2025 CALIFORNIA LAND RECYCLING CONFERENCE
TRANSFORMING LAND, EMPOWERING COMMUNITIES

RESIDUAL CONTAMINATION: Managing and Mitigating Future Risk

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#CALRC2025

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Residual Contamination: Managing and Mitigating Future Risk

NIXON PEABODY

With you today

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When “clean” is not achieved…

Agenda

- ✓ Continuing obligations under CERCLA
- ✓ Environmental land use restrictions
- ✓ Long-term management of residual contaminants
- ✓ Examples of success
- ✓ Other options and costs/benefits scenarios

Continuing obligations under CERCLA

Comprehensive Environmental Response, Compensation, and Liability Act (1980)

Strict, joint and several liability defenses

- ✓ Third party/innocent landowner
- ✓ Contiguous property owner
- ✓ Bona fide prospective purchaser

Landowners must take reasonable steps to address contamination

- ✓ Stop any *continuing* release
- ✓ Prevent any threatened *future* release
- ✓ *Prevent* or limit any human, environmental, or natural resource *exposure* to any previously released hazardous substance

Appropriate care/reasonable steps

Examples

- ✓ **Monitor lessee** conduct and address improper practices
- ✓ Timely **mitigate** newly **discovered** releases and address environmental conditions
- ✓ Timely **notify** appropriate authorities of contamination
- ✓ **Cooperate** with authorities
- ✓ **Restrict site access** to prevent or limit “human, environmental, or natural resource exposure” to hazardous substances
- ✓ Contain releases by **maintaining existing** elements of a response **action**
- ✓ Appropriately **assess** the **extent** of contamination upon discovery
- ✓ **Prevent** the **exacerbation** of contaminated site conditions

Appropriate care/reasonable steps

Examples

PCS Nitrogen, Inc. v. Ashley II of Charleston, LLC, 714 F.3d 161 (4th Cir. 2013)

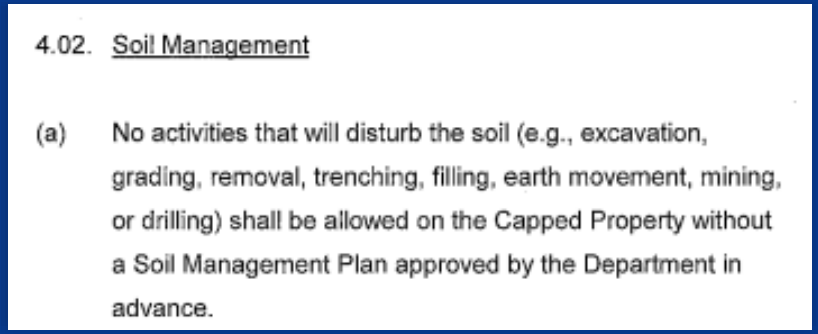
Failure to clean out and fill in concrete sumps, leaving them exposed to the elements and potentially exacerbating contaminated site conditions was factor in holding that reasonable steps were not taken, and party did not exercise appropriate care

3000 E. Imperial, LLC v. Robertshaw Controls, 2010 U.S. Dist. LEXIS 138661, at *32-35 (C.D. Cal. Dec. 29, 2010)

Property owner's cooperation with a state on a voluntary cleanup of the property was a factor in finding that party exercised appropriate care by taking reasonable steps to prevent further hazardous substance releases

Long Term Plan(s)…

1. Operations Maintenance and Monitoring Plans (OMMPs)
2. Site Management Plan (SMP)
3. Soil and Groundwater Management Plan (SGMP)
4. Cap Maintenance and Monitoring Plan (demarcation penetration, surveyor for elevation, etc.)



4.02. Soil Management

(a) No activities that will disturb the soil (e.g., excavation, grading, removal, trenching, filling, earth movement, mining, or drilling) shall be allowed on the Capped Property without a Soil Management Plan approved by the Department in advance.

Low Threat Closure & Environmental Land Use Restrictions (Cal. Civ. Code § 1471(a)(3))

Land use covenants specify requirements or limit the use of real property as "reasonably necessary to protect present or future health or safety or the environment as a result of the presence on the land of hazardous materials"

Purpose

- ✓ protect the public health and safety on contaminated land or the surrounding property when there is residual contamination
- ✓ Assure future property owners know!

Process

- ✓ recorded at a county recorder's office – part of title
- ✓ "runs with the land" – the requirements remain despite change in ownership

Typical Uses

- ✓ Allows closure with residual contaminants
- ✓ Prevent inappropriate land use
- ✓ Inform local governments, the public, and successors
- ✓ Ensure long-term measures are maintained
- ✓ Ensure regulatory oversight with the long-term remedy

Land use restriction

Examples

ARTICLE IV

RESTRICTIONS AND REQUIREMENTS

4.01. Prohibited Uses. The use of the Capped Property shall be restricted for industrial purposes only. The Capped Property shall not be used for any of the following purposes:

(a) A residence, including any mobile home or factory built housing, constructed or installed for use as residential human habitation.

(b) A hospital for humans.

(c) A public or private school for persons under 21 years of age

(d) A day care center for children.

