

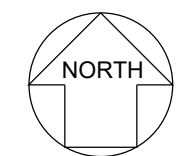
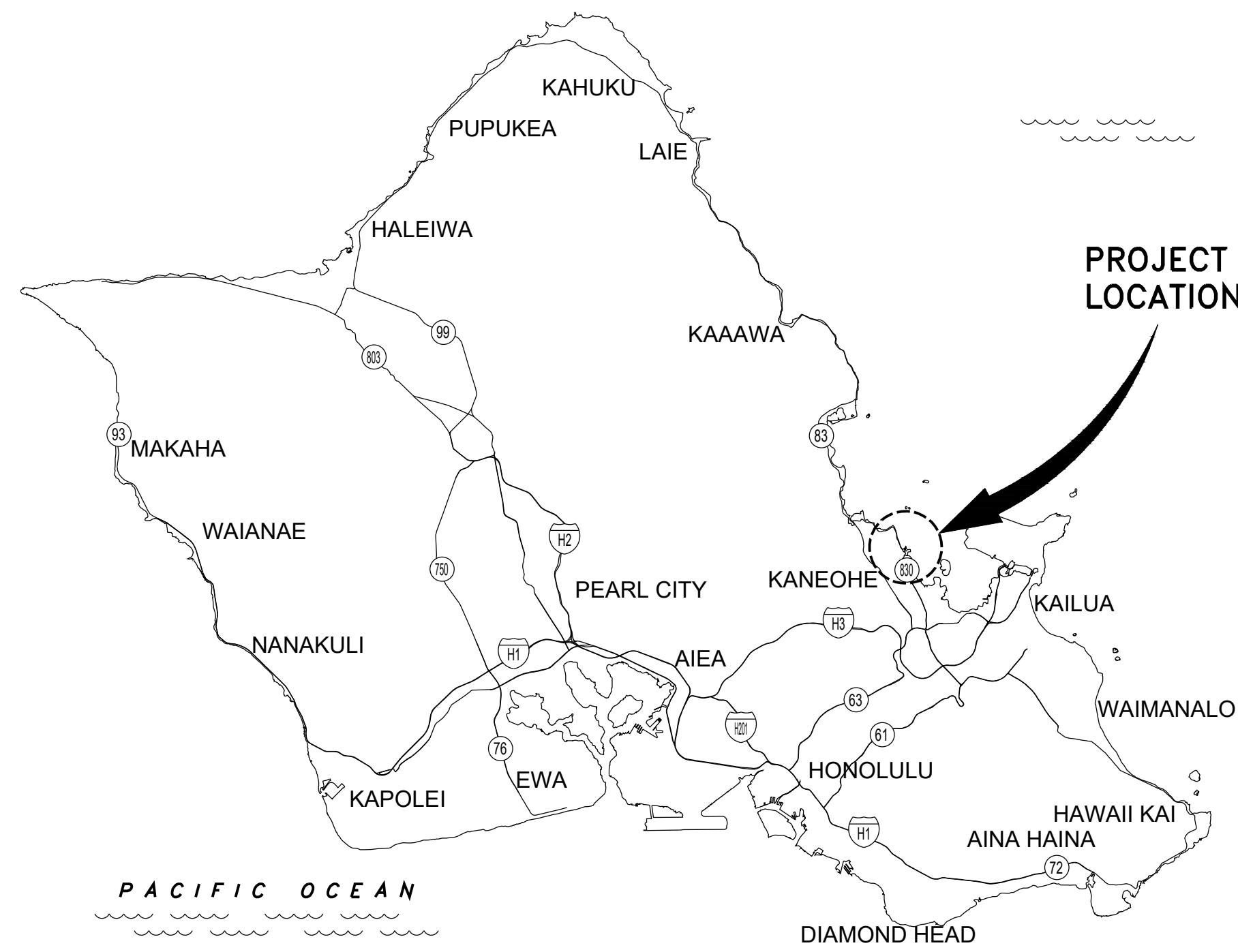
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF BOATING AND OCEAN RECREATION
JOB NO. B78C071A

