

# DRAFT Analysis of Brownfields Cleanup Alternatives

Former Fort Ord Military Barracks at Cypress Knolls

*prepared on behalf of*

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Figure 1 Site Map



# 1 Introduction

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This Analysis of Brownfields Cleanup Alternatives (ABCA) has been prepared on behalf of the City of Marina for the former military housing associated with Fort Ord located at 608 3<sup>rd</sup> Street in Marina, California (Site; Figure 1). This ABCA has been prepared in pursuit of a United States Environmental Protection Agency (EPA) Brownfields Cleanup Grant to identify and evaluate cleanup alternatives to mitigate potential risks to human health and/or the environment resulting from hazardous building materials (HBMs) including lead-based paint (LBP), asbestos-containing building materials (ACM) and caulk containing polychlorinated biphenyls (PCBs).

The Site is located in the Cypress Knolls area of the City of Marina. Following the decommissioning of the Fort Ord military base in 1994, the Site has been unimproved, unused, and has fallen into a state of disrepair. The Cypress Knolls area includes 220 decaying army housing barracks, and the Site is a subset of the Cypress Knolls area consisting of 64 individual barracks. A map depicting the approximate Site boundary is included in Figure 1. The City of Marina intends to redevelop the Site and the greater Cypress Knolls area as “missing middle” housing, which is greatly needed in the community.

Hazardous building material surveys were completed in 2018 and 2019 at Cypress Knolls for two barracks, and confirmed the presence of LBP in both the interior and exterior of the barracks and asbestos in a variety of building materials (M3 2019). In addition, a Targeted Brownfield Assessment (TBA) was conducted in 2024, which included HBM surveys at the 64 barracks at the Site, and soil sampling from driplines to determine if soil is impacted by LBP (Toeroek and Tetra Tech 2024). The TBA confirmed the presence of LBP, ACM, and PCBs in all units evaluated, and soil was found to contain lead in exceedance of residential screening levels approximately 10-percent of the 64 buildings evaluated. Final analytical results are pending and results will be discussed in greater detail in the Final ABCA.

Based on the presence of HBMs and impacts to soil and because the structures at the Site are beyond repair, hazardous material abatement and demolition of the barracks is required prior to redevelopment to mitigate the risk of exposure to future building occupants and any construction workers involved in the demolition or redevelopment activities. In addition, limited soil remediation will be required for a future residential land use scenario. This ABCA describes the cleanup alternatives evaluated to support redevelopment of the Site to meet community housing needs.

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## 2 Background

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### 2.1 Site Description

The Site consists of approximately 44 acres of land in the Cypress Knolls area in Marina, California (Figure 1). The Site consists of assessor's parcel number (APN) 031-201-005 and is home to the former barracks of the decommissioned Fort Ord military base. The Site is surrounded by residential housing to the north, east, and south, and by commercial properties and vacant land to the west.

### 2.2 Site History

Prior to development for use associated with the Fort Ord military base, the Site was most likely used for farmland or grazing (City of Marina 2024) or was undeveloped. Development of the Site in the 1960s included the construction of 64 units used as army barracks to support Fort Ord military personnel and their families. The existing structures onsite have not been used since the Fort Ord military base was decommissioned in 1994. The City of Marina acquired the Site as part of the Fort Ord military base closure process in 1995.

### 2.3 Environmental Assessments and Cleanup

An HBM survey was completed in 2018 and 2019 by M3 Environmental Consulting (M3) for three similarly constructed barracks within Cypress Knolls. M3 found HBM in the exterior and interior of all three assessed barracks.

In addition, a TBA was conducted in 2024, which involved soil sampling around the driplines of the barracks to determine if soil is impacted by the release of LBP to the environment from the decayed barracks. The TBA also included HBM surveys at all 64 barracks, which confirmed the presence of LBP, ACM, and PCBs in all units evaluated, and soil was found to contain lead in exceedance of residential screening levels approximately 10-percent of the 64 buildings evaluated. (Toeroek and Tetra Tech 2024).

## 3 Contaminants and Exposure Routes

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The previous assessments completed at the Site have identified the following contaminants and exposure routes.

