Laboratory for Energy-Related Health Research (LEHR) Superfund Site

U.S. Environmental Protection Agency • Region 9 • San Francisco, CA • January 2015

Proposed Plan Summary and Public Meeting Announcement for the UC, Davis Areas, Volume 1:

Soil/Solid Waste and Soil Vapor at the Laboratory for Energy-Related Health Research/Old Campus Landfill Superfund Site

The United States Environmental Protection Agency (US EPA) is requesting public comment on its preferred cleanup alternative (Preferred Alternative) for the Laboratory for Energy-related Health Research/Old Campus Landfill Superfund Site (LEHR/OCL Site) (see Figure 1). The Preferred Alternative, Alternative Solid Waste 6 (SW-6), is intended to address areas with soil, solid waste, and soil vapor contamination that may present unacceptable risks to human health and the environment. This fact sheet summarizes the history, extent of contamination, risks, cleanup options being considered by EPA and how the public can submit comments on the proposed cleanup approach. For more detailed information and to learn more, go to **www.epa.gov/region09/Lehr-OldCampus** to review the full Proposed Plan Report and Feasibility Study Report.

Figure 1: LEHR/OCL Site Location in Davis, CA

Proposed Plan Public Meeting

February 10, 2015 · 6:00pm – 8:30pm

Hoagland Hall – Room 130, UC Davis Main Campus

(see directions on page 6)

The US EPA will present the plan, answer clarification questions and record verbal comments. The public comment period is from January 28, 2015 and ends February 26, 2015. See page 6 for more information.

Site Background

The LEHR/OCL Site covers approximately 25 acres. It contains laboratory buildings and undeveloped land owned and maintained by the University of California Davis (UC Davis). UC Davis operated three landfill units (LFU-1, LFU-2, and LFU-3) that received municipal-type waste from the main campus between the early 1940s through 1967 (see Figure 2). The Waste Burial Holes and Eastern Trenches areas received chemical, laboratory, and radioactive wastes from the UC Davis campus until 1974 and 1965, respectively. The Southern Trenches area received minor amounts of experimental wastes from the UC Davis laboratories from 1957 to 1965. Between 1968 and 1970, the Eastern Dog Pens were constructed on top of the southern portion of LFU-2. These dog pens were used to house research beagles until 1988 when research ceased.

