State of Oregon
Department of Environmental Quality Memorandum

Date: June 11, 2019

To: FILE ECSI #6036

Through: Michael E. Kucinski, WR Cleanup Manager and
Bruce Scherzinger, WR Lead Worker

From: Nancy Sawka, WR Cleanup Project Manager

Subject: Northstar, Staff Memorandum in support of a Partial No Further Action Determination for Western Property Cells 1 through 3 and 20 through 25

This document presents the basis for the Oregon Department of Environmental Quality's recommended Partial No Further Action (NFA) determination for the Northstar Site, in Salem. The Partial NFA applies only to cells 1, 2, 3, and 20 through 25 of the Phase II soil removal area on the western portion of property (Western Property) as shown on Figures 1 and 2. This includes all of current tax lot 800 and the western third of tax lot 900. DEQ issued a Partial NFA for Phase I (Eastern Property) on June 7, 2018. As discussed in this report, contaminant concentrations in soil of cells 1,2,3 and 20 through 25 on the Western Property are below acceptable risk levels.

The proposed Partial NFA determination meets the requirements of Oregon Administrative Rules Chapter 340 Division 122, Sections 010 to 0140 and ORS 465.200 through 465.455.

The proposal is based on information documented in the administrative record for this site. A copy of the administrative record index is presented at the end of this report. Copies of reports referenced in this memo and other site documents are on DEQ's Environmental Cleanup Site Information (ECSI) database at http://www.oregon.gov/deq/Hazards-and-Cleanup/env-cleanup/Pages/ecsi.aspx. Select "Search complete ECSI database", then enter 6036 in the Site ID box and click "Submit" at the bottom of the page. Next, click the link labeled 6036 in the Site ID/Info column.

1. BACKGROUND

The Northstar site is located at 4985 Kale St. NE in Salem, Oregon on Marion County Map 062W32C and includes Tax Lots 200, 701, 800, 900, and 1000[1]. The property is approximately 150 acres and was used for agriculture purposes starting in the 1890's. In 2002, the City of Salem annexed the property and rezoned it for residential use. Granada Land Company purchased the property in 2005 and then sold it to I&E Construction in July 2017. I&E is in the process of re-developing the site into residential homes and apartments. The Eastern Property,

[1] All of tax lot 701 and part of tax lot 1000 have been subdivided into tax lots 100 to 14900 on map 062W32DC.

which was given an NFA in June 2018 and included tax lots 701 and 1000, was subdivided into several single-family home parcels and tax lots. The construction and sale of homes is currently in progress on the Eastern Property.

Additional details on the site background and history is available in the Record of Decision (ROD) for the site (November 2017 DEQ) located on DEQ's ECSI database.

2. Beneficial Land and Water Uses

The site is zoned for residential use and is currently being developed into residential homes and apartments. The City of Salem is be providing water service to the site. Except for two existing irrigation wells, there are no current or future beneficial uses of groundwater on the property. The two irrigation wells will be taken out of use and removed during the redevelopment process.

There are no beneficial surface water uses at the site. The only surface water body is an intermittent drainage ditch on the Eastern Property. The ditch is dry most of the year and does not appear to provide a significant ecological habitat. I&E plans to re-route the drainage ditch and infill the existing ditch with clean material as part of the site development.

3. RECORD OF DECISION AND CLEANUP OF EASTERN PROPERTY

Record of Decision

Granada Land Company, completed environmental investigations on the property between August 2015 and June 2016. These investigations found the pesticide, dieldrin, in the shallow soils from approximately 0 to 30 inches below ground surface (bgs). The concentrations of dieldrin over approximately 71 acres of the site exceeded DEQ's generic risk-based concentration (RBC) of 0.034 mg/kg (milligram per kilogram) for residential ingestion, inhalation and dermal contact. No other pesticides tested were detected above their respective RBC.

Granada's environmental consultant, Anderson Geological, completed a feasibility study and feasibility study amendment with recommendations for site cleanup in August 2016 and June 2017, respectively. Granada planned to cleanup the dieldrin-contaminated soil on the site to meet residential standards for future property development. DEQ issued a public notice and chance to comment on the recommended cleanup in July 2017 and a Record of Decision with a final remedy for the cleanup of dieldrin-contaminated soil was issued in November 2017. The final remedy includes:

- Excavation and removal of soil exceeding the residential cleanup goal of 0.034 mg/kg for dieldrin.

- The transport and reuse of the dieldrin-contaminated soil above this level to a farm located at 6848 Windsor Island Road, Keizer, Oregon (farm site). The soil will be used to infill

two abandoned quarries (northern quarry and southern quarry) on the property and then will be covered with 3 feet of cleaner fill.

- The reuse of the soil at the farm site was approved through a Solid Waste Permit Exemption (DEQ September 2017). The exemption requires that appropriate floodplain and wetland permits be obtained from Marion County, the Department of State Lands (DSL) and/or the Army Corps of Engineers before the southern quarry is infilled. These restrictions were not required on the northern quarry.

- A deed notice recorded on the farm site to document the location and restrict residential use in the reuse area unless the dieldrin levels are reduced or remediated to acceptable standards.

- The preparation of a spill prevention, response and safety plan before transporting any contaminated soil offsite.

Any significant changes to the selected alternative requires re-evaluation, review and prior approval by DEQ.

Details on the site background, investigation and selected cleanup are in the ROD on DEQ's ECSI website.

CLEANUP AND PARTIAL NFA OF EASTERN PROPERTY

Details of the cleanup and Partial NFA for the Eastern Property can be found in the soil removal report (AGI 2017) and in DEQ's May 15, 2018 Staff Memorandum. Both documents are on DEQ's ECSI website. The cleanup included all of former tax lots 701 and 1000 and the southern part of tax lot 200 on the Eastern Property. I&E Construction completed cleanup of the Eastern Property between August and September 2017. Soil excavation depths ranged between 6 to 40 inches bgs and included the removal of soil that contained dieldrin above the residential RBC of 0.034 mg/kg. Approximately 36,600 tons of soil were excavated and temporarily stockpiled on the western part of the site for future transport to the farm property. Confirmation soils samples collected from the final excavations were all below the cleanup goals established for the site (0.034 mg/kg for discrete samples and 0.0085 mg/kg for composite samples). DEQ issued a Partial No Further Action for the Eastern Property in June 2018.