HEEIA KEA SMALL BOAT HARBOR BULKHEAD FENDER REPAIRS

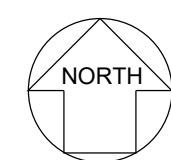
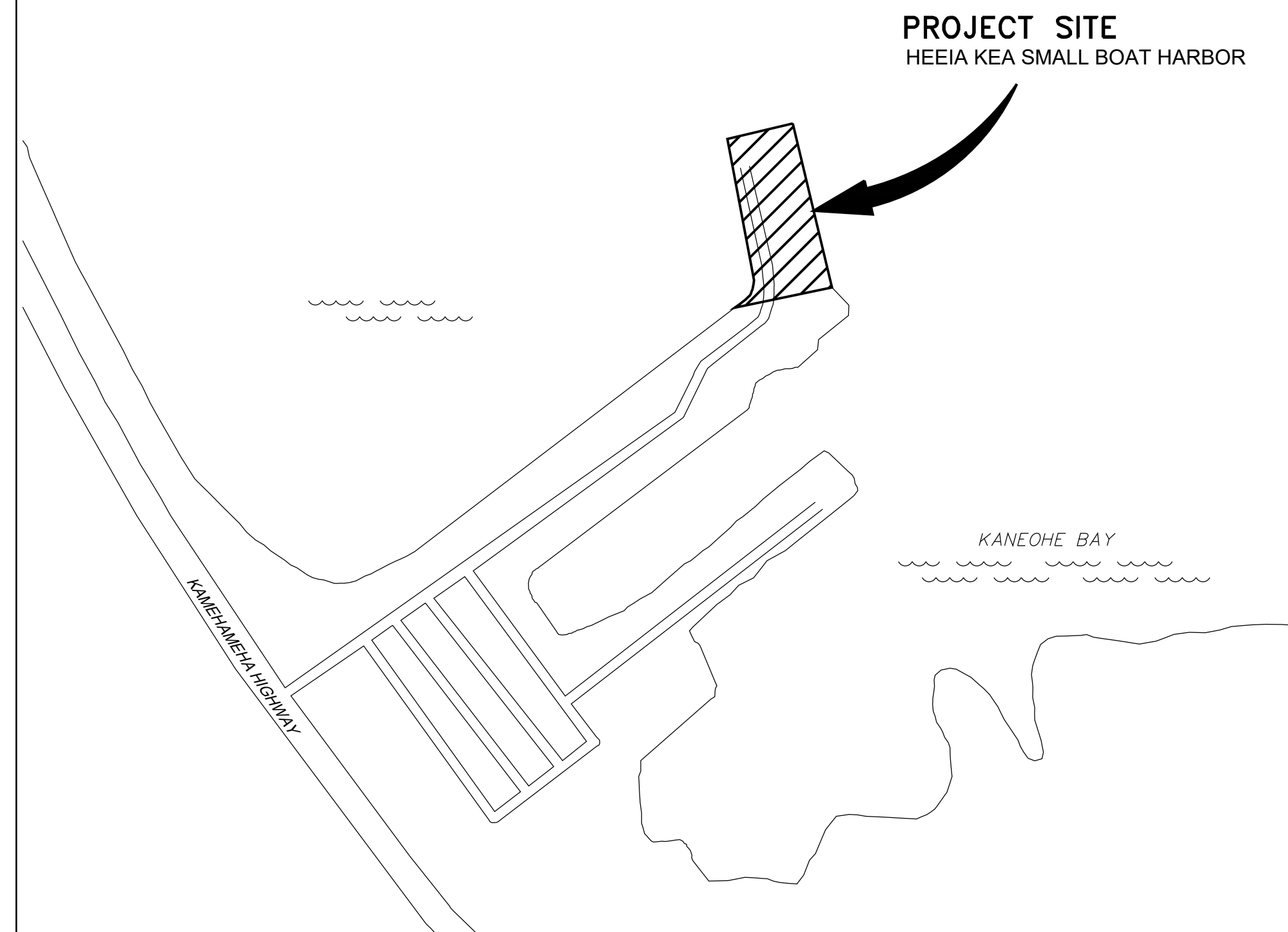
KANEOHE, OAHU, HAWAI'I
T.M.K.: 4-6-006-069

PREPARED BY:

EKNA SERVICES, INC.
1300 PALI HIGHWAY, SUITE 201
HONOLULU, HI 96813



VICINITY MAP - ISLAND OF OAHU
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

INDEX OF DRAWINGS

SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
TITLE		
1	T-01	TITLE SHEET AND INDEX OF DRAWINGS
GENERAL		
2	C-01	GENERAL NOTES
3	C-02	EXISTING CONDITIONS PLAN
4	C-03	DEMOLITION AND BMP PLAN
5	C-04	SITE PLAN
6	C-05	DEMOLITION DETAILS
7	C-06	FENDER DETAILS
8	C-07	BULL RAIL AND CLEATS DETAILS