SITE MANAGEMENT REQUIREMENTS

- ACTIVITIES PROHIBITED WHICH DISTURB THE REMEDY AND MONITORING SYSTEMS WITHOUT APPROVAL
- ASPHALT COVER NOT TO BE DISTURBED WITHOUT APPROVAL
- DAY CARE CENTER PROHIBITED
- HOSPITAL USE PROHIBITED
- LAND USE COVENANT
- MAINTAIN MONITORING OF GROUNDWATER
- NO EXCAVATION OF CONTAMINATED SOILS WITHOUT AGENCY REVIEW AND APPROVAL
- NO GROUNDWATER EXTRACTION AT ANY DEPTH WITHOUT APPROVAL
- NO OIL OR GAS EXTRACTION AT ANY DEPTH
- NOTIFY AFTER CHANGE OF PROPERTY OWNER
- NOTIFY DAMAGES TO REMEDY AND MONITORING SYSTEMS UPON DISCOVERY
- NOTIFY PRIOR TO SUBSURFACE WORK
- ONLY EXTRACTION OF GROUNDWATER FOR SITE REMEDIATION PERMITTED
- PERFORM H&S PLAN PRIOR TO SUBSURFACE WORK
- PUBLIC OR PRIVATE SCHOOL FOR PERSONS UNDER 21 PROHIBITED
- RAISING OF FOOD PROHIBITED
- RESIDENCE USE PROHIBITED

Land use restriction

Industrial to residential under a local oversight agency

San Francisco multi-family developer implemented remedial actions (excavation) and installed engineering controls to reduce the contaminant mass and the risk of exposure to occupants, maintenance and construction workers, and others to residual contamination at the Property:

- ✓ Lead Consolidation Cell (LCC) Engineering controls with demarcation fabric and annual visual site inspections for any evidence of actual or potential penetration
  - Consolidated 10-15 feet below ground surface beneath a building and parking lot
- ✓ VIMS Engineering Controls and Monitoring Systems of a sub-slab vapor barrier system, sub-slab ventilation system, and performance monitoring infrastructure (sub-slab monitoring probes and vapor vent riser sampling ports) with an Operations, Maintenance, Monitoring, and Reporting Plan (OMMRP). Included post-occupancy sampling and reporting with automatic reduced frequency.

Land use restriction

Example

Industrial to residential under a local oversight agency (cont'd)

- ✓ LUC recorded for the above plus:
  - All uses and development of the Property shall be consistent with any applicable Environmental Health-approved Risk Management Plan
  - No excavation without regulatory approval,
  - No groundwater wells or groundwater use,
  - No growing of fruits or vegetables for consumption,
  - Ongoing regulatory access,
  - Tenant, resident, and successor notification requirements, and
  - Regulatory notification of any changed conditions.

Financial Assurance Mechanisms (FAMs)

Purpose: Ensure funds are available for site cleanup, closure, and remediation in compliance with federal and state laws.

Authorized mechanisms—Under CERCLA § 108(b)(2) and 22 Cal. Code of Reg. § 66265.143, financial responsibility may be demonstrated through one or more of the following:

- **Insurance policies—**Pollution liability insurance policies purchased from insurer where the insurer promises to pay for cleanup costs if the responsible party is unable to do so.
- **Surety bonds—**A three-party agreement where a surety company guarantees payment of cleanup costs if the responsible party fails to meet its obligations. Only payment bonds, not performance bonds, are allowed.
- **Letters of credit—**A financial instrument issued by a bank, promising to pay up to a certain amount on demand. If the responsible party fails to pay for cleanup costs, the bank pays the required amount to a designated party.
- **Trust funds—**A dedicated fund managed by a trustee (usually a bank) holding money or assets, deposited by the responsible party, which are used to pay for cleanup costs.
- **Corporate financial tests & corporate guarantees—**Self-insurance option available if a company meets specific net worth and financial stability criteria, allowing them to avoid third-party instruments.

Federal & State Financial Assurance Mechanisms (FAMs) Comparison

Differences	Federal	California
Agency Oversight	EPA alone	DTSC, RWQCB, and LOAs all can require.
Structural	EPA FAM structures are flexible with no requirements for exact wording or structure and discretion exercised in establishing FAMs based on degree and duration of risk.	California FAM structures are stricter requiring uniform instrument wording, structure, and regulatory approval.
Ability to Adjust FAM Levels	EPA has the ability to periodically review and adjust required FAM levels based on "the payment experience of the Fund, commercial insurers, courts settlements and judgments, and voluntary claims satisfaction." CERCLA §108(b).	California increases required FAM levels based on inflation, expansion, or modification of a facility, or agency determination that a FAM cost estimate was incomplete or underestimated.
Corporate Financial Test Thresholds	Under 40 CFR § 264.145(f), the owner or operator must have, amongst other things, a tangible net worth ≥ $10 million.	Under 22 CCR § 66265.143(e), the owner or operator must have, amongst other things, a tangible net worth ≥ $20 million.

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Questions?

I love being a “dirty dirt” lawyer, counseling developers, financing parties, and industry clients on compliance with federal, state, and local environmental and energy laws, identifying and mitigating environmental risk, facilitating environmental oversight when necessary, finding pollution legal liability policies when applicable, and negotiating and litigating with regulators and third-parties when necessary.

With a technical background as an aquatic ecotoxicologist, I have first-hand knowledge of the science and business repercussions for the water, air, hazardous materials, and spill response notification laws and regulations.

I provide strategy and advice on how to cost-effectively and successfully assure health and the environment are maintained while allowing the project to be completed.

Thank you!