CLEANUP OF WESTERN PROPERTY

I&E Construction conducted cleanup on the Western Property between August and October 2018. Soil removal depths ranged between 12 to 36 inches bgs. Contaminated soil removal areas are shown in Figure 2 and included soil from parts of cells 4, 5, 18, 19, and 26 and all soil from cells 2, 3, 20, 21, 23, 24 and 25 that contained dieldrin above the residential RBC of 0.034 mg/kg or above 0.085 mg/kg for cell 23. Cells and areas of cells shown in white on Figure 2 did not contained dieldrin contaminated soils above 0.034 mg/kg. Parts of cells 19 and 26 contain stockpiled soils. These areas will be cleaned up after the stockpiled soil is transported to the farm

site. DEQ approved reusing soils from the single-family development area with dieldrin contamination below 0.085 mg/kg as structural fill in the multi-family development area west of Countryside Street NE. This area of the property is zoned for high-density multi-family use and will be developed into apartments. The urban residential risk level of 0.085 mg/kg is appropriate for this use. Approval to use the urban residential risk level as the cleanup goal and reuse of soil meeting this goal in the multi-family area was given by DEQ in the May 24, 2018 "Explanation of Significant Difference.

Confirmation soils samples collected from the final excavations were all below the cleanup goals established for the site - 0.034 mg/kg for discrete samples and 0.0085 mg/kg for composite samples for the single-family development area and 0.085 mg/kg for discrete samples and 0.02125 mg/kg for the multi-family development area. Table 1 shows the final excavation depths and confirmation sampling results for each cell.

Approximately 25,000 cubic yards of excavated soil from the single-family development area met the urban residential cleanup goal and were used for structural fill in the multi-family area. The remaining excavated soils, approximately 47,000 cubic yards, were added to the stockpiled soil in cells 26 and 19 pending offsite transport and placement at the farm site. A silt fence was maintained around the stockpile to prevent runoff and erosion and the soil was seeded with fast-growing grass seed in preparation for winter.

I&E completed the excavation and removal work under an approved dust control and air monitoring plan. The soil was continuously watered with sprinklers and water trucks to suppress dust generation during loading and unloading procedures. I&E constructed temporary haul roads to control truck traffic, dust and limit cross contamination across the site. A Certified Industrial Hygienist oversaw air monitoring for dust and dieldrin during the first week of work. The dust concentrations were very low and dieldrin levels in the dust were below residential inhalation RBCs. The results indicated that the dust did not pose an unacceptable risk to site workers or the surrounding residents.

Details of the soil removal and confirmation sampling results are located in the soil removal report on DEQ's ECSI website (April 2019, AGI).

4. REMAINING CONTAMINATION WESTERN PROPERTY

Based on previous and final confirmation sampling results, no soil with dieldrin above the residential RBC of 0.034 mg/kg remains in cells 2, 3, 20, 21, 24 or 25 of the single-family area or above 0.085 mg/kg in the multi-family area (cells 1, 22, and 23) of the Western Property.

5. SOIL TRANSPORT TO FARM SITE

I&E transported approximately 44,000 cubic yards of soil from the existing stockpile to the farm site between August and September 2018. The soil was used to infill the northern quarry. Infilling of the

southern quarry is pending appropriate flood plain development and wetland permits from Marion County and DSL. During loading, transporting and unloading, I&E truck haulers and inspectors were required to follow the dust control and truck cleaning procedures outlined in *Addendum #1 to Remedial Action Work Plan* (AGI 2017). Once the northern quarry was filled to about 3 feet below grade, clean fill was placed on top and compacted to form a cap.

6. POST CLEANUP RISK EVALUATION – EASTERN PROPERTY

Conceptual site model.
The COC for the site is limited to dieldrin in shallow soil. Dieldrin contamination in the soil is related to the past use of pesticides during agriculture operations on the property. The property is being re-developed into a residential community with single-family homes and multi-family apartments. There are no current drinking water wells on the site and the City of Salem is providing water to the new development. The two agriculture wells on the property will be decommissioned during site development. Given the current and future land and water uses, the main human receptors and pathways on the Western Property include:

- Ingestion, inhalation and dermal contact with shallow soil by future residents.
- Ingestion, inhalation and dermal contact with shallow soil by occupational workers.
- Ingestion, inhalation and dermal contact of soil by construction and excavation workers.

To evaluate human exposure to residual chemical contamination requires an assessment of the type and extent of that exposure. This is based on current and reasonably likely future site use. DEQ publishes risk-based concentrations (RBCs) for contaminants commonly encountered, for different types of exposure scenarios. These RBCs are conservative estimates of protective levels of contaminants in soil, groundwater and air. Table 2 shows potential exposure pathways and receptors for this site. Based on this, applicable RBCs are identified and used for risk screening.

Table 2. Identification of applicable RBCs for Pertinent Pathways and Receptors

Pathway	Receptor	Is Pathway Complete?	Is RBC Exceeded?	Basis for selection/exclusion
		SOIL		
Ingestion, dermal contact, and inhalation	Residential	Yes	No	See Note 1.
	Urban residential	Yes	No	
	Occupational	No	No	
	Construction worker	Yes	No	
	Excavation worker	Yes	No	
Volatilization to outdoor air	Residential	No	NA	See Note 2.
	Urban residential	No	NA	
	Occupational	No	NA	
Vapor intrusion into buildings	Residential	No	NA	See Note 2.
	Urban residential	No	NA	
	Occupational	No	NA	
Leaching to groundwater	Residential	No	Yes	See Note 3.
	Urban residential	No	Yes	
	Occupational	No	Yes	
		GROUNDWATER		
Ingestion and inhalation from tap water	Residential	No	Not Sampled	See Note 3 and 4.
	Urban residential	No	Not Sampled	
	Occupational	No	Not sampled	
Volatilization to outdoor air	Residential	No	NA	See Note 2.
	Urban residential	No	NA	
	Occupational	No	NA	
Vapor intrusion into buildings	Residential	No	NA	See Note 2.
	Urban residential	No	NA	
	Occupational	No	NA	
Groundwater in excavation	Construction and excavation worker	No	No	See Note 3.

Notes:

NA: Not applicable. There is no RBC for this pathway for dieldrin since it is non-volatile..

1. Site is being developed for residential and urban residential use.
2. Dieldrin is non-volatile.
3. Contamination is limited to shallow soil. Groundwater is not used for drinking on the site. This pathway is therefore not considered, in accordance with Section B.3.2.4 of DEQ's RBDM guidance.
4. City water will be provided to the site. Groundwater is not currently used for drinking water at the site and is not likely to be used for this purpose in the future.