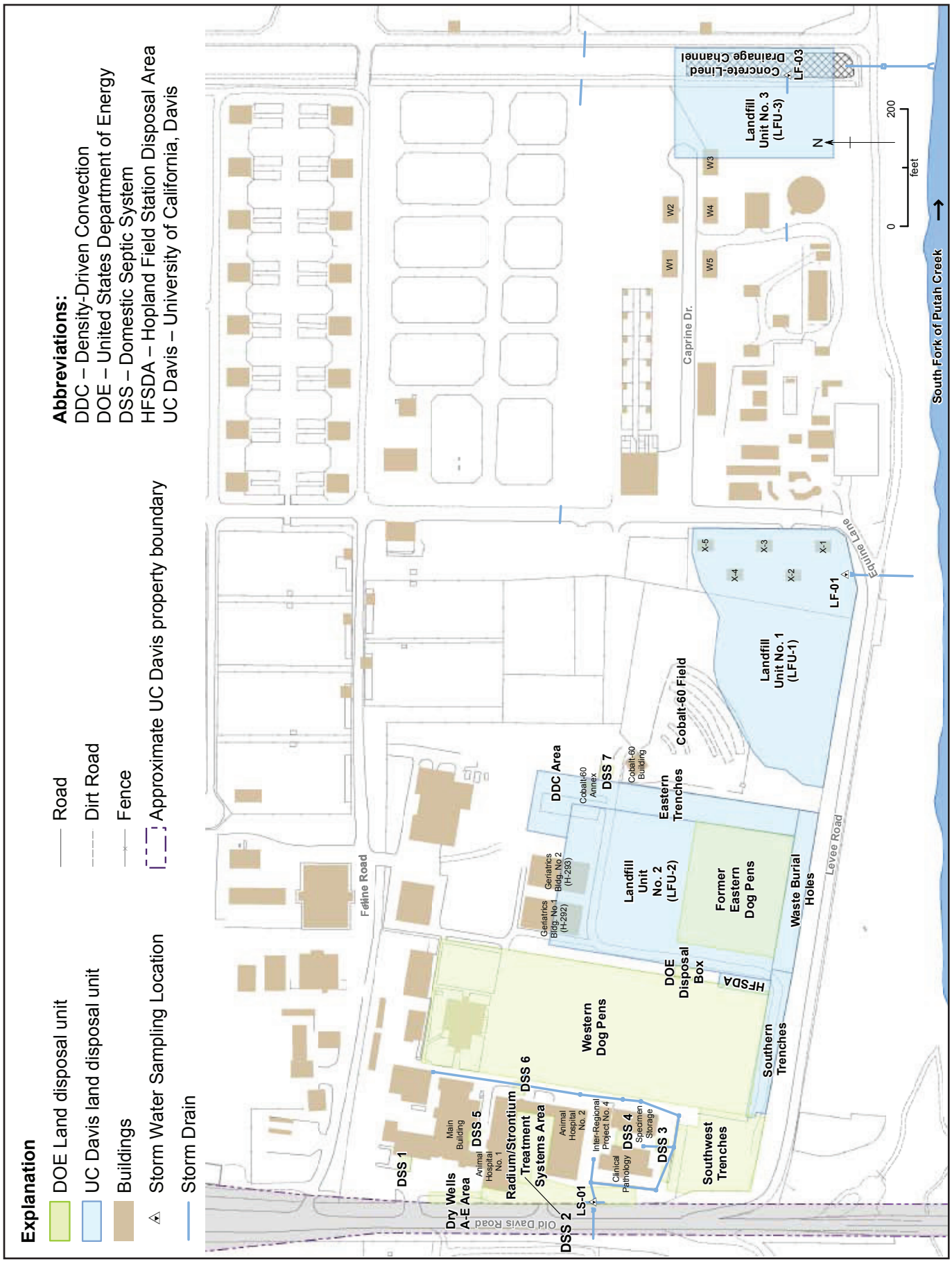

Figure 2: LEHR/OCL Site Features

Site Risks

"Risk" is the likelihood or probability that a hazardous chemical, when released to the environment, will cause effects (such as cancer or other illnesses) to exposed humans or wildlife. UC Davis evaluated the risk to humans and wildlife from exposure to impacted soil, solid waste, and soil vapor contamination at this site. Results from the evaluation indicated there may be some risk if people are directly exposed to contaminants, such as metals or volatile organic compounds (VOCs) in soil. As a result, it was determined that the contamination needs to be addressed.

The Remedial Action Objectives (RAOs) describe what the proposed site cleanup is expected to accomplish. They were developed to assist in identifying and assessing remedial alternatives that would address risks at the LEHR/OCL Site. The RAOs are:

- To prevent human contact with contamination in soil, solid waste, and soil vapor that may pose excess cumulative cancer risk. The risk range is one excess lifetime cancer risk to an individual, 1 in 10,000 to 1 in 1,000,000.
- To prevent human contact with contamination in soil, solid waste, and soil vapor that may pose a non-cancer health hazard.
- To prevent potential future impacts to groundwater from landfill waste and affected soil or soil vapor, which may leach, contaminate groundwater and cause exceedances of the Maximum Contaminant Levels (the highest level of a contaminant that is allowed in drinking water).
- To minimize threats to the environment by limiting wildlife exposure, including, but not limited to, species protected under the state and federal Endangered Species Acts.
- To prevent contact of surface water or storm water with landfill waste or impacted soil.

Site-specific preliminary cleanup goals for soil to attain RAOs are developed for the protection of human health and groundwater resources. Exposure to chemical concentrations exceeding the preliminary cleanup goals poses an unacceptable risk that would be addressed by the remedial actions. Site-specific preliminary cleanup goals for soil will be finalized in the Record of Decision (ROD).

Cleanup Alternatives

The US EPA used its evaluation criteria, found in Figure 3, to evaluate the 10 remedial alternatives considered for this cleanup action (see Table 1). The remedial alternatives ranged from "No Action" to complete removal of soil and waste from the LEHR/OCL Site. US EPA is required to evaluate a "No Action" alternative which leaves contaminated material at the LEHR/OCL Site in its current condition and assumes no further intervention would occur and is not protective of human health and the environment. Six of the alternatives meet the US EPA two threshold requirements: protection of human

Figure 3: US EPA Evaluation Criteria

health and the environment, and meeting all applicable and relevant or appropriate regulatory requirements (ARARs) to address the soil, solid waste and soil vapor contamination at the LEHR/OCL Site.

