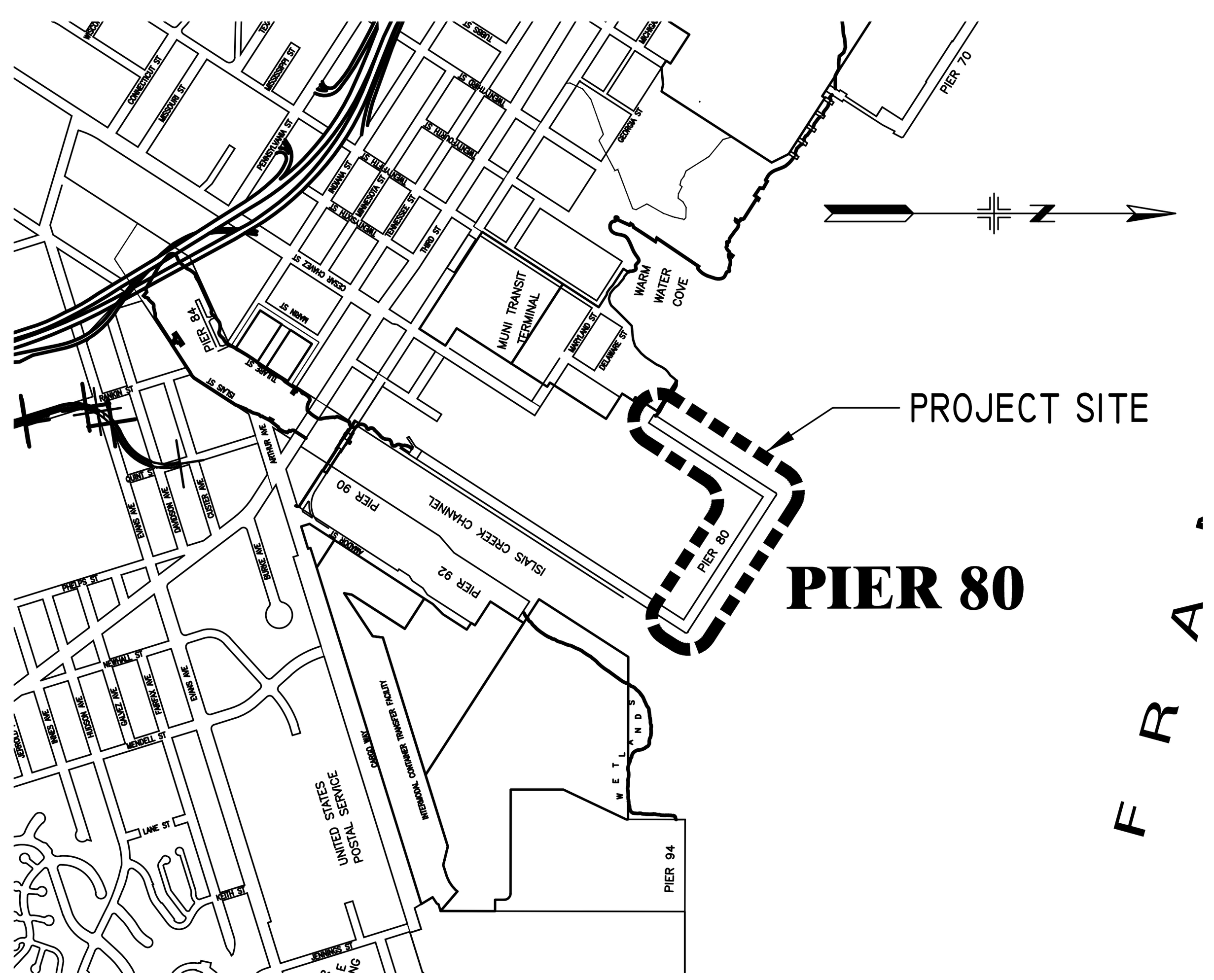
PORT OF SAN FRANCISCO

PIER 80 MOORING AND BERTHING IMPROVEMENTS

SAN FRANCISCO, CALIFORNIA

PROJECT LOCATION



PROJECT TEAM

OWNER

SAN FRANCISCO PORT COMMISSION
PORT OF SAN FRANCISCO
DEPARTMENT OF ENGINEERING
PIER 1, SAN FRANCISCO, CA 94111
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SCOPE OF WORK

PIER 80 MOORING & BERTHING IMPROVEMENTS PROJECT:
TO IMPROVE THE MOORING AND FENDER SYSTEMS TO INCREASE VESSEL OPERATIONAL FLEXIBILITY. THIS INCLUDES DEMOLISHING THE (E) FENDER SYSTEM AND INSTALLING AN UPGRADED FENDER SYSTEM AND BOLLARDS. ALL WORK SHOWN IN THESE DRAWINGS ON THE NORTH BERTH SHALL BE CONSIDERED PART OF THE ALTERNATE BID ITEMS

ABBREVIATIONS

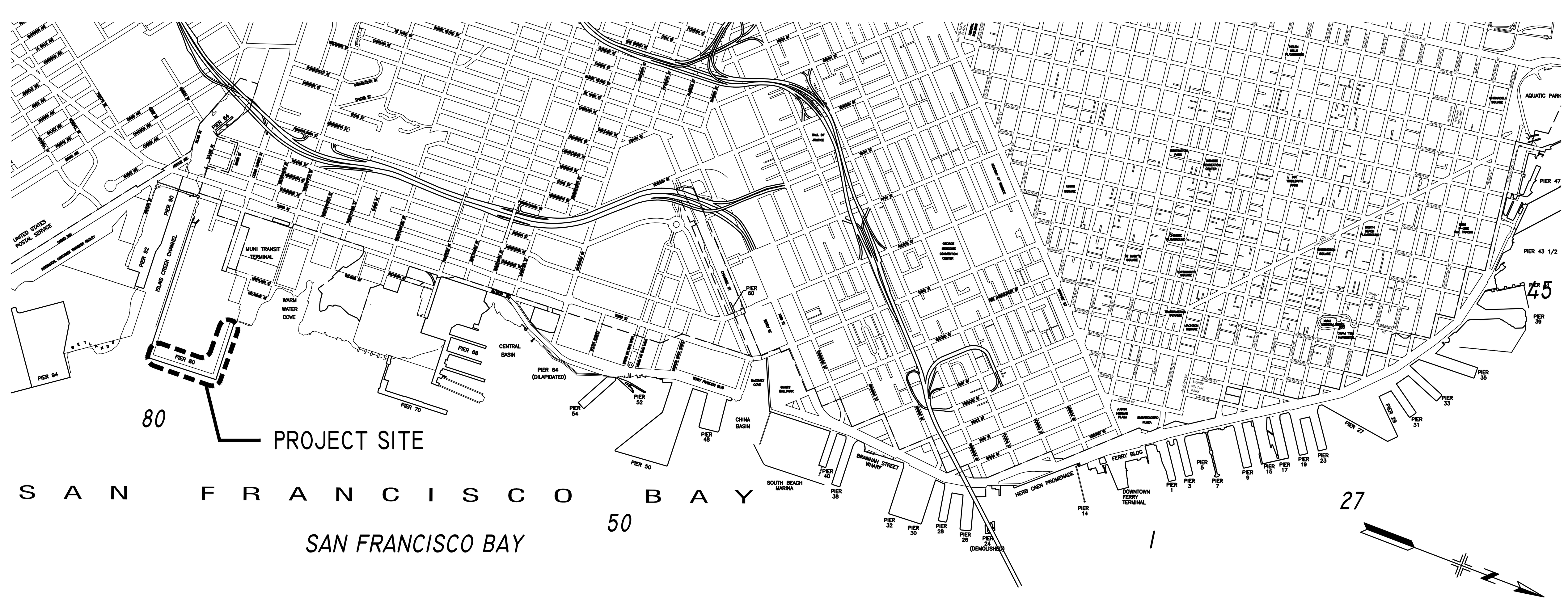
A.C.	ASPHALT CONCRETE	MIN.	MINIMUM
APPROX.	APPROXIMATE	MISC.	MISCELLANEOUS
ARCH.	ARCHITECTURAL	MLLW	MEAN LOWER LOW WATER
BLDG.	BUILDING	MSW	MEAN SEA LEVEL
B.O.	BOTTOM OF	(N)	NEW
BTWN.	BETWEEN	N.I.C.	NOT IN CONTRACT
C/L OR ℄	CENTERLINE	N.T.S.	NOT TO SCALE
CLR.	CLEAR	O.C.	ON CENTER
CONC.	CONCRETE	O.D.	OUTSIDE DIAMETER
CONN.	CONNECTION	OPP.	OPPOSITE
CONT.	CONTINUOUS	PL OR ℘	PLATE
CTR.	CENTER	PSF	POUND PER SQ. FOOT
DET.	DETAIL	PSI	POUND PER SQ. INCH
DIA. OR ø	DIAMETER	REF.	REFERENCE
DIM.	DIMENSION	REINF.	REINFORCING
DWG(S)	DRAWING(S)	REQ'D	REQUIRED
(E)	EXISTING	SCH	SCHEDULE
EA.	EACH	SECT.	SECTION
ELEC.	ELECTRICAL	SIM.	SIMILAR
ELEV.	ELEVATION	SPEC.	SPECIFICATION
EQ.	EQUAL	SQ.	SQUARE
GA.	GAUGE	SS	STAINLESS STEEL
GALV.	GALVANIZED	STD	STANDARD
HORIZ.	HORIZONTAL	STRUCT.	STRUCTURAL
HT.	HEIGHT	T.O.	TOP OF
I.D.	INSIDE DIAMETER	T.&B.	TOP & BOTTOM
INCL.	INCLUDE	TYP.	TYPICAL
INT.	INTERIOR	UW.	UNDERWATER
LB. OR #	POUND	VERT.	VERTICAL
LONG.	LONGITUDINAL	V.I.F.	VERIFY IN FIELD
MAX.	MAXIMUM	W/	WITH
MECH.	MECHANICAL	W/O	WITHOUT
MFR.	MANUFACTURER	WP	WORKING POINT
MHHW	MEAN HIGHER HIGH WATER		

INDEX OF DRAWINGS

REGISTERED PROFESSIONAL ENGINEER
WILLIAM M. BRUIN
No. C 57867
CIVIL
STATE OF CALIFORNIA

3/17/2025

VICINITY MAP



NOT FOR CONSTRUCTION - ISSUED FOR BID

NO.	DATE	DESCRIPTION	BY	APP.
0	03-17-25	ISSUED FOR BID	MLA	WMB

TABLE OF REVISIONS
CHECK WITH TRACING TO SEE IF YOU HAVE LATEST REVISION

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PORT OF SAN FRANCISCO

SAN FRANCISCO PORT COMMISSION
PORT OF SAN FRANCISCO
DEPARTMENT OF ENGINEERING

DESIGNED: ACD/MLA	DATE: 02/10/25
DRAWN: RTB	DATE: 05/05/23
CHECKED: WMB	DATE: 03/17/25

APPROVED BY
SAN FRANCISCO PORT COMMISSION
DATE: ____________
Uday Prasad
Digitally signed by Uday Prasad
DN: C=US, E=uday.prasad@sfport.com, O=Port of San Franciscio, OU=Engineering, CN=Uday Prasad
Date: 2025.03.19 11:45:47-07'00'
CHIEF HARBOR ENGINEER

PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

COVER SHEET

CONTRACT NO. 2871
DRAWING NO. 22130-80-S
SHEET NO. S-001
1 OF 27

EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS
SCALE FACTOR: XX
PLOT SCALE: 1=1
FILE NAME: TP80_S-001 COVER SHEET.DWG
ORIGIN: SECTION
DATE: 04/04/23

I:\SF\PROJECTS\2022\227186.00-TP80\DRAWINGS\WORKING_SET\TP80_S-001 COVER SHEET

STRUCTURAL NOTES

PROJECT SCOPE

1. THE WORK SHOWN ON THESE DRAWINGS HAS BEEN DEVELOPED FOR THE PORT OF SAN FRANCISCO (POSF) AND INVOLVES THE INSTALLATION OF MOORING POINTS AND FENDER SYSTEMS ALONG THE NORTH AND EAST BERTH.
2. THE WORK IS INTENDED TO INCREASE VESSEL OPERATIONAL FLEXIBILITY AT THE BERTHS.
3. ALL WORK SHOWN ON THESE DRAWINGS ON THE NORTH BERTH SHALL BE CONSIDERED PART OF THE ALTERNATE BID ITEMS.

GENERAL

1. GENERAL NOTES AND TYPICAL DETAILS APPLY TO ALL STRUCTURAL FEATURES, UNLESS OTHERWISE INDICATED.
2. IF CERTAIN FEATURES ARE NOT FULLY SHOWN OR CALLED OUT ON THE DRAWINGS OR IN THE SPECIFICATIONS, THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER AS FOR SIMILAR CONDITIONS.
3. THE PROJECT SPECIFICATIONS FORM A PART OF THE CONTRACT DOCUMENTS.
4. SPECIFICATIONS, CODES AND STANDARDS NOTED IN THE CONTRACT DOCUMENTS SHALL BE THE EDITION REFERENCED IN THE 2022 PORT OF SAN FRANCISCO BUILDING CODE AND CHAPTER 35 OF THE CORRESPONDING CALIFORNIA BUILDING CODE, OR, IN THE CASE OF SPECIFICATIONS NOT LISTED THEREIN, THE LATEST EDITION, UNLESS OTHERWISE NOTED.
5. DIMENSIONS SHALL NOT BE SCALED OFF OF THE DRAWINGS.
6. ALL WORK SHALL CONFORM TO MINIMUM STANDARDS OF THE 2022 CALIFORNIA BUILDING CODE, OF ANY CODES LISTED IN THE DRAWINGS OR SPECIFICATIONS AND OF ANY REGULATING AGENCIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK, INCLUDING THE CALIFORNIA HEALTH AND SAFETY CODE.
7. PRIOR TO SUBMITTING SHOP DRAWINGS AND PRODUCT DATA, THE CONTRACTOR SHALL VERIFY THAT THE SUBMITTALS MEET THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL SPECIFICALLY NOTE ANY EXCEPTIONS TO THESE REQUIREMENTS WITH THE SUBMITTAL.
8. OPENINGS, POCKETS, ETC. SHALL NOT BE PLACED IN STRUCTURAL MEMBERS UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS. NOTIFY THE STRUCTURAL ENGINEER WHEN WORK REQUIRES OPENINGS, POCKETS, ETC. IN STRUCTURAL MEMBERS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES AND SHALL CHECK ALL DIMENSIONS AND HOLES AND OPENINGS REQUIRED IN STRUCTURAL MEMBERS. ALL DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE ENGINEER AND SHALL BE RESOLVED BEFORE PROCEEDING WITH THE WORK.

EXAMINATION OF SITE AND CONTRACT DOCUMENTS

1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE JOB SITE PRIOR TO THE START OF ANY CONSTRUCTION OR FABRICATION. ANY DISCREPANCIES BETWEEN THE CONDITIONS FOUND AND THOSE SHOWN ON THESE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE PORT FOR CLARIFICATION BEFORE WORK PROCEEDS.
2. ALL OMISSIONS AND CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE PORT BEFORE PROCEEDING WITH ANY WORK SO INVOLVED.
3. WHERE A CONSTRUCTION DETAIL IS NOT SHOWN OR NOTED, THE DETAIL SHALL BE THE SAME AS FOR OTHER SIMILAR WORK.
4. DETAILS LABELED AS "TYPICAL" OR "TYP.," AND NOTES AND DETAILS ON THE STRUCTURAL DRAWINGS INDICATE METHOD OF WORK, AND ARE INTENDED TO BE USED WHERE THEY APPLY. UNLESS THE CONDITION IS SPECIFICALLY DETAILED OR REFERENCED, USE TYPICAL DETAILS WHETHER OR NOT THEY ARE CROSS-REFERENCED ELSEWHERE.
5. ALL STRUCTURAL MEMBERS AND ELEMENTS SHOWN ON THE DRAWINGS ARE NEW UNLESS NOTED "(E)" FOR EXISTING WORK.
6. CONDITIONS SHOWN FOR EXISTING CONSTRUCTION REFLECT INFORMATION SHOWN ON AVAILABLE CONSTRUCTION DRAWINGS AND ON CONDITIONS OBSERVABLE AT THE TIME THESE DOCUMENTS WERE PREPARED. THE CONTRACTOR SHALL NOTIFY THE PORT IF THE CONDITIONS ENCOUNTERED ARE DIFFERENT FROM THE CONDITIONS INDICATED, PRIOR TO PERFORMING ANY WORK AFFECTED BY SUCH CONDITIONS.

PROTECTION OF LIFE AND PROPERTY

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE SAFETY CODES, STANDARDS, AND REGULATIONS.
2. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WORKING NEAR FLAMMABLE MATERIALS, AND SHALL MAINTAIN A FIRE WATCH AND EMPLOY THE NECESSARY PROTECTIVE DEVICES AS DIRECTED BY THE PORT.
3. THE CONTRACTOR SHALL EXERCISE ALL NECESSARY CARE AND PRECAUTIONS TO PREVENT ANY DAMAGE TO EXISTING UTILITIES, SUBSTRUCTURES, STRUCTURES, AND FACILITIES BY OR AS A RESULT OF CONTRACTOR OPERATIONS. ANY DAMAGE RESULTING FROM CONTRACTOR OPERATIONS SHALL BE REPAIRED AS DIRECTED BY THE PORT AT NO ADDITIONAL COST TO THE PORT.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF TEMPORARY SHORING, BRACING, WORK PLATFORM, ETC., AS NECESSARY FOR THE PROTECTION OF LIFE AND PROPERTY DURING THE CONSTRUCTION OF THE WORK SHOWN ON THE CONTRACT DRAWINGS AND AS REQUIRED BY OSHA AND OTHER APPLICABLE SAFETY REGULATIONS. THE CONTRACTOR SHALL CARRY $1 MILLION IN PROFESSIONAL LIABILITY COVERAGE.
5. THE CONTRACTOR SHALL PHASE THE CONSTRUCTION ACTIVITIES SO VEHICLE AND PEDESTRIAN TRAFFIC HAVE SAFE ACCESS AT ALL TIMES ALONG THE PIER. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION WITH THE PORT TO PREVENT DISRUPTIONS TO TERMINAL OPERATIONS. THE CONTRACTOR SHALL SECURE THE WORK AREAS AT THE END OF EACH WORK DAY.

EXISTING CONSTRUCTION

1. WORK SHOWN IS NEW UNLESS NOTED AS EXISTING: (E).
2. EXISTING CONSTRUCTION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE INVESTIGATION AND CAN BE USED FOR BIDDING PURPOSES. THE CONTRACTOR SHALL VERIFY ALL EXISTING JOB CONDITIONS, REVIEW ALL DRAWINGS AND VERIFY DIMENSIONS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ALL DISCREPANCIES AND EXCEPTIONS BEFORE PROCEEDING WITH THE WORK.
3. THE REMOVAL, CUTTING, DRILLING, ETC. OF EXISTING WORK SHALL BE PERFORMED WITH CARE IN ORDER NOT TO JEOPARDIZE THE STRUCTURAL INTEGRITY OF THE STRUCTURE. IF STRUCTURAL MEMBERS OR MECHANICAL, ELECTRICAL OR ARCHITECTURAL FEATURES NOT INDICATED FOR REMOVAL INTERFERE WITH THE NEW WORK, NOTIFY THE ENGINEER IMMEDIATELY AND OBTAIN APPROVAL BEFORE REMOVAL OF MEMBERS.
4. THE CONTRACTOR SHALL SAFELY SHORE EXISTING CONSTRUCTION WHEREVER EXISTING SUPPORTS ARE REMOVED FOR THE NEW WORK.
5. THE CONTRACTOR SHALL PERFORM THE WORK WITH MINIMAL INCONVENIENCE TO TENANT AND OWNER AND WITHOUT INTERRUPTION OF DAY-TO-DAY WORK OPERATIONS. THE CONTRACTOR SHALL ENSURE SAFE TRAVEL OF PERSONS AROUND AREAS OF CONSTRUCTION AND SHALL COORDINATE ALL OPERATIONS WITH THE OWNER OR THE OWNER'S AGENT AND TENANT.
6. THE CONTRACTOR SHALL PROMPTLY REPAIR ANY DAMAGE CAUSED DURING OPERATIONS, USING MATERIALS AND WORKMANSHIP SIMILAR TO THAT WHICH WAS DAMAGED.
7. ALL REMOVED ITEMS, MATERIALS AND DEBRIS, UNLESS OTHERWISE NOTED, SHALL BE REMOVED PROMPTLY FROM THE SITE AND DISPOSED OF IN A LEGAL MANNER.