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SMP and OM&M Requirements

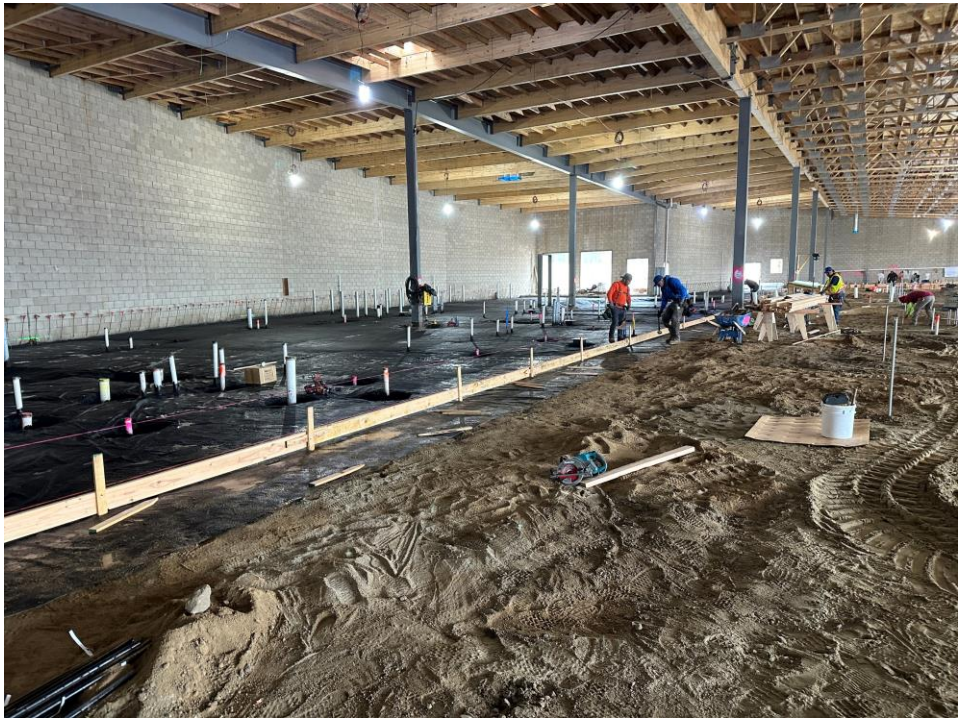
In a Redevelopment Context

Leo M. Rebele, Principal
Irvine, California

RAMBOLL Bright ideas. Sustainable change.

OM&M and SMP Requirements

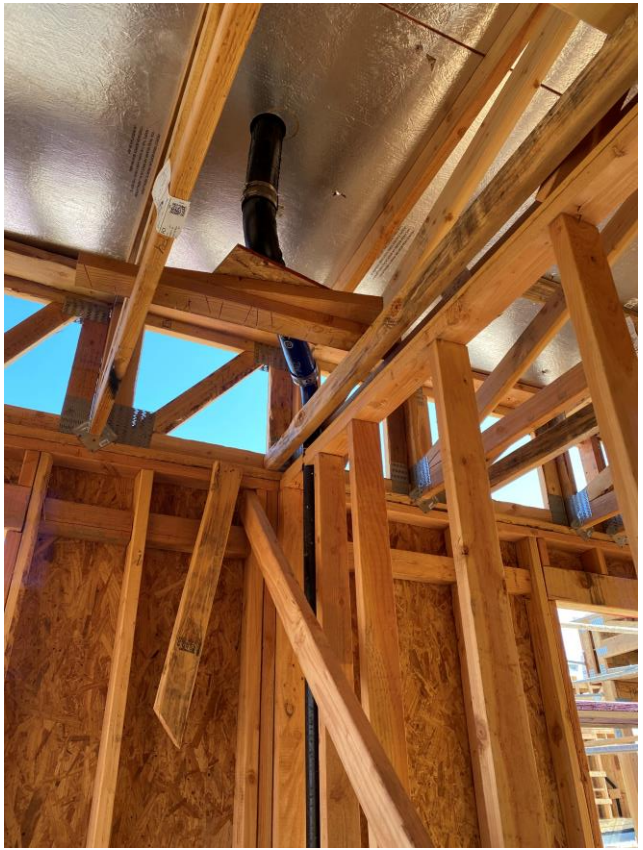
- Both are integral components of Brownfield redevelopment projects
- Often Required by Agency for closure
- May be self-implemented as precautionary measures
- Typically require agency approval/oversight
- Reduce long-term obligations/costs:
  - Robust sampling designs - know your site
  - Robust VIMS designs
  - Robust 3rd party testing/verification
- Environmental justice aspects come into play in selection of final remedy



Installation of Vapor Barrier System – New construction

Types of OM&M

- Active remediation and monitoring
- Long-term monitoring of land use covenants/deed restricted areas
  - Capped contamination areas
  - Known impacted soils remaining in-place
- Vapor Intrusion Mitigation Systems



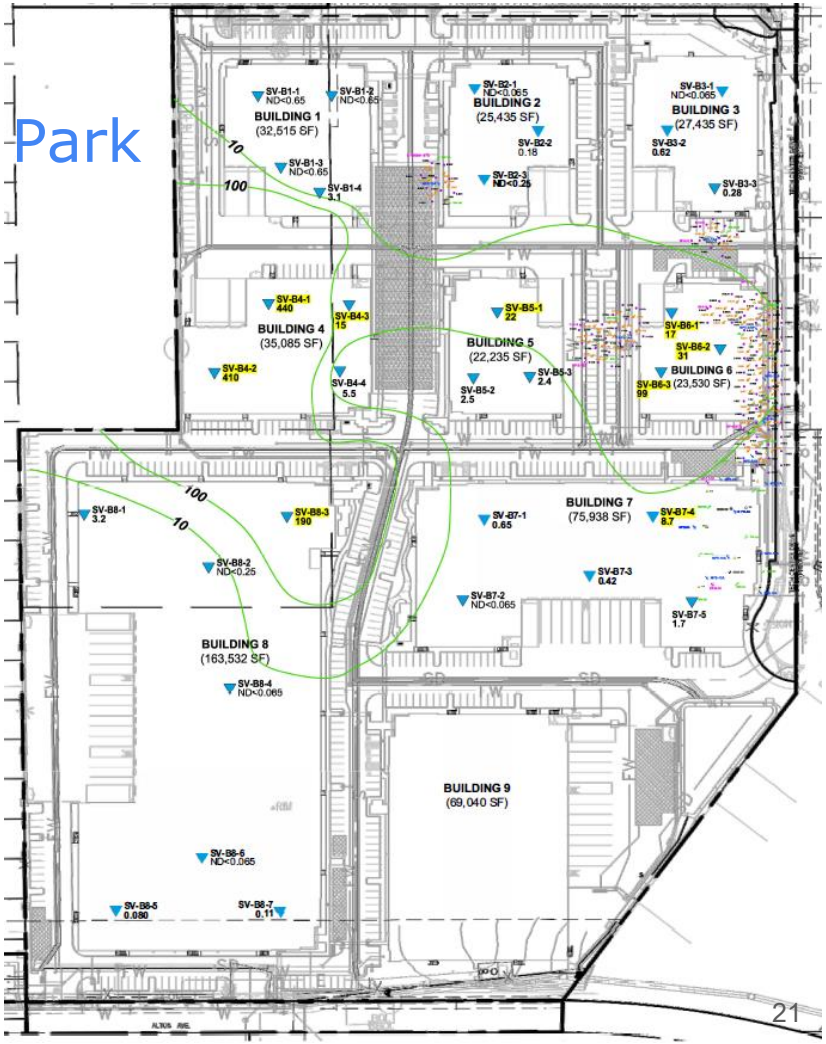
Vent riser of VIMS – residential construction