Contaminant concentrations.
Table 1 shows the results for remaining contaminant concentrations in the soils of cells 2, 3, 20, 21, 24, 25 and the southeast corner of 23. Table 1 also includes results for parts of cells 4, 5, 18, 19, 26 and 38. However, these cells are not included in this Partial NFA, so are excluded from further discussion and the risk evaluation below. Table 1 also shows which soils were taken to the onsite stockpile and which were relocated to the multi-family area and used as structural fill. Remaining contamination in soil of the single-family area is at or below the cleanup goal of 0.034 mg/kg for discrete samples and 0.0085 mg/kg for composite samples. The highest dieldrin concentration for a discrete sample remaining in this area is 0.034 mg/kg on the central western end of cell 2 and 0.0078 mg/kg for a composite sample in the northeast part of cell 21. Remaining contamination in the multi-family area is below the cleanup goal of 0.085 mg/kg for discrete samples and 0.02125 mg/kg for composite samples. The highest concentration of dieldrin in soil remaining in cell 23 of the multi-family area is 0.00458 mg/kg. The concentrations of dieldrin in soil relocated from the single family to multi-family area ranged from below 0.001 mg/kg to 0.0078 mg/kg.

Human health risk.
As illustrated in the tables, no dieldrin remains in the soils at concentrations above the residential risk cleanup goal in the single-family development area or the urban residential cleanup goal in the multi-family development area.

Ecological risk.
There does not appear to be any beneficial ecological habitat at the site. The site has been developed for farm use since the 1890's. The future use of the site will be residential and urban residential, also unlikely to provide beneficial habitat. The ditch on the Eastern Property is dry most of the year. This ditch will be rerouted and the existing ditch will be filled in and graded during site development.

7. PUBLIC NOTICE

A public notice on the Partial NFA will be posted in the local newspaper and on DEQ's public website for the project. A Fact Sheet with an update on the project and the Partial NFA will be sent to the City of Salem, City of Keizer and other interested parties.

8. RECOMMENDATION

I&E has requested a Partial NFA for cells 1, 2, 3 and 20 through 25 on the Western Property, so they can begin construction of homes and apartments in this area. Based on the sample results and the human health and ecological risk evaluation, remaining contamination on these cells does not pose an unacceptable risk to current or future uses of the property. A Partial No Further Action determination is recommended for cells 1, 2, 3 and 20 through 25 of the Western Property.

The No Further Action determination should be recorded in DEQ's ECSI database (ECSI # 6063).

9. ADMINISTRATIVE RECORD

Multi/Tech Engineering Services Inc. 2015. Memo: *Northstar Development Preliminary Soil Analysis*, August 17, 2015.

AGI 2015. *Pesticide Assessment in Shallow Soils*, December 22, 2015.

AGI 2016. *Remedial Investigation/Feasibility Study*, August 9, 2016.

AGI 2017. *Solid Waste Permit Exemption*, February 22, 2017.

DEQ 2017. Letter: *SW – Permit Exemption for Clean Fill*, March 8, 2017.

AGI 2017. *Addendum to Remedial Action/Feasibility Study*, June 16, 2017.

DEQ 2017. *Record of Decision Final Remedial Action for Northstar Development*, November 2017

AGI 2017. *Removal of Dieldrin Contaminated Soils, North Star Development – Phase I*, December 13, 2017

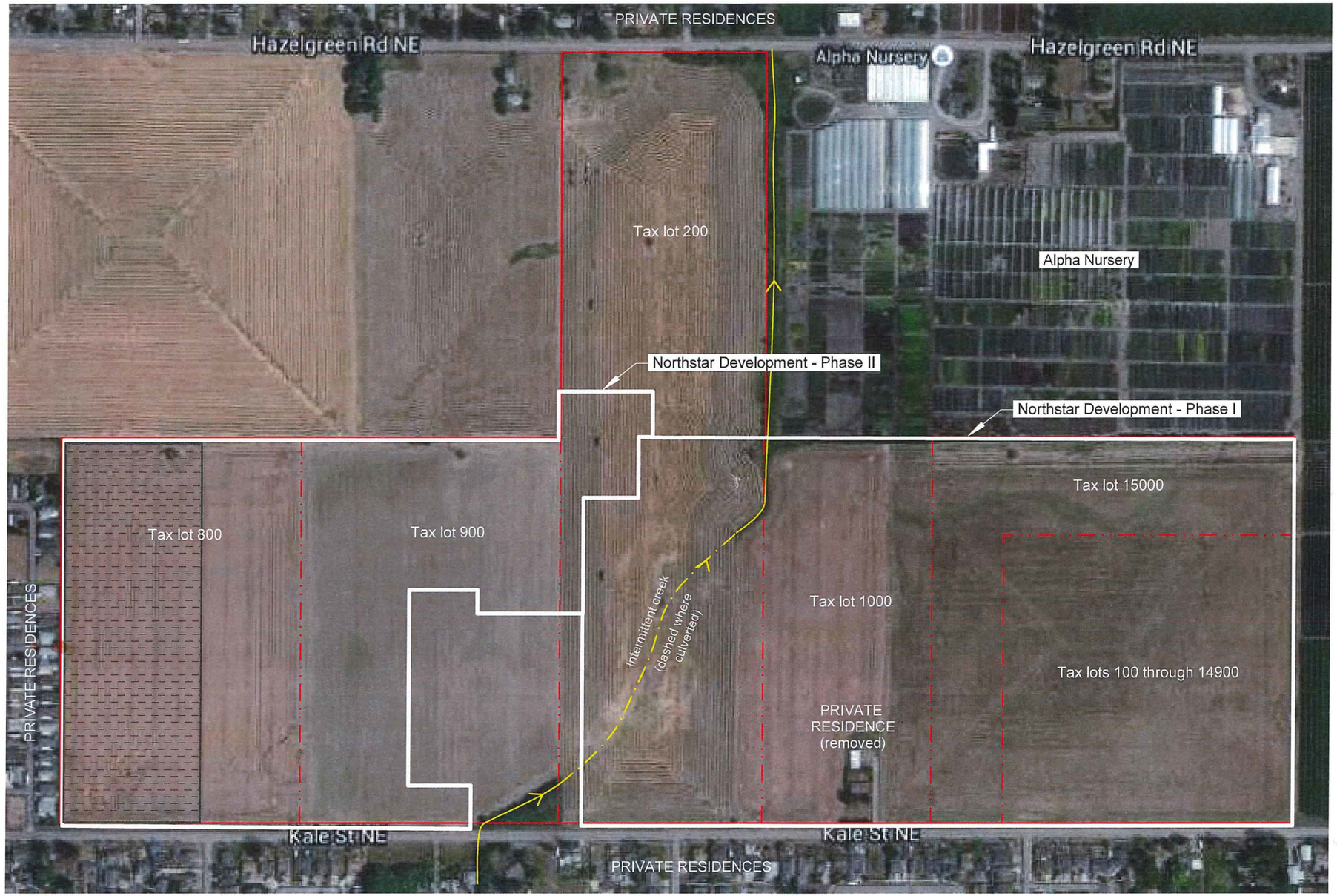
AGI 2019. *Removal of Dieldrin Contaminated Soils, North Star Development, Phase II Remediation Area*, May 1, 2019.

