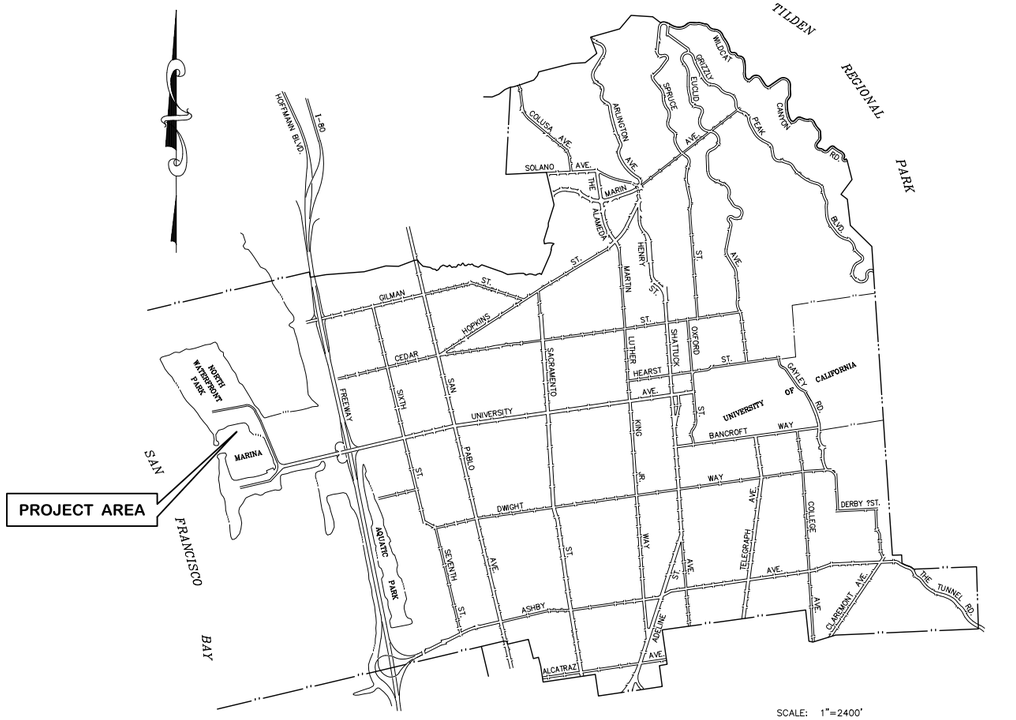
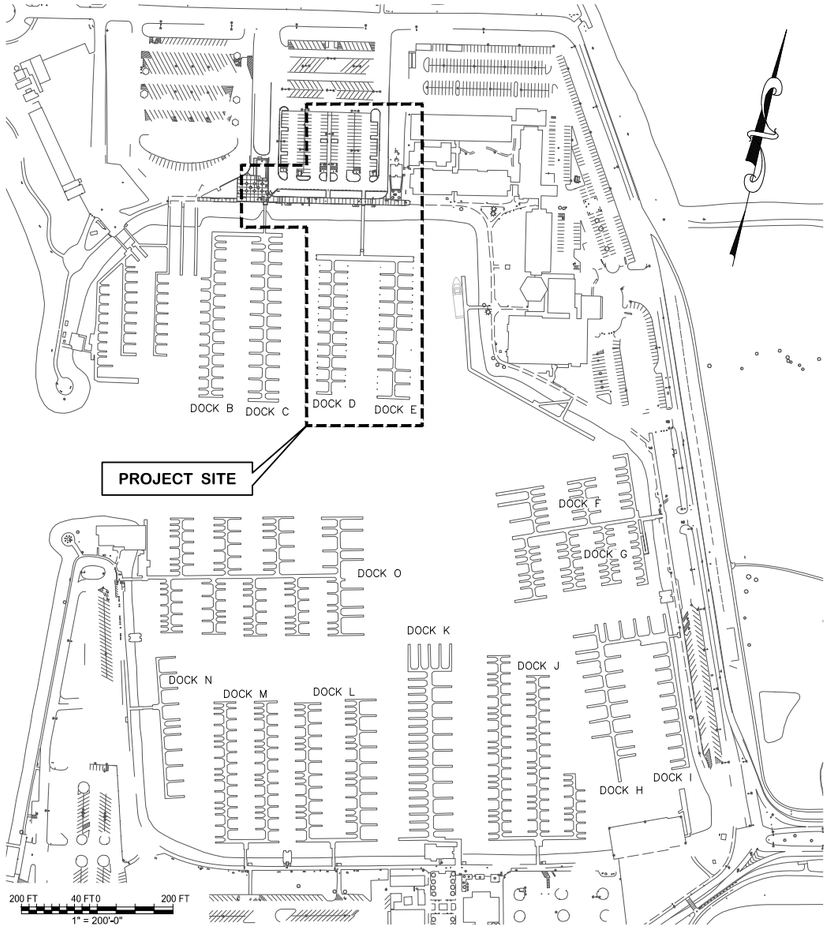
CITY OF BERKELEY
ALAMEDA COUNTY, CALIFORNIA
BERKELEY MARINA DOCK REPLACEMENT (D-E)
PROJECT PRWT122013
SPECIFICATION NO. 32000261



LOCATION MAP



PROJECT LOCATION MAP

DRAFT 90% Submittal

PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:24:14 AM

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
C		05-12-2023	90% PROGRESS SUBMITTAL	JMC
B		03-27-2023	60% PROGRESS SUBMITTAL	JMC
A		06-03-2022	30% PROGRESS SUBMITTAL	JMC

PROJECT MANAGER: DATE	DEPICTION OF MONUMENTS: DATE	SUBMITTED: DATE	DESIGN JRVS	HORIZ. AS SHOWN	BERKELEY	COWI	BERKELEY MARINA DOCK REPLACEMENT (D-E)	PLAN
	SURVEY PARTY CHIEF	SUPERVISING CIVIL ENGINEER R.C.E.	DRAWN NIF	VERT.	PARKS RECREATION & WATERFRONT 1947 CENTER ST., 5th FR, BERKELEY CA94704	555 12th Street, 17th Fl Oakland, CA 94612 Tel.: 510.839.8972 Fax: 510.839.9725	CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA	
0 1 2 3	WATERSHED REVIEW: DATE	APPROVED: DATE	CHECK JMC	BOOK			COVER PAGE	FILE
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES		CITY ENGINEER R.C.E. EXP.	AS BUILT	DATE 6/3/22			G-001	SHEET 1 OF 51

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4	G-004	BASIS OF DESIGN AND SPECIAL INSPECTION – SHEET 2 OF 2	B
5	G-005	PROJECT LIMITS AND CONTRACTOR LAYDOWN AREA	C
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63	S9	COLORED DEM	
64	S10	COLORED DEM	
65	S11	COLORED DEM	

ABBREVIATIONS

AB	AGGREGATE BASE
AC, A/C	ASPHALTIC CONCRETE
ASSOC	ASSOCIATED
BLDG	BUILDING CODE
BLVD	BOULEVARD
CB	CATCH BASIN
CC	CENTER TO CENTER
CCJ	CRACK CONTROL JOINT
CI	CAST IRON
CIP	CAST-IN-PLACE
CTR	CENTER
C, CL	CENTER LINE
CIR	CIRCUIT
CLR	CLEAR
CONC	CONCRETE
CND	CONDUCTOR
CONT	CONTINUOUS
CMP	CORRUGATED METAL PIPE
CY	CUBIC YARD
DBL	DOUBLE
DET	DETAIL
DF	DOUGLAS FIR
DI	DROP INLET
DIA	DIAMETER
EA	EACH
EW	EACH WAY
EL, ELEV	ELEVATION
EQ	EQUAL
EXT	EXTERIOR
(E)	EXISTING
F/C	FACE OF CURB
FD	FLOOR DRAIN
FHC	FIRE HOSE CABINET
FTG	FOOTING
FG	FINISH GRADE
FT	FOOT
GALV	GALVANIZED
GRS	GALVANIZED RIGID STEEL
GA	GAUGE
GB	GRADE BREAK
GLU LAM	GLUE LAMINATED BEAM
GR	GROUND
H/C	HANDICAPPED
HP	HIGH POINT
HDG	HOT DIPPED GALVANIZED
HORIZ	HORIZONTAL
HB	HOSE BIB
INT	INTERIOR
INV	INVERT
J-BOX	JUNCTION BOX
LB	POUND
LF	LINEAR FOOT
LG SCR	LAG SCREW
MAX	MAXIMUM
MB	MACHINE BOLT
MCM	THOUSAND CIRCULAR MILS
MHW	MEAN HIGH WATER
MIN	MINIMUM
MDO	MEDIUM DENSITY OVERLAY
MH	MANHOLE
MSB	MAIN SWITCH BOARD
(N)	NEW
NIC	NOT IN CONTRACT
MIN	NUMBER
NTS	NOT TO SCALE
PS	PRESSURE TREATED
OC	ON CENTER
PG&E	PACIFIC GAS & ELECTRIC
PT	POINT
PVC, P.V.C.	POLYVINYL CHLORIDE
R	RADIUS
REINF	REINFORCING
REQD	REQUIRED
SCHD, SCH	SCHEDULE
S.A.	SEE ARCHITECTURAL DRAWINGS
S.E.J.	SEE ELECTRICAL DRAWINGS
S.M.D.	SEE MECHANICAL DRAWINGS
SF	SQUARE FOOT
SHT	SHEET
S/W	SIDEWALK
SIM	SIMILAR
STD	STANDARD
SD	STORM DRAIN
S.S.	SANITARY SEWER
SS	STAINLESS STEEL
SDP	STORM DRAIN PIPE
SPEC	SPECIFICATION
STN	STATION
T/C	TOP OF CURB
TR	TO REMAIN
TYP	TYPICAL
UBC	UNIFORM BUILDING
UHMW	ULTRA HIGH MOLECULAR WEIGHT
VAR	VARIES
VERT	VERTICAL
WWM	WELDED WIRE MESH
W\	WITH
@	AT
ø	DIAMETER

PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:09:54 AM

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COWI
555 12th Street, 12th Fl Oakland, CA 94612
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www.cowi.com

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
SHEET INDEX AND ABBREVIATIONS

PLAN
FILE
G-002
SHEET 2 OF 51

BASIS OF DESIGN

1. PROJECT DESCRIPTION:

   A. THE CONTRACTOR SHALL PROVIDE THE DESIGN, AS WELL AS ALL LABOR, SUPERVISION, EQUIPMENT, APPLIANCES AND MATERIALS REQUIRED TO PERFORM ALL OPERATIONS IN CONNECTION WITH AT LEAST, BUT NOT NECESSARILY LIMITED TO, THE SUCCESSFUL COMPLETION OF THE FOLLOWING ITEMS, ALL IN STRICT ACCORDANCE WITH THE CONTRACT DOCUMENTS:
      1. REMOVAL, STORAGE, AND RE-INSTALLATION OF EXISTING FLOATS, GANGWAYS AND RELATED ACCESSORIES
      2. REMOVAL AND DISPOSAL OF EXISTING REVETMENT AND SLOPE MATERIAL IN ORDER TO PROPERLY INSTALL NEW WORK
      3. INSTALLATION OF NEW GEOTEXTILE FABRIC, BEDDING LAYER, AND REVETMENT SLOPE PROTECTION AT REQUIRED LOCATIONS REPLACEMENT OF ANY DAMAGED UTILITY STRUCTURE DAMAGED DURING THE CONSTRUCTION ACTIVITIES WITH IN-KIND OR BETTER QUALITY.

   B. SHOULD THE CONTRACTOR OR ANY SUBCONTRACTOR FIND ANY DEFICIENCIES, ERRORS, CONFLICTS OR OMISSIONS IN THESE PLANS AND SPECIFICATIONS OR SHOULD THERE BE DOUBT AS TO THEIR MEANING OR INTENT, THE CONTRACTOR SHALL CEASE WORK AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY. THE ENGINEER WILL PROVIDE WRITTEN CLARIFICATION.

   C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING SURVEY MONUMENTS AND CONTROL POINTS. ALL MONUMENTS DESTROYED DURING CONSTRUCTION SHALL BE RESURVEYED AND REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE, AS OUTLINED IN THE BUSINESS AND PROFESSIONS CODE, SECTION 8771.

   D. DIMENSIONS AND EXISTING CONDITIONS DEPICTED ON THE CONTRACT DRAWINGS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF WORK. ANY DISCREPANCIES SHALL BE NOTED BY THE CONTRACTOR AND REVIEWED WITH THE OWNER PRIOR TO ORDERING, CONSTRUCTION, OR FABRICATION OF CONSTRUCTION MATERIALS.

   E. ALL SECTIONS, DETAILS, NOTES, DIMENSIONS AND CONDITIONS ARE APPLICABLE AT ANY OTHER LOCATION WHERE CONDITIONS AND DETAILS ARE SIMILAR BUT ARE NOT SPECIFICALLY NOTED AS SUCH OR ARE NOT SHOWN.

2. DESIGN CRITERIA:

   A. ALL STRUCTURES SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING DESIGN CODES AND STANDARDS:
      CALIFORNIA BUILDING CODE, 2019
      CITY OF BERKELEY STANDARD DETAILS, 2022.
      "LAYOUT AND DESIGN GUIDELINES FOR MARINA BERTHING FACILITIES," BY CALIFORNIA DEPARTMENT OF BOATING AND WATERWAYS, STATE OF CALIFORNIA, JULY 2005.
      "PLANNING AND DESIGN GUIDELINES FOR SMALL CRAFT HARBORS," AMERICAN SOCIETY OF CIVIL ENGINEERS, 2020.
      NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) CODE 303: FIRE PROTECTION STANDARDS FOR MARINAS AND BOATYARDS.
      AMERICAN SOCIETY OF CIVIL ENGINEERS, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES," ASCE/SEI 7-22, 2022.
      AMERICAN WITH DISABILITY ACT "ADA STANDARDS FOR ACCESSIBLE DESIGN" AND "GUIDANCE ON ADA STANDARDS FOR ACCESSIBLE DESIGN", 2010.
      AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SR=TEEL CONSTRUCTION MANUAL" AISC 325-17, 15TH EDIITON

   B. STRUCTURES SHALL BE DESIGNED ACCORDING TO THE FOLLOWING DESIGN CRITERIA:
      LIVE LOADS
      400 LB CONCENTRATED LOAD ON ANY 1 SF AREA (FLOATING DOCK)
      25 PSF UNIFORM LIVE LOAD (FLOATING DOCK)
      100 PSF UNIFORM LIVE LOAD (FIXED PLATFORMS)
      SEE GANGWAY AND ACCESS RAMPS SECTION FOR LOADING
      THE PRIMARY GLOBAL LOADS USED FOR DESIGN OF THE MARINE STRUCTURES SHALL CONSIST OF RATIONAL COMBINATIONS OF WIND, CURRENT, AND WAVES.
      THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENGAGING A QUALIFIED PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF CALIFORNIA, TO PERFORM HYDRODYNAMIC ANALYSIS TO COMPUTE THE ENVIRONMENTAL GLOBAL LOADS & MOTION BEHAVIOR.
      WIND LOADS
      EXPOSURE D
      85 MPH MAXIMUM WIND VELOCITY
      HYDRODYNAMIC LOADS
      TIDES: SEE DWG G-005 FOR MLLW ELEVATIONS
      CURRENT: 1.8 KNOTS (2 FT/SEC)

3. GEOTECHNICAL INVESTIGATION:

   A. GEOTECHNICAL INVESTIGATION BERKELEY MARINA REHABILITATION, DECEMBER 16, 2004 BY TREADWELL&ROLLO

4. SOIL AND SEISMIC:

   2019 CALIFORNIA BUILDING CODE SEISMIC DESIGN PARAMETERS
   A. SEISMIC CATEGORY: D
   B. SITE CLASS: E
   C. MAP SPECTRAL RESPONSE: S_S = 1.774 g, S_1 = 0.674 g
   D. MAPPED PEAK GROUND ACCELERATION: PGA = 0.746 g
   E. SITE CLASS E MODIFICATION FACTORS
      F = 1.2
      F = 2.0
      F_{PGA} = 1.1
   F. SITE-MODIFIED SPECTRAL RESPONSE:
      S_{MS} = 2.129 g (SITE CLASS E)
      S_{M1} = 1.348 g (SITE CLASS E)
   G. SITE-MODIFIED PEAK GROUND ACCELERATION:
      PGA_M = 0.821 g (SITE CLASS E)

5. RETAINING WALL:

   A. DESIGN EQUIVALENT FLUID PRESSURE = 45 PCF
   B. DESIGN LATERAL RESISTANCE = 400 PCF

6. DOCK GUIDE PILING:

   A. AXIAL LOAD = N/A
   B. LATERAL LOAD AT PILE HEAD = 1.4K MAXIMUM
   C. EFFECTIVE PRESTRESS MINIMUM = 1,055 PSI AFTER LOSSES
   D. PILE STICKUP MAXIMUM = 25'
   E. PILE EMBEDMENT MINIMUM = 35'
   F. PILE LENGTH MINIMUM = 63'
   G. PILE CROSS SECTION = 18" OCTAGONAL
   H. CONCRETE STRENGTH MINIMUM FC = 6,500 AT 28 DAYS

7. FLOATING DOCKS:

   A. SUPPORT A LIVE LOAD OF TWENTY FIVE (25) POUNDS PER SQUARE FOOT OF DECK AREA WITH A FREEBOARD OF NOT LESS THAN TWELVE (12) INCHES.

   B. THE DECK STRUCTURE SHALL HAVE SUFFICIENT FLOATATION TO SUPPORT ALL TRANSMITTED LOADS.

   C. THE DECK STRUCTURE SHALL HAVE SUFFICIENT FLOATATION TO SUPPORT THE TRANSMITTED DEAD LOAD AND LIVE LOAD FROM THE GANGWAY.

   D. THE GANGWAY LIVE LOAD SHALL BE CALCULATED ON A BASIS OF 100 POUNDS PER SQUARE FOOT LIVE LOAD APPLIED TO THE TOTAL SURFACE AREA OF THE GANGWAY.

   E. THE FREEBOARD UNDER THESE IMPOSED LOADS SHALL NOT BE LESS THAN TWELVE (12) INCHES AND SHALL MEET THE TRANSVERSE AND LONGITUDINAL SLOPES SET FORTH BELOW:

      i. DEAD LOAD ONLY, AND DEAD LOAD + UNIFORM LIVE LOAD:
         1. MAXIMUM CROSS SLOPE 1/4 INCH PER FOOT, NOT TO EXCEED ONE INCH MAXIMUM.
         2. MAXIMUM LONGITUDINAL SLOPE 1/8 INCH PER FOOT, NOT TO EXCEED ONE INCH IN 10 FEET.

      ii. DEAD LOAD + LIVE POINT LOAD:
         1. MAXIMUM CROSS SLOPE 1/2 INCH PER FOOT (4%), NOT TO EXCEED TWO INCHES MAXIMUM.
         2. MAXIMUM LONGITUDINAL SLOPE 1/4 INCH PER FOOT, NOT TO EXCEED TWO INCHES IN 10 FEET.

   A. FREEBOARD UNDER DEAD LOAD ONLY SHALL NOT BE LESS THAN FIFTEEN (15) INCHES OR EXCEED EIGHTEEN (18) INCHES.

   B. THE FLOATATION UNITS SHALL BE CAPABLE OF SUPPORTING A MINIMUM 400 POUND LIVE POINT LOAD APPLIED AT ANY POINT ON THE DECK, NOT CLOSER THAN 12" FROM ANY EDGE, WITHOUT PROVIDING LESS THAN THE MINIMUM SPECIFIED FREEBOARD OR SLOPES.

   C. THE DOCK UNITS SHALL BE CAPABLE OF WITHSTANDING AN ANTICIPATED CURRENT LOADS OF 2 FPS, IMPACT LOADS FROM A 60 TON VESSEL IMPACTING AT 1FT/SEC APPROACH VELOCITY (A 1/3 STRESS INCREASE IS ALLOWED SINCE THE FORCE IS TRANSIENT), AND A 1.0 FOOT WAVE ENVIRONMENT AND 2.0 FOOT POTENTIAL BOAT WAKE (A 1/3 STRESS INCREASE IS ALLOWED SINCE THE FORCE IS TRANSIENT).

   D. DEAD LOADS SHALL CONSIST OF THE FLOATS, FRAMING, DECKING CONNECTIONS, AND ALL PERMANENTLY ATTACHED EQUIPMENT. THE WEIGHT OF LUMBER FOR THESE CALCULATIONS SHALL BE ASSUMED AT NO LESS THAN FORTY POUNDS PER CUBIC FOOT.

   E. WIND LOADS FOR FINGER FLOATS SHALL BE A UNIFORMLY DISTRIBUTED LOAD OF FIFTEEN (15) POUNDS PER SQUARE FOOT ACTING ON THE ABOVE WATER PROFILE OF POTENTIAL BERTHED CRAFT. THE BOAT PROFILE AREA SHALL BE DETERMINED BY USING THE LENGTH AND AN AVERAGE PROFILE HEIGHT EQUAL TO FIFTEEN PERCENT (15%) OF THE BOAT LENGTH.

8. GENERAL:

   A. UNLESS NOTED OTHERWISE, REFER TO DRAWINGS OTHER THAN STRUCTURAL FOR FINISHES, SLOPES, DEPRESSIONS, OPENINGS, CURBS, STAIRS, RAMPS, TRENCHES, EQUIPMENT AND LOCATIONS AND EXTENT OF SUCH CONDITIONS.

   B. INSTALLATION OF ALL NEW IN-WATER STRUCTURES SHALL BE IN ACCORDANCE WITH ALL ENVIRONMENTAL PERMIT CONDITIONS. CONTRACTOR SHALL SUBMIT PILE DRIVING PROCEDURES AND PROTECTION PLAN TO THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING IN-WATER WORK. CONTRACTOR SHALL SUBMIT COMPLIANCE PLAN FOR MITIGATION MEASURE(S) ABOVE PRIOR TO PILE DRIVING.

   C. CONTRACTOR SHALL USE NOISE-REDUCING PILE DRIVING TECHNIQUES SUCH AS VIBRATING PILES INTO PLACE WHERE FEASIBLE, AND RESTRICTING THE HOURS OF OPERATION.

   D. PILE DRIVING OR OTHER EXTREME NOISE GENERATING ACTIVITY (80 DBA AT A DISTANCE OF 100 FEET) SHALL BE LIMITED TO 8:00 AM TO 5:00 PM, MONDAY THROUGH FRIDAY AND AS RESTRICTED TO PERIOD AND TIMES TO BE NOTED IN PERMITS. NO PILE DRIVING OR OTHER EXTREME NOISE GENERATING ACTIVITY IS PERMITTED ON SATURDAYS, SUNDAYS OR HOLIDAYS. REQUESTS FOR PILE DRIVING ON SATURDAYS MAY BE CONSIDERED ON A CASE BY CASE BASIS BY THE CITY OF BERKELEY.

9. GEO-TEXTILE FABRIC MATERIAL:

   A. THE GEO-TEXTILE FABRIC IS DESIGNED TO ACT AS A FILTER FOR THE FOUNDATION OF THE REVETMENT STRUCTURE.
   B. THE GEO-TEXTILE FABRIC IS SIZED TO RETAIN THE SILTY/SANDY SEDIMENT AND PREVENT MIGRATION AND PIPING THROUGH THE VOIDS OF THE RUBBLE WHEN SUBJECTED TO INUNDATION BY BREAKING WAVES AND GROUND SEEPAGE.
   C. THE GEO-TEXTILE FABRIC MATERIAL SHALL BE A NON-WOVEN POLYPROPYLENE GEO-TEXTILE MEETING AASHTO M288-96 SPECIFICATIONS, SUCH AS MIRAFI 1100N OR EQUIVALENT.
   D. THE GEO-TEXTILE FABRIC SHALL BE INERT TO BIOLOGICAL DEGRADATION AND RESISTANT TO NATURALLY ENCOUNTERED CHEMICALS, ACIDS, AND ALKALIS.

10. CONCRETE:

   A. CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF SPECIFICATIONS SECTION 03330 – CAST-IN-PLACE.

   B. ALL CONCRETE SHALL BE NORMAL WEIGHT, WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF: 4000 PSI

   C. CONCRETE REINFORCING COVER SHALL BE AS FOLLOWS:
      - RETAINING WALL: 3 INCHES
      - FOOTINGS AND SLABS CAST AGAINST OR EXPOSED TO EARTH: 3 INCHES
      - CONCRETE EXPOSED TO WEATHER: 2 INCHES

   D. ALL CONCRETE DIMENSIONS SHOWN ARE MINIMUM DIMENSIONS. CONTRACTOR SHALL REVIEW FORMING, REINFORCING DETAILS AND ANY EMBEDDED ITEMS AND DETERMINE THE PLACEMENT REQUIREMENTS AND CLEARANCES PRIOR TO FABRICATION OF ANY REINFORCING.

11. REINFORCING STEEL:

   A. ALL CONCRETE REINFORCING SHALL BE:
      ASTM A 615, GRADE 60
      ASTM A 706, GRADE 60
      EPOXY COATED PER ASTM A775, UNO
   B. NO WELDING OF ANY REINFORCING SHALL BE PERMITTED.

12. LUMBER:

   A. ALL LUMBER SHALL BE PRESSURE TREATED (PT) PER PROJECT SPECIFICATIONS – 06130.

   B. ALL MEMBERS ARE TO BE DOUGLAS FIR LARCH, S4S, WITH A MINIMUM ALLOWABLE FLEXURAL STRESS RATING OF 1300 PSI.

   C. GRADING REQUIREMENTS ARE AS FOLLOWS:
      3X DECKING (MIN.): #1, KDAT-19
      2X WALES: #1, KDAT-19
   D. ALL DECKING SCREWS SHALL BE COUNTERSUNK IN DECKING WALERS AND RUB STRIPS.

   E. ALL CONNECTOR BOLTS SHALL BE HOT-DIP GALVANIZED AND CONFORM TO ASTM A307.

   F. BOLT SPACING, EDGE AND END DISTANCES IN WOOD MEMBERS SHALL CONFORM WITH CBC REQUIREMENTS.

   G. ALL BOLTS AND LAG SCREWS SHALL BE PROVIDED WITH STANDARD CUT STEEL WASHERS UNDER HEADS AND NUTS BEARING ON WOOD.

   H. ALL BOLTS OR STEEL HARDWARE EXPOSED TO MOISTURE SHALL BE HOT-DIP GALVANIZED.

   I. ALL NAILS AND FASTENERS DRIVEN INTO PRESSURE-TREATED LUMBER SHALL BE HOT-DIP GALVANIZED.

   J. DECKING SCREWS SHALL BE A316 STAINLESS STEEL.

   K. BRUSH CUT TREATED LUMBER SURFACES WITH COPPER NAPHTHENATE PRIOR TO INSTALLATION.

13. STRUCTURAL STEEL:

   A. HOT-DIP GALVANIZE ALL STEEL ELEMENTS AFTER FABRICATION AND WELDING UNLESS OTHERWISE NOTED.

   B. ALL EXPOSED NON-GALVANIZED STEEL SURFACES AND FASTENERS SHALL BE COATED PER SPECIFICATIONS UNLESS OTHERWISE NOTED.

14. FLOATING DOCKS

   A. REINFORCEMENT SHALL BE EPOXY-COATED PER REINFORCING SECTION. SEE SPECIFICATIONS.

   B. WIRE MESH TO BE GALVANIZED, SEE SPECIFICATIONS.

   C. DIMENSIONS SHOWN ARE TYPICAL FOR ALL FLOATS UNO.

   D. WIDTH DIMENSIONS SHOWN ARE NOMINAL. CONTRACTOR MAY VARY WIDTH WITHIN SPECIFIED TOLERANCES TO SUIT MANUFACTURER'S PROPRIETARY FORMWORK.

PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:09:56 AM

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COWI
555 12th Street, 13th Fl Oakland, CA 94612
Tel.: 510.839.8972 Fax: 510.839.9725
www.cowi.com

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
BASIS OF DESIGN AND SPECIAL INSPECTION – 1 of 2

PLAN
FILE
G-003
SHEET 3 OF 51

BASIS OF DESIGN

14. FLOATING DOCKS CONT.

E. CONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE DEPTH DIMENSION "D" FOR ALL FLOATS AND DIMENSION "W" FOR ONE FLOAT SUPPORTING THE RAMP AND GANGWAY. SUFFICIENT DEPTH "D" SHALL BE PROVIDED TO SUPPORT THE DOCK SYSTEM DEAD LOAD INCLUDING UTILITIES AND ALL DOCK ACCESSORIES AT THE REQUIRED FREEBOARD. SEE SPECIFICATIONS.

F. FOR MINIMUM NUMBER OF RACEWAYS REQUIRED, SEE SPECIFICATIONS. FOR RACEWAY ALLOCATION AND JUNCTION BOX REQUIREMENTS, SEE ELECTRICAL SHEETS.

G. ALL THROUGH RODS, BOLTING AND MISCELLANEOUS STEEL ITEMS SHALL BE HOT-DIP GALVANIZED.

H. TIMBER FOR WALERS AND RUBSTRIPS SHALL BE PRESSURE TREATED FOR SALT WATER EXPOSURE OR APPROVED EQUAL. SEE SPECIFICATIONS.

15. GANGWAYS AND ACCESS RAMPS:

A. GANGWAYS AND RAMPS SHALL BE DESIGNED FOR A VERTICAL LIVE LOAD OF 100 PSF IN ADDITION TO ALL OTHER CODE PRESCRIBED LOAD CONDITIONS.

B. MAXIMUM DEFLECTION FOR RAMP AND GANGWAY SPAN SHALL NOT EXCEED LSPAN/360.

16. ADA REQUIREMENTS:

A. THE MAXIMUM CROSS SLOPE SPECIFIED FOR GANGWAY, TRANSITION PLATES, AND FLOATING PIERS THAT ARE PART OF THE ADA ACCESSIBLE ROUTES SHALL NOT EXCEED 2%, MEASURED IN THE STATIC POSITION.

CBC COMPLIANCE

A. THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS OF THE 2019 CBC:

1706.1 CONTRACTOR RESPONSIBILITY.

B. EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN WIND-OR SEISMIC-FORCE-RESISTING SYSTEM, DESIGNATED SEISMIC SYSTEM OR A WIND- OR SEISMIC-RESISTING COMPONENT LISTED IN THE STATEMENT OF SPECIAL INSPECTIONS SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL CONTAIN THE FOLLOWING:

1. ACKNOWLEDGEMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS;
2. ACKNOWLEDGEMENT THAT CONTROL WILL BE EXERCISED TO OBTAIN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS APPROVED BY THE BUILDING OFFICIAL;
3. PROCEDURES FOR EXERCISING CONTROL WITHIN THE CONTRACTOR'S ORGANIZATION, THE METHOD AND FREQUENCY OF THAT REPORTING AND THE DISTRIBUTION OF THE REPORTS; AND
4. IDENTIFICATION AND QUALIFICATIONS OF THE PERSON(S) EXERCISING SUCH CONTROL AND THEIR POSITION(S) IN THE ORGANIZATION.

SPECIAL INSPECTION REQUIREMENTS

A. SPECIAL INSPECTIONS SHALL MEET THE REQUIREMENTS OF CBC SECTION 1701.

B. SPECIAL INSPECTORS SHALL:
1. BE UNDER THE SUPERVISION OF A REGISTERED CIVIL ENGINEER.
2. OBSERVE THE WORK ASSIGNED FOR CONFORMANCE WITH APPROVED DRAWINGS.
3. FURNISH INSPECTION REPORTS TO THE ENGINEER. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION; THEN, IF NOT CORRECTED, TO THE ENGINEER AND CITY.
4. SUBMIT TO THE ENGINEER AND CITY A FINAL REPORT, SIGNED BY A REGISTERED CIVIL ENGINEER, STATING THAT THE WORK WAS IN CONFORMANCE WITH THE APPROVED DRAWINGS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE 2019 CBC.

C. INSPECTION NOTES:
1. SPECIAL INSPECTORS MUST BE CERTIFIED BY THE CITY OR ICBO/ICC TO PERFORM THE TYPES OF INSPECTION SPECIFIED.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INFORM THE SPECIAL INSPECTOR OR INSPECTION AGENCY AT LEAST ONE WORKING DAY BEFORE PERFORMING ANY WORK THAT REQUIRES SPECIAL INSPECTION. ALL WORK PERFORMED WITHOUT REQUIRED SPECIAL INSPECTION IS SUBJECT TO REMOVAL.

REQUIRED VERIFICATION AND INSPECTION OF SOILS & PIER FOUNDATIONS		
VERIFIICATION AND INSPECTION TASK	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED
VERIFY MATERIALS BELOW FOOTINGS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	---	X
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	---	X

REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION				
VERIFIICATION AND INSPECTION TASK	CONTINUOUS	PERIODIC	REFERNCED STANDARD	CBC REFERENCE
INSPECTION OF REINFORCING STEEL, AND PLACEMENT	---	X	CH 20, 25.2, 25.3, 26.5.1-26.5.3, 26.5	1908.4, 1910A.2-1910A.3
VERIFY USE OF REQUIRED DESIGN MIX	---	X	ACI 318: Ch.19, 26.2-26.4	1904.1, 1904.2, 1908.2, 1908.3
AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	X	---	ASTM C 172 ASTM C 31 ACI 318: 26.5	1908.10, 1903A
INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X	---	ACI 318: 26.5	1908.6, 1908.7, 1908.8
INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	---	X	ACI 318: 26.5, 26.6.2	1904A
INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	---	X	ACI 318: 26.1	---
INSPECTION OF PRESTRESSED CONCRETE: A. APPLICATION OF PRESTRESSING FORCES	X	---	ACI 318: 26.10	---

PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:09:58 AM

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
A		05-12-2023	90% PROGRESS SUBMITTAL	JMC

PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER R.C.E. EXP.
APPROVED: DATE
CITY ENGINEER R.C.E. EXP.
0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

DESIGN	JRVS	HORIZ.	
DRAWN	NIF	VERT.	
CHECK	JMC	BOOK	
AS BUILT		DATE	6/3/22

CITY OF BERKELEY
PARKS RECREATION & WATERFRONT
1947 CENTER ST., 5th FR, BERKELEY CA 94704

COWI
555 12th Street, 17th Fl Oakland, CA 94612
Tel.: 510.839.0972 Fax: 510.839.5726
Website: www.cowi-na.com

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
BASIS OF DESIGN AND SPECIAL INSPECTION – 2 OF 2

PLAN
FILE
G-004
SHEET 4 OF 51

NOTES:

1. COORDINATE LAYDOWN AREA WITH CITY PROJECT MANAGER.
2. CONTRACTOR TO PROTECT IN PLACE ALL ELEMENTS NOT BEING DEMOLISHED.
3. ALL EQUIPMENT TO BE STORED AND ANCHORED WITHIN BOUNDARY LIMITS AND CONTRACTOR LAYDOWN AREA.

TRAILER LAYDOWN AREA

(E) RESTROOM FENCE MODIFICATION

±72'

±91'

±90'-0"

±7'

CONTRACTOR LAYDOWN AREA

(E) DOCK B & C

(E) DOCK D & E

±600'-0"

(E) VISITORS DOCK

±100'-0"

CONTRACTORS LIMITS OF EQUIPMENT AREA

±349'

SAN FRANCISCO BAY

SITE PLAN – PROJECT LIMITS AND CONTRACTOR LAYDOWN AREA (1 / D-001)

SCALE: 1" = 50'-0"

50 FT 10 FT 0 50 FT
1" = 50'-0"

FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES (0 1 2 3)

DRAFT 90% Submittal

PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:15:01 AM

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
C		05-12-2023	90% PROGRESS SUBMITTAL	JMC
B		03-27-2023	60% PROGRESS SUBMITTAL	JMC
A		06-03-2022	30% PROGRESS SUBMITTAL	JMC

PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER R.C.E. EXP.
APPROVED: DATE
CITY ENGINEER R.C.E. EXP.

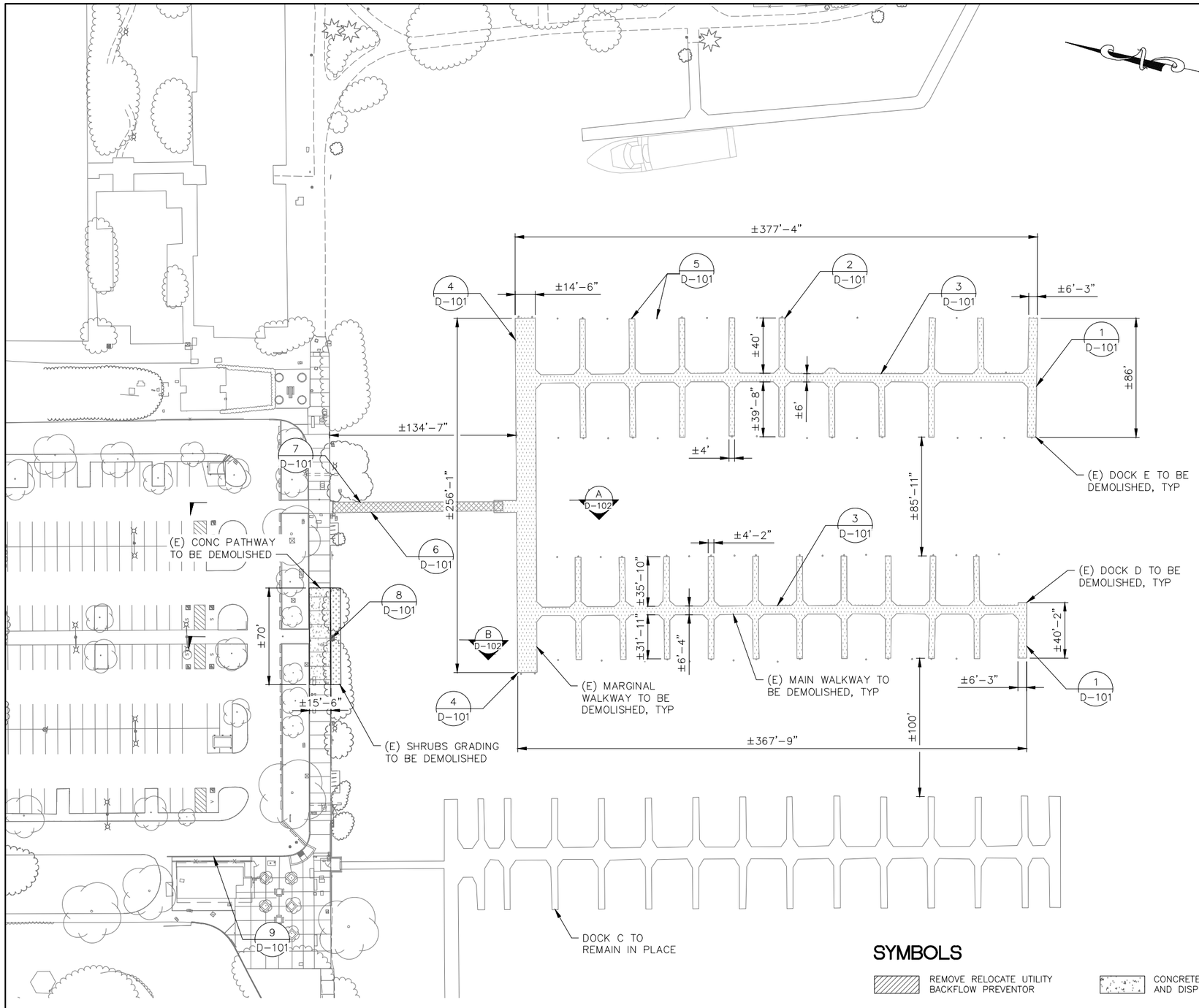
DESIGN JRVS
DRAWN NIF
CHECK JMC
AS BUILT
HORIZ. AS SHOWN
VERT.
BOOK
DATE 6/3/22

PARKS, RECREATION & WATERFRONT
1947 CENTER ST., 5th FL, BERKELEY, CA 94704

COWI
101 12th Street, 12th Fl • Oakland, CA 94612
Tel.: 510.839.0572 Fax: 510.839.5716

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
PROJECT LIMITS AND CONTRACTOR LAYDOWN AREA

PLAN
FILE
G-005
SHEET 5 OF 51



DEMOLITION PLAN
SCALE: 1" = 40'-0"

1 / D-100

40 FT 8 FT 0 40 FT
1" = 40'-0"

NOTES:

1. CONTRACTOR TO COORDINATE WITH CITY REPRESENTATIVE PRIOR TO DEMOLITION OF UTILITIES AND CONTROLS. REUSE & RELOCATE IRRIGATION CONTROLLERS AS DIRECTED BY THE CITY. MAINTAIN OPERATION OF CONTROLS FOR LANDSCAPING DURING CONSTRUCTION.
2. CONTRACTOR TO INVESTIGATE AND REPORT TO CITY LOCATIONS AT DOUBLE AND END TIE BERTHS WHERE PILES ARE MISSING OR BROKEN BELOW WATER. REMOVE & DISPOSE OF PILE STUBS EXTENDING ABOVE THE MUDLINE.
3. SIDEWALK DEMOLITION SHALL TERMINATE AT EXISTING JOINTS. REPAIR ANY DAMAGE TO IMPROVEMENTS TO REMAIN AT NO ADDITIONAL COST.
4. SAWCUT PAVEMENT AT INTERFACE BETWEEN AREAS TO BE REMOVED & AREAS TO REMAIN.
5. CONTRACTOR TO VERIFY UTILITIES SERVED THROUGH EXISTING PANELS & BOXES. CONTINUE SERVICE TO UTILITIES OUTSIDE THE SCOPE OF THIS PROJECT, LEAVE ASSOCIATED BOXES IN PLACE UNLESS SERVICE IS TO BE RELOCATED. REMOVE & DISPOSE OF BOXES & PANELS THAT NO LONGER SERVE UTILITIES AFTER DEMOLITION OF DOCKS.
6. CONFIRM WATER VALVE LOCATIONS FOR DOCKS AND RELOCATE TO ADJOIN NEW GANGWAY LOCATIONS.
7. EXISTING CONDUITS TO BE ABANDONED IN PLACE SHALL BE FILLED WITH GROUT.
8. ALL PILES WITHIN THE BERTH AREAS NOTED TO BE REMOVED SHALL BE REMOVED IN THEIR ENTIRETY. PILES BROKEN DURING REMOVAL SHALL BE COMPLETELY REMOVED. STUBS ARE NOT ACCEPTABLE.

