

PHEASANT HILLS: SUNNYSLOPE, WASHINGTON

Project Background

Pheasant Hills is an 18.7-acre single-family subdivision development (the property) located in Sunnyslope, an unincorporated community in Chelan County about 3 miles northwest of Wenatchee. Selland Construction/Sage Homes (Selland) is acting as the lead developer for both the site improvements required for the subdivision and the construction of single-family homes. The project includes 93 single-family homes with lots ranging from 6,000 to 8,000 square feet. Selland has completed and begun selling the first round of 10 to 12 homes in the subdivision.

Project Timeline

The previous owner of the property, D & T Campbell Investments LLC, purchased the property in 2018 and completed the preliminary plat approval for the subdivision in September 2019. A State Environmental Policy Act (SEPA) review was required as part of the preliminary plat approval process. During the SEPA review, the Washington State Department of Ecology (Ecology) raised the issue of legacy pesticide contamination and required cleanup be implemented at the property before the homes could receive an occupancy permit. Selland purchased the property soon after the preliminary subdivision approval in February 2020 and began development of the subdivision. Selland is an experienced developer in the Wenatchee valley and was aware of the process necessary to mitigate lead and arsenic contamination prior to development.

Cleanup Approach

Selland worked with Fulcrum Environmental Consulting Inc. to complete additional assessment at the property and develop a soil remediation plan to satisfy Ecology's reporting requirements. Initial soil sampling found both lead and arsenic concentrations that exceeded state cleanup levels and extended at least two feet below the ground surface. Lead concentrations were found up to 855 parts per million (ppm), over three times relevant cleanup levels (250 ppm) and arsenic levels were up to 139 ppm, more than eight times cleanup levels (20 ppm) The cleanup approach developed is consistent with the Ecology model remedy requirements for legacy pesticide properties and consisted of the following:

Hard Capping—Consisting of typical access roadway, drives and building foundations

Excavation—Remove 3 to 6 feet of contaminated soil in the stormwater facility serving the subdivision.

Soft Capping—Provide 6 inches of clean soil and 2 inches of sod over a demarcation layer

Impervious surfaces—including access roads, drives and building foundations—function as hard caps and cover over 530,000 square feet, or about 65 percent, of the property . Excavation to clean soil was required for the property's stormwater infiltration area to a depth of about 3 to 6 feet. The excavation area was about 32,000 square feet, covering only about four percent of the property. All of the excavated contaminated soil was reused on site.¹

¹ Square footages are based on site plans and engineering calculations included in Fulcrum Environmental Consulting Inc., Pheasant Hills Residential Development- Soil Remediation Plan, Ecology Cleanup Site Search, 2020, <https://apps.ecology.wa.gov/cleanupsearch/site/15069#site-documents>.

Soft capping was used on the remainder of the property (approximately 252,000 square feet or 31 percent of the property). The project required approximately 10,000 cubic yards of clean soil or about 100 yards per single-family lot. Selland worked with Central Washington Asphalt to excavate and screen clean soil from the Central Washington Asphalt facility for reuse at the Pheasant Hills subdivision. Central Washington Asphalt is about eight miles from the development. The clean soil cost per cubic yard was \$1 to purchase the materials, \$4 to screen it, and \$5 to transport it to the property, bringing the total cost to about \$10 per cubic yard. The clean soil was tested for nutrient content as well as lead and arsenic, and it was determined no soil amendments were needed. Selland also installed home irrigation systems which is not typical of their other projects, to prevent homeowners from doing this on their own and potentially disturbing the soil cap.

For each home, Selland requested a no further action (NFA) likely decision from the Ecology's Voluntary Cleanup Program once the soil remediation plan was in place, and a full NFA determination once the cleanup was complete and before selling each home. This allows each homebuyer to more easily obtain a mortgage for their home. Selland also completed several forms of notice at Ecology's request including documenting the cap and demarcation fabric in the Covenants, Conditions and Restrictions (CC&R) for each property.

Key Takeaways

The single-developer approach streamlined the process: Having a single developer for the both the subdivision permitting and the single-family lot development streamlined the process. The developer was able to do mass grading and plan for all the contaminated soil to be reused on the property more efficiently and cost-effectively than might have been feasible for an individual developer limited to a 6,000-square-foot lot.