Case Study No. 1: Gardena Village

- Former Taxi Repair Facility, Gardena, CA
- Residential Redevelopment
- DTSC and USEPA Oversight
- Soils impacted with lead, PCBs and petroleum hydrocarbons
- Soil vapor impacted with PCE and TCE
- SMP prepared to address shallow soil impacts
- Specific EPA requirements for management of PCBs
- Allow deep impacts to remain in-place under deed restriction/land use covenant
- VIMS installed beneath all buildings
- OM&M Plan addresses monitoring of the LUC and VIMS
- HOA has responsibility for OM&M
- Financial assurance

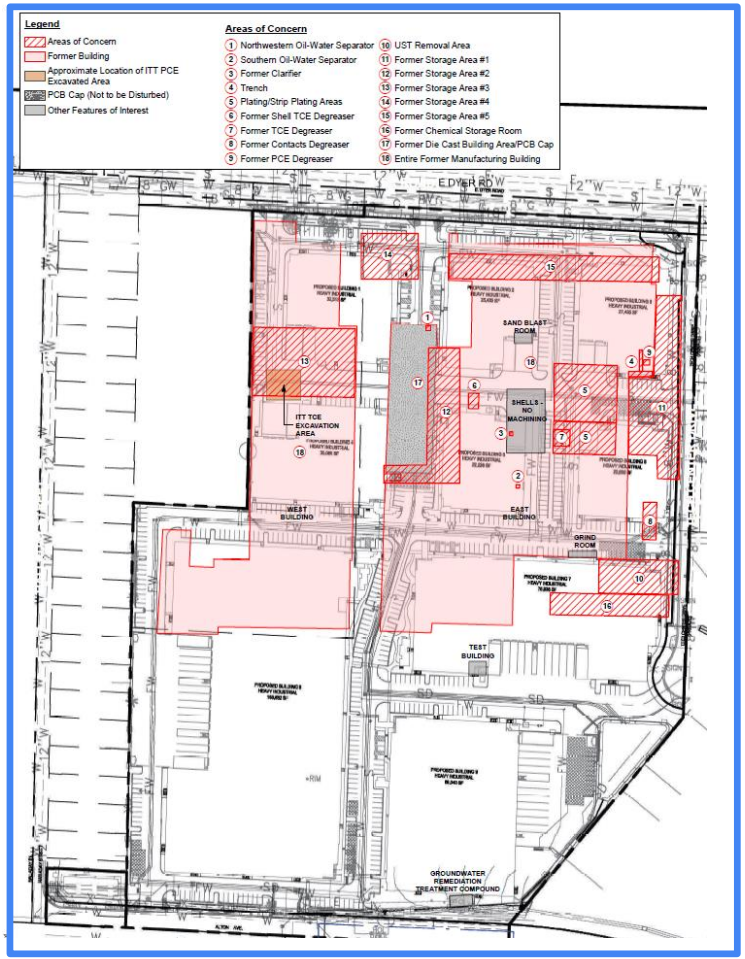
Case Study No. 2: Dyer Business Park

- Former Aerospace Manufacturing Facility, Santa Ana, CA
- Industrial Business Park Redevelopment
- RWQCB and EPA Oversight
- Soils impacted with high concentrations of PCBs, chlorinated solvents, petroleum hydrocarbons and various metals
- Soil vapor impacted with PCE and TCE
- RP responsible for soil and groundwater remediation
- Developer responsible for SMP Implementation and VIMS installations
- RP reimburse developer for impacts found



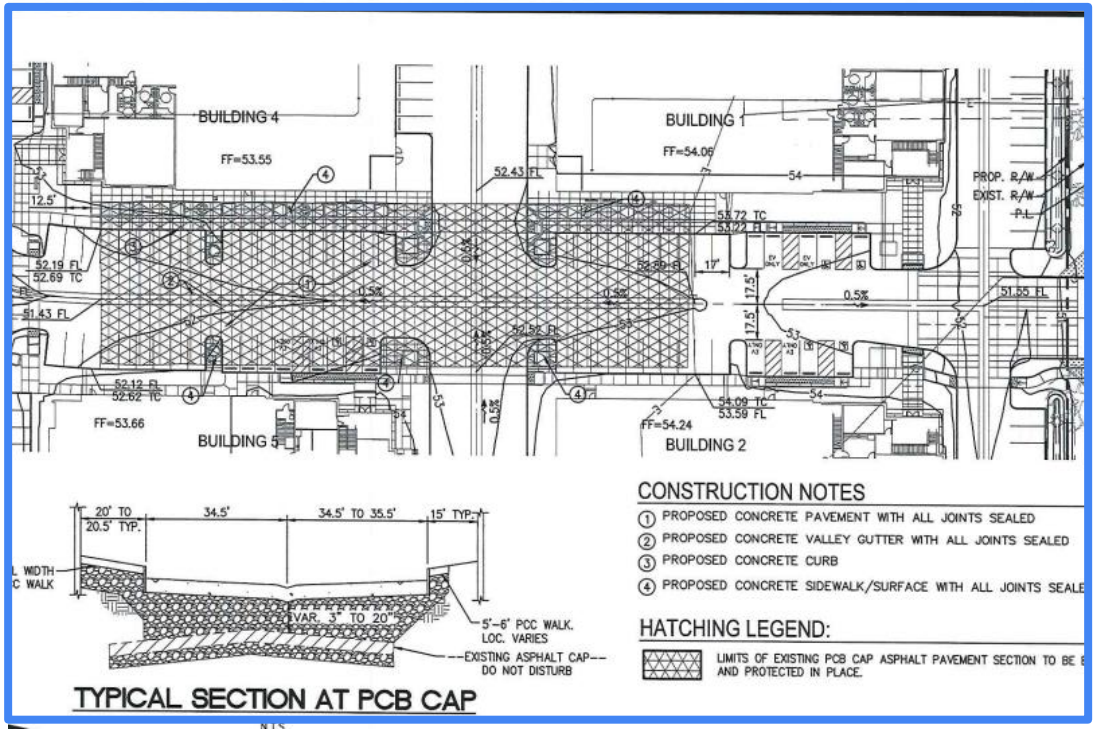
Case Study No. 2 (cont.): Dyer Business Park

