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Operable Unit 3 Feasibility Studies

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Feasibility Study Process

- Identify Hazards
- Develop Remedial Action Objectives
- Develop Remedial Action Alternatives
- Screen Alternatives
- Perform Technical and Cost Analyses
- Perform Comparative Analyses
- Recommend Remedial Alternative(s)

NCP Criteria

- Threshold criteria
  1. Overall protection of human health and the environment
  2. Compliance with ARARs
- "Primary" analysis criteria
  3. Long-term effectiveness and permanence
  4. Reduction of toxicity, mobility, and volume through treatment
  5. Short-term effectiveness
  6. Implementability
  7. Cost
- Following comment on the FS
  8. State or support agency acceptance
  9. Community acceptance
- "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" (EPA 1988)

Operable Unit 3 Feasibility Studies

- Geotechnical
  - Remedial Action Objective
  - "…prevent release of waste into San Francisco Bay…"

- Environmental
  - Remedial Action Objective
  - Prevent exposure to COCs in Soil and Groundwater

Geotechnical Feasibility Study

- Recommends Methods to Address Seismic and Geotechnical Hazards at Site 1
- Required Under California Code for Landfill Closure
- Required Under CERCLA to Prevent Release to Waters of the United States

Geotechnical Feasibility Study

- Initially Developed and Evaluated 20 Alternatives
- Screened to Nine Alternatives
- Three Not Technically Feasible, Two Cost Prohibitive
- One Alternative Recommended

Recommended Alternative

- Construction of a 24-foot wide soil cement gravity wall and stone columns in the Young Bay Bud layer along the shoreline perimeter
  - Increases the shear strength and reduces liquefaction potential
  - Long-term effectiveness and performance
  - Cost at lower end of range for compared alternatives

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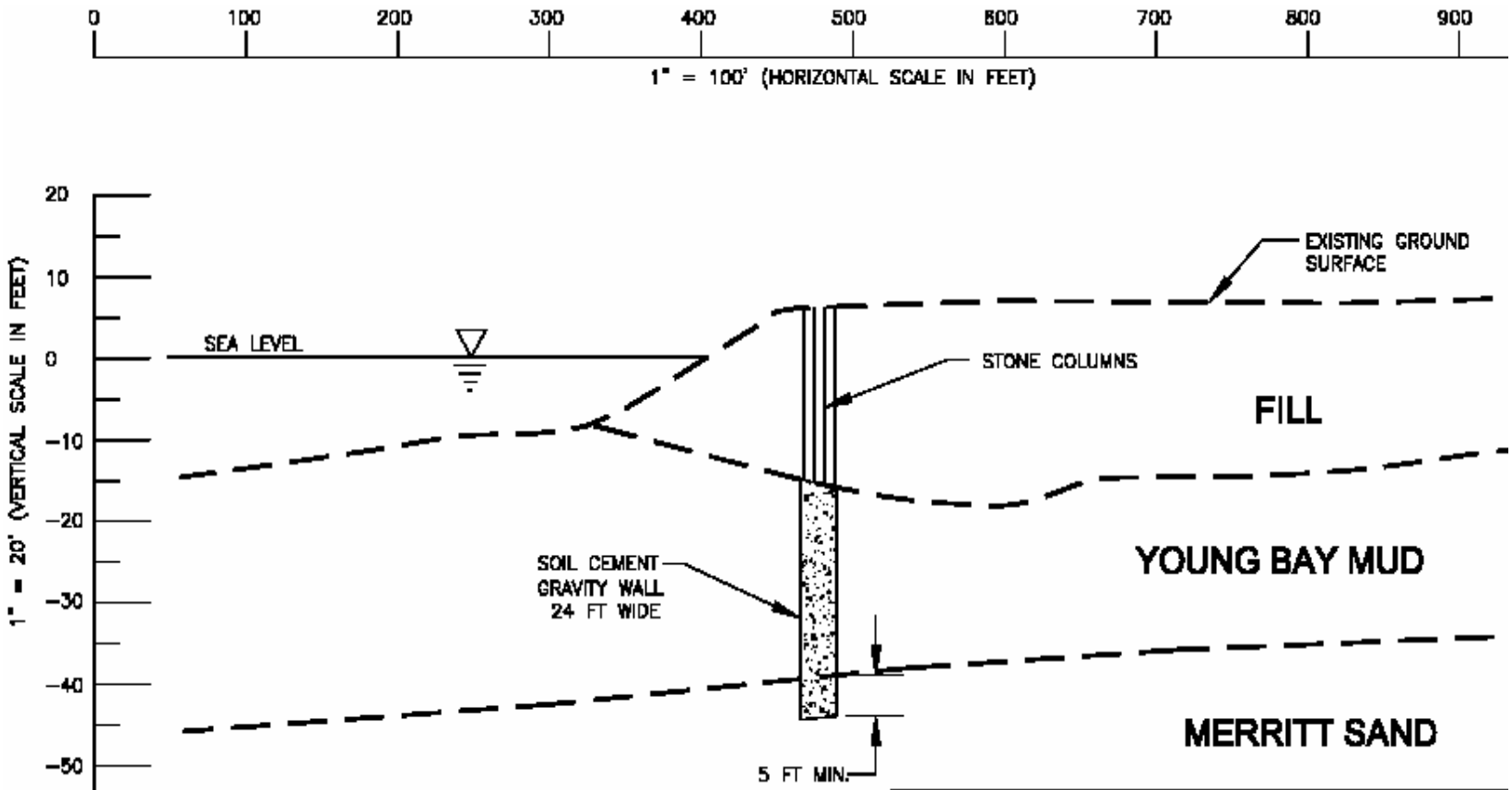
Recommended Geotechnical Alternative