### 3.1 Asbestos-Containing Building Materials

During the TBA conducted in 2024, 100 samples were collected by California Certified Asbestos Consultants from each of the 64 barracks at the Site and analyzed for asbestos using EPA method 600/R-93/116. Materials sampled included pipe wrap, flooring materials, ceiling tiles, wall systems, and other materials. The asbestos inspections identified the presence of numerous ACMs, including but not limited to:

- Caulk;
- Compound;
- Fibrous material;
- Floor tile;
- Joint compound;
- Mastic;
- Mortar;
- Paint;
- Roof flashing, roofing mastic, and roofing material;
- Stucco;
- Texture;
- Transite; and
- Wrap.

ACM presents a risk to human health through inhalation of asbestos fibers during demolition, construction, or occupancy of the existing structures.

### 3.2 Lead-Based Paint

During the TBA conducted in 2024, paint-covered surfaces at each of the 64 barracks were screened by a California Department of Public Health Certified Lead Related Construction Inspector/Risk Assessor for lead by use of an X-ray fluorescence (XRF) analyzer. Paint chip samples were collected and submitted to a laboratory only if the associated XRF result were within the inconclusive range of the instrument. Paint chip samples were analyzed for lead via EPA Method 7000B.

Additionally, Incremental Sampling Methodology (ISM) surface soil samples were collected at depths of 0 to 3 inches below ground surface within drip lines around the perimeter of each of the 64 barracks during this assessment. Samples were collected from within 5 feet of each side of each barrack for a total of 75 increments collected per drip line. The samples were analyzed for lead via EPA Method 6010.

LBP sample results are pending and will be discussed in the Final ABCA.

LBP presents a risk to human health through ingestion and inhalation of lead during demolition, construction, or occupancy of the existing structures. Additionally, LBP may negatively impact the

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environment around the structures as the painted surfaces degrade and paint chips and dust contaminate the surrounding soils.

### 3.3 Polychlorinated Biphenyls

During the TBA conducted in 2024, each of the 64 barracks were inspected for caulk that may contain PCBs. Because PCBs were used to impart flexibility to some caulk products from the 1950s to about 1978, caulk samples were selected for PCB analysis based on the apparent age of the caulk. Suspected PCB-containing caulk samples were analyzed via EPA Method 8082.

PCB sample results are pending and will be discussed in the Final ABCA.

PCBs in caulk present a risk to human health through ingestion and inhalation during demolition, construction, or occupancy of the existing structures. Additionally, PCBs in caulk may negatively impact the environment around the structures as the material degrades and contaminates the surrounding soils.



## 4 Cleanup Objectives

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The City of Marina intends to redevelop the Site to provide “missing middle” housing for the community. Cleanup of HBMs identified at the Site is required for redevelopment. The objective of the cleanup is to protect human health and the environment at the Site during demolition, construction, and future residential use.

Cleanup and redevelopment of the Site will be conducted in accordance with the applicable EPA and state regulations. The California Department of Toxic Substances Control (DTSC) will provide oversight of soil remediation activities at the Site.

The numerical criteria used to define LBP at the Site was a concentration of 0.5 percent lead by weight (%wt) for paint chips and 5,000 parts per million (ppm) for bulk samples. Any materials with a reported concentration of asbestos were considered ACM.

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## 5 Evaluation of Cleanup Alternatives

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Three cleanup alternatives were considered to address HBMs present at the Site.

### 5.1 Cleanup Alternatives

#### 5.1.1 Alternative 1 – No Action

Alternative 1 is to take no action. In this alternative, no cleanup or remediation would occur at the Site for HBMs and the existing structures would remain onsite and continue to deteriorate.

The advantages of this alternative are:

- No immediate cost

The disadvantages of this alternative are:

- Contamination (i.e., ACM, LBP, and PCB-containing caulk) remains in place;
- The Site cannot be redeveloped, resulting in the loss of additional housing for the City of Marina;
- The Site would continue to require a locked gate to deter trespassing; and
- The HBMs at the Site remains a potential risk to human health for those at adjacent properties

#### 5.1.2 Alternative 2 – Encapsulation

Alternative 2 would encapsulate and manage HBMs in-place. This alternative requires that the HBM are in good condition.

The advantages of this alternative are:

- Reduces risk to human health and the environment from HBM release

The disadvantages of this alternative are:

- High immediate cost;
- Moderate long-term costs associated with continued management to prevent deterioration of the encapsulation;
- HBMs are not in good condition at many of the barracks at the Site and therefore this alternative would not apply to the entire Site;
- Contamination (i.e., ACM, LBP, and PCB-containing caulk) remains in place;
- The Site cannot be redeveloped, resulting in the loss of additional housing for the City of Marina; and
- The Site would continue to require a locked gate to deter trespassing

#### 5.1.3 Alternative 3 – Abatement

Alternative 3 would abate HBMs in the Site buildings.

