

# MURRAY STREET BRIDGE REHABILITATION PRESENTATION TO:



***PORT DISTRICT COMMISSIONERS***  
***MARCH 25, 2021***

# PREVIOUS DESIGNS BY THIS TEAM

## SAN LORENZO RIVER PEDESTRIAN/BIKE BRIDGE



# WATER STREET BRIDGE REHABILITATION



# SOQUEL AVENUE BRIDGE REPLACEMENT



# LAUREL/BROADWAY BRIDGE RETROFIT



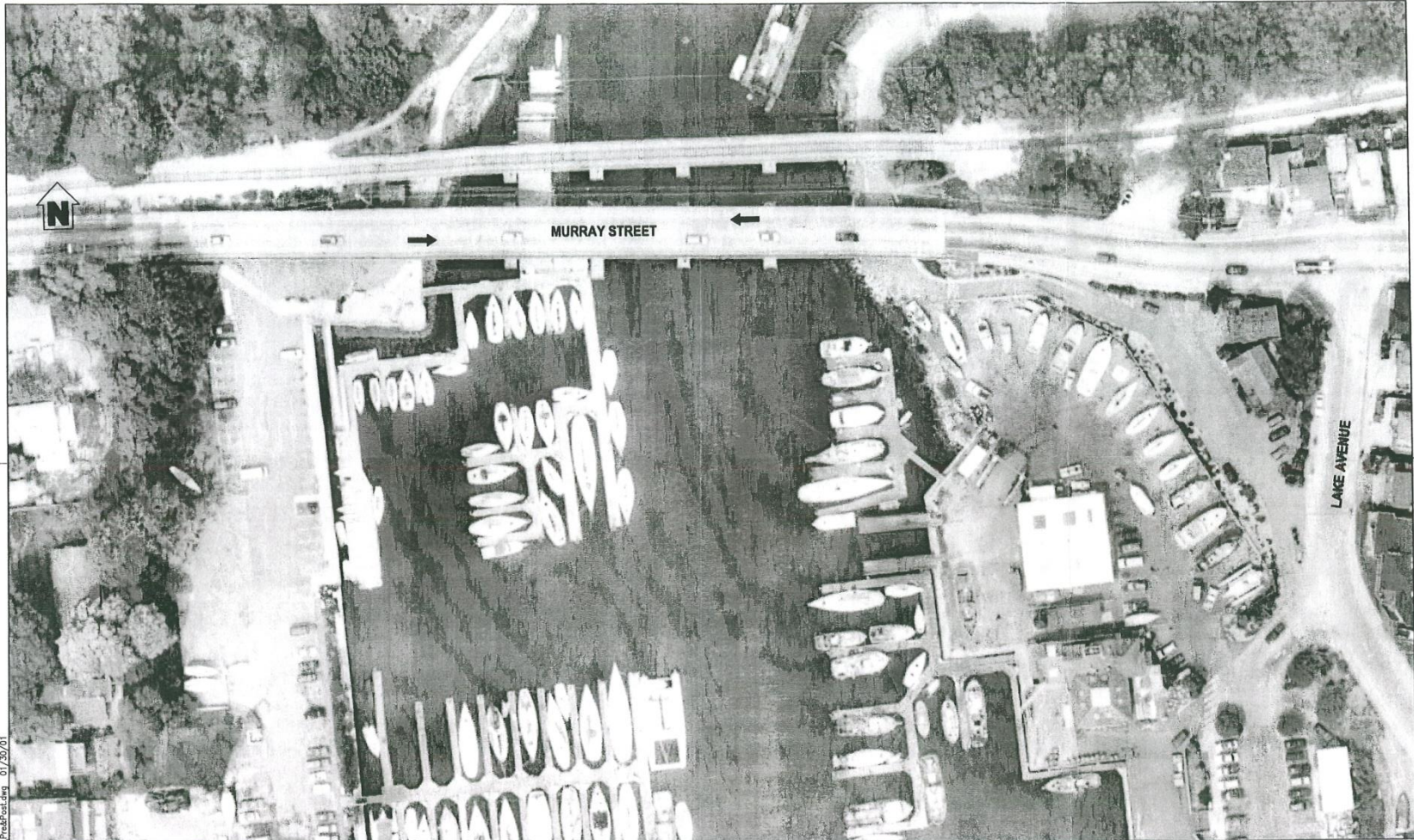
# BRANCIFORTE CREEK BIKE/PED BRIDGE



# MARKET ST., WATER ST., E. CLIFF DRIVE SEISMIC RETROFITS



# AERIAL VIEW



H:\1181\Murray\_PrestPrest.dwg 01/29/01



PREPARED FOR THE  
**CITY OF SANTA CRUZ**  
 PUBLIC WORKS DEPARTMENT

DESIGN	BY	CHECKED
DETAILS	BY J. VALENTINE	CHECKED
QUANTITIES	BY	CHECKED
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		
	0	1 2 3

**IMBSEN & ASSOCIATES, INC.**  
 9912 Bluebonnet Park Dr., Suite 130  
 Sacramento, California 95827

**MARK A. IMBRIANI**  
 PROJECT MANAGER

BRIDGE NO.	36C0108	<b>MURRAY STREET BRIDGE BARRIER REPLACEMENT</b>
<b>PRE &amp; POST CONSTRUCTION</b>		
DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES (PRELIMINARY STAGE ONLY)

SCALE	1"=30'
SHEET	1 OF 6
Vault No.	



# PROJECT NEED AND PURPOSE

- STATE-MANDATED SEISMIC SAFETY PROGRAM
  - RETROFIT VULNERABLE BRIDGE
- PROVIDE SAFETY FOR MOTORISTS, CYCLISTS, PEDESTRIANS
  - WIDEN STRUCTURE TO STANDARDS
- UPGRADE OTHER ELEMENTS
  - BRIDGE RAILINGS
  - DECK OVERLAY
  - SCOUR REPAIR
  - CONVEY COUNTY SSFM



# PROJECT GOALS

- UPGRADE BRIDGE TO CURRENT STANDARDS
- MAINTAIN HARBOR ACCESS AND OPERATIONS
- PROVIDE FOR SAFETY OF PERSONS AND PROPERTY
- MINIMIZE BUSINESS IMPACTS
- MAINTAIN SEWER



# PROJECT GOALS

- PROTECT ENVIRONMENT – FISH, MARINE MAMMALS
- ACHIEVE ADA COMPLIANCE
- MEET AGENCY PERMIT REQUIREMENTS
- WORK AROUND LIMITED SLIP CAPACITY



# VIEW LOOKING WEST



# EAST APPROACH VIEW



# WEST HARBOR VIEW

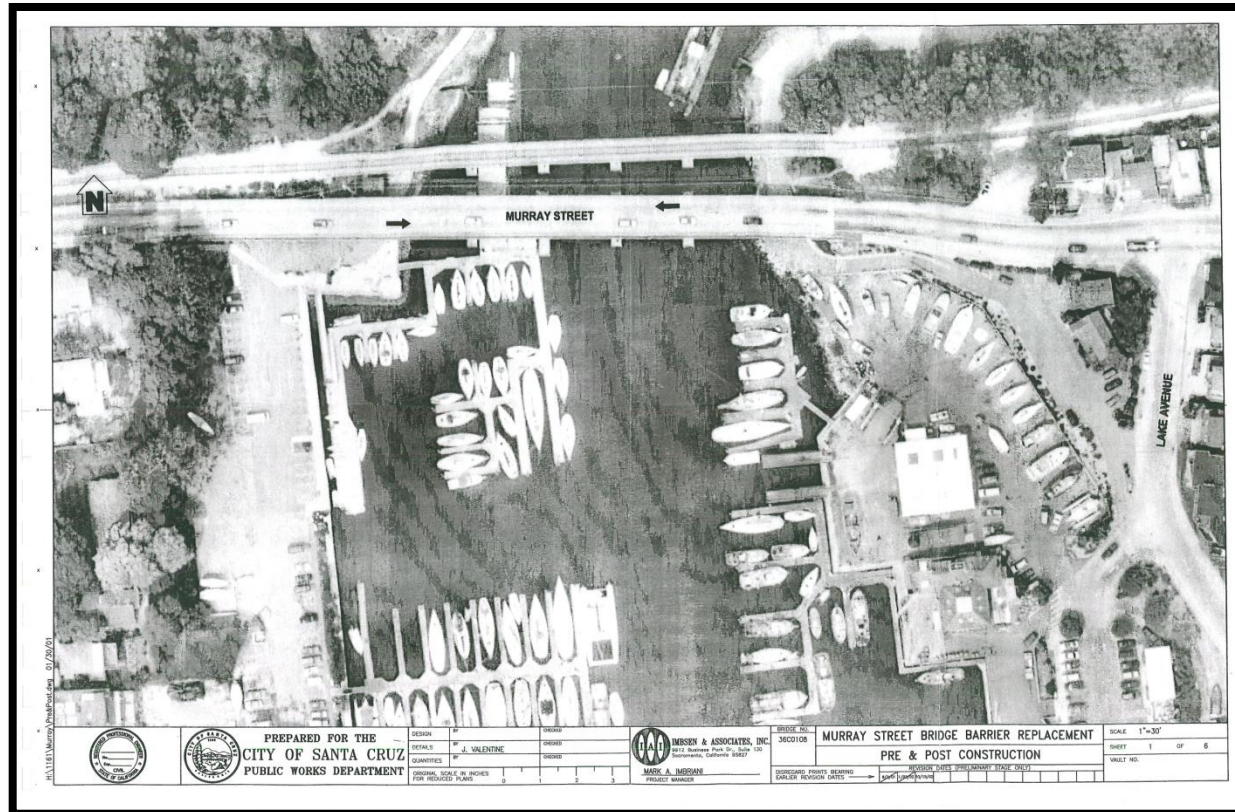


# EAST HARBOR VIEW



# COAST GUARD/OPERATIONAL WATERWAY

- MAINTAIN TWO OPEN WATERWAYS
- MAINTAIN CLEARANCES





# ENVIRONMENTAL CONSTRAINTS

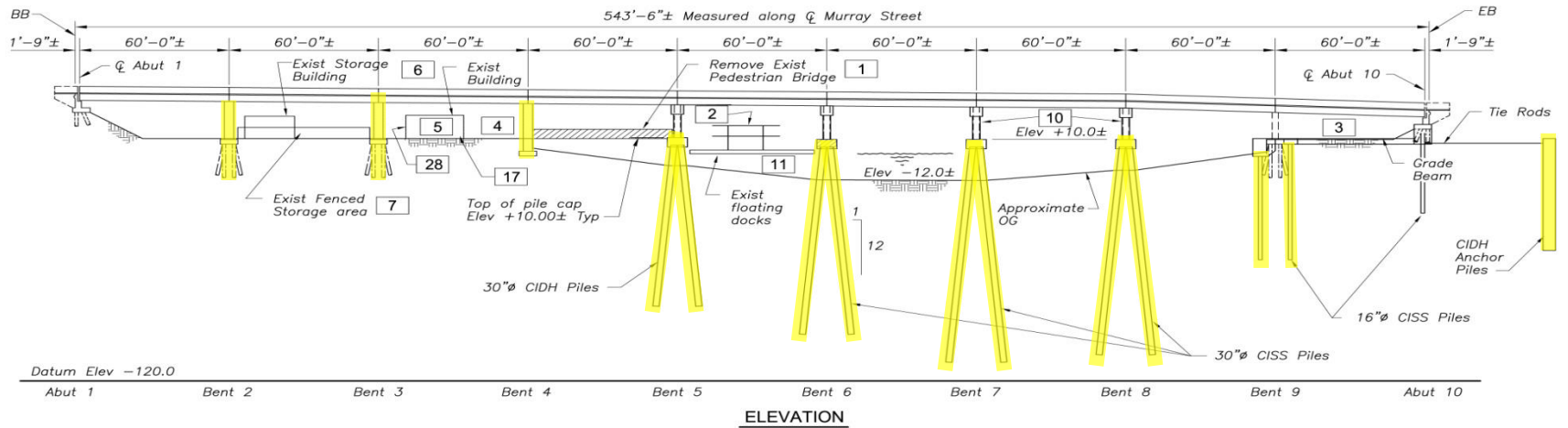
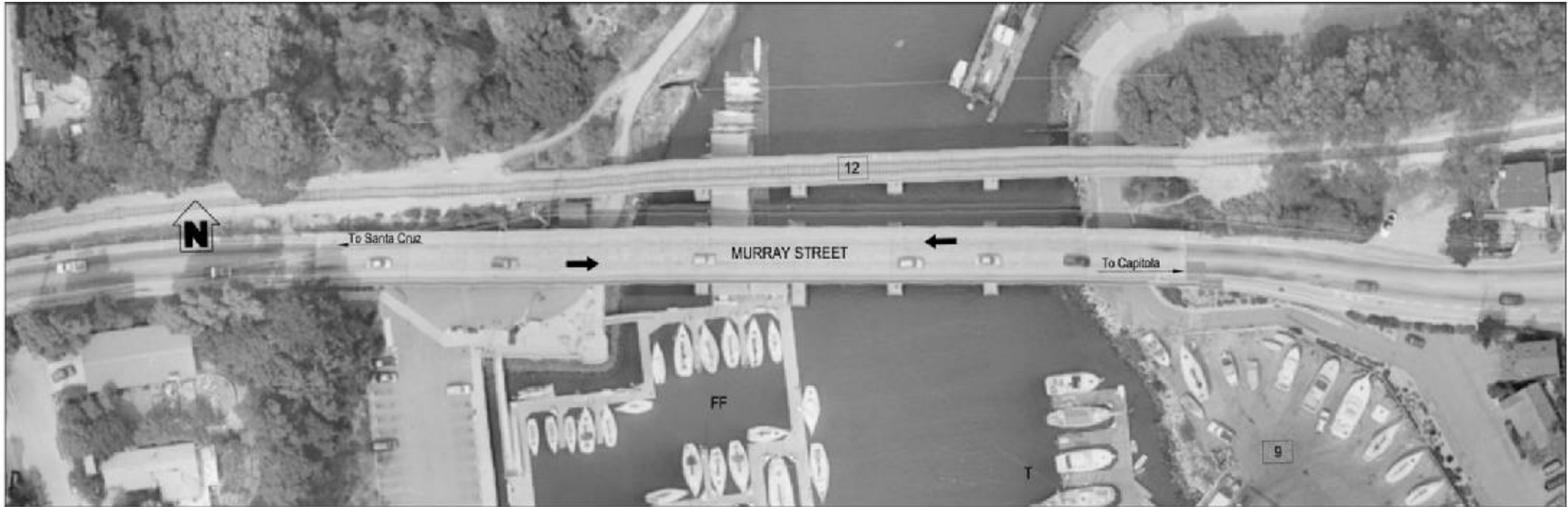
- S. STRELOW – CONSULTANT
- WATER QUALITY – BMPs
- STEELHEAD – DFG
- MARINE MAMMALS
- US ARMY COE
- COASTAL COMMISSION
- PERMITS SECURED: RWQCB, COE, CDFW



