



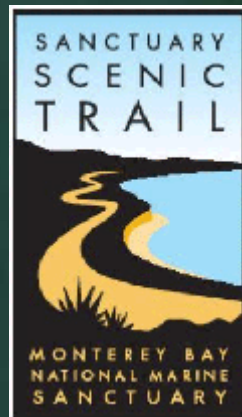
Twin Lakes Beachfront Improvement Project

Twin Lakes Beachfront Improvement Project



Project History & Community Input

Twin Lakes Beachfront Improvement Project



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Twin Lakes Beachfront Improvement Project



- Over 500,000 visitors annually to Twin Lakes State Beach
- Harbor Beach Events, Businesses, Boating, Access to Monterey Bay

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East Cliff Drive

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East Cliff Drive:

- No Walkways - Conflicts with Cars & Pedestrians
- No Bike Lanes - Conflicts between Cars, Bikes & Pedestrians
- Parking Encroachments onto Beach
- Vehicular Conflicts – Travel Lanes Too Narrow
- No Beach Drop-Off Point



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Historic Santa Cruz Trolley

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Winter scour limits access,



Danger to road & utilities,



Exposes rip-rap



Summer sand level to road

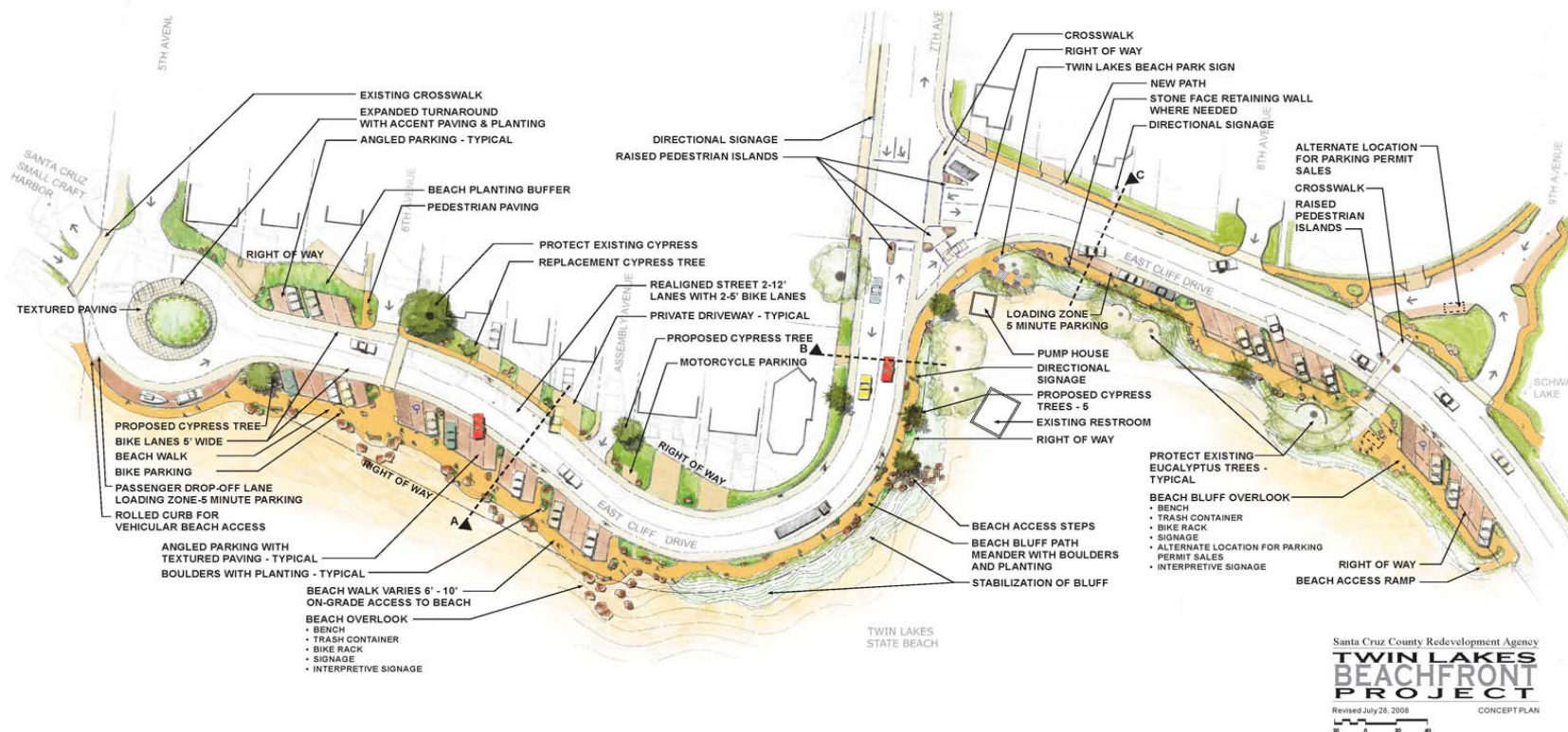
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Community Design Process 2007-2008



