



**ANALYSIS OF BROWNFIELD CLEANUP  
ALTERNATIVES**

**Cortez Airport – Airport Terminal and  
Buildings 1 and 4**

22870 County Road F and 23378  
County Road G, Cortez, Colorado

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Prepared for:  
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## Sign-off Sheet and Signatures of Environmental Professionals

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# Table of Contents

<b>1</b>	<b>INTRODUCTION.....</b>	<b>1</b>
1.1	Property Location and Description .....	1
1.2	Background and Project Description .....	2
<b>2</b>	<b>PREVIOUS ENVIRONMENTAL ASSESSMENTS .....</b>	<b>2</b>
2.1	Phase I Environmental Site Assessment .....	2
2.2	Draft Phase II Environmental Site Assessment .....	3
2.3	Asbestos Inspections.....	3
2.4	Lead-Based Paint Inspections.....	5
<b>3</b>	<b>APPLICABLE REGULATIONS AND CLEANUP STANDARDS.....</b>	<b>5</b>
3.1	Potential Receptors and Exposure Pathways .....	5
3.2	Applicable Laws, Regulations, and Cleanup Standards .....	6
3.2.1	Asbestos .....	6
3.2.2	Lead-Based Paint.....	6
3.2.3	Environmental Media.....	7
<b>4</b>	<b>EVALUATION OF CLEANUP ALTERNATIVES.....</b>	<b>7</b>
4.1	Remedial Action Objectives .....	7
4.2	Cleanup Alternatives Considered.....	7
4.2.1	Alternative 1: No Action .....	8
4.2.2	Alternative 2: Abatement of ACM, Decommission Former Septic Tank, Capping of Soils at Building 1, Spot Removal of Soils at Building 4 .....	8
4.2.3	Alternative 3: Abatement of ACM, Removal of Former Septic Tank, Removal of Impacted Soils .....	8
4.3	Cleanup Alternative Evaluation .....	9
4.3.1	Effectiveness .....	9
4.3.2	Ability to Implement .....	10
4.3.3	Cost .....	11
4.4	Recommended Cleanup Alternative.....	11
<b>5</b>	<b>REFERENCES .....</b>	<b>1</b>
<b>LIST OF TABLES</b>		
	Table 1.1: Property Structures .....	1
<b>LIST OF FIGURES</b>		
Figure 1	Property Location	
Figure 2	Property Vicinity	
Figure 3	Summary of Analytical Results Exceeding Screening Levels, Building 1	
Figure 4	Summary of Analytical Results Exceeding Screening Levels, Building 4+	
<b>LIST OF APPENDICES</b>		
Appendix A	Alternative Cost Estimates	

# 1 Introduction

This Analysis of Brownfield Cleanup Alternatives (ABCA) was prepared by Stantec Consulting Services Inc. (Stantec) for three structures at the Cortez Municipal Airport: the Airport Terminal, Building 1, and Building 4 located in Cortez, Colorado (the “Property”), on behalf of the Colorado Department of Public Health and Environment (the “Client”). The purpose of the ABCA is to present alternatives and costs for the abatement or management of asbestos-containing materials (ACM), lead-based paint, and impacted soils and groundwater associated with forthcoming demolition and renovation activities at the Property.

## 1.1 Property Location and Description

The Property consists of three buildings within two parent parcels (portions of Montezuma County Parcel ID numbers 563708400010 and 563709200022) located on the Cortez Municipal Airport. The Airport Terminal is located at Airport Rd, Cortez, CO 81321, is approximately 4,000 square feet in size, and features an entrance foyer, reception area, security screening area, ticket counter, mechanical room, pilot lounge, restrooms and various storage rooms and offices. Building 1 is an approximately 9,250-square foot Fixed Based Operations (FBO) and Maintenance Hangar Building located at 22870 County Road F. Building 4 is an approximately 5,600-square foot former Hertz Rental Car Building located at 23378 County Road G approximately 0.75 miles northeast of Building 1. The buildings will be discussed in this report collectively as the Property, and the two parcels will be considered one parent parcel. The surrounding area consists of vacant land, agricultural and industrial properties, and the remainder of the airport. A Property Location Map is illustrated on **Figure 1**. A Property Vicinity Map illustrating the location of the three buildings is provided as **Figure 2**.