NEW CONSTRUCTION

1. NON-STRUCTURAL FEATURES NOT FULLY SHOWN OR NOTED ON THE STRUCTURAL DRAWINGS.

DESIGN DATA

1. CODE:
   A. 2022 CALIFORNIA BUILDING CODE.
   B. 2022 PORT OF SAN FRANCISCO BUILDING CODE.
2. DESIGN DATUM: MEAN LOWER LOW WATER
3. FENDER DESIGN CRITERIA:

MAX. DISPLACEMENT:	73,000 MT
APPROACH VELOCITY:	0.26 FEET PER SECOND
MAX. BERTHING ANGLE:	3 DEG
ABNORMAL IMPACT FACTOR:	1.35

ASSUMED SINGLE FENDER AT FIRST CONTACT

4. BOLLARD DESIGN CRITERIA:
   LINE RANGE:

MAX. VERTICAL:	+45 DEGREES ABOVE LEVEL
MIN. VERTICAL:	+0 DEGREES ABOVE LEVEL
HORIZONTAL:	± 45 DEGREES PERP. TO WHARF

5. ENVIRONMENTAL LOADS ON VESSELS AT BERTH:

WIND VELOCITY:	50 KN @ 30-SEC. AVG., STORM 30 KN @ 30-SEC. AVG., OPERATIONAL
CURRENT VELOCITY:	5.1 FPS (3.0 KN) FLOOD 2.3 FPS (1.4 KN) EBB
CURRENT DIRECTION:	SHORE-PARALLEL

FOAM-FILLED FENDER CRITERIA

RATED ENERGY ABSORPTION:	894 KIP-FT @ 60% DEFLECTION
RATED REACTION:	416 KIPS
MANUFACTURERS TOLERANCE:	10%±

BOLLARD CRITERIA

BOLLARD SAFE WORKING LOAD (SWL):	225 MT / 440 KIP
ANCHORAGE CAPACITY:	1.2 * SWL

CHAIN CRITERIA

CHAIN SERVICE LOAD:	51 MT / 113 KIP
CHAIN FACTOR OF SAFETY:	2.0

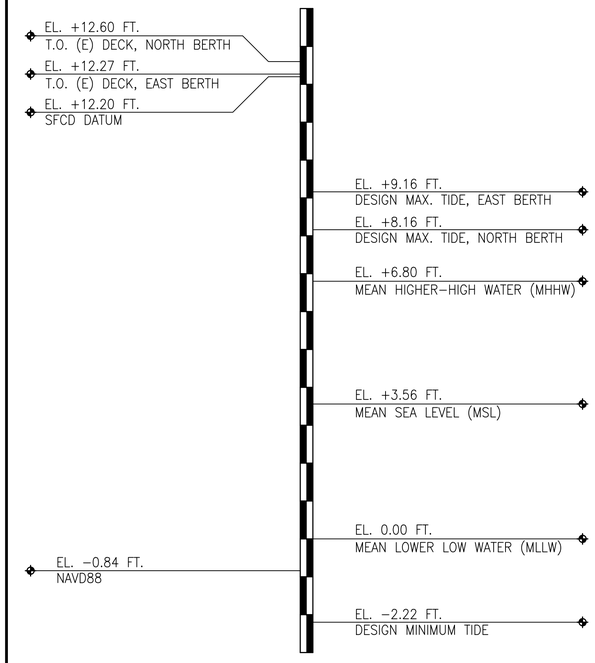
DATUM AND ELEVATIONS

1. VERTICAL DATUM
   A. ALL ELEVATIONS SHOWN IN THESE DRAWINGS ARE RELATIVE TO MEAN LOWER LOW WATER (MLLW), UNLESS OTHERWISE NOTED.
   B. RELATIONSHIP BETWEEN NAVD88 DATUM IS BASED ON TIDAL BENCHMARK HUNTERS POINT BM 2 1917 (DESIGNATION TIDAL 2) AT ELEVATION +11.45 FT. NAVD88.
2. ELEVATION OF (E) STRUCTURES
   A. ELEVATIONS FOR EXISTING STRUCTURES ARE BASED ON INFORMATION PROVIDED BY POSF, "PORT OF SAN FRANCISCO MARINE STRUCTURE DEFLECTION MONITORING MONUMENTS," SHEET 1 OF 10, DATED 25 NOVEMBER 2019.
   B. THE CONVERSION FROM THE NAVD88 DATUM TO MLLW IS −0.84 FT. THE CONVERSION IS BASED ON NOAA STATION 9414358 AT HUNTERS POINT.
   C. KEY ELEVATIONS FOR THIS PROJECT ARE AS FOLLOWS:
      1) (E) DECK, NORTH BERTH +12.60 FT.
      2) (E) DECK, EAST BERTH +12.27 FT.
3. SEA LEVEL RISE
   A. THE DESIGN WATER ELEVATIONS SHALL NOT INCLUDE SEA LEVEL RISE AT THIS TIME. THE DESIGN OF THE NEW FENDERING SYSTEM SHALL INCORPORATE SEA LEVEL RISE THROUGH ADAPTIVE MANAGEMENT.
4. TIDAL ELEVATIONS
   A. TIDAL ELEVATIONS ARE BASED ON TIDAL EPOCH 1983-2001 NOAA TIDE STATION 9414358, HUNTERS POINT, SAN FRANCISCO BAY, CALIFORNIA.
   B. KEY TIDAL ELEVATIONS FOR THIS PROJECT ARE AS FOLLOWS:

1)	DESIGN MAX. TIDE, EAST BERTH	+9.16 FT.
2)	DESIGN MAX. TIDE, NORTH BERTH	+8.16 FT.
3)	MEAN HIGHER-HIGH WATER (MHHW)	+6.80 FT.
4)	MEAN SEA LEVEL (MSL)	+3.56 FT.
5)	MEAN LOWER-LOW WATER (MLLW)	0.00 FT.
6)	MINIMUM OBSERVED	−2.22 FT.

   C. DESIGN MAX. TIDE, EAST BERTH = +9.16 FT. (100-YR FLOOD ELEVATION)
      DESIGN MAX. TIDE, NORTH BERTH = +8.16 FT. (100-YR FLOOD ELEVATION)
   D. DESIGN MINIMUM TIDE = −2.22 FT. (LOWEST ASTRONOMICAL TIDE)
1. STORM FLOOD ELEVATION
   A. 100-YR FLOOD ELEVATIONS ARE BASED ON FEMA FLOOD INSURANCE RATE MAP (FIRM) 060298 PANEL 119A VERSION 2.3.2.0. THE REPORTED FLOOD ELEVATION IS +8.16 FT./+9.16 FT. (+9.0 FT./+10.0 FT. NAVD88) FOR NORTH AND EAST BERTH, RESPECTIVELY.
   B. POSF BUILDING CODE 100-YR SIGNIFICANT WAVE HEIGHTS FOR PIER 80 ARE 5.4 FT. AT 5.0 SEC.

STRUCTURAL ELEVATIONS AND DATUMS



3/17/2025

REGISTERED PROFESSIONAL ENGINEER
WILLIAM M. BRUIN
No. C 57867
CIVIL
STATE OF CALIFORNIA

NOT FOR CONSTRUCTION - ISSUED FOR BID

NO.	DATE	DESCRIPTION	BY	APP.
0	03-17-25	ISSUED FOR BID	MLA	WMB

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SAN FRANCISCO PORT COMMISSION
PORT OF SAN FRANCISCO
DEPARTMENT OF ENGINEERING

DESIGNED:	DATE: ACD/MLA 02/10/25
DRAWN:	DATE: RTB 05/05/23
CHECKED:	DATE: WMB 03/17/25

APPROVED BY
SAN FRANCISCO PORT COMMISSION
DATE: _____
Uday Prasad
Digitally signed by Uday Prasad
DN: C=US, E=uday.prasad@sfport.com, O=Port of San Francisco, OU=Engineering, CN=Uday Prasad
Date: 2025.03.19 11:45:47-07'00'
CHIEF HARBOR ENGINEER

PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

GENERAL NOTES

CONTRACT NO.	2871
DRAWING NO.	22131-80-S
SHEET NO.	S-002
	2 OF 27

FILE NAME: TP80_S-002 - S-003 GENERAL NOTES
DATE: 04/04/23
EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS
SCALE FACTOR: XX
PLOT SCALE: 1=1

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STRUCTURAL NOTES

ENVIRONMENTAL SPECIFICATIONS

1. WORK MUST BE COMPLETED IN ACCORDANCE WITH SUBMITTED PLANS, PROJECT DECRIPTION, AND IN ACCORDANCE WITH ENVIRONMENTAL CONDITONS DETAILED IN THE FOLLOWING EXISTING PORT PERMITS:

   RWQCB ORDER R2-2016-0039, WASTE DISCHARGE REQUIREMENTS AND WATER QUALITY CERTIFICATION FOR PORT OF SAN FRANCISCO MAINTENANCE PROGRAM, SEPT 13, 2016.

   BCDC PERMIT NO. M1977.017.19 (AMENDMENT NO. 19), SEPT 2, 2016.

2. WORK MUST BE COMPLETED IN ACCORDANCE WITH THE PORT-WIDE MAINTENANCE MANUAL, DATED MARCH 2016 AND REFERENCED BEST MANAGEMENT PRACTICES (BMPS). THE PORT MAINTENANCE MANUAL CAN BE FOUND AT THE FOLLOWING URL:

   https://www.sfport.com/sites/default/files/2023-09/PoSF%2CGenlMaintenanceManual-2021_Rev%2004-2021_F%20%281%29.pdf

   THE FOLLOWING ARE APPLICABLE BMPS TO BE IMPLEMENTED BY THE CONTRACTOR TO PROTECT WATER QUALITY AND AVOID ENVIRONMENTAL IMPACTS:

   BMP #3 (INVASIVE SPECIES)
   BMP #6 (DEBRIS)
   BMP #7 (STORMWATER)
   BMP #8 (SPILL PREVENTION AND RESPONSE)
   BMP #10 (SEDIMENT QUALITY / TURBIDITY)

3. ALL CONCRETE AND DEBRIS FROM CONSTRUCTION OR DEMOLITION MUST BE COLLECTED AND PREVENTED FROM ENTERING THE WATER. CONTRACTOR TO SUBMIT PLAN FOR CAPTURING DEBRIS.

4. NO EQUIPMENT OR VEHICLES SHALL BE STORED, MAINTAINED OR WASHED IN ANY AREA ON THE PILE SUPPORTED DECK IN ORDER TO REDUCE THE POTENTIAL FOR ANY SPILLS OR DEBRIS ENTERING THE WATER COLUMN.

5. ALL FUEL, WASTE, OILS, AND SOLVENTS SHALL BE STORED AWAY FROM THE CONSTRUCTION SITE. ANY SPILLS SHALL BE CONTAINED AND PROPERLY DISPOSED.

6. ALL VEHICLES AND EQUIPMENT SHALL BE PROPERLY MAINTAINED TO REDUCE THE POTENTIAL FOR SPILLS OF PETROLEUM-BASED PRODUCTS. CONTAINMENT BOOMS AND SORBENT MATERIALS SHALL BE AVAILABLE DURING THE ACTIVITY AND SHALL BE DEPLOYED IMMEDIATELY IN THE EVENT OF A SPILL TO LIMIT SPREAD.

7. IF ANY MATERIALS OR WASTES ARE RELEASED INTO THE BAY, PROJECT SUPERVISORS SHALL IMMEDIATELY HALT ALL WORK AND UTILIZE ALL AVAILABLE RESOURCES TO ASSURE CONTAINMENT AND REMOVAL.

8. BEST MANAGEMENT PRACTICES (BMPS) SHALL BE CONSISTENTLY EMPLOYED TO HELP PREVENT POLLUTANTS FROM ENTERING THE BAY WATERS. EMPLOYEES, SUBCONTRACTORS, AND VENDORS MUST BE INFORMED, EDUCATED, AND TRAINED TO UNDERSTAND THE APPLICABLE PRACTICES AND PROCEDURES FOR THE VARIOUS CONSTRUCTION ACTIVITIES BEING DONE.

9. THE CONSTRUCTION SITE SHALL BE MAINTAINED BY THE CONTRACTOR IN SUCH A CONDITION THAT ANY STORMS DO NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. UPON COMPLETION OF THE PROJECT, ALL EQUIPMENT SHALL BE UNLOADED FROM THE BARGES, AND PLACED ONTO TRUCKS FOR PROPER DISPOSAL.

10. ALL REQUIRED JURISDICIONAL AGENCY PERMITS (I.E. SFBCDC, USACE, SFRWQCB) WILL BE OBTAINED BY THE PORT PRIOR TO START OF ANY WORK.

11. AT THE END OF EACH DAY OF CONSTRUCTION ACTIVITY ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND PROPERLY DISPOSED OF BY THE CONTRACTOR IN THE APPROPRIATE TRASH OR RECYCLE BINS.

PERMITTING

BCDC PERMITTING QUANTITIES

COMPONENT	SOLID FILL AREA			SHADOW AREA			BAY FILL VOLUME		
	GROSS ADDED	GROSS REMOVED	NET ADDED	GROSS ADDED	GROSS REMOVED	NET ADDED	GROSS ADDED	GROSS REMOVED	NET ADDED
	(FT^2)	(FT^2)	(FT^2)	(FT^2)	(FT^2)	(FT^2)	(CY)	(CY)	(CY)
PILES	0	151	-151	0	0	0	0	747	747
CHOCK	0	0	0	0	939	-939	0	0	0
WALER	0	0	0	0	1677	-1677	0	0	0
FENDER	0	0	0	2160	0	2160	0	0	0
TOTAL	0	151	-151	2160	2767	-607	0	747	747

1. QUANTITIES WERE TAKEN FROM FIELD OBSERVATIONS ON 20 MAY 2022 AND 23 DECEMBER 2024.
2. WHERE PILES WERE NOT OBSERVED ABOVE THE WATERLINE, IT IS ASSUMED THE PILE IS PRESENT FROM MLLW TO MUDLINE.
3. VOLUMES ASSUME PILES ARE BROKEN 3 FT BELOW THE MUDLINE.

CONCRETE & REINFORCING STEEL

1. ALL CONCRETE SHALL BE READY-MIX IN ACCORDANCE WITH ASTM C94.
2. CEMENT: ASTM C150 TYPE II
3. AGGREGATE: ASTM C33
4. NON-SHRINK GROUT AND REPAIR GROUT: ASTM C1107, PREMIXED, NON-STAINING, NON-SHRINK GROUT. MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS, PER ASTM C109/C109M OF 4,000 PSI, MAXIMUM AGGREGATE SIZE OF ⅜".
5. STRENGTH:

CONCRETE	MIN. STRENGTH	MAX. SIZE	W/C RATIO	AIR CONTENT
BUILT-UP FENDER PANEL	6000 PSI	¾"	0.40	1½% ±½%

6. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. ALL CONCRETE SHALL BE HARD ROCK AGGREGATE, REGULAR-WEIGHT CONCRETE, 145 PCF, UNLESS OTHERWISE NOTED.
7. GROUT OR CONCRETE CONTAINING MORE THAN 0.1 PERCENT OF SOLUBLE CHLORIDE SHALL NOT BE USED.
8. MIXES ARE TO BE REVIEWED BY OWNER'S TESTING LAB AND SUBMITTED TO THE ENGINEER FOR APPROVAL. DO NOT CAST CONCRETE WITHOUT APPROVAL BY ENGINEER.
9. MINIMUM CLEAR CONCRETE COVER FOR REINFORCEMENT IS 3 INCHES, UNLESS OTHERWISE NOTED.
10. INSERTS: ALL ITEMS TO BE CAST IN CONCRETE, SUCH AS REINFORCING DOWELS, BOLTS, ANCHORS, PIPES, SLEEVES, ETC., SHALL BE SECURELY POSITIONED IN THE FORMS BEFORE PLACING THE CONCRETE.
11. CONSTRUCTION JOINTS: PROVIDE AS DETAILED ON DRAWINGS. EXPOSE CLEAN COARSE AGGREGATE SOLIDLY EMBEDDED IN MORTAR MATRIX BY SANDBLASTING, BUSHAMMER, OR OTHER APPROVED METHOD. SURFACE SHALL BE ROUGHENED TO AN AMPLITUDE OF ¼ INCH. LOCATION OF CONSTRUCTION JOINTS SHALL BE APPROVED BY THE ENGINEER.
12. DRY PACK OR PLACE NON-SHRINK GROUT UNDER BASE PLATES, ETC., AS REQUIRED FOR FULL BEARING.
13. REINFORCING STEEL: ASTM A615 GRADE 60
    ASTM A706 WHERE WELDED OR OTHERWISE INDICATED
14. ALL REINFORCEMENT SHALL BE CONTINUOUS. STAGGER SPLICES WHERE POSSIBLE. LAPS SHALL BE PER TYPICAL DETAILS, UNLESS OTHERWISE NOTED.
15. HEADED TERMINATORS SHALL BE HRC 555 T-HEADS (ICC ESR-2935) OR APPROVED EQUAL.
16. EXCEPT AS NOTED MECHANICAL COUPLERS SHALL BE NVENT LENTON TAPER THREADED REBAR SPLICES (IAPMO ER-0129) OR BAR-LOCK "L" SERIES COUPLERS (IAPMO ER-319) OR APPROVED EQUAL.

POST-INSTALLED ANCHORS

1. POST-INSTALLED ANCHORS INCLUDE ALL ADHESIVE ANCHORS (REINFORCING BAR DOWELS AND THREADED RODS) EXPANSION ANCHORS, SCREW ANCHORS AND UNDERCUT ANCHORS SET IN HOLES DRILLED IN EXISTING CONCRETE OR MASONRY.
2. INSTALLATION OF POST-INSTALLED ANCHORS SHALL CONFORM TO ALL REQUIREMENTS OF THE APPLICABLE CODE EVALUATION OR IAPMO REPORTS AND MANUFACTURERS' RECOMMENDATIONS.
3. ARRANGE FOR A REPRESENTATIVE OF THE ANCHOR MANUFACTURER TO PROVIDE ON-SITE INSTALLATION TRAINING FOR ALL ANCHORING PRODUCTS SPECIFIED. PRIOR TO PROCEEDING WITH WORK, SUBMIT DOCUMENTATION CONFIRMING THAT ALL PERSONNEL WHO INSTALL ANCHORS HAVE COMPLETED THIS TRAINING.
4. MARK THE LOCATION OF ALL EXISTING REINFORCING IN THE SUBSTRATE MATERIAL WITHIN 12" OF THE PROPOSED LOCATIONS OF ALL POST-INSTALLED ANCHORS. NOTIFY THE ENGINEER OF ANY CONFLICTS DISCOVERED BETWEEN THE PROPOSED ANCHOR LOCATIONS AND THE EXISTING REINFORCING PRIOR TO FABRICATION OF ANY STEEL AND PRIOR TO ANY HOLE DRILLING, SO AS TO AVOID DISTURBING, CUTTING, OR OTHERWISE HARMING THE EXISTING REINFORCING.
5. HOLES FOR ADHESIVE ANCHORS IN CONCRETE SHALL BE DRILLED. CORED HOLES ARE NOT PERMITTED, EXCEPT WHERE INDICATED SPECIFICALLY.
6. ALL ADHESIVE ANCHORS IN CONCRETE ARE DESIGNED TO BE INSTALLED IN BASE MATERIAL MEETING THE FOLLOWING CONDITIONS:
   A. MINIMUM STRENGTH OF 2,500 PSI
   B. MINIMUM AGE OF 21 DAYS
   C. NOT EXPOSED TO WATER WITHIN THE PAST 14 DAYS
   D. MATERIAL TEMPERATURE BETWEEN 50 DEGREES F. AND 100 DEGREES F., INCLUSIVE

   DO NOT INSTALL ADHESIVE ANCHORS IN CONCRETE UNLESS BASE MATERIAL IS IN COMPLIANCE WITH ALL OF THE ABOVE CONDITIONS.
7. ADHESIVE ANCHORS IN CONCRETE (REINFORCING BAR DOWELS OR THREADED RODS):
   A. SIMPSON STRONG-TIE "SET-3G". ICC ESR-4057 OR APPROVED EQUAL.
8. CHAIN ANCHORAGE DOWELS:
   A. #10 A615 GRADE 60 REBAR, THREADED ON ONE END AND GALVANIZED
9. ANCHOR TESTS SHALL BE DONE IN ACCORDANCE WITH SPECIFICATIONS SECTION 03 82 16 PART 3.03.
10. ANCHORS THAT FAIL THE PROOF TEST SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
11. RE-TESTING OF REPLACED ANCHORS THAT FAIL TESTS SHALL BE PAID FOR BY THE CONTRACTOR.
12. TYPICAL EMBEDMENT DEPTHS AND PROOF LOADS FOR TESTING ARE INDICATED IN THE TABLES BELOW. FOR EMBEDMENT DEPTHS OTHER THAN THOSE INDICATED IN THE TABLES BELOW, CONTACT THE ENGINEER FOR THE APPLICABLE PROOF LOADS.
13. TYPICAL EMBEDMENT FOR ADHESIVE ANCHORS REFERS TO ACTUAL EMBEDMENT. TYPICAL EMBEDMENT FOR EXPANSION AND SCREW ANCHORS REFERS TO NOMINAL EMBEDMENT.

ADHESIVE ANCHORS

ANCHOR SIZE	TYPICAL EMBEDMENT (U.O.N.)	PROOF LOAD NORMAL WEIGHT CONCRETE	PROOF LOAD LIGHT WEIGHT CONCRETE	PROOF LOAD GROUT-FILLED CMU BLOCK
#3 OR ⅜"ø	3½"	2100 lb.	1100 lb.	1100 lb.
#4 OR ½"ø	4½"	3700 lb.	1900 lb.	1900 lb.
#5 OR ⅝"ø	5¾"	5800 lb.	2800 lb.	2800 lb.
#6 OR ¾"ø	6¾"	6900 lb.	–	–
#7 OR ⅞"ø	8"	11500 lb.	–	–
#8 OR 1"ø	9½"	12400 lb.	–	–
#9 OR 1⅛"ø	10¾"	19000 lb.	–	–
#10 OR 1¼"ø	12"	22000 lb.	–	–

BOLLARD HARDWARE AND MISC. MATERIALS

1. THRU-BOLT: ASTM F1554, GRADE 55
2. ANCHORAGE NUTS: ANSI B18.2.2
3. WASHERS: ANSI B18.22.1
4. ANCHOR BOLT CAPS: SAP-SEAL SNAP-ON CAPS
5. PITCH POCKET SEALANT: SIKA SARNAFILLER
6. ALL BOLLARD HARDWARE SHALL BE HOT DIPPED GALVANIZED TO ASTM A123/A123M OR ASTM A153/A153M.

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3/17/2025

REGISTERED PROFESSIONAL ENGINEER — WILLIAM M. BRUIN — No. C 57867 — CIVIL — STATE OF CALIFORNIA

NO.	DATE	DESCRIPTION	BY	APP.
0	03-17-25	ISSUED FOR BID	MLA	WMB

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SAN FRANCISCO PORT COMMISSION
PORT OF SAN FRANCISCO
DEPARTMENT OF ENGINEERING

DESIGNED:	DATE:
ACD/MLA	02/10/25
DRAWN:	DATE:
RTB	05/05/23
CHECKED:	DATE:
WMB	03/17/25

APPROVED BY
SAN FRANCISCO PORT COMMISSION
DATE: _____
Uday Prasad
Digitally signed by Uday Prasad
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Date: 2025.03.19 11:05:48-07'00'
CHIEF HARBOR ENGINEER

PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

GENERAL NOTES

CONTRACT NO. 2871
DRAWING NO. 22132-80-S
SHEET NO. S-003
3 OF 27

I:\SF\PROJECTS\2022\227186.00-TP80\DRAWINGS\WORKING_SET\TP80_S-002 - S-003 GENERAL NOTES

EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS
SCALE FACTOR: XX
PLOT SCALE: 1=1
FILE NAME: TP80_S-002 - S-003 GENERAL NOTES
DATE: 04/04/23

STRUCTURAL NOTES

STATEMENT OF STRUCTURAL OBSERVATION

STRUCTURAL OBSERVATION IS REQUIRED BY CHAPTER 17 OF THE PORT OF SAN FRANCISCO CODE. ALL STRUCTURAL OBSERVATIONS SHALL BE IN ACCORDANCE WITH THE PORT CODE PROCEDURE (PCP) 014 (DATED JANUARY 9, 2020). PCP 014 CAN BE FOUND AT THE FOLLOWING URL:

https://sfport.com/business/permit-services/codes-guidelines-and-regulation#tab-12389-pane-3

TYPES OF WORK LISTED BELOW SHALL BE OBSERVED DURING PERIODIC SITE VISITS BY THE STRUCTURAL ENGINEER. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING STRUCTURAL ENGINEER 48 HOURS BEFORE WORK IS READY FOR OBSERVATION. STRUCTURAL OBSERVATION DOES NOT CONSTITUTE SPECIAL INSPECTION.