10. ATTACHMENTS

Figures:
1. Historical Aerial Photograph with Tax Lots
2. Area Requested for NFA Determerination

Tables:
1. Lab Results (Dieldrin) and Soil Removal Volumes per Cell
2. Identification of Applicable RBCs for Pertinent Pathways and Receptors

Exhibits
A. Written Legal Description (Cells 1 to 3 and 20 to 25 of Western Property)
B. Survey Map (Cells 1 to 3 and 20 to 25 of Western Property)



LEGEND

Area of North Star development zoned for multifamily use (apartments).
All other areas are zoned for single-family residential use.

Scale: 1" = 400' (approximate)

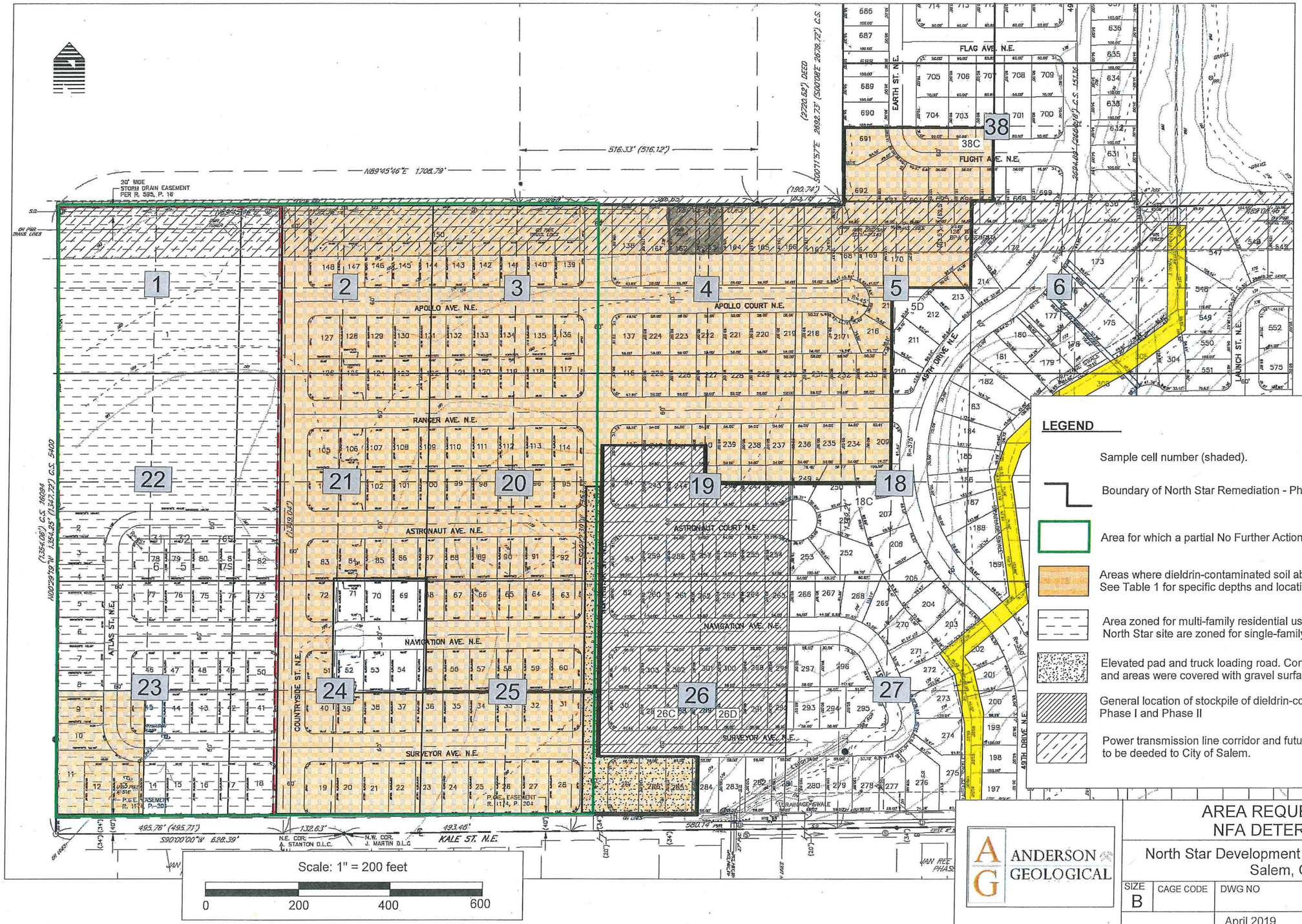
0 400 800 1200

ANDERSON GEOLOGICAL

HISTORICAL AERIAL PHOTOGRAPH (C. 2015)

Proposed Northstar Development - Phase II
Salem, Oregon

SIZE	CAGE CODE	DWG NO	PROJECT No.
B		April 2019	FIGURE 1



LEGEND

Sample cell number (shaded).

Boundary of North Star Remediation - Phase II

Area for which a partial No Further Action is requested.

Areas where dieldrin-contaminated soil above RBC was removed. See Table 1 for specific depths and locations.

Area zoned for multi-family residential use. All other areas of the North Star site are zoned for single-family residential use.

Elevated pad and truck loading road. Contaminated soil was removed and areas were covered with gravel surface.

General location of stockpile of dieldrin-contaminated soil from Phase I and Phase II

Power transmission line corridor and future storm drainage swale, to be deeded to City of Salem.

