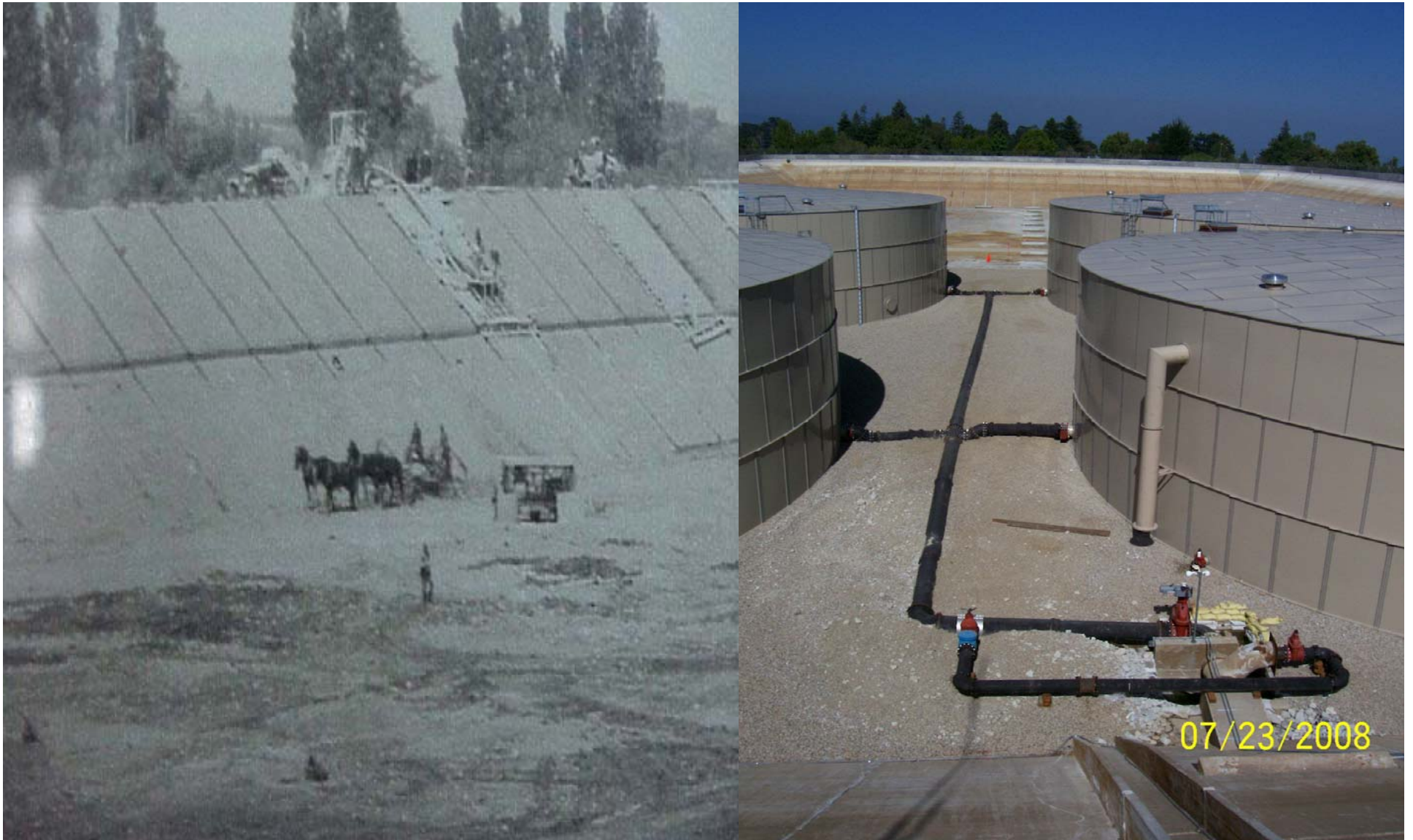