Nine of the 10 remedial alternatives evaluated incorporate institutional controls and groundwater monitoring. Institutional controls (e.g., deed restrictions, covenants, easements, laws, or regulations administered by the state) would be implemented to limit human exposure to contaminated soil, solid waste, or groundwater until the approved cleanup goals are achieved. RAOs would be achieved by other portions of the remedies (e.g., soil removal, cap construction, etc.).

Six of the 10 remedial alternatives evaluated incorporate volatile organic compounds (VOC) "Hot Spot" Removal and the construction of capped on-site Corrective Action Management Units (CAMUs). CAMUs are areas used to consolidate, treat, store, and/or dispose of hazardous and non-hazardous waste. Each CAMU would be covered or capped to minimize the potential for future exposure and to minimize the amount of rainfall that could dissolve contaminants as it passes through contaminated soil and wastes. A "hot spot" is an area with contaminated soil where concentrations of certain chemicals are much higher (such as 10 to 100 times) than the levels considered safe for humans and/or ecological receptors. Excavation of the VOC "Hot Spots" and disposal of the contaminated soil in an off-site landfill will prevent human exposure to these higher contaminant concentrations and prevent potential migration of contaminants from "hot spots" to less contaminated areas.

Two of the 10 remedial alternatives evaluated excavation and off-site disposal of most of the contaminated soil and solid waste. Alternative SW-10 includes excavation and offsite disposal of 100% of the solid waste and contaminated soil beneath the waste. Alternative SW-9 includes excavation and offsite disposal of approximately 94% of the contaminated soil and solid waste. The remaining contaminated soil and solid waste would be consolidated under a CAMU and capped.

Exploratory trenches were used to characterize the variety of wastes and materials that are distributed throughout the land disposal units at the LEHR/OCL Site. This characterization may not have identified every possible contaminant present within the land disposal units. Previously unidentified wastes could represent principal threat wastes that are highly toxic, highly mobile, or a potential risk to human health or the environment in the event of exposure. Seven of the 10 remedial alternatives include the excavation, segregation, characterization and disposal of identified principal threat wastes at a licensed off-site facility, but could still leave unidentified principal waste in place. Three of the 10 remedial alternatives (i.e., Alternatives SW-1, SW-2, and SW-6) minimize the excavation, segregation, characterization, transport, and disposal of the principal threat wastes thus reducing potential worker and community exposure.

A comparative analysis of alternatives was conducted (see Table 1). The US EPA selected the Preferred Alternative presented in the Proposed Plan because it will protect human health and the environment, will achieve the cleanup goals, comply with applicable or relevant and appropriate Federal and state requirements, is cost effective and utilizes permanent solutions to the maximum extent possible.

Remediation of groundwater contamination will be evaluated in a separate Feasibility Study Report and will be addressed in a future proposed plan.

US EPA's Preferred Alternative

The US EPA's Preferred Alternative SW-6 includes, VOC "hot spot" removal, construction of three on-site CAMUs with multiple-layer caps, institutional controls, drainage enhancements, and groundwater monitoring (see Figure 5). Alternative SW-6 proposes leaving soil, solid waste, and any previously unidentified wastes largely undisturbed, and protected under US EPA-regulated landfill caps with the exception of the excavation and removal of the two VOC "hot spot" areas. A view of a typical multiple layer cap is depicted in Figure 4. Excavation of the two VOC "hot spot" areas identified in Figure 5 will protect groundwater from being further contaminated by VOCs and minimize the potential for vapor intrusion (VI). VI is the movement of soil vapor from the subsurface through soil into conduits in nearby buildings. Institutional Controls would be implemented until the cleanup goals are achieved to address the potential for VI.