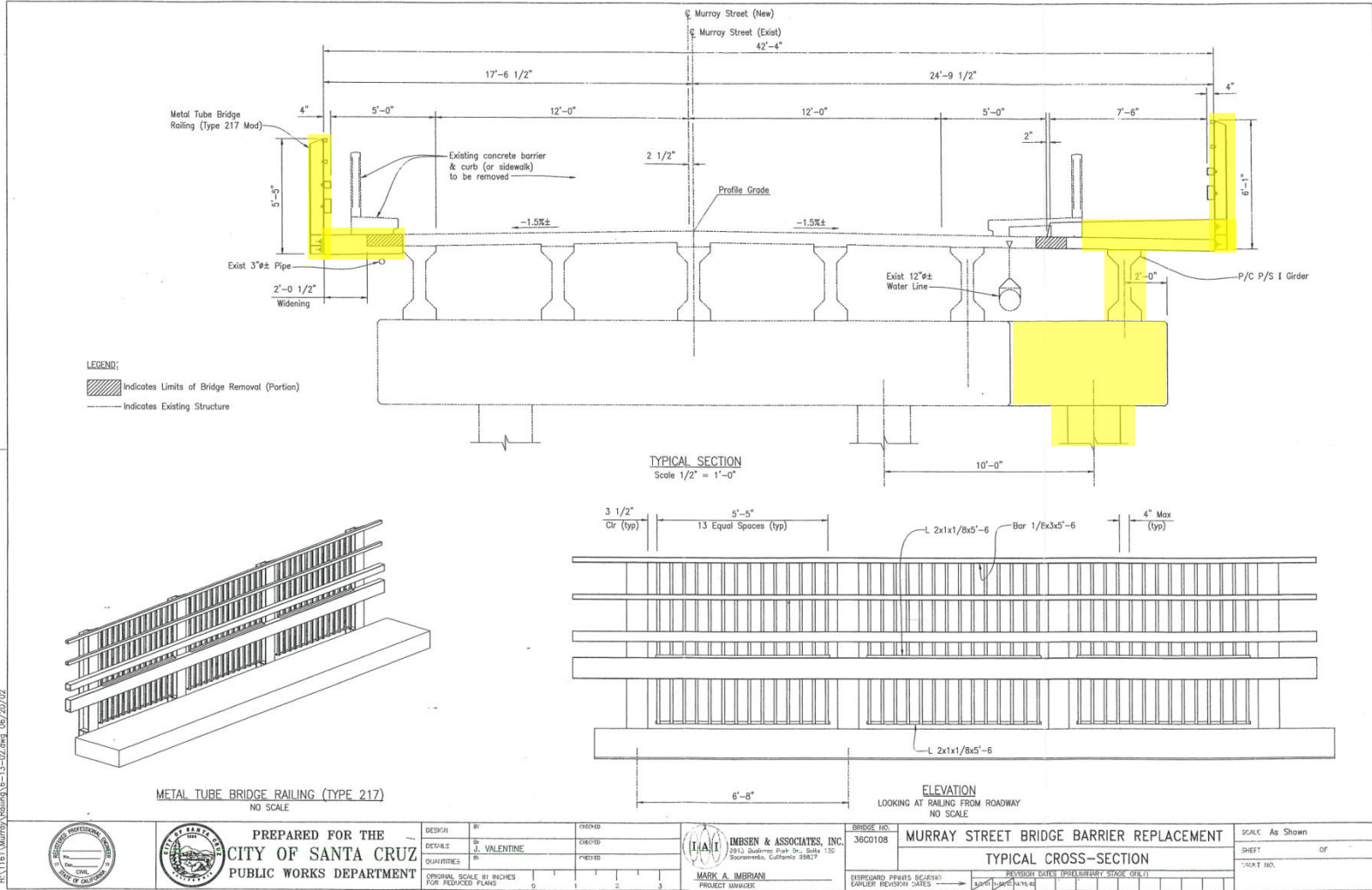
US Army Corps  
of Engineers®



# FOUNDATION STRENGTHENING



# BARRIER REPLACEMENT/WIDENING



RL 1181 Murray\_Railing\_6-13-09.dwg 06/20/02

# PILE INSTALLATION



# BRIDGE GIRDER PLACEMENT



# SEWER CONFLICT



Project: East Cliff Transmission Facilities – Division B

Subject: *Placing 30" CCP in Harbor*

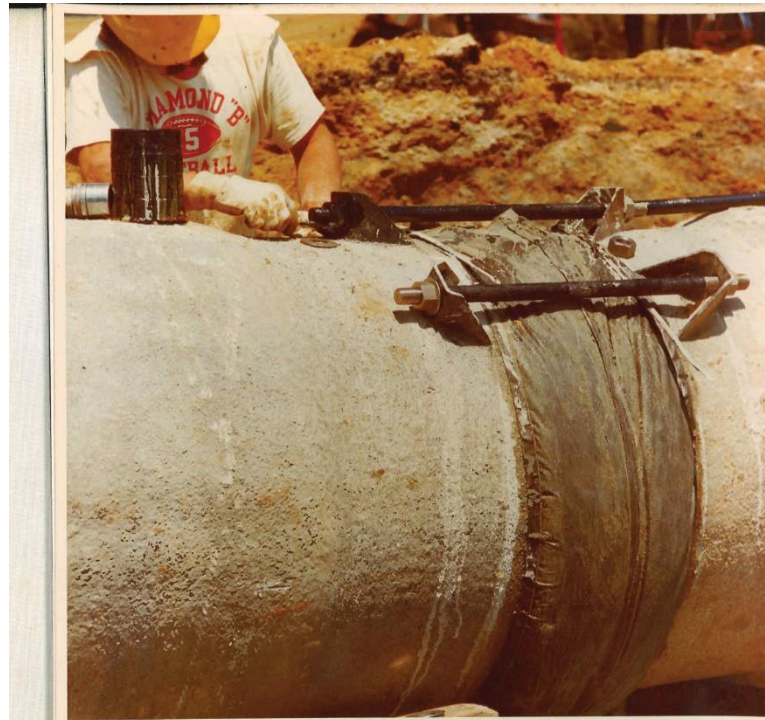
Station: 186+50

View: East

Date: 9/20/75

Photo No.: **31**

# SEWER CONFLICT



Project: East Cliff Transmission Facilities – Division B

Subject: *Tension Lugs with AMERCOAT*

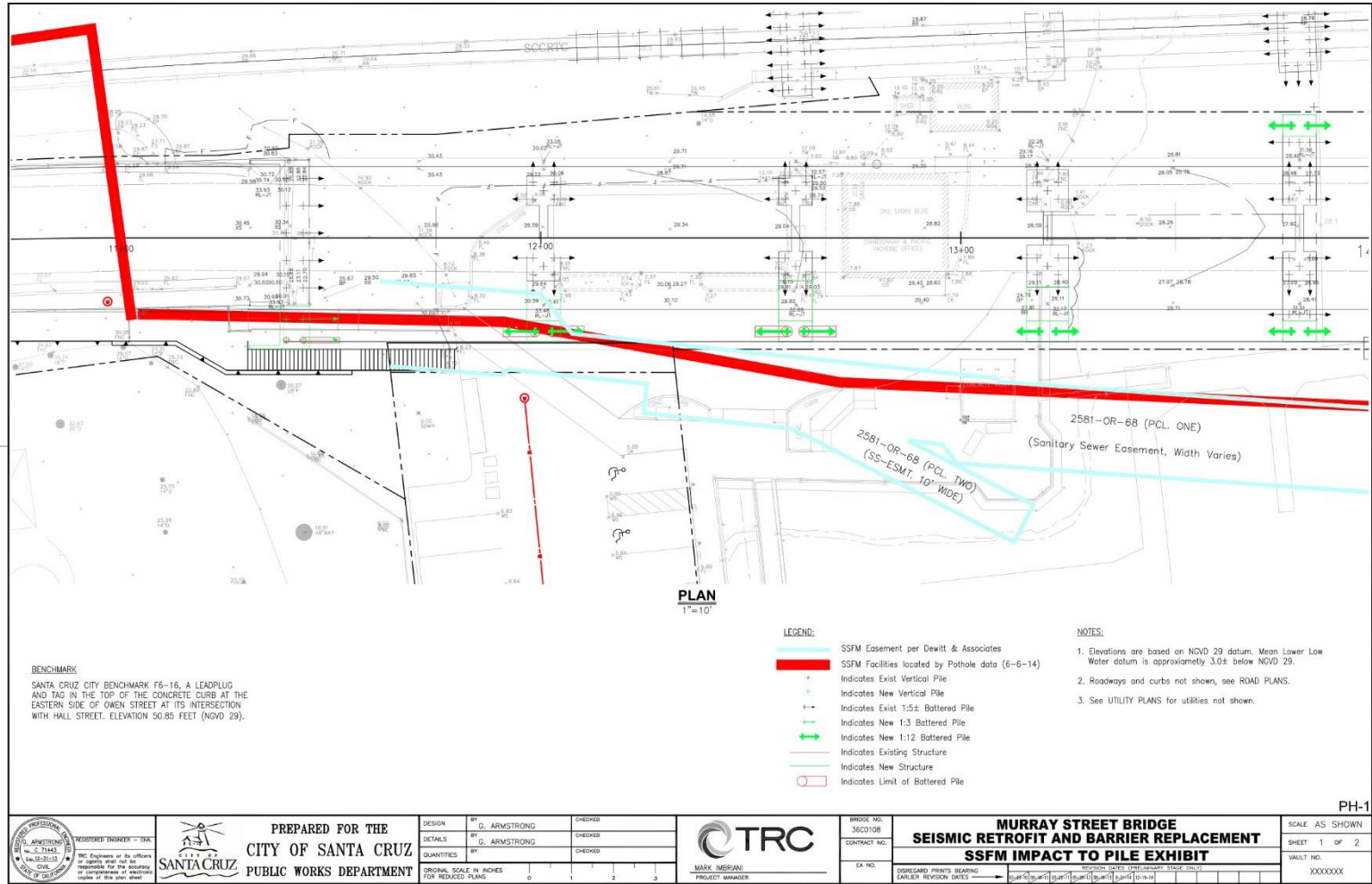
Station: 186+50

View: North

Date: 8/13/75

Photo No.: 30

# SEWER CONFLICT





# NEW SEWER ON BRIDGE



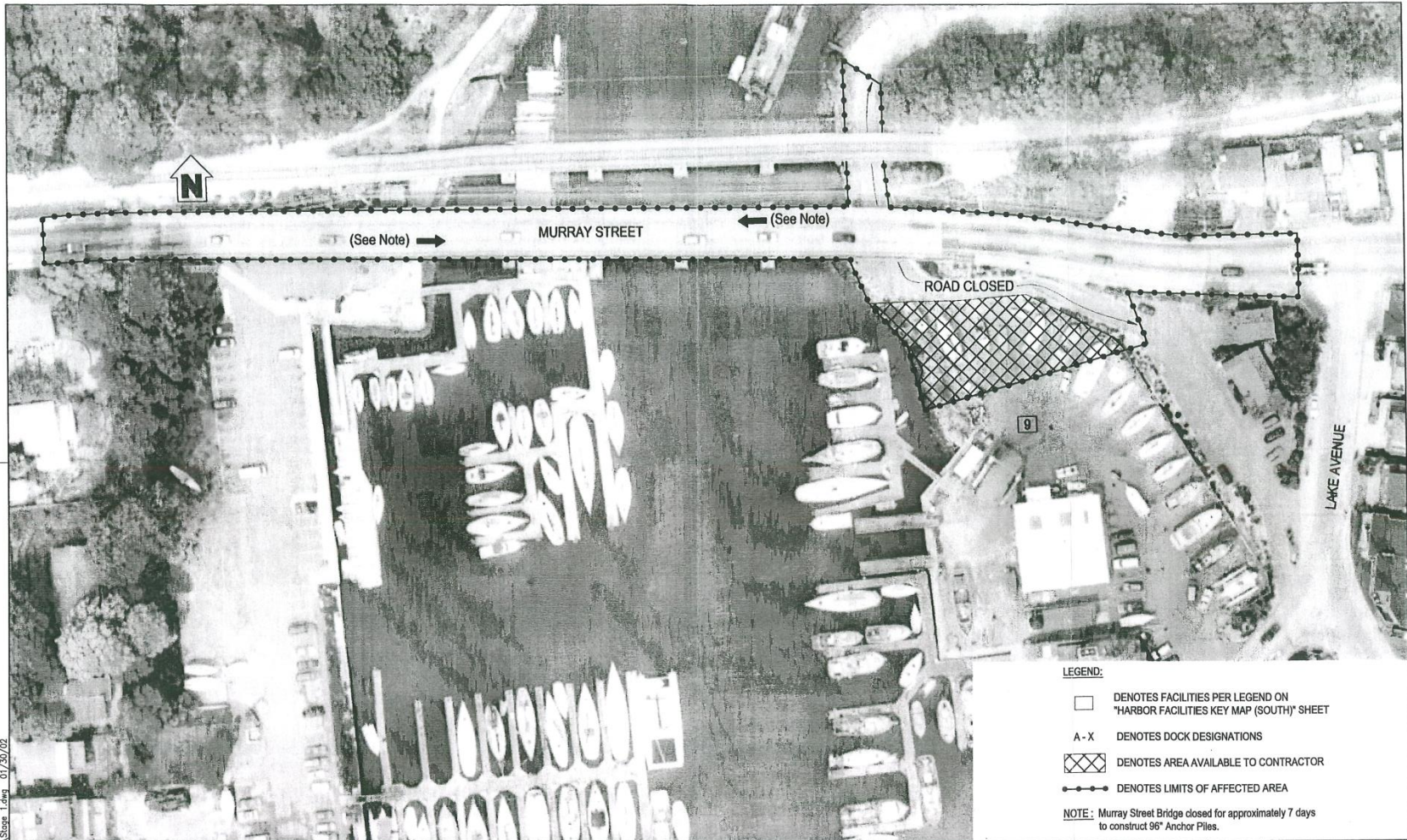
# NEW SEWER ON BRIDGE



# STAGE CONSTRUCTION – 5 STAGES

- SEE 5 EXHIBITS
- STAGES ARE INTERCHANGEABLE IN TIME
- MINIMIZE TIME OF DISRUPTION
- MINIMIZE NUMBER OF DISRUPTED
- ALLOW VESSEL RELOCATION
- SAFETY
- PROVIDE WATERWAY ACCESS TO NORTH HARBOR
- UTILIZE IN-WATER WORK WINDOWS

# STAGE 1



HA 1161 Murray Stage 1.dwg 01/30/02

**LEGEND:**

- DENOTES FACILITIES PER LEGEND ON "HARBOR FACILITIES KEY MAP (SOUTH)" SHEET
- A - X DENOTES DOCK DESIGNATIONS
- DENOTES AREA AVAILABLE TO CONTRACTOR
- DENOTES LIMITS OF AFFECTED AREA

**NOTE:** Murray Street Bridge closed for approximately 7 days to construct 96" Anchor Piles.



PREPARED FOR THE  
CITY OF SANTA CRUZ  
PUBLIC WORKS DEPARTMENT

DESIGN	BY	CHECKED
DETAILS	BY J. VALENTINE	CHECKED
QUANTITIES	BY	CHECKED