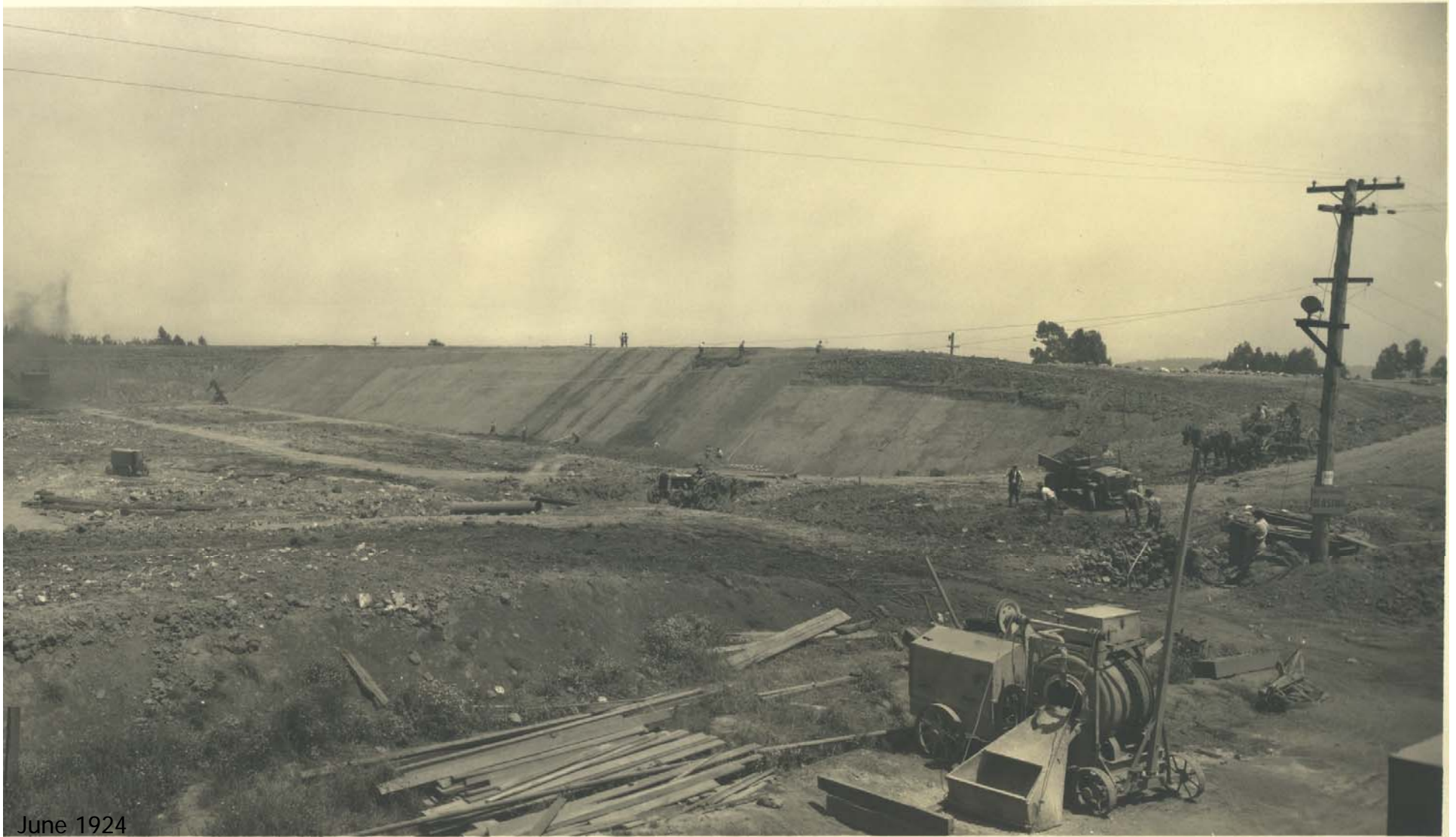