LEGEND

- 1 / D-101 — REMOVE AND DISPOSE OF (E) END FLOATS
- 2 / D-101 — REMOVE AND DISPOSE (E) TYPICAL FLOATS
- 3 / D-101 — REMOVE AND DISPOSE (E) MAIN FLOATS
- 4 / D-101 — REMOVE AND DISPOSE (E) MARGINAL FLOATS
- 5 / D-101 — REMOVE AND DISPOSE (E) 16"ø TIMBER PILES
- 6 / D-101 — REMOVE AND DISPOSE (E) GANGWAY AND GATE
- 7 / D-101 — REMOVE AND DISPOSE (E) TIMBER PIER
- 8 / D-101 — REMOVE AND RELOCATE (E) BACKFLOW PREVENTER. SEE P101 FOR ADDITIONAL INFORMATION
- 9 / D-101 — REMOVE AND RELOCATE (E) RESTROOM EAST SIDE GATE. SEE C-105 FOR ADDITIONAL INFORMATION.

SYMBOLS

- REMOVE RELOCATE UTILITY BACKFLOW PREVENTOR
- REMOVE AND DISPOSE (E) GANGWAY AND PIER
- AC TO BE PULVERIZED AND BLENDED INTO TOP 8"
- CONCRETE TO BE REMOVED AND DISPOSED
- WOOD DOCKS TO BE REMOVED AND DISPOSED
- REMOVE AND STOCKPILE (E) ROCK, WHERE NEEDED, AND CLEAR AND GRUB.

DRAFT 90% Submittal

PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:09:39 AM

REVISION	MARK	DESCRIPTION	DATE	APPROVAL
C		90% PROGRESS SUBMITTAL	05-12-2023	JMC
B		60% PROGRESS SUBMITTAL	03-27-2023	JMC
A		30% PROGRESS SUBMITTAL	06-03-2022	JMC

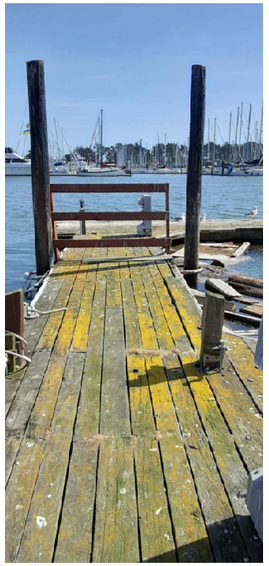
PROJECT MANAGER:	DATE	DEPICTION OF MONUMENTS:	DATE	SUBMITTED:	DATE	DESIGN JRVS	HORIZ. AS SHOWN
		SURVEY PARTY CHIEF		SUPERVISING CIVIL ENGINEER	R.C.E. EXP.	DRAWN NIF	VERT.
0 1 2 3 FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES		WATERSHED REVIEW:	DATE	APPROVED:	DATE	CHECK JMC	BOOK
				CITY ENGINEER	R.C.E. EXP.	AS BUILT	DATE 6/3/22

CITY OF BERKELEY — PARKS RECREATION & WATERFRONT, 1947 CENTER ST., 5th FR, BERKELEY CA94704

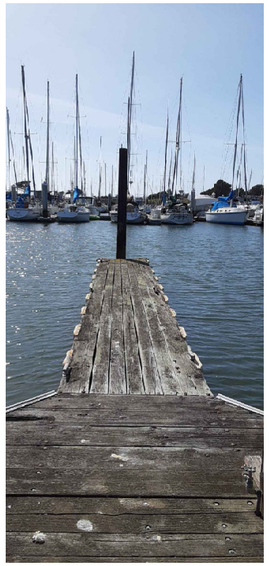
COWI — 555 12th Street, 17th Flr Oakland, CA 94612 Tel: 510 839 0972 Fax: 510 839 0716 Website: www.cowi.na.com

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
DEMOLITION
SHEET 1 OF 2

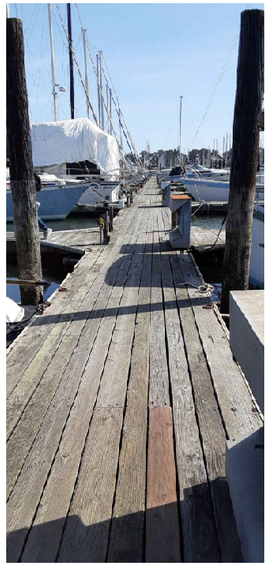
PLAN
FILE
D-100
SHEET 6 OF 51



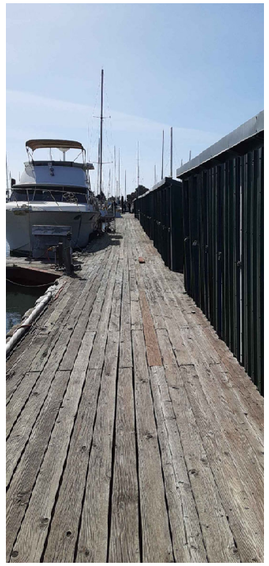
END FLOAT 1 D-100 D-101



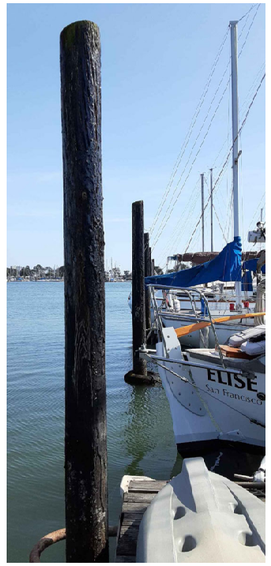
TYPICAL FINGER FLOAT 2 D-100 D-101



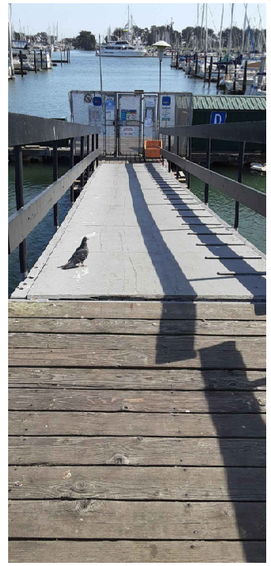
MAIN FLOAT 3 D-100 D-101



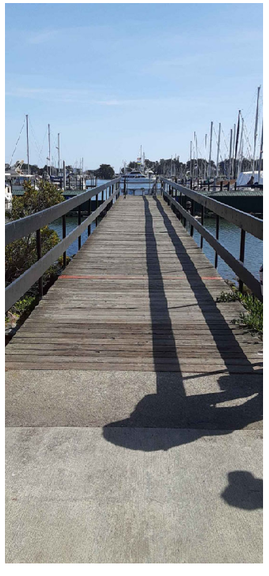
MARGINAL FLOAT 4 D-100 D-101



TIMBER PILES 5 D-100 D-101



GANGWAY AND GATE 6 D-100 D-101



TIMBER PIER 7 D-100 D-101

BACKFLOW PREVENTER 8 D-100 D-101

RESTROOM FENCE 9 D-100 D-101

DRAFT 90% Submittal

PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:09:43 AM

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
C		05-12-2023	90% PROGRESS SUBMITTAL	JMC
B		03-27-2023	60% PROGRESS SUBMITTAL	JMC
A		06-03-2022	30% PROGRESS SUBMITTAL	JMC

PROJECT MANAGER: DATE

DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF

WATERSHED REVIEW: DATE

SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER R.C.E. EXP.

APPROVED: DATE
CITY ENGINEER R.C.E. EXP.

0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

DESIGN JRVS
DRAWN NIF
CHECK JMC
AS BUILT

HORIZ. NTS
VERT. NTS
BOOK
DATE 6/3/22

CITY OF BERKELEY
PARKS RECREATION & WATERFRONT
1947 CENTER ST., 5th FL, BERKELEY, CA 94704

COWI
555 12th Street, 17th Flr Oakland, CA 94612
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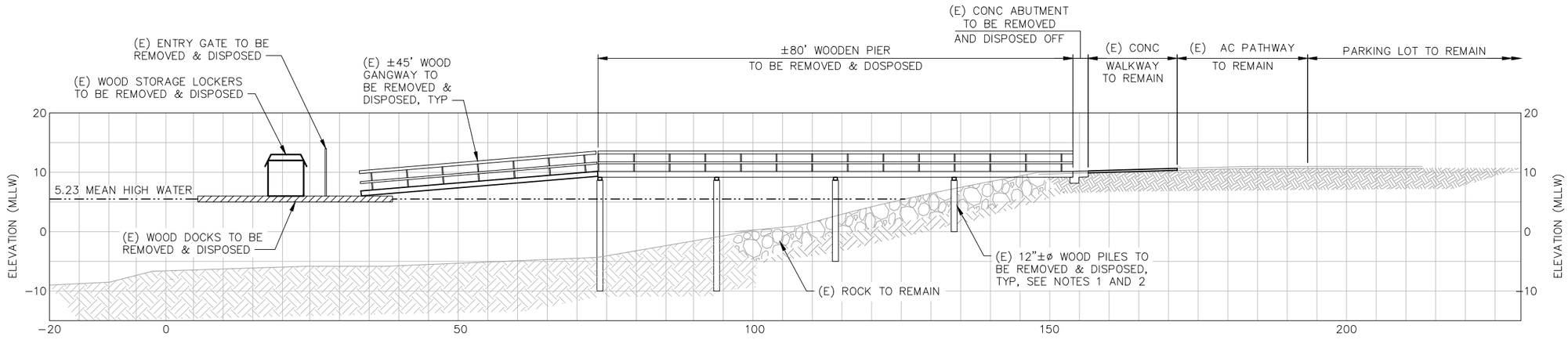
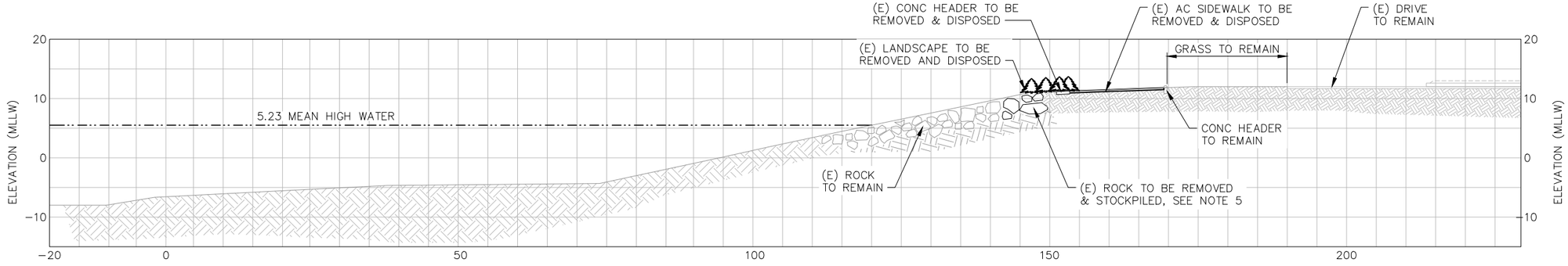
BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
DEMOLITION
SHEET 2 OF 2

PLAN
FILE
D-101
SHEET 7 OF 51



PIER AND GANGWAY DEMOLITION SECTION (A / D−100 | D−102)
SCALE: 1" = 10'−0"



EXISTING SLOPE DEMOLITION SECTION (B / D−100 | D−102)
SCALE: 1" = 10'−0"

NOAA SAN FRANCISCO STATION 941420

	MLLW
	10.00
HIGHEST OBSERVED TIDE (H.O.T.)	8.66
MHW	5.23
	2.50
MLLW	0.00
LOWEST OBSERVED TIDE (L.O.T.)	−2.28

DATUM = MLLW

NOTES:

1. EXISTING PILE EMBEDMENT UNKNOWN.
2. IF PIER AND GANGWAY PILES ARE TO BE CUT−OFF, NOTIFY THE CITY OF THE LOCATION OF THE PILES TO BE CUT−OFF. CUT−OFF LEVEL TO BE A MINIMUM OF 2' BELOW PROPOSED SURFACE AND AUTHORIZED DREDGE DEPTH.
3. FILL VOID AT REMOVED PILES WITH 3/4" AB BELOW (E) ROCK REVETMENT AND WITH ROCK FROM STOCKPILE TO DEPTH OF (E) ROCK.
4. COORDINATE DISCONNECTION OF UTILITIES AS NEEDED PRIOR TO DEMOLITION.
5. ROCK TO BE REMOVED AND STOCK PILE PRIOR TO REMOVAL AND RELOCATION OF BACK FLOW PREVENTER.

10 FT 1 0 10 FT
1" = 10'-0"
0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER R.C.E. EXP.
APPROVED: DATE
CITY ENGINEER R.C.E. EXP.

DESIGN JRVS
DRAWN NIF
CHECK JMC
AS BUILT
HORIZ. AS SHOWN
VERT.
BOOK
DATE 6/3/22

PARKS RECREATION & WATERFRONT 1947 CENTER ST., 5th FR, BERKELEY CA94704

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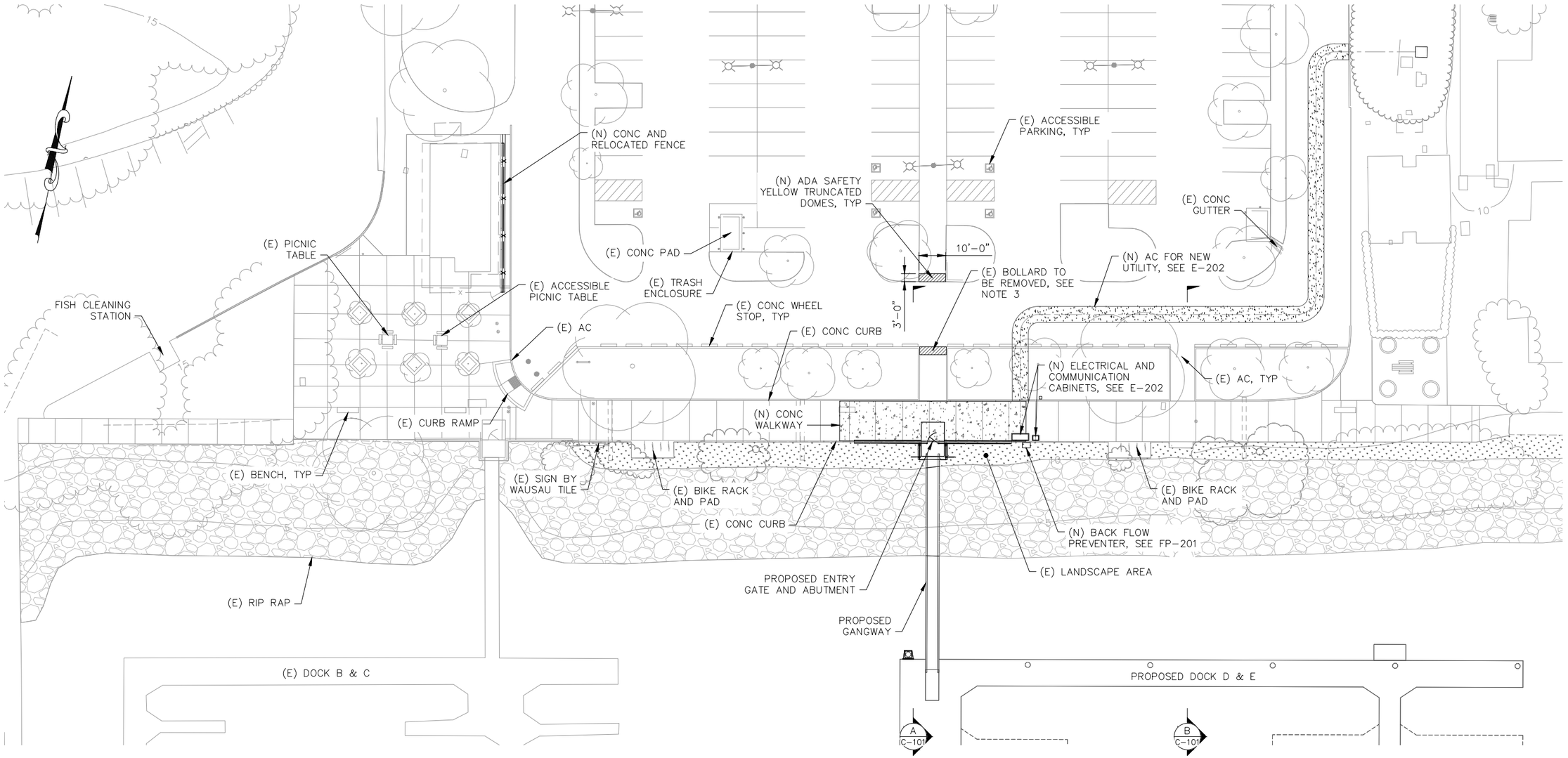
BERKELEY MARINA DOCK REPLACEMENT (D−E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
DEMOLITION SECTIONS

PLAN
FILE
D−102
SHEET 8 OF 51

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
A		03−27−2023	30% PROGRESS SUBMITTAL	JMC

DRAFT 90% Submittal

PLOTTED BY: NOEL FORTEZ PLOT DATE:5/12/2023 11:15:01 AM



SYMBOLS

NEW CONCRETE

NEW AC

IMPROVEMENT PLAN (1 / C-100)
SCALE: 1" = 20'-0"

NOTES:

1. CONTRACTOR TO FIELD STAKE CONCRETE AREAS FOR CITY APPROVAL PRIOR TO PLACING CONCRETE. ADJUST AREAS AS NEEDED TO SATISFY CITY.
2. SLOPE PAVED AREAS BETWEEN 1% AND 2% TO DRAIN TO LANDSCAPE AREAS AS SHOWN. FIELD VERIFY APPROPRIATE SLOPES AND MODIFY AS NEEDED TO ENSURE PROPER DRAINAGE. OBTAIN CITY APPROVAL OF FIELD MODIFICATIONS.
3. EXISTING BOLLARDS TO BE REMOVED AND REINSTALLED AFTER INSTALLATION OF TRUNCATED DOMES.

20 FT 4 FT 0 20 FT
1" = 20'-0"

0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

PROJECT MANAGER: DATE
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SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE R.C.E. EXP.
SUPERVISING CIVIL ENGINEER
APPROVED: DATE R.C.E. EXP.
CITY ENGINEER

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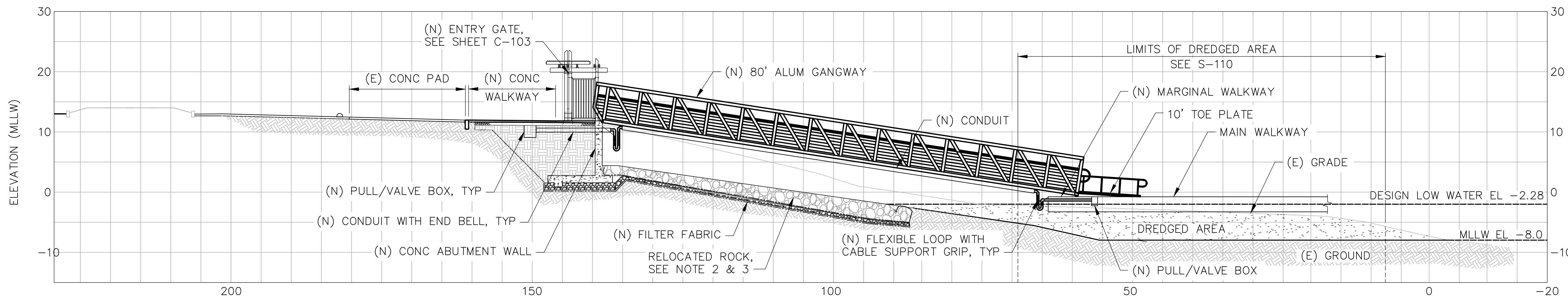
BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
LANDSIDE IMPROVEMENT PLAN

PLAN
FILE
C-100
SHEET 9 OF 51

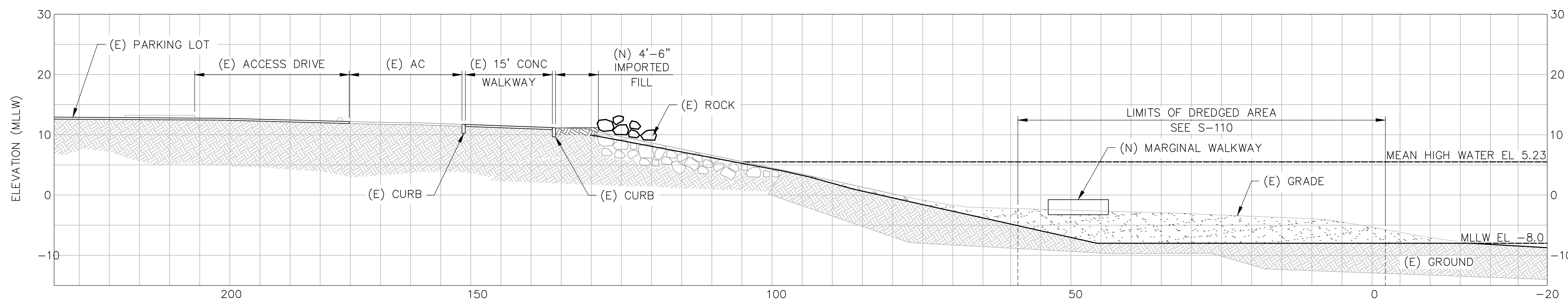
REVISION	MARK	DATE	DESCRIPTION
B		05-12-2023	90% PROGRESS SUBMITTAL
A		03-27-2023	60% PROGRESS SUBMITTAL
APPROVAL			
JMC			
JMC			

PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:17:48 AM

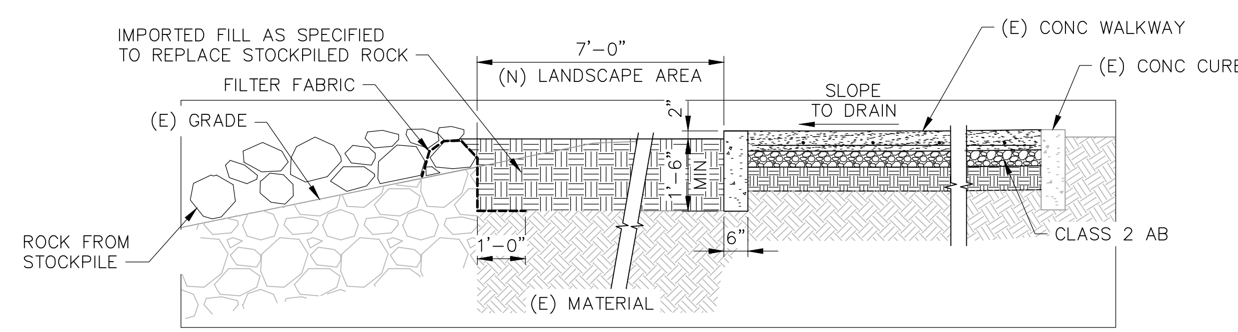
DRAFT 90% Submittal



GANGWAY SECTION (A / C-101)
SCALE: 1" = 10'-0"



SLOPE SECTION (B / C-101)
SCALE: 1" = 10'-0"



NOTES:
1. NEW FILL TO MATCH EXISTING FILL
2. KEY FILTER FABRIC INTO ROCK SO THAT IT IS NOT EXPOSED AND EXTEND 2' BENEATH IMPORTED FILL.

DETAIL – CURB AND FILL (1 / C-101)
SCALE: 1" = 10'-0"

NOAA SAN FRANCISCO STATION 941420

	MLLW
	10.00
HIGHEST OBSERVED TIDE (H.O.T.)	8.66
MHW	5.23
	2.50
MLLW	0.00
LOWEST OBSERVED TIDE (L.O.T.)	-2.28

DATUM = MLLW

NOTES:
1. CONTRACTOR TO FIELD STAKE CONCRETE AREAS FOR CITY APPROVAL PRIOR TO PLACING CONCRETE. ADJUST AREAS AS NEEDED TO SATISFY CITY.
2. SLOPE PAVED AREAS BETWEEN 1% AND 2% TO DRAIN TO LANDSCAPE AREAS AS SHOWN. FIELD VERIFY APPROPRIATE SLOPES AND MODIFY AS NEEDED TO ENSURE PROPER DRAINAGE. OBTAIN CITY APPROVAL OF FIELD MODIFICATIONS.
3. EXISTING RIPRAP TO BE REMOVED, STOCKED PILED AND REINSTALLED ONCE FILTER FABRIC HAS BEEN INSTALLED.

10 FT 1 0 10 FT
1" = 10'-0"

DRAFT 90% Submittal

REVISION	MARK	DATE	DESCRIPTION	APPROVAL	
B		05-12-2023	90% PROGRESS SUBMITTAL	JMC	
A		03-27-2023	60% PROGRESS SUBMITTAL	JMC	

PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE R.C.E. EXP.
SUPERVISING CIVIL ENGINEER
APPROVED: DATE R.C.E. EXP.
CITY ENGINEER
0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

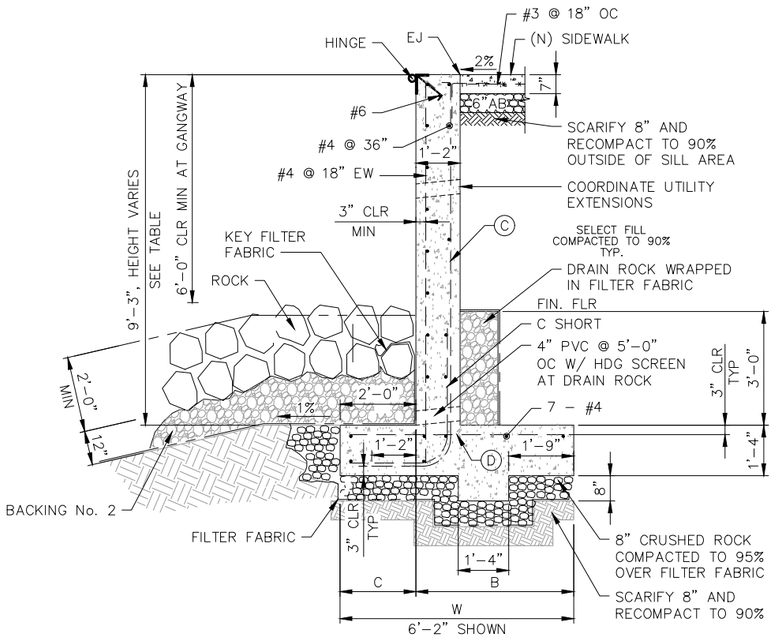
DESIGN JRVS
DRAWN NIF
CHECK JMC
AS BUILT
HORIZ. AS SHOWN
VERT.
BOOK
DATE 6/3/22

CITY OF BERKELEY
PARKS RECREATION & WATERFRONT

COWI

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
SECTIONS

PLAN
FILE
C-101
SHEET 10 OF 51



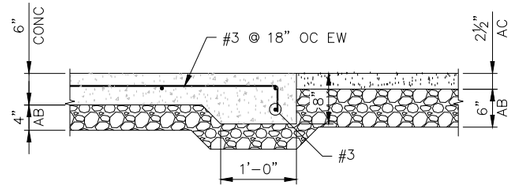
NOTES:

1. WALL HEIGHTS EXCEEDING 12' WILL REQUIRE APPROVED RE-DESIGN.
2. FIELD VERIFY WALL LOCATION TO ENSURE MINIMUM CLEARANCE BETWEEN ROCK AND BOTTOM OF GANGWAY.
3. PLACE FILTER FABRIC & CRUSHED ROCK BEDDING PRIOR ROCK. KEY FILTER FABRIC AT ALL EDGES.
4. TOP OF FOOTING TO BE FOUNDED 12" BELOW THE BOTTOM OF THE EXISTING ROCK.
5. COORDINATE LOCATION OF UTILITY CONDUITS THROUGH WALL & MAINTAIN 3" CONCRETE COVER AROUND CONDUITS.

TABLE OF DIMENSIONS				
HEIGHT, H	6'	8'	10'	12'
W	4'-2"	5'-2"	6'-2"	7'-2"
C	1'-4"	1'-8"	2'-0"	2'-4"
B	2'-10"	3'-6"	4'-2"	4'-10"
ⓒ BARS	#5@18"	#5@11"	#6@9"	#7@7 1/2"
ⓓ BARS	#5@18"	#5@22"	#7@18"	#7@15"

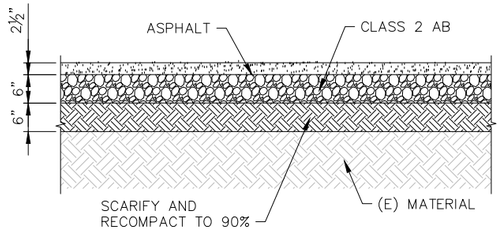
DESIGN H MAY BE EXCEEDED BY 6" BEFORE GOING TO THE NEXT SIZE. SEE CALTRANS RETAINING WALL TYPE 1A FOR ADDITIONAL INFORMATION.

SECTION – ABUTMENT WALL
SCALE: 1/2" = 1'-0" — A / C-102



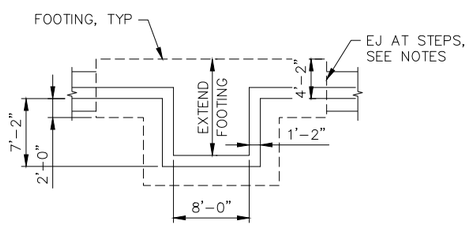
NOTE: SEE DETAILS 3 AND 4 FOR SUBGRADE AND COMPACTION REQUIREMENTS. PLACE THICKENED CONCRETE AROUND ALL EDGES AND AT JOINTS.

CONCRETE EDGE DETAIL
SCALE: 1" = 1'-0" — 1 / C-102



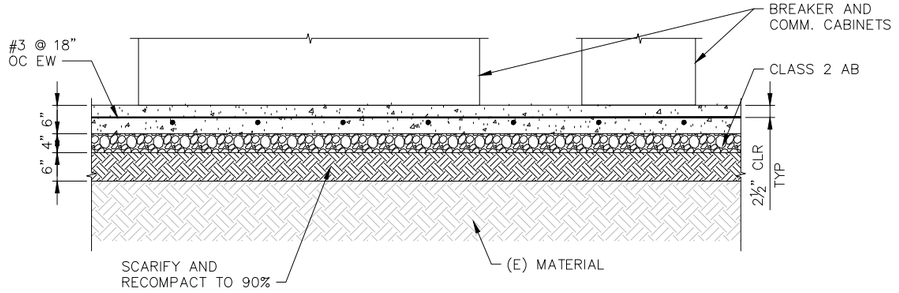
NOTES: AB TO BE COMPACTED TO 95%.
* 95% IN VEHICULAR TRAFFIC AREAS

TYPICAL AC PAVEMENT
SCALE: 1/16" = 1'-0" — 3 / C-102



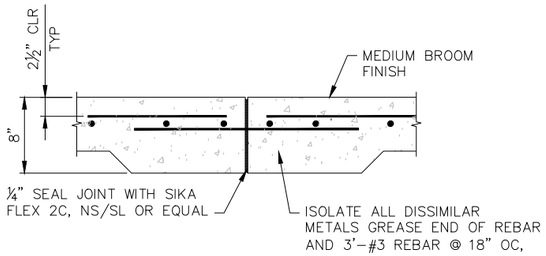
NOTE: USE 3' LONG STAINLESS STEEL SLIP DOWELS AT 12" OC TO MATCH ⓒ BARS WITHIN WALL AND FOOTING AT EXPANSION EXPANSION JOINTS.

ABUTMENT WALL PLAN
SCALE: 1/8" = 1'-0" — 5 / C-102

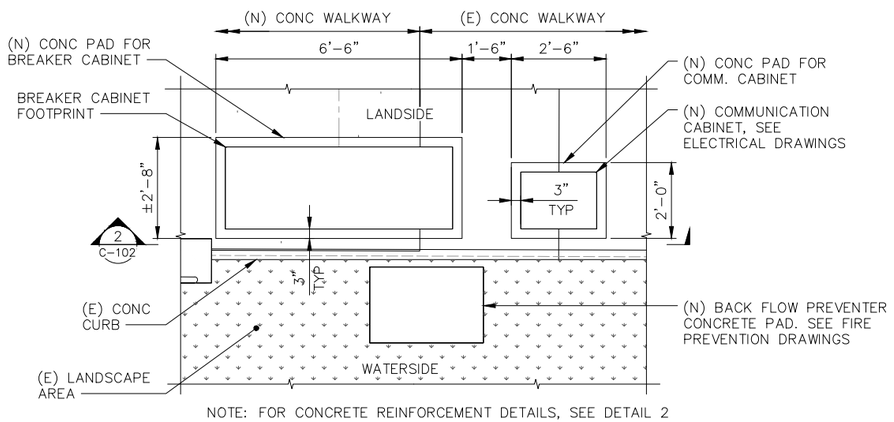


NOTE: REBAR TO BE CENTERED IN CONCRETE AB TO BE COMPACTED TO 95%. SEE DETAIL 1 FOR EDGE DETAIL.

TYPICAL CONCRETE PAVEMENT
SCALE: 1/16" = 1'-0" — 2 / C-102



EXPANSION JOINT DETAIL
SCALE: 1" = 1'-0" — 4 / C-102



NOTE: FOR CONCRETE REINFORCEMENT DETAILS, SEE DETAIL 2

UTILITY SLAB ON GRADE
SCALE: 1/2" = 1'-0" — 6 / C-102

DRAFT 90% Submittal

PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 2:51:30 PM

REVISION	MARK	DATE	DESCRIPTION
B		05-12-2023	90% PROGRESS SUBMITTAL
A		03-27-2023	60% PROGRESS SUBMITTAL
	JMC		APPROVAL
	JMC		

3" = 1'-0" | 1½"=1'-0" | ¾"=1'-0" | ¼"=1'-0"

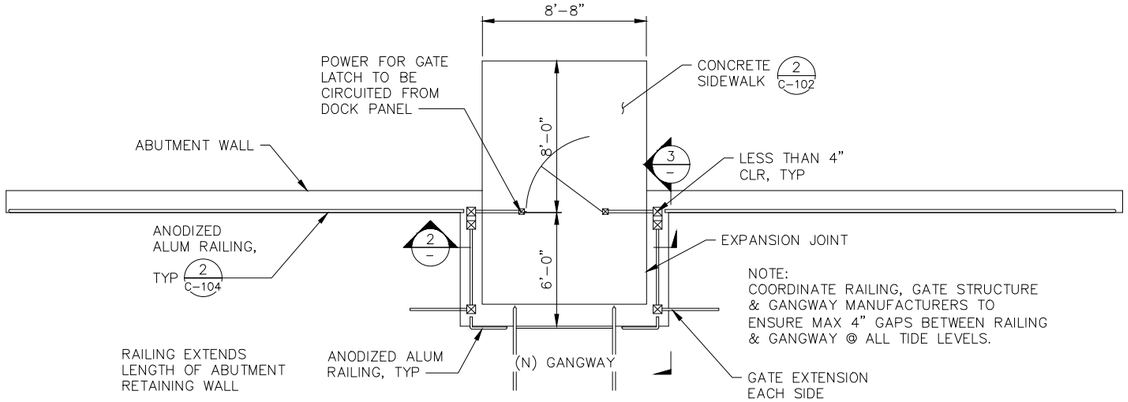
PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES (0 1 2 3)
SUBMITTED: DATE / SUPERVISING CIVIL ENGINEER / R.C.E. / EXP.
APPROVED: DATE / CITY ENGINEER / R.C.E. / EXP.
DESIGN JRVS | DRAWN NIF | CHECK JMC | AS BUILT
HORIZ. AS SHOWN | VERT. | BOOK | DATE 8/XX/22

PARKS RECREATION & WATERFRONT 1947 CENTER ST., 5th FR, BERKELEY CA94704

COWI 555 12th Street, 17th Fr Oakland, CA 94612 Tel. 510.839.8972 Fax. 510.839.5715 www.cowi.com

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
LANDSCAPE DETAILS

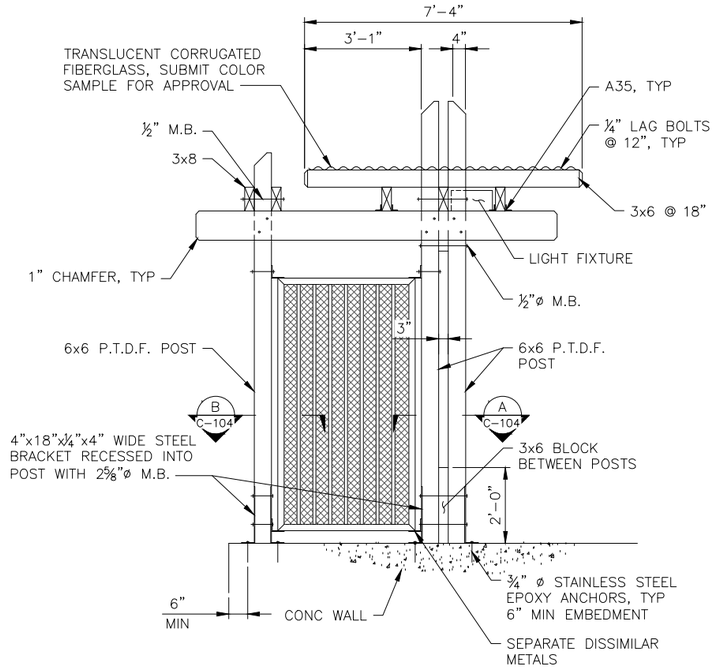
PLAN
FILE
C-102
SHEET 11 OF 51



GATE PLAN AT D & E DOCKS

SCALE: 1/4" = 1'-0"

1 C-103



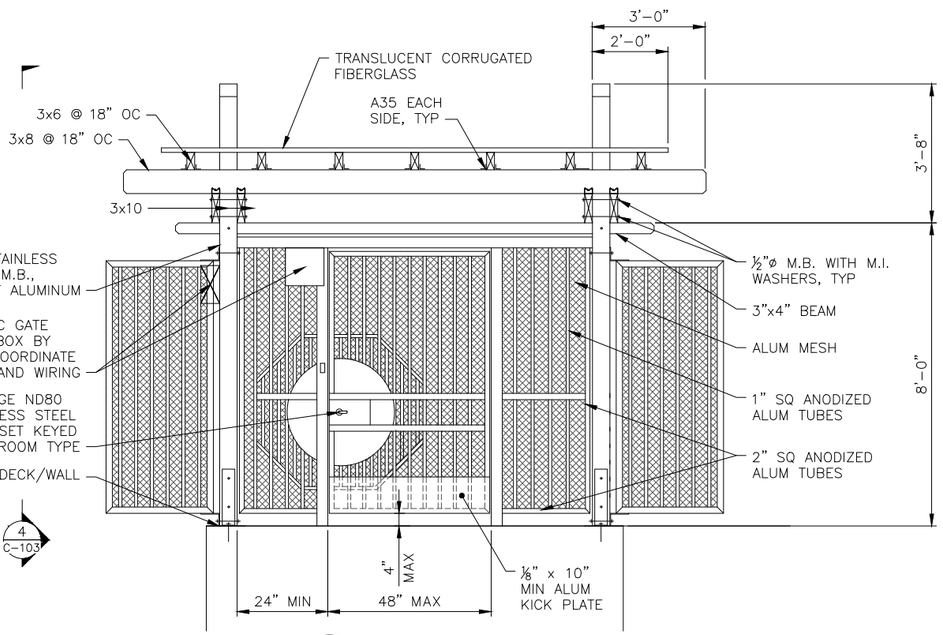
TRELLIS DETAIL

SCALE: 1/2" = 1'-0"

3 C-103

GENERAL NOTES:

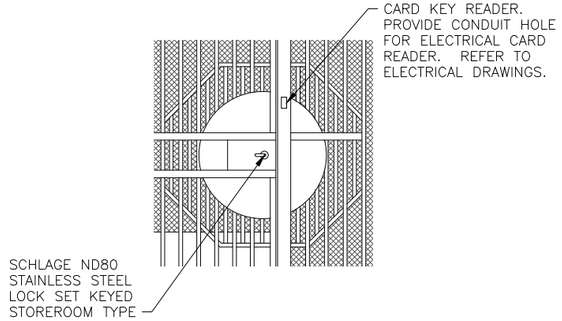
1. ALL STEEL BRACKETS AND FASTENERS TO BE HOT DIPPED GALVANIZED.
2. ALL BOLTS AND LAG SCREWS TO BE COUNTERSUNK & TO RECEIVE LOCK WASHERS.
3. ALL BOLTS. LAG SCREWS AND NAILS TO BE STAINLESS STEEL.
4. USE STAINLESS STEEL AT ALL EPOXY GROUTED ANCHORS AND AT ALUMINUM GATES AND DOORS, SEPARATE DISSIMILAR METALS
5. ELECTRONIC STRIKE AND GATE CONTROLS TO BE FURNISHED AND INSTALLED BY ALX TECHNOLOGY (510.535.2294) OR CITY APPROVED EQUAL. COORDINATE PROPER DESIGN AND LOCATION OF LOCK SET, CONDUITS, WIRING, CONTROLS, AND BOX PRIOR TO CONCRETE AND ENTRY STRUCTURE INSTALLATION.
6. ALL WOOD TO BE PRESSURE TREATED ACCORDING TO CITY STANDARDS.
7. SUBMIT RAILING & GATE LAYOUT & DETAIL FOR APPROVAL.
8. GATE STRUCTURE SIMILAR TO EXISTING GATE AT B-C DOCKS.



NOTE: FOR GATE EXTENSION, SEE DETAIL 4 C-103. RAILING NOT SHOWN FOR CLARITY.

EXIT SIDE

SCALE: 1/2" = 1'-0"



NOTES:

1. COORDINATE WITH GATE CARD MANUFACTURER TO ALLOW FOR INSTALLATION OF GATE SYSTEM, FURNISHED & INSTALLED BY OTHERS.
2. ALL WOOD MEMBERS OF TRELLIS TO BE PRESSURE TREATED ROUGH SAWN DOUGLAS FIR.