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

0 1 2 3



**IMBRIEN & ASSOCIATES, INC.**  
2212 Business Park Dr., Suite 130  
Sacramento, California 95827  
**MARK A. IMBRIANI**  
PROJECT MANAGER

BRIDGE NO.  
36C0108

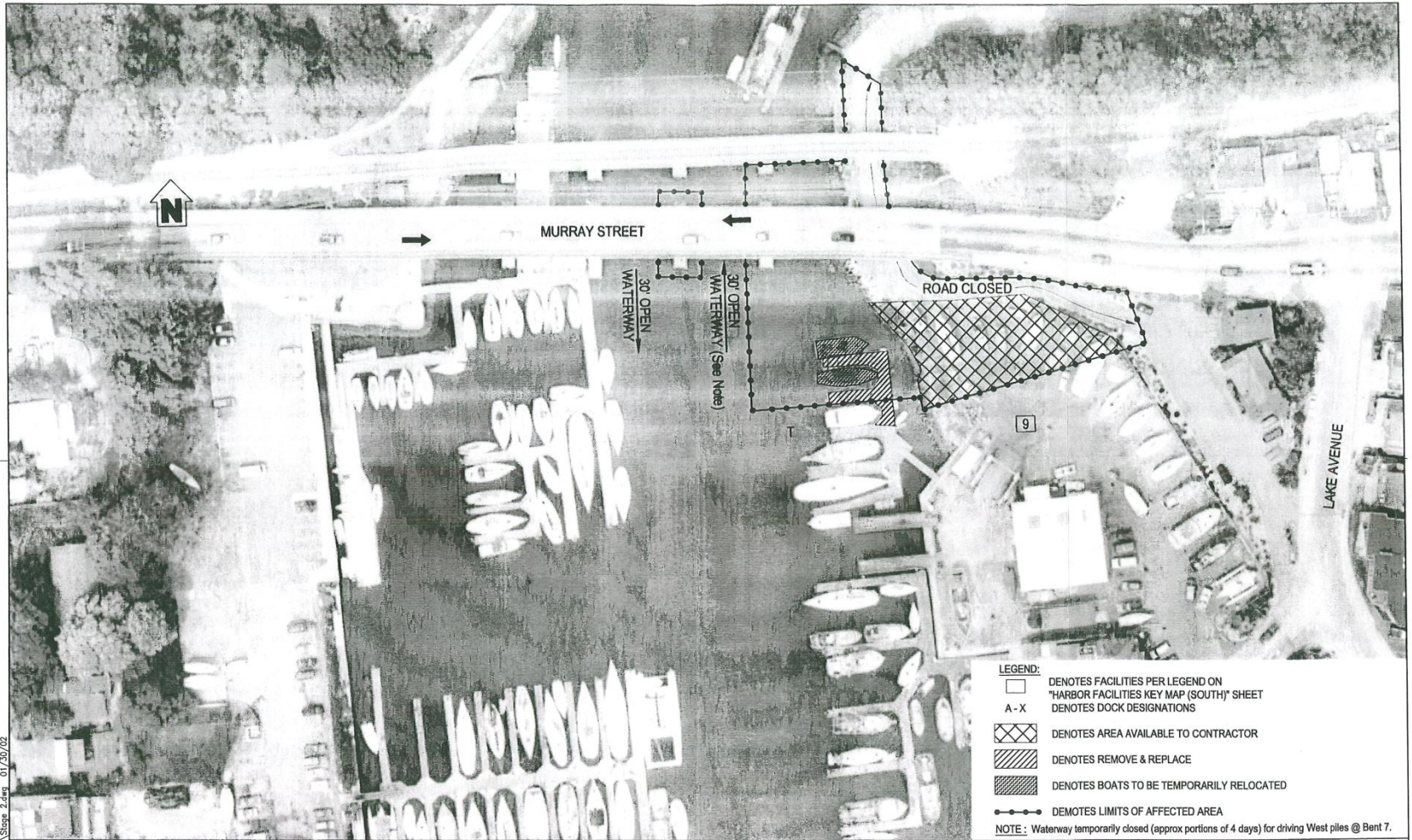
**MURRAY STREET BRIDGE BARRIER REPLACEMENT  
STAGE 1 CONSTRUCTION**

DISREGARD PRINTS BEARING  
EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)

SCALE  
SHEET 2 OF 6  
VAULT NO.

# STAGE 2



- LEGEND:**
- DENOTES FACILITIES PER LEGEND ON "HARBOR FACILITIES KEY MAP (SOUTH)" SHEET
  - A - X DENOTES DOCK DESIGNATIONS
  - DENOTES AREA AVAILABLE TO CONTRACTOR
  - DENOTES REMOVE & REPLACE
  - DENOTES BOATS TO BE TEMPORARILY RELOCATED
  - DEMOTES LIMITS OF AFFECTED AREA
- NOTE:** Waterway temporarily closed (approx portions of 4 days) for driving West piles @ Bent 7.

RA\1161\Murray\Stage 2.dwg 01/20/02



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PUBLIC WORKS DEPARTMENT

DESIGN	BY	CHECKED
DETAILS	BY J. VALENTINE	CHECKED
QUANTITIES	BY	CHECKED

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

0 1 2 3

**IMBSEN & ASSOCIATES, INC.**  
9912 Business Park Dr., Suite 130  
Sacramento, California 95827

**MARK A. IMBRIANI**  
PROJECT MANAGER

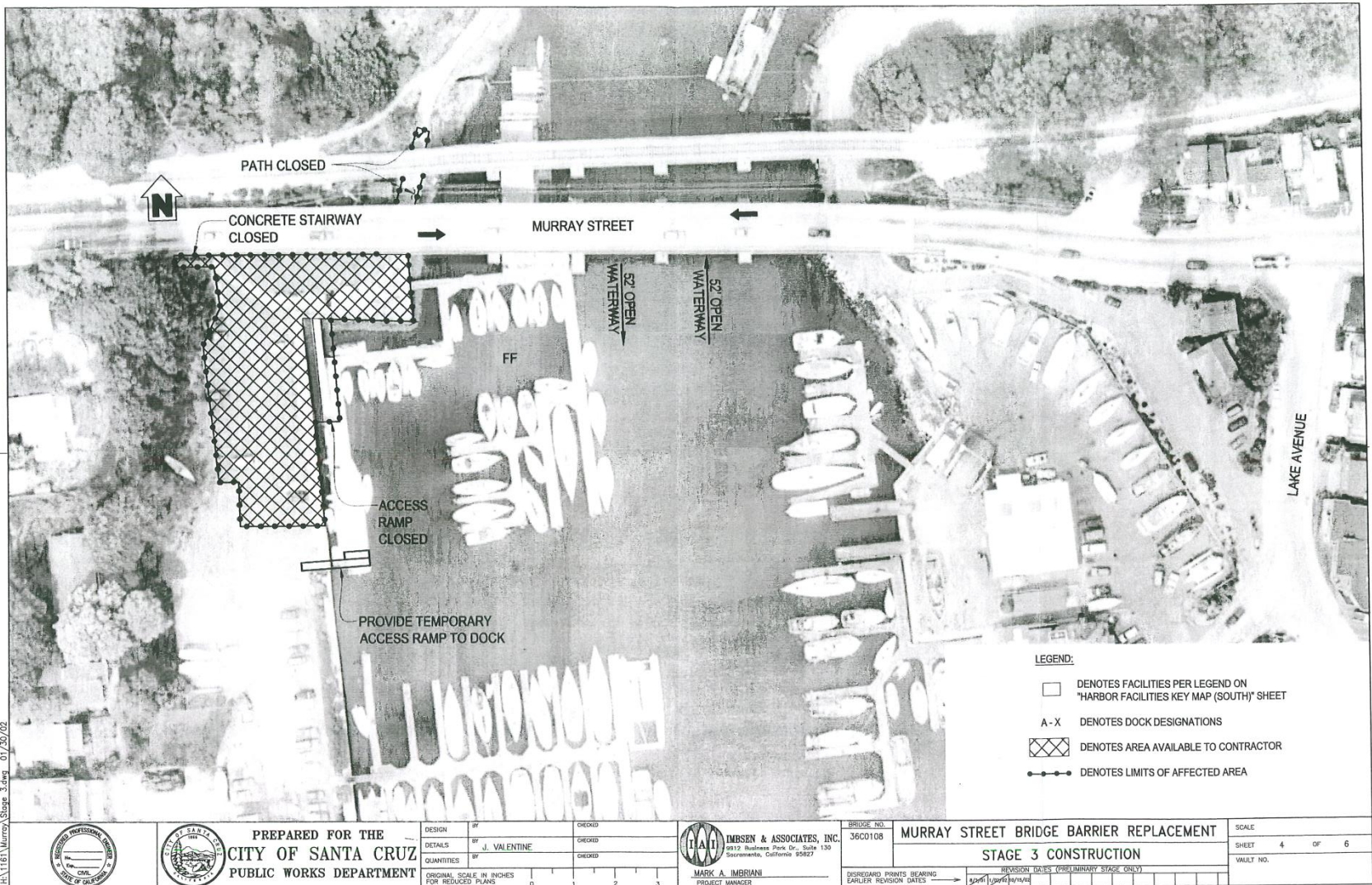
BRIDGE NO.	36C0108
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**MURRAY STREET BRIDGE BARRIER REPLACEMENT**  
**STAGE 2 CONSTRUCTION**

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)
	01/20/02

SCALE	
SHEET	3 OF 6
VIAIT NO.	

