, based on possible change in alignment
53	Carson Oil Clackamas (ID: 03-10-0397) (9911 SE Elon Street)	Middle Clackamas	LUST	1230	Soil	TPH	Cross gradient	N/A	Unknown volume of hydrocarbons released with incomplete cleanup, however sufficiently distant from alignment	No
54	Custom Sheet Metal (ID: 03-90-0504) (16016 SE Evelyn Street)	Middle Clackamas	LUST	640	Soil, Groundwater	TPH, VOCs	Cross gradient	Closed (9/24/1996)	Cased close and sufficiently cross gradient from alignment. However, soil contamination remaining	No
55	Cascade Chemical, Inc. (ID: 03-90-0480) (16081 SE Evelyn Street)	Middle Clackamas	LUST	930	Soil	TPH	Cross gradient	Closed (1/30/1991)	Case related to asphaltting and sealing operations closed. No release from UST	No
	Cascade Chemicals Inc. (ID: 1352) (16081 SE Evelyn Street)	Middle Clackamas	ECSI	930	Soil, Groundwater, Surface Water	TPH, VOCs	Downgradient	NFA (Conditional)	Case closed with concentrations below cleanup levels and downgradient from alignment	
56	Security Chain Co. (ID: 1485) (16131 SE Evelyn Street)	Middle Clackamas	ECSI	900	Soil, Groundwater	TPH	Downgradient	NFA	Case closed with soil contamination remaining beneath structures but sufficiently downgradient from alignment	No
57	Safeway Distribution Terminal (ID: 327) (16800 SE Evelyn Street)	Middle Clackamas	ECSI, SPILLS	1940	Soil, Groundwater	TPH, PCBs	Downgradient	NFA	Case closed after four USTs decommissioned with remaining contamination below RBCs and downgradient from the alignment	No
58	Lumbermens (ID: 03-89-0283) (15877 SE 98th Avenue)	Middle Clackamas	LUST	550	Soil, Groundwater	TPH, VOCs	Cross gradient	Closed (4/9/1992)	Case closed and sufficiently cross gradient. However, soil impacts remain where removal of contamination would endanger structures	No
59	H.D. Fowler Clackamas Site (ID: 03-12-1251) (15670 SE 102nd Avenue)	Middle Clackamas	LUST	Adjacent	Soil	TPH, VOCs	Upgradient	NFA, Closed (12/19/2012)	Case closed but adjacent to alignment with contamination reported to remain but, where investigated, at levels below RBCs	Yes
60	PST Vans, Inc./L.B. Foster Co. (ID: 03-90-0093) (15628 SE 102nd Avenue)	Middle Clackamas	LUST	Adjacent	Soil, Groundwater	TPH	Cross gradient	NFA, Closed (6/7/1990)	NFA issued after UST and soil removal in 1990 with diesel contamination in groundwater remaining at levels below RBCs. Likely degraded further in the last 30 years.	No

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Site	Listing	Alignment Section	Database	Distance from Alignment (feet)	Media Impacted	Contaminant	Location of Listing Relative to Groundwater Flow (Estimated)	Regulatory Status	Comments ^{1,2}	Additional Assessment Limited Phase I and possible Phase II ESA (Y/N)
61	Oregon Wilbert Vault Co. (ID: 1154) (15520 SE 102nd Avenue)	Middle Clackamas	ECSI, AST	200	Soil, Groundwater	TPH, VOCs, metals	Cross gradient	NFA	Case closed and no additional investigation required based on results of soil and groundwater sampling where "oil release did not significantly impact groundwater" per ODEQ. No concentrations reported but cross gradient and not adjacent to alignment	No
62	Camp Withycombe (ECSI ID: 264, LUST IDs: 03-90-0455, 03-02-1530, 03-03-1560) (10101 SE Clackamas Road)	Middle Clackamas	ECSI, LUST, AST, SPILLS	700	Soil, Groundwater	TPH, lead, arsenic, cadmium	Cross/upgradient	NFA	Case closed but soil contamination remains in areas covered by buildings and pavement, groundwater concentrations below RBCs but upgradient of alignment	Yes
63	Camp Withycombe Firing Range (Site ID: 1705) (15300 SE Industrial Way)	Middle Clackamas	ECSI, Brownfield, SPILLS	Adjacent	Soil, Groundwater	Lead, copper, arsenic, zinc, nitroglycerine	Cross/upgradient	Feasibility Study	Selected remedial action for areas northeast of SE Highway 224 in April, 2022 to be continued 2023	Yes
64	KB Recycling Inc. (9602 SE Clackamas Road)	Middle Clackamas	AST, SPILLS	210	Unknown	Unknown	Upgradient	Unknown	Spill related to fumes from a fire. No release reported from AST	No
65	Conveyco Manufacturing (Site ID: 2525) (15151 SE Minuteman Way)	Middle Clackamas	ECSI, AST, SPILLS	Adjacent	Soil	TPH	Upgradient	Case open with site Screening Recommended	Open case with oil-spray release to surficial soil but likely with limited impact	No
66	Thomas Joseph Personalized Dry Cleaning (ID: 6394) (16060 SE 82nd Drive)	Middle Clackamas	ECSI, Drycleaner	2130	Soil, Groundwater	TCE, PCE	Downgradient	NFA	Dry cleaner operated from 1996-2019, no TCE or PCE detected in groundwater or soil samples. Downgradient and distant from the proposed alignment	No
67	General Furnace & Air Conditioning, Inc. (ID: 03-02-0476) (15536 SE 82nd Drive)	Middle Clackamas	LUST	1050	Soil	TPH	Upgradient	Closed (10/14/2002)	Case closed with soil concentrations below cleanup level. Groundwater not encountered but sufficiently distant from alignment.	No
68	HOT (ID: 03-05-0029) (15301 SE 92nd Avenue)	Middle Clackamas	LUST	1040	Soil	TPH	Upgradient	Closed (2/23/2005)	Case closed, soil only and sufficiently distant from alignment	No
69	GTS Drywall Supply (ID: 03-91-0175) (9500 SE Mather Road)	Lower Clackamas	LUST	Adjacent	Soil, Groundwater	TPH, VOCs	Upgradient	Closed (5/18/1992)	Release volume during overflow incident unknown but likely to be limited and downslope from alignment. Case also closed.	No
70	IWP (9500 SE Mather Road)	Lower Clackamas	AST	110	Unknown	Propane	Upgradient	Unknown	No release reported	No
71	Townes Property (ID: 2298) (9885 SE Mather Road)	Lower Clackamas	ECSI, Brownfield	800	Soil, Groundwater	TPH, PCBs, metals	Cross gradient	NFA	Case closed with concentrations below cleanup levels and sufficient cross gradient distance from alignment	No
72	Wilcox & Flegel Oil Co. (9885 SE Mather Road)	Lower Clackamas	AST	800	Unknown	TPH	Down/cross gradient	Unknown	No release reported but likely significant fuel storage volumes over a long period of time and in close proximity to alignment	Yes
73	Vigor Works (9889 SE Mather Road)	Lower Clackamas	AST	810	Unknown	Propane	Down/cross gradient	N/A	No propane releases reported and sufficiently cross/downgradient from alignment.	No