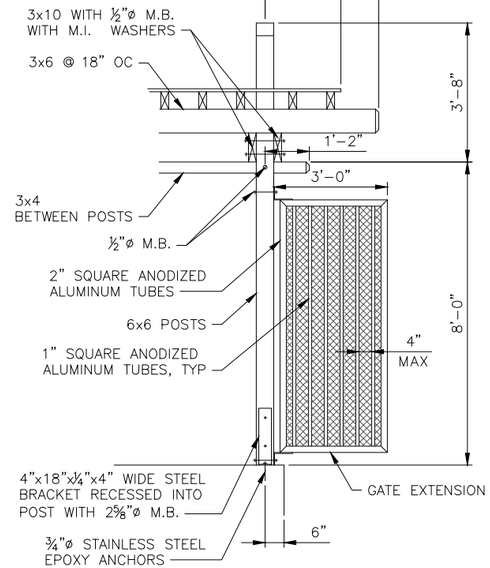
ENTRY SIDE

SCALE: 1" = 1'-0"

TRELLIS ELEVATION

SCALE: AS INDICATED

2 C-103



TYPICAL TRELLIS DETAIL

SCALE: 1/2" = 1'-0"

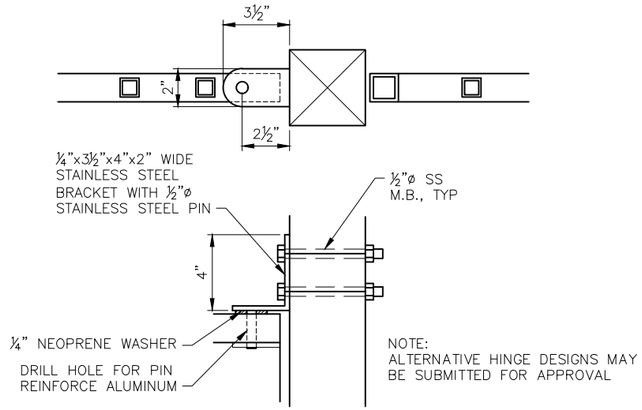
4 C-103

DRAFT 90% Submittal

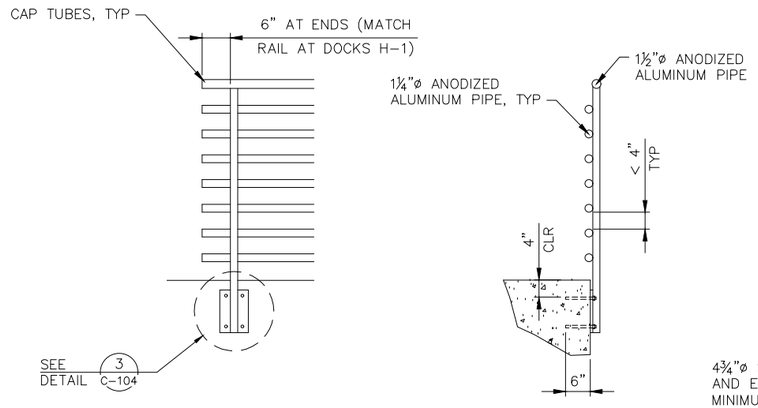
PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:09:25 AM

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
B		05-12-2023	90% PROGRESS SUBMITTAL	JMC
A		03-27-2023	60% PROGRESS SUBMITTAL	JMC

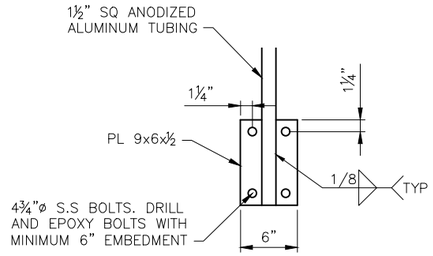
PROJECT MANAGER: DATE	DEPICTION OF MONUMENTS: DATE	SUBMITTED: DATE	DESIGN JRVS	HORIZ. AS SHOWN	PARKS RECREATION & WATERFRONT 1947 CENTER ST., 5th FR, BERKELEY CA94704	COWI 555 12th Street, 13th Fl Oakland, CA 94612 Tel: 510.839.8972 Fax: 510.839.9725	BERKELEY MARINA DOCK REPLACEMENT (D-E) CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA	PLAN
	SURVEY PARTY CHIEF	SUPERVISING CIVIL ENGINEER	DRAWN NIF	VERT.			GATE DETAILS SHEET 1 OF 2	FILE C-103
0 1 2 3 FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES	WATERSHED REVIEW: DATE	APPROVED: DATE	CHECK JMC	BOOK				SHEET 12 OF 51
		CITY ENGINEER R.C.E. EXP.	AS BUILT	DATE 5/XX/22				



DOOR HINGE DETAIL (1 / C-104)
SCALE: 3" = 1'-0"



RAILING DETAIL (2 / C-104)
SCALE: 3/4" = 1'-0"

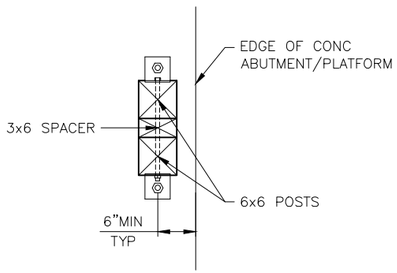


RAILING DETAIL (3 / C-104)
SCALE: 1 1/2" = 1'-0"

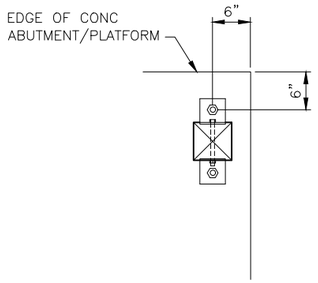
GENERAL NOTES:

1. ALL STEEL BRACKETS AND FASTENERS TO BE HOT DIPPED GALVANIZED.
2. ALL BOLTS AND LAG SCREWS TO BE COUNTERSUNK & TO RECEIVE LOCK WASHERS.
3. ALL BOLTS. LAG SCREWS AND NAILS TO BE STAINLESS STEEL.
4. USE STAINLESS STEEL AT ALL EPOXY GROUTED ANCHORS AND AT ALUMINUM GATES AND DOORS, SEPARATE DISSIMILAR METALS
5. ELECTRONIC STRIKE AND GATE CONTROLS TO BE FURNISHED AND INSTALLED BY ALX TECHNOLOGY (510.535.2294). COORDINATE PROPER DESIGN AND LOCATION OF LOCK SET, CONDUITS, WIRING, CONTROLS, AND BOX PRIOR TO CONCRETE AND ENTRY STRUCTURE INSTALLATION.
6. ALL WOOD TO BE PRESSURE TREATED ACCORDING TO CITY STANDARDS.
7. SUBMIT RAILING & GATE LAYOUT & DETAIL FOR APPROVAL.
8. GATE STRUCTURE SIMILAR TO EXISTING GATE AT B-C DOCKS.

DRAFT 90% Submittal



POST CONNECTION DETAIL (A / C-104)
SCALE: 1" = 1'-0"



POST CONNECTION DETAIL (B / C-104)
SCALE: 1" = 1'-0"

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
B		05-12-2023	90% PROGRESS SUBMITTAL	JMC
A		03-27-2023	60% PROGRESS SUBMITTAL	JMC

PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER R.C.E. EXP.
APPROVED: DATE
CITY ENGINEER R.C.E. EXP.
0 1 2 3 FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

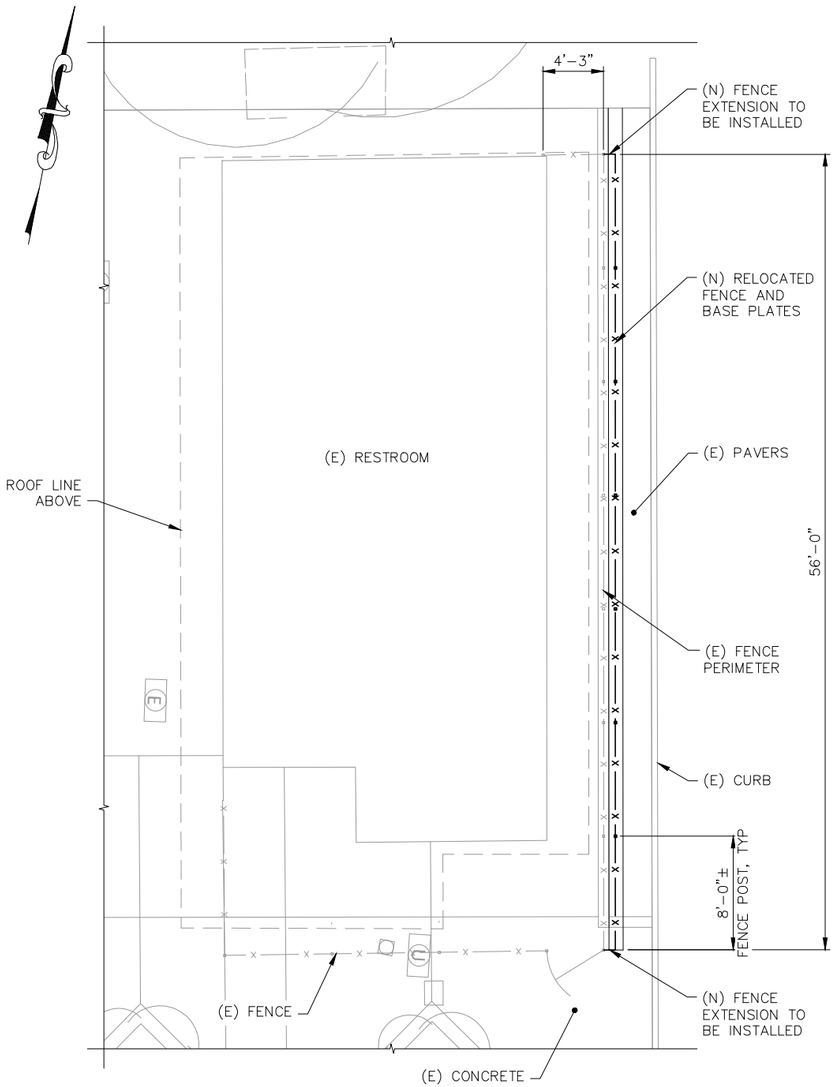
DESIGN JRVS
DRAWN NIF
CHECK JMC
AS BUILT
HORIZ. AS SHOWN
VERT.
BOOK
DATE 8/XX/22

CITY OF BERKELEY PARKS RECREATION & WATERFRONT 1947 CENTER ST., 5th FL, BERKELEY, CA 94704

COWI 101 12th Street, 12th Fl Oakland, CA 94612 Tel: 510.839.0972 Fax: 510.839.9716 WWW.COWI.COM

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
GATE DETAILS
SHEET 2 OF 2

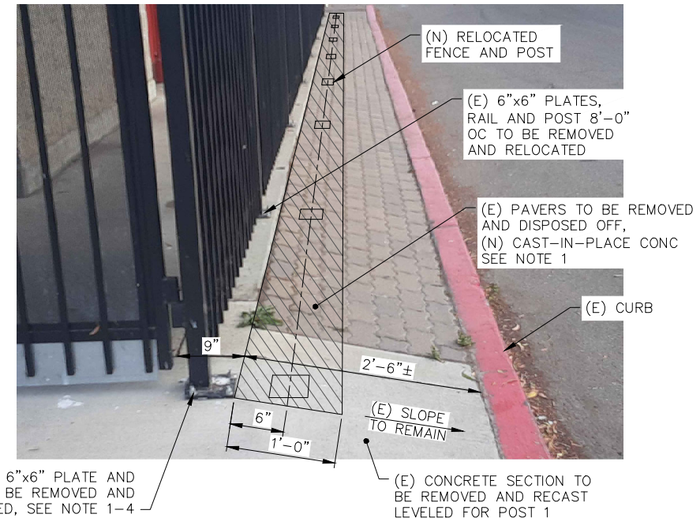
PLAN
FILE
C-104
SHEET 13 OF 51



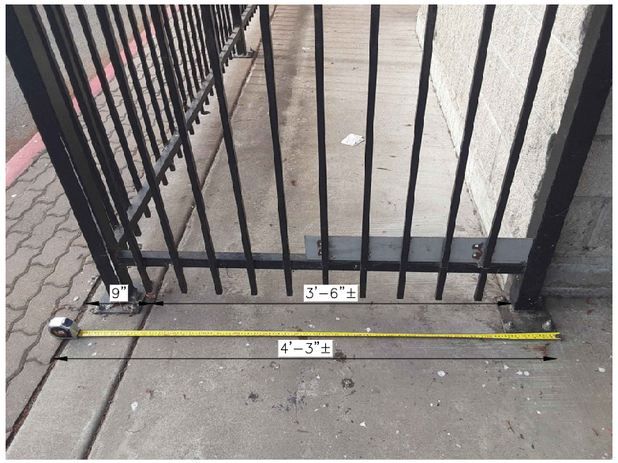
EXISTING FENCE RELOCATION PLAN
SCALE: 3/16" = 1'–0"
1 / C–100

LEGEND:

—x——x— (E) RESTROOM FENCE



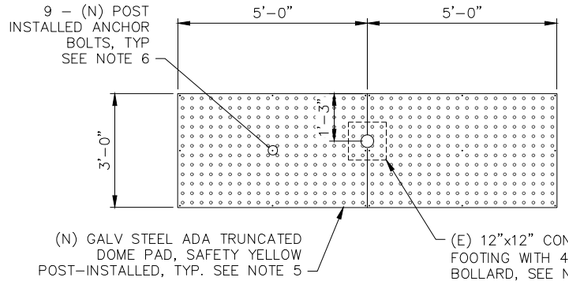
EXISTING EAST END FENCE AND PATHWAY LOOKING WEST
SCALE: NTS
2 / C–100



EXISTING NORTH END FENCE LOOKING WEST
SCALE: NTS
3 / C–100

GENERAL NOTES

1. REMOVE AND DISPOSE OFF SLOPPED PAVERS AND CONCRETE AS NOTED.
2. LEVEL EXISTING SOIL PRIOR TO CONCRETE POUR.
3. NEW CAST–IN–PLACE CONCRETE TO BE FLUSHED WITH EXISTING ADA PATH WAY ON WEST END OF NEW FENCE.
4. EXISTING PAVERS TO FOLLOW EXISTING SLOPE GRADE.
5. ADA DOMES TO BE INSTALLED ON LEVEL SURFACE.
6. ANCHOR BOLTS FOR RELOCATED FENCE AND TRUNCATED DOME PADS TO BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS.
7. FOR SOUTH END PAD, PROVIDE OPENING TO ACCOMMODATE EXISTING BOLLARD AND SHIFT ANCHOR BOLT HOLE AS NEEDED.



ADA TRUNCATED DOMES
SCALE: 1/2" = 1'–0"
4 / C–100

DRAFT 90% Submittal

PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:09:32 AM

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
B		05–12–2023	90% PROGRESS SUBMITTAL	JMC
A		03–27–2023	60% PROGRESS SUBMITTAL	JMC

5 FT 1 FT 0 5 FT
3/16" = 1'–0"
2 FT 1 FT 0 2 FT
1/2" = 1'–0"
0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE R.C.E. EXP.
SUPERVISING CIVIL ENGINEER
APPROVED: DATE R.C.E. EXP.
CITY ENGINEER

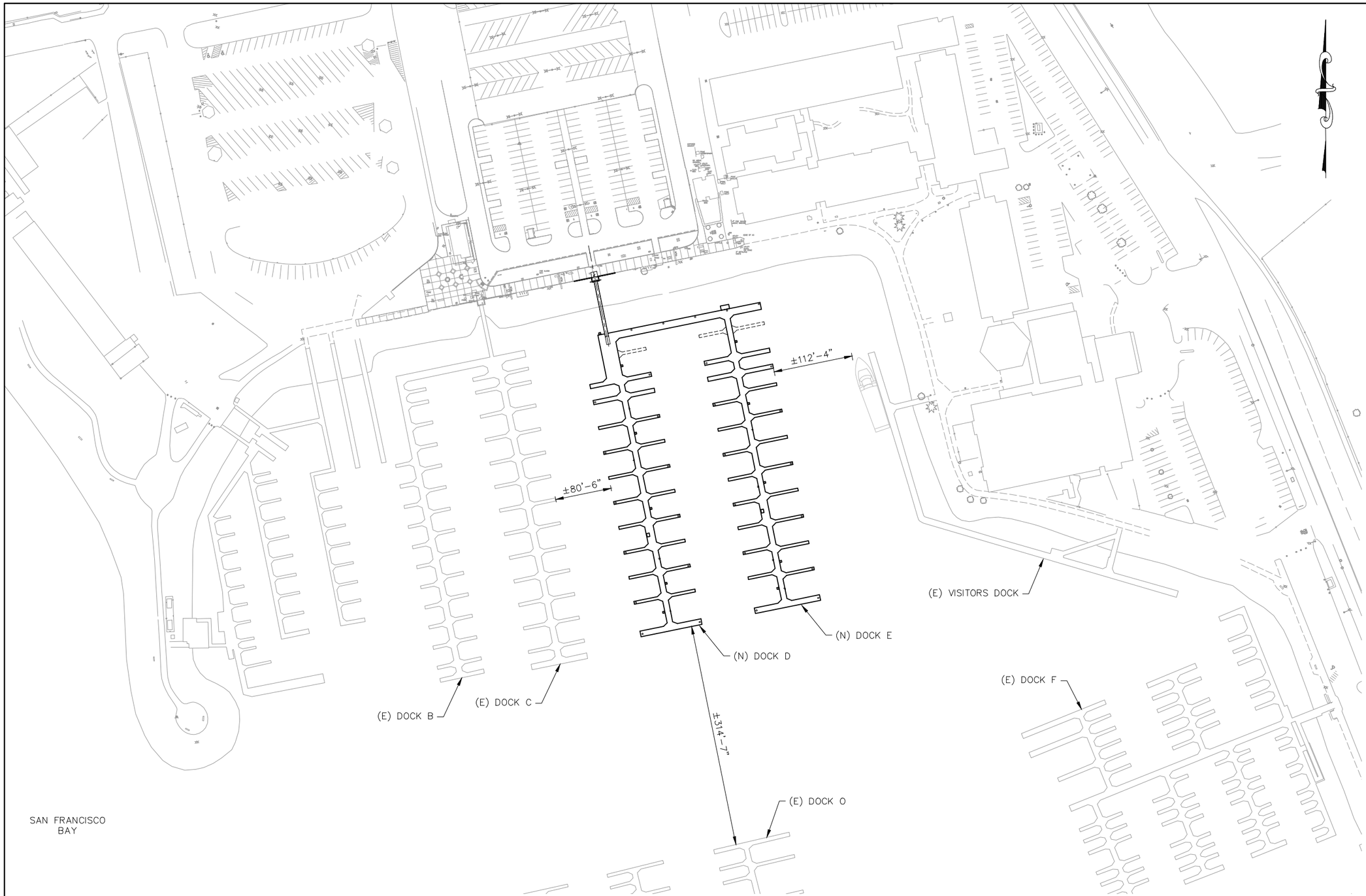
DESIGN JRVS
DRAWN NIF
CHECK JMC
AS BUILT
HORIZ. AS SHOWN
VERT.
BOOK
DATE 8/XX/22

CITY OF BERKELEY PARKS RECREATION & WATERFRONT 1947 CENTER ST., 5th FR, BERKELEY, CA 94704

COWI 101 12th Street, 12th Fl Oakland, CA 94612 Tel.: 510.839.0972 Fax: 510.839.9716

BERKELEY MARINA DOCK REPLACEMENT (D–E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
RESTROOM FENCE RELOCATION PLAN AND MISCELLENEOUS DETAILS

PLAN
FILE
C–105
SHEET 14 OF 51



SITE PLAN
SCALE: 1" = 70'-0"

1
S-001

70 FT 0 70 FT
1" = 70'-0"

FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES (0 1 2 3)

PROJECT MANAGER: DATE

DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF

WATERSHED REVIEW: DATE

SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER R.C.E. EXP.

APPROVED: DATE
CITY ENGINEER R.C.E. EXP.

DESIGN JRVS
DRAWN NIF
CHECK JMC
AS BUILT

HORIZ. AS SHOWN
VERT.
BOOK
DATE 6/3/22

CITY OF BERKELEY
PARKS RECREATION & WATERFRONT
1947 CENTER ST., 5th FR, BERKELEY CA94704

COWI
555 12th Street, 17th Flr Oakland, CA 94612
Tel.: 510.839.0972 Fax: 510.839.9715
Website: www.cowi-na.com

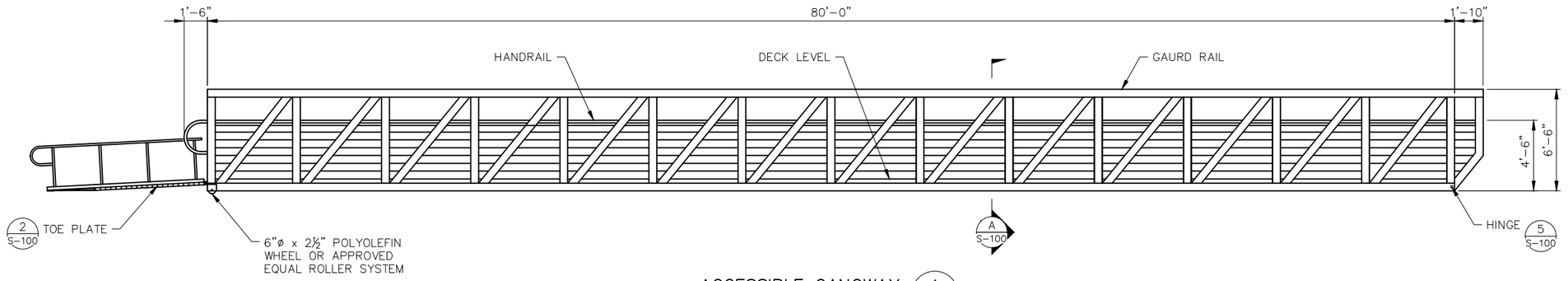
BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
SITE PLAN

PLAN
FILE
S-001
SHEET 15 OF 51

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
C		05-12-2023	90% PROGRESS SUBMITTAL	JMC
B		03-27-2023	60% PROGRESS SUBMITTAL	JMC
A		06-03-2022	30% PROGRESS SUBMITTAL	JMC

PLOTTED BY: NOEL FORTEZ PLOT DATE:5/12/2023 11:10:13 AM

DRAFT 90% Submittal



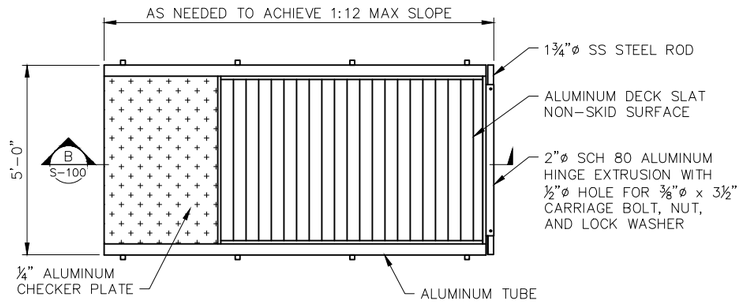
ACCESSIBLE GANGWAY 1 S-100
SCALE: 1/4" = 1'-0"

GENERAL NOTES FOR ALL FABRICATIONS:

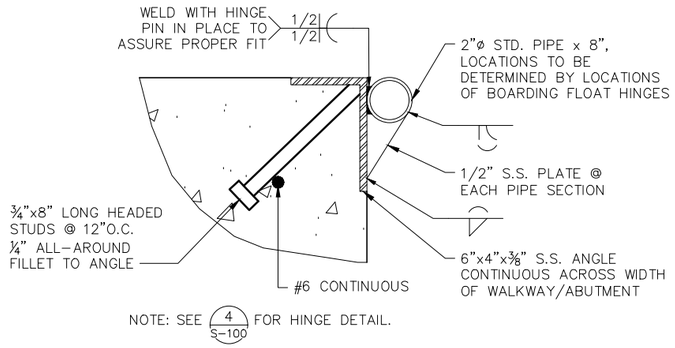
1. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS PRIOR TO FABRICATION OF ALL COMPONENTS.
2. ALL ALUMINUM MATERIALS SHALL RECEIVE A LIGHT SAND BLAST FINISH AFTER FABRICATION.
3. ALL MATERIAL SIZES, SCHEDULES, AND DIMENSIONS SHOWN ON THESE PLANS ARE TO BE CONSIDERED MINIMUM REQUIRED. CALCULATIONS AND SHOP DRAWINGS MAY REQUIRE ADDITIONAL/LARGER/STRONGER MATERIALS.
4. GANGWAY SHALL BE SIMILAR IN APPEARANCE AS B & C GANGWAY.
5. ALTERNATIVE HINGE DETAIL MAY BE SUBMITTED FOR CONSIDERATION.

PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:10:15 AM

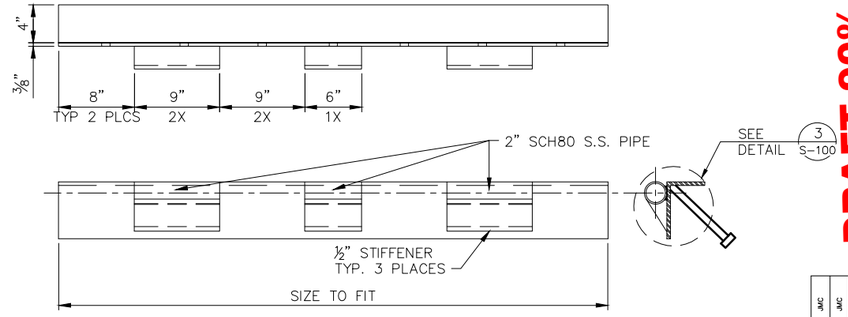
DRAFT 90% Submittal



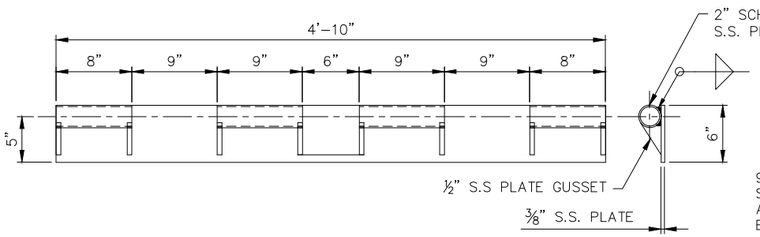
TOE PLATE 2 S-100
SCALE: 3/4" = 1'-0"



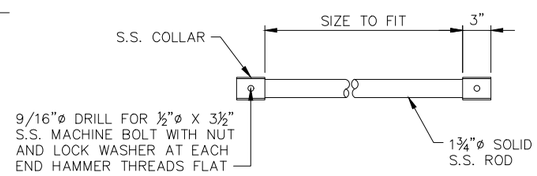
HINGE DETAIL 3 S-100
SCALE: 3" = 1'-0"



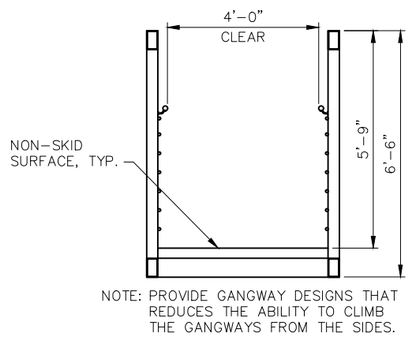
ABUTMENT HINGE DETAIL 4 S-100
SCALE: 1 1/2" = 1'-0"



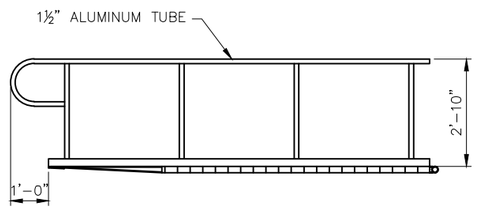
GANGWAY HINGE DETAIL 5 S-100
SCALE: 1 1/2" = 1'-0"



ABUTMENT HINGE PIN DETAIL 6 S-100
SCALE: 1 1/2" = 1'-0"



GANGWAY SECTION A S-100
SCALE: 1/2" = 1'-0"



TOE PLATE SECTION B S-100
SCALE: 1" = 1'-0"

REVISION	MARK	DATE	DESCRIPTION	JMC
C		05-12-2023	90% PROGRESS SUBMITTAL	JMC
B		03-27-2023	60% PROGRESS SUBMITTAL	JMC
A		06-03-2022	30% PROGRESS SUBMITTAL	JMC

APPROVAL

6 in 0 1 FT — 1½" = 1'-0"
2 FT 1 FT 0 2 FT — ½" = 1'-0"
0 1 in 4 in 8 in — 3" = 1'-0"
1 FT 0 2 FT — ¾" = 1'-0"
4 FT 1 FT 0 4 FT — ¼" = 1'-0"
0 1 2 3 FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER R.C.E. EXP.
APPROVED: DATE
CITY ENGINEER R.C.E. EXP.

DESIGN JRVS
DRAWN NIF
CHECK JMC
AS BUILT
HORIZ. AS SHOWN
VERT.
BOOK
DATE 6/3/22

PARKS RECREATION & WATERFRONT
1947 CENTER ST., 5th FR, BERKELEY CA94704

COWI
555 12th Street, 17th Fl Oakland, CA 94612
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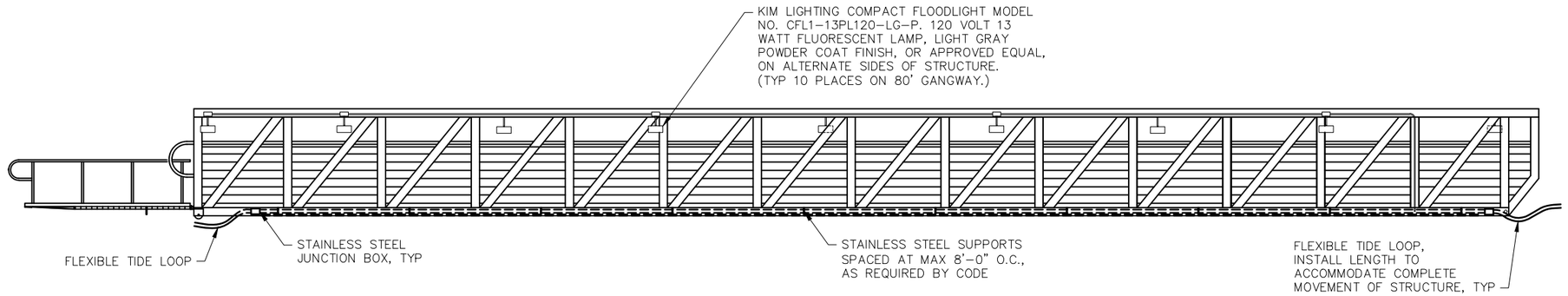
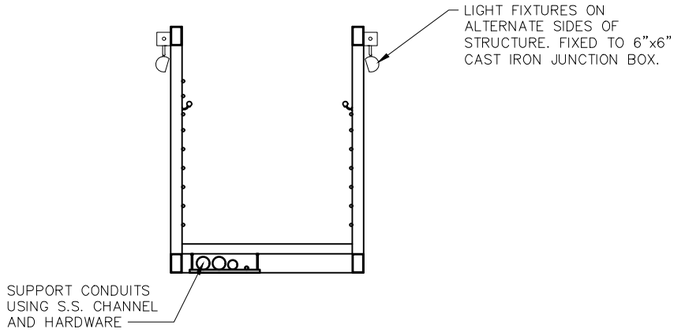
BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
GANGWAY DETAILS
SHEET 1 OF 2

PLAN
FILE
S-100
SHEET 16 OF 51



TYPICAL LIGHTING ON 80' GANGWAY (1 / S–101)
SCALE: 1/4" = 1'–0"



NOTE: ACTUAL GANGWAY AND UTILITY LINES DETAILS MAY VARY FROM SHOWN. PROVIDE GANGWAY DESIGN THAT REDUCES ABILITY TO CLIMB ONTO GANGWAY FROM SIDES

TYPICAL GANGWAY SECTION (A / S–101)
SCALE: 1/2" = 1'–0"

GENERAL NOTES FOR ALL FABRICATIONS:

1. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS PRIOR TO FABRICATION OF ALL COMPONENTS.
2. ALL ALUMINUM MATERIALS SHALL RECEIVE A LIGHT SAND BLAST FINISH AFTER FABRICATION.
3. ALL MATERIAL SIZES, SCHEDULES, AND DIMENSIONS SHOWN ON THESE PLANS ARE TO BE CONSIDERED MINIMUM REQUIRED. CALCULATIONS AND SHOP DRAWINGS MAY REQUIRE ADDITIONAL/LARGER/STRONGER MATERIALS.
4. SEE E–SHEETS FOR ADDITIONAL GANGWAY LIGHTING DETAILS.
5. GANGWAY SHALL BE SIMILAR IN APPEARANCE AS A & C GANGWAY.

PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:10:18 AM

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REVISION	MARK	DATE	DESCRIPTION	APPROVAL
C		05–12–2023	90% PROGRESS SUBMITTAL	JMC
B		03–27–2023	60% PROGRESS SUBMITTAL	JMC
A		06–03–2022	30% PROGRESS SUBMITTAL	JMC

2 FT 1 FT 0 2 FT — ½" = 1'–0"
1 FT 0 1 FT — 1" = 1'–0"
4 FT 1 FT 0 4 FT — ¼" = 1'–0"

FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES (0 1 2 3)

PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER R.C.E. EXP.
APPROVED: DATE
CITY ENGINEER R.C.E. EXP.

DESIGN JRVS
DRAWN NIF
CHECK JMC
AS BUILT
HORIZ. AS SHOWN
VERT.
BOOK
DATE 6/3/22

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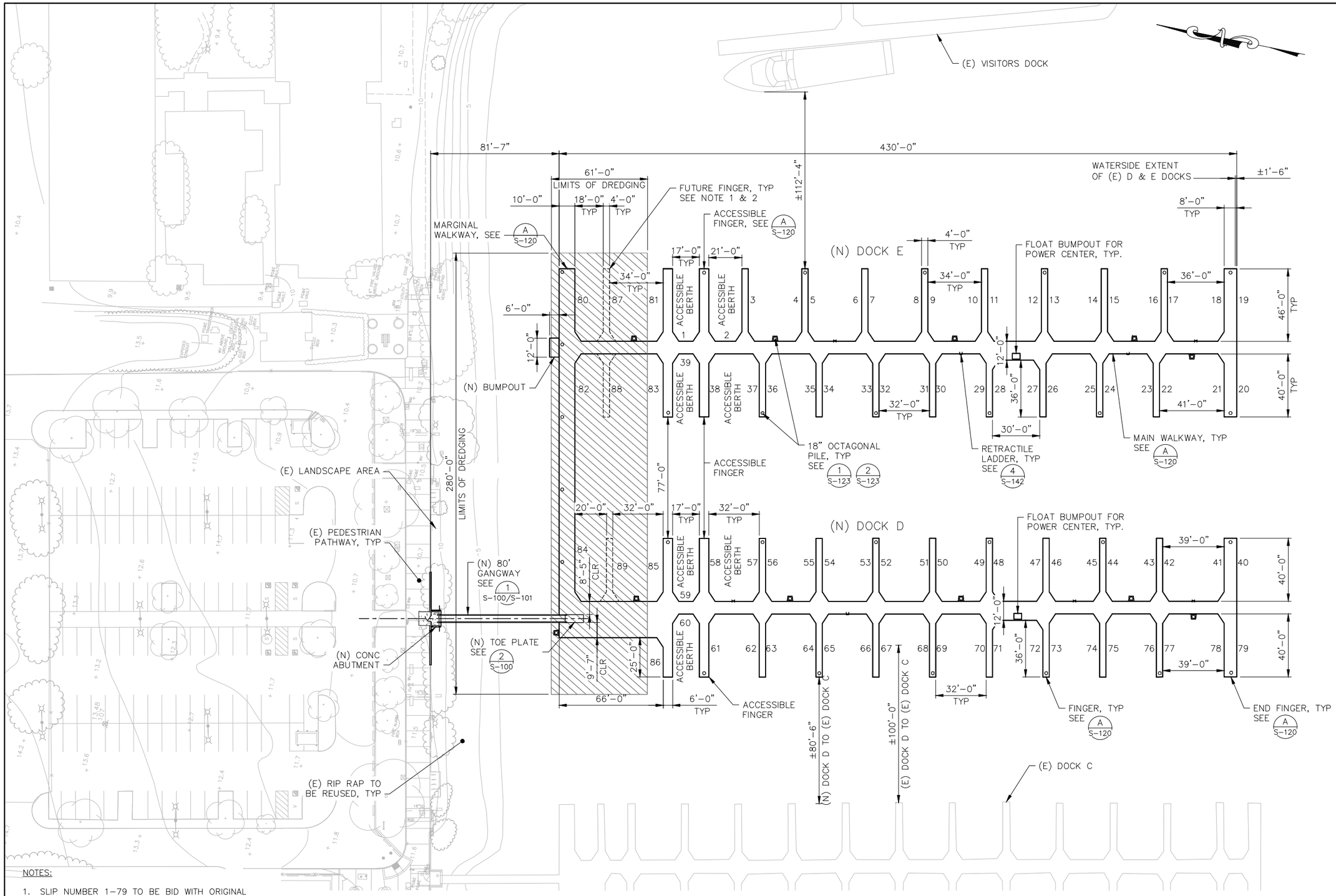
BERKELEY MARINA DOCK REPLACEMENT (D–E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
GANGWAY DETAILS
SHEET 2 OF 2

PLAN
FILE
S–101
SHEET 17 OF 51



NOTES:

1. SLIP NUMBER 1–79 TO BE BID WITH ORIGINAL DESIGN. SLIPS 80–89 TO BE BUILT AT FUTURE STAGE.
2. STRUCTURAL INSERTS AND CONDUITS FOR ELECTRICAL, MECHANICAL, PLUMBING ITEMS TO BE INCORPORATED IN DESIGN FOR FUTURE SLIPS 80–89.
3. PILE LOCATIONS SHOWN ARE PRELIMINARY. FINAL PILE LOCATION TO BE DETERMINED BY DESIGN BUILD TEAM.

NEW DOCK PLAN
SCALE: 1" = 30'-0"

1 / S-110

30 FT 6 FT 0 30 FT
1" = 30'-0"

0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

DRAFT 90% Submittal

PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:10:29 AM

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
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B		03-27-2023	60% PROGRESS SUBMITTAL	JMC
A		06-03-2022	30% PROGRESS SUBMITTAL	JMC

PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE R.C.E. EXP.
SUPERVISING CIVIL ENGINEER
APPROVED: DATE R.C.E. EXP.
CITY ENGINEER

DESIGN JRVS
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VERT.
BOOK
DATE 6/3/22

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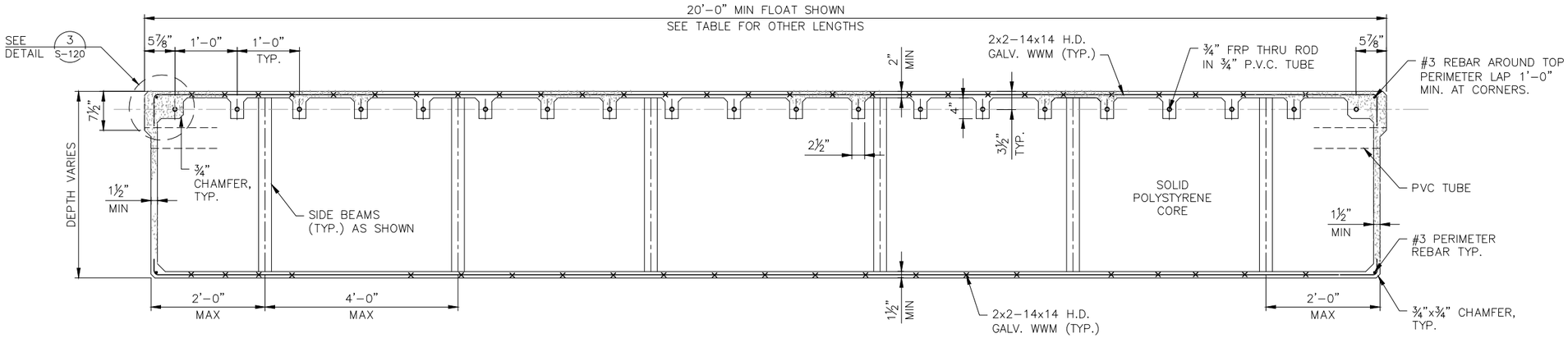
BERKELEY MARINA DOCK REPLACEMENT (D–E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
NEW DOCK PLAN
79 SLIP LAYOUT

PLAN
FILE
S-110
SHEET 18 OF 51



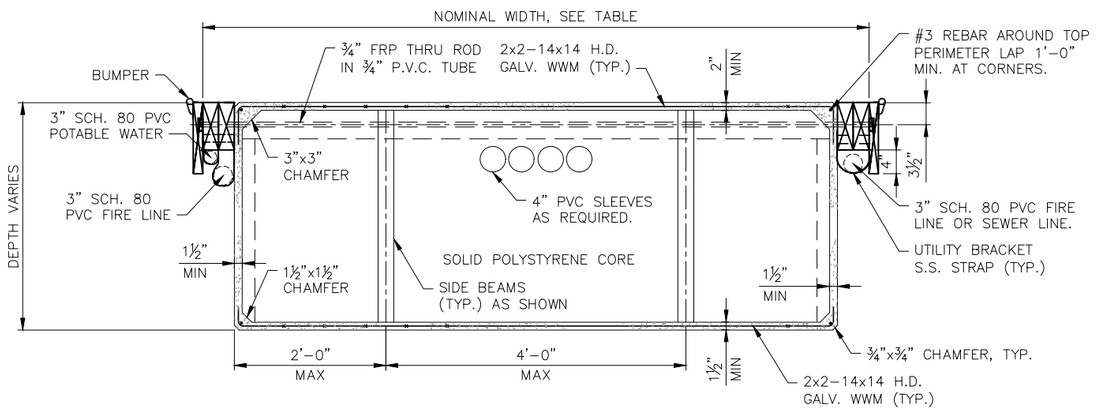
LONGITUDINAL WALKWAY SECTION
SCALE: 1" = 1'–0"
A S–120

NOTES:

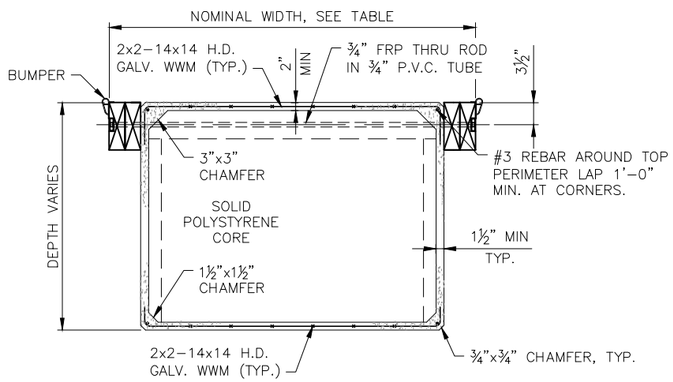
1. GENERAL CONCEPT DETAILS SHOWN.
2. CONTRACTOR TO SUBMIT SHOP DRAWING AND FLOATATION CALCULATIONS FOR RECTANGLE FLOATS. ALTERNATE TO RECTANGLE FLOAT MAY BE CONSIDERED AS AN ALTERNATE DESIGN WHICH IS TO BE SUBMITTED FOR APPROVAL.
3. SEE TECHNICAL SPECIFICATIONS AND BASIS OF DESIGN FOR STABLE FREEBOARD UNDER LIVE LOADING.
4. MINIMUM FLOAT LENGTH 20 FEET SHALL HAVE A MINIMUM OF 6 SIDE BEAMS.
5. SIDE BEAMS ARE TO BE PLACED ON ALL 4 SIDES OF FLOAT. LAYOUT TO BE SHOWN ON SHOP DRAWINGS AND IS SUBJECT TO ENGINEERS APPROVAL.
6. PROVIDE DOUBLE STAINLESS STEEL STRAP WITH WATER LINES ON SAME SIDE WHEN SEWER LINE IS PRESENT. OTHERWISE, USE ONLY SINGLE STRAPS POSITION 3" LINE TO ALLOW REMOVAL OF 2" LINE WITHOUT REMOVING 3".
7. WALERS AND RUB STRIPS TO BE COMPOSED OF TIMBER OR APPROVED EQUIVALENT MATERIAL.