BAY STREET RESERVOIR REPLACEMENT PROJECT



Under Construction in 1924



June 1924

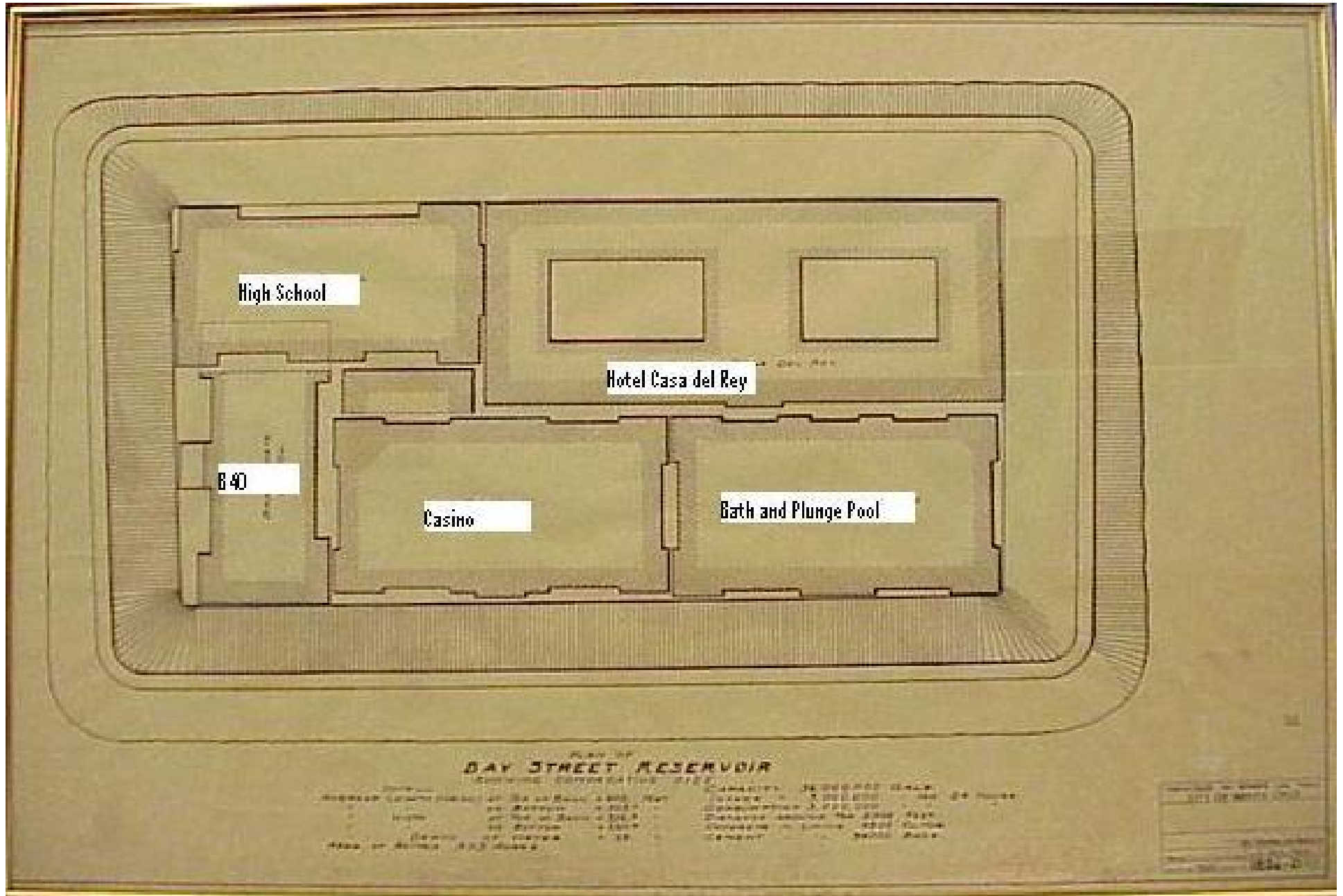
Originally constructed circa 1924 along what was then Bay Street, and is now Cardiff Place, the Bay Street Reservoir was an open raw water reservoir fed from North Coast Sources. It replaced the old Cowell Reservoir located near where the arboretum is now.