- SMP prepared to address overall site management anticipated prior to sale of property
- Grading Contingency Plan (GCP) developed to address specific developer-related concerns and expectations
- PCB Cap – OM&M in perpetuity
- OM&M Plan addresses monitoring of the LUC and VIMS
- Financial assurance



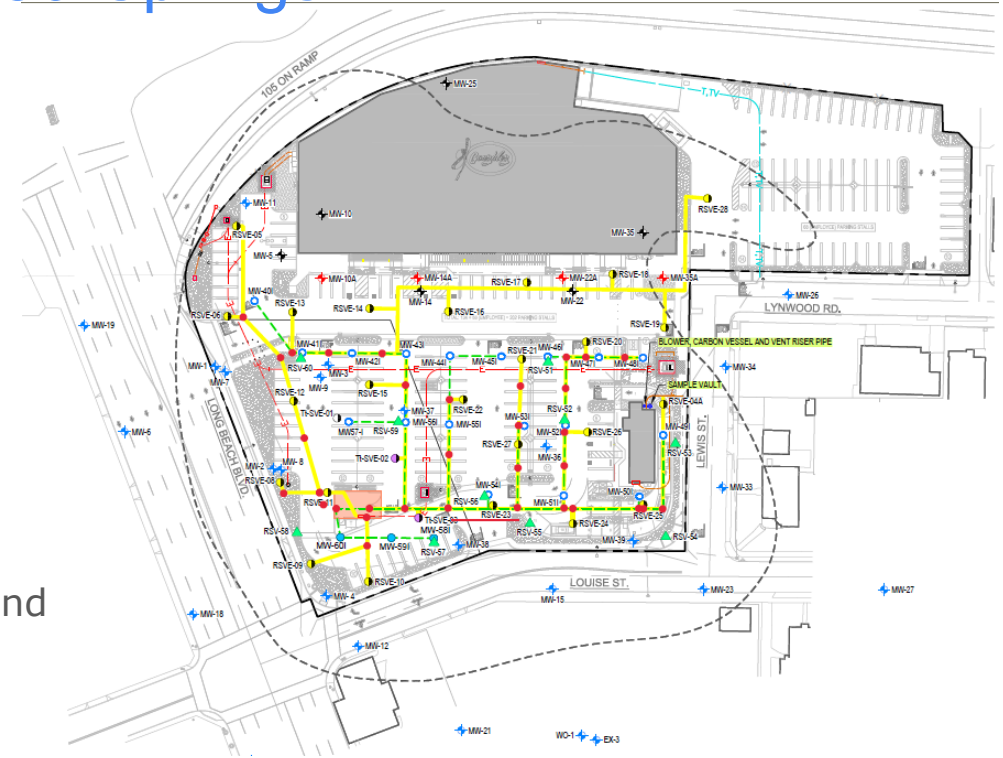
Case Study No. 2 (cont.): Dyer Business Park

- CAP construction - careful integration with RP's remedial obligations after SMP/GCP implementation
- Coordination with RWQCB and EPA
- CAP-Specific LUC
- Separate LUC - Development



Case Study No. 3: Lynwood Springs

- Former gas station and dry cleaner
- Remediation ongoing since 1996
- Redevelopment as Grocery Store and Starbucks
- RWQCB Oversight
- ECRG and USEPA Brownfield grants – Approx. 5 Million
- Integration of Active Remediation Infrastructure and VIMS into the development plans
- Extensive coordination with architect and civil team
- SMP Implementation during site development
- Grand opening in 2025



Conclusions

Redevelopment Projects are typically complex:

- persistent chemicals like PCBs that may necessitate the placement of caps or management of contaminants in situ
- agency responsiveness and deference is unpredictable (timing and staff)
- often require extensive interaction with the developer's design team or responsible parties for the cleanup
- LUCs are integral to obtaining agency sign-off
- Financial assurance is required – 30 years
- Environmental justice considerations

SOIL MANAGEMENT WITH MINIMAL OBLIGATIONS

What's better than an Operations, Maintenance, Monitoring, and Reporting Plan (OMMRP)?
A Soil Management Plan (SMP) that doesn't require any future management (well, hardly any).

Lead is easily the most ubiquitous contaminant, especially in urban areas.
Cycles of demolition and construction spread lead impacted soil across sites and create a layer of impacted fill which can often exceed health risk criteria.
How can we manage this risk without breaking the project budget?
By keeping it on the site but out of reach – under the buildings.

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Eliminate the exposure pathway and you eliminate the risk

SOIL MANAGEMENT OPTIONS

There are basically two options for the onsite management of impacted soil that pose a human health risk

1. Soil Caps such as parking lots and hardscapes, or "clean" soil caps requires future excavations (e.g., utility repair or landscaping additions) be overseen by environmental professionals to prevent exposure and improper disposal or reuse of the impacted soil. In addition, such caps may be subject to annual inspections, reporting, and ongoing regulatory agency oversight costs.