FLOAT SCHEDULE

FLOAT TYPE	FINGER	ACCESSIBLE FINGER	END FINGER	MARGINAL WALKWAY	MAIN WALKWAY
CONCRETE FLOAT LENGTH	25'–46'	25'–46'	VARIES	20'–0"	20'–0"
NOMINAL FINGER WIDTH	4'	6'	8'	10'	8'
MINIMUM CONCRETE FLOAT WIDTH	3'–7"	5'–7"	7'–2"	9'–2"	7'–2"
MINIMUM WALER SIZES	3"x6" IN 3"x6" OUT	3"x6" IN 3"x6" OUT	3"x8" IN 3"x8" OUT	3"x10" IN 3"x10" OUT	3"x10" IN 3"x10" OUT
WOODEN RUB STRIP	2"x8"	2"x10"	2"x10"	2"x12"	2"x12"



WALKWAY SECTION
SCALE: 1" = 1'–0"
B S–120



FINGER SECTION
SCALE: 1" = 1'–0"
C S–120

DRAFT 90% Submittal

PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:10:28 AM

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
C		05–12–2023	90% PROGRESS SUBMITTAL	JMC
B		03–27–2023	60% PROGRESS SUBMITTAL	JMC
A		06–03–2022	30% PROGRESS SUBMITTAL	JMC

1 FT 0 1 FT
1" = 1'–0"

PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER
APPROVED: DATE
CITY ENGINEER
R.C.E. EXP.
0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

DESIGN JRVS
DRAWN NIF
CHECK JMC
AS BUILT
HORIZ. AS SHOWN
VERT.
BOOK
DATE 6/3/22

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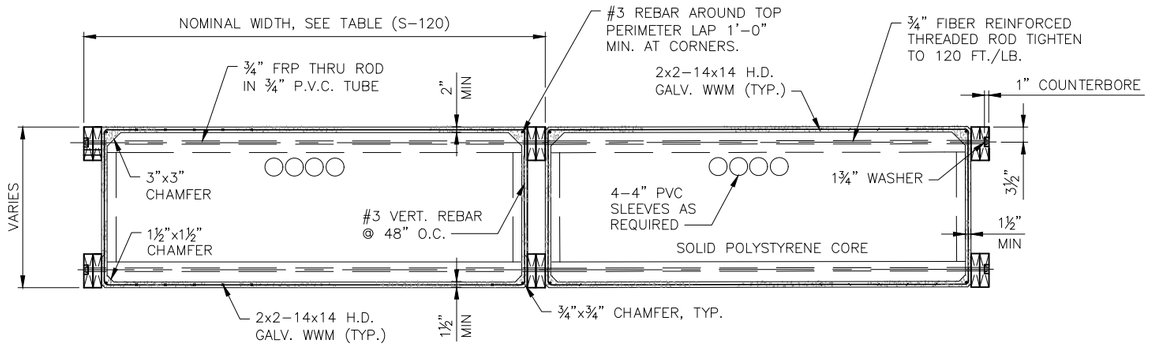
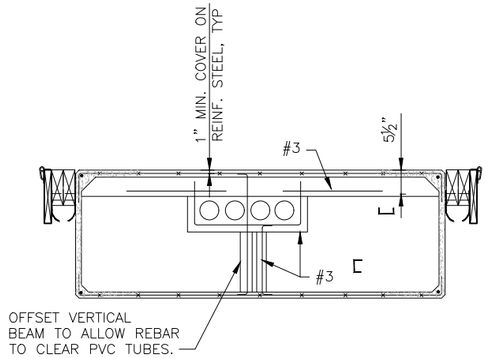
Tel: 510.839.0572 Fax: 510.839.9716

BERKELEY MARINA DOCK REPLACEMENT (D–E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
FLOAT DETAILS
SHEET 1 OF 6

PLAN
FILE
S–120
SHEET 19 OF 51



DOUBLE FLOAT SECTION (A / S-121)
SCALE: 3/4" = 1'-0"

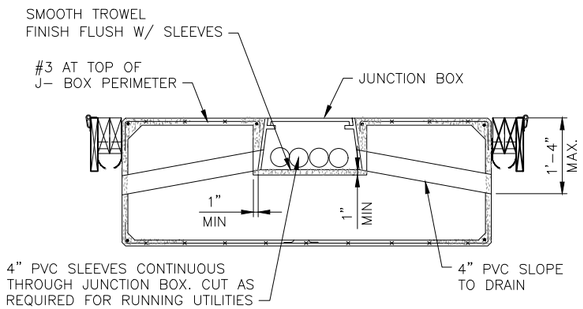


NOTE: SEE WALKWAY SECTION FOR ADDITIONAL INFORMATION

WALKWAY END SECTION (B / S-121)
SCALE: 3/4" = 1'-0"

NOTES:

1. GENERAL CONCEPT DETAILS SHOWN.
2. CONTRACTOR TO SUBMIT SHOP DRAWING AND FLOATATION CALCULATIONS FOR RECTANGLE FLOATS. ALTERNATE TO RECTANGLE FLOAT MAY BE CONSIDERED AS AN ALTERNATE DESIGN WHICH IS TO BE SUBMITTED FOR APPROVAL.
3. SEE TECHNICAL SPECIFICATIONS AND BASIS OF DESIGN FOR STABLE FREEBOARD UNDER LIVE LOADING.
4. WALERS AND RUB STRIPS TO BE COMPOSED OF TIMBER OR APPROVED EQUIVALENT MATERIAL.



NOTE: STOP BEAMS AT EDGE OF JUNCTION BOX WHERE CONFLICT OCCURS, RODS TO CONTINUE THROUGH

SPLICE BOX SECTION (C / S-121)
SCALE: 3/4" = 1'-0"

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PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:10:31 AM

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
C		05-12-2023	90% PROGRESS SUBMITTAL	JMC
B		03-27-2023	60% PROGRESS SUBMITTAL	JMC
A		06-03-2022	30% PROGRESS SUBMITTAL	JMC

1 FT 0 2 FT
¾" = 1'-0"
0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

PROJECT MANAGER: DATE
SURVEY PARTY CHIEF
DEPICTION OF MONUMENTS: DATE
WATERSHED REVIEW: DATE
SUBMITTED: DATE R.C.E. EXP.
SUPERVISING CIVIL ENGINEER
APPROVED: DATE R.C.E. EXP.
CITY ENGINEER

DESIGN JRVS
DRAWN NIF
CHECK JMC
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HORIZ. AS SHOWN
VERT.
BOOK
DATE 6/3/22

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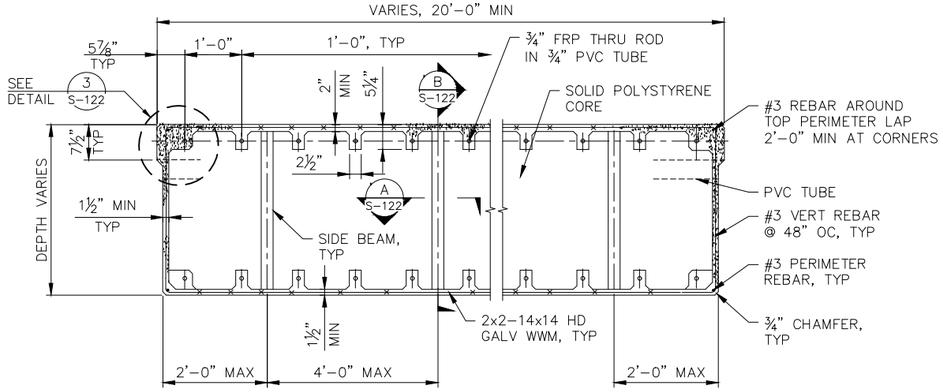
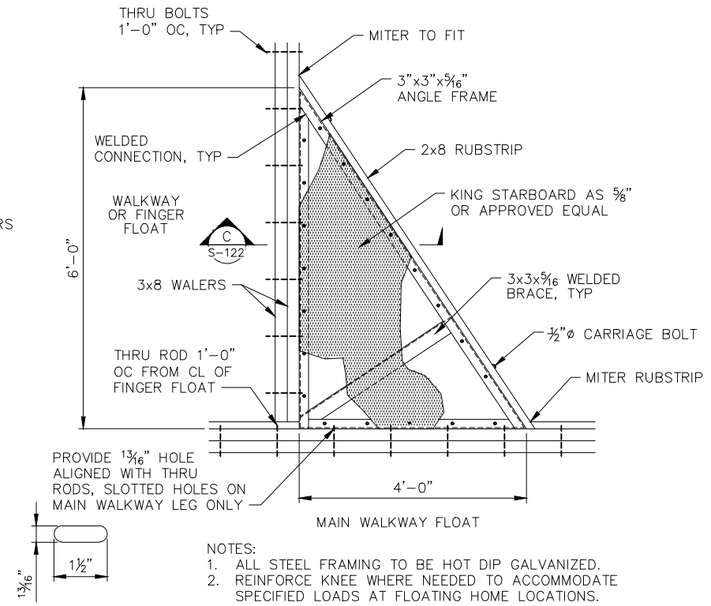
BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
FLOAT DETAILS
SHEET 2 OF 6

PLAN
FILE
S-121
SHEET 20 OF 51



NOTE: INTERNAL CONCRETE SIDE BEAMS ARE TO BE PLACED ON ALL 4 SIDES OF FLOAT. LAYOUT TO BE BE SHOWN ON SHOP DRAWINGS AND IS SUBJECT TO ENGINEER'S APPROVAL.

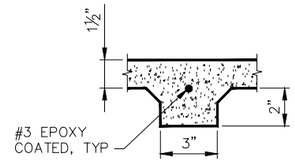
FLOAT SECTION (1 / S-122)
SCALE: 3/4" = 1'-0"



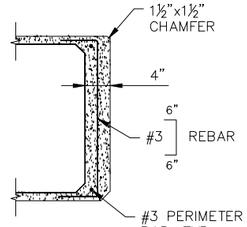
NOTES:
1. ALL STEEL FRAMING TO BE HOT DIP GALVANIZED.
2. REINFORCE KNEE WHERE NEEDED TO ACCOMMODATE SPECIFIED LOADS AT FLOATING HOME LOCATIONS.

KNEE DETAIL (4 / S-122)
SCALE: 3/4" = 1'-0"

NOTE:
1. WALERS AND RUB STRIPS TO BE COMPOSED OF TIMBER OR APPROVED EQUIVALENT MATERIAL.

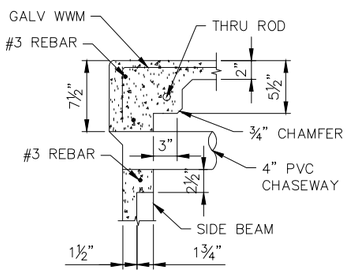


SECTION (A / S-122)
SCALE: 3" = 1'-0"

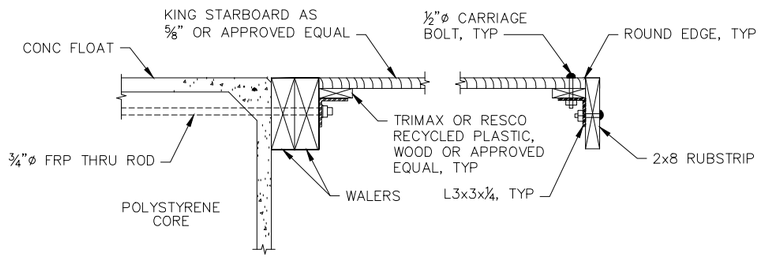


FLOAT SECTION AT SIDE BEAM (B / S-122)
SCALE: 1" = 1'-0"

DETAIL AT CORNERS (2 / S-122)
SCALE: 1 1/2" = 1'-0"



DETAIL (3 / S-122)
SCALE: 1 1/2" = 1'-0"



KNEE SECTION WITHOUT PILE (C / S-122)
SCALE: 1 1/2" = 1'-0"

DRAFT 90% Submittal

PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:10:33 AM

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
B		05-12-2023	90% PROGRESS SUBMITTAL	JMC
A		03-27-2023	60% PROGRESS SUBMITTAL	JMC

1 FT 0 1 FT — 1" = 1'-0"
1 FT 0 2 FT — ¾" = 1'-0"
6 in 0 1 FT — 1½" = 1'-0"
0 1 in 4 in 8 in — 3" = 1'-0"

0 1 2 3 FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE R.C.E. EXP.
SUPERVISING CIVIL ENGINEER
APPROVED: DATE R.C.E. EXP.
CITY ENGINEER

DESIGN JRVS
DRAWN NF
CHECK JMC
AS BUILT
HORIZ. AS SHOWN
VERT.
BOOK
DATE 8/XX/22

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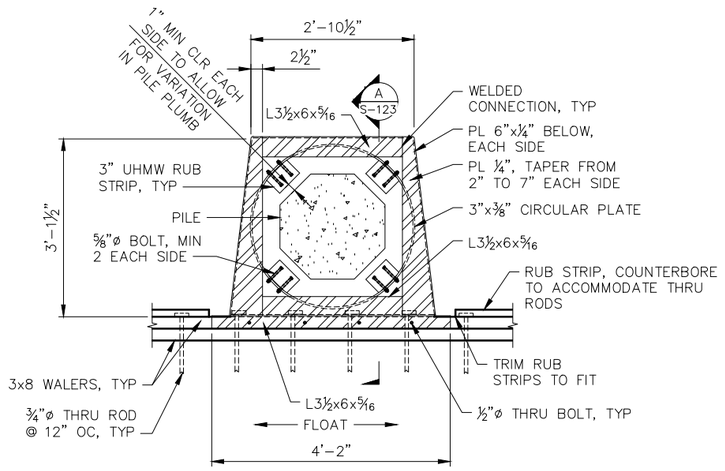
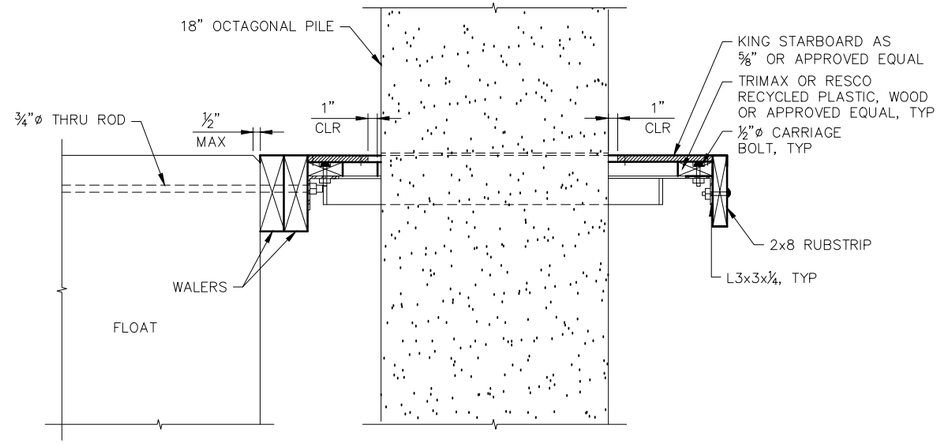
BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
FLOAT DETAILS
SHEET 3 OF 6

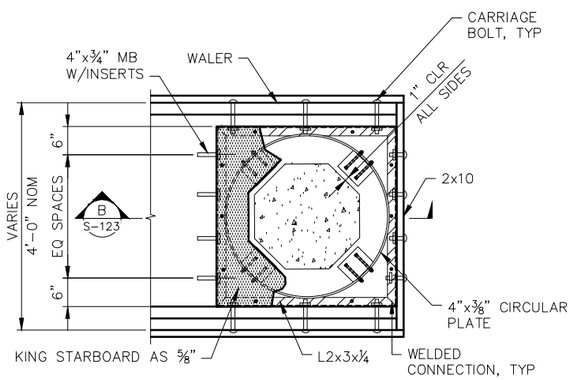
PLAN
FILE
S-122
SHEET 21 OF 51



DETAIL – SIDE PILE BRACKET (1 / S-123)
SCALE: 3/4" = 1'-0"

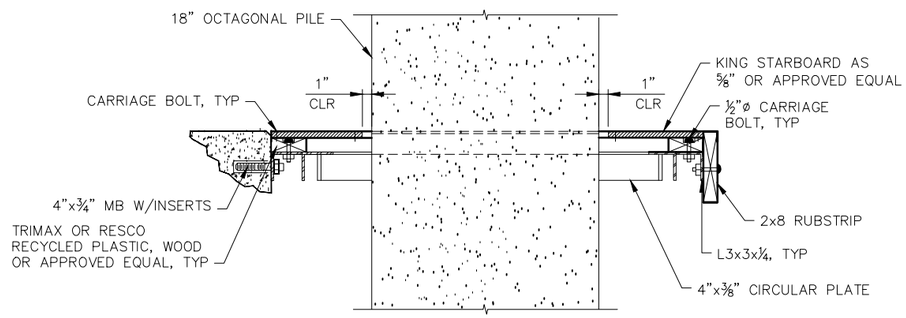


SECTION – SIDE PILE BRACKET (A / S-123)
SCALE: 1 1/2" = 1'-0"



DETAIL – END PILE BRACKET (2 / S-123)
SCALE: 3/4" = 1'-0"

NOTE: SEE NOTE 3



SECTION – END PILE BRACKET (B / S-123)
SCALE: 1 1/2" = 1'-0"

NOTES:

1. ALL WELDED STEEL BRACKETS ARE TO BE HOT DIPPED GALVANIZED AFTER FABRICATION.
2. WALERS AND RUB STRIPS TO BE COMPOSED OF TIMBER OR APPROVED EQUIVALENT MATERIAL.
3. ALTERNATE DESIGN TO SQUARE END OF FINGERS MAY BE CONSIDERED. SUBMIT ALTERNATE DESIGN FOR APPROVAL.

PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:10:35 AM

DRAFT 90% Submittal

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
B		05-12-2023	90% PROGRESS SUBMITTAL	JMC
A		03-27-2023	60% PROGRESS SUBMITTAL	JMC

1 FT 0 2 FT — ¾" = 1'-0"
6 in 0 1 FT — 1½" = 1'-0"
0 1 2 3 — FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER R.C.E. EXP.
APPROVED: DATE
CITY ENGINEER R.C.E. EXP.

DESIGN JRVS
DRAWN NIF
CHECK JMC
AS BUILT
HORIZ. AS SHOWN
VERT.
BOOK
DATE 8/XX/22

PARKS, RECREATION & WATERFRONT
1947 CENTER ST., 5th FL, BERKELEY, CA 94704

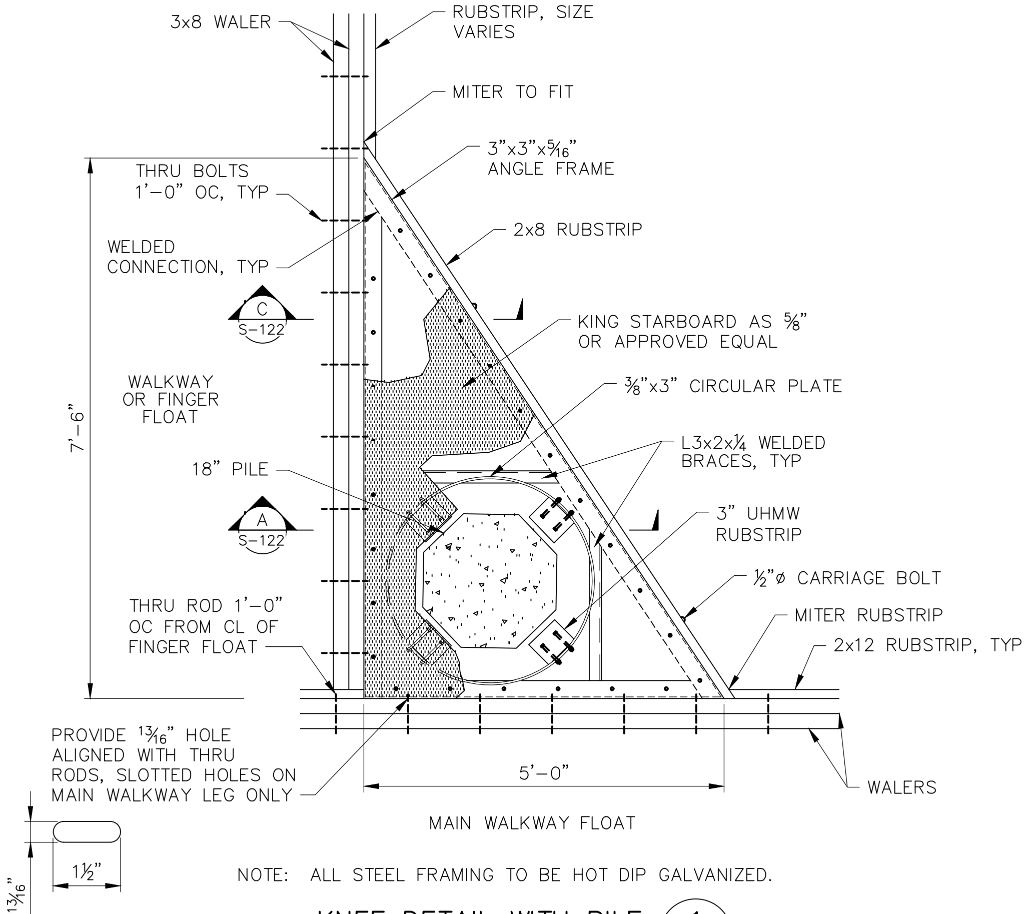
COWI
101 12th Street, 12th Fl • Oakland, CA 94612
Tel: 510.839.0972 Fax: 510.839.9716

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
FLOAT DETAILS
SHEET 4 OF 6

PLAN
FILE
S-123
SHEET 22 OF 51

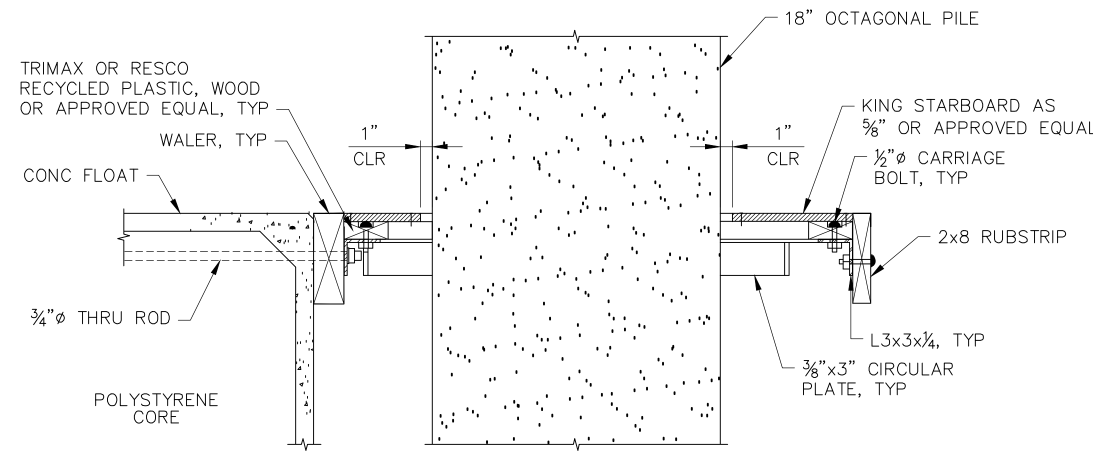
NOTES:

1. ALL WELDED STEEL BRACKETS ARE TO BE HOT DIPPED GALVANIZED AFTER FABRICATION.
2. WALERS AND RUB STRIPS TO BE COMPOSED OF TIMBER OR APPROVED EQUIVALENT MATERIAL.
3. ALTERNATE DESIGN TO SQUARE END OF FINGERS MAY BE CONSIDERED. SUBMIT ALTERNATE DESIGN FOR APPROVAL.



NOTE: ALL STEEL FRAMING TO BE HOT DIP GALVANIZED.

KNEE DETAIL WITH PILE (1 / S–124)
SCALE: 3/4" = 1'–0"



NOTE: ALL WELDED STEEL BRACKETS ARE TO BE HOT DIPPED GALVANIZED AFTER FABRICATION.

KNEE SECTION WITH PILE (A / S–124)
SCALE: 1 1/2" = 1'–0"

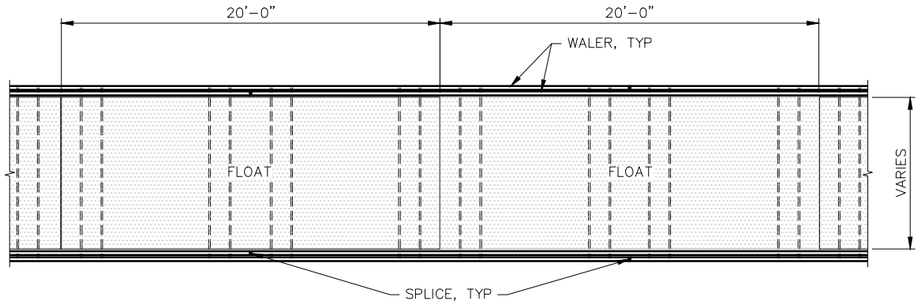
DRAFT 90% Submittal

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
B		05-12-2023	90% PROGRESS SUBMITTAL	JMC
A		03-27-2023	60% PROGRESS SUBMITTAL	JMC

PLOTTED BY: NOEL FORTEZ PLOT DATE 5/12/2023 11:10:38 AM

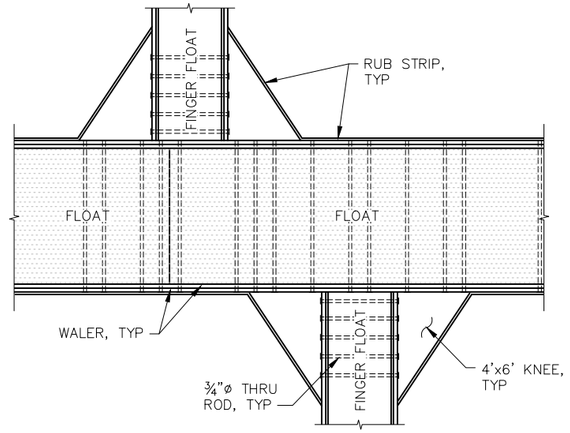
6 in 0 1 FT — 1½" = 1'-0"

PROJECT MANAGER: DATE	DEPICTION OF MONUMENTS: DATE / SURVEY PARTY CHIEF	SUBMITTED: DATE / R.C.E. / EXP. / SUPERVISING CIVIL ENGINEER	DESIGN JRVS	HORIZ. AS SHOWN	CITY OF BERKELEY PARKS RECREATION & WATERFRONT 1947 CENTER ST., 5th FR, BERKELEY CA94704	COWI	BERKELEY MARINA DOCK REPLACEMENT (D-E) CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA	PLAN
0 1 2 3 FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES	WATERSHED REVIEW: DATE	APPROVED: DATE / R.C.E. / EXP. / CITY ENGINEER	DRAWN NIF / CHECK JMC / AS BUILT	VERT. / BOOK / DATE 8/XX/22			FLOAT DETAILS SHEET 5 OF 6	FILE / S–124 / SHEET 23 OF 51

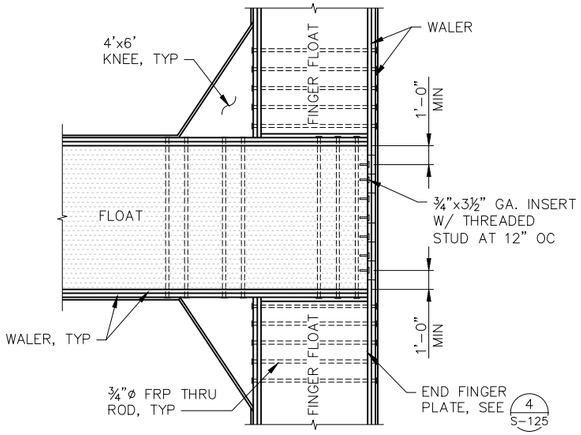


NOTES:
1. WALER SPLICE AT 1/2 FLOAT LENGTH.
2. NO TWO WALERS SPLICED AT SAME POINT.
3. NO SPLICES AT FLOAT JOINTS.
4. TWO THRU ROD MIN. EACH SIDE OF WALER SPLICE AND FLOAT JOINT.

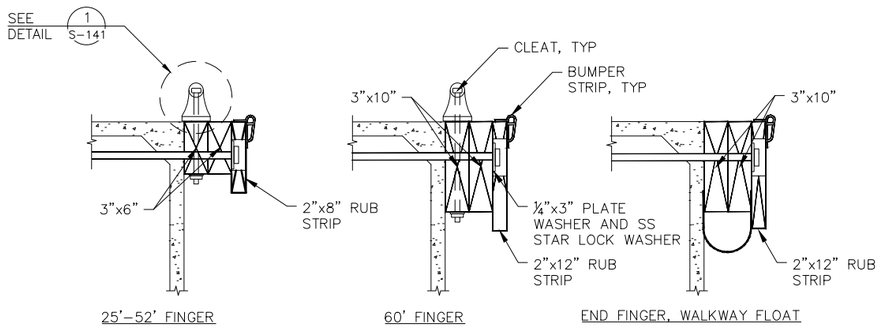
WALER SPLICE & THRU–ROD DETAIL
SCALE: 1/4" = 1'–0"
1 / S–125



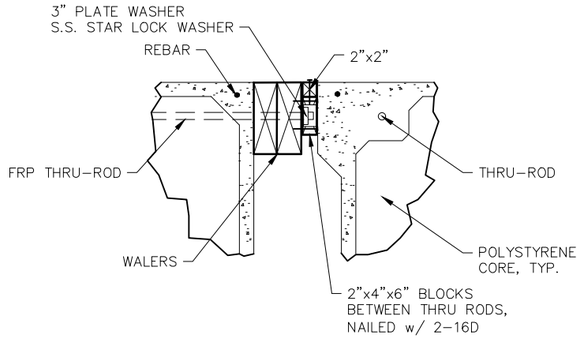
WALKWAY/FINGER CONNECTION
SCALE: 1/4" = 1'–0"
2 / S–125



WALKWAY/END FINGER CONNECTION
SCALE: 1/4" = 1'–0"
3 / S–125



WALER CONNECTION DETAIL
SCALE: 1 1/2" = 1'–0"
4 / S–125



WALKWAY FLOAT
CONNECTION DETAIL
SCALE: 3" = 1'–0"
5 / S–125

DRAFT 90% Submittal

PLOTTED BY: NOEL FORTEZ PLOT DATE:5/12/2023 11:10:40 AM

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
C		05–12–2023	90% PROGRESS SUBMITTAL	JMC
B		03–27–2023	60% PROGRESS SUBMITTAL	JMC
A		06–03–2022	30% PROGRESS SUBMITTAL	JMC

6 in 0 1 FT — 1½" = 1'–0"
4 FT 1 FT 0 4 FT — ¼" = 1'–0"
0 1 in 4 in 8 in — 3" = 1'–0"
0 1 2 3 — FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER R.C.E. EXP.
APPROVED: DATE
CITY ENGINEER R.C.E. EXP.

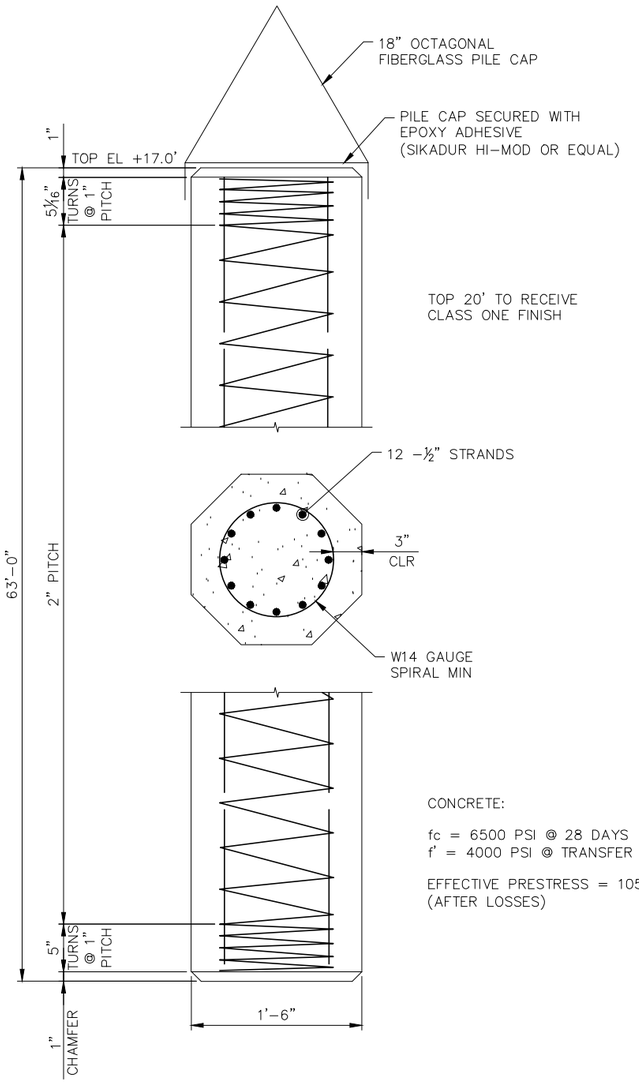
DESIGN JRVS
DRAWN NIF
CHECK JMC
AS BUILT
HORIZ. AS SHOWN
VERT.
BOOK
DATE 6/3/22

PARKS RECREATION & WATERFRONT
1947 CENTER ST., 5th FR, BERKELEY CA94704

COWI
555 12th Street, 17th Fl Oakland, CA 94612
Tel.: 510.839.8972 Fax: 510.839.9715
www.cowi.com

BERKELEY MARINA DOCK REPLACEMENT (D–E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
FLOAT DETAILS
SHEET 6 OF 6

PLAN
FILE
S–125
SHEET 24 OF 51



CONCRETE:

fc = 6500 PSI @ 28 DAYS
f' = 4000 PSI @ TRANSFER

EFFECTIVE PRESTRESS = 1055 PSI
(AFTER LOSSES)

GUIDE PILE 18"
SCALE: 1 1/2" = 1'-0"

1
S-130

NOTES:

1. CONTRACTOR TO SUBMIT PILE CALCULATIONS AND SHOP DRAWINGS FOR REVIEW AND APPROVAL.
2. SEE TECHNICAL SPECIFICATIONS AND BASIS OF DESIGN FOR ADDITIONAL INFORMATION.
3. CONTRACTOR TO DETERMINE FINAL PILE LOCATIONS ON PLAN.

PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:10:42 AM

DRAFT 90% Submittal

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
C		05-12-2023	90% PROGRESS SUBMITTAL	JMC
B		03-27-2023	60% PROGRESS SUBMITTAL	JMC
A		06-03-2022	30% PROGRESS SUBMITTAL	JMC

6 in 0 1 FT
1½" = 1'-0"

FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES (0 1 2 3)

PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE R.C.E. EXP.
SUPERVISING CIVIL ENGINEER
APPROVED: DATE R.C.E. EXP.
CITY ENGINEER

DESIGN JRVS
DRAWN NIF
CHECK JMC
AS BUILT
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BOOK
DATE 6/3/22

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1947 CENTER ST., 5th FR, BERKELEY CA94704

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555 12th Street, 17th Flr Oakland, CA 94612
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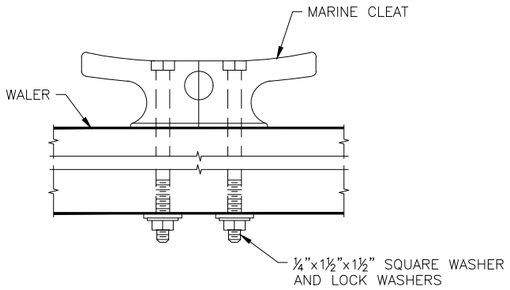
Website: www.cowi-na.com

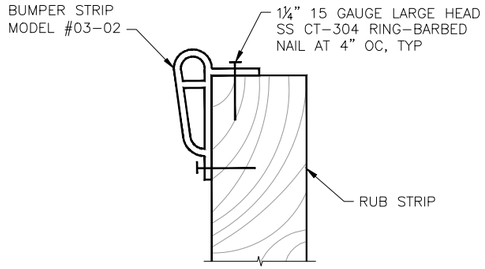
BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
GUIDE PILE DETAILS

PLAN
FILE
S-130
SHEET 25 OF 51



NOTE: FOR TABLE SIZE, LOCATION AND BOLT DIAMETER, SEE TABLE I

CLEAT DETAIL (1 / S-141)
SCALE: 3" = 1'-0"



BUMPER STRIP (2 / S-141)
SCALE: 6" = 1'-0"

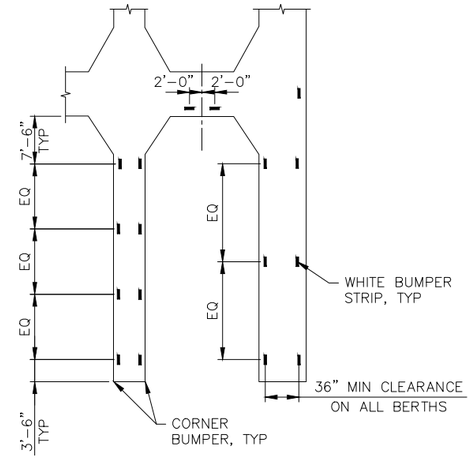
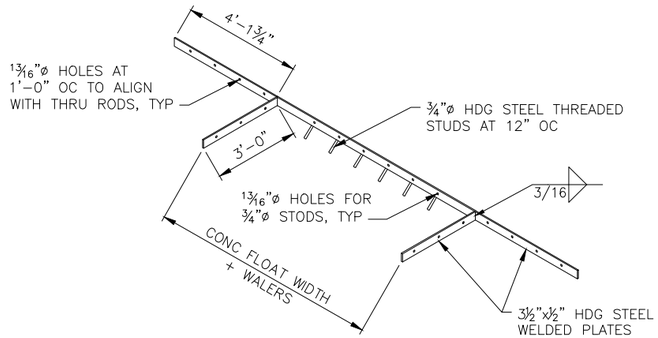


TABLE I				
BERTH SIZE	CLEAT SIZE	CLEAT TYPE	BOLT SIZE	TOTAL PER SLIDE
UP TO 40 FT	10"	HEAVY SHIP 504H	½"	3
41 FT – 60 FT	12"	HEAVY SHIP 504H	⅝"	4

NOTE: PROVIDE REINFORCED MOORING ATTACHMENTS AT FLOATING HOME LOCATIONS AS NEEDED TO ACCOMMODATE SPECIFIED LOAD.

CLEAT LAYOUT (3 / S-141)
NOT TO SCALE



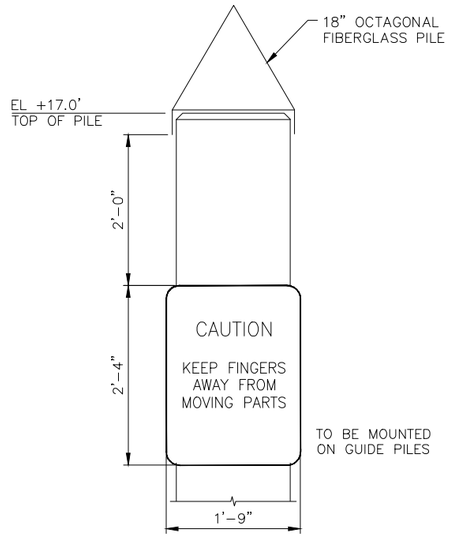
NOTE: PROVIDE REINFORCED CONNECTIONS AT FLOATING HOME LOCATIONS AS NEEDED TO ACCOMMODATE SPECIFIED LOADS HOT DIP GALVANIZE AFTER WELDING.

END FINGER PLATE (4 / S-141)
SCALE: 3/8" = 1'-0"

20955HM
SIZE: 6" x 6"

NOTE: PROVIDE SYMBOL ON DOCK BOX AT ACCESSIBLE BERTHS.