1. CONCRETE & REINFORCING STEEL: REINFORCING STEEL, ANCHOR RODS, AND OTHER EMBEDMENTS SHALL BE OBSERVED PRIOR TO PLACEMENT OF CAST-IN-PLACE CONCRETE AND/OR SHOTCRETE ELEMENTS.
2. STRUCTURAL STEEL: STEEL ELEMENTS AND WELDED/BOLTED CONNECTIONS SHALL BE OBSERVED.

STATEMENT OF SPECIAL INSPECTIONS

ALL SPECIAL INSPECTION SHALL BE IN ACCORDANCE WITH THE PORT CODE PROCEDURE (PCP) 014 (DATED JANUARY 9, 2020). TESTS AND INSPECTIONS INDICATED ON THE DRAWINGS ARE REQUIRED FOR THIS PROJECT. THE TESTS AND INSPECTIONS INDICATED HERE ARE THE RESPONSIBILITIES OF THE PORT'S SPECIAL INSPECTOR, AS REQUIRED BY CHAPTER 17 OF THE PORT OF SAN FRANCISCO BUILDING CODE.

THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED FOR CONFORMANCE WITH THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS.

1. SPECIAL INSPECTIONS AND ASSOCIATED TESTING SHALL BE PERFORMED BY AN APPROVED QUALIFIED TESTING AND INSPECTING AGENCY PER THE PORT'S RECOGNIZED SPECIAL INSPECTION & TESTING AGENCIES FOUND AT THE FOLLOWING URL:

   https://sfport.com/files/2022-08/Port%20approved%20SI%20Agencies%20August%2010-2022%20-%20Copy.pdf

   IF THE AGENCY IS NOT FOUND ON THE LIST, THE PORT'S BUILDING DEPARTMENT WILL ACCEPT SPECIAL INSPECTION AND TESTING AGENCIES WHO ARE RECOGNIZED BY THE SPECIAL INSPECTION JOIN REVIEW COMMITTEE OF PARTICIPATING BAY AREA JURISDICTIONS.

2. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, THE ENGINEER, AND OTHER DESIGNATED PERSONS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, TO THE PROPER DESIGN AUTHORITY AND TO THE BUILDING OFFICIAL.
3. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND APPLICABLE STANDARDS OF QUALITY AND WORKMANSHIP OF THE BUILDING CODE.
4. THE CONTRACTOR SHALL HOLD A PRE-CONSTRUCTION MEETING INVOLVING THE PORT, STRUCTURAL ENGINEER, AND THE SPECIAL INSPECTOR IN ORDER TO DISCUSS THE SPECIFIC REQUIREMENTS OF THIS PROJECT.
5. TERMINOLOGY:
   a. CONTINUOUS: SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS PRESENT WHEN AND WHERE THE WORK TO BE INSPECTED IS BEING PERFORMED.
   b. PERIODIC: SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS INTERMITTENTLY PRESENT WHERE THE WORK TO BE INSPECTED HAS BEEN PERFORMED OR IS BEING PERFORMED.
   c. OBSERVE: OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.
   d. PERFORM: PERFORM THESE TASKS FOR EACH ELEMENT.
6. INDICATED TESTING MEETS MINIMUM REQUIREMENTS FOR STRUCTURAL TESTING TO BE PROVIDED BY THE APPROVED QUALIFIED TESTING AND INSPECTING AGENCY. ADDITIONAL TESTS FOR CONSTRUCTION CONSIDERATIONS ARE NOT INDICATED. THE NEED FOR SUCH ADDITIONAL TESTS SHALL BE DETERMINED BY THE CONTRACTOR AND PROVIDED AT THE CONTRACTOR'S EXPENSE.
7. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

REFERENCE STANDARD EDITIONS:

CALIFORNIA BUILDING CODE	2022
ACI 318	2019*
ACI 440.2R	2008
ACI 440.3R	2012
ACI 506.2	2013*
ANSI/AISC 341	2016*
ANSI/AISC 360	2016*
ANSI/SDI QA/QC	2017*
ASTM C31	2018*
ASTM C39	2018
ASTM C42	2018a
ASTM C94	2017*
ASTM C143	2015a
ASTM C780	2018a
ASTM C1019	2016*
ASTM C1064	2017
ASTM C1077	2017
ASTM C1314	2018
ASTM D1557	2012-e1*
ASTM D3740	2012a
ASTM D7522	2015
ASTM E164	2019
ASTM E329	2018
ASTM E488	2018
ASTM E543	2015
ASTM E709	2015
AWS D1.1	2015*
AWS D1.4	2018*
RCSC SPECIFICATION	2014*
SJI 100	2022*
SJI 200	2015*
TMS 602	2016*

* REFERENCE STANDARD CITED BY CBC 2022, CHAPTER 35

CAST-IN-PLACE CONCRETE

ITEM NO.	SYSTEM, MATERIAL OR ELEMENT	BUILDING CODE REFERENCE	MATERIAL STANDARD REFERENCE	FREQUENCY		REMARKS
				CONTINUOUS	PERIODIC	
1	VERIFY THAT THE CONCRETE DELIVERED TO THE JOB HAS BEEN PREPARED WITH THE APPROVED MIX DESIGN APPROPRIATE FOR THE APPLICATION AND IS TRANSPORTED AND PLACED WITHIN THE TIME AND UNDER THE CONDITIONS PERMITTED BY ASTM C94 AND THE PROJECT SPECIFICATIONS.	TABLE 1705.3, 1904.1, 1904.2, 1908.2, 1908.3	ASTM C94, ACI 318: CH. 19, 26.4.3, 26.4.4		X	
2	VERIFY THAT THE CONCRETE IS PLACED, CONSOLIDATED, AND FINISHED AS INDICATED ON THE DRAWINGS.	TABLE 1705.3, 1908.6, 1908.7, 1908.8	ACI 318: 26.5	X		
3	VERIFY THAT STRENGTH TEST SPECIMENS ARE TAKEN AND CURED AS INDICATED IN THE PROJECT SPECIFICATIONS					
4	SAMPLING OF FRESH CONCRETE	TABLE 1705.3, 1908.1	ACI 318: 26.5, 26.12	X		
A	SLUMP: ONE TEST AT POINT OF PLACEMENT FOR EACH SET OF COMPRESSION TEST SPECIMENS; ADDITIONAL TESTS WHEN CONCRETE CONSISTENCY SEEMS TO HAVE CHANGED.		ASTM C143			
B	CONCRETE TEMPERATURE: ONE TEST HOURLY WHEN AIR TEMPERATURE IS 40 DEGREES FAHRENHEIT AND BELOW OR 80 DEGREES FAHRENHEIT AND ABOVE, AND ONE TEST FOR EACH SET OF COMPRESSIVE-STRENGTH SPECIMENS.		ASTM C1064			
C	COMPRESSION TEST SPECIMENS: ONE SET OF FOUR STANDARD CYLINDERS FOR EACH COMPRESSIVE-STRENGTH TEST, UNLESS OTHERWISE DIRECTED. MOLD AND STORE CYLINDERS FOR LABORATORY-CURED TEST SPECIMENS EXCEPT WHEN FIELD-CURED TEST SPECIMENS ARE REQUIRED.		ASTM C31			FREQUENCY OF TESTS: A MINIMUM OF ONE SET OF CYLINDERS SHALL BE TESTED FOR ANY INDIVIDUAL STRUCTURE OR EACH DAY'S PLACEMENT OF A CLASS OF CONCRETE EXCEEDING 25 CUBIC YARDS. AN ADDITIONAL SET OF CYLINDERS SHALL BE TESTED FOR EACH 100 CUBIC YARDS OF EACH CLASS OF CONCRETE. WHEN FREQUENCY OF TESTING WILL PROVIDE FEWER THAN FIVE STRENGTH TESTS FOR A GIVEN CLASS OF CONCRETE, CONDUCT TESTING FROM AT LEAST FIVE RANDOMLY SELECTED BATCHES OR FROM EACH BATCH IF FEWER THAN FIVE ARE USED.
D	COMPRESSIVE-STRENGTH TESTS: ONE SPECIMEN SHALL BE TESTED AT 7 DAYS, TWO SPECIMENS TESTED AT 28 DAYS, AND ONE SPECIMEN RETAINED FOR LATER TESTING IF REQUIRED.		ASTM C39			
5	VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	TABLE 1705.3				

POST-INSTALLED ANCHORS

ITEM NO.	SYSTEM, MATERIAL OR ELEMENT	BUILDING CODE REFERENCE	MATERIAL STANDARD REFERENCE	FREQUENCY		REMARKS
				CONTINUOUS	PERIODIC	
1	APPROVED PRODUCTS: VERIFY THAT THE SPECIFIC MANUFACTURER AND MODEL OF ANCHORS HAVE BEEN APPROVED FOR THE APPLICATION BY THE ARCHITECT/ENGINEER.	TABLE 1705.3			X	SEE GENERAL NOTES FOR APPROVED PRODUCTS
2	VERIFICATION OF DRILLED HOLES: VERIFY THAT HOLES ARE DRILLED AT THE ANGLE REQUIRED AND OF THE DIAMETER AND DEPTH REQUIRED. VERIFY THAT HOLES ARE CLEAN PRIOR TO INSTALLATION OF ANCHORS.				X	
3	ADHESIVE ANCHORS: VERIFY THAT THE ADHESIVE PACKAGING INDICATES AN EXPIRATION DATE AND THAT THE EXPIRATION DATE HAS NOT PASSED. VERIFY THAT ADHESIVE IS MIXED PROPERLY AND THAT THE INITIAL PORTION OF ADHESIVE COMING OUT OF THE NOZZLE IS WASTED, AS REQUIRED BY THE MANUFACTURER. VERIFY THAT THE ANCHORS ARE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.			X		ADHESIVE ANCHORS INCLUDE THREADED RODS AND REINFORCING BARS SET IN HOLES FILLED WITH ADHESIVE.
4	MECHANICAL ANCHORS: VERIFY THAT THE ANCHORS ARE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.				X	
5	ANCHOR TESTING: TEST TEN PERCENT OF EACH APPLICATION OF ANCHORS TO THE TENSILE OR TORQUE PROOF LOAD AS INDICATED IN THE GENERAL NOTES. ONE APPLICATION OF ANCHORS SHALL BE DEFINED AS THOSE ANCHORS INSTALLED BY A SINGLE CREW IN A SINGLE DAY.				X	TEST LOCATIONS ARE RANDOM AT THE DISCRETION OF THE SPECIAL INSPECTOR, UNLESS OTHERWISE DIRECTED BY THE ARCHITECT/ENGINEER. IF ANY ANCHOR FAILS THE TEST, TEST ALL ANCHORS IN THE SAME APPLICATION NOT PREVIOUSLY TESTED UNTIL 10 CONSECUTIVE ANCHORS PASS
A	TENSION TESTS: TENSION TEST LOADS SHALL BE MAINTAINED FOR A MINIMUM OF ONE MINUTE. ANCHOR DISPLACEMENT AT THE END OF THE LOADING PERIOD SHALL BE LIMITED TO ONE-FIFTH OF THE NOMINAL ANCHOR DIAMETER. DISPLACEMENT FOLLOWING RELEASE OF LOAD SHALL RETURN TO ZERO.		ASTM E488		X	APPLICABLE TO ADHESIVE ANCHORS
B	TORQUE TESTS: REQUIRED TORQUE MUST BE REACHED WITHIN A HALF TURN OF THE NUT FROM SNUG, EXCEPT FOR 3/8" DIAMETER ANCHORS, FOR WHICH THE REQUIRED TORQUE MUST BE REACHED WITHIN A QUARTER TURN OF THE NUT FROM SNUG.				X	APPLICABLE TO MECHANICAL ANCHORS

REGISTERED PROFESSIONAL ENGINEER
WILLIAM M. BRUNN
No. C 57867
CIVIL
STATE OF CALIFORNIA

3/17/2025

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PORT OF SAN FRANCISCO
DEPARTMENT OF ENGINEERING

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RTB	05/05/23
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APPROVED BY
SAN FRANCISCO PORT COMMISSION
DATE: _____
Uday Prasad
Digitally signed by Uday Prasad
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Date: 2025.03.19 11:45:49-07'00'
CHIEF HARBOR ENGINEER

PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

STATEMENT OF STRUCTURAL OBSERVATION AND SPECIAL INSPECTIONS

CONTRACT NO. 2871
DRAWING NO. 22134-80-S
SHEET NO. S-004
4 OF 27

I:\SF\PROJECTS\2022\227186.00-TP80\DRAWINGS\WORKING_SET\TP80_S-004 SPECIAL INSP & OBSERV NOTES

EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS
SCALE FACTOR: XX
PLOT SCALE: 1=1
FILE NAME: TP80_S-004 SPECIAL INSP & OBSERV NOTES.DWG
DATE: 04/04/23

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3/17/2025

REGISTERED PROFESSIONAL ENGINEER WILLIAM M. BRUIN No. C 57867 CIVIL STATE OF CALIFORNIA

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DATE:
Uday Prasad
Digitally signed by Uday Prasad
Date: 2025.03.19
CHIEF HARBOR ENGINEER

PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

GENERAL SITE PLAN

CONTRACT NO. 2871
DRAWING NO. 22134-80-S
SHEET NO. S-101
5 OF 27

EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS
SCALE FACTOR: XX
PLOT SCALE: 1=1
FILE NAME: TP80_S-101 GENERAL SITE PLAN
DATE: 04/04/23

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EAST BERTH

PILES REMOVED	
VISIBLE ABOVE WATER	23 EA
ASSUMED BELOW WATER	210 EA

FENDER SYSTEM REMOVED	
FENDER WALER/CHOCK	575 LFT

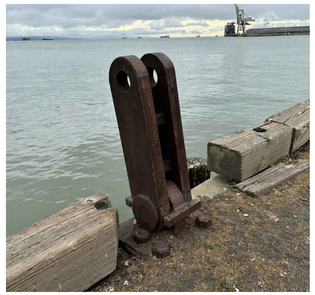
NORTH BERTH
(ALTERNATE BID ITEM)

PILES REMOVED	
VISIBLE ABOVE WATER	118 EA
ASSUMED BELOW WATER	229 EA

FENDER SYSTEM REMOVED	
FENDER WALER/CHOCK	1103 LFT

NOTES:

1. DEMO QUANTITIES FOR THE NORTH BERTH ARE CONSIDERED PART OF THE ALTERNATE BID ITEMS.
2. BENT NUMBERS SHOWN ARE BASED ON (E) PIER 80 DRAWINGS DATED 8 JULY 1963.



2 (E) CRANE LOCK, TYP.

DEMO NOTES:

1. REMOVE CRANE LOCK
2. FILL THROUGH-BOLT HOLES WITH GROUT TO MATCH DECK ELEVATION

3 (E) UTILITY VAULT & CURB, TYP.

DEMO NOTES:

1. DEMO CONCRETE TO MATCH DECK ELEVATION
2. FILL ABANDONED PVC HOLES WITH GROUT
3. WHERE (E) UTILITIES ARE ENCOUNTERED IN VAULT, NOTIFY PORT
4. FILL ANY VAULT VOIDS WITH GROUT TO MATCH DECK ELEVATION

4 (E) TEMP. FENDER SYSTEM, TYP.

DEMO NOTES:

1. REMOVE AND SALVAGE (E) FOAM FENDER AND CONNECTING HARDWARE.
2. REMOVE (E) TIMBER FENDER PAD AND SALVAGE TIMBER BULLRAIL WHERE APPLICABLE.
3. CONTRACTOR TO RETURN ALL SALVAGED MATERIALS TO PORT MAINTENANCE.
4. UNBOLT AND REMOVE CHAIN BRACKETS FROM TOP AND BOTTOM OF DECK.
5. FILL THROUGH-BOLT HOLES WITH GROUT TO MATCH DECK ELEVATION.

1 PIER 80 – DEMOLITION SITE PLAN

SCALE: 1"=100'-0"

3/17/2025

REGISTERED PROFESSIONAL ENGINEER
WILLIAM M. BRUIN
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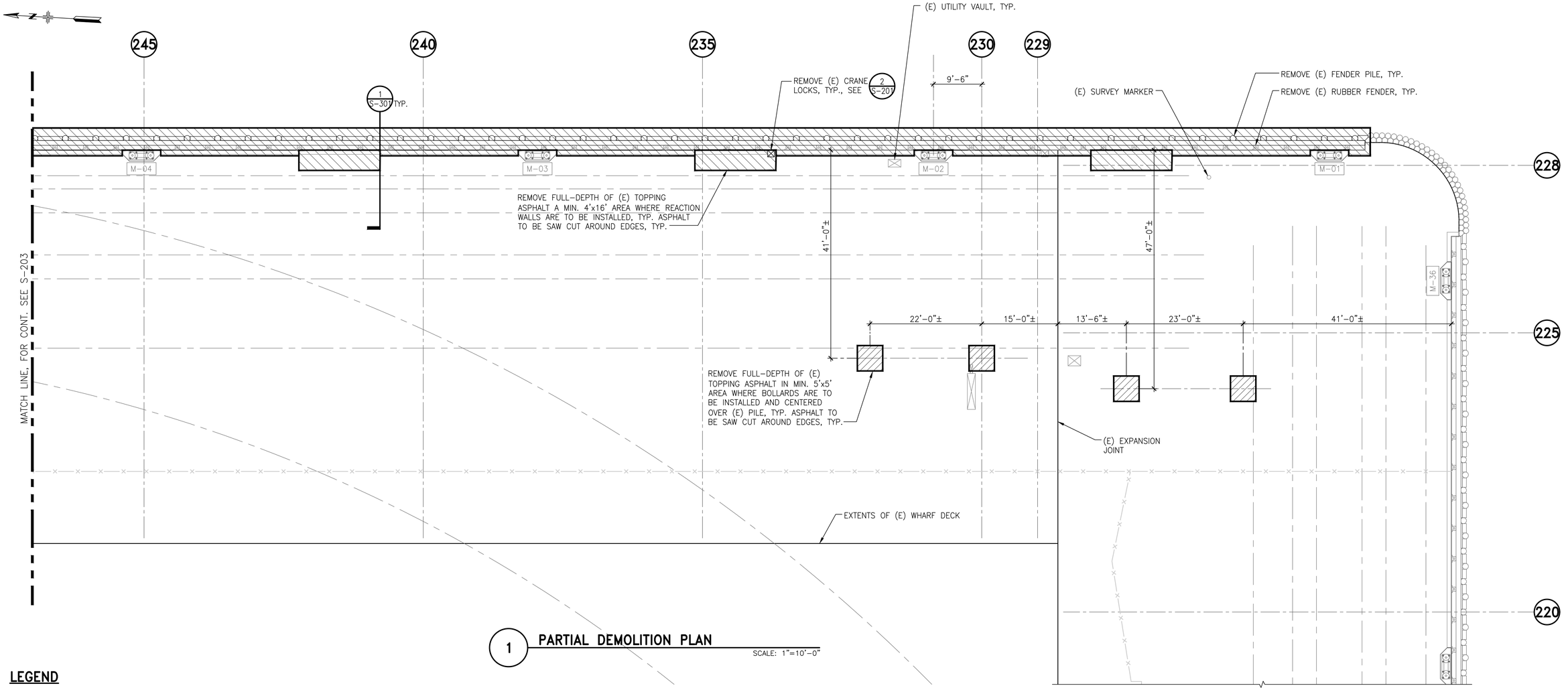
PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

DEMOLITION SITE PLAN

CONTRACT NO.	2871
DRAWING NO.	22135-80-S
SHEET NO.	S-201
	6 OF 27

I:\SF\PROJECTS\2022\227186.00-TP80\DRAWINGS\WORKING_SET\TP80_S-201 DEMO PLAN

FILE NAME: TP80_S-201 DEMO PLAN.DWG ORIGIN: SECTION
DATE: 04/04/23
SCALE FACTOR: XX
PLOT SCALE: 1=1
EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS



1 PARTIAL DEMOLITION PLAN

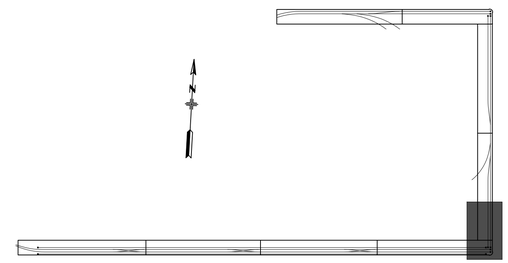
SCALE: 1"=10'-0"

LEGEND

- (E) DOUBLE BITT BOLLARD
- M-02 — (E) DOUBLE BITT BOLLARD ID
- (E) BOLLARD
- B-02N — (E) BOLLARD ID
- DEMOLITION EXTENTS
- (E) FENCE
- (E) RAIL TRACK

NOTE:

1. DEMO (E) ABANDONED ELECTRICAL CONDUIT AND PIPES LOCATED ALONG THE FACE OF THE WHARF ABOVE TIMBER FENDERING.



KEY PLAN

3/17/2025

REGISTERED PROFESSIONAL ENGINEER WILLIAM M. BRUIN No. C 57867 CIVIL STATE OF CALIFORNIA

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DEPARTMENT OF ENGINEERING

DESIGNED: ACD/MLA	DATE: 02/10/25
DRAWN: RTB	DATE: 05/05/23
CHECKED: WMB	DATE: 03/17/25

APPROVED BY
SAN FRANCISCO PORT COMMISSION
DATE: _____
Uday Prasad
CHIEF HARBOR ENGINEER
Digitally signed by Uday Prasad
DN: C=US, E=uday.prasad@sfport.com, O=Port of San Francisco, OU=Engineering, CN=Uday Prasad
Date: 2025.03.19 11:45:00-07'00'

PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

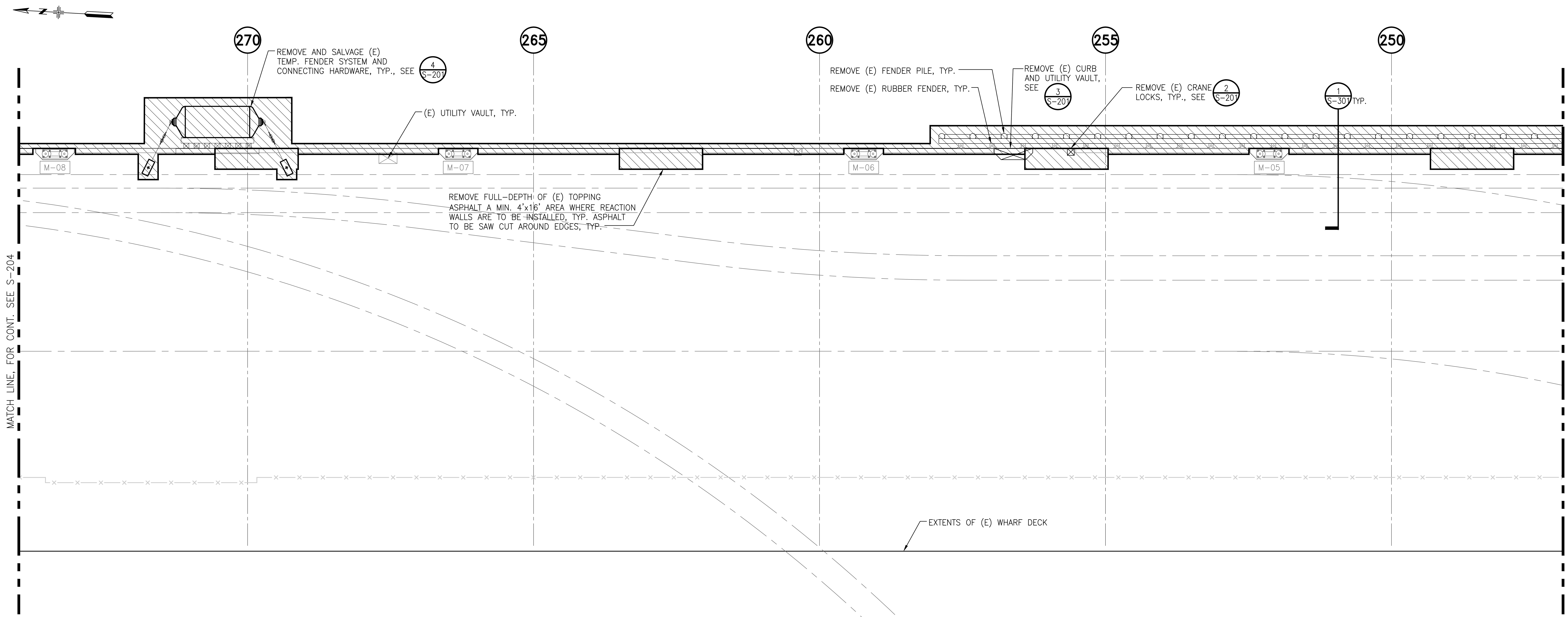
PARTIAL DEMOLITION PLAN
SHEET 1

CONTRACT NO.	2871
DRAWING NO.	22136-80-S
SHEET NO.	S-202
	7 OF 27

I:\SF\PROJECTS\2022\227186.00-TP80\DRAWINGS\WORKING_SET\TP80_S-202 - S-209 PARTIAL DEMO PLANS

FILE NAME: TP80_S-202 - S-209 PARTIAL DEMO PLANS.DWG
DATE: 04/04/23
SCALE FACTOR: XX
PLOT SCALE: 1=1
EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS

NOT FOR CONSTRUCTION - ISSUED FOR BID



2 PARTIAL DEMOLITION PLAN

SCALE: 1"=10'-0"

LEGEND

(E) DOUBLE BITT BOLLARD

M-02 (E) DOUBLE BITT BOLLARD ID

(E) BOLLARD

B-02N (E) BOLLARD ID

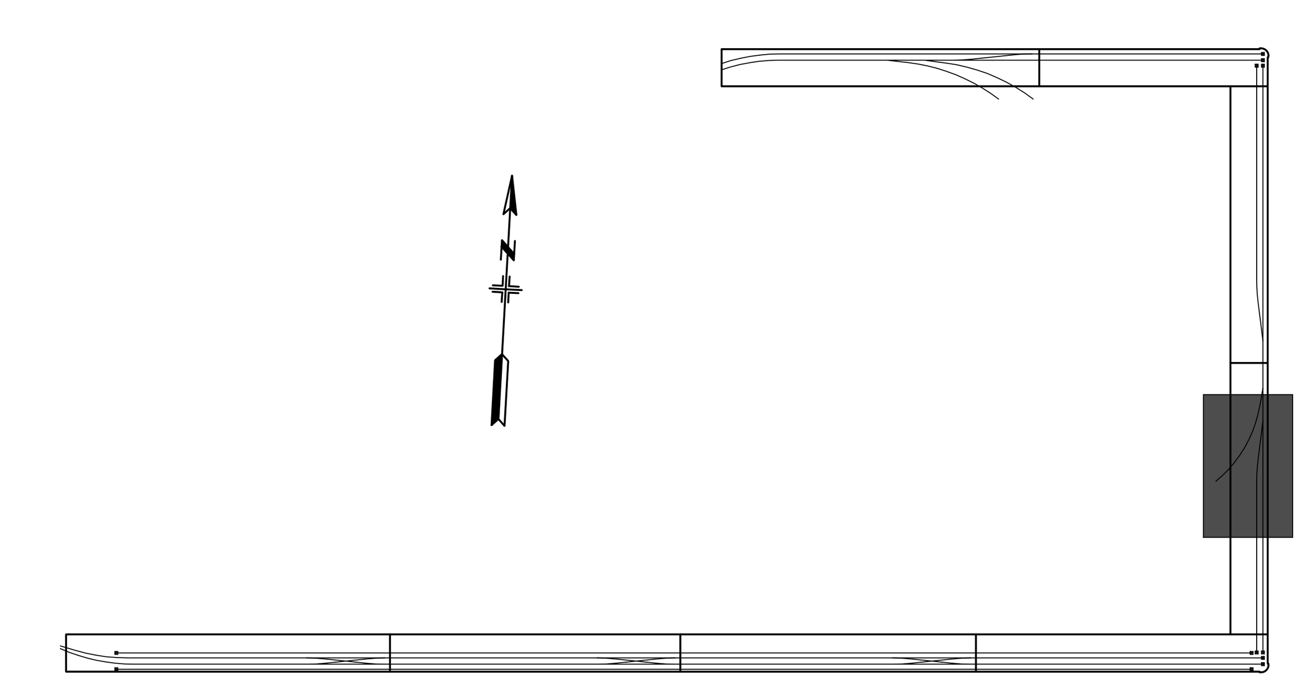
DEMOLITION EXTENTS

(E) FENCE

(E) RAIL TRACK

NOTE:

1. DEMO (E) ABANDONED ELECTRICAL CONDUIT AND PIPES LOCATED ALONG THE FACE OF THE WHARF ABOVE TIMBER FENDERING.



KEY PLAN

3/17/2025

REGISTERED PROFESSIONAL ENGINEER WILLIAM M. BRUIN No. C 57867 CIVIL STATE OF CALIFORNIA

EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS

SCALE FACTOR: XX
PLOT SCALE: 1=1

NO.	DATE	DESCRIPTION	BY	APP.
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Oakland, CA 94612
415.495.3700
sgh.com

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PORT OF SAN FRANCISCO
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CHIEF HARBOR ENGINEER

PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

PARTIAL DEMOLITION PLAN
SHEET 2

CONTRACT NO. 2871
DRAWING NO. 22137-80-S
SHEET NO. S-203

FILE NAME: TP80_S-202 - S-209 PARTIAL DEMO PLANS
DATE: 04/04/23

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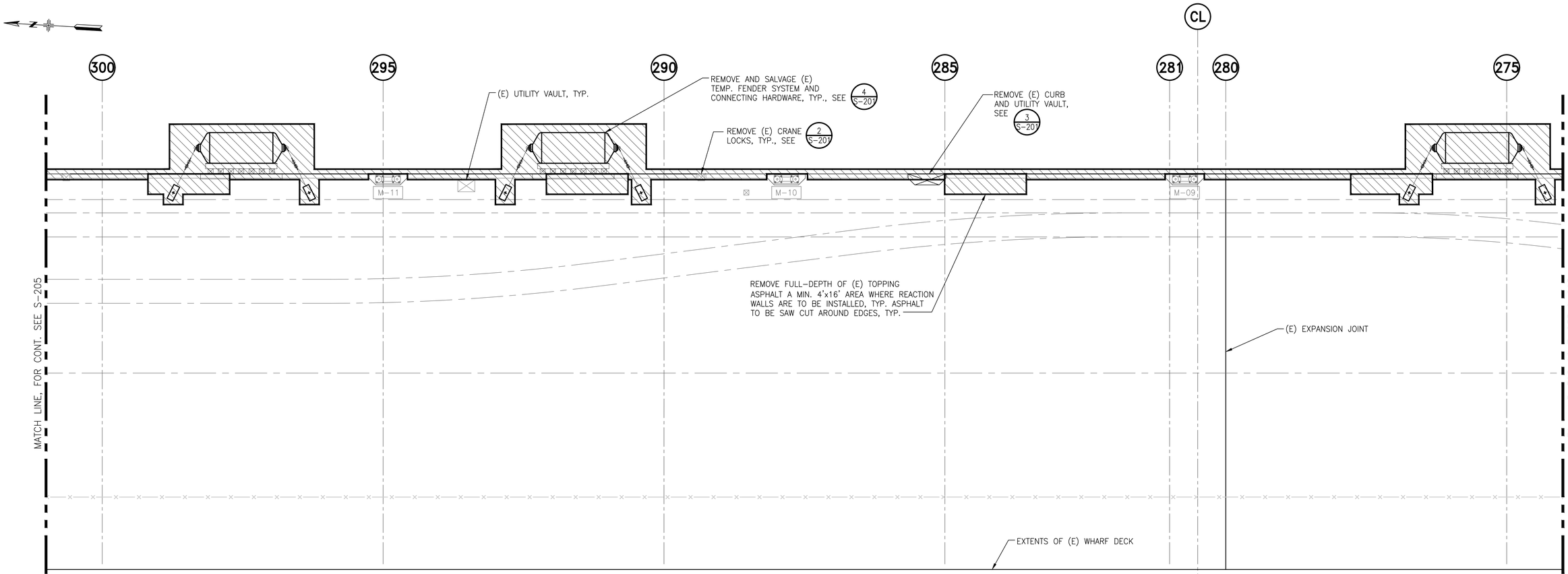


3 PARTIAL DEMOLITION PLAN

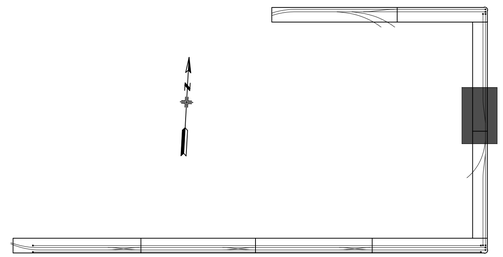
SCALE: 1"=10'-0"

LEGEND

- (E) DOUBLE BITT BOLLARD
- M-02 — (E) DOUBLE BITT BOLLARD ID
- (E) BOLLARD
- B-02N — (E) BOLLARD ID
- DEMOLITION EXTENTS
- (E) FENCE
- (E) RAIL TRACK

NOTE:

1. DEMO (E) ABANDONED ELECTRICAL CONDUIT AND PIPES LOCATED ALONG THE FACE OF THE WHARF ABOVE TIMBER FENDERING.



KEY PLAN

3/17/2025

REGISTERED PROFESSIONAL ENGINEER
WILLIAM M. BRUIN
No. C 57867
CIVIL
STATE OF CALIFORNIA

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CHIEF HARBOR ENGINEER

PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

PARTIAL DEMOLITION PLAN
SHEET 3

CONTRACT NO. 2871
DRAWING NO. 22138-80-S
SHEET NO. S-204
9 OF 27

FILE NAME: TP80_S-202 - S-209 PARTIAL DEMO PLANS.DWG
DATE: 04/04/23
SCALE FACTOR: XX
PLOT SCALE: 1 = 1
EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS

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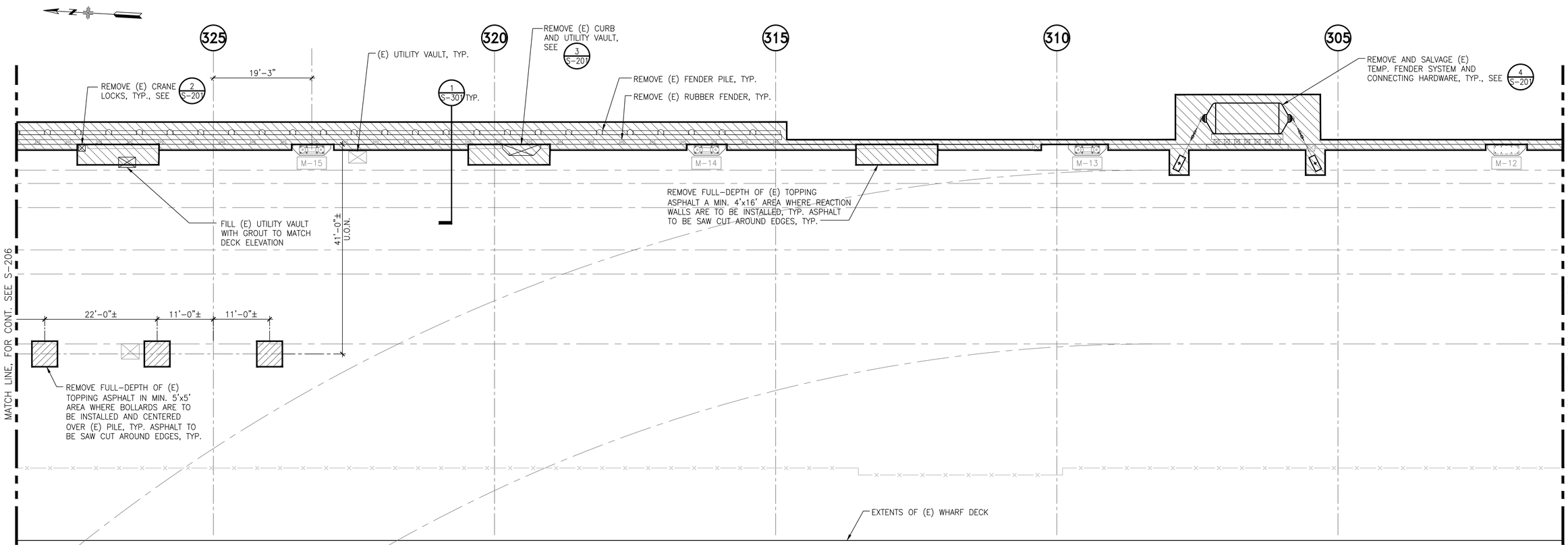


4 PARTIAL DEMOLITION PLAN

SCALE: 1"=10'-0"

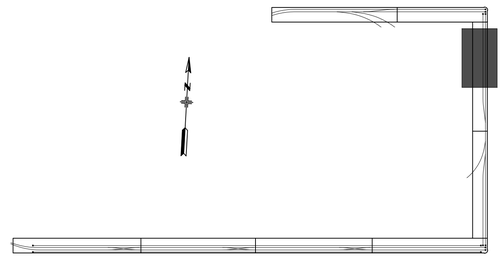
NOT FOR CONSTRUCTION - ISSUED FOR BID

LEGEND

- (E) DOUBLE BITT BOLLARD
- M-02 — (E) DOUBLE BITT BOLLARD ID
- (E) BOLLARD
- B-02N — (E) BOLLARD ID
- DEMOLITION EXTENTS
- (E) FENCE
- (E) RAIL TRACK

NOTE:

1. DEMO (E) ABANDONED ELECTRICAL CONDUIT AND PIPES LOCATED ALONG THE FACE OF THE WHARF ABOVE TIMBER FENDERING.



KEY PLAN

3/17/2025

REGISTERED PROFESSIONAL ENGINEER
WILLIAM M. BRUIN
No. C 57867
CIVIL
STATE OF CALIFORNIA

NO.	DATE	DESCRIPTION	BY	APP.
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PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

PARTIAL DEMOLITION PLAN
SHEET 4

CONTRACT NO. 2871
DRAWING NO. 22139-80-S
SHEET NO. S-205
10 OF 27

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FILE NAME: TP80_S-202 - S-209 PARTIAL DEMO PLANS.DWG
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SCALE FACTOR: XX
PLOT SCALE: 1 = 1
EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS

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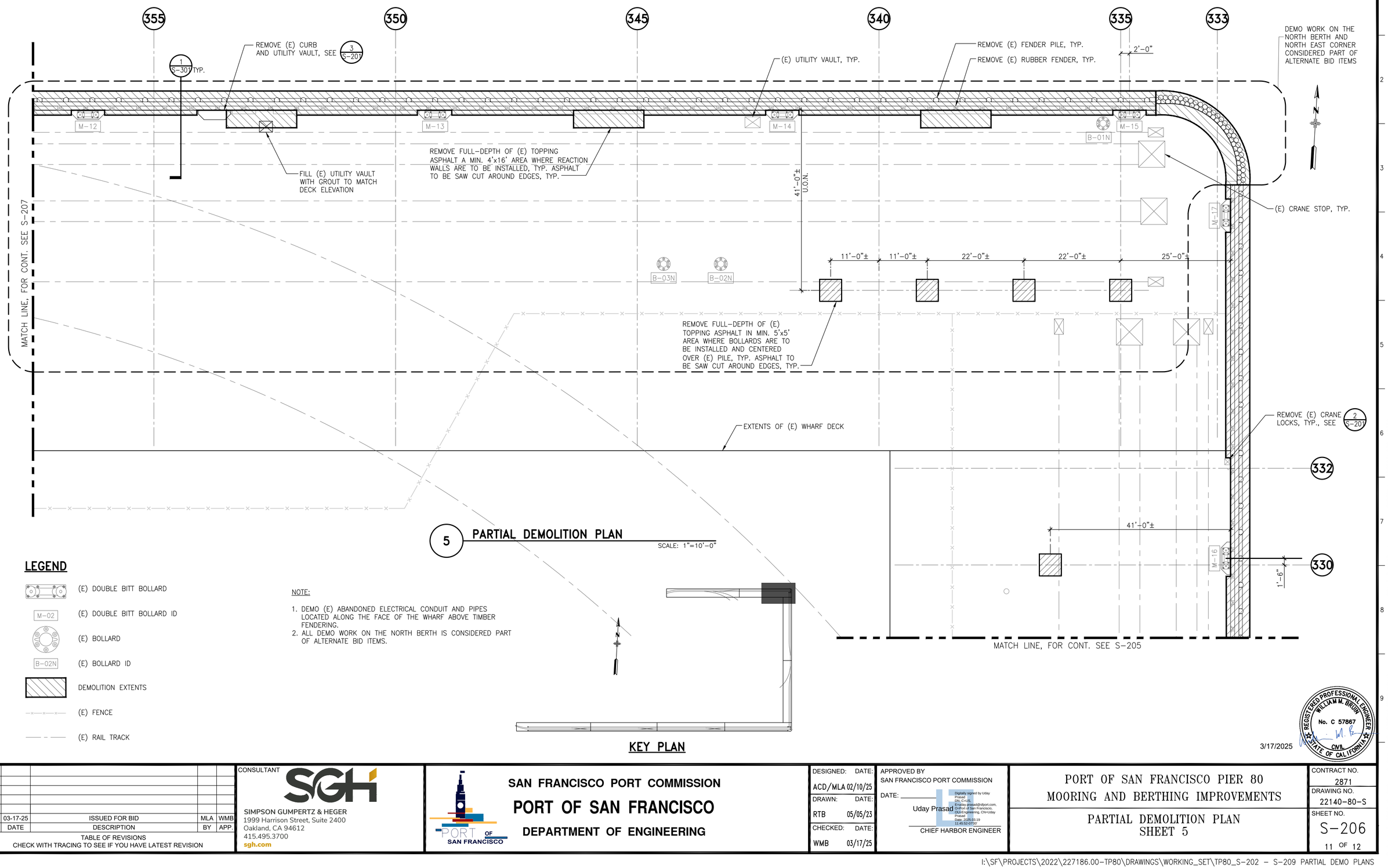

5 PARTIAL DEMOLITION PLAN

SCALE: 1"=10'-0"

LEGEND

- (E) DOUBLE BITT BOLLARD
- M-02 — (E) DOUBLE BITT BOLLARD ID
- (E) BOLLARD
- B-02N — (E) BOLLARD ID
- DEMOLITION EXTENTS
- (E) FENCE
- (E) RAIL TRACK

NOTE:

1. DEMO (E) ABANDONED ELECTRICAL CONDUIT AND PIPES LOCATED ALONG THE FACE OF THE WHARF ABOVE TIMBER FENDERING.
2. ALL DEMO WORK ON THE NORTH BERTH IS CONSIDERED PART OF ALTERNATE BID ITEMS.