# STAGE 3



HA 1161 Murray Stage 3.dwg 01/20/02



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**CITY OF SANTA CRUZ**  
 PUBLIC WORKS DEPARTMENT

DESIGN	BY	J. VALENTINE	CHECKED
DETAILS	BY	J. VALENTINE	CHECKED
QUANTITIES	BY		CHECKED
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS			
	0	1	2 3



**IMBSEN & ASSOCIATES, INC.**  
 9912 Business Park Dr., Suite 130  
 Sacramento, California 95827

**MARK A. IMBRIANI**  
 PROJECT MANAGER

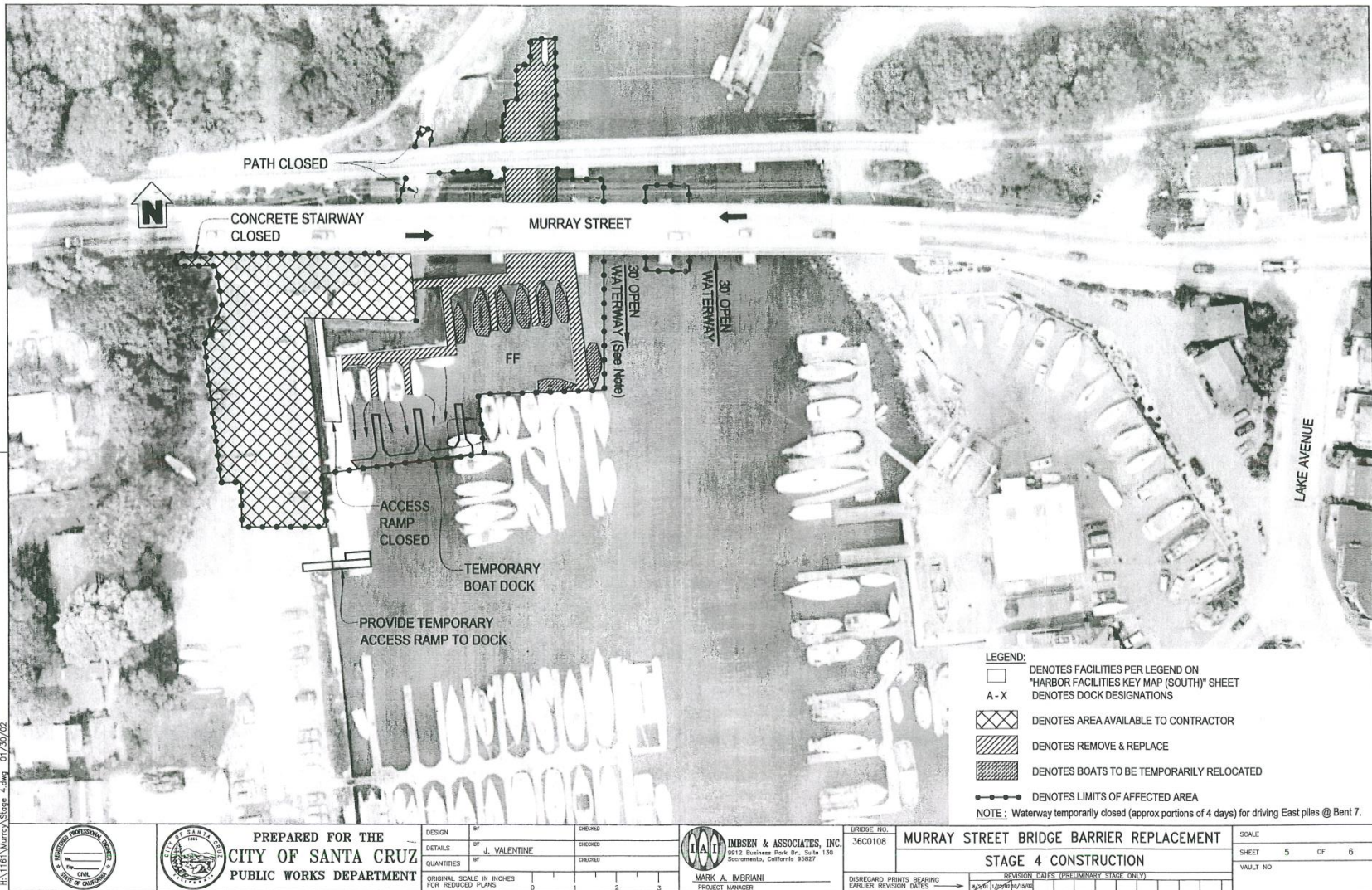
BRIDGE NO.  
 36C0108

**MURRAY STREET BRIDGE BARRIER REPLACEMENT**  
**STAGE 3 CONSTRUCTION**

SCALE  
 SHEET 4 OF 6  
 WALKY NO.

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)

# STAGE 4



14:11:51 Murray Stage 4.dwg 01/20/02



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CITY OF SANTA CRUZ  
PUBLIC WORKS DEPARTMENT

DESIGN	BY	CHECKED
DETAILS	BY J. VALENTINE	CHECKED
QUANTITIES	BY	CHECKED
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		
	0	1 2 3

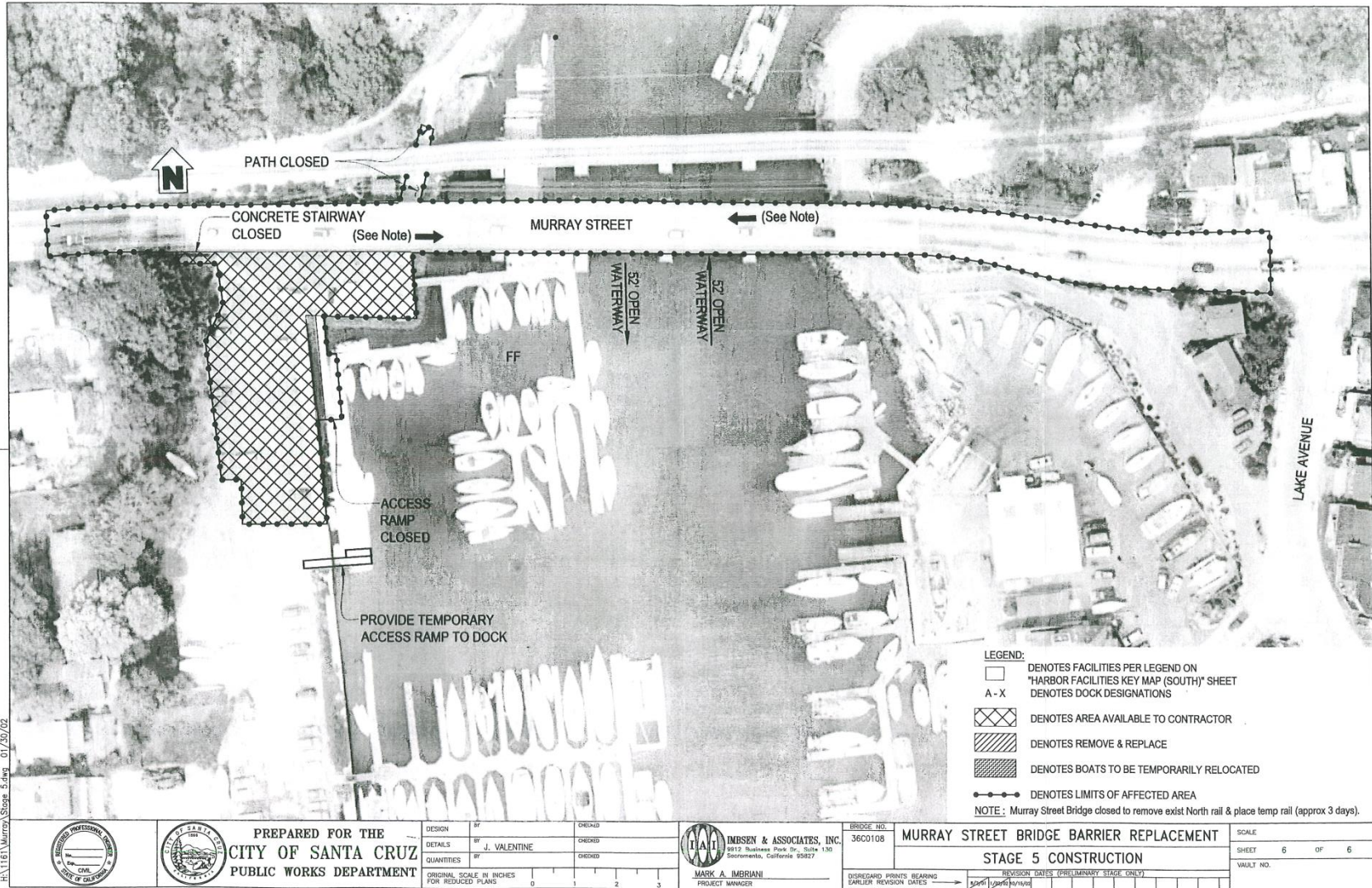
**IMBSEN & ASSOCIATES, INC.**  
2012 Business Park Dr., Suite 130  
Sacramento, California 95827

**MARK A. IMBRIANI**  
PROJECT MANAGER

BRIDGE NO.	MURRAY STREET BRIDGE BARRIER REPLACEMENT
36C0108	
<b>STAGE 4 CONSTRUCTION</b>	
DISREGARD PRINTS BEARING EARLIER REVISION DATES	
REVISION DATES (PRELIMINARY STAGE ONLY)	
1	12/20/01

SCALE	
SHEET	5 OF 6
Vault No	

# STAGE 5



- LEGEND:**
- DENOTES FACILITIES PER LEGEND ON "HARBOR FACILITIES KEY MAP (SOUTH)" SHEET
  - A - X** DENOTES DOCK DESIGNATIONS
  - DENOTES AREA AVAILABLE TO CONTRACTOR
  - DENOTES REMOVE & REPLACE
  - DENOTES BOATS TO BE TEMPORARILY RELOCATED
  - DENOTES LIMITS OF AFFECTED AREA

**NOTE:** Murray Street Bridge closed to remove exist North rail & place temp rail (approx 3 days).

H:\1161\Murray\Stage\_5.dwg 01/30/02



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**CITY OF SANTA CRUZ**  
PUBLIC WORKS DEPARTMENT

DESIGN	BY	CHECKED
DETAILS	BY J. VALENTINE	CHECKED
QUANTITIES	BY	CHECKED

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS  
0 1 2 3

**HAI**  
**HANSEN & ASSOCIATES, INC.**  
8912 Business Park Dr., Suite 130  
San Ramon, California 94583  
**MARK A. IMBRIANI**  
PROJECT MANAGER

BRIDGE NO.	36C0108	<b>MURRAY STREET BRIDGE BARRIER REPLACEMENT</b>
<b>STAGE 5 CONSTRUCTION</b>		
DISREGARD PRINTS BEARING EARLIER REVISION DATES →		
REVISION DATES (PRELIMINARY STAGE ONLY)		

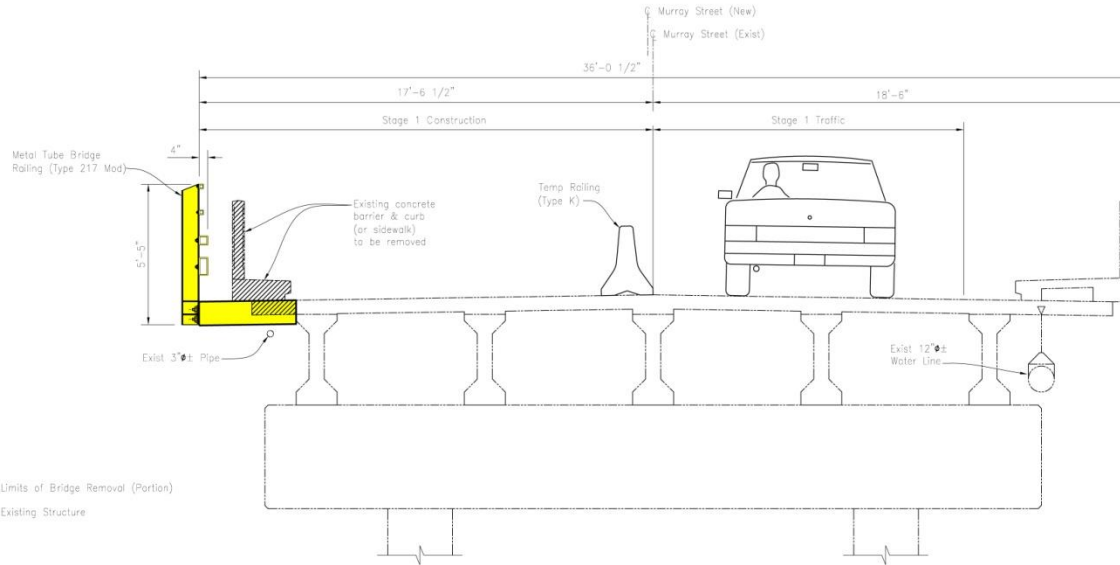
SCALE	
SHEET	6 OF 6
Vault No.	