ACCESSIBLE SYMBOL (5 / S-141)
SCALE: 3" = 1'-0"



WARNING SIGN (6 / S-141)
SCALE: 1" = 1'-0"

DRAFT 90% Submittal

PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:10:45 AM

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
B		05-12-2023	90% PROGRESS SUBMITTAL	JMC
A		03-27-2023	60% PROGRESS SUBMITTAL	JMC

1 FT 0 1 FT — 1" = 1'-0"
0 1 in 4 in 8 in — 3" = 1'-0"
2 FT 1 FT 0 3 FT — ⅜" = 1'-0"
6 in 0 1 FT — 1½" = 1'-0"
0 1 in 4 in — 6" = 1'-0"
0 1 2 3 — FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

PROJECT MANAGER: DATE	DEPICTION OF MONUMENTS: DATE	SUBMITTED: DATE	DESIGN JRVS	HORIZ. AS SHOWN	PLAN
	SURVEY PARTY CHIEF	SUPERVISING CIVIL ENGINEER R.C.E. EXP.	DRAWN NIF	VERT.	FILE
	WATERSHED REVIEW: DATE	APPROVED: DATE	CHECK JMC	BOOK	S-141
		CITY ENGINEER R.C.E. EXP.	AS BUILT	DATE 6/3/22	SHEET 26 OF 51

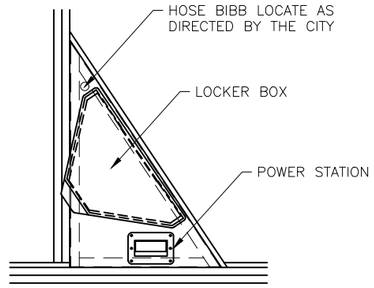
PARKS RECREATION & WATERFRONT 1947 CENTER ST., 5th FR, BERKELEY CA94704

COWI 555 12th Street, 17th Fl Oakland, CA 94612 Tel: 510.839.0572 Fax: 510.839.5716 Website: www.cowi-na.com

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
ACCESSORY DETAILS
SHEET 1 OF 2

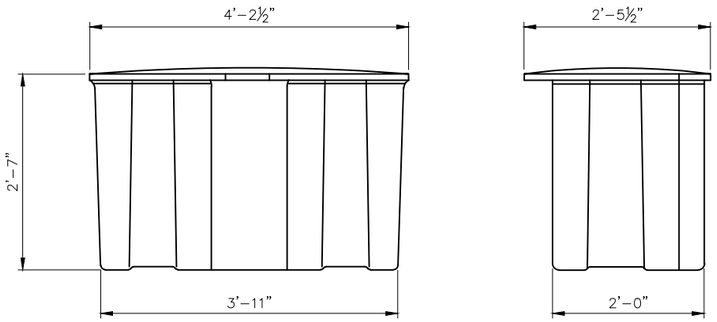
NOTE:

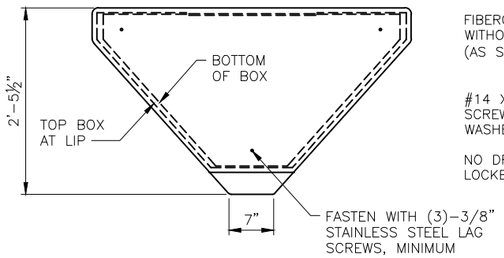
1. FLOAT FOOT STEP LADDER TO BE PROVIDED BY ATLANTIC ALUMINUM & MARINE PRODUCTS OR APPROVED EQUAL BY CITY PROJECT MANAGER



4'x6' KNEE WITH LOCKER BOX

KNEE LAYOUT PLAN (1 / S-142)
SCALE: 1/2" = 1'-0"



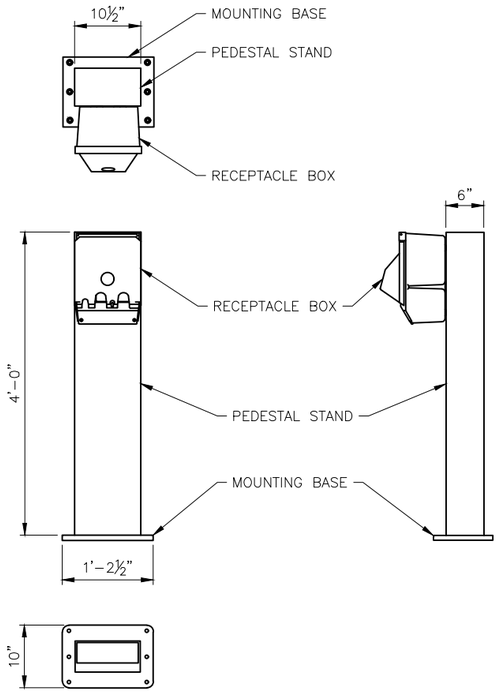


FIBERGLASS LOCKER BOX WITHOUT POWER CENTER (AS SPECIFIED)

#14 X 2" F.H. S.S. SCREW @ S.S. FENDER WASHER

NO DRAIN HOLES IN LOCKER BOXES

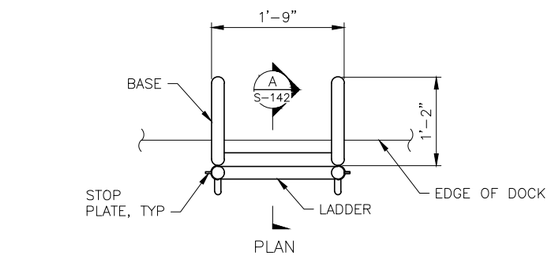
LOCKER BOX (2 / S-142)
SCALE: 1" = 1'-0"

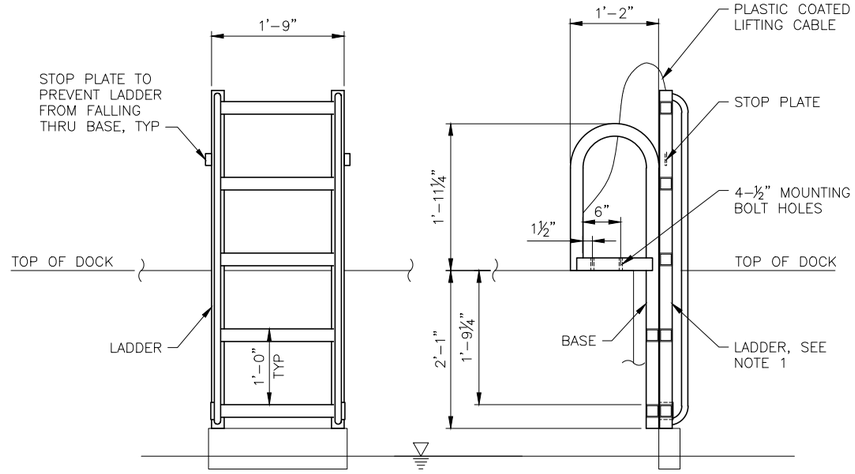


NOTE: NEWPORT TYPE POWER PEDESTAL: ALL LIGHTS AT PEDESTAL SHALL BE CONTROLLED BY PHOTOCELL AT POWER CENTER.

FOR ADDITIONAL INFORMATION, SEE E201 TO E203.

NEWPORT TYPE PEDESTAL (3 / S-142)
SCALE: 1" = 1'-0"





FLOAT FOOT STEP LADDER (4 / S-142)
SCALE: 1" = 1'-0"

DRAFT 90% Submittal

PLOTTED BY: NOEL FORTEZ PLOT DATE: 5/12/2023 11:10:47 AM

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
C		05-12-2023	90% PROGRESS SUBMITTAL	JMC
B		03-27-2023	60% PROGRESS SUBMITTAL	JMC
A		06-03-2022	30% PROGRESS SUBMITTAL	JMC

2 FT 1 FT 0 2 FT
½" = 1'-0"
1 FT 0 1 FT
1" = 1'-0"
0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

PROJECT MANAGER:	DATE	DEPICTION OF MONUMENTS:	DATE	SUBMITTED:	DATE	DESIGN JRVS	HORIZ. AS SHOWN
		SURVEY PARTY CHIEF		SUPERVISING CIVIL ENGINEER	R.C.E.	DRAWN NIF	VERT.
		WATERSHED REVIEW:	DATE	APPROVED:	EXP.	CHECK JMC	BOOK
				CITY ENGINEER	DATE R.C.E. EXP.	AS BUILT	DATE 6/3/22

CITY OF BERKELEY
PARKS RECREATION & WATERFRONT
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BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
ACCESSORY DETAILS
SHEET 2 OF 2

PLAN
FILE
S-142
SHEET 27 OF 51

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE CURRENT NATIONAL ELECTRICAL CODE (NEC), CALIFORNIA BUILDING CODE (CBC).
2. EXAMINE ALL DRAWINGS AND FIELD VERIFY (E) ELECTRICAL CONDITIONS INCLUDING VOLTAGES, EXISTING CIRCUITS, AND EXACT ROUTING OF ALL CONDUITS AND CONDITIONS IN AND AROUND CONDUIT RUNS.
3. COORDINATE ALL WORK WITH OTHER TRADES TO AVOID INTERFERENCE INCLUDING OTHER ONGOING CONSTRUCTION.
4. REPORT ANY DISCREPANCY TO ARCHITECT/ENGINEER PRIOR TO ANY WORK.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION AND PROVIDE REPAIR OF ADJACENT EXISTING SURFACES, AREAS AND PROPERTY THAT MAY BE DAMAGED AS A RESULT OF NEW WORK.
6. COORDINATE ALL SHUTDOWNS WITH THE OWNER REPRESENTATIVE AND PG&E SERVICES.
7. THE DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION OF ELECTRICAL EQUIPMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING CONDUITS, FITTINGS AND JUNCTION BOXES TO CONFORM WITH FIELD CONDITIONS.
8. UNLESS OTHERWISE NOTED, USE 3/4" MINIMUM CONDUIT.
9. UNLESS OTHERWISE NOTED, USE MINIMUM #12 AWG WIRE.
10. CONTRACTOR SHALL TEST ALL ELECTRICAL EQUIPMENT PER LATEST VERSION OF NETA AND NETA CERTIFIED 3RD PARTY.
11. KEEP JOBSITE IN AN ORDERLY CONDITION AND AT PROJECT COMPLETION, REMOVE ALL WASTE, AND LEAVE THE JOBSITE IN A CONDITION ACCEPTABLE TO THE CONSTRUCTION INSPECTOR.
12. COORDINATE WITH THE CITY OF BERKELEY FOR ALLOWING ACCESS TO CHARTERED VESSELS AT DOCK "K" DURING CONSTRUCTION.
13. EQUIPMENT DIMENSIONS SHOWN ARE APPROXIMATE AND MAY VARY DEPENDING ON MANUFACTURER AND FINAL APPROVED SHOP DRAWINGS CONTRACTOR SHALL VERIFY NEW EQUIPMENT DIMENSIONS AND SIZES FOR PROPER INSTALLATION.
14. PROVIDE PORTABLE GENERATOR POWER SERVING UNAFFECTED DOCKS AND RESTROOM AMID THE POWER SHUTDOWN BY PG&E SERVICE.
15. ALL WIRE SPLICING ON THE DOCK AND UNDERNEATH THE GANGWAY SHALL BE SUBMERSIBLE TYPE.
16. ALL SUPPORT HARDWARE SHALL BE STAINLESS STEEL UNLESS OTHERWISE NOTED.

ABBREVIATIONS

ABBREV.	DESCRIPTION	ABBREV.	DESCRIPTION
&	AND	JBOX	JUNCTION BOX
A, AMP	AMPERES		
ABB'S	ABBREVIATIONS	(N)	NEW
AFF	ABOVE FINISHED FLOOR	N	NEUTRAL
AF	AMP FRAME	NTS	NOT TO SCALE
AT	AMP TRIP	N/A	NOT APPLICABLE
C	CONDUIT	PC	POWER CENTER
CB	CIRCUIT BREAKER	PNL	PANELBOARD
CKT	CIRCUIT	PH, ø	PHASE
DEMO	DEMOLISH	(R)	RELOCATE
DWG(S)	DRAWING(S)	RCPT	RECEPTACLE
		RUM	REMOTE UTILITY METER (MARINESYNC OR APPROVED EQUAL)
(E)	EXISTING		
EA	EACH	SS	STAINLESS STEEL
ELEC	ELECTRICAL		
EM	EMERGENCY	TELE	TELECOMMUNICATION
EQPT	EQUIPMENT	(TYP)	TYPICAL
FIXTURE	FIXTURE		
FUT	FUTURE	UON	UNLESS OTHERWISE NOTED
G/GND	GROUND	V	VOLT
GFI	GROUND FAULT INTERRUPTER		
GRS	GALVANIZED RIGID STEEL	W	WATT(S)
		WP	WATERPROOF

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
	BOLLARD LIGHTING FIXTURE
	RAIL LIGHTING FIXTURE
1	KEYNOTE NUMBER
	DISCONNECT SWITCH, 30A NEMA 3R UON
T	STEP DOWN TRANSFORMER
PC	POWER CENTER SUBSTATION WITH INTEGRATED TRANSFORMER AND PANEL
	EQUIPMENT TO BE DEMOLISH
	CONTINUATION BREAK LINE
	RACEWAY EXPOSED
	RACEWAY (POWER) CONCEALED/UNDERGROUND ROUTING
– c – c –	RACEWAY (COMM) CONCEALED/UNDERGROUND ROUTING
	NEWPORT POWER PEDESTAL WITH RUM AND PHONE CABLE TV & INTERNET RECEPTACLE CONFIGURATION AS DESCRIBED BELOW: (1) 30A(NEMA L5–30R) + (1) 50A(CS6365)
A	LIGHTHOUSE POWER PEDESTAL WITH RUM AND PHONE CABLE TV & INTERNET RECEPTACLE CONFIGURATION AS DESCRIBED BELOW: (1) 30A(NEMA L5–30R) + (1) 50A(CS6365)
CR	GATE CONTROLLER/CARD READER
A — LIGHT FIXTURE TAG (REFER TO LIGHT FIXTURE SCHEDULE) – — WATTAGE	

ELECTRICAL LEGEND (CONTINUED)

SYMBOL	DESCRIPTION
	SWITCHBOARD
	RADIO BASE STATION FOR RUM
M	PG&E METER
GF	GROUND FAULT TRIP PROTECTION
	BREAKER
	TRANSFORMER DELTA–WYE TYPE
PS	PHOTOCELL SENSOR

PLOTTED BY: MINH TRAN PLOT DATE: 5/12/2023 4:23:18 PM

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REVISION	MARK	DATE	DESCRIPTION
C		05-12-2023	90% PROGRESS SUBMITTAL
B		03-23-2023	60% PROGRESS SUBMITTAL
A		06-03-2022	30% PROGRESS SUBMITTAL

APPROVAL	
CC	
CC	
CC	

YEI ENGINEERS

PROJECT MANAGER: DATE

0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF

WATERSHED REVIEW: DATE

SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER R.C.E.
EXP.

APPROVED: DATE
CITY ENGINEER R.C.E.
EXP.

DESIGN	JH
DRAWN	MT
CHECK	GC
AS BUILT	
HORIZ.	NO SCALE
VERT.	
BOOK	
DATE	05/12/23

PARKS RECREATION & WATERFRONT
2180 MILVIA ST, BERKELEY, CA 94704

COWI
510 12th Street, 17th Fl Oakland, CA 94612
Tel.: 510.839.8972 Fax: 510.839.5713
Website: www.cowi-na.com

BERKELEY MARINA DOCK REPLACEMENT (D–E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES

PLAN
FILE
E–001
SHEET 28 OF 51

N

SHEET NOTES

1. REFER TO SHEET E–001 FOR ELECTRICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

PLOTTED BY: MINH TRAN PLOT DATE:5/12/2023 4:23:41 PM

DRAFT 90% Submittal

100' 0' 100' 200'

SCALE: 1"=100'–0"

PROJECT SITE PLAN

SCALE: 1" = 100'–0"

YEI ENGINEERS

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
C		05–12–2023	90% PROGRESS SUBMITTAL	GC
B		03–23–2023	60% PROGRESS SUBMITTAL	GC
A		06–03–2022	30% PROGRESS SUBMITTAL	GC

PROJECT MANAGER: DATE

DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF

WATERSHED REVIEW: DATE

SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER R.C.E.
EXP.

APPROVED: DATE
CITY ENGINEER R.C.E.
EXP.

0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

DESIGN JH
DRAWN MT
CHECK GC
AS BUILT

HORIZ. 1" = 100'–0"
VERT.
BOOK
DATE 05/12/23

CITY OF BERKELEY
PARKS RECREATION & WATERFRONT
2180 MILVIA ST, BERKELEY, CA 94704

COWI
510 12th Street, 17th Fl• Oakland, CA 94612
Tel.: 510.835.8972 Fax: 510.839.5731
Website: www.cowi-na.com

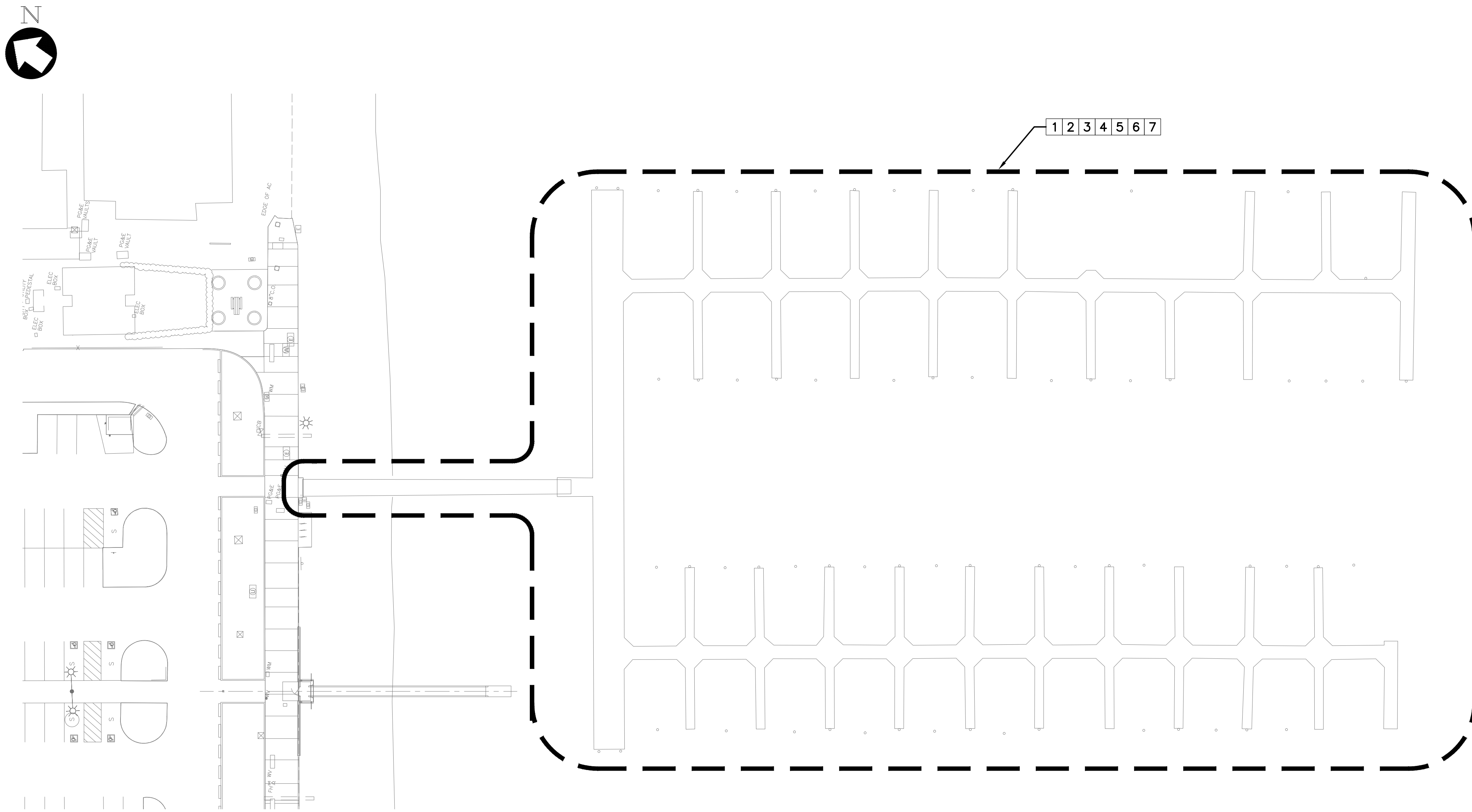
BERKELEY MARINA DOCK REPLACEMENT (D–E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA

SITE PLAN
DOCK "D & E"

PLAN
FILE

E–002

SHEET 29 OF 51



ELECTRICAL PLAN DEMOLITION WORK – DOCK "D&E" (1 / E-003)

SCALE: 1" = 30'-0"

30' 0' 30' 60'
SCALE: 1"=30'-0"

SHEET NOTES

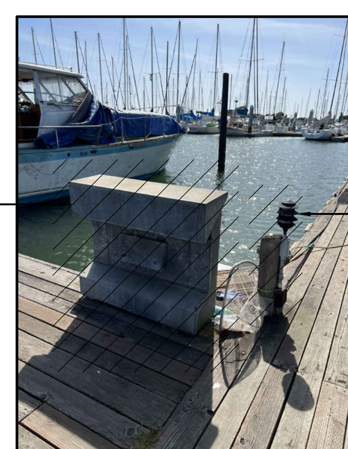
1. REFER TO SHEET E-001 FOR ELECTRICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
2. ALL EQUIPMENT SHOWN ARE (E) UON.
3. MAINTAIN POWER CONTINUITY TO (E) LIGHTING AND OTHER LOADS.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REPAIRS AND DAMAGED SPACE DUE TO ANY WORK.

KEY NOTES

1. DEMOLISH ALL (E) PG&E METERS AND ASSOCIATED RACEWAYS AND CABLES.
2. DEMOLISH ALL (E) RECEPTACLE BOXES, ASSOCIATED RACEWAYS AND CABLES, AND THE SUPPORT PLATFORM.
3. DEMOLISH ALL (E) DOCK LIGHT FIXTURES AND ASSOCIATED RACEWAYS AND CABLES.
4. DEMOLISH ALL (E) POWER PEDESTALS, ASSOCIATED RECEPTACLES, AND PG&E METERS. DEMOLISH ALL ASSOCIATED RACEWAYS AND CABLES.
5. DEMOLISH (E) MAIN BREAKER AND ENCLOSURE. DEMOLISH ALL ASSOCIATED RACEWAYS AND CABLES.
6. REMOVE AND SALVAGE (E) WIFI ANTENNA.
7. DEMOLISH (E) AUTOMATIC GATE OPENER AND ASSOCIATED RACEWAYS AND CABLES.

DEMOLITION PHOTO 1 (2 / E-003)

NTS

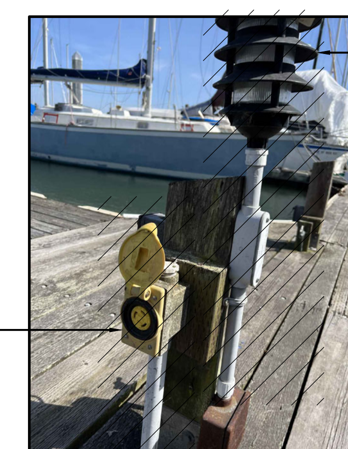


DEMOLITION PHOTO 2 (3 / E-003)

NTS

DEMOLITION PHOTO 3 (4 / E-003)

NTS



DEMOLITION PHOTO 4 (5 / E-003)

NTS

DEMOLITION PHOTO 5 (6 / E-003)

NTS

DRAFT 90% Submittal

PLOTTED BY: MINH TRAN PLOT DATE:5/12/2023 4:24:01 PM

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
C		05-12-2023	90% PROGRESS SUBMITTAL	GC
B		03-23-2023	60% PROGRESS SUBMITTAL	GC
A		06-03-2022	30% PROGRESS SUBMITTAL	GC

YEI ENGINEERS

PROJECT MANAGER: DATE
0 1 2 3 FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE R.C.E. EXP.
SUPERVISING CIVIL ENGINEER
APPROVED: DATE R.C.E. EXP.
CITY ENGINEER

DESIGN JH
DRAWN MT
CHECK GC
AS BUILT

HORIZ. AS SHOWN
VERT.
BOOK
DATE 05/12/23

CITY OF BERKELEY
PARKS RECREATION & WATERFRONT
2180 MILVIA ST, BERKELEY, CA 944704

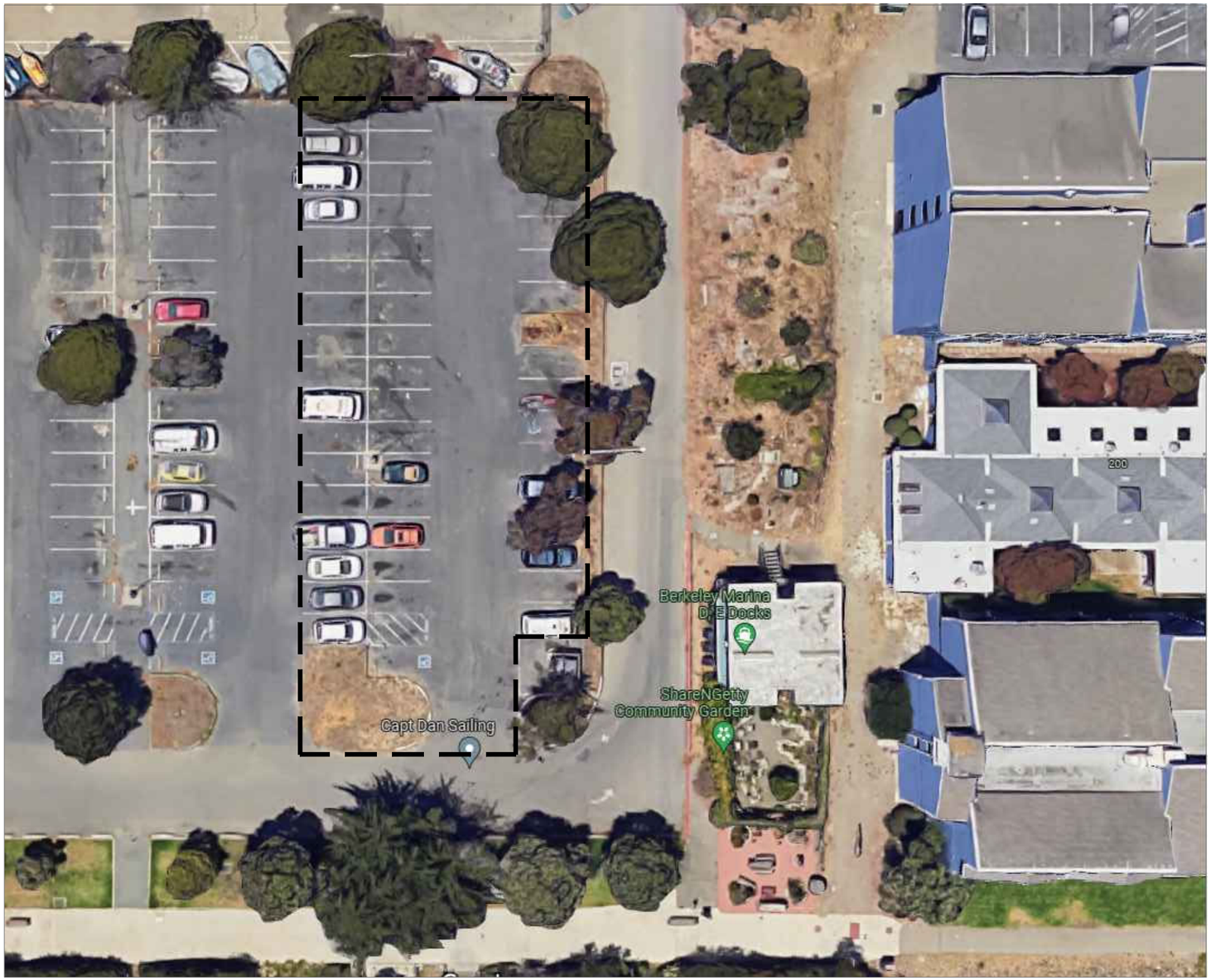
COWI
555 12th Street, 17th Flr Oakland, CA 94612
Tel.: 510.839.8972 Fax: 510.839.9715
Website: www.cowi-na.com

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
ELECTRICAL PLAN DEMOLITION WORK DOCK "D & E"

PLAN
FILE
E-003
SHEET 30 OF 51

SHEET NOTES

1. REFER TO SHEET E–001 FOR ELECTRICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.



CONSTRUCTION STAGING AREA – DOCK "D & E" (1 / E–004)

SCALE: NTS

PLOTTED BY: MINH TRAN PLOT DATE: 5/12/2023 4:24:08 PM

DRAFT 90% Submittal

REVISION	MARK	DATE	DESCRIPTION
B		05-12-2023	90% PROGRESS SUBMITTAL
A		03-23-2023	60% PROGRESS SUBMITTAL

APPROVAL		
	GC	
	GC	

YEI ENGINEERS

PROJECT MANAGER: _____ DATE _____

0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

DEPICTION OF MONUMENTS: _____ DATE _____
SURVEY PARTY CHIEF

WATERSHED REVIEW: _____ DATE _____

SUBMITTED: _____ DATE _____ R.C.E. _____ EXP. _____
SUPERVISING CIVIL ENGINEER

APPROVED: _____ DATE _____ R.C.E. _____ EXP. _____
CITY ENGINEER

DESIGN JH
DRAWN MT
CHECK GC
AS BUILT _____

HORIZ. NTS
VERT. _____
BOOK _____
DATE 05/12/23

CITY OF BERKELEY
PARKS RECREATION & WATERFRONT
2180 MILVIA ST, BERKELEY, CA 94704

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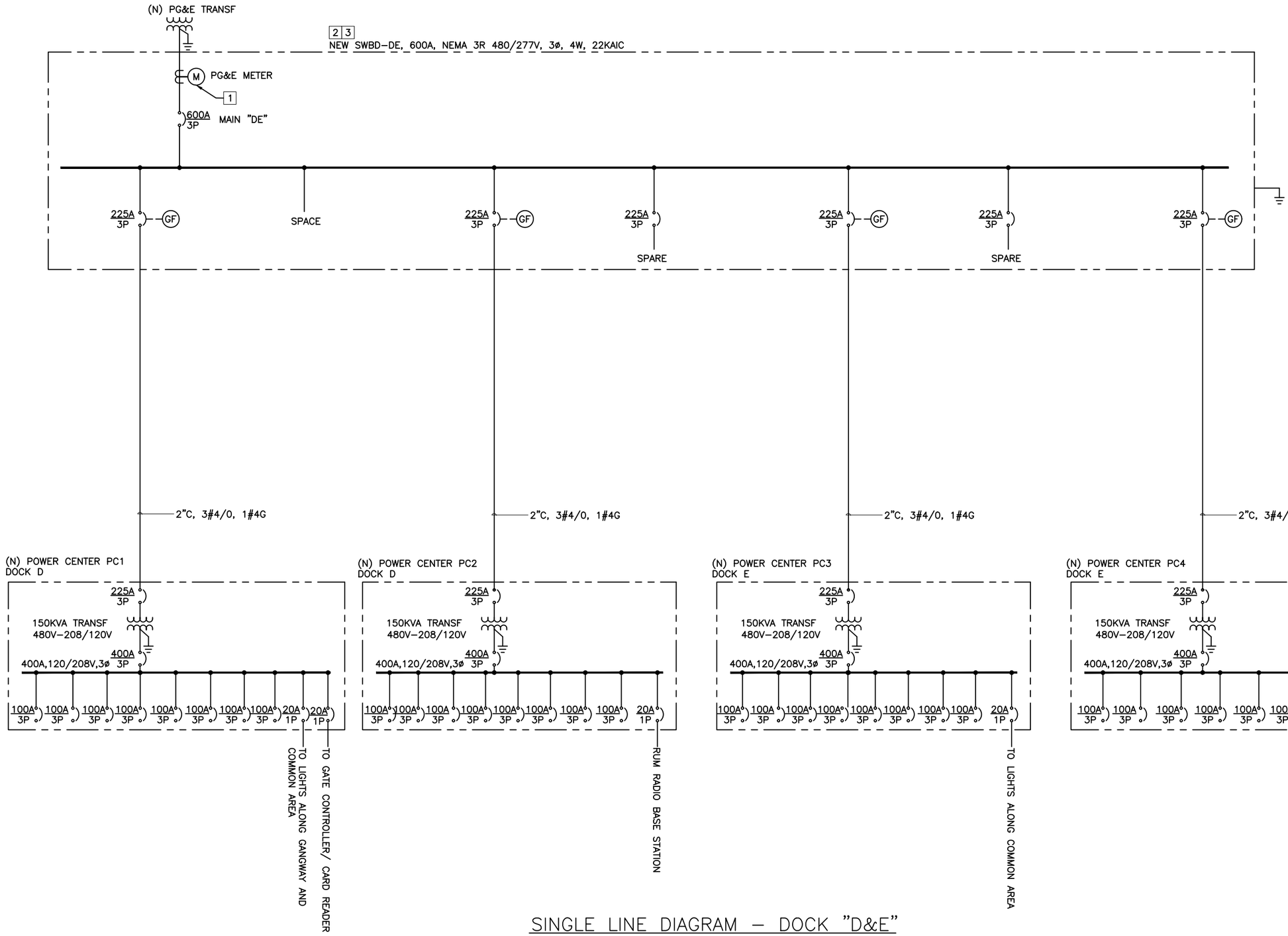
Tel.: 510.839.8972 Fax: 510.839.9715

BERKELEY MARINA DOCK REPLACEMENT (D–E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA

ELECTRICAL
CONSTRUCTION STAGING AREA

PLAN _____
FILE _____
E–004
SHEET 31 OF 51



SHEET NOTES

1. REFER TO SHEET E–001 FOR ELECTRICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

KEY NOTES

1. PROVIDE METER SOCKET PER PG&E REQUIREMENT. PG&E SHALL PROVIDE METER.
2. PROVIDE CAUTION LABEL ON THE SURFACE OF THE SWITCHBOARD DOORS.
3. PROVIDE AIC LABEL AND SERVICE DATE ON THE METER SECTION OF THE SWITCHBOARD.

DRAFT 90% Submittal

PLOTTED BY: MINH TRAN PLOT DATE: 5/12/2023 4:24:14 PM

SINGLE LINE DIAGRAM – DOCK "D&E"

SCALE: NTS

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
C		05-12-2023	90% PROGRESS SUBMITTAL	GC
B		03-23-2023	60% PROGRESS SUBMITTAL	GC
A		06-03-2022	30% PROGRESS SUBMITTAL	GC

YEI ENGINEERS

PROJECT MANAGER: DATE

0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF

WATERSHED REVIEW: DATE

SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER R.C.E.
EXP.

APPROVED: DATE
CITY ENGINEER R.C.E.
EXP.

DESIGN JH
DRAWN MT
CHECK GC
AS BUILT

HORIZ. NTS
VERT.
BOOK
DATE 05/12/23

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PARKS RECREATION & WATERFRONT
2180 MILVIA ST, BERKELEY, CA 94704

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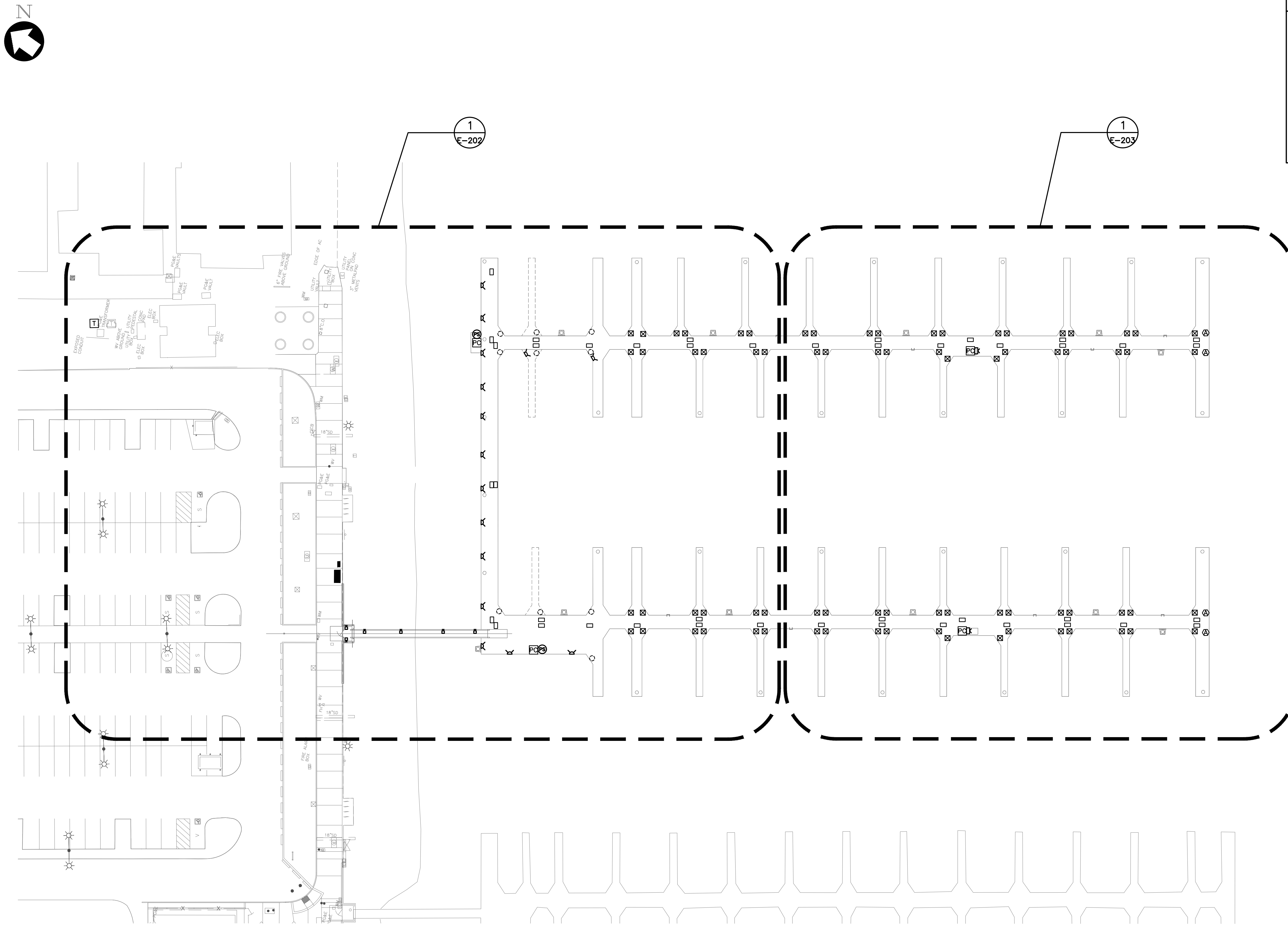
101 12th Street, 12th Fl Oakland, CA 94612
Tel.: 510.839.8972 Fax: 510.839.9715
WEBSITE: www.cowi.com

BERKELEY MARINA DOCK REPLACEMENT (D–E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
NEW SINGLE LINE DIAGRAM
DOCK "D & E"

PLAN
FILE
E–101
SHEET 32 OF 51



DRAFT 90% Submittal

SHEET NOTES

1. REFER TO SHEET E-001 FOR ELECTRICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
2. ALL EQUIPMENT SHOWN ARE NEW, UON.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REPAIRS AND DAMAGED SPACE DUE TO ANY WORK.
4. ALL (N) POWER CENTERS SHALL BE LOCATED WITHIN THE SPACE WITHOUT PROTRUDING INTO WALKWAY.

ELECTRICAL SITE PLAN – DOCK "D&E"

SCALE: 1" = 30'-0"

30' 0' 30' 60'
SCALE: 1"=30'-0"

PLOTTED BY: MINH TRAN PLOT DATE:5/12/2023 4:24:35 PM

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
C		05-12-2023	90% PROGRESS SUBMITTAL	GC
B		03-23-2023	60% PROGRESS SUBMITTAL	GC
A		06-03-2022	30% PROGRESS SUBMITTAL	GC

YEI ENGINEERS

PROJECT MANAGER: DATE
0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE R.C.E. EXP.
SUPERVISING CIVIL ENGINEER
APPROVED: DATE R.C.E. EXP.
CITY ENGINEER
DESIGN JH
DRAWN MT
CHECK GC
AS BUILT
HORIZ. 1" = 30'-0"
VERT.
BOOK
DATE 05/12/23

CITY OF BERKELEY
PARKS RECREATION & WATERFRONT
2180 MILVIA ST, BERKELEY, CA 944704

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555 12th Street, 17th Flr Oakland, CA 94612
Tel.: 510.839.8972 Fax: 510.839.9715
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BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
ELECTRICAL SITE PLAN
DOCK "D & E"

PLAN
FILE
E-201
SHEET 33 OF 51

LIGHT FIXTURE SCHEDULE

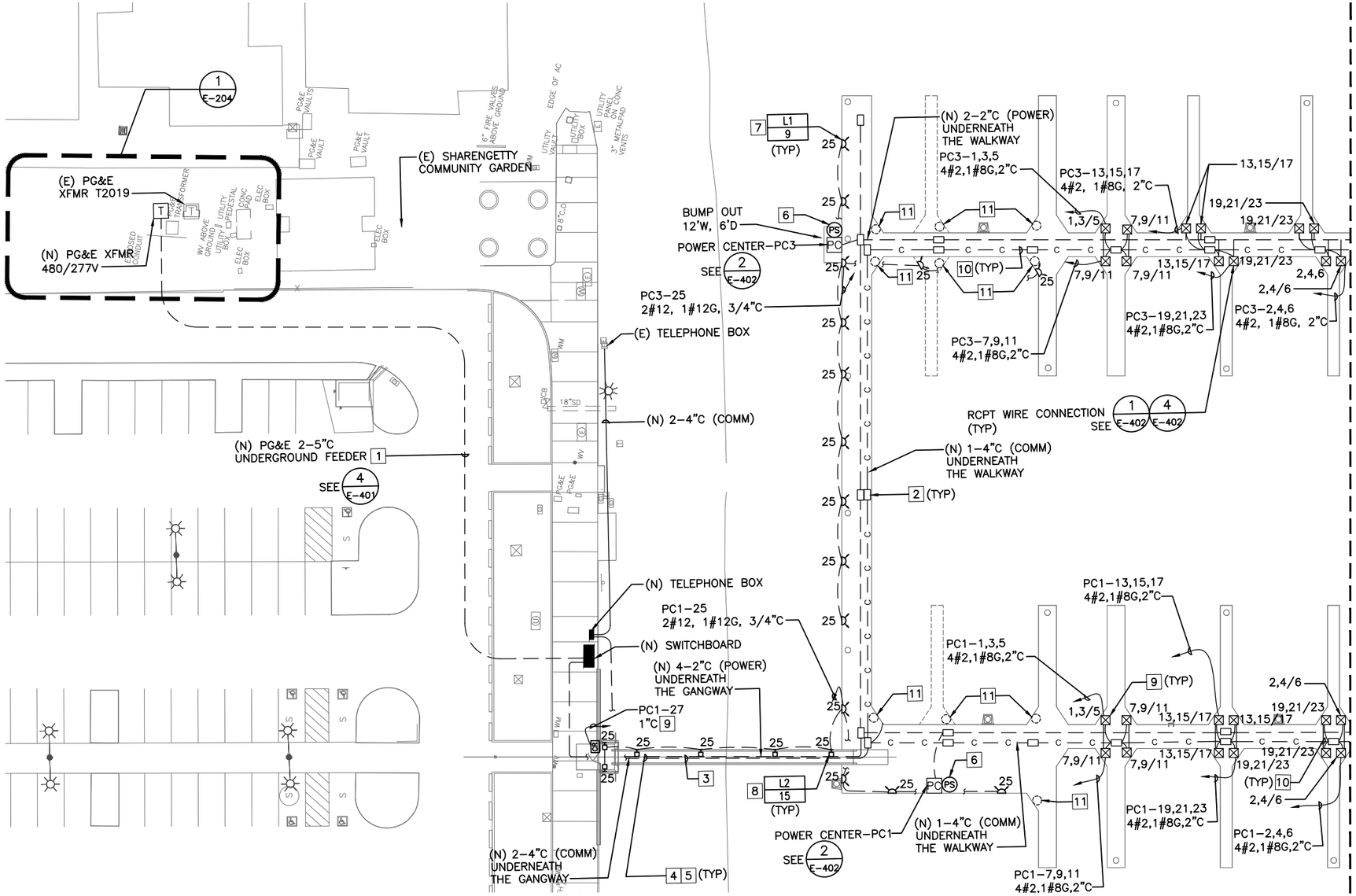
SYMBOL	TYPE	VOLTAGE	WATTAGE	DESCRIPTION AND MANUFACTURER
	L1	120V	9W LED	BOLLARD LIGHTING FIXTURE, 24 INCHES TALL. OUTDOOR RATING, DESIGNED TO WITHSTAND THE HARSH MARINE ENVIRONMENTS. EATON: MARINER LIGHTING BOLLARD 9W OR EQUAL.
	L2	120V	15W LED	RAIL LIGHTING FIXTURE. DESIGNED TO WITHSTAND IFADE AND ABRASON REISTANT, POLYESTER POWDERCOAT, CUSTOM COLOR FOR MARINE AND CORROSIVE FINISH. KIM LIGHTING: KFL2RGBW–11L–15–RGBW–HF–UNV–Y–LTG–JB1–CC OR EQUAL.