The advantages of this alternative are:

- Complete removal of HBMs (i.e., ACM, LBP, and PCB-containing caulk);
- Allows for demolition and redevelopment of the Site into “missing middle” housing for the City of Marina; and
- Eliminates risk to human health and the environment from the release of HBMs

The disadvantages of this alternative are:

- High immediate cost

## 5.2 Comparison of Alternatives

### 5.2.1 Effectiveness

#### **Alternative 1: No Action**

The No Action alternative is not effective to prevent the release of HBMs (i.e., ACM, LBP, and PCBs ) to the environment, or to prevent exposure to nearby receptors. Furthermore, the No Action alternative would facilitate continued deterioration of the barracks, increasing the potential risk to human health and the environment.

#### **Alternative 2: Encapsulation**

The Encapsulation alternative is effective, but only for HBMs that are in good condition. The barracks at the Site are in various states of disrepair, including exposed and deteriorating ACM, LBP, and PCB-containing caulk. The barracks cannot be repaired or renovated cost effectively to meet the housing needs of the community. Therefore, the Encapsulation alternative is not effective to protect against risks to human health and the environment from HBMs.

#### **Alternative 3: Abatement**

This alternative is very effective regardless of the deteriorated condition of the HBMs present in the structures at the Site. Abatement would completely remove HBMs prior to demolition and redevelopment. This is the most effective method of addressing the HBMs at the Site.

### 5.2.2 Implementability

#### **Alternative 1: No Action**

Implementing this alternative takes no effort on the part of the City of Marina. However, the Site cannot be redeveloped without abating HBMs and demolishing the structures currently onsite.

#### **Alternative 2: Encapsulation**

This alternative could not be implemented for all onsite structures because the HBMs are generally in poor condition. To mitigate potential risks to human health and the environment, most of the onsite structures require demolition and removal.

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### **Alternative 3: Abatement**

Abatement is a widely used method for HBMs and would follow National Emission Standards for Hazardous Air Pollution (NESHAP) and the Monterey Bay Air Resources District (MBARD) requirements. The buildings are intended to be demolished to support redevelopment of the Site, making abatement of HBMs easily implemented in conjunction with construction activities.

#### **5.2.3 Cost**

### **Alternative 1: No Action**

There would be no immediate cost for the No Action alternative; however, there would be long-term maintenance costs associated with the No Action alternative. The structures in their current condition pose a risk to human health and the environment from the deterioration of HBMs. For the City of Marina to maintain CERCLA liability protection under the Brownfields Act, they must exercise the appropriate care in stopping the release of hazardous substances, prevent future releases, and prevent exposure to humans and the environment.

### **Alternative 2: Encapsulation**

While the cost of encapsulation is not unreasonable, this alternative is not feasible for the structures currently present onsite due to the deteriorated condition of the HBMs. Therefore, regardless of cost, this alternative would not be suited for implementation at the Site.

### **Alternative 3: Abatement**

The cost to abate the HBMs is projected to 2.6 million dollars.

## 6 Recommendation

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Based on the analysis of alternatives in Section 5, the recommended cleanup alternative for the HBMs present at the Site is Alternative 3 – Abatement. Abatement is the only effective option for removing the HBMS prior to demolition and redevelopment of the Site. Additionally, Alternative 3 meets the City of Marina’s goals of removing the potential of exposure to citizens in adjacent properties and redeveloping the Site into “missing middle” housing.

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## 7 References

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M3 Environmental Consulting, LLC (M3). 2019. Asbestos and Lead Paint Inspections Prior to Demolition of Three Duplexes Located at Cypress Knolls, in Marina, California. January 17.

Toeroek Associates, Inc. (Toeroek) and Tetra Tech, Inc. (Tetra Tech). 2024. Draft Sampling and Analysis Plan and Quality Assurance Project Plan Addendum Targeted Brownfields Assessment at Marina-Cypress Knolls. U.S. EPA Region 9, Resources Conservation and Recovery Act (RCRA) Enforcement, Permitting, and Assistance (REPA) Contract No. 68HERH19D0018, Task Order No. 68HE0922F0038. June 27.

## Figures

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Figure 1 Site Map



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Fig 1 Vicinity Map