# TRAFFIC CONTROL

- ONE-LANE ON MURRAY DURING CERTAIN OPERATIONS
- LIMIT TO 2-WEEKS EACH SIDE OF BRIDGE
- TRAFFIC SIGNAL CONTROLLED

# STAGE 1



**LEGEND:**  
 Indicates Limits of Bridge Removal (Portion)  
 Indicates Existing Structure

**TYPICAL SECTION**  
 Scale 1/2" = 1'-0"

H:\1161\Murray\_Rolling\6-13-02.dwg 06/20/02



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**CITY OF SANTA CRUZ**  
 PUBLIC WORKS DEPARTMENT

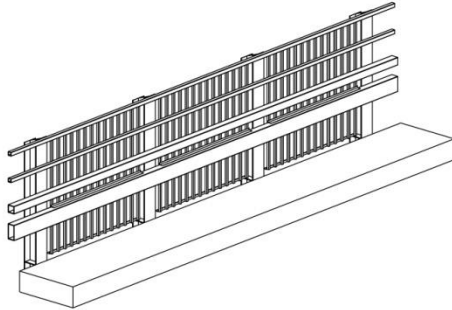
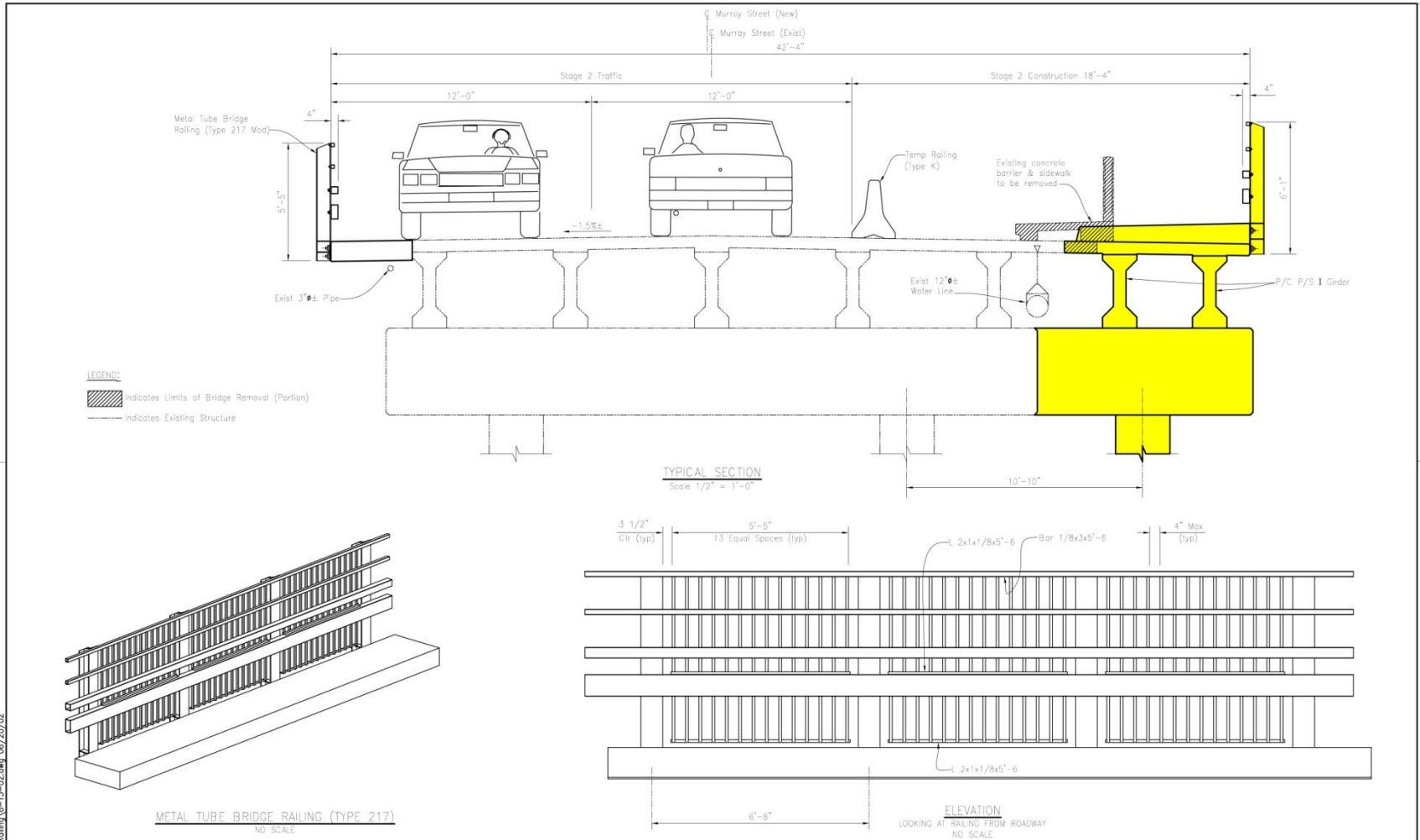
DESIGN	BY <b>S. NAGI</b>	CHECKED	
DETAILS	BY <b>G. IMBSENI</b>	CHECKED	
QUANTITIES	BY	CHECKED	
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS			
	0	1	2 3



BIDGE NO.	36C0106	<b>MURRAY STREET BRIDGE BARRIER REPLACEMENT</b> <b>STAGE 1 TYPICAL CROSS-SECTION</b>
FORWARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY) 10/1/02	

SCALE	As Shown
SHEET	OF
VAULT NO.	

# STAGE 2



METAL TUBE BRIDGE RAILING (TYPE 217)  
 NO SCALE

H:\161\Murray\_Railing\_6-13-02.dwg 06/20/02



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**CITY OF SANTA CRUZ**  
 PUBLIC WORKS DEPARTMENT

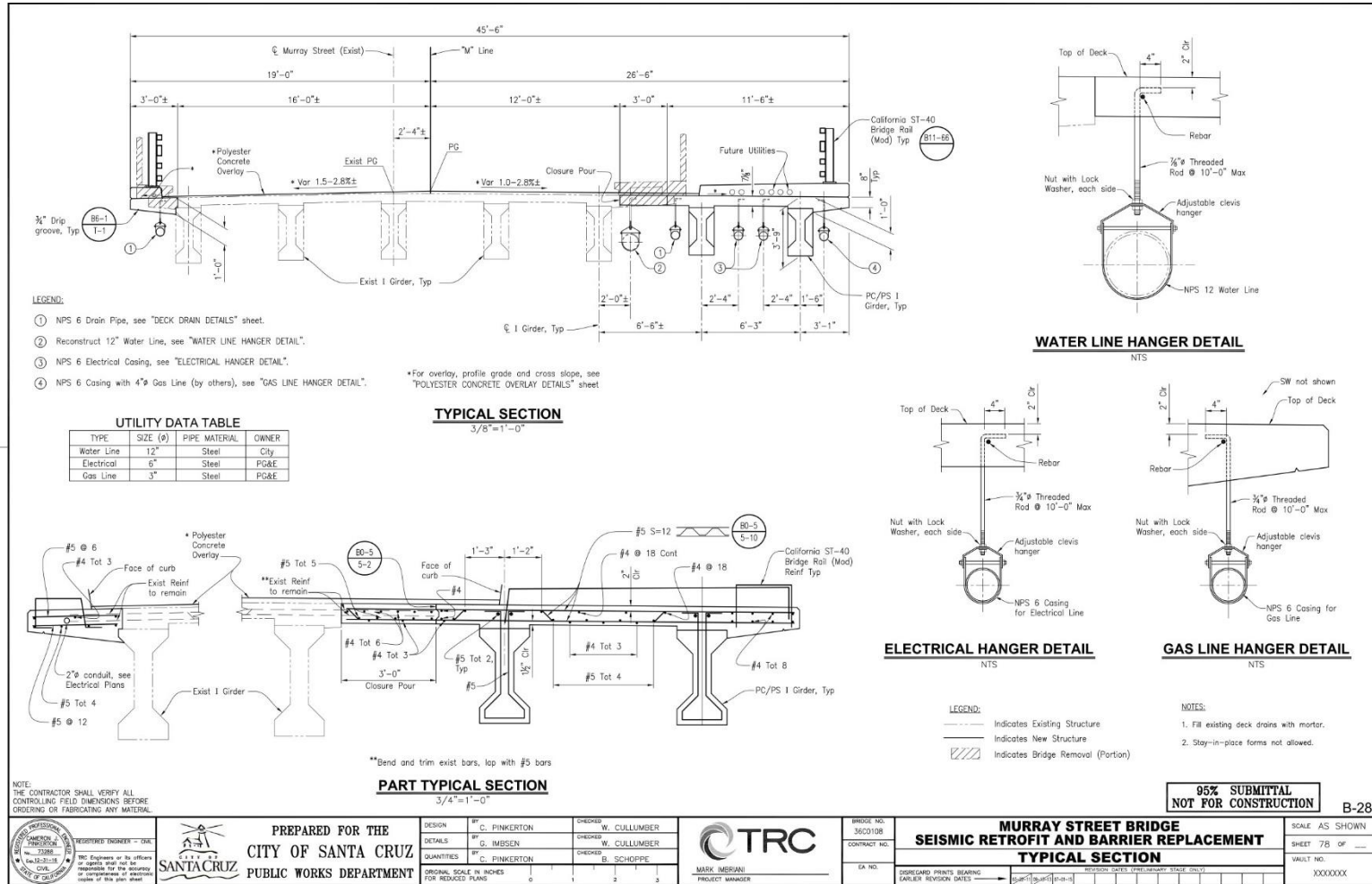
DESIGN	BY S. NAGI	CHECKED	
DETAILS	BY G. IMBSEN	CHECKED	
QUANTITIES	BY	CHECKED	
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS			
	0	1	2 3



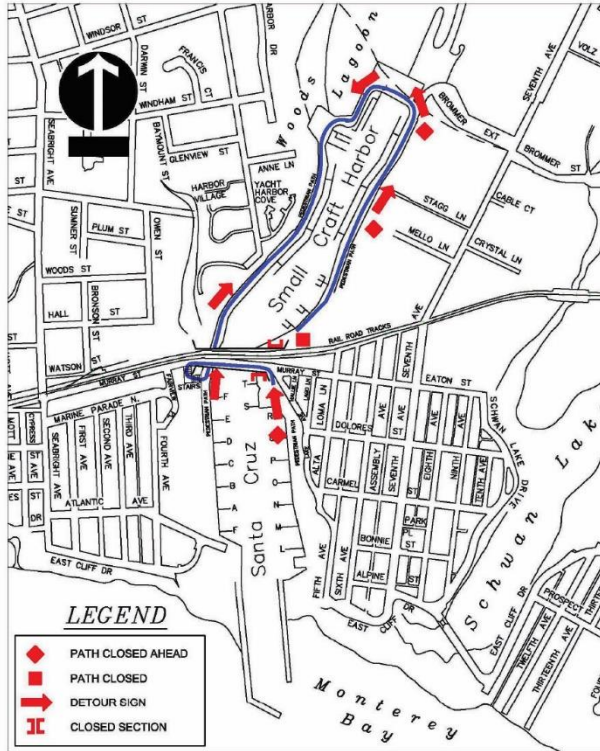
BRIDGE NO.	36C0108	<b>MURRAY STREET BRIDGE BARRIER REPLACEMENT</b>
<b>STAGE 2 TYPICAL CROSS-SECTION</b>		
DISREGARD PRINTS BEARING EARLIER REVISION DATES		
REVISION DATES (PRELIMINARY STAGE ONLY)		

SCALE	As Shown
SHEET	OF
VAULT NO.	

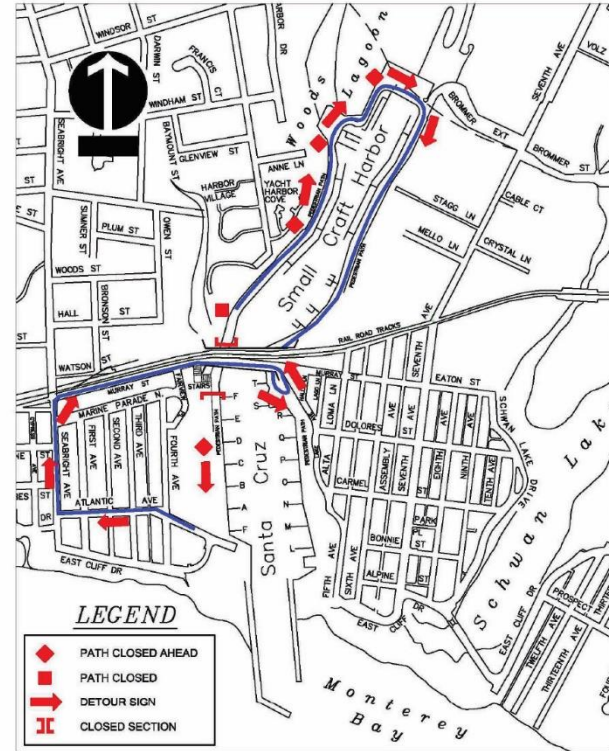
# UTILITY ACCOMMODATION



# PEDESTRIAN DETOUR PLAN



PHASE 1B, 1C, 2, 4A, & 4B  
EAST SIDE PATH CLOSED



PHASE 1A & 4B  
WEST SIDE PATH CLOSED

## PEDESTRIAN DETOUR PLANS

**95% SUBMITTAL  
NOT FOR CONSTRUCTION**

NOTE: THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIALS.



REGISTERED ENGINEER - CIVIL  
G. ARMSTRONG  
No. S 71451  
No. 44-31-31-31  
Civil  
I am responsible for the accuracy and completeness of electronic copies of this plan sheet.

**SANTA CRUZ**

PREPARED FOR THE  
**CITY OF SANTA CRUZ**  
PUBLIC WORKS DEPARTMENT

DESIGN	BY G. ARMSTRONG	CHECKED M. IMBRIANI		
DETAILS	BY G. ARMSTRONG	CHECKED M. IMBRIANI		
QUANTITIES	BY	CHECKED		
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0	1	2	3



BRIDGE NO.	36C0108
CONTRACT NO.	
EA NO.	