- 35 million gallon capacity (107 acre-feet)
- Earth embankment

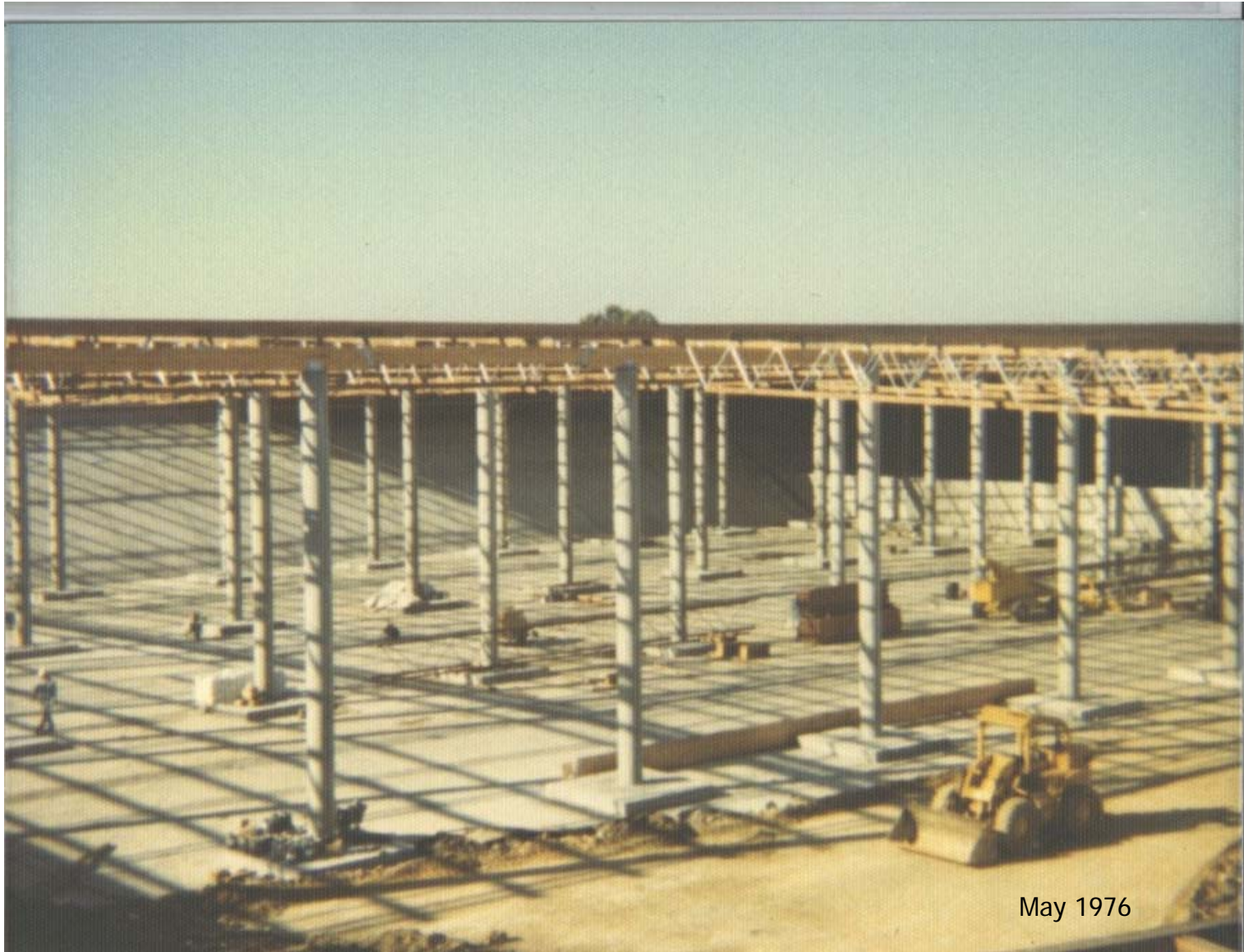
- Rock armored exterior slope
- Concrete lined interior



This 1924 drawing gives an impressive perspective of the enormous size of the Bay Street Reservoir relative to major downtown historic landmarks.



1976 Roof Construction



May 1976

In 1976, the reservoir was converted to treated water storage and a roof was added to comply with new Surface Water Treatment Regulations.

The roof area was about 5 acres; the entire reservoir site is about 7.5 acres.



The neighborhood grew up around the reservoir.

1982 Wind Problems

- Fasteners failed and some roof panels blew off.
- Modifications were made to hold the roof panels down.