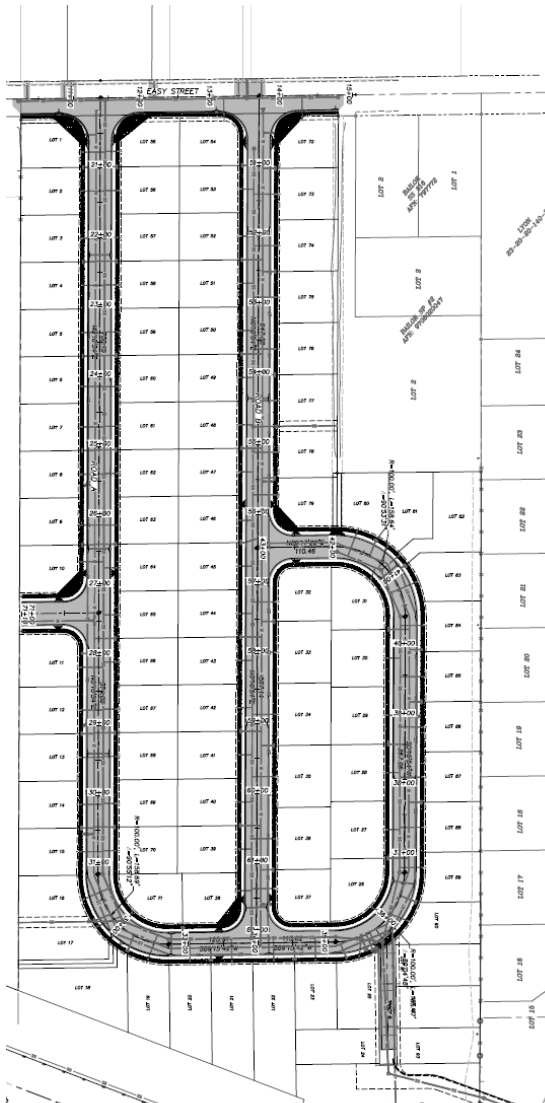
Clean soil from a nontypical source reduced costs: Selland located low-priced clean soil near the property by approaching Central Washington Asphalt. Selland also used its own equipment to excavate and screening the soil. Selland's soil cost was well below that of other similar projects that used a commercial source of clean fill dirt.

Separate local and Ecology oversight processes: Pheasant Hills engaged in a robust regulatory and reporting process separate from the local permitting processes. The regulatory and reporting process included the preparation of a soil remediation plan, receiving an NFA decision from Ecology's Voluntary Cleanup Program, and recording formal notices documenting the cleanup actions in the CC&Rs. This review and documentation occurred separate from the local permitting process. For example, Chelan County did not require that the cleanup be complete or documented as a condition of the certificate of occupancy approval.

Key Metrics

Project Overview		
Development Type	Single-family	
Property Size (acres)	18.7	
Housing Units	93	
Individual Lot Size	6,000 to 8,000 sf	
Typical Building Footprint	2,987 sf	
Existing Building Footprint	NA	
Cleanup Metrics	Quantity	Percent of Property
Total Excavation Area	31,195 sf	3.8
Total Hard-Capped Area	531,432 sf	65.2
Total Soft-Capped Area	251,945 sf	30.9
Clean Soil Source		
Soil Source	Central Washington Asphalt	
Distance from Property	8.1 miles or 12 minutes	
Transportation Cost	\$5/cy	
Material Needs	Quantity	Cost/Unit/Comment
Clean Soil	10,000 cy	\$5.00/cy
Amendment	None	NA
Off-Site Soil Disposal	On-site reuse	NA
Demarcation Fabric	51,945 sf	Not provided
NOTES: cy = cubic yards NA = not applicable sf = square foot		

Property Photos and Figures



Development Site Plan, source Torrence Engineering



Pheasant Hills Home, image credit: Premier One Properties



Pheasant Hills Construction, image credit: Sage Homes

CHUCK AUSTIN PLACE: YAKIMA, WASHINGTON

Project Background

Chuck Austin Place (the property) is a 4.9-acre multi-family residential development project located in the City of Yakima aimed at providing housing units to veterans experiencing homelessness. Yakima Housing Authority (YHA) was responsible for the redevelopment of the property, which was most recently used as a training facility for the U.S. Marine Corps. The existing armory building was renovated, and one of two planned phases of residential development has been completed.

At the time of purchase, the property housed an armory building, parking lot, and open land. YHA's redevelopment plan for the property involved renovations to the existing armory building to create 14 studio housing units as well as 12,000 square feet to house a clinic and other services for future residents. Five new buildings constructed for the project include 17 one-bedroom and 10 two-bedroom housing units. A portion of the property is reserved for a second phase of construction to create additional housing units.

Project Timeline

YHA has a history of development work in the Yakima area where historical orchards are common. YHA was aware of the potential for the property to be contaminated with lead arsenate prior to the start of the property acquisition and redevelopment process. Plans to move forward with the project were already in place prior to any environmental site investigations.