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2008 Community Master Plan



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Improvement Plans Road, Pedestrian & Bluff Protection

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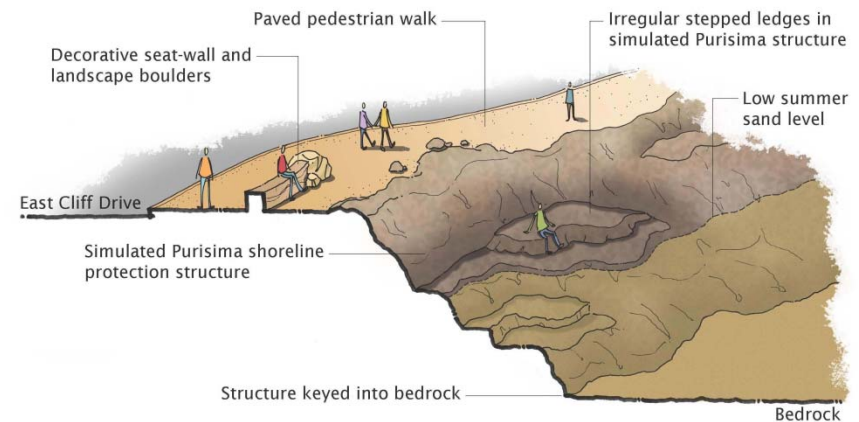
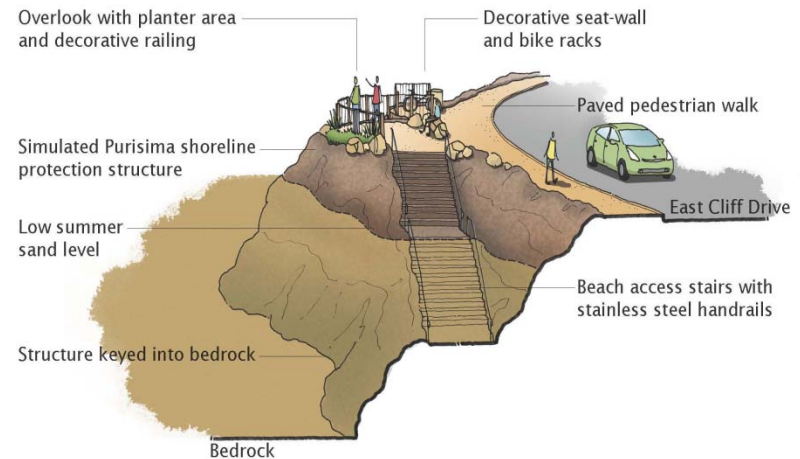
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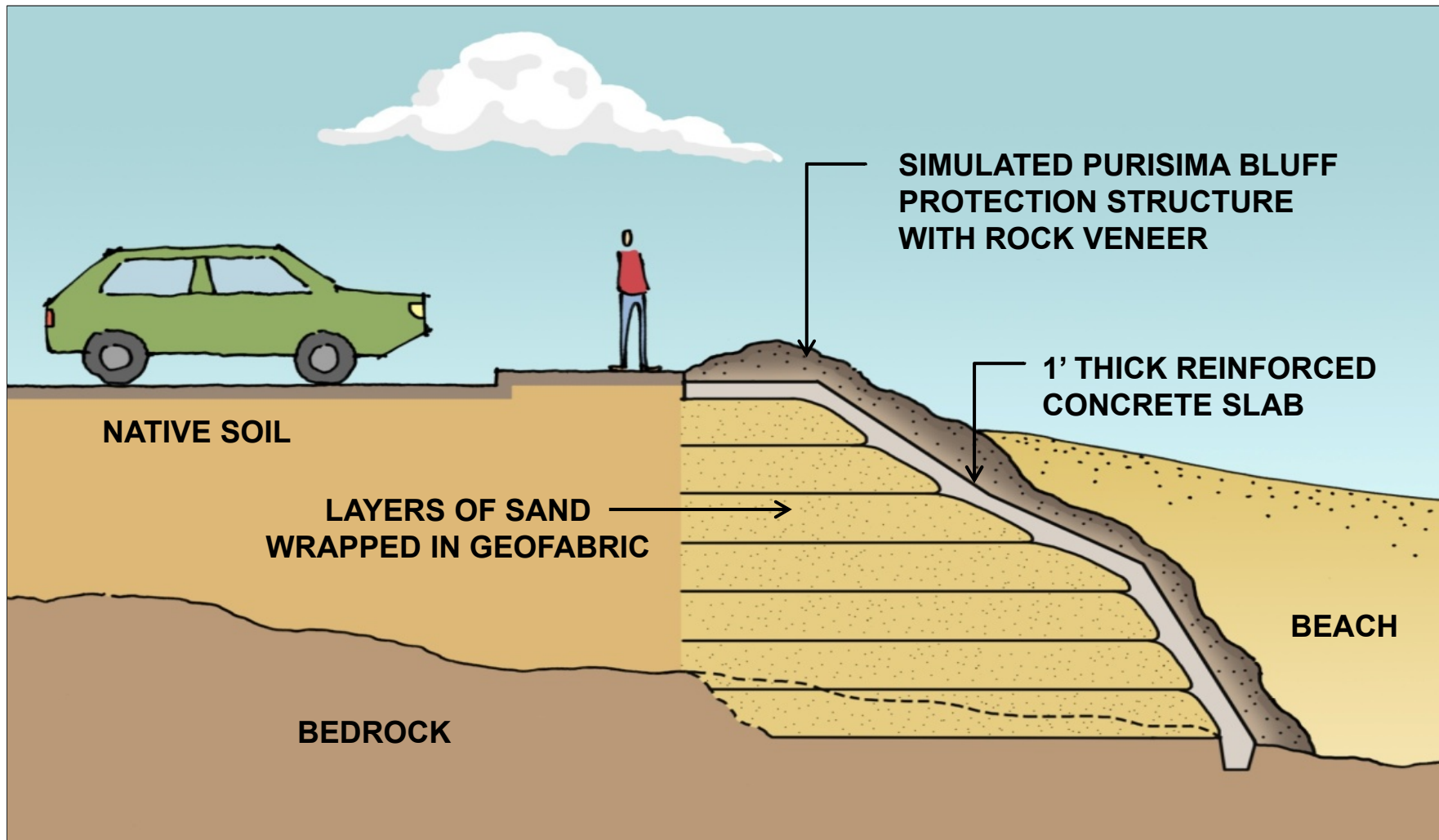
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Bluff Protection

