

**Beneficial Use of Solid Waste Determination Evaluation Form**

Applicant: Portland Water Bureau
BUD#: 20240418
Solid waste: Contaminated Soils
Date: May 7, 2024



State of Oregon  
Department of  
Environmental  
Quality

State of Oregon Department of Environmental Quality

# DRAFT Beneficial Use of Solid Waste Determination Evaluation Form

Contact: Ryan Lewis  
700 NE Multnomah St., Suite 600  
Portland, OR 97232-4100

Applicant: Portland Water Bureau (PWB)	
BUD#: 20240418	
Solid Waste: Contaminated Soils	
<b>Summary of proposed beneficial use:</b> PWB proposes to reuse contaminated soils removed from the surface of the trench excavation for the Bull Run Water Pipeline and soils to be removed from the road widening at the intersection of SE Dodge Park Rd and SE Cottrell. Surface soils from the pipeline construction project do not meet clean fill screening criteria. Soils from the pipeline construction at depths deeper than 1.5 feet do not meet clean fill criteria. Soils down to five feet deep from the intersection widening project do not meet clean fill screening values. The contaminated soils are impacted by historical chlorinated pesticide use including dieldrin from past agricultural practices. PWB proposes to reuse the soils in the (1) pipeline trenches as construction fill, (2) reconstructing shoulder surfaces adjacent to roadways, (3) replacing as topsoil as part of trench restoration of farm field per property owner request, and (4) placement at the water filtration plant property as construction fill per BUD 20240402. If the contaminated soil is not reused, the soil will be disposed of at a DEQ approved landfill or site.	
Reviewer: Ryan Lewis	Date: May 7, 2024
Tier: <input type="checkbox"/> One <input checked="" type="checkbox"/> Two <input type="checkbox"/> Three	

## Beneficial use of solid waste

Beneficial use of solid waste is a sustainability practice that may involve using an industrial waste in a manufacturing process to make another product or using a waste as a substitute for construction materials.

The environmental benefits of substituting industrial waste materials for virgin materials includes conserving energy, reducing the need to extract natural resources and reducing demand for disposal facilities.

Oregon Administrative Rules (OAR) 340-093-0260 - 0290 establish standing beneficial uses and a process for DEQ review of case-specific beneficial use proposals. Under these rules, DEQ may issue a beneficial use determination as an alternative to a disposal permit for proposals that meet the rule criteria. If approved, once a beneficial use determination is issued, DEQ no longer regulates the waste as a solid waste as long as the waste is used in accordance with the approved beneficial use determination.

## Beneficial use determination evaluation summary

- Yes, the beneficial use of this solid waste meets all the case-specific performance criteria listed below and is approved.
- No, the beneficial use of this solid waste does not meet all the case-specific performance criteria listed below and is not approved.

**Beneficial Use of Solid Waste Determination Evaluation Form**

Applicant: Portland Water Bureau
BUD#: 20240418
Solid waste: Contaminated Soils
Date: May 7, 2024

The beneficial use of this solid waste is approved for a 1-year demonstration project.

---

**Case-specific beneficial use performance criteria:**

DEQ may approve an application for a case-specific beneficial use of solid waste only if all the following performance criteria are addressed:

1. Characterization of the Solid Waste;
2. Productive Beneficial Use of the Solid Waste; and,
3. The effect of the Proposed Beneficial Use on Public Health, Safety, Welfare and/or the Environment.

Did the applicant characterize the solid waste and proposed beneficial use sufficiently to demonstrate compliance with the rules for case-specific beneficial use determinations (OAR 340-093-0280) by submitting required information for the appropriate tier? (See tier sections below for detailed characterization information.)

Yes  No

Was the following information submitted for DEQ review and how adequate was it?

**Tier 1:**     **Applicable**     **Not applicable**

- Did the applicant provide an adequate description of the material proposed for beneficial use, the manner of generation and the estimated quantity to be used beneficially each year?