KEY PLAN

REGISTERED PROFESSIONAL ENGINEER
WILLIAM M. BRUN
No. C 57867
CIVIL
STATE OF CALIFORNIA

3/17/2025

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PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

PARTIAL DEMOLITION PLAN
SHEET 5

CONTRACT NO. 2871
DRAWING NO. 22140-80-S
SHEET NO. S-206
11 OF 12

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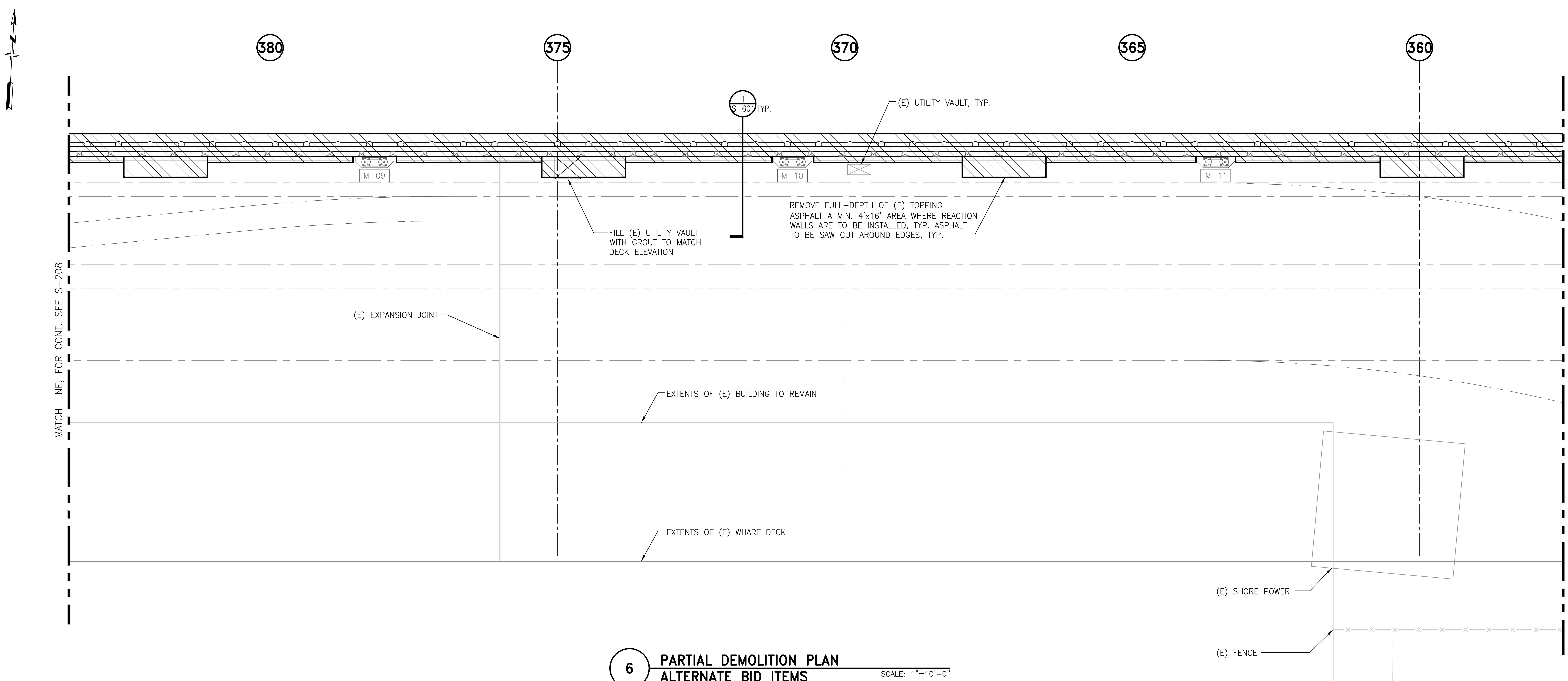
EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS
SCALE FACTOR: XX
PLOT SCALE: 1=1
FILE NAME: TP80_S-202 - S-209 PARTIAL DEMO PLANS.DWG
DATE: 04/04/23



6 **PARTIAL DEMOLITION PLAN**
ALTERNATE BID ITEMS

SCALE: 1"=10'-0"

LEGEND

- (E) DOUBLE BITT BOLLARD
- M-02 — (E) DOUBLE BITT BOLLARD ID
- (E) BOLLARD
- B-02N — (E) BOLLARD ID
- DEMOLITION EXTENTS
- —x—x— (E) FENCE
- — — (E) RAIL TRACK

NOTE:

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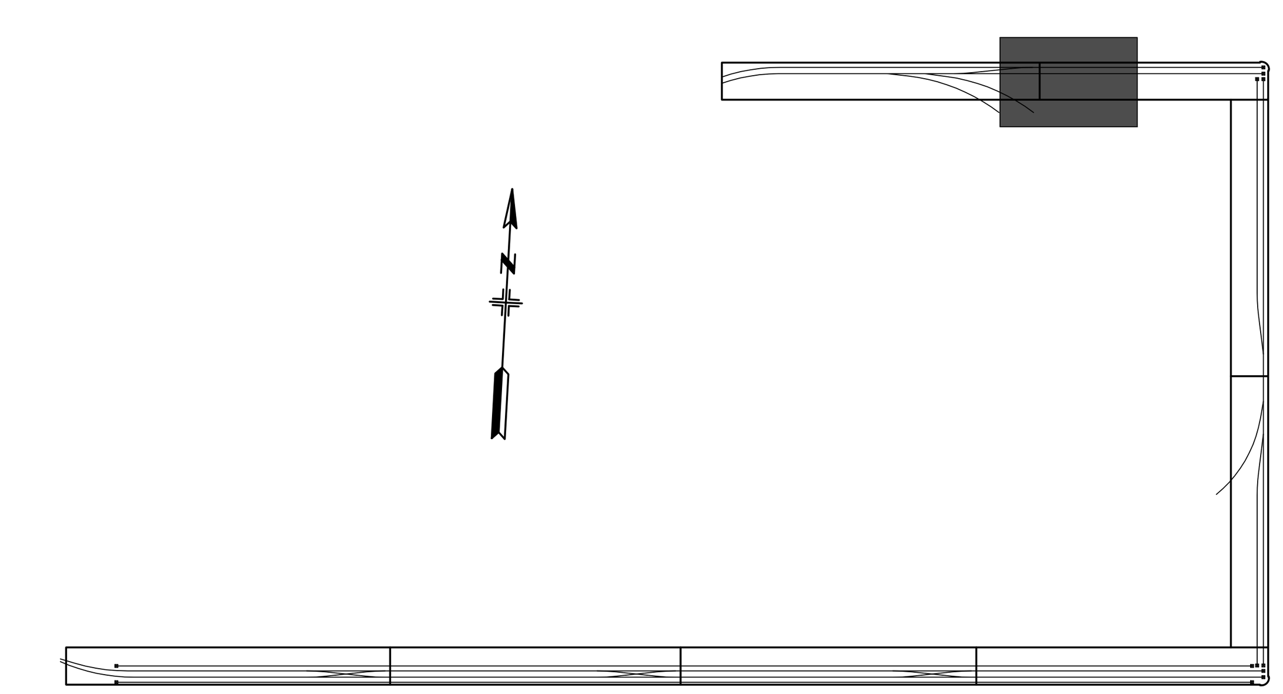

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3/17/2025

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PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

PARTIAL DEMOLITION PLAN
SHEET 6

CONTRACT NO. 2871
DRAWING NO. 22141-80-S
SHEET NO. S-207
12 OF 27

EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS
SCALE FACTOR: XX
PLOT SCALE: 1=1
FILE NAME: TP80_S-202 - S-209 PARTIAL DEMO PLANS.DWG
DATE: 04/04/23

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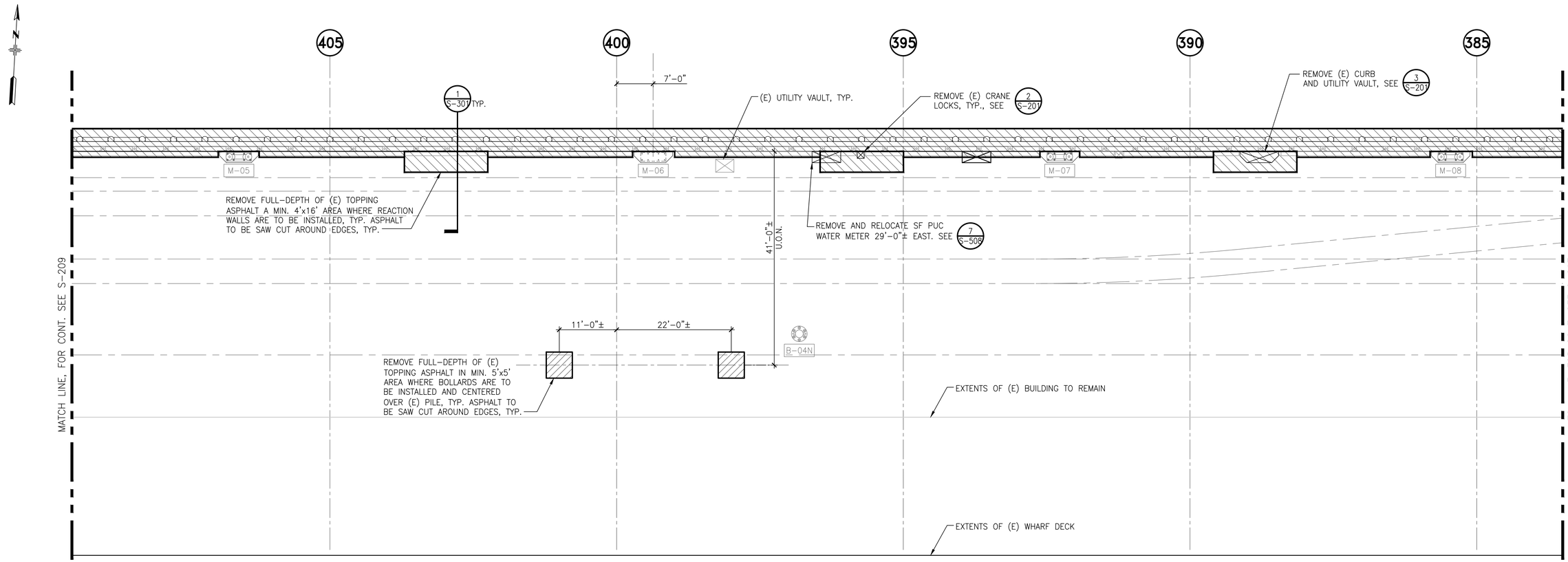

7 PARTIAL DEMOLITION PLAN ALTERNATE BID ITEMS

SCALE: 1"=10'-0"

LEGEND

- (E) DOUBLE BITT BOLLARD
- M-02 — (E) DOUBLE BITT BOLLARD ID
- (E) BOLLARD
- B-02N — (E) BOLLARD ID
- DEMOLITION EXTENTS
- (E) FENCE
- (E) RAIL TRACK

NOTE:

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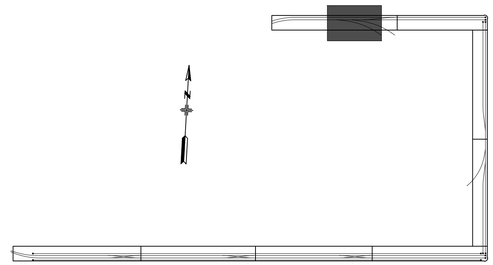

KEY PLAN

3/17/2025

REGISTERED PROFESSIONAL ENGINEER WILLIAM M. BRUIN No. C 57867 CIVIL STATE OF CALIFORNIA

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PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

PARTIAL DEMOLITION PLAN
SHEET 7

CONTRACT NO. 2871
DRAWING NO. 22142-80-S
SHEET NO. S-208
13 OF 27

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FILE NAME: TP80_S-202 - S-209 PARTIAL DEMO PLANS.DWG
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SCALE FACTOR: XX
PLOT SCALE: 1 = 1
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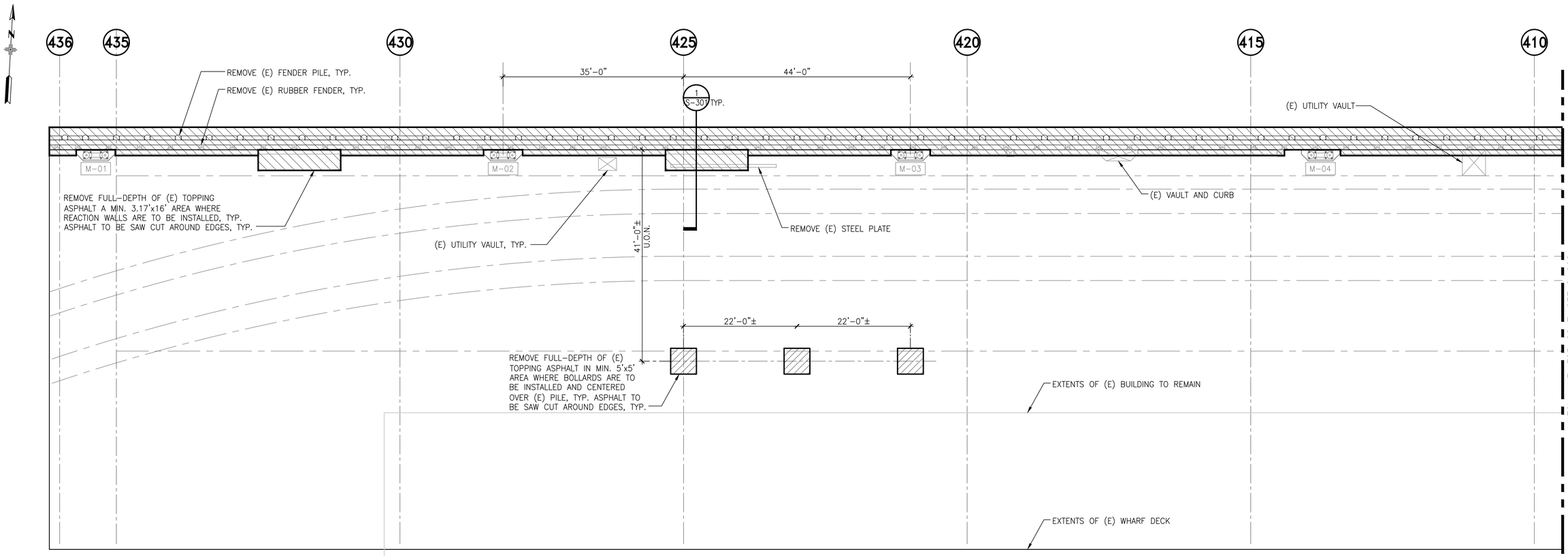
FONTS USED: FONTS



8 PARTIAL DEMOLITION PLAN ALTERNATE BID ITEMS

SCALE: 1"=10'-0"

LEGEND

- (E) DOUBLE BITT BOLLARD
- M-02 — (E) DOUBLE BITT BOLLARD ID
- (E) BOLLARD
- B-02N — (E) BOLLARD ID
- DEMOLITION EXTENTS
- (E) FENCE
- (E) RAIL TRACK

NOTE:

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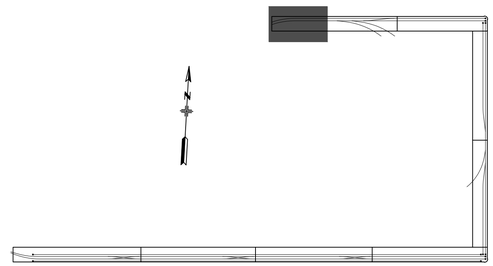

KEY PLAN

3/17/2025

REGISTERED PROFESSIONAL ENGINEER WILLIAM M. BRUIN No. C 57867 CIVIL STATE OF CALIFORNIA

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CHIEF HARBOR ENGINEER

PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

PARTIAL DEMOLITION PLAN
SHEET 8

CONTRACT NO. 2871
DRAWING NO. 22143-80-S
SHEET NO. S-209
14 OF 27

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FILE NAME: TP80_S-202 - S-209 PARTIAL DEMO PLANS.DWG
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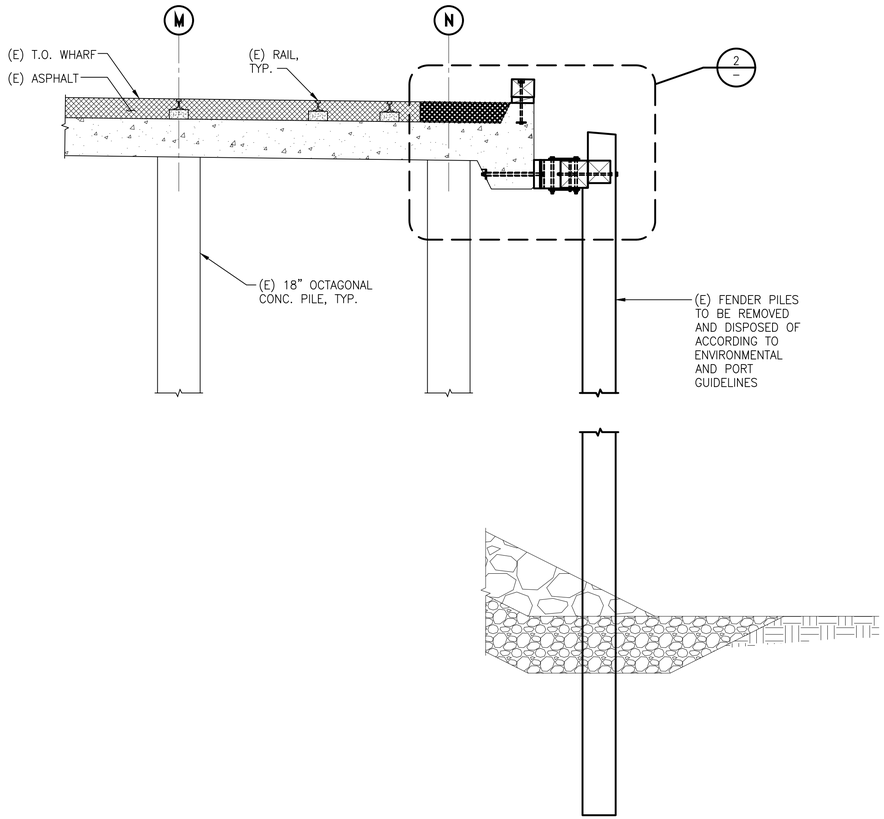
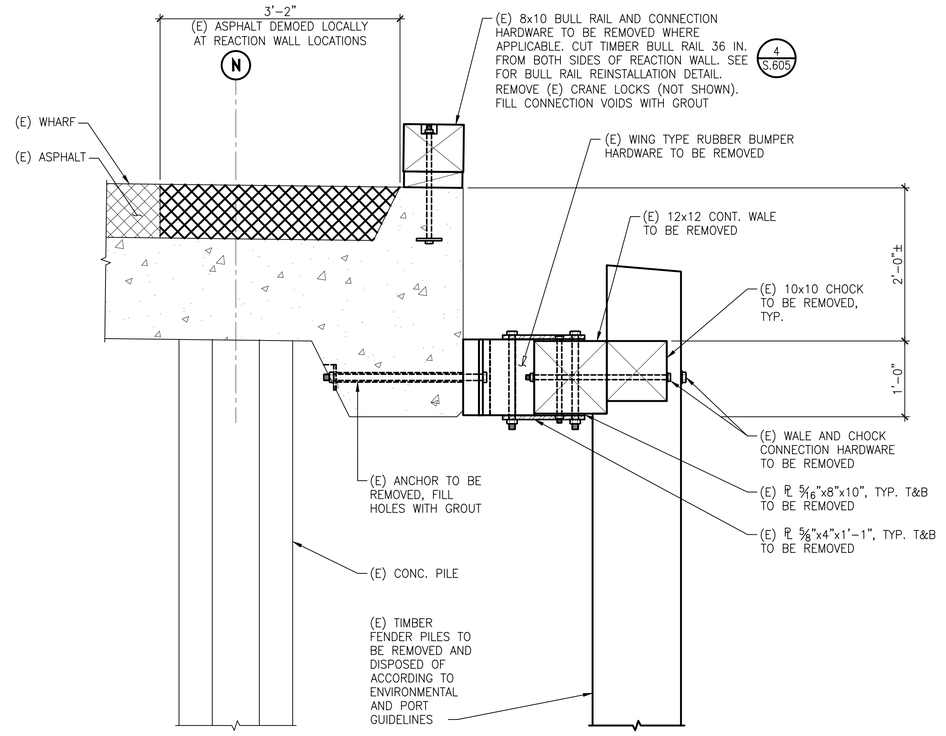
PLOT SCALE: 1 = 1
EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS



TP80_S-301_001

1 TYPICAL DEMOLITION SECTION

SCALE: 3/8"=1'-0"



TP80_S-301_002

2 FENDER DEMOLITION DETAIL

SCALE: 1"=1'-0"

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3/17/2025

REGISTERED PROFESSIONAL ENGINEER
WILLIAM M. BRUIN
No. C 57867
CIVIL
STATE OF CALIFORNIA

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PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

DEMOLITION SECTION AND DETAILS

CONTRACT NO. 2871
DRAWING NO. 22144-80-S
SHEET NO. S-301
15 OF 27

FILE NAME: TP80_S-301 DEMO SECTION & DETAILS
DATE: 04/04/23

EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS
SCALE FACTOR: XX
PLOT SCALE: 1=1

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FENDER INSTALLATION LOCATIONS NORTH BERTH FENDER SCHEDULE	
ITEM	BENT
FENDER	29+46N
FENDER	30+25N
FENDER	32+63N
FENDER	33+42N
FENDER	34+18N
FENDER	34+96N
FENDER	35+76N
FENDER	36+56N
FENDER	37+36N
FENDER	38+15N
FENDER	38+94N
FENDER	39+73N