1998 Investigation of Re-Roofing

- Found deterioration of wooden roof structure.
- Concluded roof did not meet code for wind and earthquake.
- Numerous alternatives considered.
- Decision made to commission the design of a conventional roof replacement

1999 Roof Replacement Design

- Designed a heavy gauge steel roof.
- But reservoir could not be taken out of service for construction.
- Construction over an operating reservoir is risky and very expensive.
- Concluded roof replacement needed to wait for construction of the BSR Transmission Main when system could operate without the reservoir.
- Transmission Main design began in 2001

2003 Roof Repair



- In May 2003, a section of the roof failed.
- A repair project based on the design done in 1999 for full roof replacement was implemented for 12% of the total roof area at a cost of \$2.2 Million.
- Design of BSR Transmission Main continued.

Water Quality & System Improvement Study

Bay Street Reservoir Issues identified:

- Water age in the Reservoir could become excessive.
- Roof needed to be replaced in full.
- Reservoir also needed:
 - new inlet/outlet configuration.
 - a circulation system.
 - the interior dividing wall replaced.

Conclusions:

- The study confirmed the need for a new transmission main to:
 - fill the reservoir faster in summer months,
 - increase operational flexibility, and
 - provide water quality benefits.
- Cost of making the necessary modifications would
 - exceed the cost of total replacement and
 - still be reliant on a dam structure constructed prior to modern standards.

Bay Street Reservoir Transmission Main Construction



Construction of the transmission main began in June 2006. The main went on line in June 2007.

2006 Further Roof Failure Requires Action

- December 2006 - another section of the Bay Street Reservoir roof began to fail. Repair estimated at \$17 million.
- City considered shoring up the roof while planning and constructing permanent storage elsewhere, but that would take too many years to study, acquire property, conduct environmental review, design, and construct.
- We reconsidered full roof replacement. However, the cost for the roof alone was approaching the cost of total replacement with a modern facility.
- When costs to address the other issues such as water age, mixing, and the internal dividing wall were factored in, the decision to replace was clear.
- Given the precariousness of the roof, plus all the other problems with the existing reservoir, City Council approved demolition of the existing reservoir and installation of temporary storage tanks at the site, while plans for a permanent replacement was developed.



December 2006 Roof Failure



BSR Replacement– Temporary Tanks



All four 1.5 million gallon temporary bolted steel tank were in service by August 2008.

Site Investigation and Hydraulic Modeling

- Site survey
 - Located exact property lines, easements, and topography
- Geophysical exploration
 - 63 boreholes up to 50 feet below reservoir floor
 - Seismic hazard analysis
- Surface wave seismic survey
 - Mapped fractures in the underlying bedrock and voids in the karst formation using seismic waves and geophones
- Hydrogeologic Investigation
 - Characterized the existing groundwater conditions
 - Evaluated potential impacts on local groundwater
- Hydraulic Modeling
 - Determined best storage volume to meet emergency storage needs while balancing water quality concerns
 - Confirmed ideal overflow elevation
 - Evaluated performance under worst case operating conditions

BSR Replacement – Permanent Tank Concept



CONCEPTUAL LANDSCAPE PLAN

PROPOSED LANDSCAPE PLAN

Bay Street Reservoir Reconstruction Project
 City of Santa Cruz Water Department G • Santa Cruz, California
 April 27, 2010

JONI L. JANECKI
 & ASSOCIATES

JONI L. JANECKI & ASSOCIATES, INC.
 475 SHREVE ST. SANTA CRUZ, CA 95062
 PHONE 831.452.8242 FAX 831.452.8244
 EMAIL J.JANECKI@JJA.COM WWW.JJA.COM