Yes     No

**Notes:**

The total estimated volume of contaminated soil for the proposed beneficial use is approximately 19,000 cubic yards (cy), which will be generated over the course of the project for several years during pipeline construction. Approximately 250 cy will be generated during an intersection widening project. PWB proposes to reuse the excavated contaminated soils in the pipeline trenches as construction fill, used to reconstruct shoulder surfaces adjacent to roadways, replaced as topsoil as part of trench restoration of farm field per property owner request, and additionally placed at the water filtration plant property as construction fill per BUD 20240402. During construction, the material will be handled to prevent environmental impacts and comply with the PWB's 1200CA permit requirements until reused. The 1200-CA covers both the filtration facility and the pipeline area. The contaminated soils are the surface soils (0-1.5 feet deep). Deeper soils within the pipeline excavation areas have been identified as meeting clean fill limits. The pipeline excavation also includes an intersection widening construction area where contaminated soil in this intersection do not meet clean fill limits to depths of 5 feet below the surface. The soil quantity of 250 cy is expected to be generated due the intersection widening construction.

The contaminated soil will be managed in one of three methods (1) Placement of excavated soil as construction fill within filtration facility according to BUD-20240402, (2) placement within the resulting pipeline trench excavation, or (3) placement on the shoulder surfaces immediately adjacent to the roadway as specified by landowner.

PBS Environmental submitted the January 2024 Clean Fill Determination Report (CFDR) prior to the PWB's BUD application. The application presents the data from CFDR of samples using incremental sampling methodology of 4 decision units (DUs), (1) Finished Water North, (2) Finished Water Center, (3) Finished Water South, and (4) SE Dodge Park Boulevard and SE Cottrell Road Intersection. Two samples each were collected for Finished Water North, Finished Water Center, and Finished Water South, one comprising 0-1.5 ft depth and the other from 1.5 ft to 5 ft depth. The Finished Water North had a triplicate sample collected for the shallow 0-1.5 ft depth. The SE Dodge Park Boulevard and SE Cottrell Road Intersection DU sample was collected at a depth of 0 to 5 feet.

## Beneficial Use of Solid Waste Determination Evaluation Form

Applicant: Portland Water Bureau
BUD#: 20240418
Solid waste: Contaminated Soils
Date: May 7, 2024

The samples were sent for lab analysis for the following contaminants:

- Seventeen Agricultural Metals (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, mercury, molybdenum, selenium, silver, thallium, vanadium, and zinc) by EPA Methods 6000/7000 series
- Organochlorine Pesticides by EPA 8081B
- Organophosphate Pesticides by EPA 8141A
- Chlorinated Acid Herbicides by EPA 8151
- Diesel and Heavy Oil-Range Hydrocarbons by NWTPH-Dx

Pesticides were detected in surface soil samples (0-1.5 feet depths) at concentrations above the Clean Fill Criteria and DEQ Eco Risk for ground feeding birds and mammals. These pesticides include 4,4-DDE, 4,4-DDT, and Dieldrin. Another pesticide, 4,4-DDD was detected in the samples at FWC-DU-1 below clean fill criteria. Samples collected along the pipeline at depths greater than 1.5 feet did not indicate pesticide detections exceeding Clean Fill Criteria. A sample collected at the SE Dodge Park Boulevard and SE Cottrell Road Intersection detected concentrations of pesticides above the clean fill criteria.

Metals were detected below Clean Fill Criteria concentrations in the surface soils (0-1.5 feet depth) and soils at depths from 1.5 feet – 5 feet except for one of the samples collected at 0-1.5 feet depth at Finished Water South which was 28.3 mg/kg. This detection exceeded the Clean Fill Value of 28.0 mg/kg, however is consistent with naturally occurring background levels of lead for the region. Many metals occur naturally in soil and due to soil's heterogeneous nature, can fluctuate in concentration.

DEQ is requiring that all of the soils stored at the water treatment facility property be managed under the 1200-CA requirements until used and be placed under 3 feet of clean fill. If the soils are used at the water filtration plant as construction fill, the soils will be subject to the beneficial use determination requirements of the filtration facility soils set forth in BUD-20240402.

Did the applicant provide an adequate description of the proposed beneficial use and justify how the proposed use is beneficial?

Yes  No

Notes:

The proposed beneficial use of the contaminated soil is to reuse excavated soil as non-structural construction fill. Reuse of this soil provides many benefits including limiting trucking emissions and impacts to landfill capacity.

- Did the applicant provide a sufficient comparison of the chemical and physical characteristics of the material proposed for beneficial use with the material it will replace?