Scale: 1" = 200 feet

0 200 400 600

ANDERSON GEOLOGICAL

AREA REQUESTED FOR NFA DETERMINATION

North Star Development - Phase II Remediation
Salem, Oregon

SIZE	CAGE CODE	DWG NO	PROJECT No.	REV
B				
		April 2019	FIGURE 2	

Table 1

Lab Results (Dieldrin) and Soil Removal Volumes per Cell

Northstar Development - Phase II, Salem, Oregon

Summer/Fall 2018

Cell #	Cell Quadrant	Composite Sample #	Discrete Sample #	Date Sampled (2018)	Depth of removed soil, below original ground surface (in.)	Dieldrin concentration at base of excavation (mg/kg)	Applicable Generic RBC (mg/kg)	Composite RBC_1 (mg/kg)	Est. Volume to Stockpile (CY)	Est. Vol to MFR Area (CY)	Disposal $Location_2$ (SP:Stockpile, MFR: Multifamily)	Apex Lab Report ID
Cell 2	2A	2A-NCOMP	---	17-Aug	0-12	0.0510	0.034	0.0085	375	375	MFR (6"-12")	A8H0523
		2A-NCOMP(2)	---	19-Sep	12-18	0.0486	0.034	0.0085	0	375	MFR	A8I0508
		2A-NCOMP(3)	---	10-Oct	18-24	0.0374	0.034	0.0085	0	375	MFR	A8J0331
		2A-NCOMP(4)	---	16-Oct	24-30	<0.00111	0.034	0.0085	0	375	MFR	A8J0456
		2A-SCOMP	---	17-Aug	0-12	0.044	0.034	0.0085	375	375	MFR (6"-12")	A8H0523
		2A-SCOMP(2)	---	19-Sep	12-18	0.0164	0.034	0.0085	0	375	MFR	A8I0508
		---	2A-SA(2)	19-Sep	---	0.00341	0.034	---	---	---	---	A8I0755
		---	2A-SB(2)	19-Sep	---	<0.0010	0.034	---	---	---	---	A8I0755
		---	2A-SC(2)	19-Sep	---	<0.00115	0.034	---	---	---	---	A8I0755
		---	2A-SD(2)	19-Sep	---	0.0782	0.034	---	---	---	---	A8I0755
		---	2A-SD(3)	10-Oct	18-24	<0.00113	0.034	---	0	100	MFR	A8J0331
	2B	2B-NCOMP	---	17-Aug	0-12	0.0646	0.034	0.0085	140	140	MFR (6"-12")	A8H0523
		2B-NCOMP(2)	---	19-Sep	12-18	0.0614	0.034	0.0085	0	280	MFR	A8I0508
		2B-NCOMP(3)	---	10-Oct	18-24	0.0112	0.034	0.0085	0	280	MFR	A8J0331
		2B-NCOMP(4)	---	16-Oct	24-30	<0.00112	0.034	0.0085	0	280	MFR	A8J0456
		2B-SCOMP	---	17-Aug	0-12	0.0286	0.034	0.0085	140	140	MFR (6"-12")	A8H0523
		2B-SCOMP(2)	---	19-Sep	12-18	0.0113	0.034	0.0085	0	280	MFR	A8I0508
		---	2B-SA(2)	19-Sep	---	<0.00115	0.034	---	---	---	---	A8I0755
		---	2B-SB(2)	19-Sep	---	0.034	0.034	---	---	---	---	A8I0755
		---	2B-SC(2)	19-Sep	---	0.0107	0.034	---	---	---	---	A8I0755
		---	2B-2D(2)	19-Sep	---	<0.00108	0.034	---	---	---	---	A8I0755
	2C	2C-NCOMP	---	17-Aug	0-12	0.416	0.034	0.0085	140	140	MFR (6"-12")	A8H0523
		2C-NCOMP(2)	---	19-Sep	12-18	<0.00101	0.034	0.0085	0	280	MFR	A8I0508
		2C-SCOMP	---	17-Aug	0-12	0.052	0.034	0.0085	140	140	MFR (6"-12")	A8H0523
		2C-SCOMP(2)	---	19-Sep	12-18	<0.00110	0.034	0.0085	0	280	MFR	A8I0508
	2D	2D-NCOMP	---	17-Aug	0-12	0.0570	0.034	0.0085	185	185	MFR (6"-12")	A8H0523
		2D-NCOMP(2)	---	19-Sep	12-18	0.0145	0.034	0.0085	0	375	MFR	A8I0508
		---	2D-NA(2)	19-Sep	---	0.0453	0.034	---	---	---	---	A8I0755
		---	2D-NA(3)	10-Oct	18-24	<0.00105	0.034	---	0	100	MFR	A8J0331
		---	2D-NB(2)	19-Sep	---	0.0131	0.034	---	---	---	---	A8I0755
		---	2D-NC(2)	19-Sep	---	0.130	0.034	---	---	---	---	A8I0755
		---	2D-NC(3)	10-Oct	18-24	<0.00114	0.034	---	100	0	MFR	A8J0331
		---	2D-ND(2)	19-Sep	---	<0.00105	0.034	---				A8I0755
		2D-SCOMP	---	17-Aug	0-12	0.0254	0.034	0.0085	185	185	MFR (6"-12")	A8H0523
		2D-SCOMP(2)	---	19-Sep	12-18	0.00138	0.034	0.0085	0	375	MFR	A8I0508
	3A	3A-NCOMP	---	7-Aug	0-30	0.00125	0.034	0.0085	1875	0	SP	A8H0202