- Provide Terraced Access
- Respond to Changing Sand Elevations with Ramp and Stairs
- Provide Year Round Access Regardless of Sand Elevation
- Provide Beach Universal Pathway



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- Protect Road
- Protect Utilities
- Improve Scenic Quality
- Improve Water Quality
- Mimic Look of Existing Geologic Formations



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Storm Water Treatment and Infiltration



FloGard®+PLUS Catch Basin Insert Filter

NOTE:

SEE SPECIFICATIONS AND PLANS FOR ADDITIONAL INFORMATION

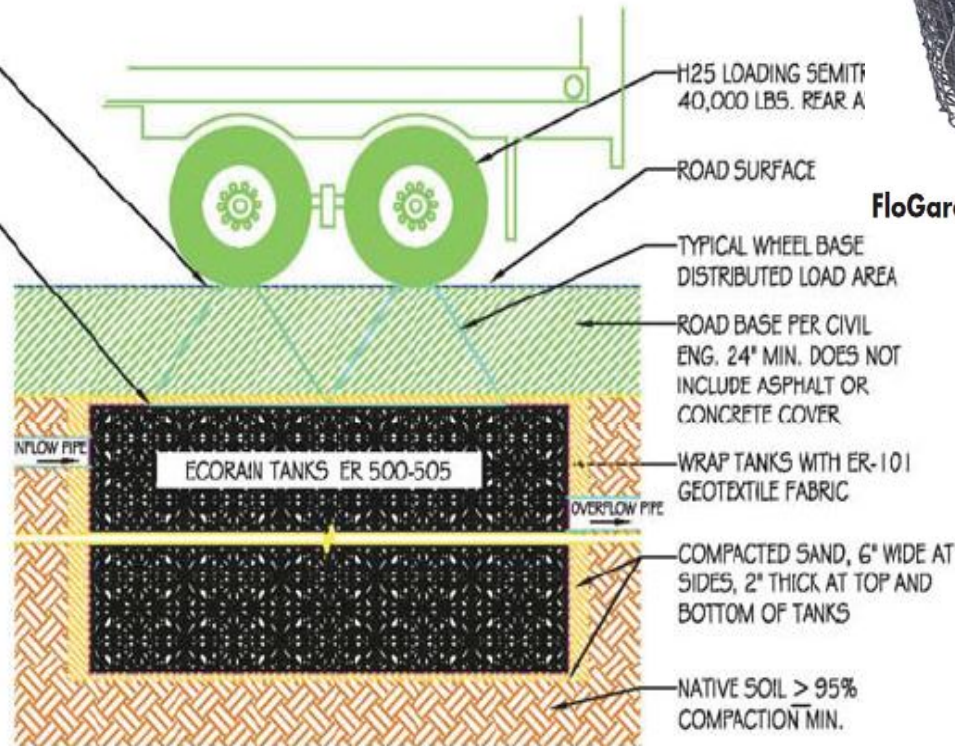
PRESSURE AT TIRE BASE = 80 PSI

PRESSURE IS DISTRIBUTED OVER LARGER AREA THROUGH ROAD BASE THEREFORE PRESSURE AT DEPTH OF 24" = 7.44 PSI

NOTES:

1. PER CODE, ENGINEERS INCREASE PRESSURE BY 20% TO ACCOUNT FOR A MOVING TIRE LOAD; THEREFORE, THE TOTAL PRESSURE, INCLUDING WEIGHT OF THE ROAD BASE IS INCREASED FROM 7.44 PSI TO 9.25 PSI

2. IN DOCUMENTED LABORATORY COMPRESSION TESTING, ECORAIN TANKS WITH 4 SMALL PLATES YIELDED 39 PSI; USING THE ABOVE SCENARIO WITH H25 LOADING AND A 24" ROAD BASE, THE FACTOR OF SAFETY IS:
 $\frac{39\text{psi}}{9.25\text{psi}} = 4.22$ FACTOR OF SAFETY



CONCEPT H-25 LOAD CAPACITY DIAGRAM

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Bird's Eye View Looking West Down East Cliff Dr.



20 Provides Coastal Access During Low Winter Sand Conditions

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Bird's Eye View Looking West Down East Cliff Dr.



21 Mimics Existing Access During High Summer Sand Conditions

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Approvals, Permits & Funding Partners

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Approvals and Permits:

- ❑ County of Santa Cruz – *Master Plan and permits*
- ❑ California Coastal Commission - *permits*
- ❑ Santa Cruz Port District – *easements*
- ❑ California State Parks - *easements*
- ❑ State Lands Commission - *evaluate need for lease*
- ❑ Monterey Bay National Marine Sanctuary



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Partners



- State Parks Division of Boating & Waterways – *grant funds*
 - California Coastal Conservancy – *grant funds*
- Santa Cruz County Regional Transportation Commission – *grant funds*
 - Monterey Bay Air Resources District – *grant funds*
 - County of Santa Cruz Sanitation District – *funds*
 - County of Santa Cruz Public Works TDA - *funds*
- Santa Cruz County Redevelopment Successor Agency – *bond funds*
 - Santa Cruz Port District – *easement*
 - California State Parks – *easement*



Twin Lakes Beachfront Improvement Project



Construction Schedule, Traffic & Pedestrian Access

Twin Lakes Beachfront Improvement Project



Project Schedule Highlights

Contractor: Graniterock Company, Drill Tech

Project Duration 10 months

Start of Construction September 2016

Project Completion July 2017

Work Hours:

M-F 8:00 am to 5:00 pm, excluding holidays

Heavy Equipment & Traffic Control 8:30 am – 4:30 pm

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- **Traffic**

- Signage and flagging to be provided for continuous two-way traffic
- No long-term lane closures, maximum 20 minute.
- No closures before 8:30 am or after 4:30 pm.