**Table 1.1: Property Structures**

<b>Structure Name</b>	<b>Current Structure Use</b>	<b>Structure Description</b>
Airport Terminal	Terminal/Airline Operations, Airport Security, Car Rental Services	4,000 square feet, single story, built in 1959, owned and operated by the City of Cortez, surrounded by pavement
Building 1	Fixed Base Operations and Maintenance Hangar	9,250 square feet, single story, built in 1959 used for maintenance of aircraft, contains a currently unused floor drain connected to an underground former septic tank just west of the outside of the building. Surrounding area is paved and used for parking.
Building 4	Vacant, unoccupied, storage	5,600 square feet, building in 1947, Former Hertz car rental building with a booth for washing and possibly re-painting rental cars. Surrounding area is unpaved with mixed vegetation (shrubs, grasses).

## **1.2 Background and Project Description**

Preliminary plans for the Cortez Municipal Airport associated with the Property have been envisioned to include demolition of Building 1 and 4, and renovations to the Airport Terminal Building. Building 1 and its adjacent buildings are planned for demolition in part due to their proximity to the airport operations area (AOA). New construction will be positioned further from the AOA to the northwest to comply with Federal Aviation Administration (FAA) guidelines. Building 4 is currently not serving a purpose and is old construction, thus planned for demolition. No new construction is planned in the vicinity of Building 4.

## **2 Previous Environmental Assessments**

The previous environmental assessments conducted at the Subject Property include a Phase I ESA (Stantec, 2024a), a Phase II ESA (Stantec, 2024d), and asbestos and lead-based paint inspections (Stantec, 2024b,c; All-Phase Environmental Consultants Inc. [APEC], 2024a-d). The purpose and findings of these ESAs and inspections are summarized below.

### **2.1 Phase I Environmental Site Assessment**

The 2024 Phase I ESA, which evaluated Buildings 1, 2, 3, and 4 at the Cortez Municipal Airport, identified several recognized environmental conditions (RECs) for Buildings 1 and 4. No RECs were identified for Buildings 2 and 3. The RECs identified are summarized below.

- Building 1 (FBO Building): A floor drain connected to an underground tank located to the west of the building beneath the parking lot associated with a historical septic system with suspected subsequent use during aircraft maintenance operations (i.e., potential release of petroleum products).
- Building 4 (Hertz Rental Car Building): (1) car wash rinse water (with oil and grease) appears to have drained off the concrete apron on the south side of the building and into adjacent soil, (2) a pipe that exits the building on the west side of building appears to discharge into the soil at this location, (3) one empty open topped 55 gallon drum and 4 empty open buckets on a pallet as well as directly on the ground south of the building, (4) emissions from a paint drying booth on the south side of the building likely exited this structure through exhaust vents and were deposited on adjacent soil, (5) stained soil from a former 55 gallon drum and a half full five gallon plastic tote containing petroleum were present on the east side of the building, and (6) three unlabeled rusted pole mounted transformers on the north side of the building.

Additionally, based on the age of the Property structures the presence of ACM and lead-based paints was identified as a business environmental risk (BER) at Buildings 1 and 4 (Buildings 2 and 3 appear to be constructed solely of metal). As such, asbestos and lead-based paint inspections were performed at the Airport Terminal and Buildings 1 and 4.