	3A	3A-SCOMP	---	7-Aug	0-30	0.00275	0.034	0.0085	1875	0	SP	A8H0202
	3B	3B-NCOMP	---	3-Aug	0-12	0.00268	0.034	0.0085	750	0	SP	A8H0097
		3B-SCOMP	---	3-Aug	0-12	0.0953	0.034	0.0085	750	0	SP	A8H0097
		3B-SCOMP(2)	---	23-Aug	12-18	<0.000989	0.034	0.0085	375	0	SP	A8H0676
Cell 3	3C	3C-NCOMP	---	3-Aug	0-6	0.0529	0.034	0.0085	375	0	SP	A8H0097
		3C-NCOMP(2)	---	23-Aug	6-18	0.0511	0.034	0.0085	0	750	MFR	A8H0676
		3C-NCOMP(3)	---	19-Sep	18-24	<0.000966	0.034	0.0085	0	375	MFR	A8I0508
		3C-SCOMP	---	3-Aug	0-6	0.0573	0.034	0.0085	375	0	SP	A8H0097
		3C-SCOMP(2)		23-Aug	6-18	0.00486	0.034	0.0085	0	750	MFR	A8H0676
	3D	3D-NCOMP	---	7-Aug	0-12	0.011	0.034	0.0085	750	0	SP	A8H0202
		3D-NCOMP(2)	---	28-Aug	12-24	0.00103	0.034	0.0085	0	750	MFR	A8H0788
		3D-SCOMP	---	7-Aug	0-12	0.076	0.034	0.0085	750	0	SP	A8H0202
		3D-SCOMP(2)		28-Aug	12-24	0.00169	0.034	0.0085	0	750	MFR	A8H0788
Cell 4	4A	4A-NCOMP	---	31-Aug	0-12	0.0798	0.034	0.0085	750	0	SP	A8H0917
		4A-NCOMP(2)	---	25-Sep	12-18	0.00452	0.034	0.0085	0	375	MFR	A8I0654
		4A-SCOMP	---	31-Aug	0-12	0.0215	0.034	0.0085	750	0	SP	A8H0917
		4A-SCOMP(2)	---	25-Sep	12-18	0.00182	0.034	0.0085	0	375	MFR	A8I0654
	4B	4B-NWCOMP	---	11-Aug	0-12	0.237	0.034	0.0085	375	0	SP	A8H0310
		4B-NWCOMP(2)	---	28-Aug	12-20	0.156	0.034	0.0085	250	0	SP	A8H0788
		4B-NWCOMP(3)	---	25-Sep	20-26	0.0014	0.034	0.0085	180	0	SP	A8I0654
		4B-SCOMP	---	11-Aug	0-12	0.0128	0.034	0.0085	750	0	SP	A8H0310
		4B-SCOMP(2)	---	28-Aug	12-20	0.00246	0.034	0.0085	500	0	SP	A8H0788
	4C	4C-NCOMP	---	11-Aug	0-12	0.0673	0.034	0.0085	750	0	SP	A8H0310
		4C-NCOMP(2)	---	28-Aug	12-20	<0.00102	0.034	0.0085	500	0	SP	A8H0788
		4C-SCOMP	---	11-Aug	0-12	0.0969	0.034	0.0085	750	0	SP	A8H0310
		4C-SCOMP(2)	---	28-Aug	12-20	0.0013	0.034	0.0085	500	0	SP	A8H0788
	4D	4D-NCOMP	---	31-Aug	0-12	0.055	0.034	0.0085	750	0	SP	A8H0917
		4D-NCOMP(2)	---	25-Sep	12-18	0.0088	0.034	0.0085	0	375	MFR	A8I0654
		---	4D-NA(2)	2-Oct	---	<0.00109	0.034	---	---	---	---	A8J0039
		---	4D-NB(2)	2-Oct	---	0.00438	0.034	---	---	---	---	A8J0039
		---	4D-NC(2)	2-Oct	---	<0.00112	0.034	---	---	---	---	A8J0039
		---	4D-ND(2)	2-Oct	---	<0.00106	0.034	---	---	---	---	A8J0039
		4D-SCOMP	---	31-Aug	0-12	0.0318	0.034	0.0085	750		SP	A8H0917
		4D-SCOMP(2)	---	25-Sep	12-18	<0.00105	0.034	0.0085	0	375	MFR	A8I0654
Cell 5	5A	5A-NCOMP	---	11-Sep	0-12	<0.00102	0.034	0.0085	750	0	SP	A8I0238
		5A-SCOMP	---	11-Sep	0-12	<0.00100	0.034	0.0085	750	0	SP	A8I0238
	5B	5B-NCOMP	---	6-Sep	0-12	0.0103	0.034	0.0085	750	0	SP	A8I0126
		5B-NCOMP(2)	---	20-Sep	12-18	0.00111	0.034	0.0085	0	375	MFR	A8I0581
		5B-SCOMP	---	6-Sep	0-12	0.0114	0.034	0.0085	750	0	SP	A8I0126
		5B-SCOMP(2)	---	20-Sep	12-18	0.00149	0.034	0.0085	0	375	MFR	A8I0581
	5C	5C-NCOMP	---	6-Sep	0-12	0.0411	0.034	0.0085	750	0	SP	A8I0126
		5C-NCOMP(2)	---	20-Sep	12-18	0.00119	0.034	0.0085	0	375	MFR	A8I0581
		5C-SCOMP	---	6-Sep	0-12	0.0378	0.034	0.0085	750	0	SP	A8I0126
		5C-SCOMP(2)	---	20-Sep	12-18	0.00132	0.034	0.0085	0	375	MFR	A8I0581
Cell 18	18B	18B-NCOMP	---	6-Sep	0-12	0.0367	0.034	0.0085	750	0	SP	A8I0126
		18B-NCOMP(2)	---	20-Sep	12-18	<0.00108	0.034	0.0085	0	375	MFR	A8I0581