SHEET NOTES

1. REFER TO SHEET E–001 FOR ELECTRICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REPAIRS AND DAMAGED SPACE DUE TO ANY WORK.
3. ALL EQUIPMENT SHOWN ARE NEW, UON.
4. MAINTAIN POWER CONTINUITY TO CIRCUITS AND LOADS UNAFFECTED AREAS.

KEY NOTES

1. COORDINATE WITH PG&E. PROVIDE NEW CONDUIT PER PG&E REQUIREMENT.
2. PROVIDE NEW STAINLESS STEEL PULL BOX.
3. RUN PVC SCHEDULE 80 UNDERNEATH THE GANGWAY WITH STAINLESS STEEL MOUNT HARDWARE.
4. PROVIDE NEW CONDUIT TO THE NEAREST (N) PULL BOX ALONG THE SIDE OF THE EDGE OF THE DOCK.
5. PROVIDE NEW WIRES WITH FLEX CONDUIT IN (N) RACEWAY.
6. PROVIDE NEW PHOTOCELL SENSOR TO CONTROL (N) DOCK LIGHTS. PROVIDE MOUNTING AND SUPPORT AS NEEDED.
7. PROVIDE (N) LED BOLLARD FIXTURE.
8. PROVIDE (N) RAIL LED LIGHT FIXTURE. PROVIDE MOUNTING AND SUPPORT AS NEEDED.
9. TYPE NEWPORT POWER PEDESTAL.
10. 1"C FROM COMM PULL BOX TO EACH PEDESTAL.
11. PROVIDE POWER AND COMM CONDUIT STUB UPS FOR FUTURE PEDESTAL.
12. PROVIDE CONDUIT WITH WIRE AS RECOMMENDED BY MANUFACTURER. PROVIDE RACEWAYS AND WIRING TO ASSOCIATED GATE CONTROLLER HARDWARE. COORDINATE THE LOCATION OF GATE CONTROLLER/CARD READER.



PLAN 1 (1 / E–202)
SCALE: 1" = 20'–0"

DRAFT 90% Submittal

PLOTTED BY: MINH TRAN PLOT DATE: 5/12/2023 4:24:50 PM

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
B		05–12–2023	90% PROGRESS SUBMITTAL	GC
A		03–23–2023	60% PROGRESS SUBMITTAL	GC

YEI ENGINEERS

PROJECT MANAGER: DATE
0 1 2 3 FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER R.C.E. EXP.
APPROVED: DATE
CITY ENGINEER R.C.E. EXP.

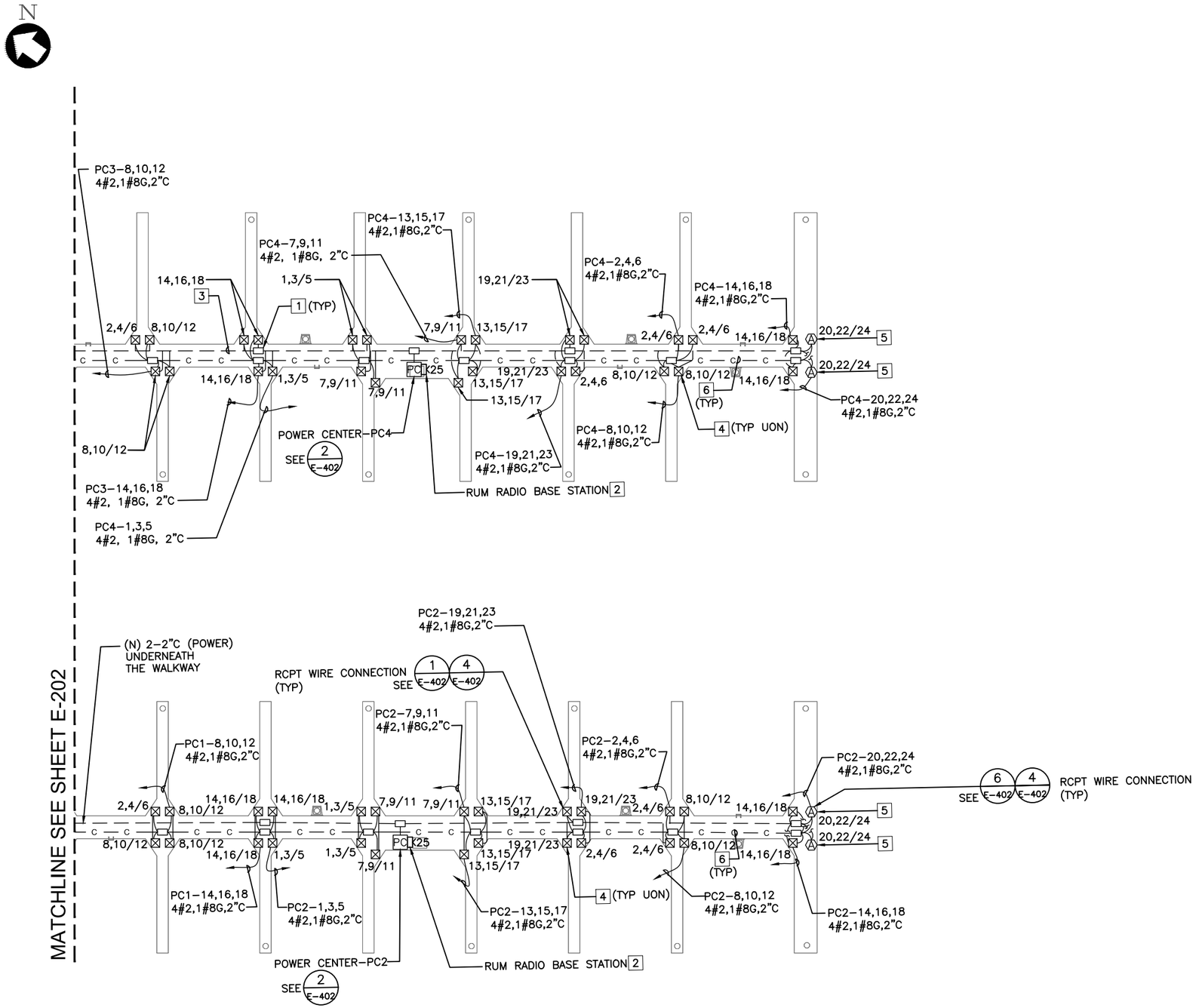
DESIGN JH
DRAWN MT
CHECK GC
AS BUILT
HORIZ. 1" = 20'–0"
VERT.
BOOK
DATE 05/12/23

PARKS RECREATION & WATERFRONT 2180 MLK JR ST, BERKELEY, CA 94704

COWI 555 12th Street, 17th Flr Oakland, CA 94612 Tel.: 510.839.8972 Fax: 510.839.9715 www.cowi.com

BERKELEY MARINA DOCK REPLACEMENT (D–E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
PLAN – DOCK "D & E"
SHEET 1 OF 2

PLAN
FILE
E–202
SHEET 34 OF 51



SHEET NOTES

1. REFER TO SHEET E–001 FOR ELECTRICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REPAIRS AND DAMAGED SPACE DUE TO ANY WORK.
3. ALL EQUIPMENT SHOWN ARE NEW, UON.
4. MAINTAIN POWER CONTINUITY TO CIRCUITS AND LOADS UNAFFECTED AREAS.

KEY NOTES

1. PROVIDE NEW STAINLESS STEEL PULL BOX.
2. PROVIDE STANDALONE POLE SUPPORT FOR RUM BASE STATION.
3. PROVIDE NEW WIRES WITH FLEX CONDUIT IN (N) RACEWAY.
4. TYPE NEWPORT POWER PEDESTAL.
5. TYPE LIGHTHOUSE POWER PEDESTAL.
6. 1"C FROM COMM PULL BOX TO EACH PEDESTAL.

PLOTTED BY: MINH TRAN PLOT DATE: 5/12/2023 4:24:59 PM

DRAFT 90% Submittal

PLAN 2

SCALE: 1" = 20'–0"

1 E–203

20' 0' 20' 40'

SCALE: 1"=20'–0"

MARK	DATE	DESCRIPTION
A	03–23–2023	60% PROGRESS SUBMITTAL
B	05–12–2023	90% PROGRESS SUBMITTAL

APPROVAL: GC GC

YEI ENGINEERS

PROJECT MANAGER: DATE

DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF

WATERSHED REVIEW: DATE

SUBMITTED: DATE R.C.E. EXP.
SUPERVISING CIVIL ENGINEER

APPROVED: DATE R.C.E. EXP.
CITY ENGINEER

0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

DESIGN JH
DRAWN MT
CHECK GC
AS BUILT

HORIZ. 1" = 20'–0"
VERT.
BOOK
DATE 05/12/23

CITY OF BERKELEY
PARKS RECREATION & WATERFRONT
2180 MLKJR ST, BERKELEY, CA 94704

COWI
555 12th Street, 17th Flr Oakland, CA 94612
Tel.: 510.839.4972 Fax: 510.839.9715
Website: www.cowi-na.com

BERKELEY MARINA DOCK REPLACEMENT (D–E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
PLAN – DOCK "D & E"
SHEET 2 OF 2

PLAN
FILE
E–203
SHEET 35 OF 51

PLAN 1
SCALE: NTS

1 E-204

1 PHOTO 1
SCALE: NTS

2 PHOTO 2
SCALE: NTS

3 PHOTO 3
SCALE: NTS

SHEET NOTES

1. REFER TO SHEET E-001 FOR ELECTRICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REPAIRS AND DAMAGED SPACE DUE TO ANY WORK.
3. ALL EQUIPMENT SHOWN ARE NEW, UON.
4. MAINTAIN POWER CONTINUITY TO CIRCUITS AND LOADS UNAFFECTED AREAS.

KEY NOTES

1. COORDINATE WITH PG&E FOR (N) TRANSFORMER SERVICE AND UTILITY METER TO BE PROVIDED BY PG&E. PROVIDE GROUNDING PER PG&E REQUIREMENTS. PROVIDE PG&E APPROVED TRANSFORMER PAD PER PG&E GREENBOOK DETAILS AND LAYOUT.
2. (N) PG&E TRANSFORMER NEEDS 4' IN FRONT CLEARANCE. TREES AND BUSHES NEED TO BE CUT AND TRIMMED. COORDINATE WITH CITY OF BERKELEY BEFORE CUT TREE OR TRIM.
3. ELECTRICAL HANDHOLE TO BE REMAINED AND PROTECTED IN PLACE.
4. DATA BOX TO BE REMAINED AND PROTECTED IN PLACE.
5. WATER LINE TO BE REMAINED AND PROTECTED IN PLACE.

PLOTTED BY: MINH TRAN PLOT DATE: 5/12/2023 4:25:07 PM

DRAFT 90% Submittal

REVISION	MARK	DATE	DESCRIPTION
B		05-12-2023	90% PROGRESS SUBMITTAL
A		03-23-2023	60% PROGRESS SUBMITTAL

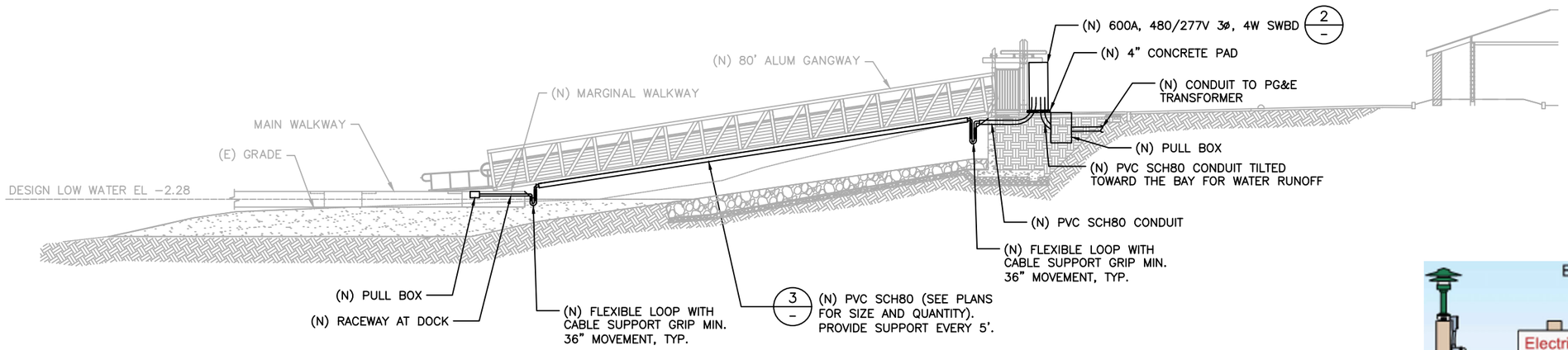
APPROVAL	QC	QC

YEI ENGINEERS

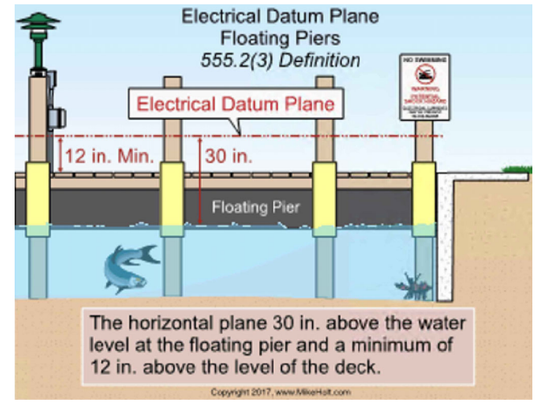
PROJECT MANAGER: DATE	DEPICTION OF MONUMENTS: DATE	SUBMITTED: DATE	DESIGN JH	HORIZ. NTS	CITY OF BERKELEY PARKS RECREATION & WATERFRONT 2180 MILVIA ST, BERKELEY, CA 94704	COWI 555 12th Street, 17th Flr Oakland, CA 94612 Tel: 510.839.8972 Fax: 510.839.9715 Website: www.cowi-na.com	BERKELEY MARINA DOCK REPLACEMENT (D-E)
	SURVEY PARTY CHIEF	R.C.E.	DRAWN MT	VERT.			CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
0 1 2 3 FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES	WATERSHED REVIEW: DATE	SUPERVISING CIVIL ENGINEER EXP.	CHECK GC	BOOK			PLAN AND LANDSIDE PHOTOS
		APPROVED: DATE	AS BUILT	DATE 05/12/23			PLAN
		R.C.E.					FILE
		CITY ENGINEER EXP.					E-204
							SHEET 36 OF 51

SHEET NOTES

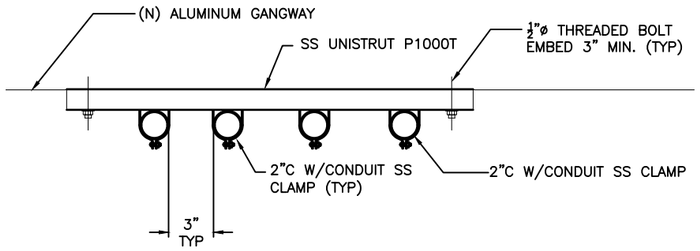
1. REFER TO SHEET E-001 FOR ELECTRICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
2. ALL GANGWAY UNISTRUT & SUPPORT SHALL BE STAINLESS STEEL AND ALL JUNCTION BOXES, FITTINGS, SCREWS, RIVETS OR BOLTS, NUTS SHALL BE 316 STAINLESS STEEL.
3. ALL FLEXIBLE CONDUIT SHALL BE PVC COATED, LIQUID-TIGHT STEEL CONDUIT AND ALL RIGID CONDUIT SHALL BE PVC SCH-80, UNLESS OTHERWISE NOTED.
4. PROVIDED GROUND WIRE #2/0 FROM SWITCHBOARD ENCLOSURE TO (E) GROUND LEG.



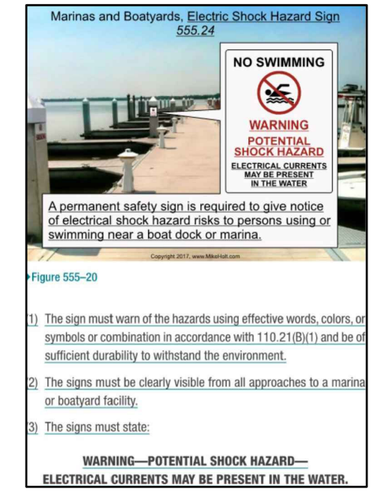
SHORE TO DOCK CONDUIT CROSS SECTION 1/E-401
SCALE: NTS



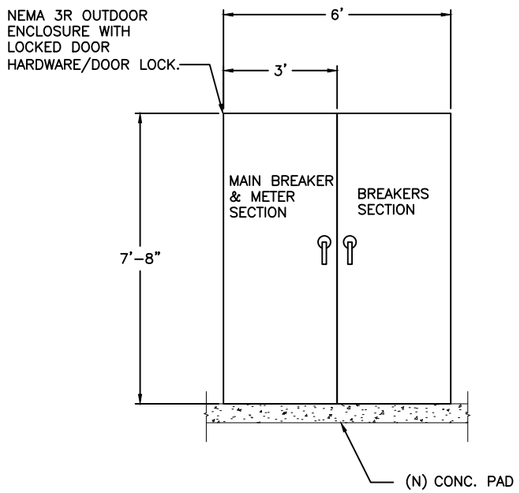
ELECTRICAL DATUM PLANE 5/E-401
SCALE: NTS



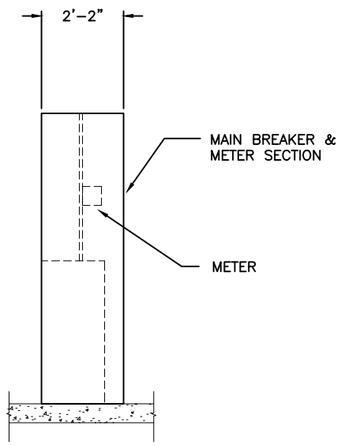
CONDUIT SUPPORT DETAIL 3/E-401
SCALE: NTS

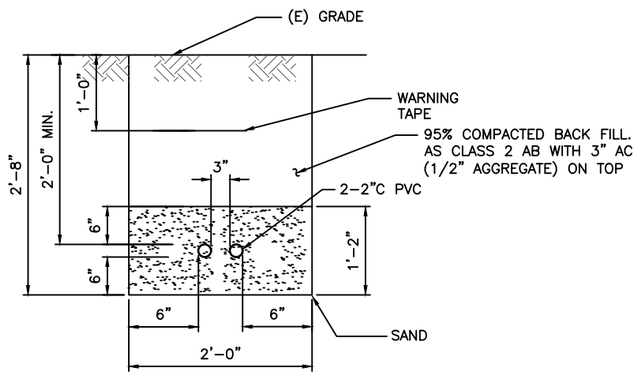


WARNING SIGN DETAIL 6/E401
SCALE: NTS



SWITCHBOARD DETAIL 2/E-401
SCALE: NTS





TRENCH DETAIL 4/E-401
SCALE: NTS

DRAFT 90% Submittal

PLOTTED BY: MINH TRAN PLOT DATE: 5/12/2023 4:25:15 PM

REVISION	MARK	DATE	DESCRIPTION
B		05-12-2023	90% PROGRESS SUBMITTAL
A		03-23-2023	60% PROGRESS SUBMITTAL
30			APPROVAL

PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE R.C.E. EXP.
SUPERVISING CIVIL ENGINEER
APPROVED: DATE R.C.E. EXP.
CITY ENGINEER
0 1 2 3 FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

DESIGN JH | DRAWN MT | CHECK GC | AS BUILT
HORIZ. NTS | VERT. | BOOK | DATE 05/12/23

YEI ENGINEERS
CITY OF BERKELEY PARKS, RECREATION & WATERFRONT 2180 MILVIA ST, BERKELEY, CA 94704
COWI 555 12th Street, 17th Fl Oakland, CA 94612 Tel: 510.839.8972 Fax: 510.839.9715 Website: www.cowi.us.com

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
ELECTRICAL DETAILS
SHEET 1 OF 2

PLAN
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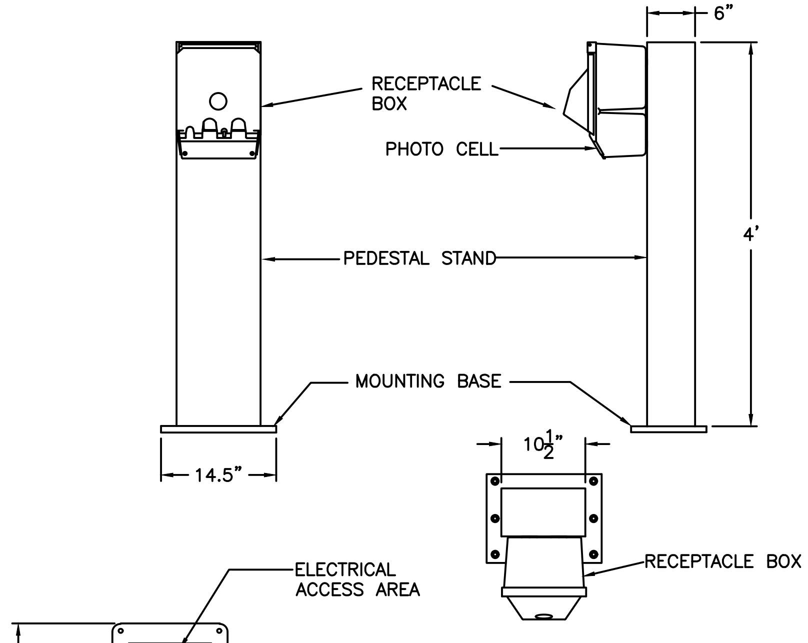
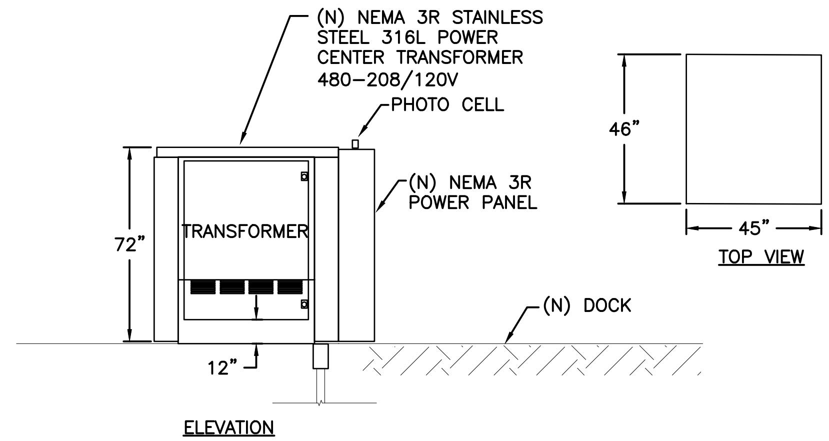
E-401
SHEET 37 OF 51



NOTE: NEWPORT TYPE POWER PEDESTAL: ALL LIGHTS AT PEDESTAL SHALL BE CONTROLLED BY PHOTOCELL AT POWER CENTER.

NEWPORT PEDESTAL ELEV
1 E-402

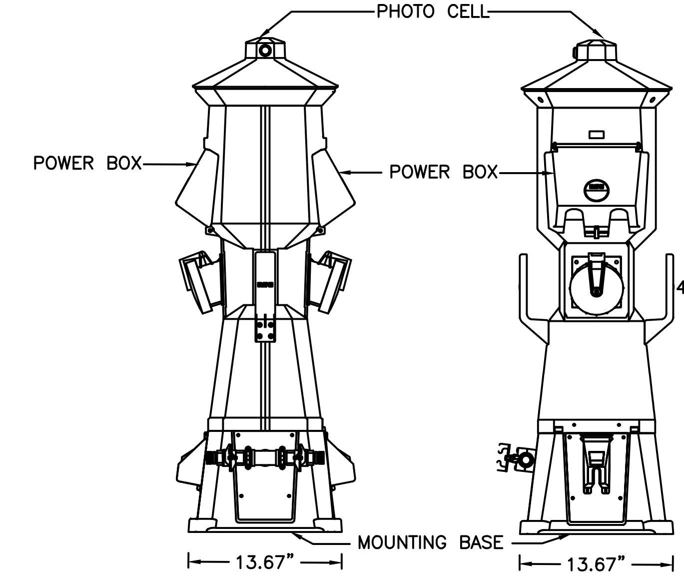
SCALE: NTS



NOTE:
1. DIMENSIONS ARE FOR REFERENCE ONLY.

POWER CENTER SUBSTATION
2 E-402

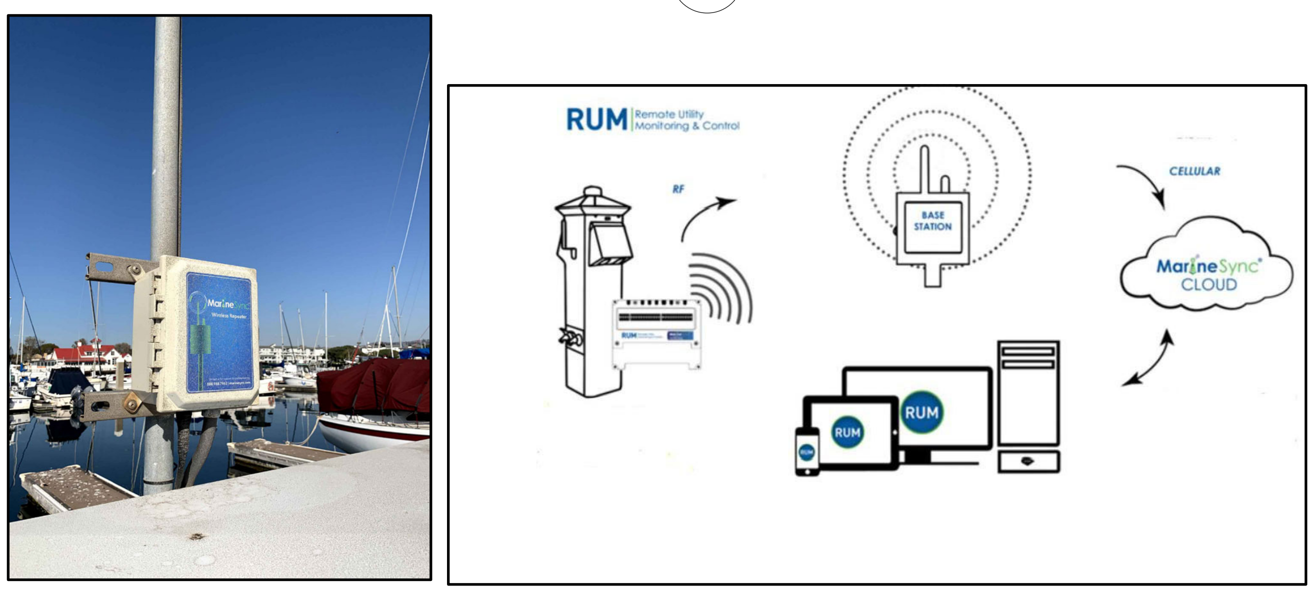
SCALE: NTS



LIGHTHOUSE PEDESTAL ELEV
6 E-402

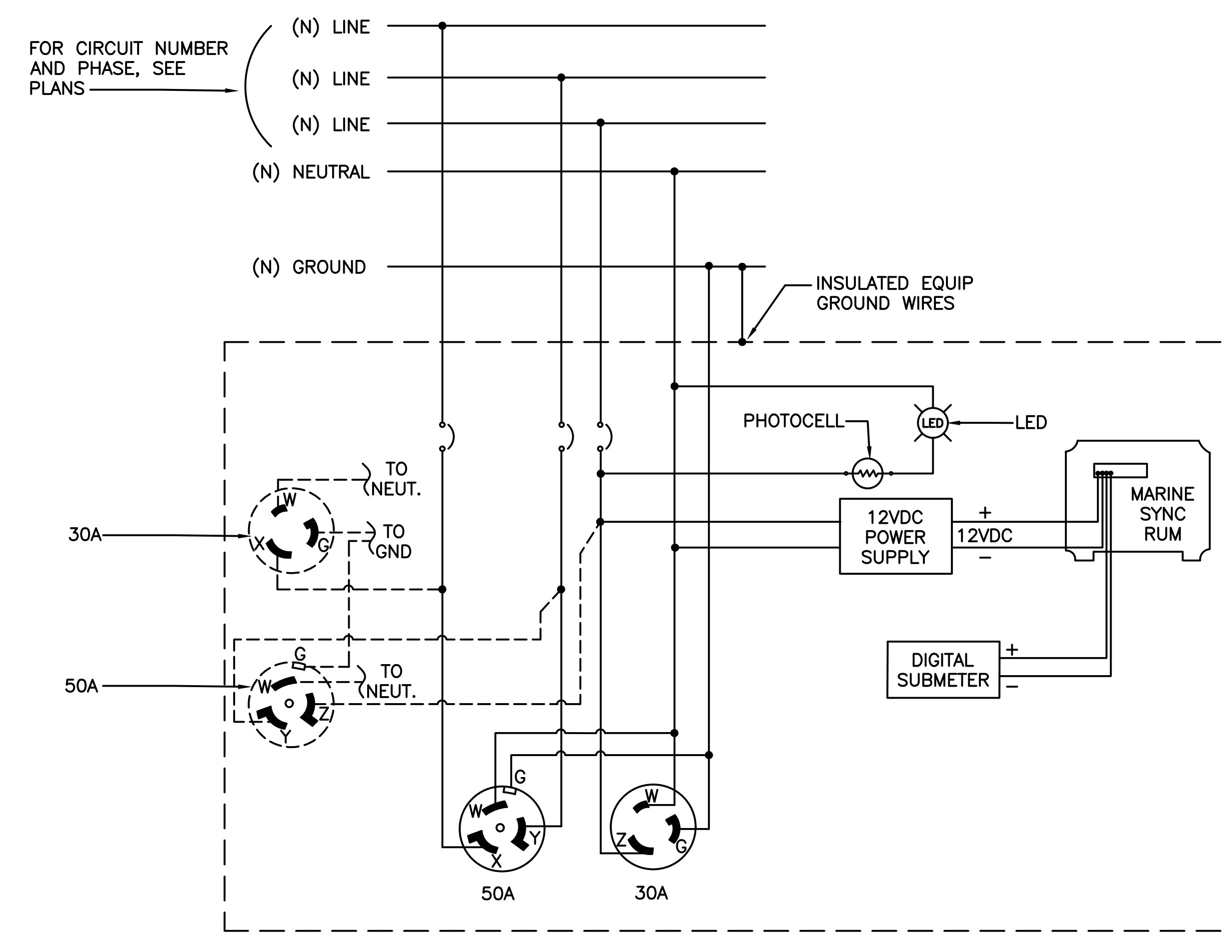
SCALE: NTS

DRAFT 90% Submittal



REMOTE UTILITY METERING COMMUNICATION DIAGRAM
3 E-402

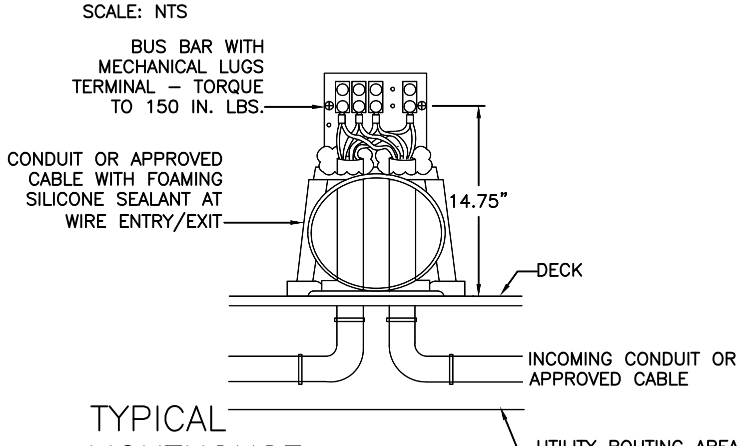
SCALE: NTS



LIGHTHOUSE AND NEWPORT POWER PEDESTAL TYPES

TYPICAL PEDESTAL WIRING CONNECTION
4 E-402

SCALE: NTS



TYPICAL LIGHTHOUSE WIRING CONNECTION
5 E-402

SCALE: NTS

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
B		05-12-2023	90% PROGRESS SUBMITTAL	GC
A		03-23-2023	60% PROGRESS SUBMITTAL	GC

PLOTTED BY: MINH TRAN PLOT DATE:5/12/2023 4:25:22 PM

YEI ENGINEERS

PROJECT MANAGER: DATE	DEPICTION OF MONUMENTS: DATE / SURVEY PARTY CHIEF	SUBMITTED: DATE R.C.E. EXP. / SUPERVISING CIVIL ENGINEER	DESIGN JH	HORIZ. NTS
0 1 2 3 FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES	WATERSHED REVIEW: DATE	APPROVED: DATE R.C.E. EXP. / CITY ENGINEER	DRAWN MT / CHECK GC / AS BUILT	VERT. / BOOK / DATE 05/12/23

CITY OF BERKELEY PARKS RECREATION & WATERFRONT 2180 MILVIA ST, BERKELEY, CA 944704

COWI 555 12th Street, 17th Flr Oakland, CA 94612 Tel.: 510.839.8972 Fax: 510.839.9715 Website: www.cowi-na.com

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA

ELECTRICAL DETAILS
SHEET 2 OF 2

PLAN
FILE
E-402
SHEET 38 OF 51

PANEL: PC1 — VOLTAGE: 208/120V, 3PH, 4W
BUS: — KAIC 22
MAIN: 400A — LOCATION: DOCK D
LUGS: — MOUNTING: PAD MOUNTED
NEMA 3R — REMARKS:

CKT	DESCRIPTION	CB	TYPE	LOAD	PH.	LOAD	TYPE	CB	DESCRIPTION	CKT
1			R	9607	A	9607	R			2
3	FEEDER #PC1-1	100/3	R	9607	B	9607	R	100/3	FEEDER #PC1-5	4
5			R	9607	C	9607	R			6
7			R	9607	A	9607	R			8
9	FEEDER #PC1-2	100/3	R	9607	B	9607	R	100/3	FEEDER #PC1-6	10
11			R	9607	C	9607	R			12
13			R	9607	A	9607	R			14
15	FEEDER #PC1-3	100/3	R	9607	B	9607	R	100/3	FEEDER #PC1-7	16
17			R	9607	C	9607	R			18
19			R	9607	A					20
21	FEEDER #PC1-4	100/3	R	9607	B			100/3	SPARE	22
23			R	9607	C					24
25	GANGWAY & DOCK LIGHTING	20/1	L	117	A				SPACE	26
27	GATE CONTROLLER/CARD READER	20/1	M	50	B				SPACE	28
29	SPARE	20/1			C				SPACE	30
31	SPACE				A				SPACE	32
33	SPACE				B				SPACE	34
35	SPACE				C				SPACE	36

Type:		Connected	Demand	Ph.	
C	Computer	–	–	A	67366
H	HVAC	–	–	B	67299
K	Kitchen	–	–	C	67249
L	Lighting	117	146		
M	Misc.	50	50		
R	Recept.	201,747	105,874		
	Total	201,914	106,070 =	294	Amps

PANEL: PC2 — VOLTAGE: 208/120V, 3PH, 4W
BUS: — KAIC 22
MAIN: 400A — LOCATION: DOCK D
LUGS: — MOUNTING: PAD MOUNTED
NEMA 3R — REMARKS:

CKT	DESCRIPTION	CB	TYPE	LOAD	PH.	LOAD	TYPE	CB	DESCRIPTION	CKT
1			R	9607	A	9607	R			2
3	FEEDER #PC2-1	100/3	R	9607	B	9607	R	100/3	FEEDER #PC2-5	4
5			R	9607	C	9607	R			6
7			R	9607	A	9607	R			8
9	FEEDER #PC2-2	100/3	R	9607	B	9607	R	100/3	FEEDER #PC2-6	10
11			R	9607	C	9607	R			12
13			R	9607	A	9607	R			14
15	FEEDER #PC2-3	100/3	R	9607	B	9607	R	100/3	FEEDER #PC2-7	16
17			R	9607	C	9607	R			18
19			R	9607	A	9607	R			20
21	FEEDER #PC2-4	100/3	R	9607	B	9607	R	100/3	FEEDER #PC2-8	22
23			R	9607	C	9607	R			24
25	BASE STATION	20/1	R	200	A			20/1	SPARE	26
27	SPARE	20/1			B			20/1	SPARE	28
29	SPARE	20/1			C			20/1	SPARE	30
31	SPACE				A				SPACE	32
33	SPACE				B				SPACE	34
35	SPACE				C				SPACE	36

Type:		Connected	Demand	Ph.	
C	Computer	–	–	A	77056
H	HVAC	–	–	B	76856
K	Kitchen	–	–	C	76856
L	Lighting	–	–		
M	Misc.	–	–		
R	Recept.	230,768	120,384		
	Total	230,768	120,384 =	334	Amps

PANEL: PC3 — VOLTAGE: 208/120V, 3PH, 4W
BUS: — KAIC 22
MAIN: 400A — LOCATION: DOCK E
LUGS: — MOUNTING: PAD MOUNTED
NEMA 3R — REMARKS:

CKT	DESCRIPTION	CB	TYPE	LOAD	PH.	LOAD	TYPE	CB	DESCRIPTION	CKT
1			R	9607	A	9607	R			2
3	FEEDER #PC3-1	100/3	R	9607	B	9607	R	100/3	FEEDER #PC3-5	4
5			R	9607	C	9607	R			6
7			R	9607	A	9607	R			8
9	FEEDER #PC3-2	100/3	R	9607	B	9607	R	100/3	FEEDER #PC3-6	10
11			R	9607	C	9607	R			12
13			R	9607	A	9607	R			14
15	FEEDER #PC3-3	100/3	R	9607	B	9607	R	100/3	FEEDER #PC3-7	16
17			R	9607	C	9607	R			18
19			R	9607	A					20
21	FEEDER #PC3-4	100/3	R	9607	B			100/3	SPARE	22
23			R	9607	C					24
25	DOCK LIGHTING	20/1	L	108	A				SPACE	26
27	SPARE	20/1			B				SPACE	28
29	SPARE	20/1			C				SPACE	30
31	SPACE				A				SPACE	32
33	SPACE				B				SPACE	34
35	SPACE				C				SPACE	36

Type:		Connected	Demand	Ph.	
C	Computer	–	–	A	67357
H	HVAC	–	–	B	67249
K	Kitchen	–	–	C	67249
L	Lighting	108	135		
M	Misc.	–	–		
R	Recept.	201,747	105,874		
	Total	201,855	106,009 =	294	Amps

PANEL: PC4 — VOLTAGE: 208/120V, 3PH, 4W
BUS: — KAIC 22
MAIN: 400A — LOCATION: DOCK E
LUGS: — MOUNTING: PAD MOUNTED
NEMA 3R — REMARKS:

CKT	DESCRIPTION	CB	TYPE	LOAD	PH.	LOAD	TYPE	CB	DESCRIPTION	CKT
1			R	9607	A	9607	R			2
3	FEEDER #PC4-1	100/3	R	9607	B	9607	R	100/3	FEEDER #PC4-5	4
5			R	9607	C	9607	R			6
7			R	9607	A	9607	R			8
9	FEEDER #PC4-2	100/3	R	9607	B	9607	R	100/3	FEEDER #PC4-6	10
11			R	9607	C	9607	R			12
13			R	9607	A	9607	R			14
15	FEEDER #PC4-3	100/3	R	9607	B	9607	R	100/3	FEEDER #PC4-7	16
17			R	9607	C	9607	R			18
19			R	9607	A	9607	R			20
21	FEEDER #PC4-4	100/3	R	9607	B	9607	R	100/3	FEEDER #PC4-8	22
23			R	9607	C	9607	R			24
25	BASE STATION	20/1	R	200	A			20/1	SPARE	26
27	SPARE	20/1			B			20/1	SPARE	28
29	SPARE	20/1			C			20/1	SPARE	30
31	SPACE				A				SPACE	32
33	SPACE				B				SPACE	34
35	SPACE				C				SPACE	36

Type:		Connected	Demand	Ph.	
C	Computer	–	–	A	77056
H	HVAC	–	–	B	76856
K	Kitchen	–	–	C	76856
L	Lighting	–	–		
M	Misc.	–	–		
R	Recept.	230,768	120,384		
	Total	230,768	120,384 =	334	Amps