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74	Vigor Works (9891 SE Mather Road)	Lower Clackamas	AST	820	Unknown	Argon	Down/cross gradient	N/A	Argon not a concern for the alignment and no releases reported	No
75	Columbia Body MFG Co. (ID: 03-90-0232) (10037 SE Mather Road)	Lower Clackamas	LUST, AST	1080	Soil, Groundwater	TPH, VOCs	Cross gradient	Closed (8/8/1994)	Case closed with concentrations below cleanup levels, except for benzene, however, sufficient cross gradient distance from alignment	No
76	RS Davis Recycling, Inc. (ID: 1927) (10105 SE Mather Road)	Lower Clackamas	ECSI	1380	Soil	TPH, VOCs, PCBs, metals	Cross gradient	Consent Decree	Open case under consent decree with remaining soil contamination release and potential impacts to shallow groundwater. However, sufficiently cross gradient from alignment	No
77	Keller Property (ID: 4033) (10248 SE Mather Road)	Lower Clackamas	ECSI	2200	Soil, Groundwater	CVOCs	Cross gradient	Site Investigation	VOCs in groundwater and further investigation required. However, sufficiently cross gradient from alignment	No
78	Temco Metal Products Co. (ECSI ID: 1148, LUST ID: 03-91-0032) (10240 SE Mather Road)	Lower Clackamas	ECSI, LUST, SPILLS	1280	Soil, Groundwater	TPH, VOCs, TCE, PCE	Cross gradient	Removal	Active cleanup site with bioremediation and monitoring in progress. However, cross gradient with sufficient distance from the alignment	No
79	Portable Equipment Salvage Co. (ID: 149) (10281 SE Mather Road)	Lower Clackamas	ECSI	1800	Soil, Groundwater	PCBs, metals	Cross gradient	Certification of Completion	Remaining contamination capped by soil cover with on-going maintenance but sufficiently cross gradient from alignment	No
80	NW Pipe & Casing Co. Parcels A&B (ECSI Site ID: 139, CERCLIS ID: ORD980988307) (9200 SE Lawnfield Road & SE Mather Road at SE Industrial Way)	Lower Clackamas	NPL, ECSI, LUST, AST	Adjacent/Within	Soil, Groundwater, Surface Water	CVOCs, VOCs, PCB and PAHs	Up/Cross gradient	Operation & Maintenance in Parcel A (north), Feasibility Study in Parcel B (south)	CVOC plume in shallow groundwater in area of alignment. Remediation via demolition and removal of site infrastructure, over-excavation, and capping of remaining impacts in Parcel B.	Yes
81	NW Development (ID: 1021) (9460 SE Lawnfield Road)	Lower Clackamas	ECSI	240	Groundwater	CVOCs, PCB and PAHs	Cross gradient	Purchasers Agreement	Site occupies eastern half of Parcel A of NW Pipe & Casing facility. No soil impacts, but groundwater contamination extends from Parcel B of the NW Pipe & Casing facility	Yes
82	Gem Top (ID: 1589, LUST ID: 03-93-0175) (8811 SE Herbert Court)	Lower Clackamas	ECSI, LUST	930	Soil	VOCs	Upgradient	NFA	Case closed with low concentrations of contaminants remaining. However, sufficient distance from the alignment.	No
83	Ellsworth Disposal Site (ECSI ID: 990, LUST ID: 03-14-1604) (14570 SE 82nd Drive)	Lower Clackamas	ECSI, LUST	300	Soil	TPH, others unknown	Upgradient	Confirmatory Sampling Recommended	Open case of alleged illegal dumping of septic and/or chemical wastes of unknown identity and unknown quantity and upgradient of existing alignment	Yes
84	Howard S. Wright Construction Co. (ID: 03-01-0014) (14235 SE 98th Court)	Lower Clackamas	LUST	1290	Soil, Groundwater	TPH, VOCs, PAH	Up/Cross gradient	Closed (9/26/2001)	Case closed with concentrations either nondetect or below risk based screening level and sufficient distance from alignment	No