## **2.2 Draft Phase II Environmental Site Assessment**

The 2024 Phase II Environmental Site Assessment consisted of advancement of 10 boreholes for Building 1 (B1-SB01 to B1-SB10) and 17 boreholes for Building 4 (B4-SB01 to B4-SB17) for soil sampling and analysis consistent with findings and recommendations in the Phase I ESA (Stantec, 2024a; 2024d). Additionally, temporary monitoring wells were installed in Building 1 borings B1-SB08, -SB09, and -SB10 for the collection of groundwater samples in the vicinity of the former septic tank. Sampling results for soil and groundwater from the Phase II ESA were evaluated against screening criteria discussed in **Section 3.2** of this ABCA<sup>1</sup>. The Phase II ESA findings relevant to this ABCA are summarized below.

### Building 1:

- Total petroleum hydrocarbon (TPH) and one polycyclic aromatic hydrocarbon (PAH) (1-methylnaphthalene) were detected at concentrations above screening criteria in soils near the floor drain indicating probable release of petroleum products from the floor drain.
- TPH and one PAH (benzo(a)pyrene) were detected at concentrations above screening criteria in soils near the former septic tank just outside the building to the west. The location and depth of the detections indicated a release of petroleum products from the former septic tank extending downgradient to the northwest.
- Groundwater sampling results showed detections of TPH at concentrations consistent with what was present in soil and one VOC (1,2,4-trimethylbenzene) at a concentration slightly above the Regulation 41 groundwater water supply standard.

### Building 4:

- Only three of the 17 borehole locations had soil samples with concentrations above screening levels. One of these boreholes, B4-SB14, was collected outside of the property boundary and not anticipated to be encountered in the demolition activities and as such is not considered as part of this ABCA. Detections above screening levels at the other two boreholes included TPH to the west of the building (B4-SB03) and arsenic and lead near the southwest corner of the building (B4-SB06). The arsenic was just slightly above background (11.3 mg/kg compared to background at 11 mg/kg).

Results are shown spatially for Buildings 1 and 4 on **Figures 3** and **4**, respectively.

## **2.3 Asbestos Inspections**

Asbestos inspections were conducted in 2024 by All-Phase Environmental Consultants Inc. (APEC) for the Airport Terminal building, Building 1, and Building 4. The inspections and results are documented in asbestos inspection reports by Stantec and APEC (Stantec, 2024b; 2024c, APEC 2024d).

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<sup>1</sup> EPA Industrial Soil Regional Screening Levels (RSLs), CDPHE background for arsenic, and Colorado Department of Labor and Employment Division of Oil and Public Safety (OPS) Risk-Based Screening Levels (RBSLs) for TPH.

**Analysis of Brownfield Cleanup Alternatives**  
**2 Previous Environmental Assessments**

Asbestos-containing material (ACM), defined as materials containing more than 1 percent asbestos, was identified at each building within the Property; however, the estimated amounts are relatively small. Results are summarized by structure in **Table 2.1** below.

<b>Table 2.1: Asbestos Containing Materials (&gt;1%) and Locations</b>						
<b>Structure Name</b>	<b>Sample ID</b>	<b>Material Layer</b>	<b>Location of Material</b>	<b>Asbestos Content</b>	<b>Condition</b>	<b>Quantity</b>
<b>Building 1</b>	FBO-1-2A-Mastic	Window Glazing 2 Tan	Window, Office 1 (Storage), West Wall, Center	2% Chrysotile 1.9% Chrysotile Point Count	Good	270 LF
	FBO-1-2B-Mastic	Window Glazing 2 Tan	Window, Office 1 (Storage), West Wall, Center	2% Chrysotile 1.1% Chrysotile Point Count	Good	270 LF
	FBO-1-11A	TSI Tape Gray/White	Mechanical Room	60% Chrysotile	Good	20 LF
	FBO-1-11B	TSI Tape Gray/White	Mechanical Room	60% Chrysotile	Good	20 LF
	FBO-1-11C	TSI Tape Gray/White	Mechanical Room	50% Chrysotile	Good	20 LF
	FBO-1-17B-Mastic	12 X 12 VCT TILE - TAN Tan/Black	Restrooms, Both	4% Chrysotile	Good	32 SF
	FBO-1-18A	WINDOW CAULK Tan/Green	Window, Garage, West Wall, Center	2% Chrysotile 1.9% Chrysotile Point Count	Good	140 LF
	FBO-1-18B	WINDOW CAULK Tan/Green	Window, Garage, West Wall, North	2% Chrysotile 3% Chrysotile Point Count	Good	140 LF
<b>Building 4</b>	Hertz-4-17A	VCT	N/W Closet	2% chrysotile	Good	10 SF
	Hertz-4-17B	VCT	N/W Closet	2% chrysotile	Good	
	Hertz-4-21A	Tar	Addition Roof	3% chrysotile	Good	38 SF
	Hertz-4-21B	Tar	Addition Roof	4% chrysotile	Good	
	Hertz-4-29A	Flashing	Addition Roof	3% chrysotile	Good	45 SF
	Hertz-4-29B	Flashing	Addition Roof	4% chrysotile	Good	
<b>Airport Terminal</b>	AIRPORT-5-41A	Sealant Brown/Gray Non-Fibrous	TSA Office Window	5% chrysotile	Fair	9 LF
	AIRPORT-5-41Q	Sealant Brown/Gray Non-Fibrous	TSA Office Window	5% chrysotile	Fair	
	AIRPORT-5-41B	Sealant Brown/Red Non-Fibrous	TSA Office Window	3% chrysotile	Fair	
<b>ACM Quantity Totals</b>						<b>125 SF</b>
						<b>889 LF</b>