Yes  No

Notes:

PWB's BUD application includes sampling results for pesticides, herbicides, detected metals from the 17 agricultural metals list. Tables 2, 3, 4, and 6 of the application shows the summary of the analytical results from the pipeline and intersection ISM samples (one DU sample at Finished Water North in triplicate). The shallow DUs included depths from 0-1.5 ft and the deeper DUs included depths from 1.5-5 ft. DEQ evaluated and agrees that the samples and analysis for the selected contaminants sufficiently characterize the soil being moved during the PWB Finished Water Pipeline construction process. Clean Fill Criteria and DEQ eco risk exceedances for ISM samples are described above. These values are also compared in the tables to the following risk screening levels:

- DEQ's human health risk-based concentrations (RBCs) for occupational soil ingestion, dermal contact, and inhalation

**Beneficial Use of Solid Waste Determination Evaluation Form**

Applicant: Portland Water Bureau
BUD#: 20240418
Solid waste: Contaminated Soils
Date: May 7, 2024

- DEQ's ecological risk for top consumers birds and mammals (Threatened and Endangered (T&E) and non T&E))
- DEQ's ecological risk for direct toxicity to plants and invertebrates

The metals concentrations are consistent with naturally occurring background levels.

The proposed use of the contaminated soil from the Bull Run Finished Water Pipeline project as either non-structural fill within the filtration facility construction area per the requirements in BUD-20240402, use as trench backfill along the pipeline, or shoulder soil grading as specified meets the beneficial use criteria of being productive and is suitable for use in construction as non-structural fill and trench backfill. The slightly contaminated soil can be used as described in the application and the conditions of this BUD.

As shown in the application, the concentrations for pesticides in the surface soils and within the intersection widening are below human health risk levels. They exceed the T&E and non-T&E eco RBC. The eco RBC pertains to ground feeding birds and mammals and top consumers bird and mammals. The presence of threatened or endangered species that utilize the site is not confirmed or discussed in the application. The exceedances of the non T&E eco risk-based concentrations are addressed by the protective cover outlined in BUD-20240402. The trench pipeline corridor right-of-way and the shoulder soils and the restored trench in the active farm field do not provide a suitable habitat or resources for mammals and birds. The proposed placement and reuse of contaminated soils is not anticipated to adversely affect any plant or wildlife species.

- Did the applicant successfully demonstrate compliance of the proposed beneficial use with the performance criteria in OAR 340-093-0280 based on knowledge of the process that generated the material, properties of the finished product, or testing?

Yes  No

Notes:

The soil is slightly contaminated as discussed above. The contaminated soils have been identified to contain concentrations of pesticides that are above clean fill criteria but below occupational RBCs for soil materials. The reuse of the Finished Water Pipeline soil on the filtration facility construction must follow the requirements as specified in BUD-20240402.

- If required, did the applicant provide any other DEQ required information to evaluate the proposal?

Yes  No

Notes:

Not applicable. DEQ did not require additional information.

**Tier 2:**  **Applicable**  **Not applicable**

- Did the applicant submit all the information required for a Tier 1 application?

Yes  No

- Did the applicant submit adequate sampling and analysis to make a determination of suitability for beneficial use? (Note: The analysis must provide chemical, physical, and biological characterization of the material proposed for beneficial use and identify potential contaminants in the material or the end product, as applicable.)

Yes  No

Notes:

DEQ considers the material testing conducted to be adequate. Sample results are discussed above.

## Beneficial Use of Solid Waste Determination Evaluation Form

Applicant: Portland Water Bureau
BUD#: 20240418
Solid waste: Contaminated Soils
Date: May 7, 2024

- When applicable, did the applicant provide a risk screening comparing the concentration of hazardous substances in the material to existing, DEQ approved, risk-based screening level values, and demonstrate compliance with acceptable risk levels?

Yes  No

### Notes:

A comparison to risk screening levels is discussed above. Contaminant concentrations were compared to human health risk screening levels and were found to be sufficiently low for the proposed beneficial uses. The applicant compared contaminant concentrations to ecological risk-based concentrations and is shown in Tables 2, 3, 4 and 6 of the application.

- When applicable, did the applicant supply the location or type of land use where the material will be applied, consistent with the risk scenarios used to evaluate risk?