DRAFT 90% Submittal

PLOTTED BY: MINH TRAN PLOT DATE: 5/12/2023 4:25:28 PM

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
B		05-12-2023	90% PROGRESS SUBMITTAL	GC
A		03-24-2023	60% PROGRESS SUBMITTAL	GC

YEI ENGINEERS

PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER R.C.E.
APPROVED: DATE
CITY ENGINEER R.C.E. EXP.
0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

DESIGN JG
DRAWN JG
CHECK GC
AS BUILT
HORIZ. NO SCALE
VERT.
BOOK
DATE 05/12/23

PARKS RECREATION & WATERFRONT
2180 MILVIA ST, BERKELEY, CA 94704

COWI
101 12th Street, 12th Fl Oakland, CA 94612
Tel.: 510.839.8972 Fax: 510.839.9715
www.cowi.com

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
ELECTRICAL PANEL SCHEDULES

PLAN
FILE
E-501
SHEET 39 OF 51

PANEL PC1 DOCK D

			RECEPTACLE LOADS																				
CIRCUIT ID	PHASE	VOLTAGE	20A GFI	30A 120V	50A 120V	50A 120/208V	100A 120/208V	TOTAL RECEPT	TOTAL REC. CURRENT	LOAD FACTOR	METER FACTOR	CONDUIT SIZE	CONDUIT FILL ADJ.	EFFECTIVE CURRENT	BREAKER TRIP	BREAKER FRAME	BREAKER POLES	WIRE LENGTH	WIRE TYPE	RESSISTANCE	# OF CONDUCTOR	WIRE SIZE	GROUND SIZE	VOLTAGE DROP %
1,3,5	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	130	THWN	0.1563	4	#2	#8	1.74%
7,9,11	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	150	THWN	0.1563	4	#2	#8	2.01%
13,15,17	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	170	THWN	0.1563	4	#2	#8	2.28%
2,4,6	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	220	THWN	0.1563	4	#2	#8	2.95%
8,10,12	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	230	THWN	0.1563	4	#2	#8	3.08%
14,16,18	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	250	THWN	0.1563	4	#2	#8	3.48%
20,22,24	3	120/208	0	2	0	2	0	4	80	100%	90%	2"	100%	72	100	225	3	60	THWN	0.1563	4	#2	#8	0.80%
19,21,23	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	150	THWN	0.1563	4	#2	#8	1.56%
PANEL	3	120/208	0	23	0	23	0	46	640	50%	90%	–	100%	288	400	400	3	Power Cntr						
FEEDER	3	480							276			2"	100%	124	225	225	3	130	THWN	0.49	3	#4/0	#4	1.42%

PANEL PC2 DOCK D

			RECEPTACLE LOADS																				
CIRCUIT ID	PHASE	VOLTAGE	20A GFI	30A 120V	50A 120V	50A 120/208V	100A 120/208V	TOTAL RECEPT	TOTAL REC. CURRENT	LOAD FACTOR	METER FACTOR	CONDUIT SIZE	CONDUIT FILL ADJ.	EFFECTIVE CURRENT	BREAKER TRIP	BREAKER FRAME	BREAKER POLES	WIRE LENGTH	WIRE TYPE	RESSISTANCE	# OF CONDUCTOR	WIRE SIZE	GROUND SIZE	VOLTAGE DROP %
1,3,5	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	80	THWN	0.1563	4	#2	#8	1.07%
7,9,11	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	30	THWN	0.1563	4	#2	#8	0.40%
13,15,17	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	30	THWN	0.1563	4	#2	#8	0.40%
2,4,6	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	90	THWN	0.1563	4	#2	#8	1.21%
8,10,12	3	120/208	0	2	0	2	0	4	80	100%	90%	2"	100%	72	100	225	3	110	THWN	0.1563	4	#2	#8	1.47%
14,16,18	3	120/208	0	2	0	2	0	4	80	100%	90%	2"	100%	72	100	225	3	160	THWN	0.1563	4	#2	#8	2.14%
20,22,24	3	120/208	0	2	0	2	0	4	80	100%	90%	2"	100%	72	100	225	3	160	THWN	0.1563	4	#2	#8	2.14%
19,21,23	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	80	THWN	0.1563	4	#2	#8	1.07%
PANEL	3	120/208	0	21	0	21	0	42	640	50%	90%	–	100%	288	400	400	3	Power Cntr						
FEEDER	3	480							276			2"	100%	124	225	225	3	377	THWN	0.49	3	#4/0	#4	3.02%

PANEL PC3 DOCK E

			RECEPTACLE LOADS																				
CIRCUIT ID	PHASE	VOLTAGE	20A GFI	30A 120V	50A 120V	50A 120/208V	100A 120/208V	TOTAL RECEPT	TOTAL REC. CURRENT	LOAD FACTOR	METER FACTOR	CONDUIT SIZE	CONDUIT FILL ADJ.	EFFECTIVE CURRENT	BREAKER TRIP	BREAKER FRAME	BREAKER POLES	WIRE LENGTH	WIRE TYPE	RESSISTANCE	# OF CONDUCTOR	WIRE SIZE	GROUND SIZE	VOLTAGE DROP %
1,3,5	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	100	THWN	0.1563	4	#2	#8	1.34%
7,9,11	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	120	THWN	0.1563	4	#2	#8	1.61%
13,15,17	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	140	THWN	0.1563	4	#2	#8	1.87%
2,4,6	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	220	THWN	0.1563	4	#2	#8	2.95%
8,10,12	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	230	THWN	0.1563	4	#2	#8	3.08%
14,16,18	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	260	THWN	0.1563	4	#2	#8	3.48%
20,22,24	3	120/208	0	2	0	2	0	4	80	100%	90%	2"	100%	72	100	225	3	60	THWN	0.1563	4	#2	#8	0.80%
19,21,23	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	160	THWN	0.1563	4	#2	#8	2.14%
PANEL	3	120/208	0	23	0	23	0	46	640	50%	90%	–	100%	288	400	400	3	Power Cntr						
FEEDER	3	480							276			2"	100%	124	225	225	3	275	THWN	0.49	3	#4/0	#4	2.20%

PANEL PC4 DOCK E

			RECEPTACLE LOADS																				
CIRCUIT ID	PHASE	VOLTAGE	20A GFI	30A 120V	50A 120V	50A 120/208V	100A 120/208V	TOTAL RECEPT	TOTAL REC. CURRENT	LOAD FACTOR	METER FACTOR	CONDUIT SIZE	CONDUIT FILL ADJ.	EFFECTIVE CURRENT	BREAKER TRIP	BREAKER FRAME	BREAKER POLES	WIRE LENGTH	WIRE TYPE	RESSISTANCE	# OF CONDUCTOR	WIRE SIZE	GROUND SIZE	VOLTAGE DROP %
1,3,5	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	70	THWN	0.1563	4	#2	#8	0.94%
7,9,11	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	40	THWN	0.1563	4	#2	#8	0.54%
13,15,17	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	40	THWN	0.1563	4	#2	#8	0.54%
2,4,6	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	120	THWN	0.1563	4	#2	#8	1.61%
8,10,12	3	120/208	0	2	0	2	0	4	80	100%	90%	2"	100%	72	100	225	3	120	THWN	0.1563	4	#2	#8	1.61%
14,16,18	3	120/208	0	2	0	2	0	4	80	100%	90%	2"	100%	72	100	225	3	160	THWN	0.1563	4	#2	#8	2.14%
20,22,24	3	120/208	0	2	0	2	0	4	80	100%	90%	2"	100%	72	100	225	3	160	THWN	0.1563	4	#2	#8	2.14%
19,21,23	3	120/208	0	3	0	3	0	6	80	100%	90%	2"	100%	72	100	225	3	80	THWN	0.1563	4	#2	#8	1.07%
PANEL	3	120/208	0	21	0	21	0	42	640	50%	90%	–	100%	288	400	400	3	Power Cntr						
FEEDER	3	480							276			2"	100%	124	225	225	3	580	THWN	0.49	3	#4/0	#4	3.89%

DRAFT 90% Submittal

PLOTTED BY: MINH TRAN PLOT DATE: 5/12/2023 4:25:34 PM

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
A		05-12-2023	90% PROGRESS SUBMITTAL	GC

YEI ENGINEERS

PROJECT MANAGER: DATE

0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF

WATERSHED REVIEW: DATE

SUBMITTED: DATE
R.C.E.
EXP.
SUPERVISING CIVIL ENGINEER

APPROVED: DATE
R.C.E.
EXP.
CITY ENGINEER

DESIGN JG
DRAWN JG
CHECK GC
AS BUILT

HORIZ. NO SCALE
VERT.
BOOK
DATE 05/12/23

CITY OF BERKELEY
PARKS RECREATION & WATERFRONT
2180 MILVIA ST, BERKELEY, CA 94704

COWI
939 12th Street, 12th Fl Oakland, CA 94612
Tel.: 510.839.8972 Fax: 510.839.9715
WEBSITE: www.cowi-na.com

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
ELECTRICAL LOAD CALCULATIONS

PLAN
FILE
E-502
SHEET 40 OF 51

FIRE PROTECTION LEGEND

SYMBOL	ABBREV	DESCRIPTION
		AREA OF WORK
	CW	DOMESTIC WATER
		DOUBLE CHECK VALVE BACKFLOW PREVENTER ASSEMBLY
		EXISTING EQUIPMENT OR PIPING TO REMAIN
		FIRE HYDRANT
		FIRE DEPARTMENT CONNECTION
FW	FW	FIRE WATER
		PIPE TEE UP
		PIPE TEE DOWN
		PIPE DOWN
		PIPE UP
	POC	POINT OF CONNECTION
	POD	POINT OF DISCONNECTION
P		PRESSURE GAUGE
		REMOVE EXISTING EQUIPMENT OR PIPING
	GV	GATE/ISOLATION VALVE
	U	UNION
	RED	REDUCER
	CH V	CHECK VALVE
		PIPE PENETRATION WITH SLEEVE
W	W	FLOW SWITCH

ABBREV. /SYMBOL	DESCRIPTION
APPROX	APPROXIMATE
℄	CENTER LINE
CFC	CALIFORNIA FIRE CODE
CONC	CONCRETE
CONN	CONNECT OR CONNECTION
CONT	CONTINUATION
DEPT	DEPARTMENT
DI	DUCTILE IRON
DIA/ø	DIAMETER
DIM	DIMENSION
DWG	DRAWING
(E)	EXISTING
EA	EACH
FDC	FIRE DEPARTMENT CONNECTION
FLR	FLOOR
FP	FIRE PROTECTION
FW	FIRE WATER
GA	GAUGE/ GAGE
GALV	GALVANIZED
GPM	GALLONS PER MINUTE
ID	INSIDE DIAMETER
M	METER
MAX	MAXIMUM
MIN	MINIMUM
NC	NORMALLY CLOSED
NFPA	NATIONAL FIRE PROTECTION AGENCY
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
OS&Y	OUTSIDE SCREW & YOKE
PD	PRESSURE DROP
PSIG	POUNDS PER SQUARE INCH GAUGE
QTY	QUANTITY
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
TEMP	TEMPERATURE

ABBREV	DESCRIPTION
THD	THREADED
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
U/G	UNDERGROUND
UL	UNDERWRITER'S LABORATORY
W/	WITH

A / FP1 FP2 / FP2, FP3 — SECTION IDENTIFICATION LETTER; DRAWING NUMBER ON WHICH SECTION IS DRAWN; DRAWING NUMBER(S) FROM WHICH SECTION IS TAKEN

A / — — SECTION IDENTIFICATION LETTER; SECTION IS TAKEN AND DRAWN ON SAME SHEET

2 / FP1 FP2 / FP2, FP3 — DETAIL IDENTIFICATION NUMBER; DRAWING NUMBER ON WHICH DETAIL IS DRAWN; DRAWING NUMBER(S) FROM WHICH DETAIL IS TAKEN

2 / — — DETAIL IDENTIFICATION NUMBER; DETAIL IS TAKEN AND DRAWN ON SAME SHEET

BACKFLOW PREVENTER

EQPM ID	LOCATION	AREA SERVE	TYPE	SIZE	SERVICE	REMARKS
				IN.		
RPBFP–1	OUTDOORS	REFER TO DRAWINGS	REDUCED PRESSURE PRINCIPLE/ZONE	4	FIRE HOSE FIRE WATER SUPPLY	SEE NOTES

NOTES:

1. AWWA C511, ASSE 1013 LISTED, DUCTILE IRON BODY, PROVIDE WITH TWO POSITIVE SEATING STAINLESS STEEL SEATED CHECK VALVES AND TWO WEDGE GATE OS&Y VALVES, MODULAR HYDRAULICALLY DEPENDENT DIFFERENTIAL RELIEF VALVE, AND BACKSIPHONAGE. PROVIDE WITH ANTICORROSION INHIBITOR PRIMER, MICROBRIAL INHIBITOR AND EPOXY–POLYESTER TOPCOAT. PROVIDE WITH OUTDOOR CORROSION RESISTANT COATED VANDAL PROOF CAGE ANCHORED TO CONCRETE PAD.

SITEWORK GENERAL NOTES

1. FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS, INCLUDING ALL EXISTINGUNDERGROUND UTILITIES PRIOR TO COMMENCING WORK AND COORDINATE WITH ALL OTHER TRADES. ALL DISCREPANCIES OR POTENTIAL PROBLEMS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND OWNER PRIOR TO INSTALLATION. THE BID SHALL CONTAIN UNIT PRICES OF ITEMS THAT MAY NEED TO BE REPLACED AND REINSTALLED.
2. IN CASE OF DIFFERENCE BETWEEN CODES, SPECIFICATIONS, STATE LAWS, LOCAL ORDINANCES, INDUSTRY STANDARDS, UTILITY COMPANY REGULATIONS, AND CONTRACT DOCUMENTS, THE MOST STRINGENT SHALL GOVERN. PROMPTLY NOTIFY THE OWNER IN WRITING OF ANY SUCH DIFFERENCE.
3. MATERIALS AND EQUIPMENT FURNISHED AND INSTALLED SHALL BE NEW, FREE FROM DEFECTS AND SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY THE OWNER. SHOULD ANY PROBLEMS DEVELOP DURING THE PERIOD DUE TO FAULTY WORKMANSHIP OR MATERIAL AND LABOR IT SHALL BE CORRECTED WITHOUT COST TO THE OWNER.
4. THE DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED TO DETERMINE THE EXACT LOCATION OF THE PIPING.
5. ALL PIPES AND FITTINGS UTILIZED IN WATER SUPPLY SYSTEMS SHALL ALSO CONFORM TO NSF 61 AS REQUIRED BY THE CALIFORNIA PLUMBING CODE.
6. COORDINATE INSTALLATION OF PIPING AND ACCESSORIES WITH OTHER TRADES PRIOR TO INSTALLATION.
7. PLANS ARE BASED ON ANTICIPATED EQUIPMENT SIZE AND CONFIGURATION. CONTRACTOR SHALL MODIFY ARRANGEMENT TO SUIT ACTUAL PURCHASED EQUIPMENT AS REQUIRED FOLLOWING THE CRITERIA ESTABLISHED BY THE PLAN. DEPARTURES FROM THE CONTRACT DRAWING RESULT FROM CHANGES IN EQUIPMENT SIZES AND CONFIGURATIONS, OR RE–ARRANGEMENTS TO ACCOMMODATE FIELD CONDITIONS, SHALL BE SUBMITTED IN DETAIL FOR THE ENGINEER'S APPROVAL.
8. NOTIFY ENGINEER AND OWNER AT LEAST ONE (1) WEEK IN ADVANCE TO COORDINATE SHUTDOWN FOR RECONNECTION TO (E) AFFECTED UTILITIES.
9. FIRE PROTECTION WATER PIPING AS SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC AND SHALL BE FABRICATED AND INSTALLED ON ACTUAL FIELD MEASUREMENT. FIRE PROTECTION WATER PIPING SHALL BE INSTALLED PROPERLY TO AVOID OTHER UTILITIES IN THE AREA OF WORK.
10. PROVIDE VALVE BOX AND COVER FOR ALL (N) VALVES INSTALLED UNDERGROUND. INSTALL VALVE BOXES AND COVERS PER MANUFACTURER'S RECOMMENDATION.
11. PROVIDE THRUST BLOCKS AND RESTRAINTS FOR THE (N) FIRE WATER PIPING.
12. TRACER WIRE SHALL BE RHW #10 AWG STRANDED. TRACER WIRE SHALL BE SECURELY FASTENED TO TOP OF NEW BURIED WATER LINES AND SHALL BE PLACED ALONG THE OUTSIDE OF VALVE BOX RISERS WITH ONE FOOT OF SLACK PLACE INSIDE OF VALVE BOX. WIRE SHALL TERMINATE IN EACH BOX IN THE DIRECTION OF THE VALVE CONTROLS.
13. CONDUCTIVITY TEST FOR TRACER WIRE SHALL BE PERFORMED AFTER BACKFILL AND COMPACTION.
14. FIREWATER ISOLATION VALVES SHALL BE ACCESSIBLE.
15. THE UNDERGROUND PIPING SYSTEM INSTALLATION SHALL BE IN ACCORDANCE WITH LATEST NFPA 24 AND SHALL BE INSTALLED BY EXPERIENCED C16 CONTRACTOR OR CLASS A GENERAL CONTRACTOR.
16. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITY PIPELINES SHOWN ON THE PLANS WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. APPROVAL OF THESE PLANS BY THE ENGINEER DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ACCURACY OR COMPLETENESS OF THE LOCATION OR THE EXISTENCE OF ANY UNDERGROUND UTILITIES WITHIN THE LIMITS OF THIS PROJECT. THE CONTRACTOR IS REQUIRED TO TAKE ALL DUE PRECAUTIONARY MEANS TO PROTECT THE UTILITIES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE, PROTECT, AND MAINTAIN ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THE DRAWINGS.
17. HYDROSTATIC TESTS OF ALL SYSTEMS SHALL BE CONDUCTED IN ACCORDANCE WITH THE SPECIFICATIONS AND NFPA 14 AND NFPA 24 REQUIREMENTS. THE ENTIRE INSTALLATION SHALL BE INSPECTED AND TESTED IN ACCORDANCE WITH NFPA 14 AND NFPA 24, AND APPROVED BY THE FIRE MARSHAL PRIOR TO FINAL ACCEPTANCE.

FIRE PROTECTION GENERAL NOTES

1. REFER TO SPECIFICATIONS FOR MATERIALS AND METHODS OF CONSTRUCTION.
2. WORK INCLUDES PROVISION OF COMPLETE FIRE PROTECTION FOR THE DOCKS. CONTRACTOR IS RESPONSIBLE FOR ALL WORK, INCLUDING SHOP DRAWINGS PREPARATION NECESSARY FOR COMPLETE OPERATING SYSTEM.
3. PERFORM ALL INSTALLATION WORK IN ACCORDANCE WITH THE LATEST EDITIONS OF NFPA 303 AND IN ACCORDANCE WITH THE CALIFORNIA BUILDING CODE AND CALIFORNIA FIRE CODE PROVISIONS.
4. FIELD VERIFICATION OF SYSTEM DESIGN AND LAYOUT PRIOR TO FABRICATION.
5. COMPLY WITH DIVISION 01 AND 21 SPECIFICATIONS FOR SUBMITTALS AND INSPECTION.
6. FIRE HOSE AND PIPING SYSTEMS INCLUDING FITTINGS AND HANGERS SHALL BE PROTECTED FROM CORROSION IN ACCORDANCE WITH NFPA 303 FIRE PROTECTION STANDARD FOR MARINAS AND BOATYARDS, CURRENT EDITION.
7. PROVIDE FIRE PROTECTION ENGINEER STAMPED FIRE SPRINKLER SHOP DRAWING PLAN(S) FOR FIRE MARSHAL'S APPROVAL.
8. PROVIDE FIRE PROTECTION SYSTEM FOR THE AREAS AS INDICATED ON THE DRAWINGS.
9. CONSTRUCTION SAFETY: ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF OSHA.
10. ALL COST FOR INSPECTION, TEST SERVICES, BUILDING PERMITS, LICENSES AND CERTIFICATES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR UNLESS NOTED OTHERWISE IN THE SPECIFICATIONS.
11. PROVIDE HANGERS AND SWAY BRACING AS REQUIRED PER THE LATEST EDITION OF NFPA 14, SPECIFICATION AND LOCAL CODES AND AMENDMENTS.
12. ELEVATIONS OF PIPING AND POINT OF CONNECTIONS ABOVE AND BELOW GROUND SHALL BE FIELD VERIFIED PRIOR TO START OF INSTALLATION.
13. COORDINATE THE LOCATION OF RISERS, PIPING AND OTHER FIRE WATER SYSTEM COMPONENTS WITH STRUCTURAL AND ELECTRICAL PORTIONS OF THE DOCKS.
14. COORDINATE INSTALLATION OF ALL EQUIPMENT AND PIPING WITH OTHER TRADES PRIOR TO INSTALLATION. CONTRACTOR SHALL COORDINATE EXACT LOCATION OF BACKFLOW PREVENTER AND FIRE HOSES PRIOR TO INSTALLATION.
15. ALL PIPE PENETRATIONS TO BE SEALED WITH SEALANT.
16. CONTRACTOR TO FIELD VERIFY SITE FOR FIRE PROTECTION SYSTEM.
17. PIPE HANGERS SHALL BE DESIGNED TO SUPPORT THE WEIGHT OF THE PIPE AND THE WEIGHT OF THE CONTENTS OF THE PIPE. REFER TO DETAILS ON DRAWINGS FOR ATTACHMENTS.
18. CHANGES OF PIPE DIRECTION SHALL BE ACCOMPLISHED BY THE USE OF FITTINGS SUITABLE FOR SPRINKLER SYSTEMS AS DEFINED BY NFPA 13 AND THE SPECIFICATIONS.

PLOTTED BY: MINH TRAN PLOT DATE: 5/12/2023 4:25:41 PM

DRAFT 90% Submittal

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
C		05–12–2023	90% PROGRESS SUBMITTAL	PM
B		03–23–2023	60% PROGRESS SUBMITTAL	PM
A		06–03–2022	30% PROGRESS SUBMITTAL	PM

YEI ENGINEERS

PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER
R.C.E. EXP.
0 1 2 3 FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES
WATERSHED REVIEW: DATE
APPROVED: DATE
CITY ENGINEER
R.C.E. EXP.

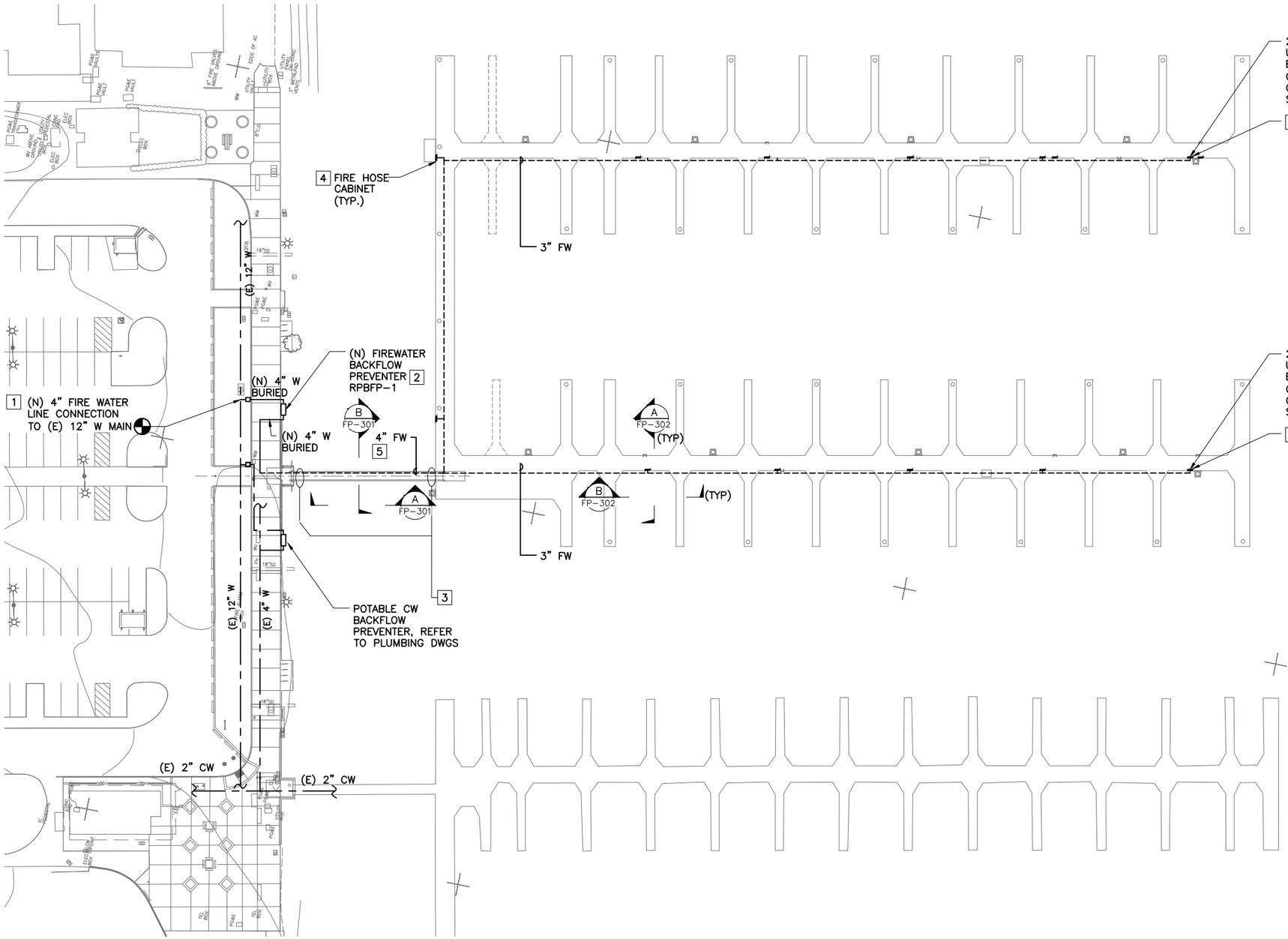
DESIGN B.H. DRAWN P.W. CHECK P.M. AS BUILT
HORIZ. AS SHOWN VERT. BOOK DATE 05/12/23

CITY OF BERKELEY PARKS RECREATION & WATERFRONT 2180 MLK JR. ST, BERKELEY, CA 94704

COWI 555 12th Street, 17th Flr Oakland, CA 94612 Tel: 510.839.4972 Fax: 510.839.9725 Website: www.cowi-na.com

BERKELEY MARINA DOCK REPLACEMENT (D–E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
FIRE PROTECTION GERNERAL NOTES, LEGEND AND ABBREVIATIONS

PLAN FILE FP–001
SHEET 41 OF 51



FIRE PROTECTION PLAN NEW WORK - DOCK 'D&E'

SCALE: 1" = 30'-0"

SHEET NOTES:

1. COORDINATE WITH EAST BAY MUNICIPAL UTILITY DISTRICT (EBMUD) FOR INSTALLATION AND PROPER CONNECTION TO NEW DEDICATED FIRE LINE BACKFLOW PREVENTER.
2. ALL GANGWAY AND DOCKS FIRE WATER LINES SHALL BE HDPE PIPE.
3. PROVIDE THRUST BLOCKS ON (N) UNDERGROUND FIRE WATER PIPE.
4. EBMUD WILL BE RESPONSIBLE FOR FURNISHING AND INSTALLING PIPE CONNECTION AT INDICATED POC LOCATION. PRIOR TO WORK, CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH CITY OF BERKELEY AND EBMUD FOR LOCATION OF BACKFLOW PREVENTER.

KEY NOTES:

1 CONTRACTOR TO FIELD VERIFY LOCATION OF EXISTING LANDSIDE WATERLINE. CONNECT (N) 4-INCH FIRE WATER LINE TO (E) MAIN WATER LINE BELOW GROUND.

2 PROVIDE (N) FIRE WATER DOUBLE CHECK BACKFLOW PREVENTER W/ FIRE DEPARTMENT CONNECTION. LOCATE NEW BACKFLOW PREVENTER ON (N) CONCRETE PAD PER STRUCTURAL DWGS.

3 PROVIDE FLEXIBLE HOSE ON FIRE WATER LINE WHERE GANGWAY JOINTS SHORE AND DOCKS. PROVIDE STAINLESS STEEL KELLUM GRIPS AT ALL FLEXIBLE CONNECTIONS AT GANGWAY.

4 PROVIDE (N) FIRE HOSE CABINETS ON DOCKS. CONNECT (N) FIRE WATER STANDPIPE TO FIRE HOSE CABINET.

5 PROVIDE (N) FIRE WATER PIPE UNDER GANGWAY TIGHT TO UNDERSIDE.

N

30' 0' 30' 60'

SCALE: 1"=30'-0"

DRAFT 90% Submittal

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REVISION	MARK	DATE	DESCRIPTION	APPROVAL
C		05-12-2023	90% PROGRESS SUBMITTAL	PM
B		03-23-2023	60% PROGRESS SUBMITTAL	PM
A		06-03-2022	30% PROGRESS SUBMITTAL	PM

YEI ENGINEERS

PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE R.C.E. EXP.
SUPERVISING CIVIL ENGINEER
APPROVED: DATE R.C.E. EXP.
CITY ENGINEER

0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

DESIGN B.H.
DRAWN P.W.
CHECK P.M.
AS BUILT

HORIZ. AS SHOWN
VERT.
BOOK
DATE 05/12/23

PARKS RECREATION & WATERFRONT
2180 MILVIA ST, BERKELEY, CA 94704

COWI
555 12th Street, 17th Flr Oakland, CA 94612
Tel.: 510.839.8972 Fax: 510.839.9715
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BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
FIRE PROTECTION PLAN NEW WORK
DOCK "D & E"

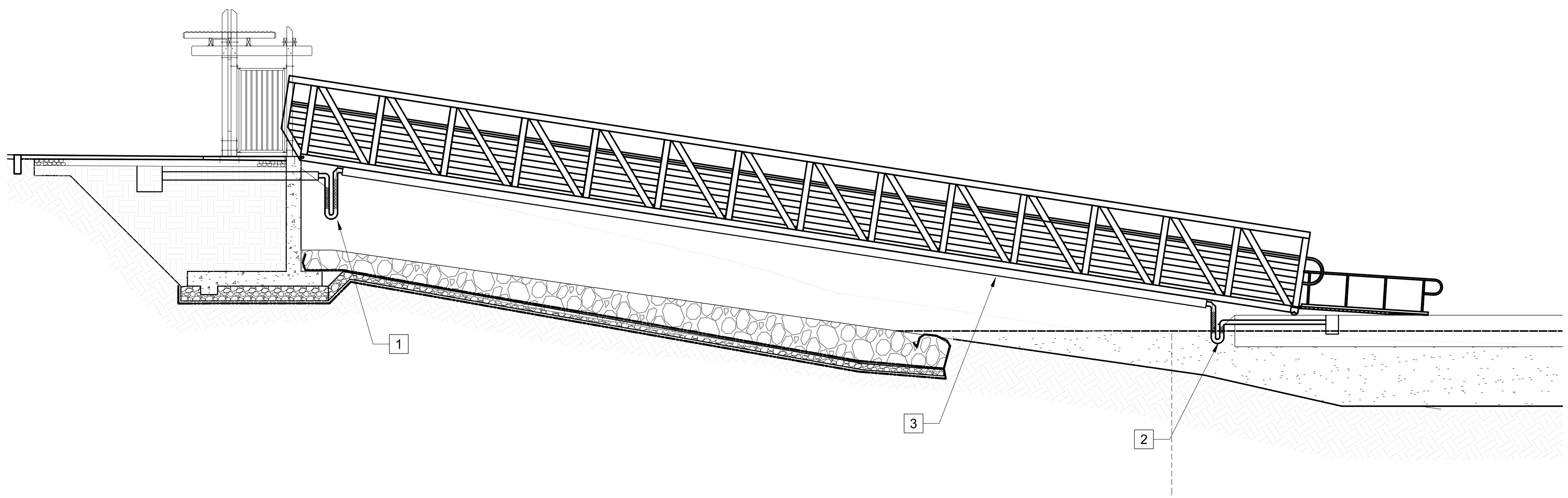
PLAN
FILE
FP-201
SHEET 42 OF 51

SHEET NOTES:

1. SEE SHEET FP001 FOR FIRE PROTECTION GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO STRUCTURAL DRAWINGS FOR DOCK STRUCTURES.
3. PROVIDE 316 SS HANGERS, PIPE CLAMPS AND BRACING FOR PIPING IN ACCORDANCE WITH CPC AND CBC. ANCHORS AND BOLTING SHALL BE 316 SS.

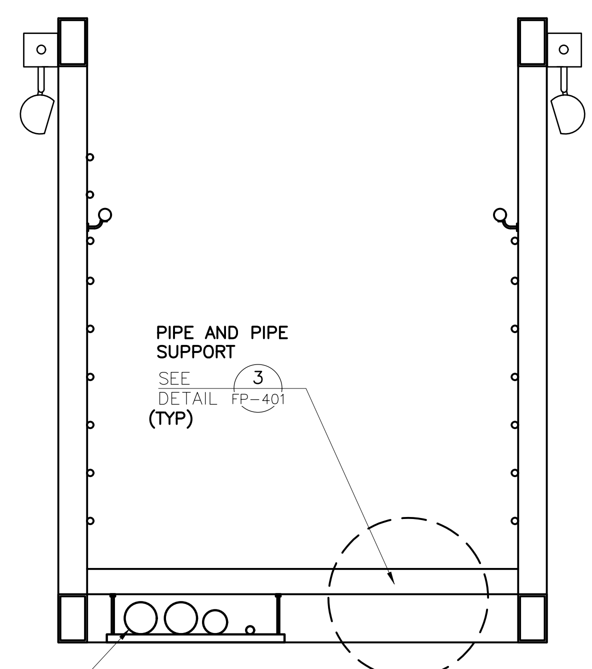
KEY NOTES:

1. PROVIDE FLEX LOOP CONNECTOR ON 3" FIREWATER BELOW GANGWAY AT INTERSECTION BETWEEN GANGWAY AND SHORE STRUCTURE
2. PROVIDE (N) FLEX LOOP CONNECTOR ON WATER PIPE UNDER GANGWAY, AT INTERSECTION OF GANGWAY AND DOCK.
3. 4"ø FIREWATER PIPELINE ALONG UNDERSIDE OF GANGWAY.



GANGWAY SECTION A FP-301

SCALE: 1" = 2'-0"



GANGWAY SECTION B FP-301

SCALE: 1" = 1'-0"

DRAFT 90% Submittal

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
A		05-12-2023	90% PROGRESS SUBMITTAL	PM

YEI ENGINEERS

PROJECT MANAGER: DATE
0 1 2 3 FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE R.C.E. EXP.
SUPERVISING CIVIL ENGINEER
APPROVED: DATE R.C.E. EXP.
CITY ENGINEER

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DRAWN P.W.
CHECK P.M.
AS BUILT

HORIZ. AS SHOWN
VERT.
BOOK
DATE 05/12/23

CITY OF BERKELEY
PARKS RECREATION & WATERFRONT
2180 MILVIA ST, BERKELEY, CA 944704

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555 12th Street, 17th Flr Oakland, CA 94612
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BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA

FIRE PROTECTION SECTIONS – SHEET 1 OF 2

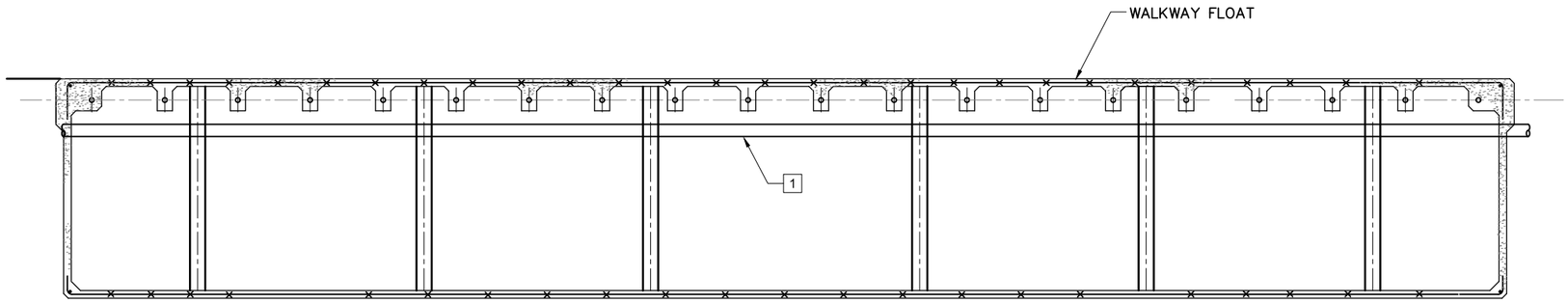
PLAN
FILE
FP-301
SHEET 43 OF 51

SHEET NOTES:

1. SEE SHEET FP001 FOR FIRE PROTECTION GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO STRUCTURAL DRAWINGS FOR DOCK STRUCTURES.
3. PROVIDE 316 SS HANGERS, PIPE CLAMPS AND BRACING FOR PIPING IN ACCORDANCE WITH CPC AND CBC. ANCHORS AND BOLTING SHALL BE 316 SS.

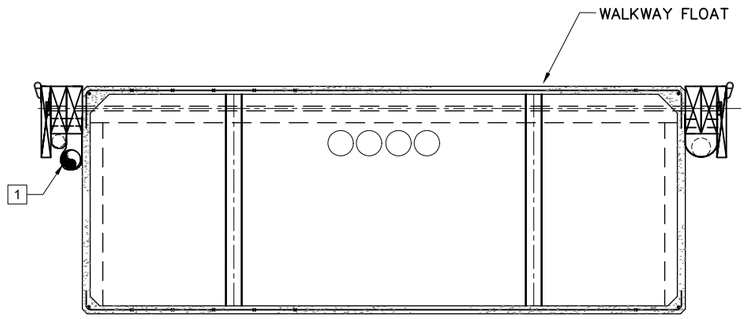
KEY NOTES:

1 3"ø FIREWATER PIPELINE ALONG UNDERSIDE OF WALKWAY WALER. ANCHOR PIPE TO BOTTOM OF WALER.



WALKWAY SECTION
SCALE: 1" = 1'-0"

A
FP-302



WALKWAY SECTION
SCALE: 1" = 1'-0"

B
FP-302

DRAFT 90% Submittal

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REVISION	MARK	DATE	DESCRIPTION	APPROVAL
A		05-12-2023	30% PROGRESS SUBMITTAL	PM

YEI ENGINEERS

PROJECT MANAGER: DATE
DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER R.C.E. EXP.
APPROVED: DATE
CITY ENGINEER R.C.E. EXP.
0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

DESIGN B.H.
DRAWN P.W.
CHECK P.M.
AS BUILT
HORIZ. AS SHOWN
VERT.
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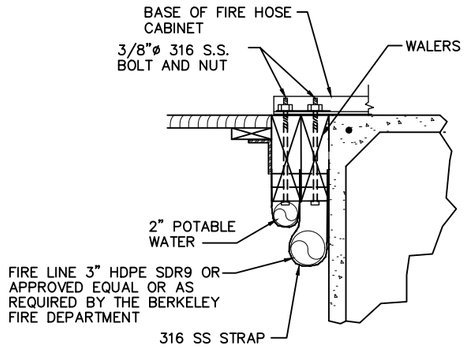
COWI
939 12th Street, 12th Fl Oakland, CA 94612
Tel.: 510.839.8972 Fax: 510.839.9715
WWW.COWI.COM

BERKELEY MARINA DOCK REPLACEMENT (D–E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
FIRE PROTECTION
SECTIONS – SHEET 2 OF 2

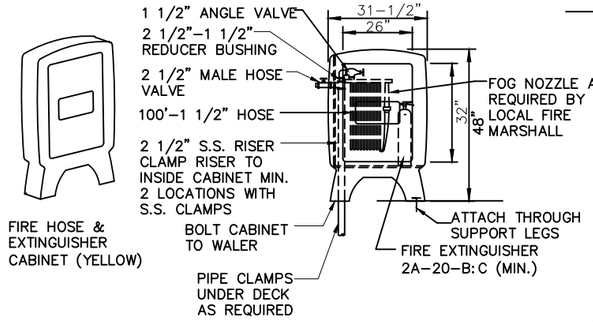
PLAN
FILE
FP–302
SHEET 44 OF 51



FIRE CABINET SUPPORT DETAIL 1

SCALE: NTS

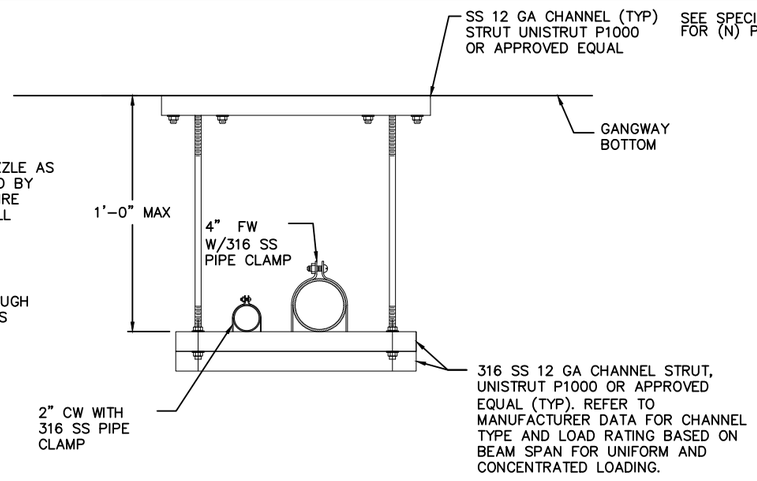
FP-401



FIRE HOSE CABINET DETAIL 2

SCALE: NTS

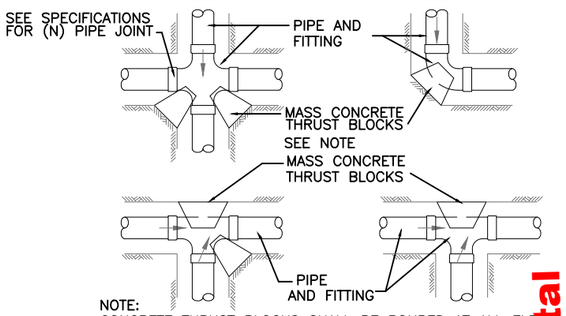
FP-401



GANGWAY PIPE SUPPORT DETAIL 3

SCALE: NTS

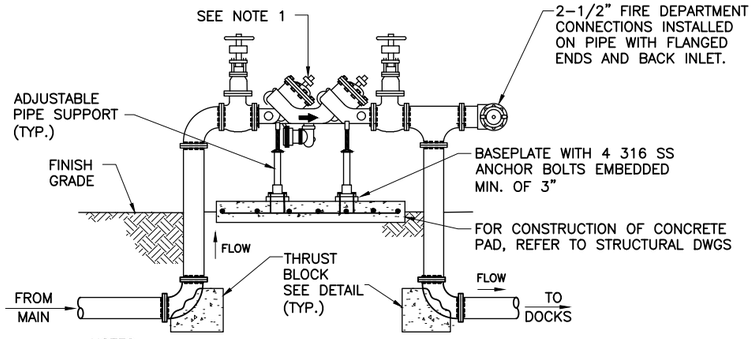
FP-401



NOTE:
CONCRETE THRUST BLOCKS SHALL BE POURED AT ALL ELBOWS, TEES, AND AT CAPPED OR PLUGGED ENDS OF LINE. CAST AGAINST UNDISTURBED SOIL OR FILL COMPACTED TO AT LEAST 90% STANDARD PROCTER DENSITY.