**Notes and Abbreviations:**

SF = Square Feet; LF = Linear Feet; VCT = Vinyl Composition Tile

## Analysis of Brownfield Cleanup Alternatives

### 3 Applicable Regulations and Cleanup Standards

Previously undiscovered asbestos may be present within wall cavities (e.g., asbestos in electrical wire wrapping, insulation materials, vapor barrier paper, etc.), and some underground utility piping has been known to contain asbestos (e.g., transite pipe). If discovered during abatement, renovation, or demolition suspect ACMs that are not identified within this report will be assumed positive for asbestos unless additional sampling, analysis, and/or assessment indicates otherwise.

#### 2.4 Lead-Based Paint Inspections

Lead-based paint inspections were conducted in 2024 by APEC for the Airport Terminal building, Building 1, and Building 4. The inspections and results are documented in reports by APEC (APEC 2024a-c). Lead-based paint, defined by CDPHE as materials containing more than 0.5% by weight, was only identified in one of the paints sampled and it was at Building 4 from the orange exterior paint at 1.1% by weight. All other samples were well below the 0.5% threshold criteria.

For this ABCA, no specific additional action is included for the lead-based paint since dust suppression measures will already be in place as part of the demolition. Additionally, this ABCA assumes that all waste materials associated with the buildings, including those potentially contaminated with lead-based paint, will meet the Toxicity Characteristic Leaching Procedure (TCLP) thresholds for disposal at a non-hazardous landfill. Should TCLP testing indicate that any materials exceed regulatory limits for hazardous waste, additional handling, transportation, and disposal costs for hazardous waste may be incurred, which are not covered under the cost estimates presented for the alternatives herein.

## 3 Applicable Regulations and Cleanup Standards

### 3.1 Potential Receptors and Exposure Pathways

Based on the findings of the Phase II ESA for the Property, there are contaminants of potential concern (COPCs) in soil beneath the floor drain and near the former septic tank associated with Building 1 and some spot detections of TPH and lead in soils outside of Building 4. Groundwater sampled near the former septic tank associated with Building 1 contained one exceedance of 1,2,4-trimethylbenzene, a VOC, and the presence of TPH (see **Section 2.2** and **Figures 3** and **4**). ACM was also detected in materials sampled from Buildings 1 and 4 and the Airport Terminal as summarized in **Section 2.3**.