- **Access**

- Safe vehicle, pedestrian, bicycle access with beach access
- All work zones secured for traffic and pedestrian safety



- **Parking**

- Contractor to submit Traffic & Access Plan
- None to limited parking along East Cliff Drive during construction

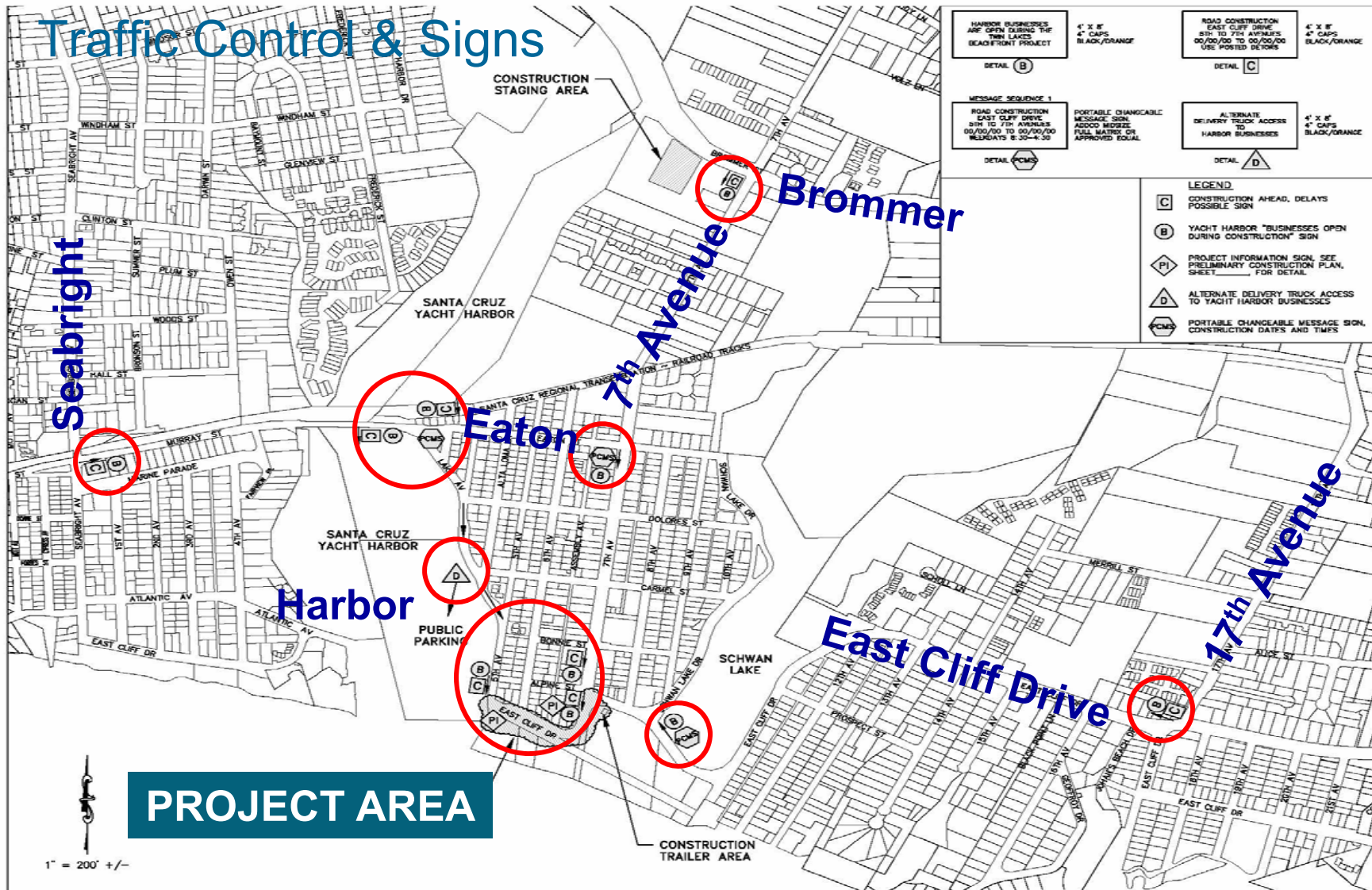


- **Harbor**

- Area signage “Harbor Businesses Open During Construction”
- Limited Harbor entrance closures



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- Environmental Mitigations
 - Erosion Control
 - Air Quality
 - Storm Water Monitoring
 - Bird Nesting
 - Tree Protection
- Agency Coordination
 - Port District Coordination
 - Harbor Dredging Operations
 - State Parks Coordination
 - Coastal Commission Consultation



Twin Lakes Beachfront Improvement Project



Project Website & Contact Information

Twin Lakes Beachfront Improvement Project



County of Santa Cruz Department of Public Works Website

<http://www.dpw.co.santa-cruz.ca.us/>

Twin Lakes Beachfront Improvement Project

Department of Public Works Project Contact Information:

Cristina Crocker, Construction Engineer 477-3956



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