PIPE SIZE	BEARING AREA* OF THRUST BLOCKS			
IN.	90° ELL.-SF	45° ELL.-SF	TEES-SF	PLUG/CAP-SF
4	2	1.5	2	1.5
6	6	3	4	4
8	8	5	7	7
10	8	8	8	8

* FOR PIPE LINE PRESSURES OF 150 PSI IN 1500 PSF BEARING CAPACITY



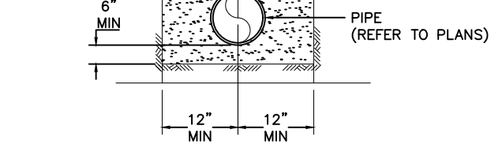
NOTES:

1. REDUCE PRESSURE BACKFLOW PREVENTER WITH OS&Y VALVES (WITH LOCK AND CHAIN) FOR FIRE PROTECTION SERVICE.
2. BACKFLOW PREVENTER INSTALLATION SHALL CONFORM TO LATEST NFPA 24 REQUIREMENTS.
3. FINAL LOCATION OF THE BACKFLOW PREVENTER SHALL BE COORDINATED WITH AND DETERMINED BY THE CITY OF BERKELEY AND EBMUD. CONTRACTOR SHALL INSTALL THE BACKFLOW PREVENTER ASSEMBLY AS DIRECTED BY THE CITY IN THE FIELD.

FIRE WATER BACKFLOW PREVENTER ASSEMBLY 5

SCALE: NTS

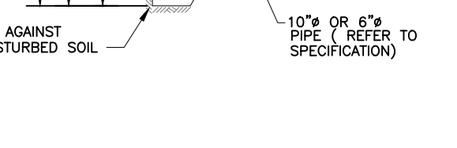
FP-401



TYPICAL FIREWATER TRENCH DETAIL 6

SCALE: NTS

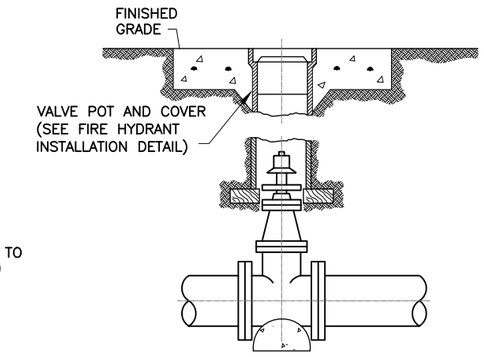
FP-401



TYPICAL ANCHOR BLOCK FOR PIPE 7

SCALE: NTS

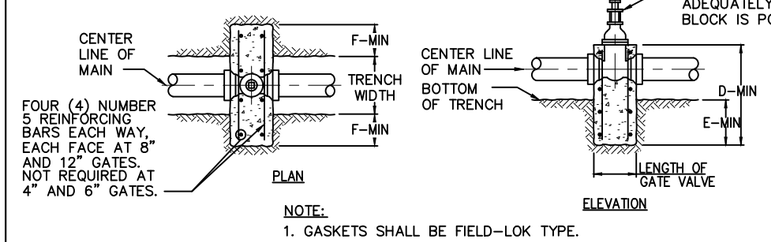
FP-401



TYPICAL VALVE DETAIL 8

SCALE: NTS

FP-401



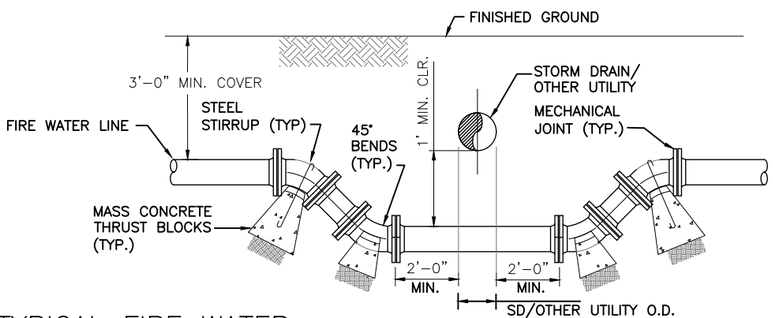
NOTE:
1. GASKETS SHALL BE FIELD-LOK TYPE.

THRUST BLOCK AT GATE VALVES			
SIZE (IN)	"D" (IN)	"E" (IN)	"F" (IN)
4	12	4	6
6	18	8	6
8	24	12	6
12	36	18	12

THRUST BLOCK AT AGTE VALVES 9

SCALE: NTS

FP-401



TYPICAL FIRE WATER LINE CROSSING STORMDRAIN/OTHER UTILITIES DETAIL 10

SCALE: NTS

FP-401

DRAFT 90% Submittal

REVISION	MARK	DATE	DESCRIPTION
A		05-12-2023	90% PROGRESS SUBMITTAL

PLOTTED BY: MINH TRAN PLOT DATE: 5/12/2023 4:26:29 PM

PM APPROVAL

YEI ENGINEERS

PROJECT MANAGER: DATE
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SURVEY PARTY CHIEF
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SUPERVISING CIVIL ENGINEER R.C.E. EXP.
APPROVED: DATE
CITY ENGINEER R.C.E. EXP.
0 1 2 3 FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

DESIGN B.H. DRAWN P.W. CHECK P.M. AS BUILT
HORIZ. AS SHOWN VERT. BOOK DATE 05/12/23

PARKS RECREATION & WATERFRONT 2180 MLK JR. ST, BERKELEY, CA 94704

COWI 550 12th Street, 17th Fl• Oakland, CA 94612 Tel.: 510.839.8972 Fax: 510.839.9715 Website: www.cowi-na.com

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
FIRE PROTECTION DETAILS

PLAN FILE FP-401 SHEET 45 OF 51

PLUMBING LEGEND

SYMBOL	ABBR.	DESCRIPTION
	(E)	EXISTING PIPE
	(N)	NEW PIPE
	CW	DOMESTIC COLD WATER PIPE
D	D	DRAIN PIPE
		SLOPE
		ELBOW DOWN
		ELBOW UP
		ELBOW DOWN
		ELBOW UP
		TEE DOWN
		TEE UP
	RED	REDUCER
	POC	POINT OF CONNECTION
	POD	POINT OF DEMOLITION
	BV	BALL VALVE - FULL PORT
	HB	HOSE BIB
		VALVE
	PRV	PRESSURE REDUCING VALVE
M	M	METER
	WHA	WATER HAMMER ARRESTER
	GAL	GALLON
	GPH	GALLON PER HOUR
	IN	INCH
	DIA	DIAMETER
	FT	FEET
	MSS SP-58	PIPE HANGERS AND SUPPORTS - MATERIALS, DESIGN AND MANUFACTURE
	MSS SP-69	PIPE HANGERS AND SUPPORTS - SELECTION AND APPLICATION
	BG	BELOW GROUND
A XX XX		SECTION REFERENCE SYMBOL
A		SECTION IDENTIFICATION LETTER
XX XX		SHEET NUMBER ON WHICH SECTION IS DRAWN
		SHEET NUMBER(S) FROM WHICH SECTION IS TAKEN

GENERAL PLUMBING NOTES

1. EXAMINE ALL DRAWINGS & FIELD VERIFY ELECTRICAL AND PLUMBING CONDITIONS PRIOR TO WORK & REPORT ANY DISCREPANCIES IN WRITING TO CONSTRUCTION MANAGER AS NOTED. VERIFY AT PROJECT SITE EXACT SIZE, LOCATION, INVERT ELEVATION, AND CLEARANCE OF ALL EXISTING SERVICES BEING EXTENDED, RELOCATED, OR REMOVED.
2. THE DRAWINGS ARE DIAGRAMMATIC & SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION OF PLUMBING & EQUIPMENT.
3. ADVISE THE ENGINEER IN WRITING IN THE EVENT A CONFLICT OCCURS BETWEEN THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND ACTUAL FIELD CONDITIONS. THE CONTRACTOR SHALL BEAR ALL COSTS FOR RELOCATION OF EQUIPMENT PIPING, ETC., FROM FAILURE TO PROPERLY COORDINATE INSTALLATIONS AND ADVISE OF THE CONFLICT IN WRITING PRIOR TO INSTALLATION.
4. CONTRACTOR IS TO MAINTAIN RECORDED "AS-BUILT" INFORMATION ON ALL EXISTING SERVICES UNCOVERED DURING CONSTRUCTION AND ALL NEW SERVICES BEING INSTALLED. "AS-BUILT" INFORMATION SHALL BE CLEARLY MARKED IN COLORED PENCIL ON A BLUE PRINT OF CONTRACT DRAWING. RECORDED INFORMATION SHALL INCLUDE ROUTING AND INVERT ELEVATIONS. AT THE COMPLETION OF THE CONTRACT, THE CONTRACTOR SHALL TURN RECORDED "AS-BUILT" INFORMATION OVER TO THE ENGINEER.
5. PLANS ARE BASED ON ANTICIPATED PIPING AND EQUIPMENT SIZE AND CONFIGURATION. CONTRACTOR SHALL MODIFY ARRANGEMENT TO SUIT ACTUAL PURCHASED PIPING AND EQUIPMENT AS REQUIRED FOLLOWING THE CRITERIA ESTABLISHED BY THE PLANS AND SPECIFICATIONS. DEPARTURES FROM THE CONTRACT DRAWINGS AND SPECIFICATIONS RESULT FROM CHANGES IN EQUIPMENT SIZES AND CONFIGURATIONS, OR RE-ARRANGEMENTS TO ACCOMMODATE FIELD CONDITIONS, SHALL BE SUBMITTED IN DETAIL FOR THE ENGINEER'S APPROVAL.
6. SECURELY FASTEN ALL PIPING TO THE STRUCTURE CONSTRUCTION BY MEANS OF HANGERS, SUPPORTS, GUIDES, ANCHORS, AND SWAY BRACES TO MAINTAIN PIPE ALIGNMENT, TO PREVENT SAGGING, AND TO PREVENT NOISE AND EXCESSIVE STRAIN ON PIPING DUE TO MOVEMENT UNDER OPERATING CONDITIONS. ALL PLUMBING EQUIPMENT SHALL BE BRACED OR ANCHORED TO RESIST A HORIZONTAL FORCE ACTING IN ANY DIRECTION USING THE FOLLOWING CRITERIA: THE TOTAL DESIGN LATERAL SEISMIC FORCE SHALL BE DETERMINED FROM CBC 1613A. FORCES SHALL BE APPLIED IN THE HORIZONTAL DIRECTIONS THAT WILL RESULT IN THE MOST CRITICAL LOADING FOR DESIGN. WHERE ANCHORAGE DETAILS AND LOCATIONS ARE NOT SPECIFICALLY SHOWN ON THE PLANS, THE FIELD INSTALLATION SHALL BE SUBJECT TO REVIEW AND APPROVAL OF THE ENGINEER OF RECORD. SUPPORTS FOR ALL PIPING SHALL BE IN ACCORDANCE WITH LATEST SMACNA GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PIPING SYSTEMS AND MSS SP-58 AND SP-69.
7. ALL PIPES AND FITTINGS UTILIZED IN WATER SUPPLY SYSTEMS SHALL ALSO CONFORM TO NSF 61 AS REQUIRED BY THE LATEST CALIFORNIA PLUMBING CODE.
8. COORDINATE INSTALLATION OF ALL EQUIPMENT, PIPING AND ACCESSORIES WITH OTHER TRADES PRIOR TO INSTALLATION. CONTRACTOR SHALL COORDINATE EXACT LOCATION OF CONTROL DEVICES AND VALVE BOXES PRIOR TO INSTALLATION.
9. ARRANGE ALL PIPING WITHIN STRUCTURES NEATLY ALONG WALLS AND/OR IN NEAT, HORIZONTAL GROUPS AND MAINTAIN REQUIRED SLOPES.
10. PROVIDE A SUPPORT CLAMP OR HANGER NOT MORE THAN 12-INCHES FROM THE POINT OF CHANGE OF DIRECTION OF A PIPE RUN IN BOTH HORIZONTAL AND VERTICAL PLANE.
11. PIPE HANGERS SHALL BE DESIGNED TO SUPPORT THE WEIGHT OF THE PIPE AND THE WEIGHT OF THE CONTENTS OF THE PIPE. PROVIDE ADEQUATE SUPPORT FOR ALL PARTS OF THE PIPING SYSTEM. PIPE HANGERS SPACING AND ROD SIZES SHALL BE IN ACCORDANCE WITH CALIFORNIA PLUMBING CODE 313. REFER TO DETAILS ON DRAWINGS FOR HANGERS AND ATTACHMENTS.
10. CONNECTION BETWEEN DISSIMILAR MATERIAL PIPES SHALL BE MADE WITH DIELELETRIC ISOLATING UNIONS, OR GASKETED FLANGES WITH ISOLATED THROUGH BOLTS.
11. PERFORM ALL INLET AND DISCHARGE PIPING DESIGN TO PROVIDE SMOOTH FLOW WITH UNIFORM VELOCITY OVER THE ENTIRE AREA OF PIPING.
12. CONTRACTOR SHALL PROTECT THE PIPING TO PREVENT ENTRY OF DIRT AND ANY OTHER FOREIGN MATERIAL DURING THE INSTALLATION.
13. UNIONS SHALL BE PROVIDED FOR EACH SCREW-TYPE VALVE AND EQUIPMENT CONNECTION.
14. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST CALIFORNIA BUILDING CODE AND CALIFORNIA PLUMBING CODE.

BACKFLOW PREVENTER

EQPM ID	LOCATION	AREA SERVE	TYPE	SIZE IN.	SERVICE	REMARKS
BFP-1	OUTDOORS	REFER TO DRAWINGS	REDUCED PRESSURE ZONE	2	DOMESTIC COLD WATER	SEE NOTES

NOTES:
1. AWWA C511, BRONZE BODY, PROVIDE WITH TWO POSITIVE SEATING CHECK VALVES, HYDRAULICALLY DEPENDENT DIFFERENTIAL RELIEF VALVE, AND BACKSIPHONAGE. PROVIDE WITH OUTDOOR CORROSION RESISTANT COATED VANDAL PROOF CAGE ANCHORED TO CONCRETE PAD.

DRAFT 90% Submittal

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B		05-12-2023	90% PROGRESS SUBMITTAL	PM
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		06-03-2022	30% PROGRESS SUBMITTAL	

YEI ENGINEERS

PROJECT MANAGER: DATE
0 1 2 3
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DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF

WATERSHED REVIEW: DATE

SUBMITTED: DATE R.C.E. EXP.
SUPERVISING CIVIL ENGINEER

APPROVED: DATE R.C.E. EXP.
CITY ENGINEER

DESIGN B.H.
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CHECK P.M.
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VERT.
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DATE 05/12/23

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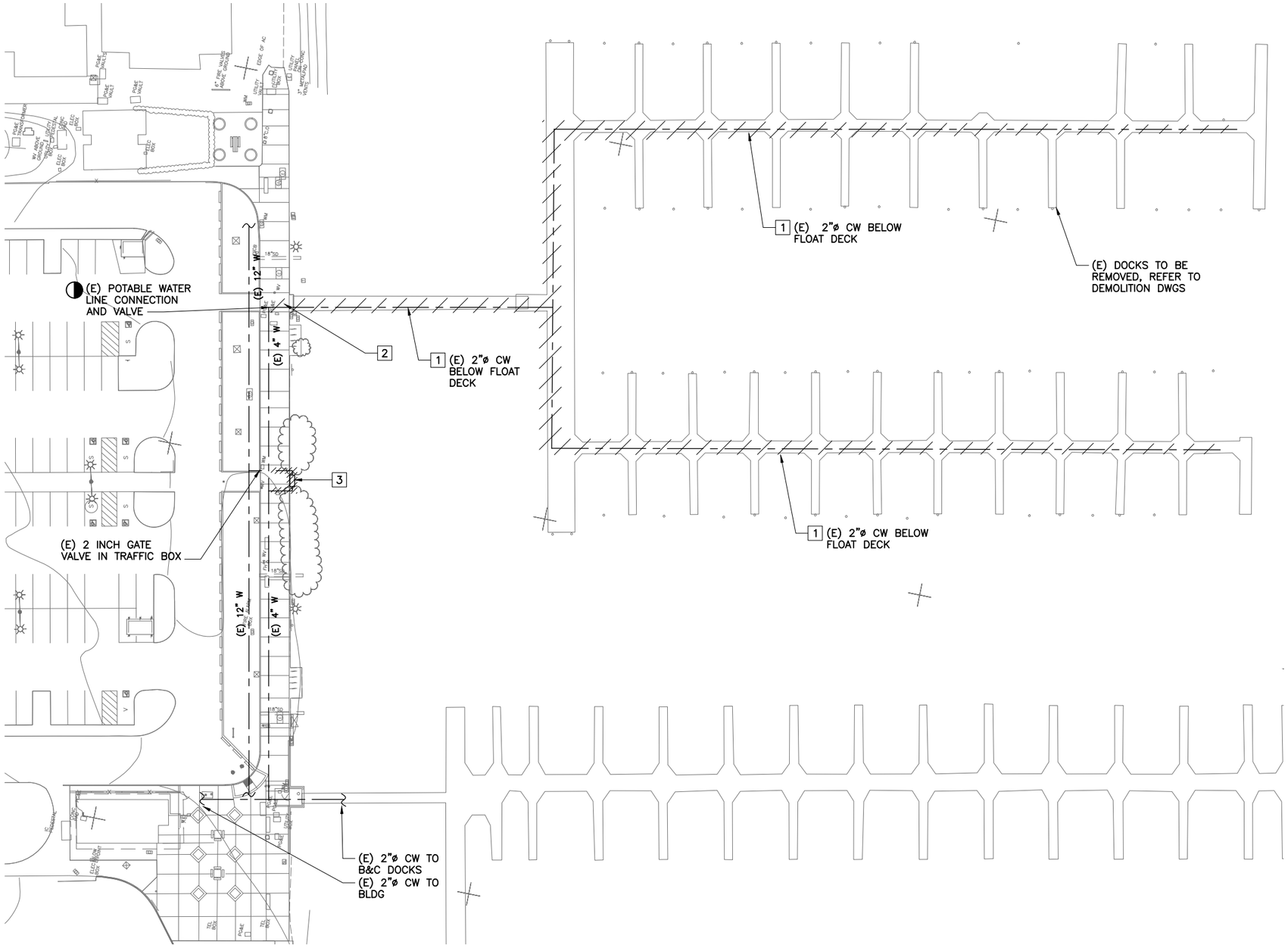
2180 MLK JR. WAY, BERKELEY, CA 94704

COWI
550 12th Street, 17th Fl Oakland, CA 94612
Tel.: 510.839.8972 Fax: 510.839.9715
Website: www.cowi-na.com

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
PLUMBING GENERAL NOTES, LEGEND AND ABBREVIATIONS

PLAN
FILE
P-001
SHEET 46 OF 51



PLUMBING PLAN DEMOLITION WORK - DOCK 'D&E'

SCALE: 1" = 30'-0"

SHEET NOTES:

1. SEE SHEET P001 FOR PLUMBING PROTECTION GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. CONTRACTOR SHALL VISIT THE SITE TO FULLY ASSESS THE EXTENT OF NEW WORK PRIOR TO BIDDING.
3. COORDINATE ALL WORK AND SHUTDOWNS WITH OWNER.

KEY NOTES:

1 DEMOLISH ALL (E) DOCK POTABLE WATER PIPING, HOSE BIBS, FITTINGS, PIPE SUPPORTS AND APPURTENANCES.

2 DEMOLISH (E) POTABLE WATER UNDERGROUND TO (E) WATER VALVE AND CAP AT DOWNSTREAM SIDE OF WATER VALVE. FILL TRENCH AND RESURFACE TO MATCH ADJACENT SURFACING.

3 DEMOLISH (E) BACKFLOW PREVENTER ASSEMBLY AND RECONNECT PIPING FOR CONTINUATION OF THE WATER SERVICE AT NEW BACKFLOW PREVENTER LOCATION. REFER TO CIVIL DWGS FOR REPAIR OF THE DISTURBED SURFACE.

N

30' 0' 30' 60'

SCALE: 1"=30'-0"

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YEI ENGINEERS

PROJECT MANAGER: DATE

DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF

WATERSHED REVIEW: DATE

SUBMITTED: DATE
R.C.E.
SUPERVISING CIVIL ENGINEER EXP.

APPROVED: DATE
R.C.E.
CITY ENGINEER EXP.

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DATE 05/12/23

CITY OF BERKELEY
PARKS RECREATION & WATERFRONT
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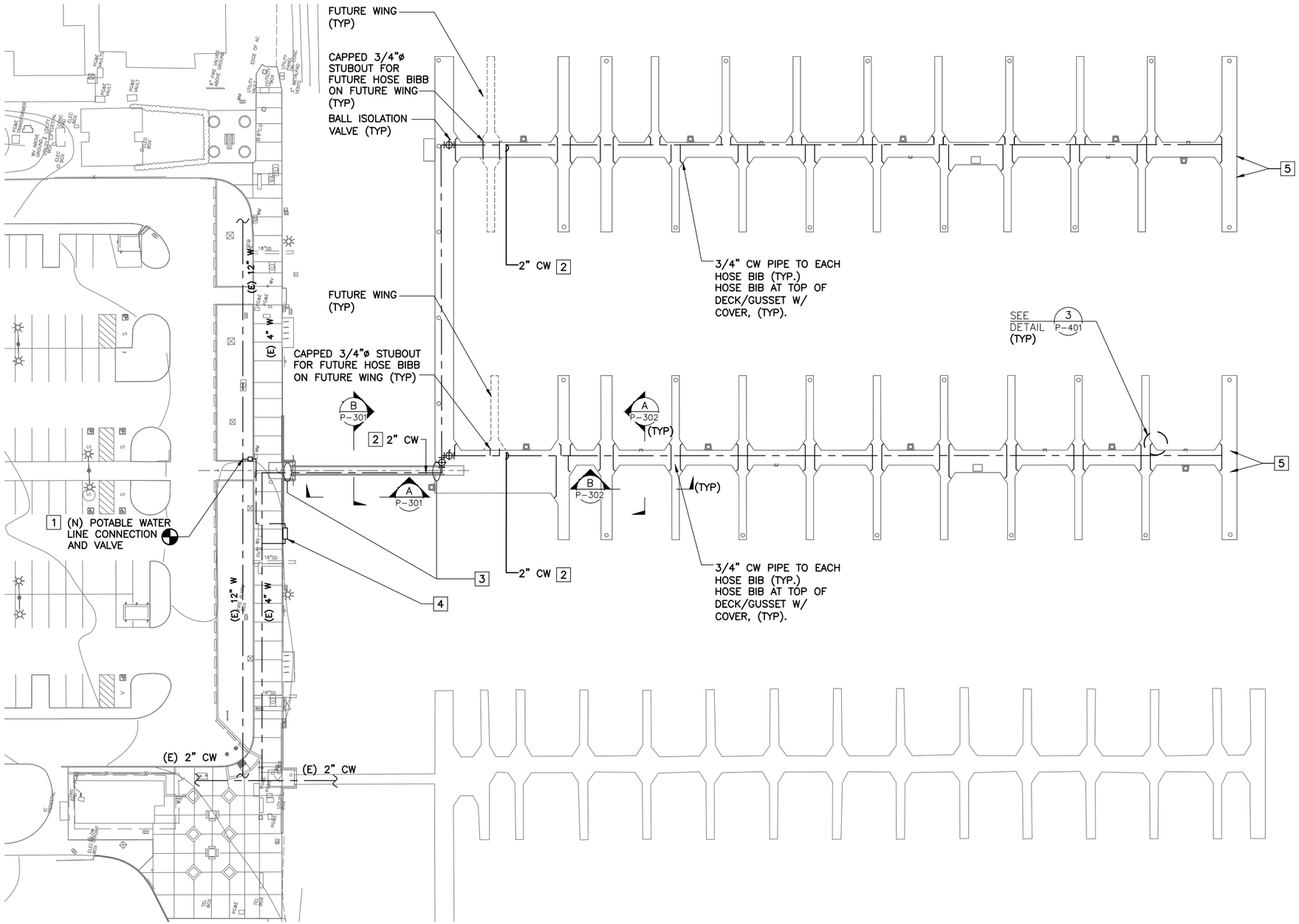
939 12th Street, 12th Fl Oakland, CA 94612
Tel.: 510.839.0972 Fax: 510.839.9715
WEBSITE: www.cowi.na.com

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
PLUMBING PLAN DEMOLITION WORK
DOCK "D & E"

PLAN
FILE
P-101
SHEET 47 OF 51



PLUMBING PLAN NEW WORK - DOCK 'D&E'

SCALE: 1" = 30'-0"

SHEET NOTES:

1. SEE SHEET P001 FOR PLUMBING PROTECTION GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. CONTRACTOR SHALL VISIT THE SITE TO FULLY ASSESS THE EXTENT OF NEW WORK PRIOR TO BIDDING.
3. COORDINATE ALL WORK AND SHUTDOWNS WITH OWNER.
4. REFER TO STRUCTURAL DRAWINGS FOR DOCK STRUCTURES.
5. PROVIDE 316 SS HANGERS, PIPE CLAMPS AND BRACING FOR PIPING IN ACCORDANCE WITH CPC AND CBC. ANCHORS AND BOLTING SHALL BE 316 SS.
6. (N) POTABLE WATER LINES SHALL BE SCHEDULE 80 PVC.

KEY NOTES:

1 CONTRACTOR TO FIELD VERIFY LOCATION OF EXISTING LANDSIDE WATERLINE AND PROVIDE NEW POTABLE WATER ISOLATION VALVE IN SIDEWALK NEAR NEW GANGWAY.

2 MAIN LINE WATER LINE SHALL BE GLUED. ABOVEGROUND WATER LINES TO HOSE BIBS SHALL BE THREADED NIPPLES AND FITTINGS. ALL OTHER LATERAL CONNECTIONS SHALL BE GLUED.

3 PROVIDE (N) FLEX CONNECTOR ON WATER PIPE UNDER GANGWAY, AT INTERSECTION OF GANGWAY AND DOCK.

4 PROVIDE (N) 2" REDUCED PRINCIPLE BACKFLOW PREVENTER ASSEMBLY INCLUDING PAINTED CAGE WITH LOCK FOR SECURING THE EQUIPMENT. CONNECT PIPING TO THE UNDERGROUND PIPING. ADD CONCRETE PAD TO SECURE THE CAGE.

5 PROVIDE (N) HOSE BIB.

N

30' 0' 30' 60'

SCALE: 1"=30'-0"

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YEI ENGINEERS

PROJECT MANAGER: DATE

0 1 2 3
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WATERSHED REVIEW: DATE

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SUPERVISING CIVIL ENGINEER R.C.E. EXP.

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CITY OF BERKELEY
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500 12th Street, 270-Fl Oakland, CA 94612
Tel.: 510.835.8572 Fax: 510.835.9715
www.cowi.com

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
PLUMBING PLAN NEW WORK
DOCK "D & E"

PLAN
FILE
P-201
SHEET 48 OF 51

SHEET NOTES:

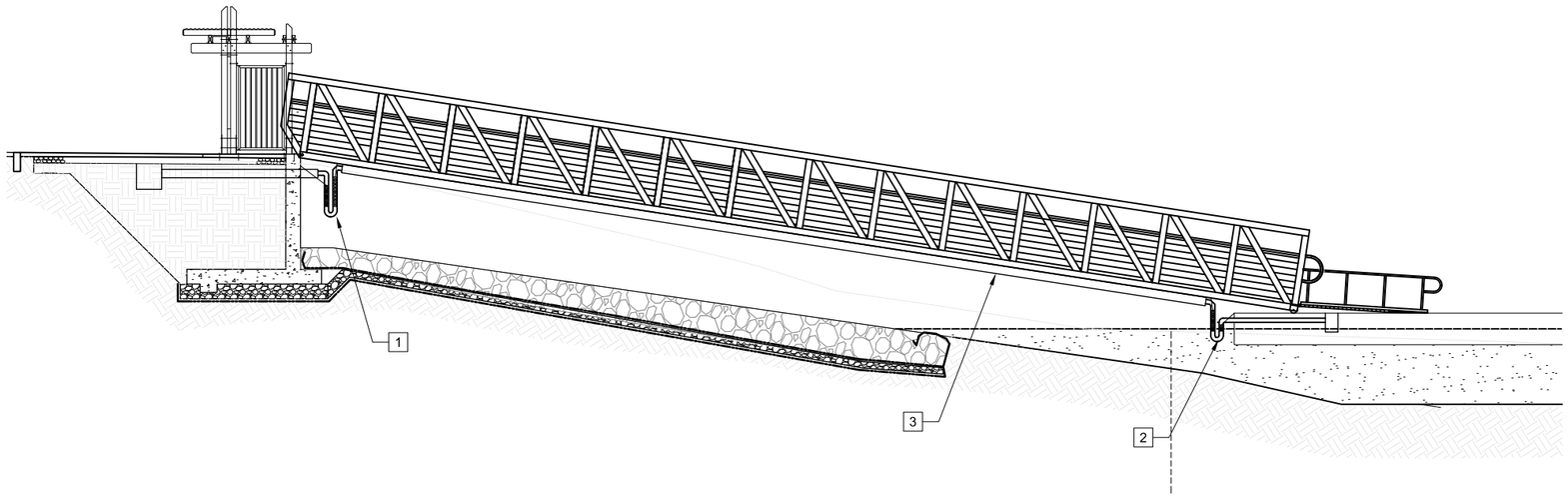
1. SEE SHEET P001 FOR PLUMBING PROTECTION GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO STRUCTURAL DRAWINGS FOR DOCK STRUCTURES.
3. PROVIDE 316 SS HANGERS, PIPE CLAMPS AND BRACING FOR PIPING IN ACCORDANCE WITH CPC AND CBC. ANCHORS AND BOLTING SHALL BE 316 SS.

KEY NOTES:

1 PROVIDE FLEX LOOP CONNECTOR ON 2" CW BELOW GANGWAY AT INTERSECTION BETWEEN GANGWAY AND SHORE STRUCTURE

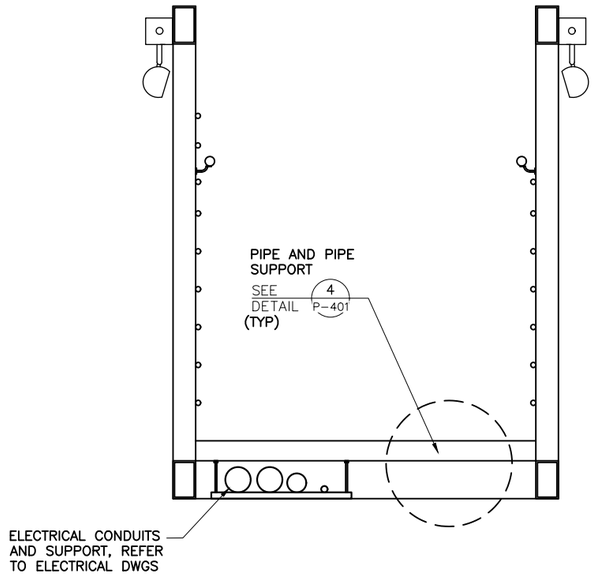
2 PROVIDE (N) FLEX LOOP CONNECTOR ON WATER PIPE UNDER GANGWAY, AT INTERSECTION OF GANGWAY AND DOCK.

3 2"ø POTABLE CW PIPELINE ALONG UNDERSIDE OF GANGWAY.



GANGWAY SECTION — A / P-301

SCALE: 1" = 2'-0"



GANGWAY SECTION — B / P-301

SCALE: 1" = 1'-0"

DRAFT 90% Submittal

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A		05-03-2023	90% PROGRESS SUBMITTAL	PM

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SURVEY PARTY CHIEF

WATERSHED REVIEW: DATE

SUBMITTED: DATE R.C.E. EXP.
SUPERVISING CIVIL ENGINEER

APPROVED: DATE R.C.E. EXP.
CITY ENGINEER

0 1 2 3
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DATE 05/12/23

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2180 MILVIA ST, BERKELEY, CA 94704

COWI
500 12th Street, 270-Fl Oakland, CA 94612
Tel.: 510.839.8972 Fax: 510.839.9715

BERKELEY MARINA DOCK REPLACEMENT (D–E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA

PLUMBING
SECTIONS – SHEET 1 OF 2

PLAN
FILE

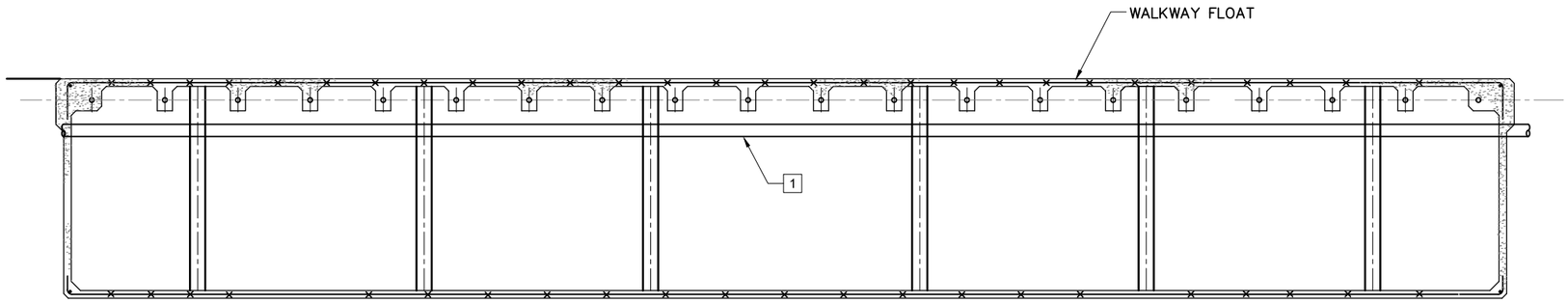
P–301
SHEET 49 OF 51

SHEET NOTES:

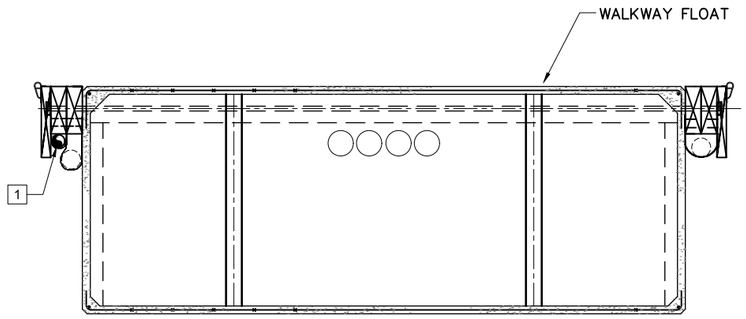
1. SEE SHEET P001 FOR PLUMBING GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO STRUCTURAL DRAWINGS FOR DOCK STRUCTURES.
3. PROVIDE 316 SS HANGERS, PIPE CLAMPS AND BRACING FOR PIPING IN ACCORDANCE WITH CPC AND CBC. ANCHORS AND BOLTING SHALL BE 316 SS.

KEY NOTES:

[1] 2"ø POTABLE CW PIPELINE ALONG UNDERSIDE OF WALKWAY WALER. ANCHOR PIPE TO BOTTOM OF WALER.



WALKWAY SECTION
SCALE: 1" = 1'-0"
A
P-401



WALKWAY SECTION
SCALE: 1" = 1'-0"
B
P-401

PLOTTED BY: MINH TRAN PLOT DATE:5/12/2023 4:27:32 PM

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B		03-27-2023	60% PROGRESS SUBMITTAL	PM
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YEI ENGINEERS

PROJECT MANAGER: DATE
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SURVEY PARTY CHIEF
WATERSHED REVIEW: DATE
SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER
APPROVED: DATE
CITY ENGINEER
R.C.E.
EXP.
0 1 2 3
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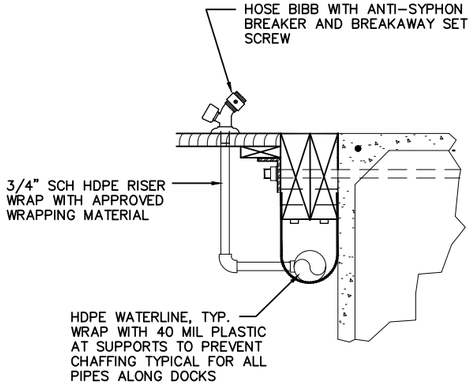
DATE 03/22/2023

CITY OF BERKELEY
PARKS RECREATION & WATERFRONT
2180 MILVIA ST, BERKELEY, CA 94704

COWI
939 12th Street, 12th Fl Oakland, CA 94612
Tel.: 510.839.8972 Fax: 510.839.9715
WEBSITE: www.cowi-na.com

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA
PLUMBING
SECTIONS – SHEET 2 OF 2

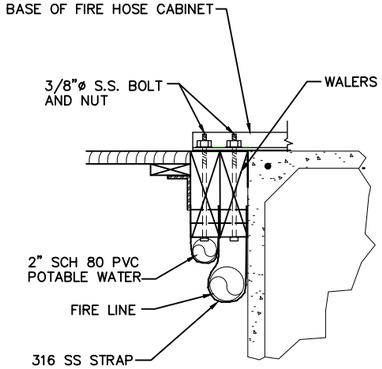
PLAN
FILE
P-302
SHEET 50 OF 51



HOSE BIB DETAIL

SCALE: NTS

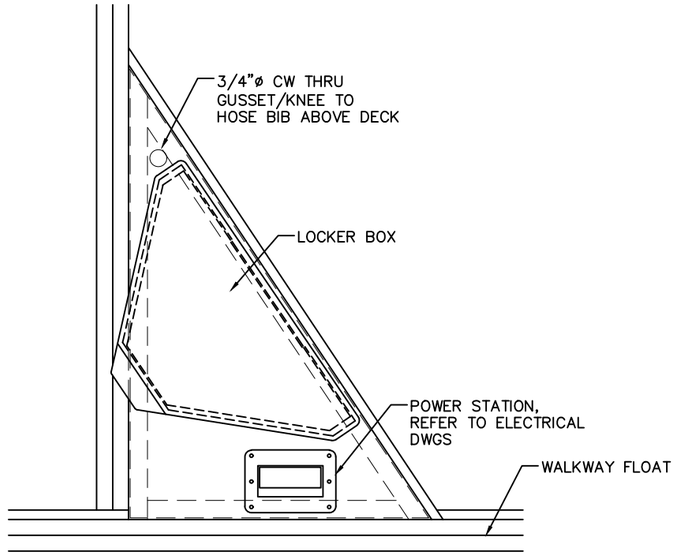
1 / P-401



WALKWAY PIPE SUPPORT DETAIL

SCALE: NTS

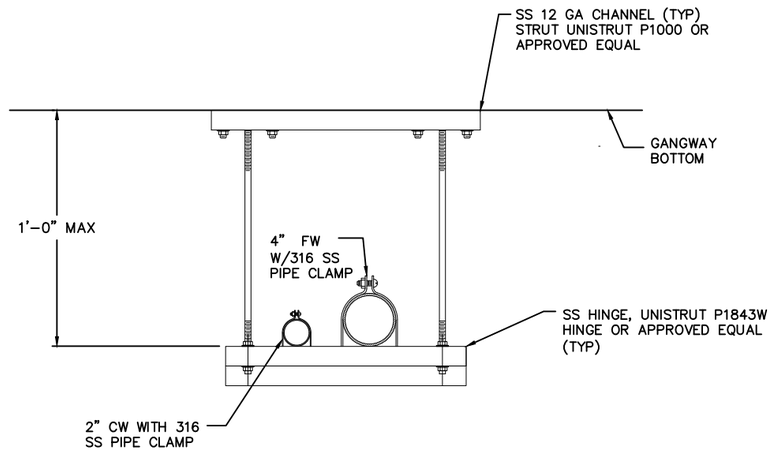
2 / P-401



HOSE BIB DETAIL

SCALE: NTS

3 / P-401



GANGWAY PIPE SUPPORT DETAIL

SCALE: NTS

4 / P-401

DRAFT 90% Submittal

PLOTTED BY: MINH TRAN PLOT DATE: 5/12/2023 4:27:41 PM

REVISION	MARK	DATE	DESCRIPTION	APPROVAL
A		05-12-2023	90% PROGRESS SUBMITTAL	PM

YEI ENGINEERS

PROJECT MANAGER: DATE

DEPICTION OF MONUMENTS: DATE
SURVEY PARTY CHIEF

WATERSHED REVIEW: DATE

SUBMITTED: DATE
SUPERVISING CIVIL ENGINEER R.C.E. EXP.

APPROVED: DATE
CITY ENGINEER R.C.E. EXP.

0 1 2 3
FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES

DESIGN B.H.
DRAWN P.W.
CHECK P.M.
AS BUILT

HORIZ. AS SHOWN
VERT.
BOOK
DATE 05/12/23

PARKS RECREATION & WATERFRONT
2180 MILVIA ST, BERKELEY, CA 94704

COWI
939 12th Street, 12th Fl Oakland, CA 94612
Tel.: 510.839.8912 Fax: 510.839.9711
WEBSITE: www.cowi-na.com

BERKELEY MARINA DOCK REPLACEMENT (D-E)
CITY OF BERKELEY, ALAMEDA COUNTY, CALIFORNIA

PLUMBING DETAILS

PLAN
FILE
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