Considering the current and future planned use of the Property is limited to industrial uses, site workers and construction/remediation workers are considered the potential human receptors. Exposure to COPCs in soils by construction/remediation workers could occur during remediation, demolition, and construction activities through inhalation, ingestion, and/or dermal contact. The former septic tank and petroleum hydrocarbons, benzo(a)pyrene, and 1,2,4-trimethylbenzene present in the soils and/or groundwater in the vicinity of the tank and floor drain are potential sources for vapor intrusion to indoor air. Future plans include construction of buildings proximal to the former septic tank and the associated soil and groundwater impacts. Preliminary screening of the soil and groundwater concentrations using EPA online Vapor Intrusion Screening Level (VISL) calculator suggests a potential for vapor intrusion associated with

## **Analysis of Brownfield Cleanup Alternatives**

### **3 Applicable Regulations and Cleanup Standards**

the TPH; however, the data is insufficient to determine if this pathway is complete since VISLs are specific to speciated TPH (aliphatic and aromatic) and results are for total TPH.

## **3.2 Applicable Laws, Regulations, and Cleanup Standards**

### **3.2.1 ASBESTOS**

Asbestos is regulated by the United States Environmental Protection Agency (EPA) National Emission Standard for Hazardous Air Pollutants (NESHAP), the Toxic Substances Control Act (TSCA), and the Clean Air Act (CAA).

The Air Quality Control Commission's Regulation 8, Part B governs asbestos abatement in Colorado. The Solid and Hazardous Waste Commission's Regulations Pertaining to Solid Waste Disposal Sites and Facilities, 6 CCR 1007-2 Part 1, Section 5, governs the disposal of asbestos waste and the management of asbestos contaminated soil in Colorado.

Pursuant to the US Occupational Safety and Health Administration, Asbestos in Construction Standard (29 CFR 1926.1101), an ACM is any material containing greater than 1% asbestos. Potential asbestos exposure in construction is regulated when construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof contain asbestos. The CDPHE also defines an ACM as any material containing greater than 1% asbestos. ACMs are regulated under CDPHE's Regulation No. 8, which provides requirements for training/certification, notification, and ACM-related operations designed to protect Colorado citizens from exposure to asbestos and to protect against adverse health and environmental effects associated with releases of asbestos from ACM.

### **3.2.2 LEAD-BASED PAINT**

The United States Department of Housing and Urban Development (HUD) promulgates the rules for evaluating and controlling lead-based paint hazards commonly referred to as Title X (ten). Although HUD Title X specifically focuses on residential housing and child-occupied facilities, the evaluation framework promulgated by HUD for lead paint evaluation is the generally accepted guideline for performing paint surveys/inspections. Similar to HUD Title X, Colorado maintains state-specific lead regulations applicable to housing constructed prior to 1978 and child-occupied facilities. Lead-based paint management and disposal must be conducted by state-certified firms and individuals. State requirements include training, certification, accreditation and work practice standards. These requirements are found in Colorado Air Quality Control Regulation No. 19 and the Colorado Revised Statute 25-7-1101.

Further, to protect construction workers, lead-related work must be performed in accordance with US OSHA lead regulations as promulgated in Title 29 of the Code of Federal Regulations (29 CFR), Sections 1910.1025 and 1926.62.

## Analysis of Brownfield Cleanup Alternatives

### 4 Evaluation of Cleanup Alternatives

#### 3.2.3 ENVIRONMENTAL MEDIA

The soil analytical data were screened against EPA Industrial<sup>2</sup> Soil Regional Screening Levels (RSLs) (EPA 2023), and Colorado Department of Labor and Employment Division of Oil and Public Safety (OPS) Risk-Based Screening Levels (RBSLs). In addition, arsenic soil concentrations are compared against the Region 8 EPA average background concentration of all land uses (11 milligrams per kilogram [mg/kg]) (CDPHE, 2014). Though the screening criteria of 11 mg/kg does not constitute an enforceable standard, CDPHE suggests it be used to evaluate potentially impacted soils (CDPHE 2014).

Groundwater analytical data were screened against levels set forth in Regulation Number 41 (5 CCR 1002-41, CDPHE, 2016).