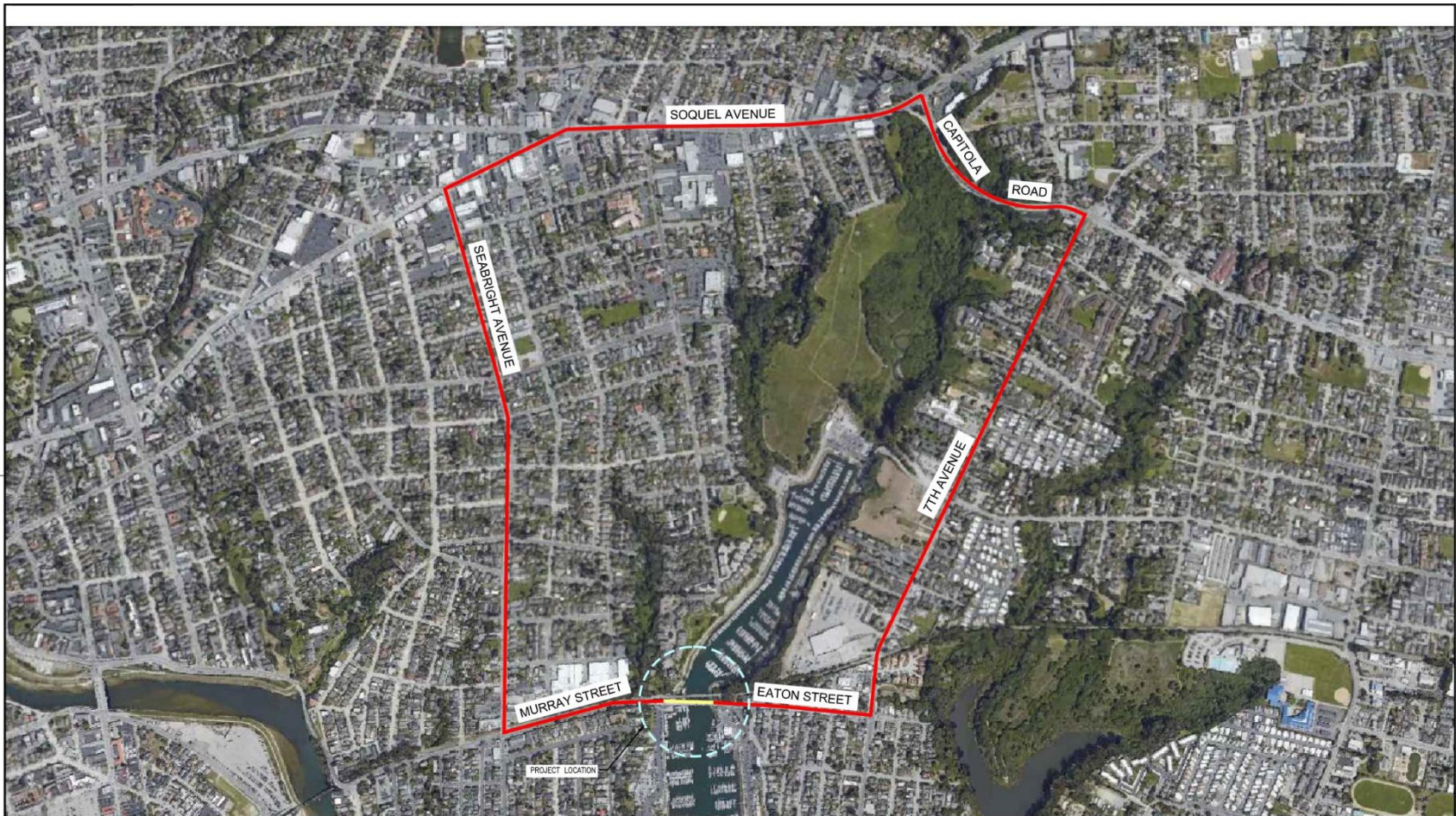
**MURRAY STREET BRIDGE  
SEISMIC RETROFIT AND BARRIER REPLACEMENT  
PEDESTRIAN/BICYCLIST DETOUR PLAN**

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION CAPS (PRELIMINARY STAGE ONLY)

SCALE	1"=20'
SHEET	47 OF X
Vault No.	XXXXXX

# VEHICULAR/BICYCLE DETOUR PLAN



DETOUR PLAN

**95% SUBMITTAL  
NOT FOR CONSTRUCTION**

NOTE: THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIALS. SCTH-18



PREPARED FOR THE  
**CITY OF SANTA CRUZ**  
PUBLIC WORKS DEPARTMENT

DESIGN BY	G. ARMSTRONG	CHECKED	M. IMBRIANI
DETAILS BY	G. ARMSTRONG	CHECKED	M. IMBRIANI
QUANTITIES BY		CHECKED	

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS: 0 1 2 3



BRIDGE NO.	36C0108
CONTRACT NO.	
EA NO.	

**MURRAY STREET BRIDGE  
SEISMIC RETROFIT AND BARRIER REPLACEMENT  
PEDESTRIAN/BICYCLIST DETOUR PLAN**

FORWARD PRINTS BEARING EARLIER REVISION DATES →

1/29/18									
---------	--	--	--	--	--	--	--	--	--

SCALE	1"=20'
SHEET	4B OF X
VAULT NO.	XXXXXXX

# RIGHT OF WAY PROCESS

- PORT DISTRICT OWNS MOST PARCELS
- FEDERAL UNIFORM ACT GOVERNS
- FOLLOW CALTRANS R/W MANUAL CERTIFICATION
- MOU BETWEEN PORT & CITY
  - PORT FACILITY TABLE
  - PURCHASE AGREEMENT AND OFFER
    - PLATS AND LEGAL DESCRIPTIONS
  - REIMBURSEMENT AGREEMENT (RAP)
    - RELOCATION PLAN
  - CONSTRUCTION CONTRACT
    - PLANS AND SPECIFICATIONS

# MOU PROVISIONS

- ADDRESSES RESPONSIBILITIES
- LISTS REIMBURSABLE EXPENSES
  - RELOCATION EXPENSES
  - BUSINESS EXPENSES
  - NON-BUSINESS EXPENSES
  - TEMP. AND PERMANENT EASEMENTS
- SECURE HBP FEDERAL FUNDING FOR:
  - TEMPORARY LOSS OF PARKING SPACES
  - RELOCATION OF FACILITIES
  - TEMP. RELOCATIONS OF VESSELS
  - CONSTRUCTION





# PORT FACILITY TABLE

CITY OF SANTA CRUZ  
MURRAY STREET BRIDGE SEISMIC RETROFIT PROJECT (36c-108)

## PORT FACILITY TABLE

PORT FACILITY TABLE

Last Up-date: 2/28/2021

Ref. #	Owner	Address	Contact	Description	Action	Work By	Cost Reference	Removal Cost		Storage/Temp Use Cost		Replacement Cost		Work Type
								Unit Cost	Total	Unit Cost	Total	Unit Cost	Total	
15	Port District	135 Fifth Ave Santa Cruz, CA 95062	Ms. Marian Olin (831) 475-6161	<b>East Drive under Bridge</b>	Maintain access/construct detour Reconstruct pavement. L= 500', W=12' = 6000 SQFT	City Contractor City Contractor	HMA and AB City's Bid Estimate (77 and 78)	N/A N/A		\$2 N/A	\$12,900 N/A	N/A \$5	N/A \$30,000	
												TOTAL	\$42,000	Construction
16	Port District	135 Fifth Ave Santa Cruz, CA 95062	Ms. Marian Olin (831) 475-6161	<b>West Drive under Bridge</b>	Maintain access/construct detour Reconstruct pavement. L= 500', W=12' = 6000 SQFT	City Contractor City Contractor	HMA and AB City's Bid Estimate (77 and 78)	N/A N/A		\$2 N/A	\$12,900 N/A	N/A \$5	N/A \$30,000	
												TOTAL	\$42,000	Construction
17	Port District	135 Fifth Avenue Santa Cruz, CA 95062	Ms. Marian Olin (831) 475-6161	<b>Port District Office (135 Fifth Avenue)</b>	Patrol officer 26 wks. X 40 hrs/wk @ \$ 66/hr. Channel patrol 26 wks. X 40 hrs/wk @ \$ 78 /hr. Director 133 wks. X 6 hrs/wk @ \$137.34 /hr.  RE: 130 wks x 16 hrs/wk @ \$84.14/hr	Port Port Port	#10 (Port Facilities Cost Estimate)	Item #10a Item #10b Item #10c	N/A	\$66 \$78 \$137	\$68,640 \$81,120 \$109,600	N/A N/A N/A	\$88,640 \$81,120 \$109,600	Right of Way Right of Way Right of Way
								Item #10d		\$84	\$175,000	N/A	\$175,000	Right of Way
								TOTAL			\$434,360		\$434,360	
18	Port District	135 Fifth Ave Santa Cruz, CA 95062	Ms. Marian Olin (831) 475-6161	<b>Navigation Lights</b>	Maintain lights	City Contractor	City's Bid Estimate (164)	N/A		N/A	\$20,000	N/A	N/A	
												TOTAL	\$115,000	Construction
19	RTC		Mr. Luis Mendez	<b>Flagging -RTC Bridge</b>	Flagging might be required @ \$50.00 per hour for 320 hours. Supplemental items	City Contractor	City's Bid Estimate (178)	Supp. Item		\$18,400	\$18,400	N/A	N/A	
												TOTAL	\$18,400	Construction
20	Port District	135 Fifth Avenue Santa Cruz, CA 95062	Ms. Marian Olin (831) 475-6161	<b>Concrete Stairway</b>	Remove and replace	City Contractor	City's Bid Estimate (122)				\$31,950	N/A	N/A	
												TOTAL	\$31,950	Construction
21	Port District	135 Fifth Avenue Santa Cruz, CA 95062	Ms. Marian Olin (831) 475-6161	<b>Timber Retaining Wall</b>	Remove Timber Wall Construct new Concrete Retaining Wall (17 and 18)	City Contractor	City's Bid Estimate (111) and RW Item (83)				\$21,850 \$107,330	N/A	N/A	
												TOTAL	\$129,180	Construction
22	Port District	135 Fifth Avenue Santa Cruz, CA 95062	Ms. Lisa Ekers (831) 475-6161	<b>Men's and Women's Restrooms</b>	Rent temporary restrooms--Assumes 24 months--1 toilet is \$129/10 day duration, which is \$367/month	City Contractor	City's Bid Estimate (124)	Supplemental Item		\$367	\$9,288	N/A	N/A	
												TOTAL	\$9,288	Construction
23	Port District	135 Fifth Avenue Santa Cruz, CA 95062	Ms. Marian Olin (831) 475-6161	<b>Restore West Harbor</b>	Reset and reconstruct port facilities including benches, bollards, chain link fence, curbs, landscaping, etc.	City Contractor	City's Bid Estimate (179)	Supplemental Item				N/A	N/A	
												TOTAL	\$57,900	Construction
24	Port District	135 Fifth Avenue Santa Cruz, CA 95062	Ms. Marian Olin (831) 475-6161	<b>Port Engineering Consultant</b>	Engineering Consultant hired to design the items described above designated by Port Contractor	Port	Port Scope of Work for Transytems #11 (Port Facilities Cost Estimate)	Item #11				N/A	N/A	
												TOTAL	\$200,000	Right of Way
25	Business Rowing Club UCSC			<b>Temporary Sheds</b>	Separate Right of Way Agreement with Business Owners to move materials from sheds to temporary sheds and then back again. Assume \$2,500 each move or \$5000 per business	Business Owners (2)	Right of Way Agreement					N/A	N/A	
												TOTAL	\$10,000	Right of Way

\*Tenants of Port District-owned buildings may also be impacted -- contacts listed are tenants.

Breakdown Total		
Port Facilities Cost Estimate 02/28/21	\$5,046,258	
-Justification Memo	\$667,376	**Note the Justification Memo also had costs included for Dock FF Gangway Construction
-Engineer's Estimate	\$648,505	
-Business Moving Expense	\$10,000	
-Port Cost(not project)	\$149,700	
	\$6,521,839	

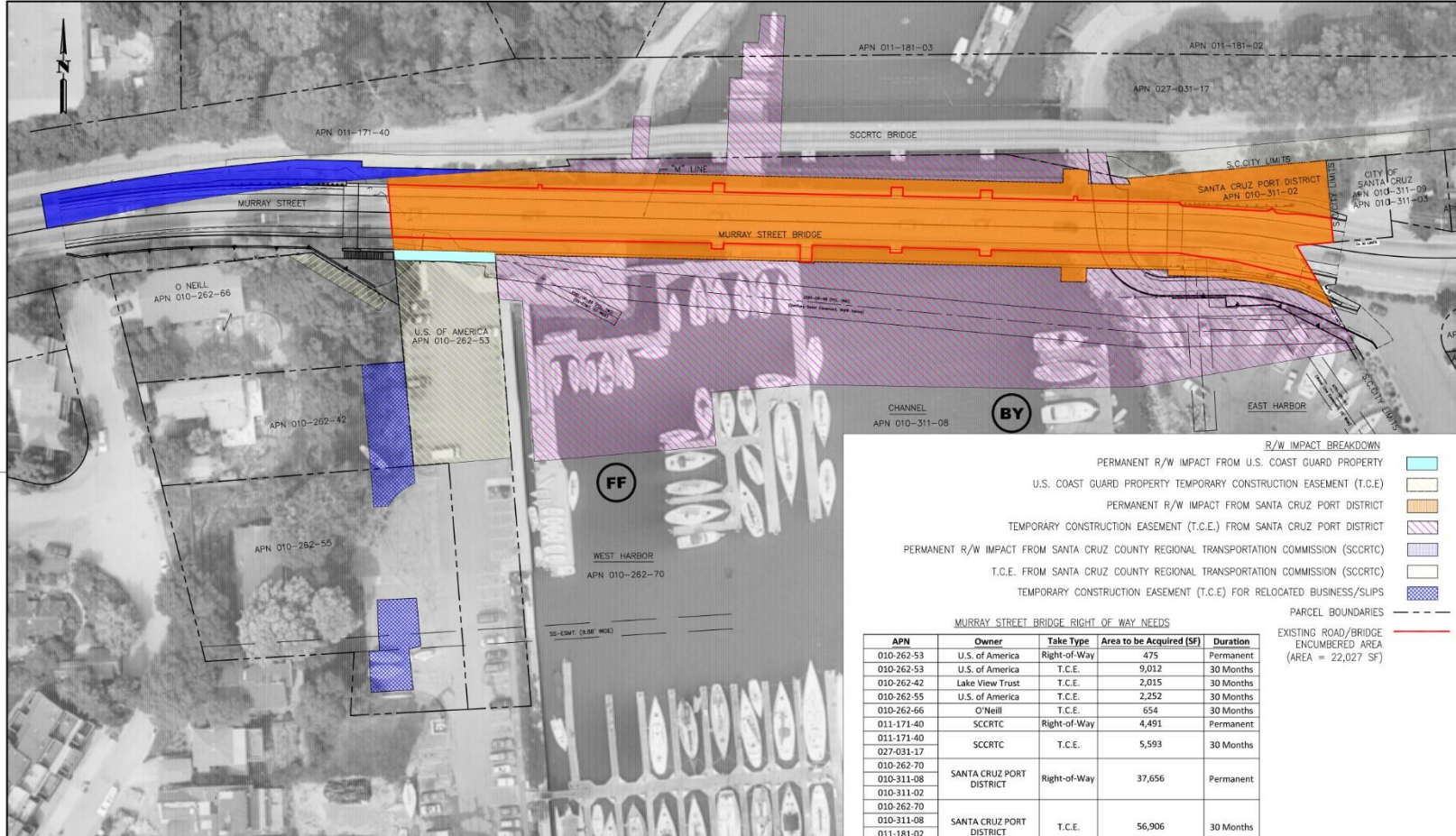
	\$6,521,839
16% CONTINGENCIES	\$682,190
<b>TOTAL COSTS</b>	<b>\$7,174,089</b>