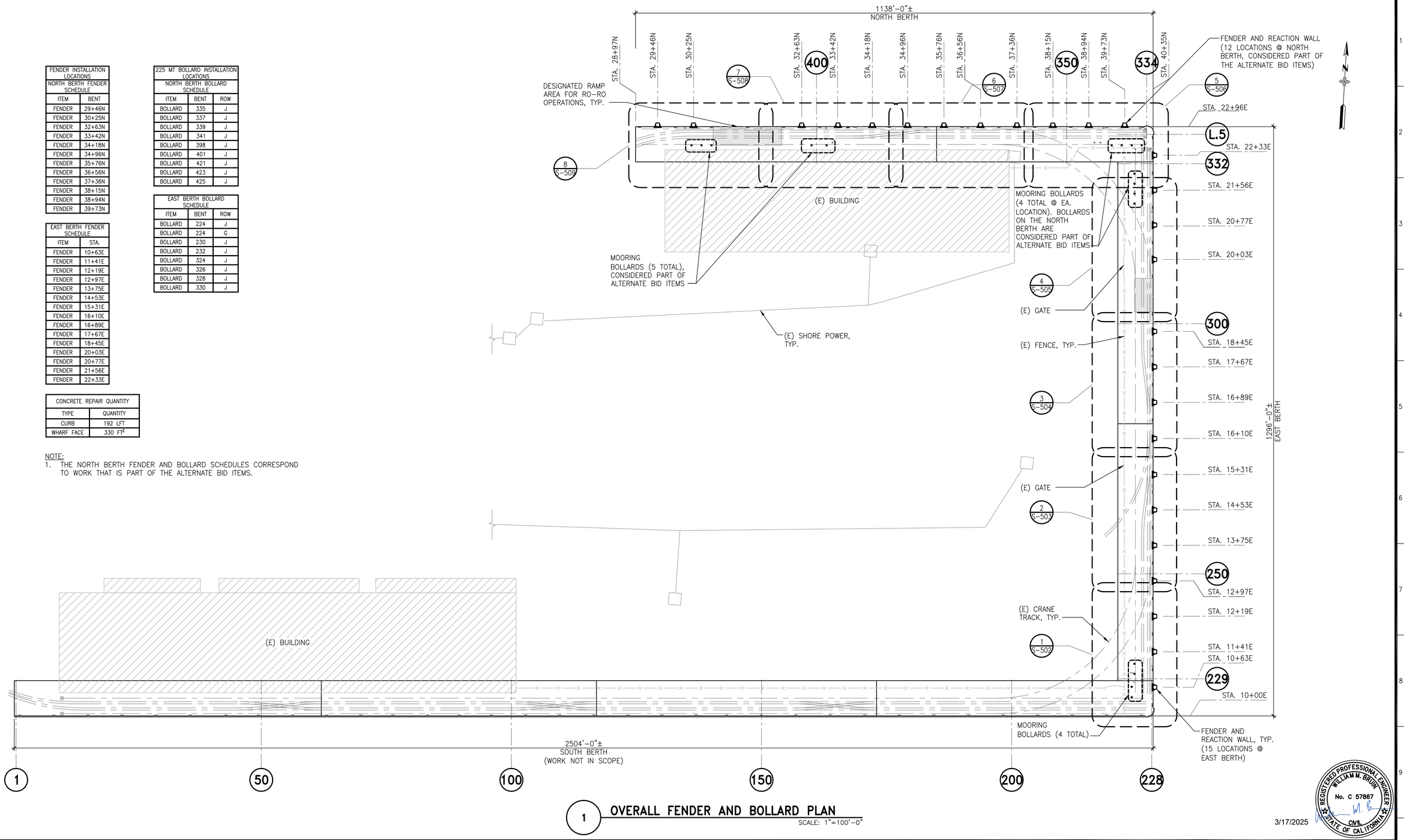
EAST BERTH FENDER SCHEDULE	
ITEM	STA.
FENDER	10+63E
FENDER	11+41E
FENDER	12+19E
FENDER	12+97E
FENDER	13+75E
FENDER	14+53E
FENDER	15+31E
FENDER	16+10E
FENDER	16+89E
FENDER	17+67E
FENDER	18+45E
FENDER	20+03E
FENDER	20+77E
FENDER	21+56E
FENDER	22+33E

CONCRETE REPAIR QUANTITY	
TYPE	QUANTITY
CURB	192 LFT
WHARF FACE	330 FT^2

225 MT BOLLARD INSTALLATION LOCATIONS NORTH BERTH BOLLARD SCHEDULE		
ITEM	BENT	ROW
BOLLARD	335	J
BOLLARD	337	J
BOLLARD	339	J
BOLLARD	341	J
BOLLARD	398	J
BOLLARD	401	J
BOLLARD	421	J
BOLLARD	423	J
BOLLARD	425	J

EAST BERTH BOLLARD SCHEDULE		
ITEM	BENT	ROW
BOLLARD	224	J
BOLLARD	224	G
BOLLARD	230	J
BOLLARD	232	J
BOLLARD	324	J
BOLLARD	326	J
BOLLARD	328	J
BOLLARD	330	J

NOTE:
1. THE NORTH BERTH FENDER AND BOLLARD SCHEDULES CORRESPOND TO WORK THAT IS PART OF THE ALTERNATE BID ITEMS.



1 OVERALL FENDER AND BOLLARD PLAN
SCALE: 1"=100'-0"

3/17/2025

REGISTERED PROFESSIONAL ENGINEER
WILLIAM M. BRUIN
No. C 57867
CIVIL
STATE OF CALIFORNIA

NOT FOR CONSTRUCTION - ISSUED FOR BID

NO.	DATE	DESCRIPTION	BY	APP.
0	03-17-25	ISSUED FOR BID	MLA	WMB

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CONSULTANT
SIMPSON GUMPERTZ & HEGER
1999 Harrison Street, Suite 2400
Oakland, CA 94612
415.495.3700
sgh.com

SAN FRANCISCO PORT COMMISSION
PORT OF SAN FRANCISCO
DEPARTMENT OF ENGINEERING

DESIGNED:	ACD/MLA	02/10/25
DRAWN:	RTB	05/05/23
CHECKED:	WMB	03/17/25

APPROVED BY
SAN FRANCISCO PORT COMMISSION
DATE: _____
Uday Prasad
Digitally signed by Uday Prasad
DN: C=US, E=Uday.prasad@sfport.com, O=Port of San Francisco, OU=Engineering, CN=Uday Prasad
Date: 2025.03.19 11:45:54-07'00'
CHIEF HARBOR ENGINEER

PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

OVREALL FENDER AND BOLLARD SITE PLAN

CONTRACT NO.	2871
DRAWING NO.	22145-80-S
SHEET NO.	S-501
	16 OF 27

I:\SF\PROJECTS\2022\227186.00-TP80\DRAWINGS\WORKING_SET\TP80_S-501 OVERALL FENDER AND BOLLARD PLAN

EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS
SCALE FACTOR: XX
PLOT SCALE: 1=1
FILE NAME: TP80_S-501 OVERALL FENDER AND BOLLARD PLAN.DWG
DATE: 04/04/23

LEGEND

- (E) DOUBLE BITT BOLLARD
- M-02 — (E) DOUBLE BITT BOLLARD ID
- (E) BOLLARD
- BOLLARD
- B-02N — BOLLARD ID
- FOAM FENDER
- (E) FENCE
- (E) CRANE TRACK

1 PARTIAL FENDER AND BOLLARD PLAN

SCALE: 1"=10'-0"

NOTES:

1. REPAIR CONCRETE ON FACE OF DECK AT (E) DOUBLE BITT BOLLARD AND FENDER REACTION INSTALLATIONS, AS NEEDED.
   a. PERFORM A REPAIR LEVEL INSPECTION AT EACH (E) DOUBLE BITT BOLLARD AND FENDER REACTION WALL PRIOR TO THE START OF CONCRETE REPAIR.
   b. COORDINATE SCOPE OF REPAIR WITH THE PORT AND ENGINEER PRIOR TO COMMENCEMENT OF WORK.
   c. DOCUMENT THE EXTENTS OF REPAIR AND PROVIDE TO THE PORT AND ENGINEER FOR APPROVAL.
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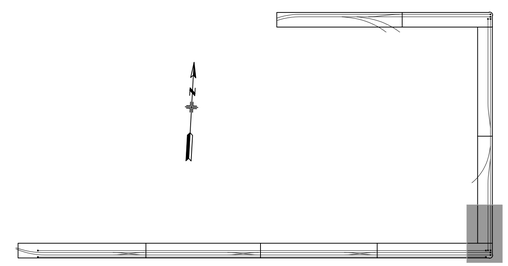

KEY PLAN

3/17/2025

NO.	DATE	DESCRIPTION	BY	APP.
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415.495.3700
sgh.com

SAN FRANCISCO PORT COMMISSION
PORT OF SAN FRANCISCO
DEPARTMENT OF ENGINEERING

DESIGNED: ACD/MLA	DATE: 02/10/25
DRAWN: RTB	DATE: 05/05/23
CHECKED: WMB	DATE: 03/17/25

APPROVED BY
SAN FRANCISCO PORT COMMISSION
DATE: _____
Uday Prasad
CHIEF HARBOR ENGINEER

PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

PARTIAL FENDER AND BOLLARD PLAN
SHEET 1

CONTRACT NO. 2871
DRAWING NO. 22146-80-S
SHEET NO. S-502
17 OF 27

REGISTERED PROFESSIONAL ENGINEER
WILLIAM M. BRUIN
No. C 57867
CIVIL
STATE OF CALIFORNIA

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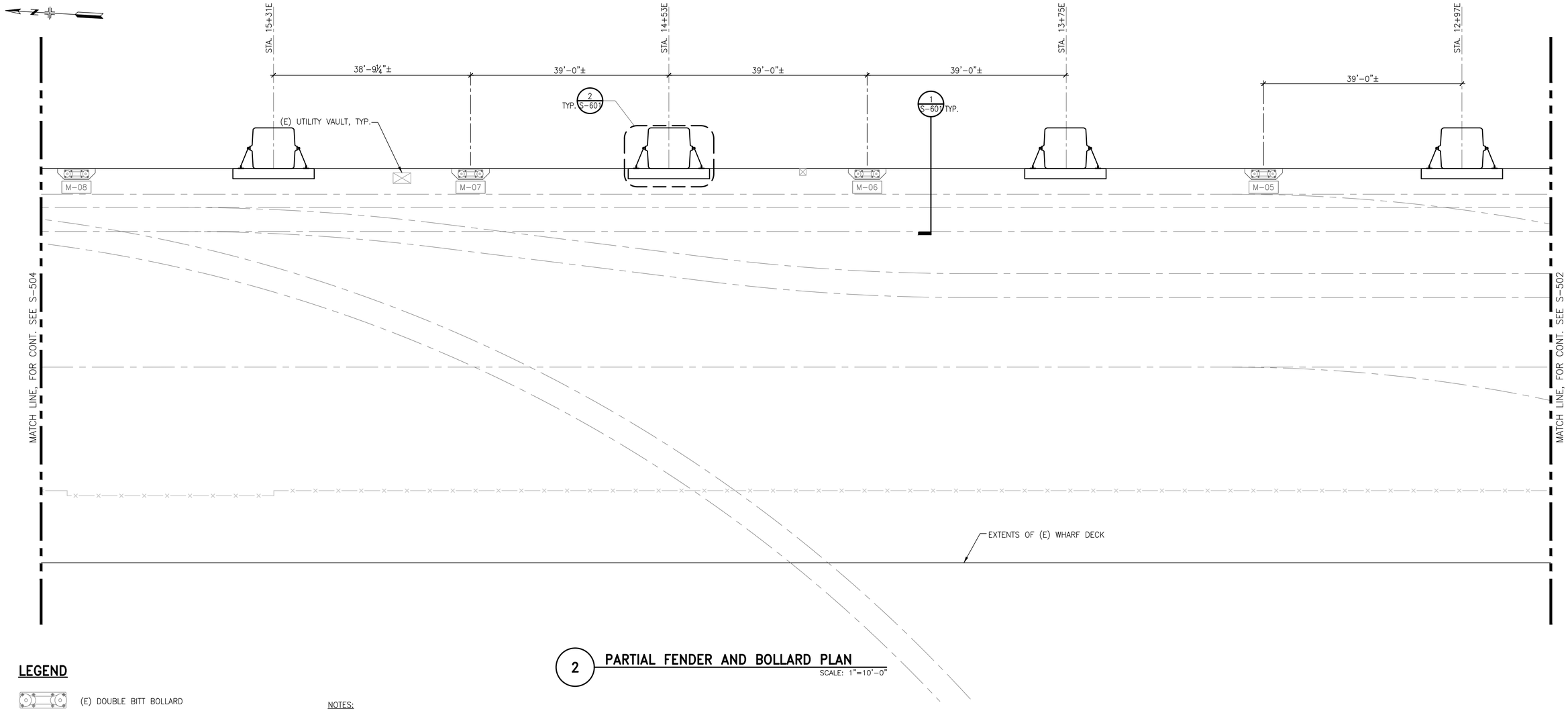
EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS
SCALE FACTOR: XX
PLOT SCALE: 1=1
FILE NAME: TP80_S-502 - S-509 PARTIAL FENDER AND BOLLARD PLANS.DWG
DATE: 04/04/23



2 PARTIAL FENDER AND BOLLARD PLAN

SCALE: 1"=10'-0"

LEGEND

- (E) DOUBLE BITT BOLLARD
- M-02 — (E) DOUBLE BITT BOLLARD ID
- (E) BOLLARD
- BOLLARD
- B-02N — BOLLARD ID
- FOAM FENDER
- (E) FENCE
- (E) CRANE TRACK

NOTES:

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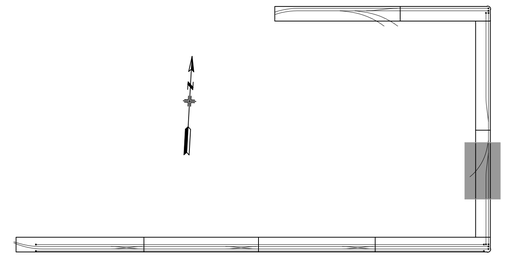

KEY PLAN

3/17/2025

REGISTERED PROFESSIONAL ENGINEER WILLIAM M. BRUIN No. C 57867 CIVIL STATE OF CALIFORNIA

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PORT OF SAN FRANCISCO
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Uday Prasad
Digitally signed by Uday Prasad
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CHIEF HARBOR ENGINEER

PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

PARTIAL FENDER AND BOLLARD PLAN
SHEET 2

CONTRACT NO. 2871
DRAWING NO. 22147-80-S
SHEET NO. S-503
18 OF 27

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FILE NAME: TP80_S-502 - S-509 PARTIAL FENDER AND BOLLARD PLANS.DWG
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SCALE FACTOR: XX
PLOT SCALE: 1 = 1
EXTERNAL REFERENCES: XREFS
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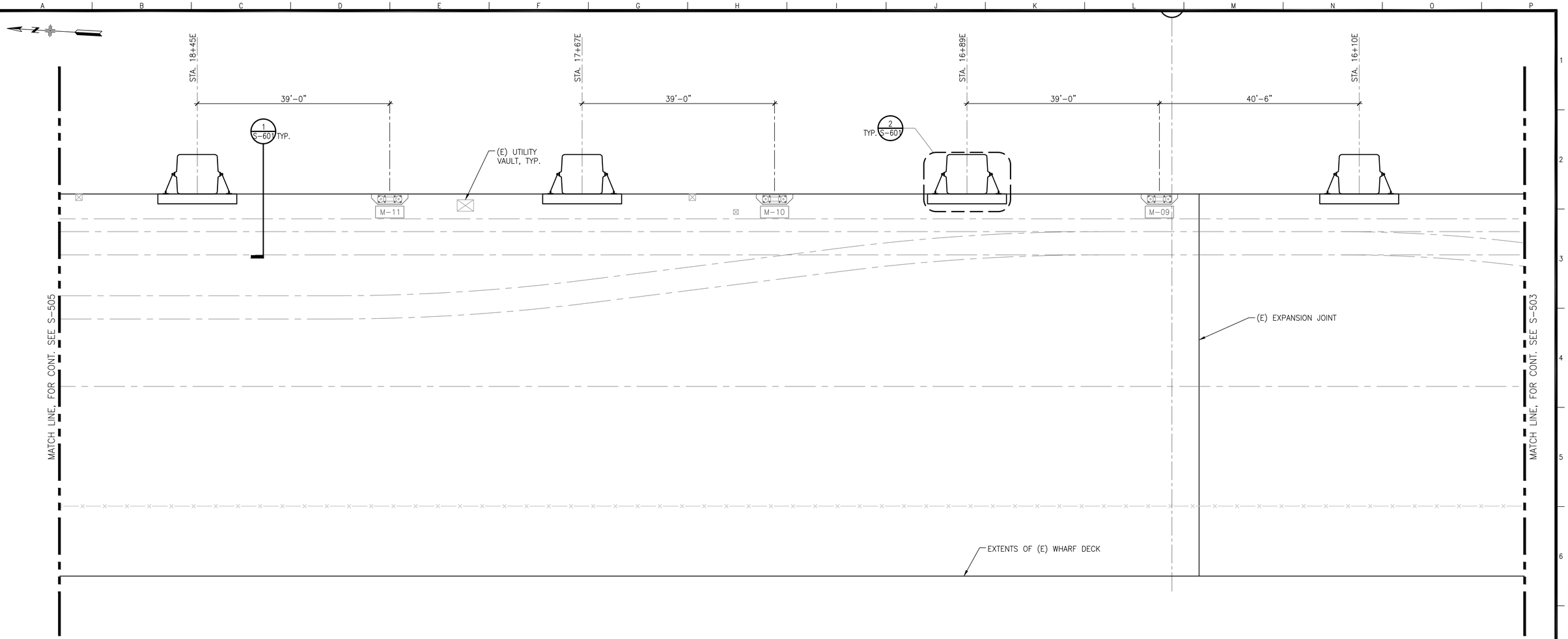

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- (E) DOUBLE BITT BOLLARD
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- (E) BOLLARD
- BOLLARD
- B-02N — BOLLARD ID
- FOAM FENDER
- (E) FENCE
- (E) CRANE TRACK

3 PARTIAL FENDER AND BOLLARD PLAN

SCALE: 1"=10'-0"

NOTES:

1. REPAIR CONCRETE ON FACE OF DECK AT (E) DOUBLE BITT BOLLARD AND FENDER REACTION INSTALLATIONS, AS NEEDED.
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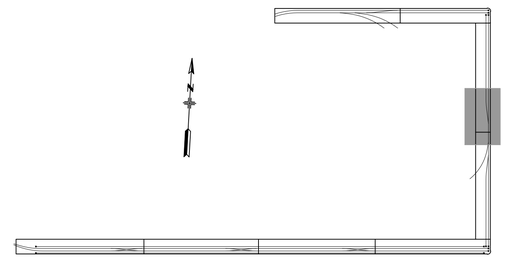

KEY PLAN

3/17/2025

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sgh.com

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PORT OF SAN FRANCISCO
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DATE: _____
Uday Prasad
CHIEF HARBOR ENGINEER

PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

PARTIAL FENDER AND BOLLARD PLAN
SHEET 3

CONTRACT NO. 2871
DRAWING NO. 22148-80-S
SHEET NO. S-504
19 OF 27

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EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS
SCALE FACTOR: XX
PLOT SCALE: 1"=1
FILE NAME: TP80_S-502 - S-509 PARTIAL FENDER AND BOLLARD PLANS.DWG
DATE: 04/04/23

4 PARTIAL FENDER AND BOLLARD PLAN

SCALE: 1"=10'-0"

LEGEND

- (E) DOUBLE BITT BOLLARD
- M-02 — (E) DOUBLE BITT BOLLARD ID
- (E) BOLLARD
- BOLLARD
- B-02N — BOLLARD ID
- FOAM FENDER
- (E) FENCE
- (E) CRANE TRACK

NOTES:

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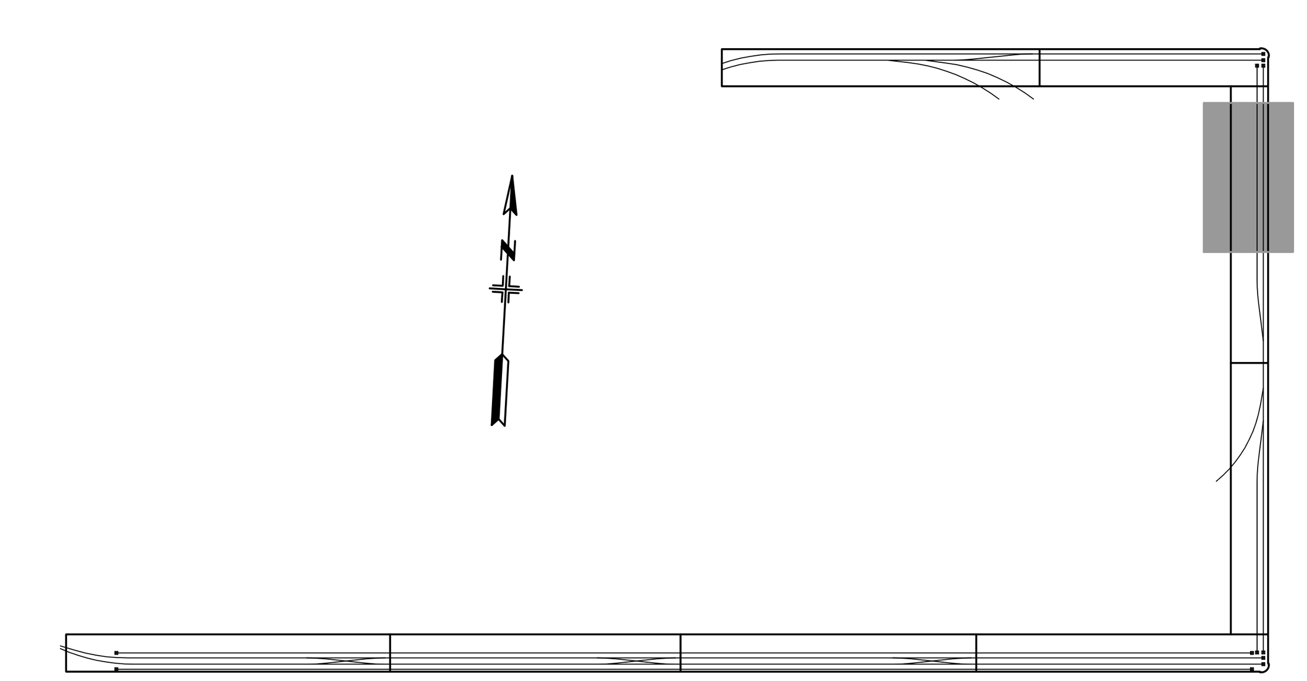

KEY PLAN

3/17/2025

REGISTERED PROFESSIONAL ENGINEER — WILLIAM M. BRUIN — No. C 57867 — CIVIL — STATE OF CALIFORNIA

NO.	DATE	DESCRIPTION	BY	APP.
0	03-17-25	ISSUED FOR BID	MLA	WMB

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CONSULTANT
SIMPSON GUMPERTZ & HEGER
1999 Harrison Street, Suite 2400
Oakland, CA 94612
415.495.3700
sgh.com