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Site	Listing	Alignment Section	Database	Distance from Alignment (feet)	Media Impacted	Contaminant	Location of Listing Relative to Groundwater Flow (Estimated)	Regulatory Status	Comments ^{1,2}	Additional Assessment Limited Phase I and possible Phase II ESA (Y/N)
85	Dietrich, John (ID: 03-97-0938) (9825 SE Lawnfield)	Lower Clackamas	LUST	1540	Groundwater	TPH, VOCs	Up/Cross gradient	Closed (11/8/2001)	Case closed with no soil contamination detected. Groundwater contamination isolated to area below foundation and distant from alignment	No
86	Enoch MFG Co. (ECSI ID: 1850, LUST ID: 03-95-0152) (14242 SE 82nd Road)	Lower Clackamas	ECSI, LUST	380	Soil	TCE, PCE, TPH	Upgradient	NFA, Closed (4/8/2015)	Case closed after no contamination detected	No
87	PCC Structurals, Inc. (ID: 1617) (13309 & 13340 SE 84th Avenue)	Lower Clackamas	ECSI, AST	Adjacent	Soil, Groundwater	PCE, TCE, DCE and vinyl chloride	Cross gradient	Remedial Investigation	Groundwater impacts adjacent to alignment however plume size has been reduced via Interim Remedial Action Measures (bio-injections) completed 2005-2016	Yes
88	Neptune Swimming Pool Co. (ID: 03-89-0082) (13785 SE Ambler Road)	Lower Clackamas	LUST	300	Soil	TPH, VOCs	Cross gradient	Closed (9/19/1989)	Overfill spill with case closed and sufficiently cross gradient from alignment	No
89	Advanced Chemical Transport (ID: 6498) (13600 SE Ambler Road)	Lower Clackamas	ECSI	670	Pavement, Surface Water	TPH, VOCs	Downgradient	Remedial Action Recommended	Site is over 1½ miles away	No
90	Interstate Industrial Park (Site ID: 1810) (13101 SE 84th Avenue)	Lower Clackamas	ECSI	Adjacent	Groundwater	TCE, DCE, and PAHs	Upgradient	Partial NFA	Partial case closure with off-site sourced historical groundwater impacts	No
91	13104 SE 84th Avenue (ID: 1996-1455)	Lower Clackamas	Spill	Adjacent	Unknown	Propane	Cross gradient	Archived	Propane spill unlikely to have impacted the alignment	No
92	HOT (ID: 03-99-0029) (9100 SE Sunnybrook Boulevard)	Lower Clackamas	LUST	830	Soil	TPH	Upgradient	Closed (7/20/2000)	Case closed, soil impacts only and sufficiently distant from alignment	No
93	ODOT Ambler Rd East (ID: 1562) (SE 82nd Avenue & Sunnybrook Boulevard)	Mount Scott	ECSI	580	Soil	Lead, arsenic, PAHs	Upgradient	NFA (Conditional)	Case closed remaining soil contaminants capped but downgradient of alignment. Possibly part of the ODOT Ambler Yard	Yes
94	ODOT Ambler Rd West (Site ID: 1236) (SE 82nd Avenue & SE Ambler Road)	Mount Scott	ECSI	Adjacent	Soil, Groundwater	PCE, TCE, DCE	Upgradient	NFA (Conditional)	Conditional case closure but contaminant mass remaining in source area after dichlorination & phytoremediation and immediately upgradient of alignment	Yes
95	Elegant Look (13043 SE 84th Avenue)	Mount Scott	Drycleaner	320	Unknown	Unknown	Cross gradient	N/A	No release reported, sufficiently cross gradient from alignment with a wetland between the facility and alignment	No
96	Thomas Joseph (Sunnybrook LLC) (13035 SE 84th Avenue)	Mount Scott	Drycleaner	330	Unknown	Unknown	Cross gradient	N/A	No release reported, sufficiently cross gradient from alignment with a wetland between the facility and alignment	No
97	McFarlanes Bark, Inc. (ID: 03-95-0044) (13345 SE Johnson Road)	Mount Scott	LUST, AST	Adjacent	Soil, Groundwater	TPH, VOCs	Upgradient	NFA, Closed (1/14/2008)	Case closed however contamination remains at 2.5 feet bgs (soil-water interface) and active fuel AST adjacent to alignment	Yes
98	PCC Structurals, Inc. - Deer Creek Annex (13350 SE Johnson Road)	Mount Scott	AST	Adjacent	Unknown	Argon	Upgradient	Unknown	No release of argon reported and unlikely to be a concern for the alignment	No