YHA acquired the Chuck Austin Place property in 2017. As part of standard due diligence procedures for affordable housing projects using federal funds, YHA completed a National Environmental Policy Act review and a Phase 1 environmental site assessment with assistance from Fulcrum Environmental Consulting Inc. (Fulcrum). After the initial investigation, YHA received funding for the project then completed a Phase II environment site investigation with a focus on potential soil contaminants within stormwater infiltration areas on the property. The Phase II investigation confirmed the presence of soils with concentrations of lead and arsenic above state cleanup levels. Lead concentrations were found up to 607 parts per million (ppm), over double the relevant cleanup thresholds (250 ppm) and arsenic concentrations were up to 136 ppm, more than six times cleanup thresholds (20 ppm). In 2018, YHA was required to complete a State Environmental Policy Act (SEPA) review for the property. Lead and arsenic contaminated soil was not addressed in the project's SEPA checklist and the Washington Department of Ecology (Ecology) did not provide comment. Construction for the initial phase of the project began in August 2019 and was completed in 2021. The property entered into Ecology's Voluntary Cleanup Program in April 2021 and received a No Further Action letter in March 2022.

Cleanup Approach

YHA worked with Fulcrum to develop a site remediation plan that met Ecology's requirements and integrates with the redevelopment plans.¹ Concentrations of lead and arsenic exceeding cleanup levels were identified in soils at depths of 2 feet below ground surface, the furthest depth explored. Early during site planning, it was determined that off-site disposal of contaminated soil was cost-prohibitive for the project, and the remedy was designed so that all contaminated soils remain onsite.

¹ Fulcrum Environmental Consulting. 2021. Tahoma Ave Residential Development—Cleanup Report. <https://apps.ecology.wa.gov/cleanupsearch/site/15418#site-documents> (accessed May 5, 2021). November 16.

The cleanup approach was developed with the property redevelopment plans and used several elements of Ecology's model remedies, including the following:

Hard Capping—Existing and new building footprints, sidewalks, and asphalt surfaces act as an impervious cap on the property.

Soft Capping—Various soft caps were installed across the property with the following configurations:

- Geotextile fabric overlain with 4 inches of rock landscaping
- Geotextile fabric overlain with 6 inches of compact gravel
- Geotextile fabric overlain with 2 to 4 inches of gravel
- 6 inches of imported clean topsoil and 2 inches of sod

Excavation—Soil with concentrations above cleanup levels in the stormwater infiltration basins was excavated to prevent infiltration through contaminated media.

Consolidation—Contaminated soil excavated from the stormwater infiltration basins was consolidated into several berms on the property, then soft capped.

Institutional Controls—A restrictive covenant and engineering control management plan were implemented on the property.

Fulcrum was in contact with Ecology throughout the design process and was aware of the development of the model remedies due to Fulcrum staff participation in the Legacy Pesticide Working Group. Site plans were communicated with Ecology through informal meetings to make sure the remedy met minimum design requirements. The City of Yakima was the lead permitting agency but was not involved in overseeing or documenting cleanup activities at the property.

Impervious surfaces across the property, including sidewalks and parking lots (~75,600 square feet [sf]), new building foundations (~12,600 sf), and existing building footprints (~27,300 sf), functioned as hard caps and cover for approximately 2.7 acres of the property. Soil was excavated from stormwater infiltration facilities and consolidated on site in berms that were soft capped with a geotextile fabric, clean soil, and sod.

Soft capping was used in any areas where excavation or hard capping was not employed. The type of soft cap used varied based on the use of the area. Portions of the property reserved for future construction were capped with a thin-layer gravel cap to limit contact with contaminated material until soils in these areas are hard capped as a result of building construction.

Key Takeaways

Reliance on local consultant: Fulcrum was responsible for all environmental aspects of the project from the start of the work. The project was conceptualized and started prior to the creation of the model remedies and minimal changes were made in the documentation and reporting of the project in response to the model remedy implementation from Ecology.

Clean soil from nontypical source: YHA was able to locate clean soil near the property from a local landfill that excavates soil to create waste cells. YHA described the process of finding clean soil as difficult.

Separate local and Ecology oversight processes: Fulcrum found soils affected by lead and arsenic during the due diligence process, and Ecology was engaged informally early in the process before the project entered into the Voluntary Cleanup Program. Environmental conditions on the property were not a part of the local permitting and review process and Ecology did not comment on the SEPA review.

Use of gravel capping as a temporary environmental control: To minimize soil import costs in areas marked for further redevelopment, YHA incorporated more gravel and landscaping rock capping than soil. The large existing building and parking area footprint allowed also helped YHA to minimize clean soil needs.