## 4 Evaluation of Cleanup Alternatives

### 4.1 Remedial Action Objectives

The remedial action objectives for the Property are:

- Prevent ACM present at Building 1, Building 4, and the Terminal from causing unacceptable risk to human health during demolition, construction, and renovation activities.
- Prevent direct contact between human receptors and soil and groundwater and containing COPCs at concentrations above industrial risk-based concentrations during remediation, demolition, and construction activities; and
- Prevent exposure associated with existing sources of COPCs (i.e., the former septic tank at Building 1) to soil and groundwater such that future buildings in the vicinity are not at risk of potential vapor intrusion concerns.

### 4.2 Cleanup Alternatives Considered

Three alternatives were considered:

- Alternative 1: No Action
- Alternative 2: Abatement of ACM, Decommission Former Septic Tank, Capping of Soils at Building 1, Spot Removal of Soils at Building 4
- Alternative 3: Abatement of ACM, Removal of Former Septic Tank, Removal of Soils

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<sup>2</sup> Residential screening levels were included in data screening as part of the Phase II ESA for completeness; however, the buildings within the Property being considered in this ABCA are not being used or planned for residential purposes, thus the industrial screening levels are the appropriate basis of comparison.

## **Analysis of Brownfield Cleanup Alternatives**

### **4 Evaluation of Cleanup Alternatives**

The three alternatives are described below. These options cover the full spectrum of possible cleanup alternatives.

#### **4.2.1 ALTERNATIVE 1: NO ACTION**

Alternative 1 is the baseline alternative where no action is taken to which all other alternatives are compared. Under this alternative, all ACM and impacted soils would remain in place. No abatement of ACM or lead-based paint would occur as part of demolition and renovation efforts, the former septic tank would remain in place and no actions would be taken to mitigate or remedy impacted soils and groundwater.

#### **4.2.2 ALTERNATIVE 2: ABATEMENT OF ACM, DECOMMISSION FORMER SEPTIC TANK, CAPPING OF SOILS AT BUILDING 1, SPOT REMOVAL OF SOILS AT BUILDING 4**

Alternative 2 includes abatement of all ACM prior to demolition and renovation activities, spot removal for soil impacts near Building 4, and use of capping with engineering and institutional controls to prevent exposure to impacted soils and COPCs associated with the floor drain and the former septic tank at Building 1. Under this alternative, all ACM would be removed and there would be no on-going management requirements for ACM. Surface soil impacts at Building 4 would be excavated and disposed of as appropriate. Approximately 30 cubic yards of soil is estimated for excavation at Building 4 (see **Appendix A**). The former septic tank would be decommissioned in place by pumping remaining material out, filling the tank with an inert substance such as sand or gravel, and closing off/capping any inlets. The surface above the decommissioned septic tank and associated soil impacts would remain paved over as a cap and institutional controls would be in place to ensure new construction would not occur on top of the former septic tank area. This is consistent with the preliminary master plan for the Cortez Municipal Airport since no buildings are planned for this area. Engineering controls such as bollards and signage would be placed to prevent parking of equipment or vehicles on top of the decommissioned tank infrastructure. Any voids associated with the floor drain would be backfilled with clean soil and capped with pavement. Since impacted soils near Building 4 are currently exposed (i.e., not paved over such as soil impacts near Building 1) spot removal of surface soils near Building 4 to address the elevated lead and TPH.

New construction of buildings in the vicinity of Building 1 and the former septic tank should be constructed with competent sub-slab to address the potential vapor intrusion associated with the petroleum hydrocarbon impacts left in place.

#### **4.2.3 ALTERNATIVE 3: ABATEMENT OF ACM, REMOVAL OF FORMER SEPTIC TANK, REMOVAL OF IMPACTED SOILS**

Alternative 3 is similar to Alternative 2 in that it includes abatement of all ACM prior to demolition and renovation activities and removal of soil impacts at Building 4 through excavation and disposal (30 cubic yards of soil). It differs from Alternative 2 in that it considers removal of the former septic tank along with excavation and disposal of impacted soils associated with the Building 1 former septic tank system.