Table 1
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99	Southern Pacific Transportation Co. – E Milwaukie (ID: 1190) (SW of SE Harmony Road and SE 82nd Avenue)	Mount Scott	ECSI	1700	Groundwater	CVOCs	Downgradient (across Mt Scott Creek)	NFA (Conditional)	Case closed after soils aerated and considerably downgradient of alignment	No
100	Warn Industries (ID: 1118) (13270 SE Pheasant Court)	Mount Scott	ECSI	900	Groundwater	TPH, VOCs	Downgradient	NFA (Conditional)	Case closed however groundwater plume remains but sufficiently downgradient from alignment	No
101	Meier & Frank (American-Strevell, Inc.) (ID: 265) (13015 SE Pheasant Court)	Mount Scott	ECSI	2190	Unknown	TPH, VOCs	Downgradient	State Basic Prelim Assessment Recommended	Open case with diesel fuel spill into Mount Scott Creek but sufficiently downgradient distance from alignment	No

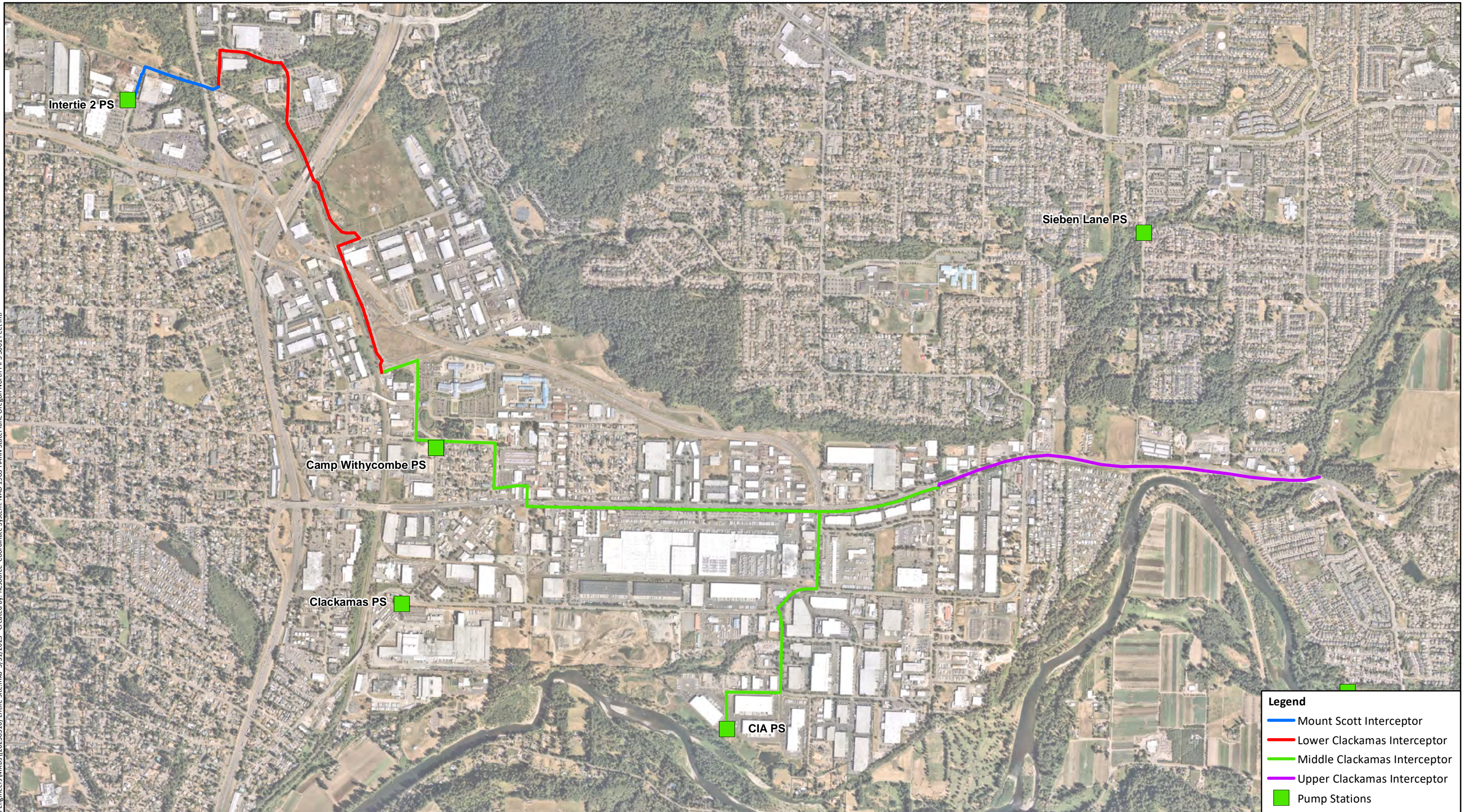
Notes:

AST = aboveground storage tank
 BTEX = benzene, toluene, ethylbenzene, and xylenes
 CVOC = chlorinated volatile organic compound
 DCE = dichloroethane
 ECSI = Environmental Cleanup Site Information
 ESA = environmental site assessment
 ID = identification number
 HOT = heating oil tank
 LUST = leaking underground storage tank
 NFA = no further action
 ODEQ = Oregon Department of Environmental Quality

ODOT = Oregon Department of Transportation
 PAHs = polycyclic aromatic hydrocarbons
 PCBs = polychlorinated biphenyls
 PCE = tetrachloroethene
 PFAS = per- and polyfluoroalkyl substances
 RBC = risk-based concentration
 SPILLS = Spill data
 TCE = trichloroethene
 TPH = total petroleum hydrocarbons (e.g., gasoline, diesel, heating oil, and motor oil)
 UST = underground storage tank
 VOC = volatile organic compounds (e.g., cleaning solvents, degreasers, and paint thinners)



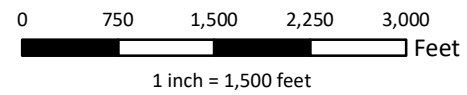
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Legend

- Mount Scott Interceptor
- Lower Clackamas Interceptor
- Middle Clackamas Interceptor
- Upper Clackamas Interceptor
- Pump Stations

Aerial Imagery Source: Nearmap (August 14, 2022)



SAFETY FIRST

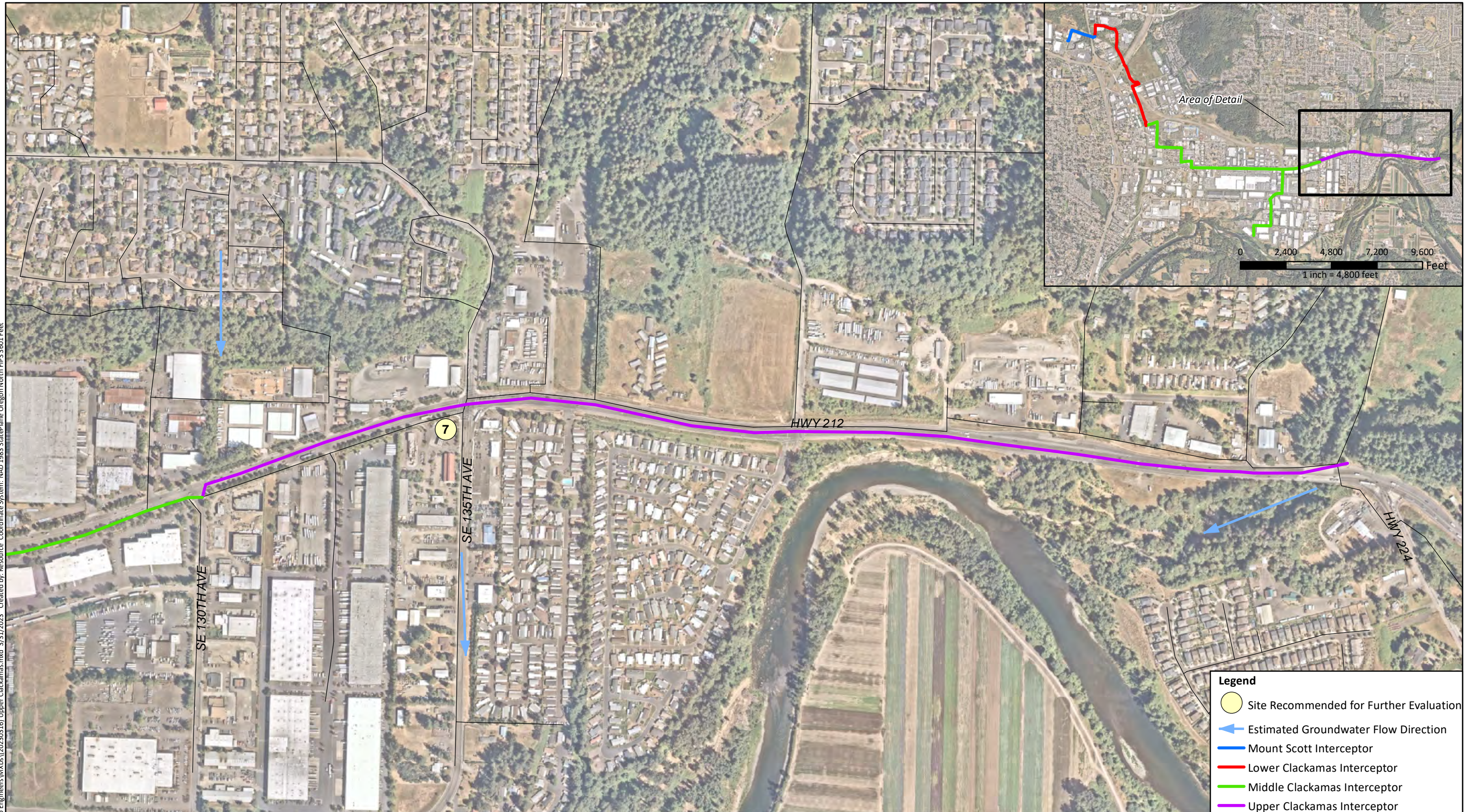


CLIENT:	Carollo Engineers
PROJECT:	Clackamas Interceptor Improvement Project HMCS
PROJECT NUMBER:	0342.003.001