SAN FRANCISCO PORT COMMISSION
PORT OF SAN FRANCISCO
DEPARTMENT OF ENGINEERING

DESIGNED: ACD/MLA	DATE: 02/10/25
DRAWN: RTB	DATE: 05/05/23
CHECKED: WMB	DATE: 03/17/25

APPROVED BY
SAN FRANCISCO PORT COMMISSION
DATE:
Uday Prasad — Digitally signed by Uday Prasad DN: C=US, E=uday.prasad@sfport.com, O=Port of San Franciscio, OU=Engineering, CN=Uday Prasad Date: 2025.03.19 11:45:59-07'00'
CHIEF HARBOR ENGINEER

PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

PARTIAL FENDER AND BOLLARD PLAN
SHEET 4

CONTRACT NO. 2871
DRAWING NO. 22149-80-S
SHEET NO. S-505

EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS
SCALE FACTOR: XX
PLOT SCALE: 1=1
FILE NAME: TP80_S-502 - S-509 PARTIAL FENDER AND BOLLARD PLANS.DWG
DATE: 04/04/23

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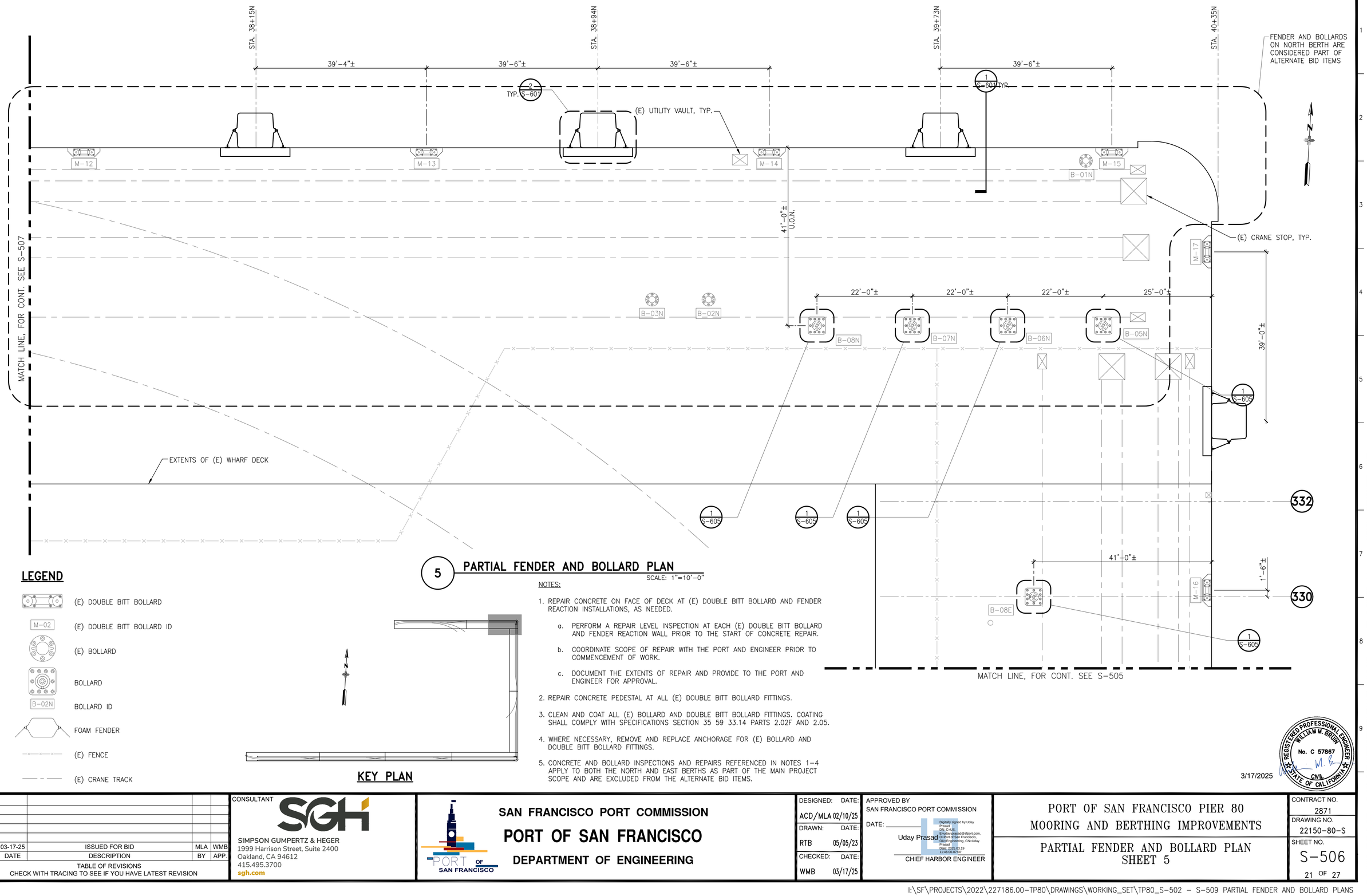

LEGEND

- (E) DOUBLE BITT BOLLARD
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- BOLLARD
- B-02N BOLLARD ID
- FOAM FENDER
- (E) FENCE
- (E) CRANE TRACK

5 PARTIAL FENDER AND BOLLARD PLAN

SCALE: 1"=10'-0"

KEY PLAN

NOTES:

1. REPAIR CONCRETE ON FACE OF DECK AT (E) DOUBLE BITT BOLLARD AND FENDER REACTION INSTALLATIONS, AS NEEDED.
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5. CONCRETE AND BOLLARD INSPECTIONS AND REPAIRS REFERENCED IN NOTES 1–4 APPLY TO BOTH THE NORTH AND EAST BERTHS AS PART OF THE MAIN PROJECT SCOPE AND ARE EXCLUDED FROM THE ALTERNATE BID ITEMS.

REGISTERED PROFESSIONAL ENGINEER
WILLIAM M. BRUIN
No. C 57867
CIVIL
STATE OF CALIFORNIA

3/17/2025

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sgh.com

SAN FRANCISCO PORT COMMISSION
PORT OF SAN FRANCISCO
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SAN FRANCISCO PORT COMMISSION
DATE: _____
Uday Prasad
Digitally signed by Uday Prasad
DN: C=US, E=uday.prasad@sfport.com, O=Port of San Francisco, OU=Engineering, CN=Uday Prasad
Date: 2025.03.19 11:46:00-07'00'
CHIEF HARBOR ENGINEER

PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

PARTIAL FENDER AND BOLLARD PLAN
SHEET 5

CONTRACT NO. 2871
DRAWING NO. 22150-80-S
SHEET NO. S-506
21 OF 27

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EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS
SCALE FACTOR: XX
PLOT SCALE: 1=1
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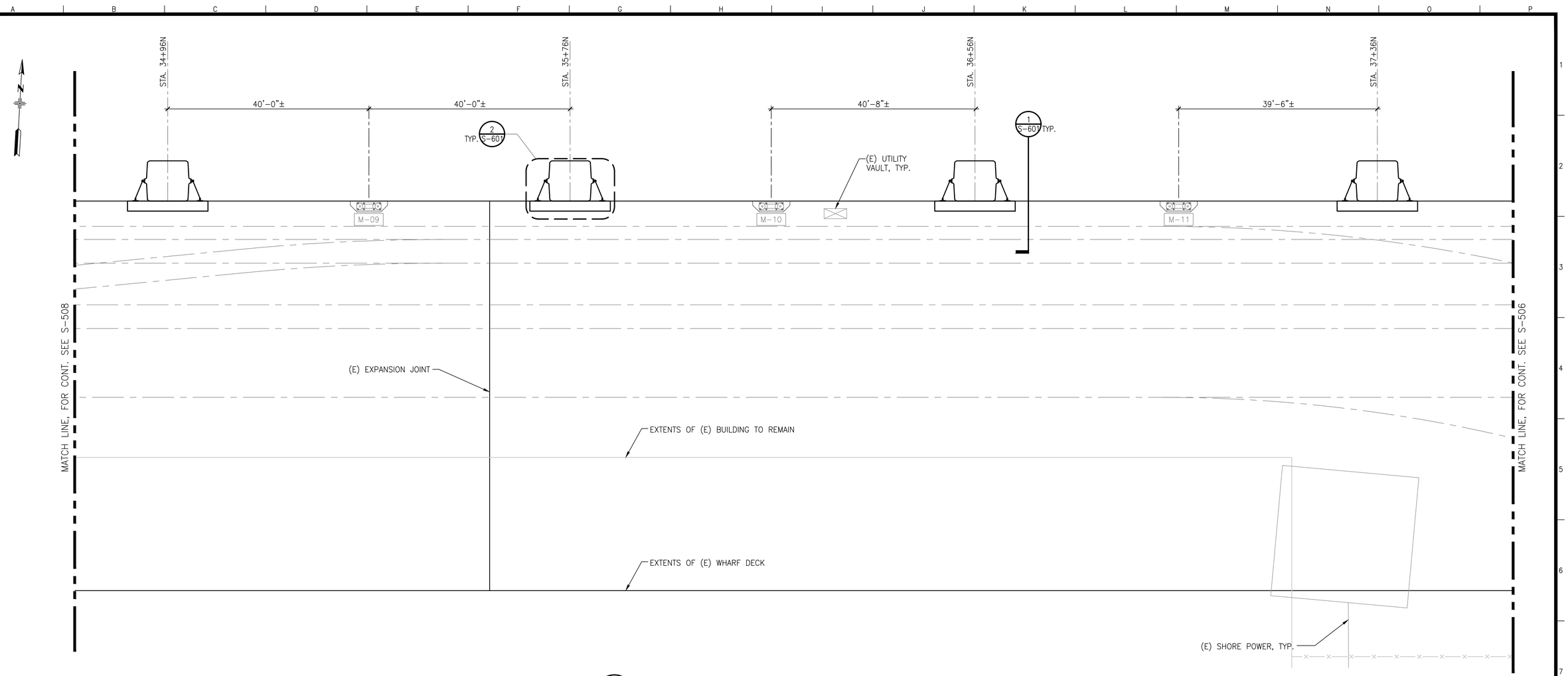
DATE: 04/04/23



6 PARTIAL FENDER AND BOLLARD PLAN
ALTERNATE BID ITEMS

SCALE: 1"=10'-0"

LEGEND

- (E) DOUBLE BITT BOLLARD
- M-02 — (E) DOUBLE BITT BOLLARD ID
- (E) BOLLARD
- BOLLARD
- B-02N — BOLLARD ID
- FOAM FENDER
- (E) FENCE
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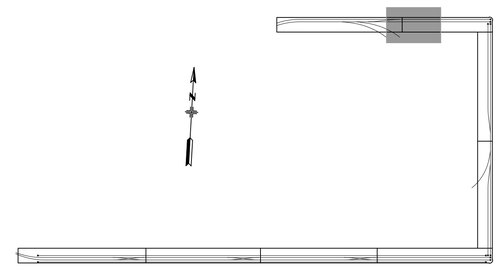

KEY PLAN

3/17/2025

REGISTERED PROFESSIONAL ENGINEER
WILLIAM M. BRUIN
No. C 57867
CIVIL
STATE OF CALIFORNIA

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SAN FRANCISCO PORT COMMISSION
PORT OF SAN FRANCISCO
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CHECKED:	DATE: WMB 03/17/25

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DN: C=US, E=Uday.prasad@sfport.com, O=Port of San Francisco, OU=Engineering, CN=Uday Prasad
Date: 2025.03.19 11:46:00-07'00'
CHIEF HARBOR ENGINEER

PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

PARTIAL FENDER AND BOLLARD PLAN
SHEET 6

CONTRACT NO. 2871
DRAWING NO. 22151-80-S
SHEET NO. S-507
22 OF 27

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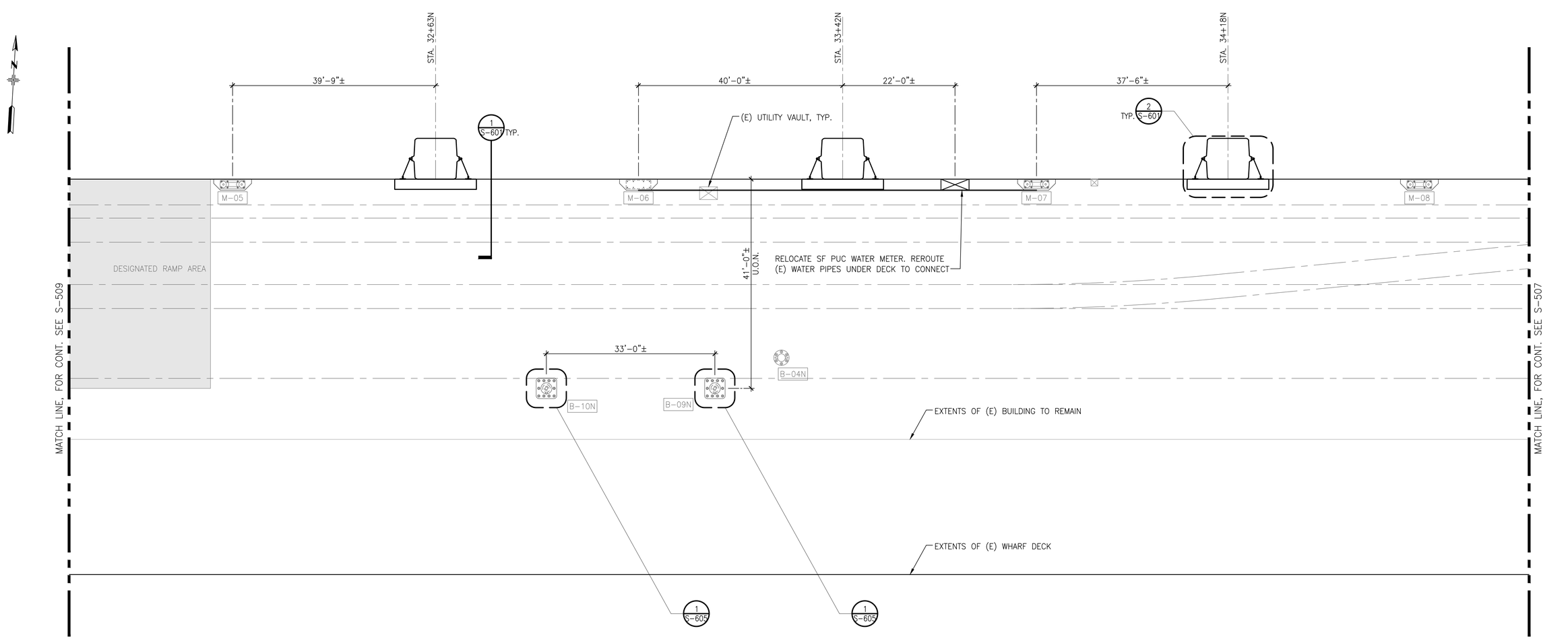
DATE: 04/04/23
SCALE FACTOR: XX
PLOT SCALE: 1=1
EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS



LEGEND

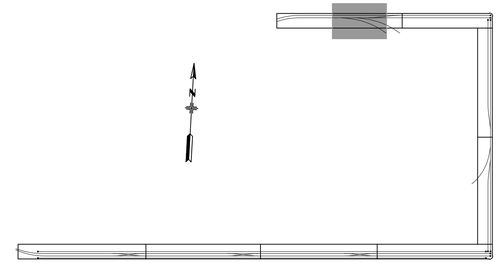
- (E) DOUBLE BITT BOLLARD
- M-02 — (E) DOUBLE BITT BOLLARD ID
- (E) BOLLARD
- BOLLARD
- B-02N — BOLLARD ID
- FOAM FENDER
- (E) FENCE
- (E) CRANE TRACK

7 PARTIAL FENDER AND BOLLARD PLAN
ALTERNATE BID ITEMS

SCALE: 1"=10'-0"

NOTES:

1. REPAIR CONCRETE ON FACE OF DECK AT (E) DOUBLE BITT BOLLARD AND FENDER REACTION INSTALLATIONS, AS NEEDED.
   a. PERFORM A REPAIR LEVEL INSPECTION AT EACH (E) DOUBLE BITT BOLLARD AND FENDER REACTION WALL PRIOR TO THE START OF CONCRETE REPAIR.
   b. COORDINATE SCOPE OF REPAIR WITH THE PORT AND ENGINEER PRIOR TO COMMENCEMENT OF WORK.
   c. DOCUMENT THE EXTENTS OF REPAIR AND PROVIDE TO THE PORT AND ENGINEER FOR APPROVAL.
2. REPAIR CONCRETE PEDESTAL AT ALL (E) DOUBLE BITT BOLLARD FITTINGS.
3. CLEAN AND COAT ALL (E) BOLLARD AND DOUBLE BITT BOLLARD FITTINGS. COATING SHALL COMPLY WITH SPECIFICATIONS SECTION 35 59 33.14 PARTS 2.02F AND 2.05.
4. WHERE NECESSARY, REMOVE AND REPLACE ANCHORAGE FOR (E) BOLLARD AND DOUBLE BITT BOLLARD FITTINGS.
5. CONCRETE AND BOLLARD INSPECTIONS AND REPAIRS REFERENCED IN NOTES 1–4 APPLY TO BOTH THE NORTH AND EAST BERTHS AS PART OF THE MAIN PROJECT SCOPE AND ARE EXCLUDED FROM THE ALTERNATE BID ITEMS.



KEY PLAN

3/17/2025

REGISTERED PROFESSIONAL ENGINEER — WILLIAM M. BRUIN — No. C 57867 — CIVIL — STATE OF CALIFORNIA

NOT FOR CONSTRUCTION - ISSUED FOR BID

NO.	DATE	DESCRIPTION	BY	APP.
0	03-17-25	ISSUED FOR BID	MLA	WMB

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CONSULTANT
SIMPSON GUMPERTZ & HEGER
1999 Harrison Street, Suite 2400
Oakland, CA 94612
415.495.3700
sgh.com

SAN FRANCISCO PORT COMMISSION
PORT OF SAN FRANCISCO
DEPARTMENT OF ENGINEERING

DESIGNED: ACD/MLA	DATE: 02/10/25
DRAWN: RTB	DATE: 05/05/23
CHECKED: WMB	DATE: 03/17/25

APPROVED BY
SAN FRANCISCO PORT COMMISSION
DATE: _____
Uday Prasad
Digitally signed by Uday Prasad
DN: C=US, E=uday.prasad@sfport.com, O=Port of San Francisco, OU=Engineering, CN=Uday Prasad
Date: 2025.03.19 11:46:01-07'00'
CHIEF HARBOR ENGINEER

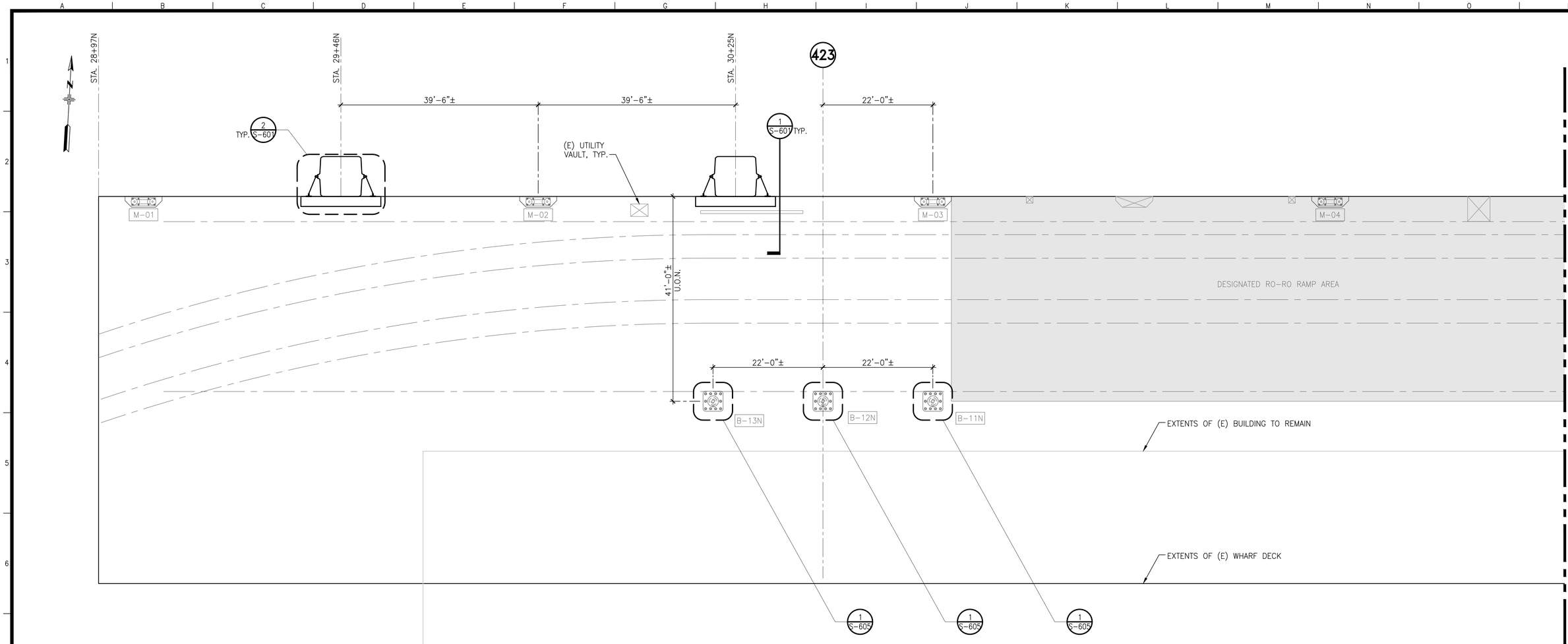
PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

PARTIAL FENDER AND BOLLARD PLAN
SHEET 7

CONTRACT NO. 2871
DRAWING NO. 22152-80-S
SHEET NO. S-508
23 OF 27

I:\SF\PROJECTS\2022\227186.00-TP80\DRAWINGS\WORKING_SET\TP80_S-502 - S-509 PARTIAL FENDER AND BOLLARD PLANS

EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS
SCALE FACTOR: XX
PLOT SCALE: 1=1
FILE NAME: TP80_S-502 - S-509 PARTIAL FENDER AND BOLLARD PLANS.DWG
DATE: 04/04/23