## **Analysis of Brownfield Cleanup Alternatives**

### **4 Evaluation of Cleanup Alternatives**

Approximately 420 cubic yards of soil is estimated for the excavation of impacts at Building 1 for this alternative (see Appendix A).

### **4.3 Cleanup Alternative Evaluation**

To satisfy EPA requirements, three characteristics of each alternative -- effectiveness, implementability, and cost -- must be considered prior to selecting a recommended cleanup alternative. These characteristics are considered for each alternative in the following sections.

#### **4.3.1 EFFECTIVENESS**

Effectiveness is evaluated by overall protection of human health, compliance with applicable laws, regulations, and cleanup standards, short-term effectiveness (during the remedial construction and implementation), and long-term effectiveness and permanence (following remedial construction). More specifically, it is an evaluation of an alternative's ability to meet the remedial action objectives set forth in **Section 4.1**.

##### **4.3.1.1 Alternative 1**

The No Action Alternative is considered to have low effectiveness. Under this alternative the remedial action objectives would not be met, and the City of Cortez would be unable to move forward with their redevelopment plan for the airport in a manner that would be protective of human health or in compliance with the applicable regulations.

##### **4.3.1.2 Alternative 2**

Alternative 2 would use abatement to remove all identified ACM at Building 1, Building 4, and the Airport Terminal prior to demolition and renovation activities. With the removal of ACM, risk to human health associated with exposure to asbestos would be mitigated. Decommissioning the former septic tank through removal of remaining contents, backfilling with sand or gravel, is an effective way to mitigate potential sources of COPCs to soil and groundwater. Capping (paving over decommissioned septic tank and maintaining existing pavement) is an effective way to prevent site and construction workers from coming into direct contact with contaminated soils if the cap is maintained. If removal of the pavement and re-grading of this area is needed during construction of new buildings, workers could be exposed to contaminated soils left in place by this alternative. Additionally, the potential for vapor intrusion is not mitigated through capping and new construction would need to consider this potential either in the planning phase through sampling to confirm or deny this risk or address through engineering controls such as installation of sub-slab depressurization system in new buildings.

##### **4.3.1.3 Alternative 3**

Alternative 3 is equivalent in its effectiveness in mitigating risks associated with ACM and soil impacts near Building 4. Removal of the former septic tank is an effective way to mitigate potential sources of COPCs to soil and groundwater. Additionally, removal of the tank and surrounding impacted soils is an effective way to eliminate exposure risks to construction and site workers since contamination will be

## **Analysis of Brownfield Cleanup Alternatives**

### **4 Evaluation of Cleanup Alternatives**

removed and the exposure pathways will no longer exist. New construction may be less limited since construction of new buildings could occur in this area and there would be less potential for vapor intrusion. Although the vapor intrusion potential is less under this alternative, groundwater TPH impacts associated with the former septic tank would remain, so it is still advisable for new construction to consider this potential (e.g., vapor sampling to confirm/deny risk and/or engineering controls).

#### **4.3.2 ABILITY TO IMPLEMENT**

An assessment of implementability is intended to evaluate whether, or with how much difficulty, the cleanup alternative can be implemented and whether the alternative's continued effectiveness can be assessed and verified.

##### **4.3.2.1 Alternative 1**

The No Action alternative is technically and administratively feasible to implement since no actions will be conducted.

##### **4.3.2.2 Alternative 2**

The work associated with asbestos abatement, septic tank decommissioning, and spot removal of soils is feasible to implement. Materials, equipment, and labor resources used for implementation of the alternative would be relatively easy to obtain. Cortez, Colorado is moderately remote and therefore, labor and equipment may need to be sourced from elsewhere. The soil remedial action at Building 4 would require the preparation of a soil management plan and the mobilization of equipment and labor to manage excavated soils for offsite disposal and to import clean backfill. Septic tank decommissioning is relatively easy to implement, and materials and resources are anticipated to be available. Capping is relatively easy to implement especially since the majority of the area is already paved or planned for paving after building demolition. Implementation of a cap for the purposes of this ABCA is limited to paving over the area of the former septic tank once decommissioned. However, ongoing monitoring and maintenance of the pavement in this area is required to maintain effectiveness. Additionally, this alternative requires consideration for vapor intrusion into newly constructed buildings since soil impacts surrounding the floor drain and former septic tank will be left in place.