Summary for Funding	
W/O Cont.	W/Cont.
ROW *	\$5,713,634
Construction	\$628,597
<b>Total</b>	<b>\$6,342,231</b>

# RIGHT OF WAY ACQUISITION

- TEMPORARY CONSTRUCTION EASEMENTS WILL BE ACQUIRED FOR THE PROJECT
- APPRAISAL OF THE EASEMENT AREA
- PAYMENT WILL BE MADE TO THE PROPERTY OWNER(S)
- OCCUPANTS SIGN CONSENT TO THE TEMPORARY CONSTRUCTION EASEMENT
- PERMANENT EASEMENT FOR ROADWAY

# RIGHT OF WAY NEEDS



**R/W IMPACT BREAKDOWN**

- PERMANENT R/W IMPACT FROM U.S. COAST GUARD PROPERTY
- U.S. COAST GUARD PROPERTY TEMPORARY CONSTRUCTION EASEMENT (T.C.E)
- PERMANENT R/W IMPACT FROM SANTA CRUZ PORT DISTRICT
- TEMPORARY CONSTRUCTION EASEMENT (T.C.E.) FROM SANTA CRUZ PORT DISTRICT
- PERMANENT R/W IMPACT FROM SANTA CRUZ COUNTY REGIONAL TRANSPORTATION COMMISSION (SCRTC)
- T.C.E. FROM SANTA CRUZ COUNTY REGIONAL TRANSPORTATION COMMISSION (SCRTC)
- TEMPORARY CONSTRUCTION EASEMENT (T.C.E.) FOR RELOCATED BUSINESS/SLIPS
- PARCEL BOUNDARIES
- EXISTING ROAD/BRIDGE ENCUMBERED AREA (AREA = 22,027 SF)

**MURRAY STREET BRIDGE RIGHT OF WAY NEEDS**

APN	Owner	Take Type	Area to be Acquired (SF)	Duration
010-262-53	U.S. of America	Right-of-Way	475	Permanent
010-262-53	U.S. of America	T.C.E.	9,012	30 Months
010-262-42	Lake View Trust	T.C.E.	2,015	30 Months
010-262-55	U.S. of America	T.C.E.	2,252	30 Months
010-262-66	O'Neill	T.C.E.	654	30 Months
011-171-40	SCRTC	Right-of-Way	4,491	Permanent
011-171-40	SCRTC	T.C.E.	5,593	30 Months
027-031-17	SCRTC	T.C.E.	5,593	30 Months
010-262-70	SANTA CRUZ PORT DISTRICT	Right-of-Way	37,656	Permanent
010-311-08	SANTA CRUZ PORT DISTRICT	T.C.E.	56,906	30 Months
010-311-02	SANTA CRUZ PORT DISTRICT	T.C.E.	56,906	30 Months
010-262-70	SANTA CRUZ PORT DISTRICT	T.C.E.	56,906	30 Months
010-311-08	SANTA CRUZ PORT DISTRICT	T.C.E.	56,906	30 Months
011-181-02	SANTA CRUZ PORT DISTRICT	T.C.E.	56,906	30 Months
011-181-03	SANTA CRUZ PORT DISTRICT	T.C.E.	56,906	30 Months

REGISTERED ENGINEER - CIVIL  
L. AMADOR  
No. 51445  
State of California

TRC Engineers or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

PREPARED FOR THE  
**CITY OF SANTA CRUZ**  
PUBLIC WORKS DEPARTMENT

DESIGN BY: A. BEDAL

DETAILS BY: A. BEDAL

QUANTITIES BY: A. BEDAL

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS: 1" = 30'

CHECKED: J. CONKLIN

CHECKED: J. CONKLIN

CHECKED:

MARK IMBRIANI  
PROJECT MANAGER

BRIDGE NO. 3600108

CONTRACT NO.

EA NO.

**MURRAY STREET BRIDGE SEISMIC RETROFIT AND BARRIER REPLACEMENT RIGHT OF WAY NEEDS MAP**

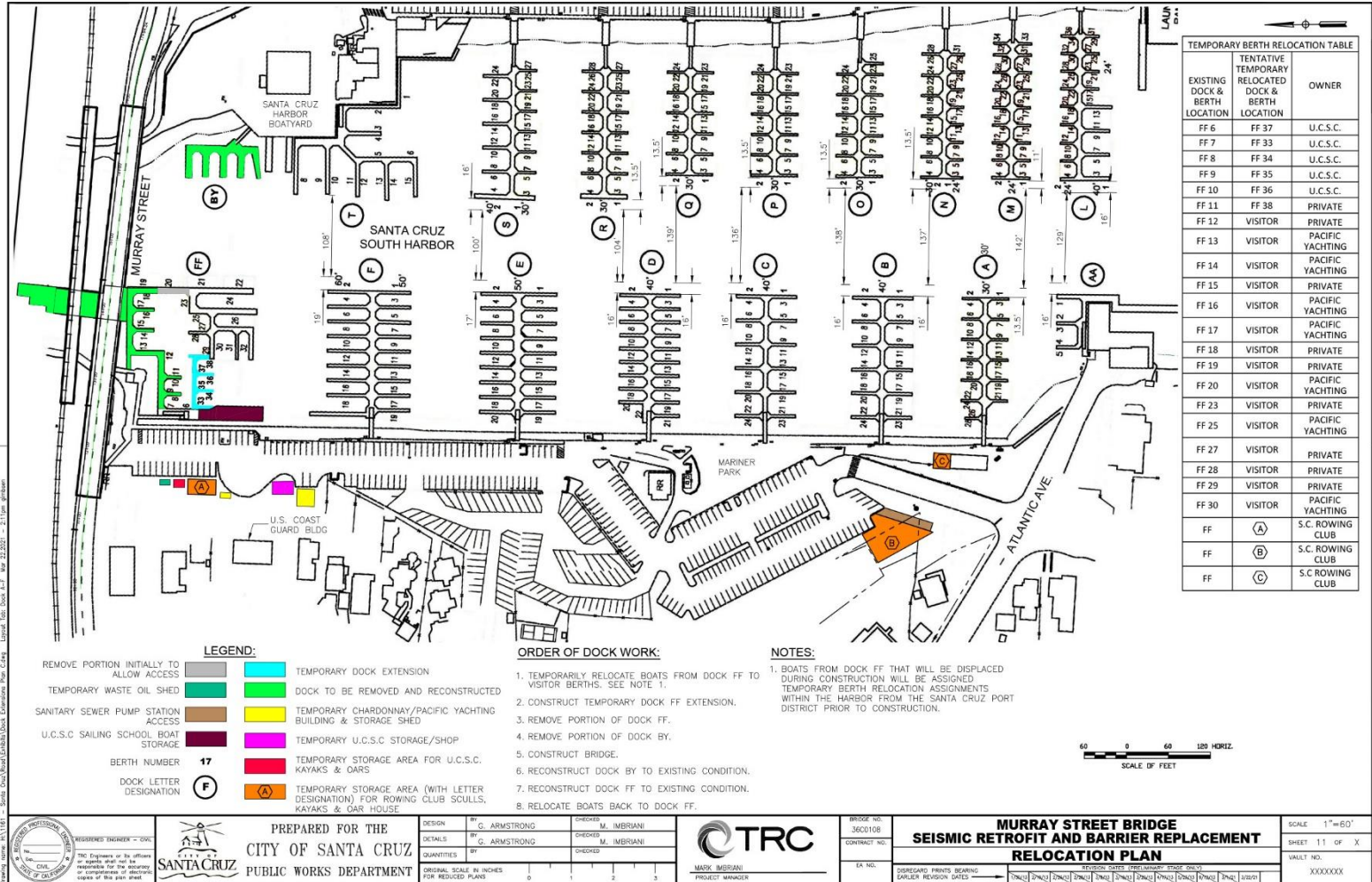
DISREGARD PRINTS BEARING EARLIER REVISION DATES

SCALE: 1"=30'

SHEET 1 OF X

VAULT NO. XXXXXXXX

# RELOCATION PLAN



TEMPORARY BERTH RELOCATION TABLE		
EXISTING DOCK & BERTH LOCATION	TENTATIVE TEMPORARY RELOCATED DOCK & BERTH LOCATION	OWNER
FF 6	FF 37	U.C.S.C.
FF 7	FF 33	U.C.S.C.
FF 8	FF 34	U.C.S.C.
FF 9	FF 35	U.C.S.C.
FF 10	FF 36	U.C.S.C.
FF 11	FF 38	PRIVATE
FF 12	VISITOR	PRIVATE
FF 13	VISITOR	PACIFIC YACHTING
FF 14	VISITOR	PACIFIC YACHTING
FF 15	VISITOR	PRIVATE
FF 16	VISITOR	PACIFIC YACHTING
FF 17	VISITOR	PACIFIC YACHTING
FF 18	VISITOR	PRIVATE
FF 19	VISITOR	PRIVATE
FF 20	VISITOR	PACIFIC YACHTING
FF 23	VISITOR	PRIVATE
FF 25	VISITOR	PACIFIC YACHTING
FF 27	VISITOR	PRIVATE
FF 28	VISITOR	PRIVATE
FF 29	VISITOR	PRIVATE
FF 30	VISITOR	PACIFIC YACHTING
FF	(A)	S.C. ROWING CLUB
FF	(B)	S.C. ROWING CLUB
FF	(C)	S.C. ROWING CLUB

- LEGEND:**
- REMOVE PORTION INITIALLY TO ALLOW ACCESS
  - TEMPORARY WASTE OIL SHED
  - SANITARY SEWER PUMP STATION ACCESS
  - U.C.S.C. SAILING SCHOOL BOAT STORAGE
  - BERTH NUMBER
  - DOCK LETTER DESIGNATION
  - TEMPORARY DOCK EXTENSION
  - DOCK TO BE REMOVED AND RECONSTRUCTED
  - TEMPORARY CHARDONNAY/PACIFIC YACHTING BUILDING & STORAGE SHED
  - TEMPORARY U.C.S.C. STORAGE/SHOP
  - TEMPORARY STORAGE AREA FOR U.C.S.C. KAYAKS & DARS
  - TEMPORARY STORAGE AREA (WITH LETTER DESIGNATION) FOR ROWING CLUB SCULLS, KAYAKS & DARR HOUSE

- ORDER OF DOCK WORK:**
1. TEMPORARILY RELOCATE BOATS FROM DOCK FF TO VISITOR BERTHS. SEE NOTE 1.
  2. CONSTRUCT TEMPORARY DOCK FF EXTENSION.
  3. REMOVE PORTION OF DOCK FF.
  4. REMOVE PORTION OF DOCK BY.
  5. CONSTRUCT BRIDGE.
  6. RECONSTRUCT DOCK BY TO EXISTING CONDITION.
  7. RECONSTRUCT DOCK FF TO EXISTING CONDITION.
  8. RELOCATE BOATS BACK TO DOCK FF.

- NOTES:**
1. BOATS FROM DOCK FF THAT WILL BE DISPLACED DURING CONSTRUCTION WILL BE ASSIGNED TEMPORARY BERTH RELOCATION ASSIGNMENTS WITHIN THE HARBOR FROM THE SANTA CRUZ PORT DISTRICT PRIOR TO CONSTRUCTION.





# RELOCATION ASSISTANCE

- ALL PERSONS WHO MUST MOVE BECAUSE OF A PUBLIC PROJECT ARE ENTITLED TO RELOCATION ASSISTANCE
- NO RESIDENCES AFFECTED
- NO PERMANENT DISPLACEMENTS
- ALL PERSONS AFFECTED WILL RECEIVE WRITTEN NOTICES AND INFORMATION
- EXPENSES FOR MOVING PERSONAL PROPERTY ARE REIMBURSED.