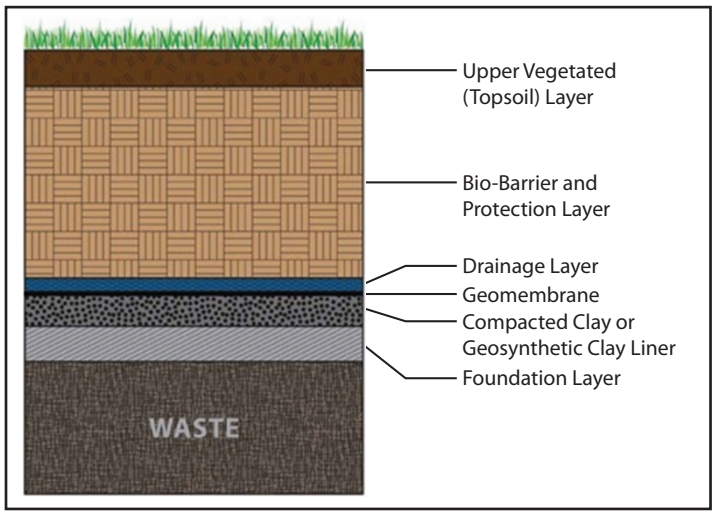

Figure 4: Cross-Sectional View of Typical Multiple-Layer Cap for a CAMU

The US EPA proposes Alternative SW-6 as the Preferred Alternative because it

Table 1: Comparative Analysis of Alternatives for the LEHR/OCL Site

Remedial Alternative	Overall Protection of Human Health and Environment	Compliance with ARARs	Long-term Effectiveness and Permanence	Reduction of Toxicity, Mobility, or Volume via Treatment[1]	Short-term Effectiveness	Implementability	Approximate Cost ($; in Millions)
Solid Waste (SW)-1: No Action/No Further Action	No	No	○	○	○	●	0
SW-2: Institutional Controls and Groundwater Monitoring	No	No	○	○	○	●	$6.5
SW-3: VOC "Hot Spot" Removal, Three On-Site CAMUs with Graded Covers, Institutional Controls, Drainage Enhancements, and Groundwater Monitoring	No	No	◔	○	○	◑	$13.6
SW-4: VOC "Hot Spot" Removal, Three On-Site CAMUs with Evapotranspiration Covers, Institutional Controls, Drainage Enhancements, and Groundwater Monitoring	No	No	◑	○	◑	◑	$18.5
SW-5: VOC "Hot Spot" Removal, Three On-Site CAMUs with Asphalt Caps, Institutional Controls, Drainage Enhancements, and Groundwater Monitoring	Yes	Yes	◑	○	●	◑	$20.9
SW-6: VOC "Hot Spot" Removal, Three On-Site CAMUs with Multiple-Layer Caps, Institutional Controls, Drainage Enhancements, and Groundwater Monitoring[2]	Yes	Yes	◑	○	●	◑	$16.9
SW-7: VOC "Hot Spot" Removal, Two On-Site CAMUs with Multiple-Layer Caps, Institutional Controls, Drainage Enhancements, and Groundwater Monitoring	Yes	Yes	◑	○	◑	◑	$20.9
SW-8: VOC "Hot Spot" Removal, One On-Site Lined CAMU with Multiple-Layer Cap, Institutional Controls, Drainage Enhancements, and Groundwater Monitoring	Yes	Yes	◑	○	◑	◑	$33.4
SW-9: Excavate and Dispose of Waste Off-Site, Waste Burial Holes CAMU with Multiple-Layer Cap, Institutional Controls, Drainage Enhancements, and Groundwater Monitoring	Yes	Yes	●	○	◑	◑	$102.1
SW-10: Excavate and Dispose of Waste Off-Site, Institutional Controls, Drainage Enhancements, and Groundwater Monitoring	Yes	Yes	●	○	◑	◑	$108.7

Not acceptable ○ ◔ ◑ ◑ ● **More acceptable**

Notes:

[1]Alternatives SW-1 and SW-2 do not include the use of treatment technologies. Alternatives SW-3 through SW-10 may include ex situ treatment (e.g., soil solidification/stabilization) of a fraction of the hazardous and mixed waste to render it non-hazardous prior to off-site disposal.

