



# LANDFILL EXPERIENCE

## Home Depot, Colma (1995)

- First Post Closure Development after Title 27 Regulations were adopted in 1990.
- 102,000 SF Building, Structured Parking
- 7-acre Unlined, Class II solid waste landfill
- Anticipated settlements up to 5-feet
- Steel piles through landfill to bedrock below
- Approvals through:
  - ✓ California Integrated Waste Management Board
  - ✓ Lead Enforcement Agency (San Mateo County Health Department)
  - Regional Water Quality Control Board









# LANDFILL EXPERIENCE

## America Center, San Jose (2005+)

- 1 million s.f. office/hotel campus
- Final closure of 70-acre landfill
- Pre-drilled piles through landfill to protect aquifer
- On-going leachate monitoring at perimeter
- 3-5 feet of settlement anticipated
- Approvals through:
  - ✓ California Integrated Waste Management Board
  - ✓ Lead Enforcement Agency (City of San Jose)
    - Third Party Plan Check for Landfill Development
  - ✓ Regional Water Quality Control Board
- LEED Gold Certified







# LANDFILL EXPERIENCE

#### Sierra Point, Brisbane (1999)

- Final closure of 70-acre landfill
- 2 million s.f. office, 3 hotels
- Steel and concrete piles through landfill and Bay Mud
- On-going leachate monitoring at perimeter
- 3 to 4 feet of settlement anticipated
- Approvals through:
  - ✓ California Integrated Waste Management Board
  - ✓ Lead Enforcement Agency (San Mateo County Health Department)
  - ✓ Regional Water Quality Control Board









# RECENT POST CLOSURE LANDUSE APPROVAL

# City Place, Santa Clara (2017)

- 239-acre development, 175-acres on existing closed landfill
- 7 million s.f. office/retail, 700 hotel rooms, 1,360 Residential Units
- Approvals to date:
  - City of Santa Clara approved land use change June 2016
  - LEA (Santa Clara County Health) approved Post Closure Land Use Plan December 2016
  - California Department of Resources Recycling and Recovery approved PCLUP December 2016
  - Regional Water Quality Control Board approved PCLUP December 2016
  - Regional Water Quality Control Board approved revised Waste Discharge Requirements (WDR)
    May 2017
- Revised WDRs require:
  - Review/approval of detailed project reports and plans prior to construction
    - Leachate monitoring and plans for extraction if safe levels exceeded
    - Methane gas monitoring and collection systems
    - Final cap designs
    - Mitigations for impacts to final landfill cap during construction
    - Pile installation and mitigations/monitoring
  - Review/approval of Maintenance and Monitoring Plan
    - Includes requirements for inspection after seismic events
  - Review/approval of Funding Mechanism for future maintenance activities



# POST CLOSURE LANDFILL DESIGN PROCESS

# **Design Process**

- Analyze historical documents and geotechnical data
- Conceptual design studies and reports
- Meetings with Regulatory Agencies
  - Local Enforcement Agency (San Mateo County Health)
  - Regional Water Quality Control Board
  - California Department of Resources Recycling and Recovery
  - City of Brisbane
- Develop Post Closure Land Use Plan
  - Detailed Environmental Studies and Geotechnical Studies
  - Leachate and Methane control strategies
  - Specific improvement design strategies
  - Phasing
  - Sea Level Rise
  - Maintenance/Monitoring/Funding Plan
- Review/Approval of PCLUP by Regulatory Agencies
- Site Improvement Designs
  - Grading/Drainage/Utilities
  - Design for Final Cover
  - Leachate and methane monitoring and control systems
- Inspection/Monitoring/Maintenance Plan
- Final Review/Approval by Regulatory Agencies