Project Overview

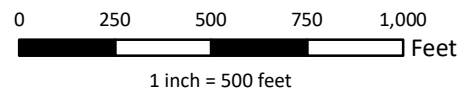
FIGURE 1

File: N:\GIS\Proj\0342.003_Carollo Engineers\MXD\20230316_Upper Clackamas.mxd, 3/31/2023 Created by: Resource Coordinate System: NAD 1983 StatePlane Oregon North FIPS 3601 Feet



- Legend**
- Site Recommended for Further Evaluation
 - Estimated Groundwater Flow Direction
 - Mount Scott Interceptor
 - Lower Clackamas Interceptor
 - Middle Clackamas Interceptor
 - Upper Clackamas Interceptor

Aerial Imagery Source: Nearmap (August 14, 2022)



SAFETY FIRST



CLIENT: Carollo Engineers

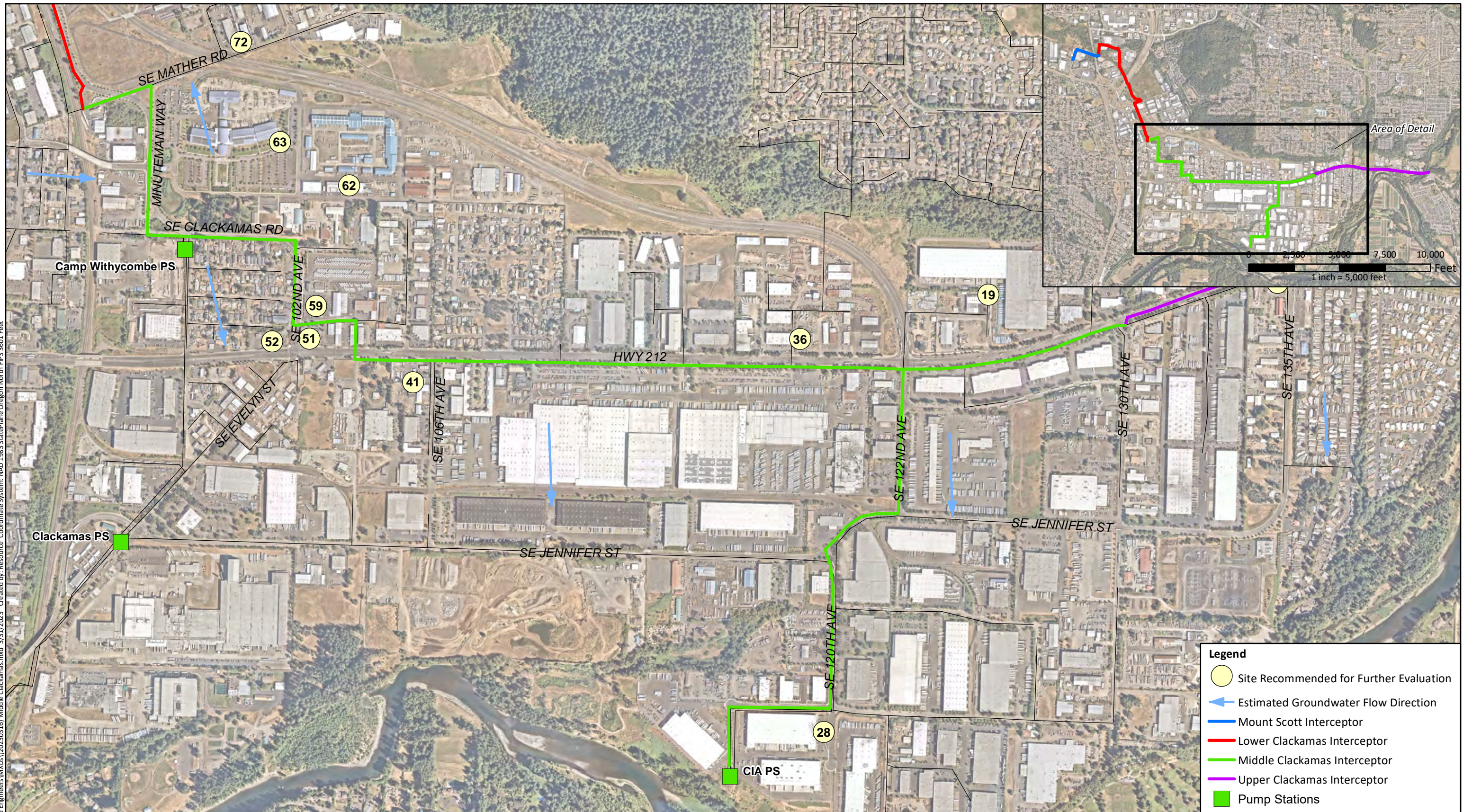
PROJECT: Clackamas Interceptor Improvement Project HMCS