[2]Alternative SW-6 represents US EPA's Preferred Alternative.

minimizes the excavation, segregation, transport and disposal of previously unidentified wastes thus reducing potential worker and community exposure. By capping and monitoring the land disposal units that contain the contaminated soil, solid waste and previously unidentified waste, Alternative SW-6 ensures no direct contact can occur and minimizes the amount of rainfall that could dissolve contaminants as it passes through contaminated soil and wastes. Based on information available at this time, Alternative SW-6 provides the best balance of tradeoffs among the other alternatives because it balances protection of human health and the environment with the feasibility of remedy implementation and cost effectiveness more effectively than the other alternatives.

How Can I Comment on the Proposed Plan?

The US EPA encourages the public to review and comment on the Proposed Plan. **The public comment period is from January 28, 2015 through February 26, 2015.** You are invited to attend a public meeting on February 10, 2015 at the Hoagland Hall – Room 130, UC Davis where US EPA will present the plan, answer clarification questions and record verbal comments. All written comments should be submitted (postmarked) no later than **February 26, 2015.** Please send comments to David Stensby, Remedial Project Manager, 75 Hawthorne Street, SFD-7-1, San Francisco, CA, 94105, fax number (415) 947-3528, and email address: *Stensby.David@epa.gov*.

After the public comment period ends, the US EPA will review all comments received before making a final decision on the remedial alternative to be used at the site. This decision will be memorialized in a Record of Decision document, which includes a Responsiveness Summary to comments received. The public will be notified when this document is available.

How Do I Get Involved with the Cleanup?

To gain a more thorough understanding of the LEHR/OCL Site and the CERCLA activities taking places, the public may visit the information repositories (back page) and review the Administrative Record file. The AR is an index compilation of all documents the US EPA considered while developing the proposed plan. If you would like to become more involved with the site cleanup, please send your contact information to Jackie Lane at *lane.jackie@epa.gov* or at (415) 972-3236.

For More Information

EPA Contacts

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Stensby.David@epa.gov

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Community Involvement Coordinator
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Further site information can be found at
www.epa.gov/region09/Lehr-OldCampus

State of California Contacts

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Project Manager
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John.Bystra@dtsc.ca.gov

Central Valley Regional Water Quality Control Board
Durin Linderholm
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dlinderholm@waterboards.ca.gov

Other Contacts

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Sue Fields
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smfields@ucdavis.edu

Proposed Plan Public Meeting

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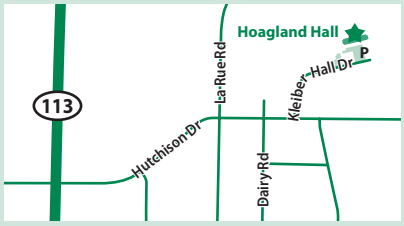
UC Davis Main Campus



Directions from I-80 and Parking Permit

1. Exit north on State Highway 113
2. Take the Hutchison Drive exit, bear to the right and pass three traffic signals
3. Turn left at Kleiber Hall Drive
4. Turn left into the second parking lot (#27)
5. Park in a "regular" space and obtain a parking permit in room 130 in Hoagland Hall.