# MEETING THE OCCUPANTS

- EACH AFFECTED PERSON AND/OR BUSINESS WILL BE CONTACTED PERSONALLY
- ALL CONTACTS WILL BE COORDINATED WITH THE PORT
- PRESERVE RELATIONSHIPS BETWEEN THE PORT AND THE TENANTS
- MINIMIZE IMPACTS TO PORT TENANTS

# MOVING

- 90 DAYS' NOTICE
- REPLACEMENT LOCATIONS COORDINATED WITH PORT
- CLAIMS FOR MOVING EXPENSES

# COMPLETION

- AFTER PROJECT COMPLETION, ALL VESSELS, PERSONAL PROPERTY AND BUSINESS OPERATIONS WILL RETURN TO THEIR ORIGINAL POSITIONS.

# CONSTRUCTION CONTRACT



## CITY OF SANTA CRUZ PUBLIC WORKS DEPARTMENT

PROJECT PLANS FOR  
THE CONSTRUCTION OF THE  
MURRAY STREET BRIDGE AT SANTA CRUZ HARBOR SEISMIC RETROFIT/BARRIER REPLACEMENT (BR. NO. 36C-108)  
FEDERAL AID PROJECT NO. STPLZ-5025(048)

PREPARED BY  
TRC  
SACRAMENTO, CALIFORNIA

SEISMIC RETROFIT  
CONTRACT NO. 3

### SHEET INDEX

SHEET No.	SHEET DESCRIPTION
1	TITLE SHEET
2	SURVEY CONTROL
3-4	TYPICAL SECTIONS
5-7	PLAN AND PROFILE
8-9	CONSTRUCTION DETAILS - REMOVAL PLAN
10-14	CONSTRUCTION DETAILS
15	CONSTRUCTION DETAILS - RELOCATION PLAN
18-17	TEMPORARY WATER POLLUTION CONTROL PLAN
18-19	CONTOUR GRADING PLAN
20-21	DRAINAGE PLAN
22	DRAINAGE PROFILE
23	DRAINAGE QUANTITIES
24-26	UTILITY PLAN
27	WATERLINE STANDARD CONSTRUCTION NOTES
28-29	WATERLINE PLAN AND PROFILE
30-34	SANITARY SEWER FORCE MAIN PLAN AND PROFILE
35-50	STAGE CONSTRUCTION/TRAFFIC HANDLING
51	PEDESTRIAN/BICYCLIST DETOUR PLAN
52-54	PAVEMENT DELINEATION PLAN
55-56	SIGN PLAN
57	PAVEMENT DELINEATION & SIGN QUANTITIES
58	SUMMARY OF QUANTITIES
59	PLANTING PLAN
60-63	ELECTRICAL PLAN
64-67	RETAINING WALL PLANS
68-108	STRUCTURE PLANS

CITY OF SANTA CRUZ STANDARD DETAILS STANDARD MANHOLE:  
MANHOLE FRAME & COVER; CATCH BASIN (TYPE B); CURB, GUTTER &  
SIDEWALK CURB AND BERM; SIGN INSTALLATION  
DATE: CURRENT

### ABBREVIATIONS

SC	.....	CITY OF SANTA CRUZ
Co. SC	.....	COUNTY OF SANTA CRUZ
C.G./B&W	.....	CURB, GUTTER, AND SIDEWALK
Std	.....	STANDARD
Det	.....	DETAIL
BVCS	.....	BEGIN VERTICAL CURVE STATION
BVCE	.....	BEGIN VERTICAL CURVE ELEVATION
EVCS	.....	END VERTICAL CURVE STATION
EVCE	.....	END VERTICAL CURVE ELEVATION
RL	.....	RESTRAINED LENGTH

CALTRANS STANDARD PLAN  
SHEET NUMBER  
 DETAIL NUMBER

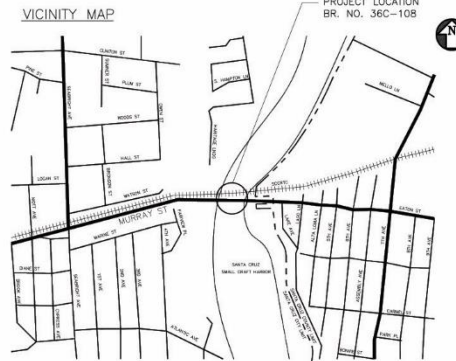


PROJECT MANAGER  
TRC

APPROVED:

ASSISTANT DIRECTOR OF PUBLIC WORKS  
CITY ENGINEER RCE XXXXXXX  
CITY OF SANTA CRUZ

### VICINITY MAP



PROJECT LOCATION  
BR. NO. 36C-108

### LEGEND

UTILITY	SYMBOL	OWNER
Exist WATER	---	CITY OF SANTA CRUZ WATER DEPARTMENT
Exist NATURAL GAS	---	PACIFIC GAS AND ELECTRIC COMPANY
Exist SANITARY SEWER	---	CITY OF SANTA CRUZ PUBLIC WORKS DEPARTMENT
Exist ELECTRICAL	---	PACIFIC GAS AND ELECTRIC COMPANY
Exist OVERHEAD ELECTRICAL	---	AT&T
Exist TELEPHONE	---	AT&T BROADBAND
Exist TELEVISION	---	CITY OF SANTA CRUZ PUBLIC WORKS DEPARTMENT
Exist STORM DRAIN	---	CITY OF SANTA CRUZ WATER DEPARTMENT
Exist FIRE HYDRANT	---	
Exist CATCH BASIN	---	
Exist SEWER/STORM MANHOLE	---	

### CONSTRUCTION NOTES:

- THE CONTRACTOR IS RESPONSIBLE FOR THE INTENT OF THESE PLANS AND SHALL REPORT ANY DISCREPANCIES FOUND IN THEM TO THE ENGINEER PRIOR TO CONSTRUCTION.
- UNDERGROUND UTILITY LOCATIONS AND DEPTHS, WHERE SHOWN ON PLANS, ARE BASED ON UTILITY COMPANY RECORDS AND ARE FOR GENERAL INFORMATION. ALL CONTRACTORS ARE RESPONSIBLE FOR VERIFICATION OF LOCATIONS FOR ALL EXISTING UTILITIES IN THE FIELD.
- EMERGENCY TELEPHONE NUMBERS:
 

POLICE DEPARTMENT	911
FIRE DEPARTMENT	911
CITY ENGINEER'S OFFICE	(831) 420-5160
CITY PARKS & REC. DEPARTMENT	(831) 420-5270
COUNTY SEWER DEPARTMENT	(831) 420-6036
CITY TRAFFIC MAINTENANCE	(831) 420-5520
CITY WATER DEPARTMENT	(831) 420-5210
PRIME	1-800-743-5000
AT&T	611
U.S.A.	(800) 642-2444
AT&T BROADBAND	(831) 425-1739
- CITY INSPECTOR SHALL BE NOTIFIED 24 HOURS IN ADVANCE OF ANY CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVATION OF STREET TREES. SHOULD A STREET TREE BECOME DAMAGED DURING CONSTRUCTION, THE ENGINEER SHALL DETERMINE IF THE TREE IS TO BE REPLACED BY THE CONTRACTOR. REPLACEMENT TREE(S) SHALL BE 24-INCH WIDE BOX TREE, THE SPECIES TO BE DETERMINED BY THE ENGINEER.
- THE CONTRACTOR SHALL COMPLY WITH ALL ENVIRONMENTAL PERMITS ISSUED FOR THIS PROJECT.
- A 72 HOUR ADVANCE NOTICE SHALL BE GIVEN TO THE SANTA CRUZ WATER DEPARTMENT BEFORE CONSTRUCTION ON WATER SYSTEM, AND BEFORE SCHEDULING CONNECTIONS TO THE EXISTING SYSTEM AT (831) 420-5210.
- PROVIDE 5 WORKING DAYS ADVANCE NOTICE TO SANTA CRUZ WATER DEPARTMENT TO ADJUST EXISTING WATER METER BOXES AND GATE VALVE BOXES AT (831) 420-5210

95% SUBMITTAL  
NOT FOR CONSTRUCTION

SEISMIC RETROFIT  
CONTRACT NO. 3

DATE:  
11-24-15  
DRAWING NO:  
1

# SCHEDULE

- PS & E CERTIFICATION – SEPT. 2021
- R/W CERTIFICATION – AUGUST 2021
- CONSTRUCTION START - APRIL 2022
- COMPLETION - DECEMBER 2024
  
- 2 RIGHT OF WAY FUNDING DEADLINES
  - \$1.9 M JUNE 30, 2021
  - \$2.3 M JUNE 30, 2023

# LOOK FORWARD TO A SUCCESSFUL PROJECT



# STAGING PLANS

**Table 1. Murray Street Bridge Retrofit Project: Construction Phasing & Approximate Schedule.**

Work Tasks	Effects on Harbor and Road Operations
<b>Phase 1: Construction in East Zone</b>	
<b>2 months (May-July)[1]</b>	
<ul style="list-style-type: none"> <li>* Temporarily relocate overhead utilities north of bridge</li> <li>* Prepare construction staging area (8,000 sq.ft.) at harbor boat yard</li> <li>* Retrofit Bent 9 &amp; Abutment 10; install anchor piles</li> <li>* Erect Girder Span 9</li> <li>* Remove existing south rail</li> </ul>	<ul style="list-style-type: none"> <li>* Install traffic control system with alternating 1-way traffic</li> <li>* Close Murray for 7 days for driving anchor piles</li> <li>* Temporary relocation (dry storage) of 9 dry-docked boats from boat yard</li> <li>* Traffic controls along Lake Avenue during construction staging area setup</li> <li>* Close east walkway under bridge</li> <li>* Close bridge sidewalk</li> </ul>
<b>Phase 2: Construction in Eastern Waterway</b>	
<b>5 months (July-December)</b>	
<ul style="list-style-type: none"> <li>* Construct new berths (8) at ends of docks A through F</li> <li>* Remove berths (12) at docks T and FF</li> <li>* Construct work platform(s) (trestle or barge) for Stage 2 work [2]</li> <li>* Retrofit Bents 7 &amp; 8 (includes installing anchor piles at Bents 7 &amp; 8)</li> <li>* Erect Girder Spans 7 &amp; 8 and construct Deck Spans 7, 8, &amp; 9</li> <li>* Construct north and south rails (optional) [3]</li> <li>* Restore boat yard; reopen pedestrian path</li> <li>* Remove east work platform</li> <li>* Replace berths (2) at Dock T upon construction in the eastern waterway and only between July and mid-November</li> </ul>	<ul style="list-style-type: none"> <li>* Temporary relocation of 2 boats from Dock T to AA or new dock N-Q</li> <li>* Temporary closure of East Drive &amp; part of harbor boat yard</li> <li>* Availability of only one boat channel under the bridge for 6 non-consecutive half-days</li> </ul>
<b>Phase 3: Construction in West Zone</b>	
<b>6 months (December-May)</b>	
<ul style="list-style-type: none"> <li>* Install row boat storage at docks A/B &amp; USCG area</li> <li>* Install temporary building at USCG area</li> <li>* Temporarily relocate existing offices and row boats to above [2]</li> <li>* Close portion of western parking lot [2]</li> <li>* Construct temporary access ramp to Dock FF</li> <li>* Retrofit Abutment 1 and Bents 2, 3, &amp; 4</li> <li>* Erect Girder Spans 1, 2, &amp; 3 [and construct Deck Spans 1, 2, &amp; 3]</li> </ul>	<ul style="list-style-type: none"> <li>* Closure of West Path, western concrete stairway and access ramp to Dock FF</li> <li>* Temporary relocation of affected facilities (offices, storage, restrooms, etc.)</li> </ul>

# STAGING PLANS

## Phase 4: Construction in Western Waterway

### 5 months (May-October)

- \* Construct modifications to Dock FF; move 7 boats to new Dock FF
- \* Construct work platform(s) (trestle or barge) for Stage 4 work
- \* Retrofit Bents 5 & 6 (including installation of anchor piles)
- \* Erect Girder Spans 4, 5, & 6 [and construct Deck Spans 4, 5, & 6]
- \* Construct north and south rails [3]
- \* Remove work platform(s)
- \* Closure of West Path, western concrete stairway and access ramp to Dock FF
- \* Temporary relocation of affected facilities (offices, storage, restrooms, etc.)
- \* Temporary relocation of 8 boats from Dock FF
- \* Availability of only one boat channel under the bridge for 6 non-consecutive half-days

## Phase 5: Construction of Superstructure and Barrier Rails

### [no timing provided]

- \* Remove sidewalks & temporary barrier rails
- \* Construct new barrier rails
- \* Restore Dock FF, parking lot, existing offices and related facilities
- \* Restore all remaining facilities to original condition
- \* Repair deck

### Footnotes:

- [1] Note that construction phases overlap; the sum of the construction periods specified is therefore greater than the total period indicated by start and finish dates.
- [2] These tasks could be initiated and/or completed during the prior stage.
- [3] [These tasks could be completed either in Phase 2 or 4.
- [4] Temporary closure of Murray Street bridge roadway to all traffic is possible during any phase for a short duration. The alternating one-way traffic with sign control will occur during the construction, but not during the full duration of construction activities.



# MURRAY STREET BRIDGE



# GEOTECHNICAL CONSTRAINTS

- LIQUEFIABLE SOILS
- HIGH SEISMIC ZONE
- LARGE, DEEP FOUNDATIONS REQUIRED
- SOQUEL AVE BRIDGE HAS 7' PILES