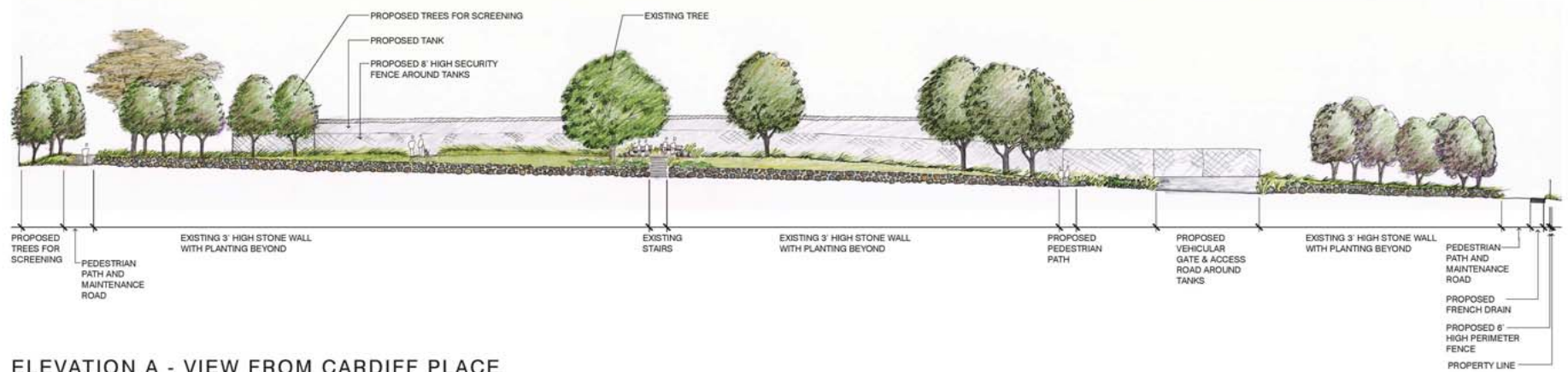
BSR Reconstruction – Permanent Tank Concept



← TO UCSC

PHOTO OF SITE - VIEW FROM CARDIFF PLACE

NOT TO SCALE



ELEVATION A - VIEW FROM CARDIFF PLACE

NOT TO SCALE



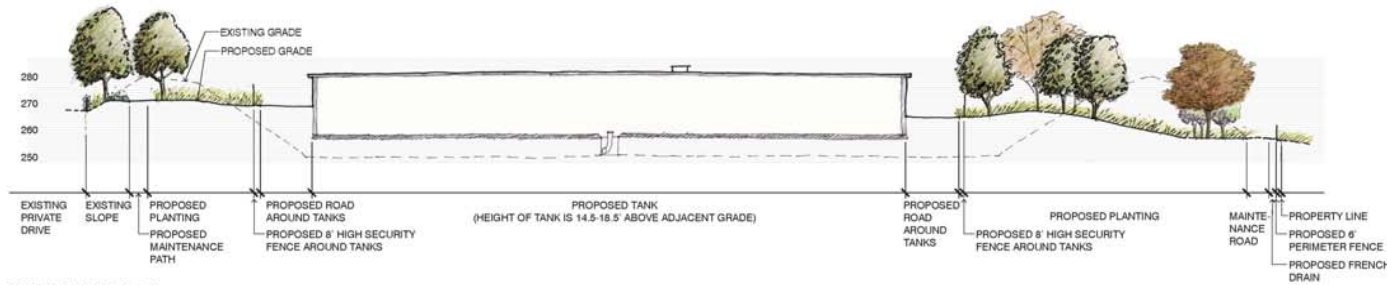
CONCEPTUAL LANDSCAPE PLAN

Bay Street Reservoir Reconstruction Project
 City of Santa Cruz Water Department G • Santa Cruz, California
 April 27, 2010

EXISTING PHOTO & PROPOSED SKETCH

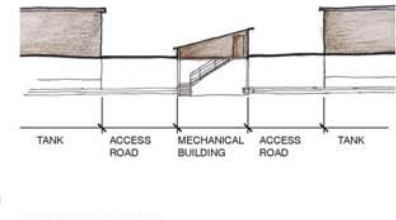
JONI L. JANECKI & ASSOCIATES, INC.
 815 STREET OF SANTA CRUZ, CA 95060
 PHONE: 837.624.8000 • FAX: 837.624.8000
 EMAIL: JONI@JANI.COM • WWW.JANI.COM
 PAPERWORK PERMITTED BY SANTA CRUZ COUNTY