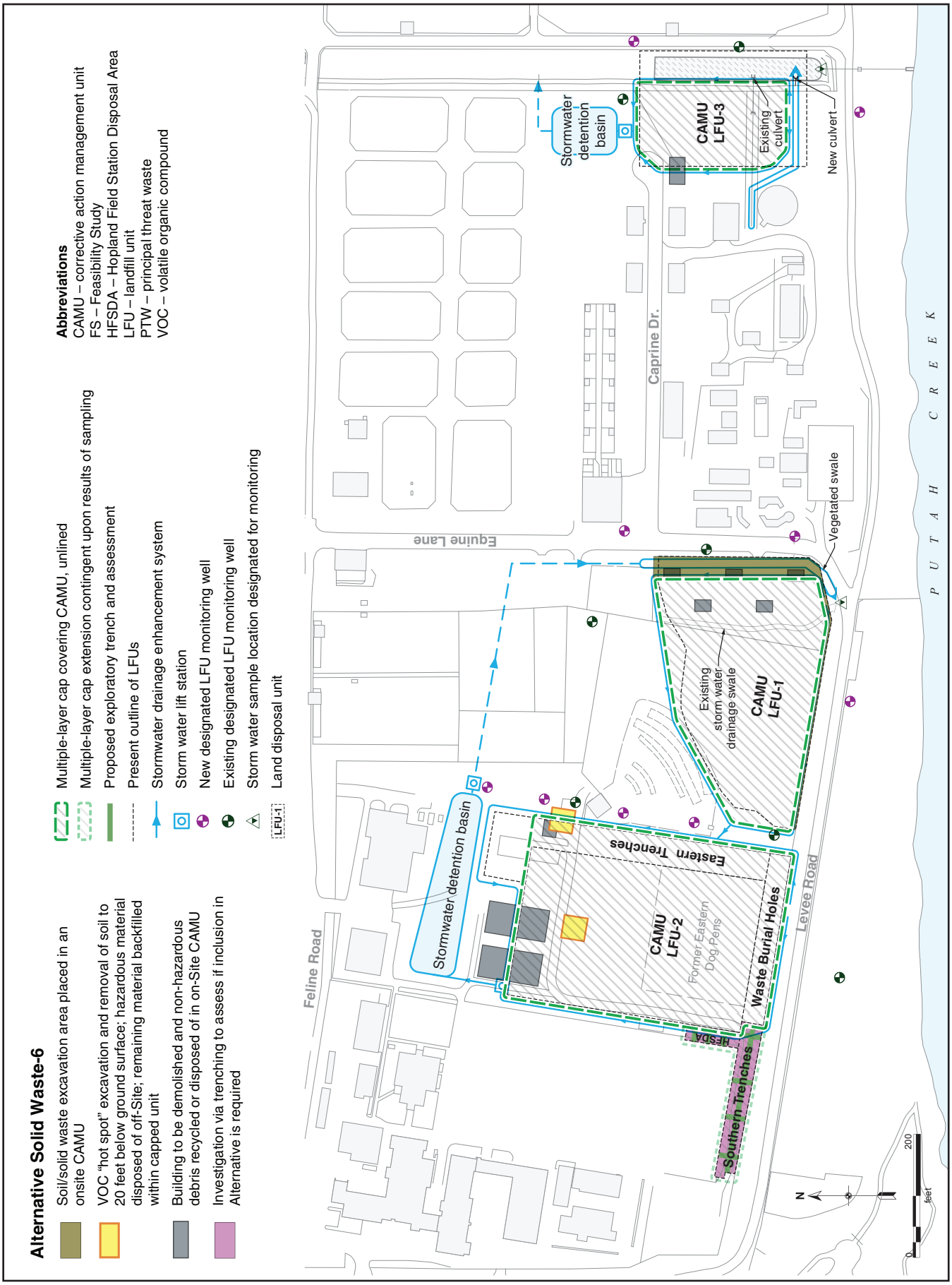


Figure 5: US EPA's Preferred Alternative (Alternative SW-6)

Laboratory for Energy-Related Health Research (LEHR)

Proposed Plan Public Comment Period January 28 – February 26, 2015

Information Repositories

For more information or a copy of the Proposed Plan please visit the information repositories listed below or contact Jackie Lane, the EPA Community Involvement Coordinator, at (415) 972-3236 or *Lane.Jackie@epa.gov.*

Yolo County Public Library
Davis Branch – Reference Desk
315 East 14th Street
Davis, California 95616
(530) 757-5593

Hours:
Monday: 1:00pm to 9:00pm
Tuesday – Thursday: 10:00am to 9:00pm
Friday – Saturday: 10:00am to 5:30pm
Sunday: 1:00pm to 5:00pm

Shields Library
Reserves Desk
UC Davis, CA 95696
(530) 752-2760

Hours:
Monday – Friday: 7:30am to 6:00pm
Saturday: Closed
Sunday: 1:00pm to 5:00pm

Proposed Plan Summary Inside

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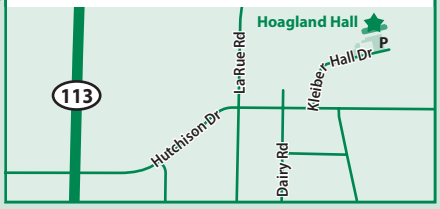

United States Environmental Protection Agency
Region 9
75 Hawthorne Street (SFD-6-3)
San Francisco, CA 94105
Attn: Jackie Lane (LEHR 1/15)

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