2. Impacted soil placed beneath buildings is highly unlikely to ever be encountered until the building is demolished and removed. Therefore, the only requirement is for full disclosure of the conditions to future owners or agency notification of demolition or change in land use. If the soil exceeds cleanup criteria, the DTSC may still require a land use covenant, periodic inspections and five-year reviews.

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Now, How to Get This Done!

WHAT DO YOU NEED TO DESIGN AN SMP WITH NO FUTURE OMMRP's

1) Read The Geotechnical Report

The geotechnical report will detail the over-excavation and recompaction (OX) requirements for the project. Typically, this will be in the "Conclusions/Recommendations" under "Site Preparation" or "Remedial Grading."

Example

"the footings be founded in a compacted fill cap or in existing competent alluvium. The fill cap should extend a minimum of five feet below the existing ground surface and three feet below the bottom of foundations; whichever is deeper. The fill cap should extend a minimum of five feet outside of the building footprint horizontally."

Typically, all undocumented fill soils require removal and recompaction to properly support the building in addition to the OX. If fill soil deposits deeper than the 5-foot-minimum, then it will require removal and recompaction which may offer additional opportunity to bury impacted soil.

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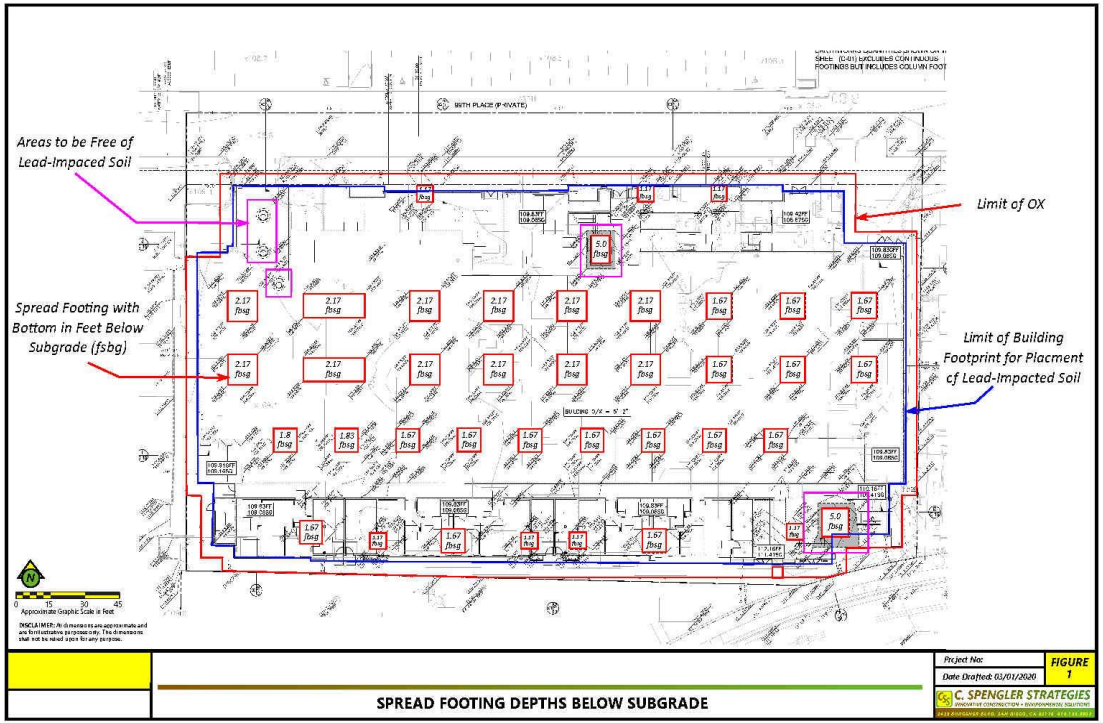
WHAT DO YOU NEED TO DESIGN A SMP WITH NO FUTURE OMMRP's

2) Understand the Final Grading Plan

In order to understand the options, identifying the planned construction excavation envelope (CCE) including the depths below subgrade is key. The goal is to prevent these excavations from encountering the impacted soil so that the future export spoils are "clean."



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WHAT DO YOU NEED TO DESIGN AN SMP WITH NO FUTURE OMMRP's

3) Assess the Volume of the Impacted Soil

Assessing the soil to estimate the full volume of soil to be buried is essential.

Sampling just near the surface is not relevant.
Treat the entire layer of fill soil (excluding pockets of hazardous waste) as if it was one stockpile.
Sample the full depth of the fill in each location.

Collect a sample below the fill to verify your interpretation of the contact between them.

Estimate the volume of the impacted fill soil.

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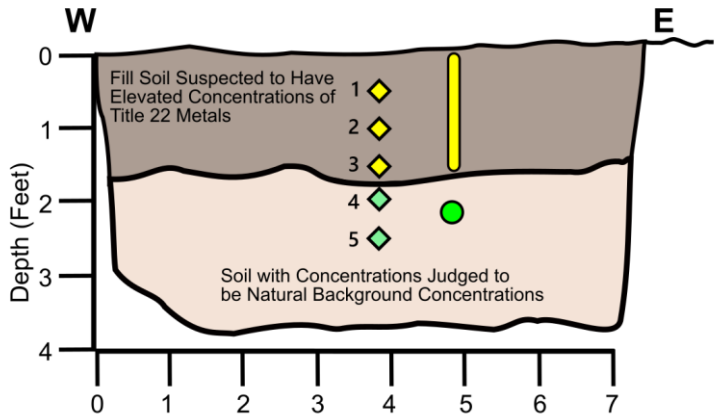
Example Pothole With Sampling Methodology



◇ XRF screening point location for metals (lead, arsenic, etc.) generally spaced approximately every 6 vertical inches in the interpreted fill soil. This assists in determinging the fill soil from the undisturbed native soil, identifies the metals of concern, and provides a preliminary estimate of the anticipated waste characterization. The XRF Meter is pressed against the trench wall with a protective plastic sheet between the meter and the soil. Each test is approximately 30 seconds or less.