##### **4.3.2.3 Alternative 3**

The work associated with asbestos abatement, septic tank removal, and excavation and offsite disposal of soils is feasible to implement. Excavation with offsite disposal is moderately difficult to implement as compared to Alternative 2 given the increase in volume of soil. It will require a more robust soil management plan and site controls (dust suppression, worker protection) to manage excavated soils. In contrast to Alternative 2, Alternative 3 would not require ongoing maintenance of a pavement cap and would likely require less actions associated with vapor intrusion potential for new construction.

## Analysis of Brownfield Cleanup Alternatives

### 4 Evaluation of Cleanup Alternatives

#### 4.3.3 COST

##### 4.3.3.1 Alternative 1

Alternative 1 does not include any actions and as such, there is no associated cost estimated for it.

##### 4.3.3.2 Alternative 2

The rough order of magnitude (ROM) cost estimate for Alternative 2 is \$227,000 (\$163,440 Total ACM Cost; \$63,560 Non ACM Cost) based on the estimate provided in **Appendix A**. This estimate includes abatement of ACM and cost elements associated with the decommissioning of the former septic tank in place and spot removal of exposed soils near Building 4. Alternative 2 is more expensive than the No Action alternative, but lower than Alternative 3.

##### 4.3.3.3 Alternative 3

The ROM cost estimate for Alternative 3 is \$433,000 (\$163,440 Total ACM Cost; \$269,560 Non ACM Cost), based on the estimate provided in Appendix A. Alternative 3 costs represent a 2-fold increase in cost as compared to Alternative 2 and represents the alternative with the highest cost. The increase in cost is due to the removal of the former septic tank and impacted soils associated with Building 1.

## 4.4 Recommended Cleanup Alternative

The recommended cleanup alternative is Alternative 3 - Abatement of ACM, Removal of Former Septic Tank, Removal of Impacted Soils. This alternative would effectively provide the Property owner with a reliable alternative that could be completed in a reasonable timeframe. This alternative would also provide the most flexibility relative to new construction options.

## 5 References

- All-Phase Environmental Consultants Inc. (APEC), 2024a. Limited Lead-Based Paint Inspection, Cortez Municipal Airport, FBO Building. August 30
- APEC, 2024b. Limited Lead-Based Paint Inspection, Cortez Municipal Airport, Hertz Building. August 30
- APEC, 2024c. Limited Lead-Based Paint Inspection, Cortez Municipal Airport, Terminal Building. August 30
- APEC, 2024d. Asbestos Inspection Report for Demolition at 23378 CR G, Cortez, CO 81321. September 5.
- CDPHE, 2014. Arsenic Concentrations in Soil, Risk Management Guidance for Evaluating. July.
- CDPHE, 2016. Regulation No. 41 – The Basic Standards for Ground Water. 5 CCR 1002-41. December
- Stantec, 2024a. Phase I Environmental Site Assessment Cortez Airport – Buildings 1, 2, 3, and 4 22870 County Road F and 23378 County Road G, Cortez, Colorado. April 27.
- Stantec, 2024b. Draft Asbestos Inspection for Demolition, Cortez Airport Terminal Building 22870 County Road F Cortez, Colorado 81321. September 13.
- Stantec, 2024c. Draft Limited Asbestos Inspection, Cortez Airport Fixed Base Operations (FBO) Building, 22870 County Road F Cortez, Colorado 81321. September 13.
- Stantec, 2024d. Draft Phase II Environmental Site Assessment Cortez Airport – Buildings 1 and 4, 22870 County Road F and 23378 County Road G, Cortez, Colorado. September 14.