Yes  No  NA

Notes The contaminated soil is proposed for use as non-structural fill at the PWB filtration facility property, as well as within the pipeline trenches as construction fill, reconstructing shoulder surfaces adjacent to roadways, replacing as topsoil as part of trench restoration of farm field per property owner request.

- When applicable, did the applicant supply contact information of property owner(s) if this is a site-specific land application proposal, including name, address, phone number, email, site address and site coordinates (latitude and longitude)?

Yes  No  NA

Notes: The soil reuse location is identified as tax lots, 1S4E22D -00400, 1S4E22D -00100 for the proposed filtration facility. For the proposed pipeline, primarily within public street right-of-ways and across the following tax lots: 1400 (1S4E23C) 1500 (1S4E23C) 2200 (1S4E23C) 7300 (1S4E22DB) 900 (1S4E21A) 100 (1S4E22BA) 200 (1S4E22BA) 801 (1S4E15C) 800 (1S4E23C). The contact information is:

Robert Fraley  
Portland Water Bureau  
1120 SW 5<sup>th</sup> Avenue Rm 405  
Portland, OR 97204  
503-319-9207  
Robert.Fraley@portlandoregon.gov

- Did the applicant supply an adequate description of how the material will be managed to minimize potential adverse impacts to public health, safety, welfare, or the environment?

Yes  No

### Notes:

The contaminated soils will be managed so that they will not create an adverse impact on groundwater, surface water, or public health or safety. Contaminated soil material will be stockpiled on site during construction and reused at the project area as non-structural fill. PWB will follow their 1200CA stormwater permit during the entire project until final grade is established and vegetated.

## Beneficial Use of Solid Waste Determination Evaluation Form

Applicant: Portland Water Bureau
BUD#: 20240418
Solid waste: Contaminated Soils
Date: May 7, 2024

### Tier 3: Applicable Not applicable

- Did the applicant submit all the information required for a Tier 1 and Tier 2 application?  
 Yes  No
- Did the applicant provide an adequate discussion of the justification for the proposal?  
 Yes  No
- Is there an estimated length of time that would be required to complete the project, if it is a demonstration?  
 Yes  No
- If it is a demonstration project, are their methods proposed to ensure safe and proper management of the material?  
 Yes  No

## 2. Productive beneficial use of the solid waste

- Has the applicant demonstrated that the proposed beneficial use is a productive use of the material by providing information substantiating the criteria listed below?  
 Yes  No

Notes: PWB proposes the contaminated soil is reused as non-structural fill at the PWB filtration facility property, as well as within the pipeline trenches as construction fill, reconstructing shoulder surfaces adjacent to roadways, replacing as topsoil as part of trench restoration of farm field per property owner request.. The soil meets specifications to be used as non-structural construction fill.

- Did the applicant successfully identify or demonstrate a reasonably likely proposed beneficial use for the material that is not speculative?  
 Yes  No

Notes: See discussion above.

This criterion consists of three parts.

### 1. Identified use:

Has the applicant clearly stated what the waste is going to be used for, that the waste is compatible with that use and the proposed quantity is necessary?

Yes  No

Notes:

## Beneficial Use of Solid Waste Determination Evaluation Form

Applicant: Portland Water Bureau
BUD#: 20240418
Solid waste: Contaminated Soils
Date: May 7, 2024

PWB estimates that the Bull Run Filtration Project will generate 19,000 cubic yards of contaminated soil along the finished water pipeline. 250 cy will be generated during the intersection widening excavation.

### 2. Reasonably likely use:

Has the applicant identified, with supporting documentation, the timeframe within which this use is likely to occur (e.g., zoning info, master plan for development, letters from local jurisdictions, etc.)?

Yes  No

Notes:

The application states that excavation of approximately 19,000 cubic yards of contaminated soil is planned to begin in summer 2024. The applicant expects the excavation to be completed in 2027.

### 3. Not speculative:

For land application - has this material been used at other sites for the same purpose, is the material feasible for use at this site for this purpose, or has the applicant identified a known potential for this use at this site?

Yes  No  N/A

For uses other than land application - has the material been used in a product before, is the material feasible for use in a product, or has the applicant identified a known potential for use in this product?

Yes  No  N/A

- Is the use a valuable part of a manufacturing process, an effective substitute for a valuable raw material or commercial product, or otherwise authorized by the Department and does not constitute disposal?