◇ XRF *in situ* testing point of undisturbed native soil)

▮ Composite grab sample of the vertical profile of the COC-bearing soil to be sent to a State-accredited hazardous waste laboratory for selected analyses.

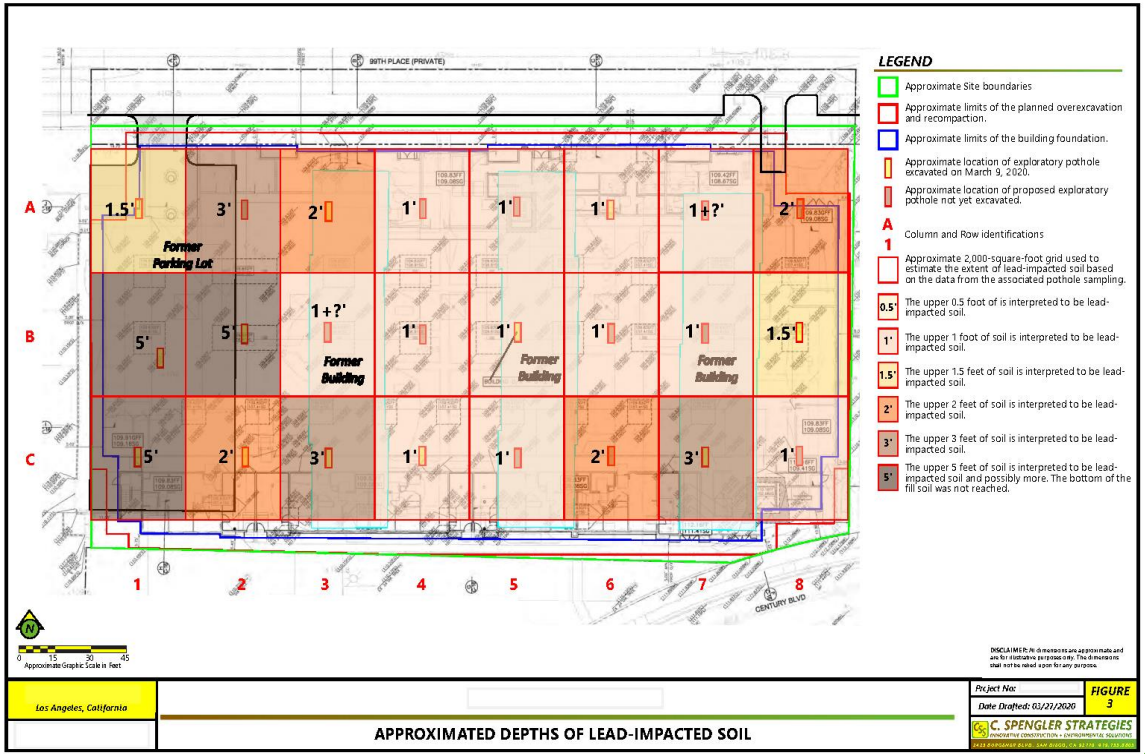
● *A priori* confirmation sample of the undisturbed native soil to be sent to a State-accredited hazardous waste laboratory for selected analyses.

WHAT DO YOU NEED TO DESIGN AN SMP WITH NO FUTURE OMMRP's

4) Create an Impacted Soil Segregation Plan

A soil segregation plan based on the grid sampling provides a road map to segregating the impacted soil and a volume estimate to develop the burial plan.

Segregate impacted soil and export any hazardous waste soil.



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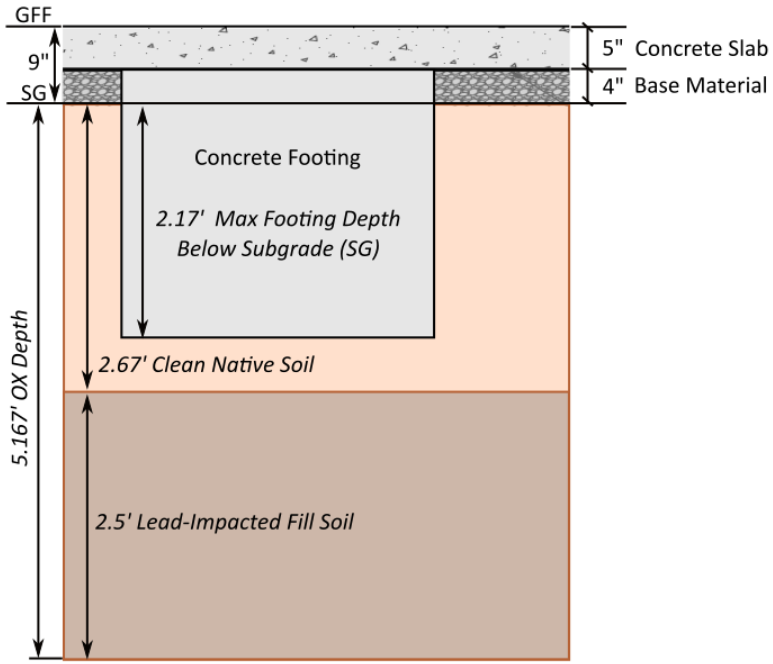
WHAT DO YOU NEED TO DESIGN AN SMP WITH NO FUTURE OMMRP's

5) Design the Impacted Soil Burial Plan

Ideally, the burial plan will place all of the impacted soil below all planned excavations so that the spoils generated during construction can be considered suitable for offsite reuse aka "clean" to minimize the cost of the export.

If this cannot be achieved, then it is recommended that the upper level is reserved for soil that is characterized as nonhazardous to minimize disposal costs.