PROJECT NUMBER: 0342.003.001

Upper Clackamas Interceptor Area

FIGURE 2

File: N:\GIS\Proj\0342.003_Carollo Engineers\MXDs\20230316_Middle Clackamas.mxd 3/31/2023 Created by: Resource Coordinate System: NAD 1983 StatePlane Oregon North FIPS 3601 Feet



Aerial Imagery Source: Nearmap (August 14, 2022)

0 400 800 1,200 1,600
 Feet
 1 inch = 800 feet



SAFETY FIRST



CLIENT: Carollo Engineers

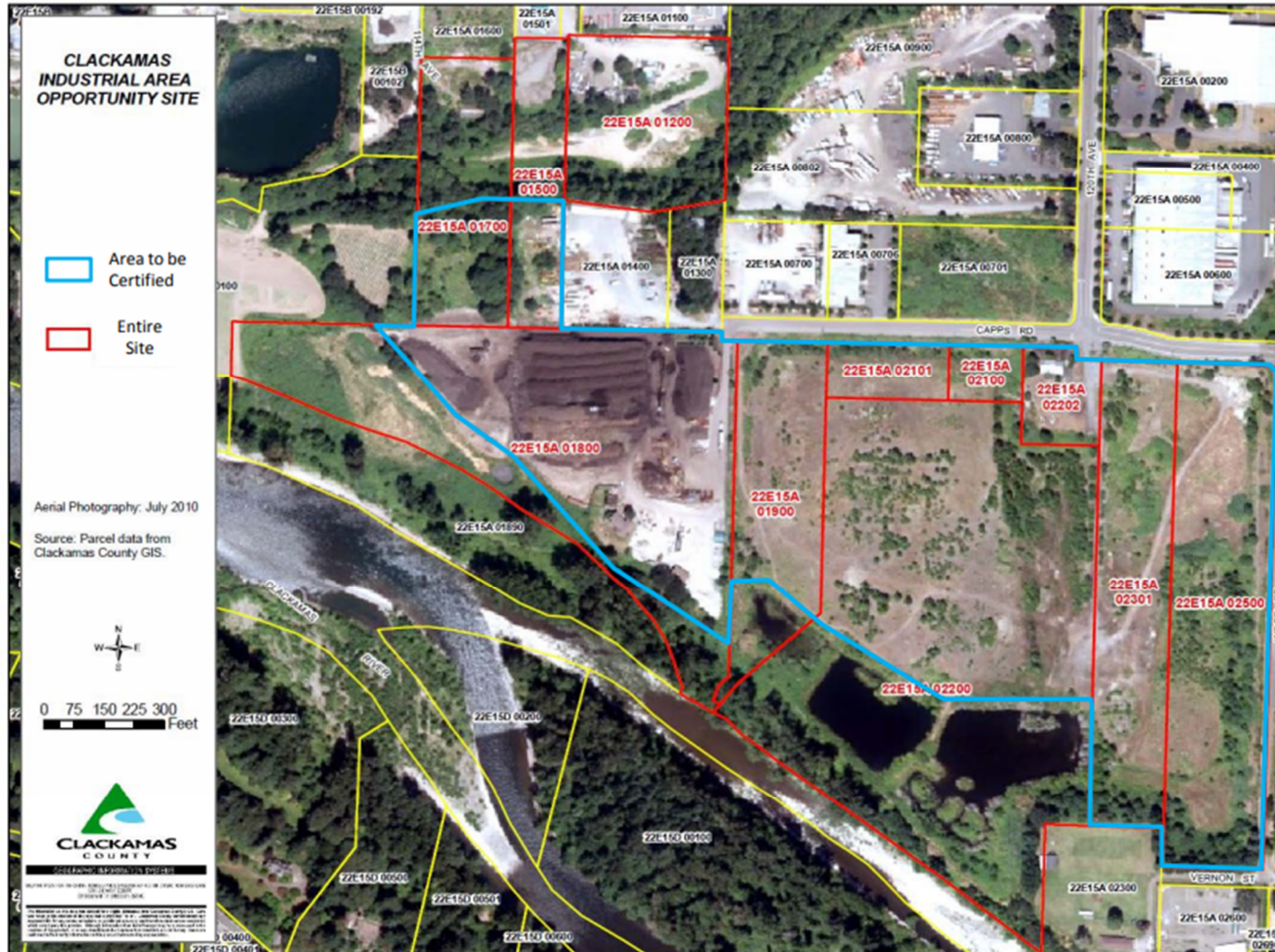
PROJECT: Clackamas Interceptor Improvement Project HMCS

PROJECT NUMBER: 0342.003.001

Middle Clackamas Interceptor Area

FIGURE 3

Site 28 includes all properties within the blue outline:



File: N:\GIS\Proj\0342.003_Carollo Engineers\MXDs\20230316_Lower Clackamas.mxd 3/17/2023 Created by: Resource Coordinate System: NAD 1983 StatePlane Oregon North FIPS 3601 Feet



Aerial Imagery Source: Nearmap (August 14, 2022)