BSR Reconstruction – Permanent Tank Concept



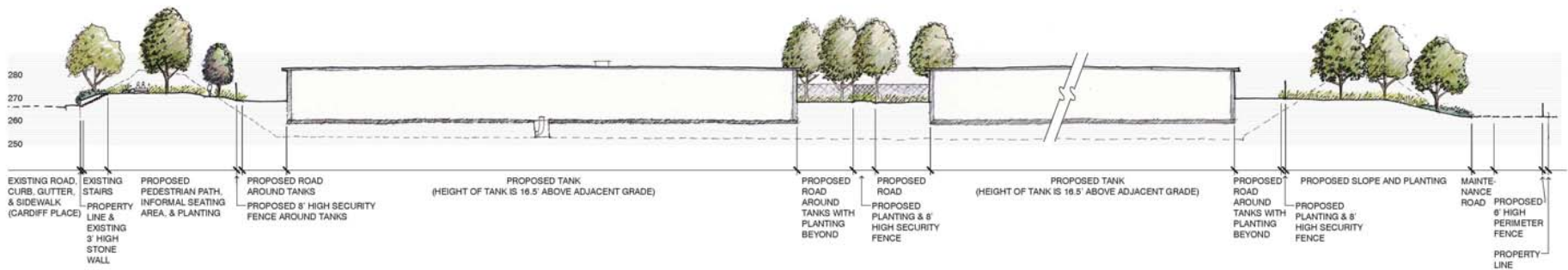
SECTION B

SCALE: 1"=20'-0"



SECTION D

SCALE: 1"=20'-0"



SECTION C

SCALE: 1"=20'-0"



CONCEPTUAL LANDSCAPE PLAN

Bay Street Reservoir Reconstruction Project

City of Santa Cruz Water Department G • Santa Cruz, California

April 27, 2010

JONI L. JANECKI & ASSOCIATES, INC.
914 STREET 30, SANTA CRUZ, CA 95060
PHONE 831.425.8880 FAX 831.425.8880
WWW.JLJA.COM WWW.JLJA.COM
LANDSCAPE ARCHITECTS LICENSED CONTRACTORS

PROPOSED SECTIONS

MAY 4th 2010 Public Meeting Re-cap:

- Neighborhood residents in attendance made clear objections to opening any portion of the site to public access for security reasons.
- Voiced strong resistance to lowering the embankment height for visual concerns.
- The City will go back to the drawing board for a revised conceptual landscape plan to address the comments received.
- A follow-up public meeting to present a revised plan for discussion is scheduled for Tuesday, September 7th at 7 PM in the upstairs meeting hall of the First Congregational Church at 900 High Street in Santa Cruz.

Tentative Schedule

DEMOLITION and SITE PREPARATION WORK	COMPLETED: OCTOBER 2007 - NOVEMBER 2008
TEMPORARY TANKS CONSTRUCTION	COMPLETED: DECEMBER 2007 - JULY 2008
HYDRAULIC MODELING and SITE INVESTIGATIONS	COMPLETED: APRIL 2008 - APRIL 2009
TANK #1 DESIGN	APRIL '09 THROUGH MAY '10
PUBLIC MEETING for SITE CONCEPT COMMENTS	COMPLETED: MAY 4 th 2010 - 6 PM
FOLLOW-UP PUBLIC MEETING	Tuesday, September 7th at 7 PM First Congregational Church (900 High St.)
CEQA REVIEW	FALL 2010
TANK #1 CONSTRUCTION	SPRING 2011 – SPRING 2012
TEMPORARY TANKS REMOVAL, TANK #2 FOUNDATION DESIGN	SPRING 2012 - SPRING 2013
PERMANENT TANK #2 CONSTRUCTION, FINAL SITE GRADING AND LANDSCAPING	SUMMER 2013 - SPRING 2015

Information & Construction Updates

Website: www.cityofsantacruz.com

E-mail Inquiries: dvalby@cityofsantacruz.com

Phone Inquiries: (831) 420-5210

Correspondence:

City of Santa Cruz Water Department
Engineering Division
212 Locust Street, Suite C
Santa Cruz, CA 95060

You may also request that your e-mail address to be added to the construction update notification list.