Impacted Soil Burial Design Cross-Section

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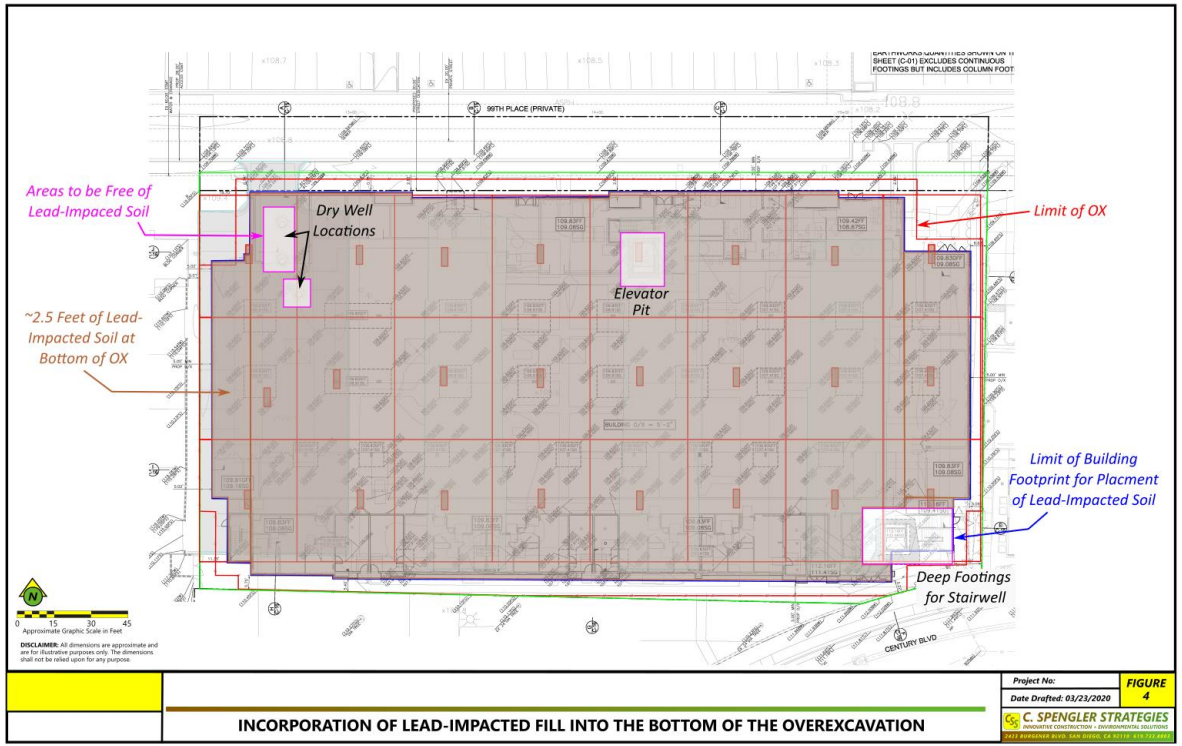
WHAT DO YOU NEED TO DESIGN AN SMP WITH NO FUTURE OMMRP's

6) Impacted Soil Burial Plan

An impacted soil burial plan will provide the grading contractor the limits of placement of the impacted soil. This should be done in consultation with the grading contractor, civil engineer, and other subgrade contractors for dry/wet underground utilities, storm water BMPs, infiltration wells/basins, etc.

This effort saved approximately $300,000 in disposal costs



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OTHER CONSIDERATIONS

This method of managing impacted soil can save substantial amounts of money in off-site disposal costs, but takes planning and coordination between the consultant and the contractors. A few things to consider:

- **CSS does not recommend burying hazardous waste unless there is specific concurrence from the DTSC or RWQCB that the EPA's Area of Contamination (AOC) policy applies to the site;**
- **This method of site mitigation does not relieve the owner from protecting groundwater or other environmental resources. If the buried impacted soil has the ability to impact other resources, then burial is not advised. In addition, if VOCs are present that can create a vapor intrusion issue, this is not the solution.**
- **While CSS only buried impacted soil that met the residential standards for the contaminants of concern as deposits of hazardous waste (burn ash) were excised and exported. In theory, this could be used to bury soil impacted with contaminants that exceed the health risk criteria because there is no pathway of exposure.**

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NOTE: This method of mitigation may not be acceptable to every regulatory agency or even each case manager. Your mileage may vary.

TAKEAWAYS FOR AFFORDABLE HOUSING ON BROWNFIELDS

- This approach is fully protective of future users of the redevelopment project.
- This approach has minimal continuing obligations and ongoing costs.
- This approach takes advantage of planned construction activities and saves costs by not being a completely separate action.
- This method of managing impacted soil can save substantial amounts of money in off-site disposal costs, but takes planning and coordination between the consultant and the contractors.

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Contact: chris@cspenglerstrategies.com 619-733-8803

Environmental Consulting Services

- Environmental Site Assessments (Phase I & II's)
- Property Mitigation Plans (PMPs)
- Soil Management Plans (SMPs)
- Remediation Design & Implementation
- Property Closure Reports (PCRs)
- Health Risk Assessments
- Third Party Environmental Review
- Litigation Support

ECRG Management Assistance Services

Preconstructions Services

- Remediation Contract Language
- Remediation Excavation Plans/Subcontractor Scopes of Work
- Value Engineering for Remediation Grading
- Bidding Specifications/Documents
- RFI/Bid Review Assistance

Construction Management Services

- Management of Consultants and Remediation Subcontractors
- Change Order Review and Management
- Owner/Subcontractor/Consultant Liaison
- Hazmat Abatement Management (lead-based paint, asbestos, etc.)
- Waste Characterization, Waste Profiling, and Disposal Management

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Transforming Land, Empowering Communities

September 16-18, 2025 | Carson, CA

OFFICE OF BROWNFIELDS

CENTER FOR CREATIVE LAND RECYCLING

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