LEGEND

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- M-02 — (E) DOUBLE BITT BOLLARD ID
- (E) BOLLARD
- BOLLARD
- B-02N — BOLLARD ID
- FOAM FENDER
- (E) FENCE
- (E) CRANE TRACK

8 PARTIAL FENDER AND BOLLARD PLAN ALTERNATE BID ITEMS

SCALE: 1"=10'-0"

NOTES:

1. REPAIR CONCRETE ON FACE OF DECK AT (E) DOUBLE BITT BOLLARD AND FENDER REACTION INSTALLATIONS, AS NEEDED.
   a. PERFORM A REPAIR LEVEL INSPECTION AT EACH (E) DOUBLE BITT BOLLARD AND FENDER REACTION WALL PRIOR TO THE START OF CONCRETE REPAIR.
   b. COORDINATE SCOPE OF REPAIR WITH THE PORT AND ENGINEER PRIOR TO COMMENCEMENT OF WORK.
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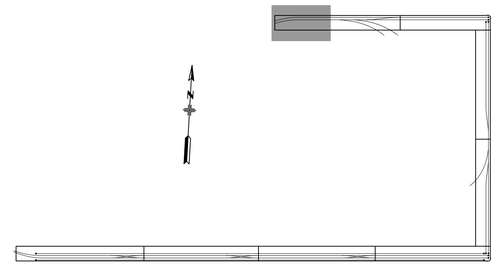

KEY PLAN

3/17/2025

REGISTERED PROFESSIONAL ENGINEER
WILLIAM M. BRUIN
No. C 57867
CIVIL
STATE OF CALIFORNIA

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Date: 2025.03.19 11:46:02-07'00'
CHIEF HARBOR ENGINEER

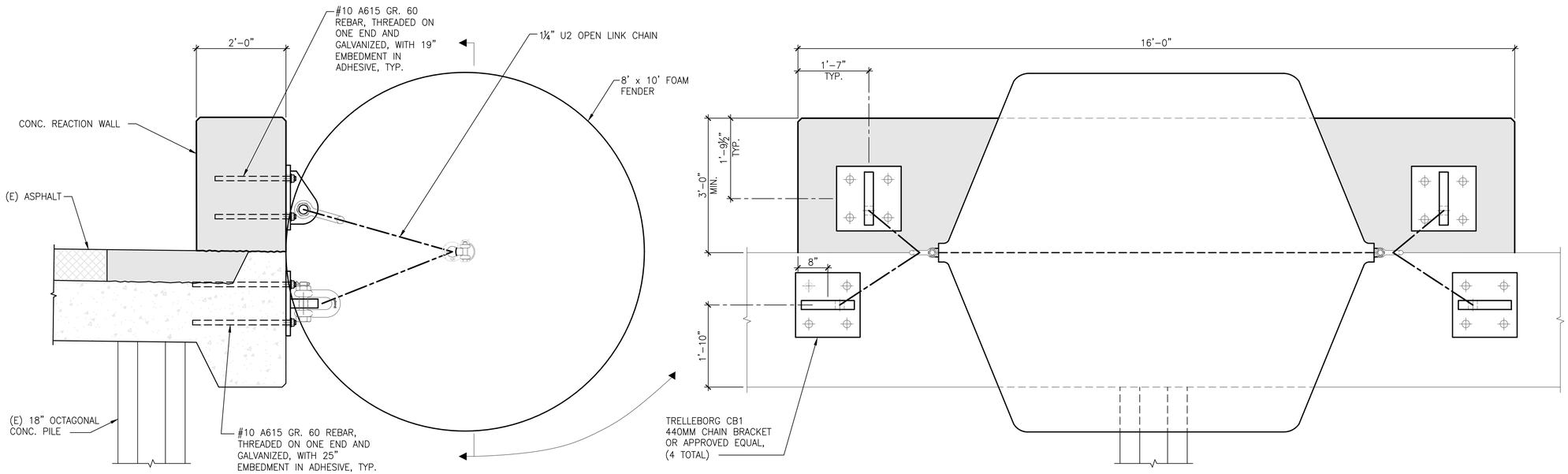
PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

PARTIAL FENDER AND BOLLARD PLAN
SHEET 8

CONTRACT NO. 2871
DRAWING NO. 22153-80-S
SHEET NO. S-509
24 OF 27

I:\SF\PROJECTS\2022\227186.00-TP80\DRAWINGS\WORKING_SET\TP80_S-502 – S-509 PARTIAL FENDER AND BOLLARD PLANS

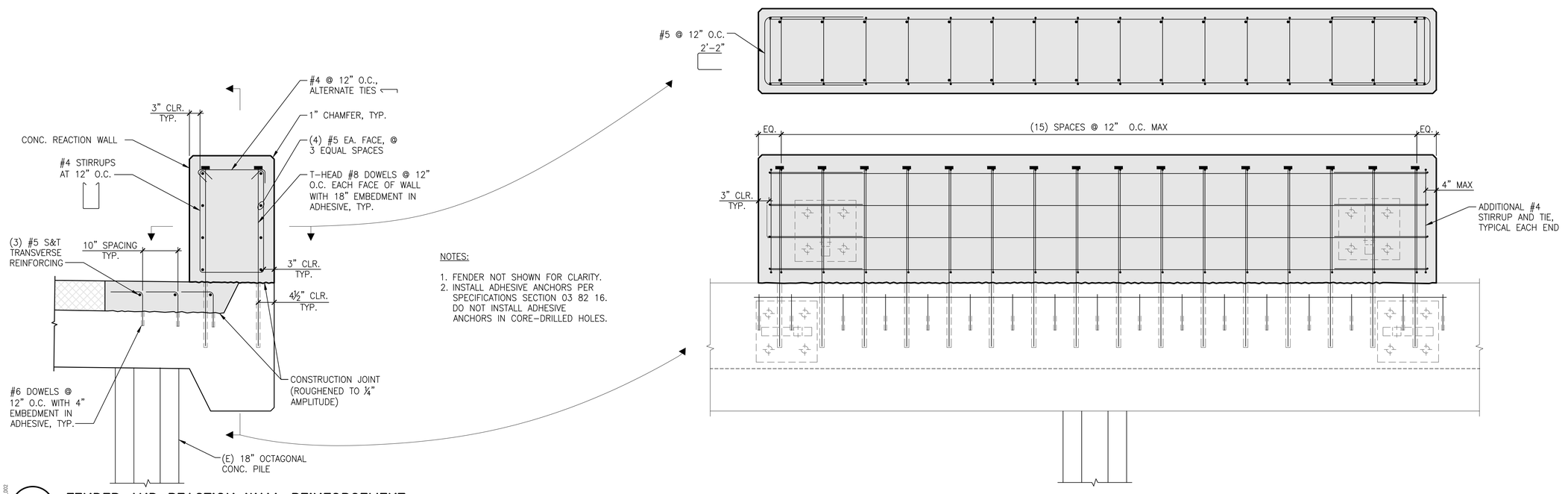
FILE NAME: TP80_S-502 – S-509 PARTIAL FENDER AND BOLLARD PLANS.DWG
DATE: 04/04/23
SCALE FACTOR: XX
PLOT SCALE: 1=1
EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS



TP80_S-601_D01

1 FENDER AND REACTION WALL

SCALE: 3/4"=1'-0"



NOTES:

1. FENDER NOT SHOWN FOR CLARITY.
2. INSTALL ADHESIVE ANCHORS PER SPECIFICATIONS SECTION 03 82 16. DO NOT INSTALL ADHESIVE ANCHORS IN CORE-DRILLED HOLES.

TP80_S-601_D02

2 FENDER AND REACTION WALL REINFORCEMENT

SCALE: 3/4"=1'-0"

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PORT OF SAN FRANCISCO
DEPARTMENT OF ENGINEERING

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Date: 2025.03.19 11:46:02-07'00'
CHIEF HARBOR ENGINEER

PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

FENDER DETAILS

CONTRACT NO.	2871
DRAWING NO.	22154-80-S
SHEET NO.	S-601
	25 OF 27

REGISTERED PROFESSIONAL ENGINEER
WILLIAM M. BRUIN
No. C 57867
CIVIL
STATE OF CALIFORNIA

3/17/2025

EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS
SCALE FACTOR: XX
PLOT SCALE: 1=1
FILE NAME: TP80_S-601 FENDER DETAILS.DWG
BEGIN: SECTION
DATE: 04/04/23

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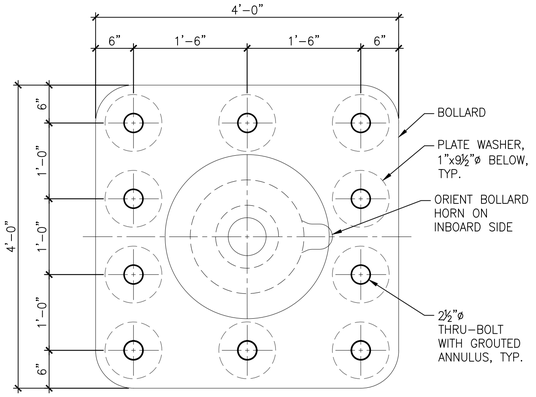
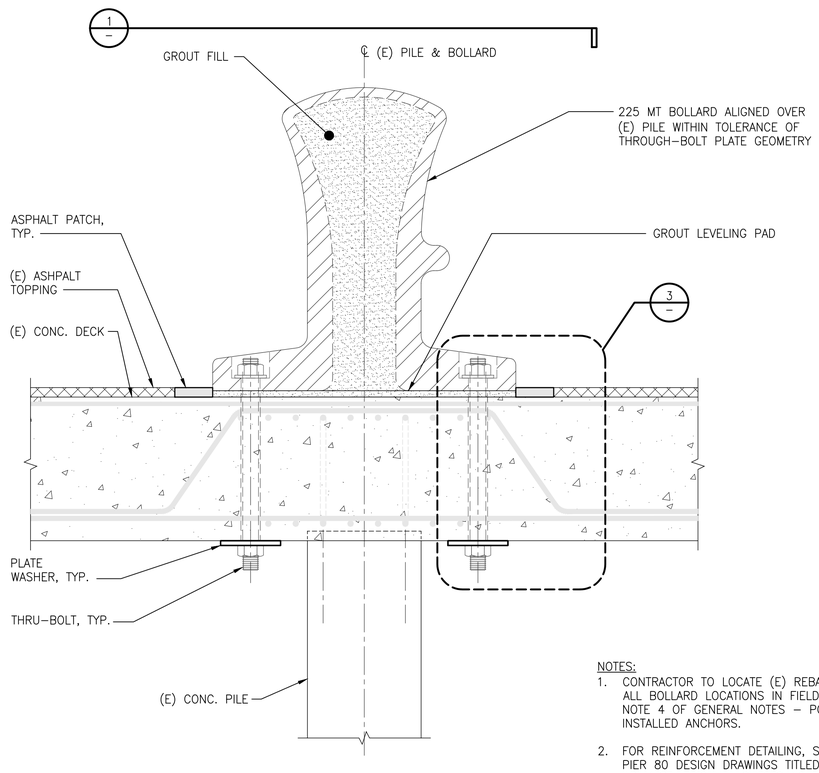


TP80_S-605_001

1 BOLLARD ANCHORAGE DETAIL

SCALE: 1"=1'–0"



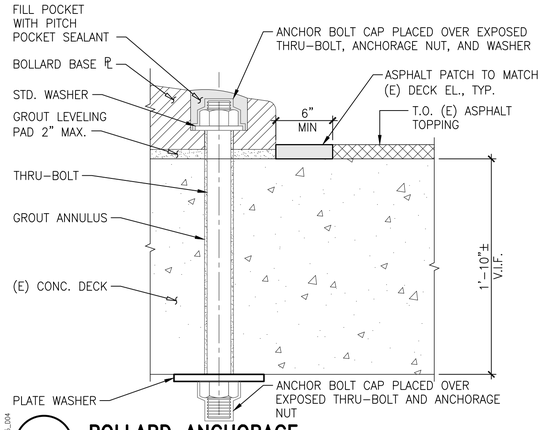
TP80_S-605_002

2 BOLLARD INSTALLATION

SCALE: 1"=1'–0"

NOTES:

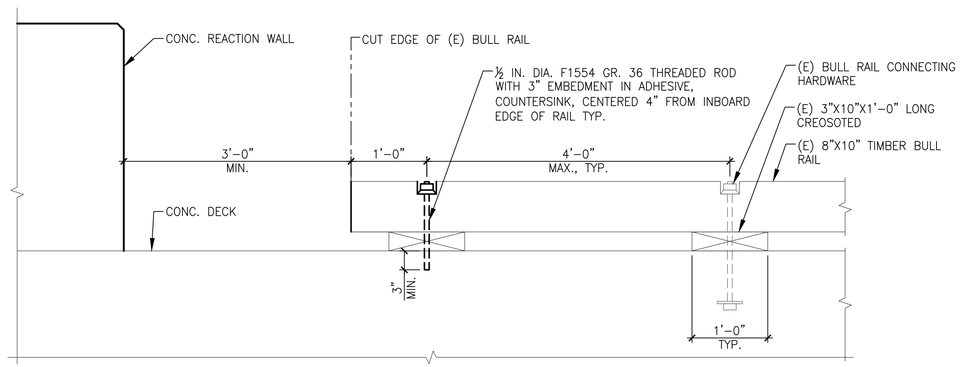
1. CONTRACTOR TO LOCATE (E) REBAR AT ALL BOLLARD LOCATIONS IN FIELD PER NOTE 4 OF GENERAL NOTES – POST INSTALLED ANCHORS.
2. FOR REINFORCEMENT DETAILING, SEE PIER 80 DESIGN DRAWINGS TITLED ARMY ST. TERMINAL SHEETS 19 TO 24, DATED 8 JULY 1963.



TP80_S-605_004

3 BOLLARD ANCHORAGE TYPICAL

SCALE: 1 1/2"=1'–0"



TP80_S-605_005

4 BULLRAIL REINSTALLATION

SCALE: 1"=1'–0"

NOT FOR CONSTRUCTION - ISSUED FOR BID

3/17/2025

REGISTERED PROFESSIONAL ENGINEER
WILLIAM M. BRUIN
No. C 57867
CIVIL
STATE OF CALIFORNIA

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Date: 2025.03.19 11:46:03-07'00'
CHIEF HARBOR ENGINEER

PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

MOORING POINT AND BULL RAIL DETAILS

CONTRACT NO. 2871
DRAWING NO. 22155-80-S
SHEET NO. S-605
26 OF 27

FILE NAME: TP80_S-605 MOORING POINT DETAILS
DATE: 04/04/23

EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS
SCALE FACTOR: XX
PLOT SCALE: 1=1

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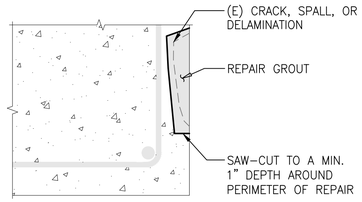


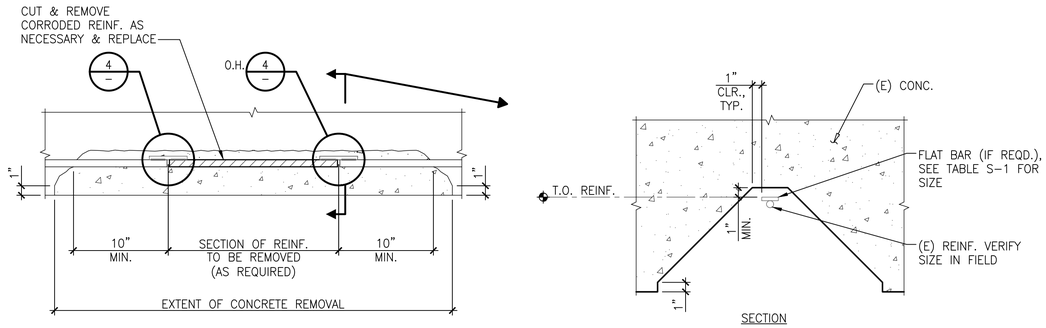
NOTES:

1. SEE CONCRETE REPAIR NOTES BELOW.
2. USE TYPE 1 REPAIR WHEN THE VOLUME OF REPAIR, AFTER SAW CUTTING & CLEANING, IS LESS THAN 0.25 CUBIC FEET. FOR ALL OTHERS, USE TYPE 2 REPAIR.

TP80_S-611_001

1 SPALL REPAIR – TYPE 1

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

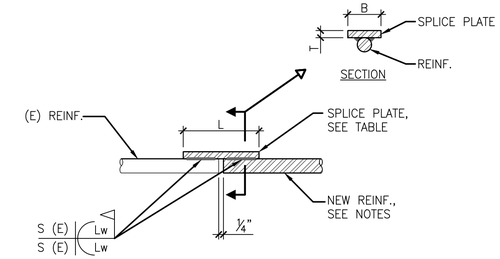


SECTION

TP80_S-611_002

2 SPALL REPAIR – TYPE 2

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



NOTES:

1. REINFORCEMENT REQUIRES SPECIAL APPROVAL BY THE PORT.
2. NEW REINFORCEMENT SHALL COMPLY WITH GENERAL NOTES AND MATCH SIZE OF EXISTING.
3. E = EFFECTIVE THROAT OF WELD (E=0.4S).
4. S = RADUIS OF REINFORCING BAR.

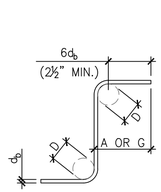
TP80_S-611_004

4 WELD DETAIL

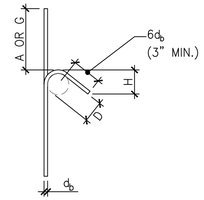
SCALE: 3"=1'-0"

TABLE S-1					
EXISTING & NEW		SPLICE PLATE			WELD
SIZE	RADIUS (S)	L	B	T	LENGTH (Lw)
#3	0.188	2¼"	¾"	⅜"	¾"
#4	0.25	3"	1"	⅜"	1"
#5	0.313	3¾"	1½"	⅜"	1¼"
#6	0.375	4½"	1¾"	⅜"	1½"
#7	0.438	5¼"	1¾"	⅜"	1¾"
#8	0.500	6"	2"	⅜"	2"
#9	0.563	7"	3"	⅜"	2¼"

BAR SIZE	BEND DIAMETER (D) INCHES	90° HOOK	135° HOOKS	
		A OR G INCHES	A OR G INCHES	H (APPROX.) INCHES
#3	1½	4	4¼	3
#4	2	4½	4½	3
#5	2½	6	5½	3¾



90 DEGREE HOOK



135 DEGREE HOOK

NOTES:

1. ALL BENDS SHALL BE MADE COLD AND SHALL BE MADE PRIOR TO PARTIAL EMBEDMENT IN CONCRETE.
2. d_b = BAR DIAMETER.
3. D = BEND DIAMETER, MEASURED ON THE INSIDE OF BAR.

TP80_S-611_005

5 REBAR SCHEDULE

NONE

TP80_S-611_006

6 TYPICAL TIE AND STIRRUP HOOKS FOR CONCRETE AND MASONRY

N.T.S.

SPALL REPAIRS

1. THE REPAIR MATERIAL SHALL BE STORED, HANDLED, MIXED, AND APPLIED IN STRICT ACCORDANCE WITH THE MANUFACTURE'S RECOMMENDATIONS, INCLUDING THE REQUIREMENTS FOR THE PROTECTION OF PERSONNEL AND THE ENVIRONMENT. DO NOT RE-TEMPER MATERIALS.
2. IMMEDIATELY PRIOR TO PATCHING, CREATE A SATURATED SURFACE DRY SURFACE (SSD) WITH NO GLISTENING WATER.
3. TYPE 1 SPALL REPAIR (CONCRETE REPAIR AREA EQUAL TO OR LESS THAN 0.25 CU FT, CAN BE HAND PATCHED WITH NO FORMWORK)
   a. APPLY A BONDING COAT APPROVED BY THE MANUFACTURER AND WITH A W/CM IDENTICAL TO THAT OF THE REPAIR GROUT.
   b. WHILE BONDING COAT IS STILL TACKY, HAND-APPLY REPAIR GROUT, WORKING MATERIAL INTO VOIDS.
   c. FINISH FLUSH WITH EXISTING ADJACENT WALL SURFACE, RESTORING WALL PROFILE. FINISH WITH WOOD OR SPONGE FLOAT AS REQUIRED TO PROVIDE A SANDPAPER-LIKE SURFACE.
4. TYPE 2 SPALL REPAIR (CONCRETE REPAIR AREA LARGER THAN 0.25 CU FT, REQUIRING FORMWORK.
   a. PRIOR TO FORMWORK PLACEMENT, THE ENGINEER SHALL OBSERVE AND ACCEPT ANCHOR, REINFORCING, AND COATING WORK.
   b. PLACE FORMWORK INTO DESIGNATED LOCATION.
      A. USE REVERSE-ABLE SCREWS TO ANCHOR THE FORMWORK INTO PLACE.
      B. APPLY THE EXPANSIVE WATERTIGHT FOAM AROUND THE PERIMETER OF THE FORMWORK TO PREVENT LEAKAGE PLACE FORMWORK OVER REPAIR AREA AND SEAL EDGE ALONG FORMWORK WITH AN EXPANSIVE URETHANE SEALANT.
   c. MAKE SURE TO VIBRATE THE MIX DURING REPAIR GROUT PLACEMENT
5. PROTECT ALL SPALL REPAIR PATCHES FROM ADJACENT CONSTRUCTION ACTIVITIES FOR AT LEAST 24 HOURS.

TP80_S-611_009

9 CONCRETE REPAIR NOTES

N.T.S.

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PORT OF SAN FRANCISCO PIER 80
MOORING AND BERTHING IMPROVEMENTS

CONCRETE REPAIR AND TYPICAL DETAILS

CONTRACT NO.	2871
DRAWING NO.	22156-80-S
SHEET NO.	S-611
	27 OF 27

3/17/2025

REGISTERED PROFESSIONAL ENGINEER
WILLIAM M. BRUIN
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CIVIL
STATE OF CALIFORNIA

I:\SF\PROJECTS\2022\227186.00-TP80\DRAWINGS\WORKING_SET\TP80_S-611 CONCRETE DECK DETAILS

FILE NAME: TP80_S-611 CONCRETE DECK DETAILS
DATE: 04/04/23

EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS

SCALE FACTOR: XX
PLOT SCALE: 1 = 1