Key Metrics

Project Overview		
Development Type	Multi-family	
Property Size (acres)	4.85	
Housing Units	41	
Individual Lot Size	NA	
Total New Building Footprint	12,600 sf	
Existing Building Footprint	27,300 sf	
Cleanup Metrics	Quantity	Percent of Property
Total Hard Capped Area	115,500 sf	55
Total Excavation and Soft Capped Area ^(a)	93,600 sf	45
Soil Capped Area	22,100 sf	11
Gravel Capped Area	71,500 sf	34
Soil Source	Caton Landfill	
Distance from Property	17 miles or 29 minutes	
Material Needs	Quantity	Cost/Unit
Clean Soil	100 cy	\$28/cy
Amendment	100 tons	\$45/ton
Transportation	-	\$115/hr ≈ \$3.80/ton
Off-Site Soil Disposal	0 tons	NA
Gravel	100 tons	\$24/ton
Demarcation Fabric	71,500 sf	Not provided

NOTES:

cy = cubic yards

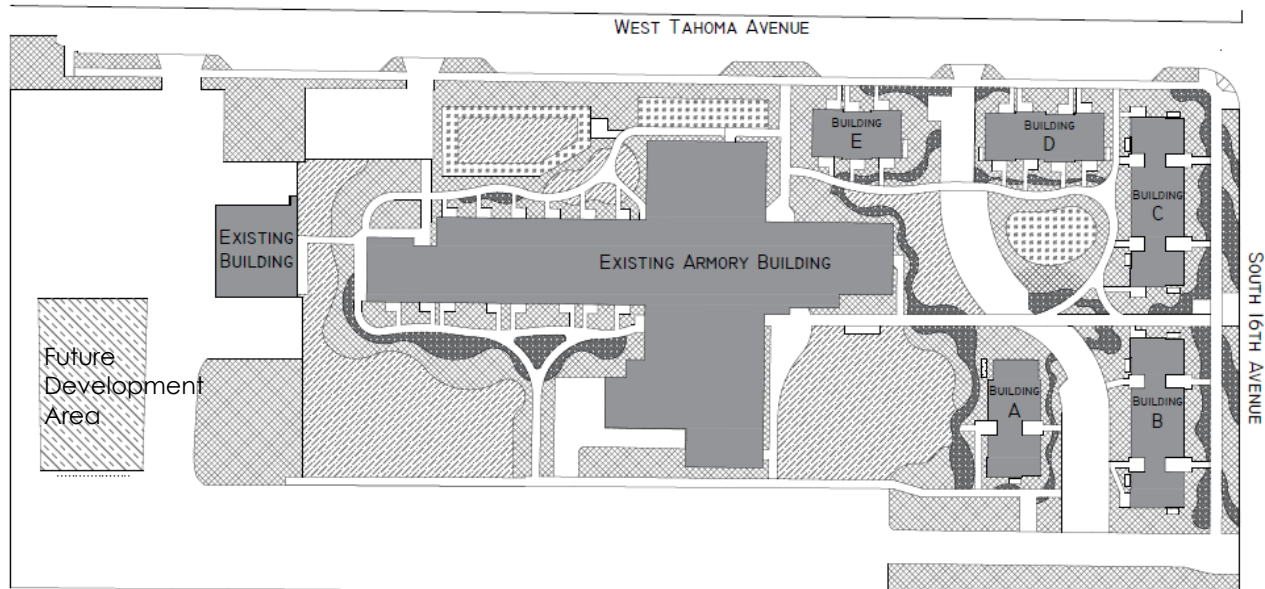
hr = hour

NA = not applicable

sf = square foot

^(a) Excavated areas include underground stormwater infiltration basins. Soil and gravel capped areas were estimated based on Figure 2 from the Soil Remediation Report.

Property Figures and Photos



LEGEND

- | | |
|---|---|
| BUILDING FOOTPRINTS | FABRIC OVERLAIN WITH 4-INCHES OF GRAVEL |
| CONCRETE OR ASPHALT UNDERLAIN WITH 4-INCHES OF GRAVEL | FABRIC OVERLAIN WITH 2-INCHES OF GRAVEL |
| FABRIC OVERLAIN WITH 4-INCHES OF ROCK LANDSCAPING | |
| FABRIC OVERLAIN WITH 6-INCHES OF COMPACT GRAVEL | |
| 6-INCHES OF CLEAN SOIL AND SOD | |

Capping Plan from Fulcrum Environmental Report



RESIDENCE INN WENATCHEE: WENATCHEE, WASHINGTON

Project Background

Residence Inn Wenatchee (the property) is a new hotel development, located on a 3.1-acre property in downtown Wenatchee along the Columbia River waterfront. Stream Real Estate (SRE), of Seattle, Washington, acted as lead developer for both the site improvements and building construction. The finished hotel has a footprint of approximately 24,000 square feet.