Yes  No

Notes:

This is a substitute for use of clean soil and is proposed to be used for regrading the soil reuse area, backfilling the pipeline trench, and regrading the shoulder areas. The reuse of the slightly contaminated soil will also prevent the material from filling valuable space in local landfills and reduce transportation costs.

- Is the use in accordance with applicable engineering standards, commercial standards, and agricultural or horticultural practices?

Yes  No

Notes:

The proposed uses of the excavated soils conform and follow standard engineering practices and limit risks posed by the contamination found in the soil. Also, the use reduces hauling trips, trucking emissions, and does not contribute to filling valuable landfill space.

### 3. Effect of proposed beneficial use on public health, safety, welfare and/or the environment

Has the applicant demonstrated the proposed beneficial use will not create an adverse impact to public health, safety, welfare, or the environment, by providing information substantiating compliance with the criteria listed in the bullet list below?

## Beneficial Use of Solid Waste Determination Evaluation Form

Applicant: Portland Water Bureau
BUD#: 20240418
Solid waste: Contaminated Soils
Date: May 7, 2024

Yes  No

### Notes:

As discussed above, chemical testing of the contaminated soils indicates that the soil reuse area would not pose a risk to people or animals, if reused as described in the application.

- Has the applicant demonstrated that the material is not a hazardous waste under ORS 466.00?

Yes  No

### Notes:

Contaminant concentrations are below applicable human health and ecological screening levels with the exceptions noted above.

- Has the applicant demonstrated that until the time this material is used according to a beneficial use determination, the material will be managed, including any storage, transportation, or processing, to prevent releases to the environment or nuisance conditions?

Yes  No

### Notes:

The application states that contaminated soil will be managed at all times to meet the proposed BUD conditions and stormwater permit 1200CA requirements. The reused soil will be managed to prevent, at all times, windblown dust, runoff and soil erosion, releases to the environment or nuisance conditions. The reused soil will be placed away from environmentally sensitive areas to protect waters of the State (such as wetlands, wildlife refuges and parks). PWB will maintain records documenting the amounts of contaminated soil transported to the soil reuse location by year.

PWB will comply with all applicable federal, state, and local regulations when using the material. PWB identifies in the application and will manage the contaminated soil in accordance with the 1200 CA NPDES permit.

- Has the applicant demonstrated that hazardous substances in the material, if any, meet one of the criteria in the bulleted list below?

Yes  No

- Hazardous substances do not significantly exceed the concentration in a comparable raw material or commercial product;
- Hazardous substances do not exceed naturally occurring background concentrations; or
- Hazardous substances will not exceed acceptable risk levels, including persistence and potential bioaccumulation, when the material is managed according to a beneficial use determination.

### Notes:

Testing results indicate that the hazardous substances in the contaminated soils do not significantly exceed the concentration in a comparable raw material (soil).

- Has the applicant demonstrated that the proposed beneficial use will not result in the increase of a hazardous substance in a sensitive environment, such as a park, wildlife refuge or wetland?

Yes  No

### Notes:

The material will not be placed in a sensitive environment. In addition, contaminant concentrations meet clean fill screening levels for most contaminants and exceedances are minor for those above clean fill values.



## Beneficial Use of Solid Waste Determination Evaluation Form

Applicant: Portland Water Bureau
BUD#: 20240418
Solid waste: Contaminated Soils
Date: May 7, 2024

- Has the applicant demonstrated that the proposed beneficial use will not create objectionable odors, dust, unsightliness, fire, or other nuisance conditions?

Yes  No

### Notes:

The application states that the reused contaminated soil will be managed in accordance with the procedures and best management practices outlined in the PWB 1200 CA permit.

- Has the applicant indicated that the proposed beneficial use will comply with any other applicable federal, state, and local regulations?

Yes  No

## 4. Public Involvement Evaluation (Note: this is not a beneficial use evaluation criterion)

Determine a public involvement recommendation using the current Guidance to DEQ Solid Waste Program Staff and Managers on Public Notice and Participation.

- Is public notice and participation being recommended for this application?

Yes  No

### Notes:

DEQ is aware of public interest in the proposed use of the material and will be posting a Public Notice that includes a community public meeting and a public comment period that ends at the end of June.