Cell 18	18B	18B-SCOMP	---	6-Sep	0-12	0.0377	0.034	0.0085	750	0	SP	A8I0126
		18B-SCOMP(2)	---	20-Sep	12-18	0.00144	0.034	0.0085	0	375	MFR	A8I0581
Cell 19	19A	19A-NCOMP	---	31-Aug	0-12	0.051	0.034	0.0085	750	0	SP	A8H0917
		19A-NCOMP(2)	---	25-Sep	12-18	<0.00105	0.034	0.0085	0	375	MFR	
		19A-SCOMP	---	31-Aug	0-12	0.0426	0.034	0.0085	750	0	SP	A8H0917
		19A-SCOMP(2)	---	25-Sep	12-18	0.00741	0.034	0.0085	0	375	MFR	
	19B	19B-NCOMP	---	11-Aug	0-12	0.087	0.034	0.0085	750	0	SP	A8H0310
		19B-NCOMP(2)	---	28-Aug	12-24	<0.00106	0.034	0.0085	750	0	SP	A8H0788
		19B-SNCOMP	---	11-Aug	0-12	0.148	0.034	0.0085	375	0	SP	A8H0310
		19B-SNCOMP(2)	---	28-Aug	12-24	0.00123	0.034	0.0085	375	0	SP	A8H0788
Cell 20	20A	20A-NCOMP	---	7-Aug	0-12	0.0287	0.034	0.0085	750	0	SP	A8H0202
		20A-NCOMP(2)	---	28-Aug	12-18	<0.00104	0.034	0.0085	0	375	MFR	A8H0788
		20A-SCOMP	---	7-Aug	0-12	0.0138	0.034	0.0085	750	0	SP	A8H0202
		20A-SCOMP(2)	---	28-Aug	12-18	0.00149	0.034	0.0085	0	375	MFR	A8H0788
	20B	20B-NCOMP	---	3-Aug	0-6	0.0627	0.034	0.0085	375	0	SP	A8H0097
		20B-NCOMP(2)	---	23-Aug	6-18	0.00218	0.034	0.0085	0	750	MFR	A8H0676
		20B-SCOMP	---	3-Aug	0-6	0.067	0.034	0.0085	375	0	SP	A8H0097
		20B-SCOMP(2)	---	23-Aug	6-18	0.00648	0.034	0.0085	0	750	MFR	A8H0676
	20C	20C-NCOMP	---	1-Aug	0-6	0.0632	0.034	0.0085	375	0	SP	A8H0017
		20C-NCOMP(2)	---	23-Aug	6-14	0.0045	0.034	0.0085	0	500	MFR	A8H0676
		20C-SCOMP	---	1-Aug	0-6	0.0645	0.034	0.0085	375	0	SP	A8H0017
		20C-SCOMP(2)	---	23-Aug	6-14	0.00798	0.034	0.0085	0	500	MFR	A8H0676
	20D	20D-ECOMP	---	3-Jul	0-18	0.0151	0.034	0.0085	500	0	SP	A8G0058
		20D-ECOMP(2)	---	9-Jul	18-30	<0.00109	0.034	0.0085	300	0	SP	A8G0159
		20D-NCOMP	---	31-Aug	0-18	0.0341	0.034	0.0085	900	0	SP	A8H0917
		20D-NCOMP(2)	---	1-Oct	18-24	<0.00109	0.034	0.0085	0	300	MFR	A8J0010
		20D-SCOMP	---	31-Aug	0-18	0.00367	0.034	0.0085	900	0	SP	A8H0917
Cell 21	21A	21A-NCOMP	---	21-Aug	0-12	0.00788	0.034	0.0085	375	375	MFR (6"-12")	A8H0580
		21A-SCOMP	---	21-Aug	0-12	0.00493	0.034	0.0085	375	375	MFR (6"-12")	A8H0580
	21B	21B-NCOMP	---	21-Aug	0-18	<0.00103	0.034	0.0085	280	560	MFR (6"-18")	A8H0580
		21B-SCOMP	---	21-Aug	0-18	0.00398	0.034	0.0085	280	560	MFR (6"-18")	A8H0580
	21C	21C-NCOMP	---	21-Aug	0-18	<0.00106	0.034	0.0085	280	560	MFR (6"-18")	A8H0580
		21C-SCOMP	---	21-Aug	0-18	0.00167	0.034	0.0085	280	560	MFR (6"-18")	A8H0580
	21D	21D-NCOMP	---	1-Aug	0-6	0.036	0.034	0.0085	375	---	SP	A8H0017
		21D-NCOMP(2)	---	23-Aug	6-14	<0.00105	0.034	0.0085	0	560	MFR	A8H0676
		21D-SCOMP	---	1-Aug	0-6	0.0546	0.034	0.0085	375	0	SP	A8H0017
		21D-SCOMP(2)	---	23-Aug	6-14	0.00636	0.034	0.0085	0	500	MFR	A8H0676
Cell 23	23C	23C-NCOMP	---	19-Jul	0-12	0.0241	0.085	0.02125	750	0	SP	A8G0498
		23C-NCOMP(2)	---	24-Jul	12-18	<0.00108	0.085	0.02125	375	0	SP	A8G0620
		23C-SCOMP	---	19-Jul	0-12	0.00458	0.085	0.02125	750	0	SP	A8G0498
	24B	24B-NCOMP	---	21-Aug	0-12	0.00559	0.034	0.0085	300	300	MFR (6"-12")	A8H0580
		24B-SCOMP	---	21-Aug	0-12	0.004	0.034	0.0085	300	300	MFR (6"-12")	A8H0580
	24C	24C-NCOMP	---	30-Jul	0-18	<0.00102	0.034	0.0085	300	600	MFR (6"-18")	A8G0785
		24C-SCOMP	---	30-Jul	0-18	<0.00106	0.034	0.0085	300	600	MFR (6"-18")	A8G0785
		24D-NCOMP	---	30-Jul	0-12	0.00993	0.034	0.0085	375	375	MFR (6"-12")	A8G0785
		---	24D-NA	30-Jul	0-12	0.0198	0.034	---	---	---	---	A8H0254

Cell 24	24D	---	24D-NB	30-Jul	0-12	<0.00105	0.034	---	---	---	---	A8H0254
		---	24D-NC	30-Jul	0-12	0.00944	0.034	---	---	---	---	A8H0254
		---	24D-ND	30-Jul	0-12	<0.00101	0.034	---	---	---	---	A8H0254
		24D-SCOMP	---	30-Jul	0-12	0.0134	0.034	0.0085	375	375	MFR (6"-12")	A8G0785
		---	24D-SA	30-Jul	0-12	0.00236	0.034	---	---	---	---	A8H0254
		---	24D-SB	30-Jul	0-12	0.01198	0.034	---	---	---	---	A8H0254
		---	24D-2C	30-Jul	0-12	0.0179	0.034	---	---	---	---	A8H0254
		---	24D-SD	30-Jul	0-12	0.00576	0.034	---	---	---	---	A8H0254
Cell 25	25A	25A-ECOMP	---	3-Jul	0-18	0.00496	0.034	0.0085	500	0	SP	A8G0058
		25A-NCOMP	---	24-Jul	0-18	<0.00103	0.034	0.0085	900	0	SP	A8G0620
		25A-SCOMP	---	24-Jul	0-18	<0.00104	0.034	0.0085	900	0	SP	A8G0620
	25B	25B-NCOMP	---	24-Jul	0-6	0.0683	0.034	0.0085	375	0	SP	A8G0620
		25B-NCOMP(2)	---	18-Sep	6-12	<0.00118	0.034	0.0085	0	375	MFR	A8I0508
		25B-SCOMP	---	24-Jul	0-6	0.073	0.034	0.0085	375	0	SP	A8G0620
		25B-SCOMP(2)	---	18-Sep	6-12	<0.00112	0.034	0.0085	0	375	MFR	A8I0508
	25C	25C-NCOMP	---	13-Jul	0-6	0.0238	0.034	0.0085	375	0	SP	A8G0337
		25C-NCOMP(2)	---	27-Jul	6-12	<0.000976	0.034	0.0085	0	375	MFR	A8G0765
		25C-SCOMP	---	13-Jul	0-6	0.0376	0.034	0.0085	375	0	SP	A8G0337
		25C-SCOMP(2)		27-Jul	6-12	0.00264	0.034	0.0085	0	375	MFR	A8G0765
	25D	25D-ECOMP	---	3-Jul	0-18	0.0103	0.034	0.0085	500	0	SP	A8G0058
		25D-ECOMP(2)	---	9-Jul	18-30	0.00179	0.034	0.0085	300	0	SP	A8G0159
		25D-NCOMP	---	13-Jul	0-12	<0.000216	0.034	0.0085	600	0	SP	A8G0337
		25D-SCOMP	---	13-Jul	0-12	<0.000225	0.034	0.0085	600	0	SP	A8G0337
Cell 26	26C	26C-SCOMP	---	5-Jul	0-18	0.112	0.034	0.0085	1125	0	SP	A8G0100
		26C-SCOMP(2)	---	10-Jul	18-36	0.00325	0.034	0.0085	1125	0	SP	A8G0178
Cell 38	38C	38C-ECOMP	---	11-Sep	0-18	<0.0011	0.034	0.0085	475	950	MFR (6"-18")	A8I0238
		38C-WCOMP	---	11-Sep	0-18	<0.00108	0.034	0.0085	475	950	MFR (6"-18")	A8I0238
					TOTAL VOLUME (cubic yards)				47055	25335		