Project Timeline

In 2018, SRE completed a Phase I environmental site assessment with assistance from SoundEarth Strategies, Inc. Although the property is not within the Washington State Department of Ecology's (Ecology's) historical orchard layer on the Dirt Alert map tool, potential lead arsenate pesticide usage on the property was identified in the Phase I environmental site assessment. This prompted test pit sampling across the property for several contaminants, including lead and arsenic. The sampling confirmed the presence of lead and arsenic above state cleanup levels in surface soils across the property. Lead levels were detected in concentrations up to 344 parts per million (ppm), well above relevant cleanup levels (250 ppm). Concentrations of arsenic were found up to 210 ppm, over ten times state cleanup levels (20 ppm).

SRE hired Water, Civil, and Environmental Inc. (WCE), an environmental consulting firm based in Boise, Idaho, to assist in remedial design to address soils contaminated by lead and arsenic on the property. WCE communicated directly with Ecology to discuss remedial design and the property was entered into the Ecology's Voluntary Cleanup Program (VCP). In October 2018, Ecology issued an opinion letter approving the remedial approach. SRE was required to complete a State Environmental Policy Act (SEPA) review for the project; however, Ecology did not comment during the SEPA review process, as the property had already been begun a cleanup under the VCP. Remedial actions were completed between 2020 and 2021.

Cleanup Approach

SRE worked with WCE to develop a site remediation plan that met Ecology's requirements without incurring costs that would be prohibitive to the development project. Test pit results indicated concentrations of arsenic in soil across the property exceeded state cleanup levels up to depths of 3 feet below ground surface. Due to the volume of potentially impacted material, WCE worked with Ecology to find a remedy that did not involve excavation. The approach to site remediation is consistent with the Ecology model remedy requirements for legacy pesticide properties and consisted of the following:

Hard Capping—Consisting of typical access roadway, drives, and building foundations

Soft Capping—

- Geotextile and soil in landscaped areas not intended for public use: 6 inches of clean soil over a demarcation fabric in landscaped areas not intended for public use.
- Geotextile and Soil: 12 inches of clean soil over a demarcation fabric in areas intended for public use.

The majority of the property, including a parking lot, building, and sidewalks (95 percent), was capped with impervious surfaces. This amount of impervious surface coverage is typical of hotel development. The remaining areas not covered by impermeable surfaces were soft capped with a demarcation fabric overlain by a layer of clean imported soil. The depth of the soft cap varied depending on whether the area was intended for public use, as determined by WCE and SRE.

Key Takeaways

Direct communication with Ecology streamlined process: WCE was responsible for dealing with all environmental aspects of the project from the start of the work. Prior to entering the property into the VCP, WCE had informal communications with Ecology staff to determine what would be required to receive an opinion letter approving the cleanup. This informal communication was a determining factor in the thickness of the soft cap.

Separate local and Ecology oversight processes: Environmental conditions were identified during the due diligence process, and Ecology was engaged early in the cleanup process through informal consultation before the project entered the VCP. Environmental conditions on the property were not a part of the local permitting and review process and Ecology did not comment on the SEPA review requiring any remedial cleanup. SRE felt that the process went smoothly and was happy with Ecology's responsiveness and guidance.

No excavation requirements reduced costs: Soil was not excavated from any portion of the property. Though the property includes landscaped areas, the redevelopment design did not include a formal infiltration basin or stormwater detention pond that might have prompted excavation of contaminated soils.

Key Metrics

Project Overview		
Development Type	Commercial	
Property Size (acres)	3.1	
Housing Units	NA	
Individual Lot Size	NA	
Typical Building Footprint	NA	
Existing Building Footprint	NA	
Cleanup Metrics	Quantity	Percent of Property
Total Excavation Area	0 sf	0
Total Hard Capped Area	128,284 sf	95
Total Soft Capped Area	6,752 sf	5
Clean Soil Source		
Soil Source	Winton Manufacturing	
Distance from Property	35.1 miles or 46 minutes	
Transportation Cost	Provided as lump sum with soil cost	
Material Needs	Quantity	Cost/Unit/Comment
Clean Soil	1,598 cy	\$39.38/cy including transport
Amendment	None	NA
Off-Site Soil Disposal	None	NA
Gravel	None	NA
Demarcation Fabric	6,752 sf	Not provided

NOTES:

cy = cubic yards
NA = not applicable
sf = square foot

Property Figures and Photos