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 1 inch = 700 feet



SAFETY FIRST



CLIENT: Carollo Engineers

PROJECT: Clackamas Interceptor Improvement Project HMCS

PROJECT NUMBER: 0342.003.001

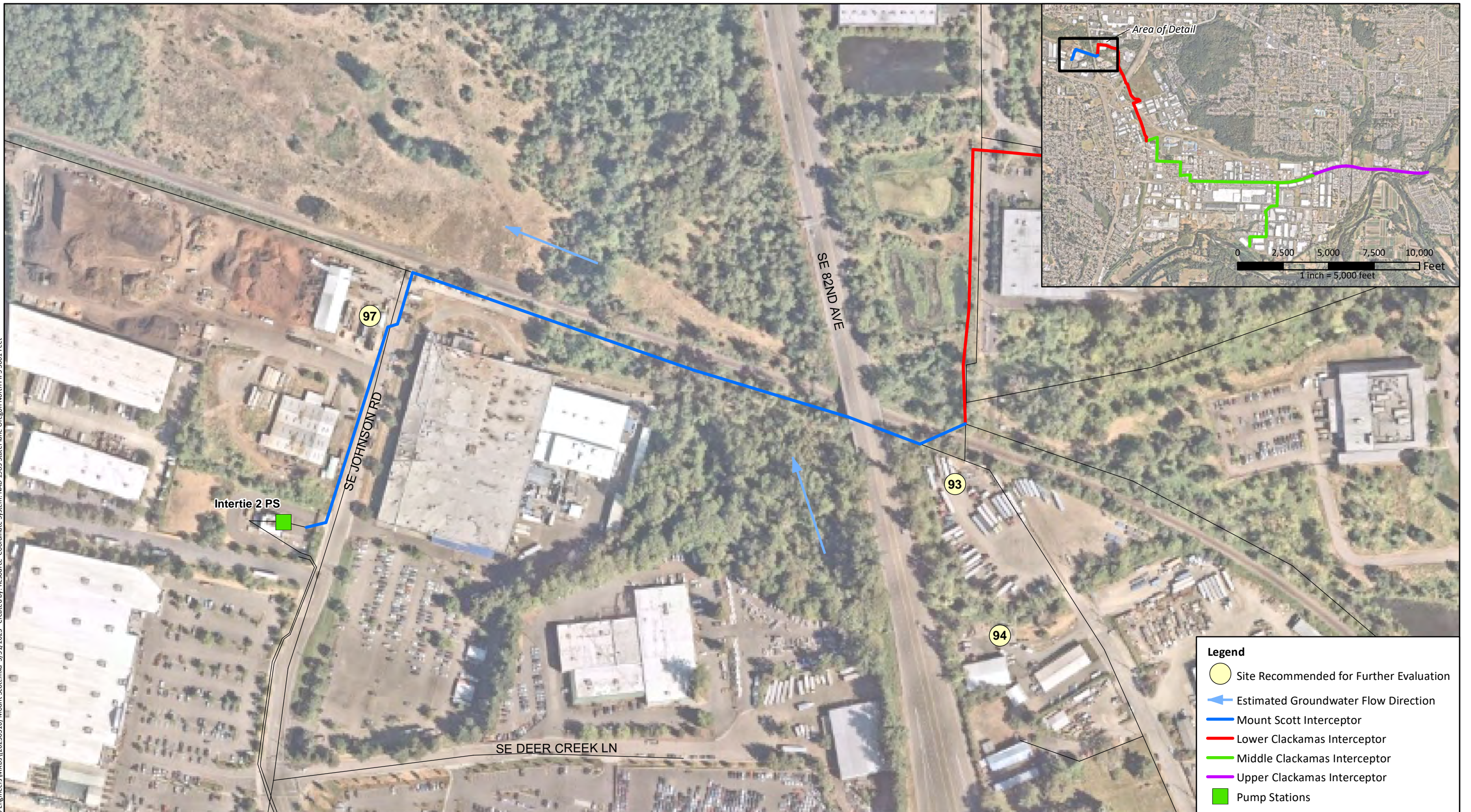
Lower Clackamas Interceptor Area

FIGURE 4

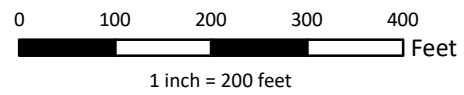
Legend

- Site Recommended for Further Evaluation
- Estimated Groundwater Flow Direction
- Mount Scott Interceptor
- Lower Clackamas Interceptor
- Middle Clackamas Interceptor
- Upper Clackamas Interceptor
- Pump Stations

File: N:\GIS\Proj\0342.003_Carollo Engineers\MXDs\20230316_Mount Scott.mxd 3/17/2023 Created by: Resource Coordinate System: NAD 1983 StatePlane Oregon North FIPS 3601 Feet



Aerial Imagery Source: Nearmap (August 14, 2022)



SAFETY FIRST



CLIENT: Carollo Engineers

PROJECT: Clackamas Interceptor Improvement Project HMCS

PROJECT NUMBER: 0342.003.001

Mount Scott Interceptor Area

FIGURE 5