1) One-quarter of the generic RBC is used as the RBC for all four-point composite samples to account for potential dilution of discrete sample components.
The whole generic RBC (residential: 0.034 mg/kg, urban residential: 0.085 mg/kg) is used for discrete samples.

2) All soils between depths of 0"-6" were placed in the soil stockpile due to presence of roots and other organic matter which made the soils unsuitable for re-use on site.

CY: Cubic yards. All volumes are approximate.

MFR: Multifamily residential

RBC: Risk-based concentration, from DEQ guidance: *Risk-Based Decision Making for Cleanup of Contaminated Sites (September 2003, revised November 1, 2015)*

Sample result used for final confirmation. Areas represented by unshaded cells underwent additional excavation and testing.

Exhibit "A"

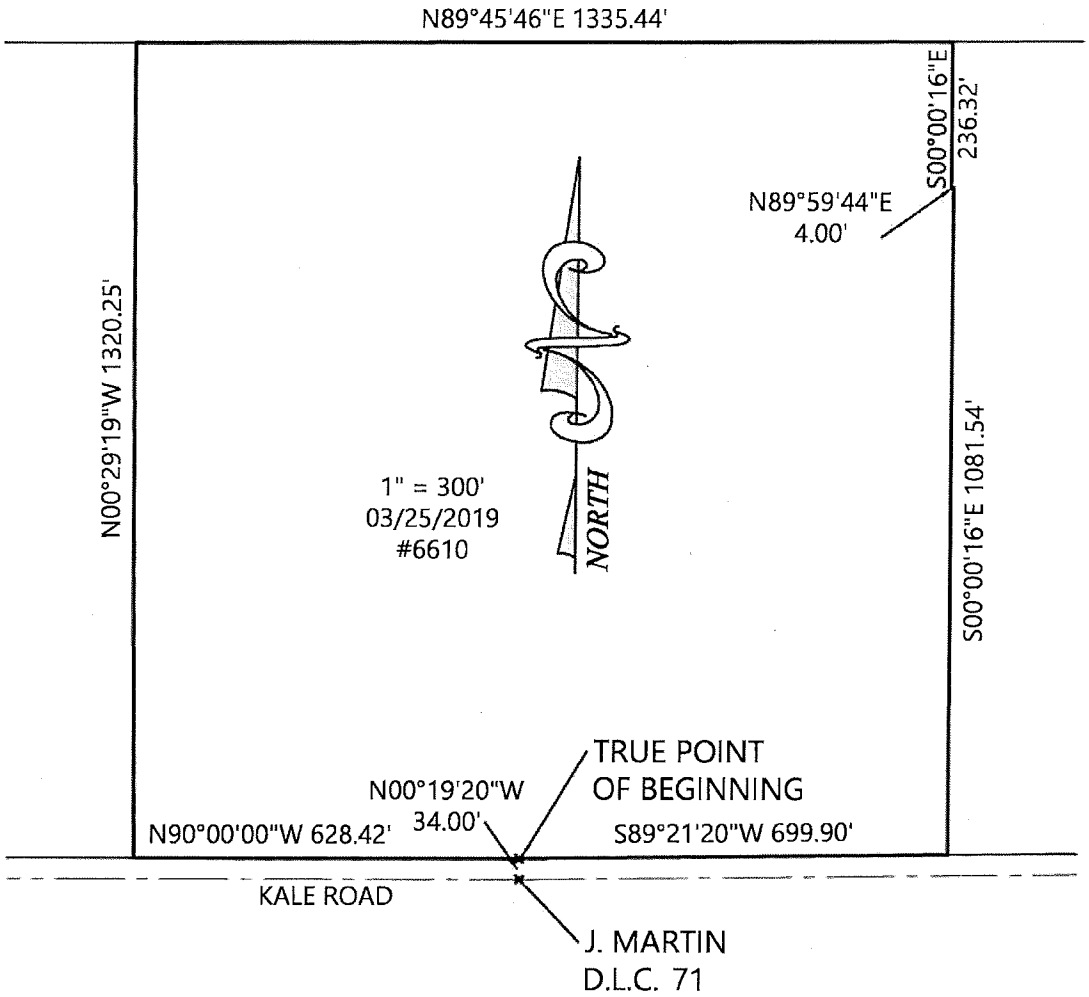
Commencing at a 3" brass cap being the Northwest corner of the J. Martin Donation Land Claim Number 71, located in the Northeast Corner of Section 5, Township 7 South, Range 2 West, of the Willamette Meridian, City of Salem, Marion County, Oregon; thence North 00°19'20" W 34.00 feet to a point on the North right of way of Kale Road being the True Point of Beginning; thence along said right of way North 90°00'00" West 628.42 feet to a 5/8" iron rod; thence North 00°29'19" West 1320.25 feet to a 3/4" iron pipe; thence North 89°45'46" East 1335.44 feet; thence South 00°00'16" East 236.32 feet; thence North 89°59'44" East 4.00 feet; thence South 00°00'16" East 1081.54 feet to the North right of way of Kale Street; thence along said right of way South 89°21'20" West 699.90 feet to the Point of Beginning and containing 40.43 acres more or less.

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
JULY 13, 2004
ROBERT D. HAMMAN
64202LS

EXPIRES: 6/30/2019

EXHIBIT "B"



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