Environmental Feasibility Study

- RI Report and Addenda Established Risk
  - Lead in Soil
  - Radium in Soil
  - PAHs in Soil
  - VOCs, SVOCs, PAHs in Groundwater

Environmental Alternatives

Alternative 1:	No Action
Alternative 2:	Lead, Radiological, Groundwater, Monolithic Cap (48- or 24-inch), LTM (LFG and GW), IC
Alternative 3:	Lead, Radiological, Groundwater, Engineered Cap (RCRA “C”), LFG Control, LTM (GW), IC

Monolithic Cap

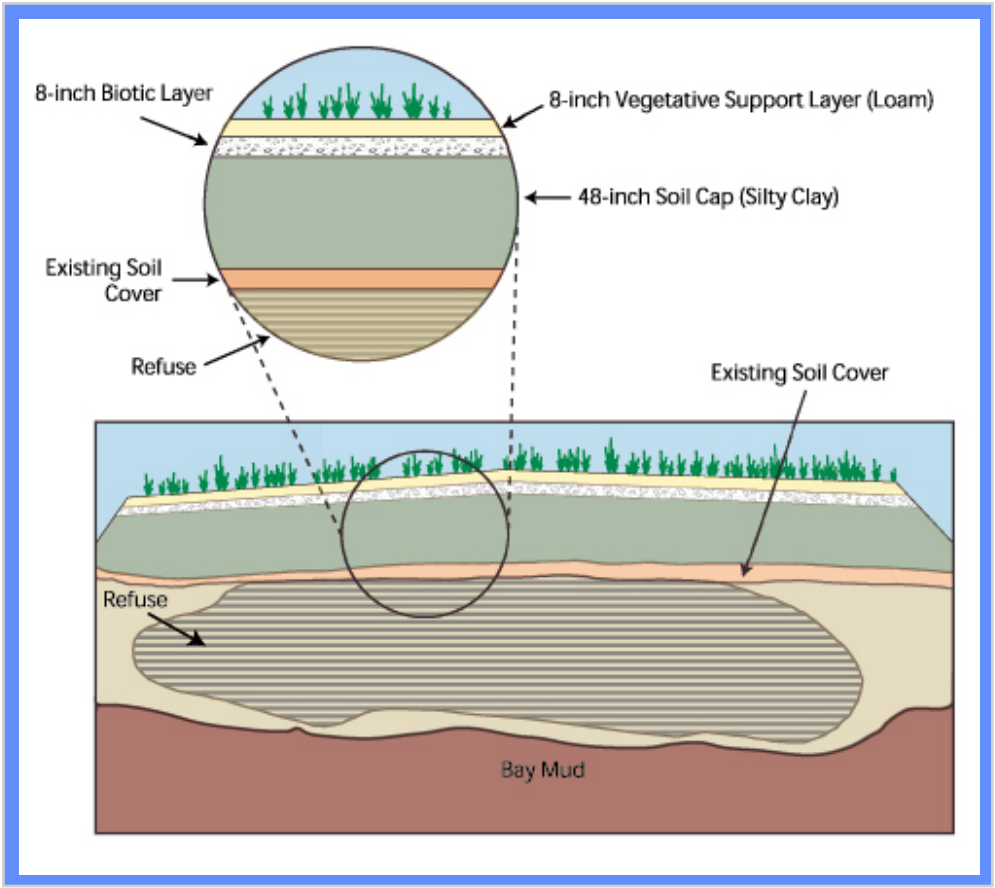
Water Inflow

<u>24-inch</u>

11,753,000 gal/yr

<u>48-inch</u>

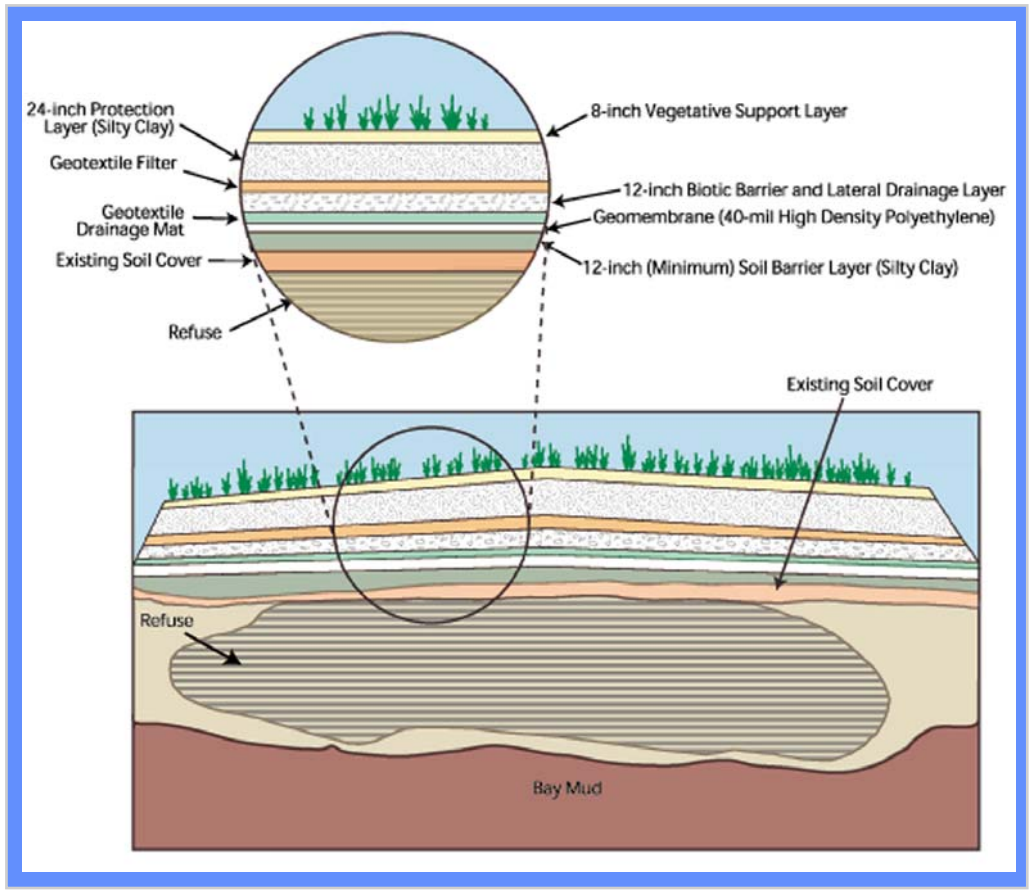
11,723,000 gal/yr



Engineered Cap

Water Inflow

508,000 gal/yr



Recommended Remedial Alternative

- 24-inch “Monolithic” Cap
- Funnel and Gate Groundwater Treatment
- Landfill Gas Monitoring

Strengths of Recommended Alternative

- Best satisfies 7 NCP criteria
  - Reduces risks to acceptable levels
  - Meets ARARs
  - Approximately equivalent effectiveness / significantly lower cost
    - 1 point (out of 30) difference in overall reduction of risk
    - 1 point (out of 10) difference in reduction of toxicity, mobility, volume
    - Equally technically and administratively feasible