APPROVED:

MEGHAN L. STATTS
ADMINISTRATOR
DIVISION OF BOATING AND OCEAN RECREATION
DEPARTMENT OF LAND AND NATURAL RESOURCES

05/05/2026

DATE

DRAWING NO.
T-01

SHEET 1 OF 8


JOB NO. B78C071A HEEIA SMALL BOAT HARBOR BULKHEAD FENDER REPAIRS

GENERAL NOTES

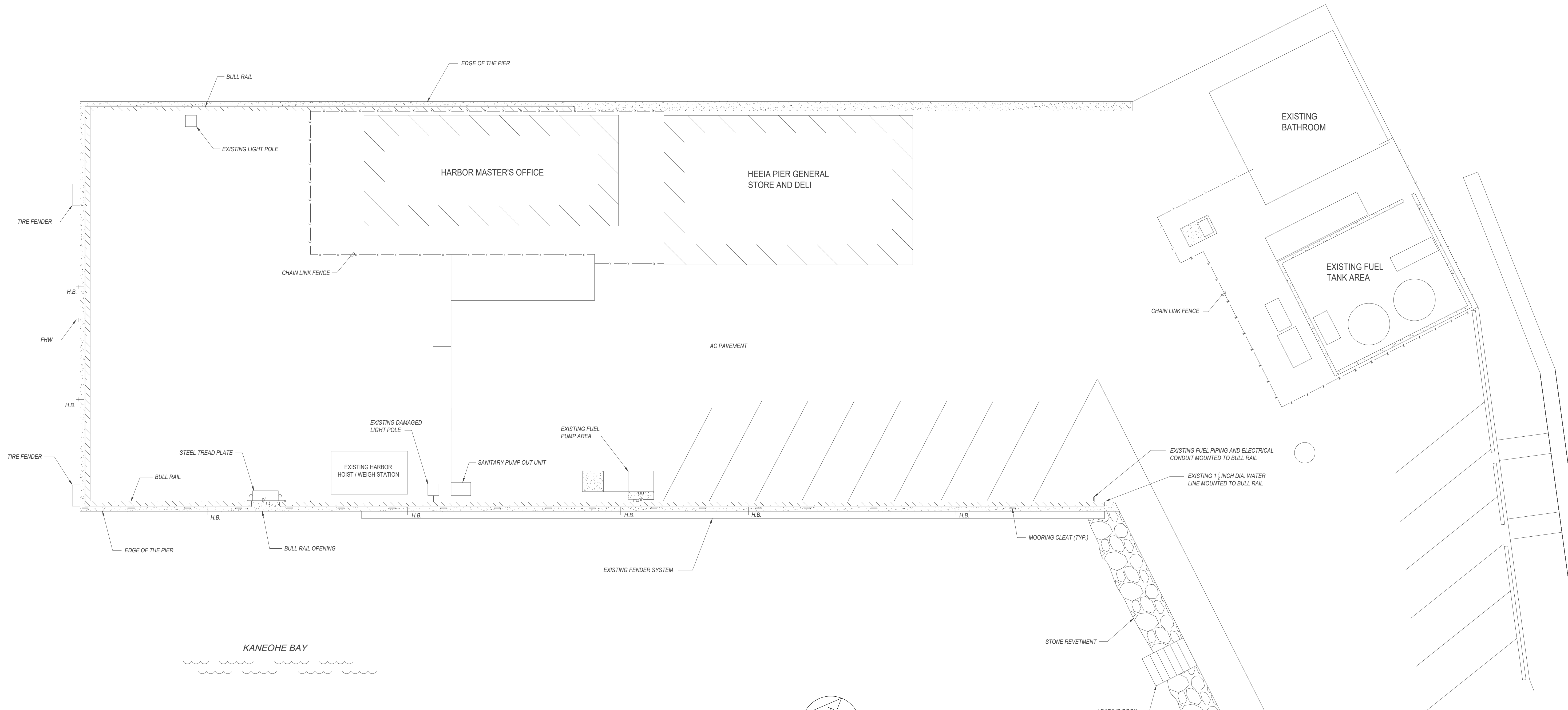
- ALL APPLICABLE CONSTRUCTION WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST REVISION OF THE STATE OF HAWAII, DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", DATED 2005; THE CITY AND COUNTY OF HONOLULU AND THE COUNTIES OF KAUAI, MAUI, AND HAWAII, DEPARTMENT OF PUBLIC WORKS "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION", DATED SEPTEMBER 1986 AND "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION", DATED SEPTEMBER 1984 WHERE APPLICABLE AND THE APPLICABLE STATE BUILDING CODES AS ADOPTED BY THE STATE BUILDING CODE COUNCIL.
- THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES, WHETHER SHOWN ON THE PLAN OR NOT, AND SHALL BE RESPONSIBLE FOR THE REPAIR, RELOCATION OR REPLACEMENT OF SAME IN THE EVENT OF DAMAGES DUE TO THE CONTRACTOR'S CONSTRUCTION PRACTICES, OR INTERFERENCE WITH CONSTRUCTION WORK. THE CONTRACTOR SHALL COORDINATE THEIR WORK WITH THE RESPECTIVE UTILITY COMPANIES AND THE STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION (DLNR - DOBOR).
- DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE. VERIFY AND CHECK ALL DIMENSIONS AND DETAILS SHOWN ON THE DRAWINGS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCY SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION.
- FIELD ADJUSTMENTS SHALL BE MADE AS APPROVED BY THE ENGINEER.
- CONTRACTOR SHALL COORDINATE THEIR OPERATIONS WITH THOSE OF OTHER CONTRACTORS WHO MAY BE EMPLOYED ON ADJACENT OR RELATED STATE PROJECTS AND AVOID UNNECESSARY DELAY OR HINDRANCE IN THE PERFORMANCE OF THEIR RESPECTIVE CONTRACTS.
- NO CONTRACTOR SHALL PERFORM ANY CONSTRUCTION OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW INTO THE HARBOR, THE OCEAN OR EXISTING DRAINAGE SYSTEMS OR ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MUST BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY TAKE ALL REMEDIAL ACTIONS NECESSARY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER QUALITY AND WATER POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 54, "WATER QUALITY STANDARDS" AND TITLE 11, CHAPTER 55, "WATER POLLUTION CONTROL". BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED AT ALL TIMES DURING CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO PLAN AND CONSTRUCT BEST MANAGEMENT PRACTICES (BMP) AS REQUIRED BY THEIR OPERATIONS TO COMPLY WITH THE LAWS, STANDARDS, RULES, AND/OR POLICIES OF THE CITY, STATE OR FEDERAL REGULATORY AGENCIES. PRIOR TO ACCEPTANCE OF THE PROJECT BY THE STATE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE ALL BEST MANAGEMENT PRACTICES AND TO RESTORE THE PROJECT SITE TO ITS ORIGINAL CONDITION OR BETTER.
- THE CONTRACTOR SHALL OBSERVE AND COMPLY WITH THE ADMINISTRATIVE RULES OF THE STATE OF HAWAII DEPARTMENT OF HEALTH REGARDING NOISE CONTROL.
- THE CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY; AND THAT REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND INDEMNIFY AND HOLD THE STATE AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE STATE OR ENGINEER.
- THE CONTRACTOR, AT THEIR OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM RUBBISH, DUST, NOISE, EROSION, ETC. THE WORK SHALL BE DONE IN CONFORMANCE WITH THE AIR AND WATER POLLUTION CONTROL STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH.
- HEEIA KEA SMALL BOAT HARBOR SHALL REMAIN OPEN DURING THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, MARKERS, CONES AND OTHER PROTECTIVE MEASURES, AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION, CONVENIENCE AND SAFETY OF THE PUBLIC. THE CONTRACTOR SHALL ENSURE TEMPORARY SAFE PEDESTRIAN PASSAGEWAYS AROUND THE CONSTRUCTION SITE AS PER THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG) SECTION 4.1.1(4). THE CONTRACTOR SHALL PROVIDE ACCESS TO AND FROM PARKING AREAS, HARBOR FACILITIES, AND PUBLIC STREETS AT ALL TIMES.
- THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR TEMPORARY CONSTRUCTION SITE UTILITIES SUCH AS ELECTRICITY, WATER, ETC. AT NO ADDITIONAL COST TO THE STATE.
- RESTORE ALL AREAS DISTURBED AS A RESULT OF ALL CONSTRUCTION ACTIVITIES, TO EQUAL OR BETTER CONDITION(S), INCLUDING BUT NOT LIMITED TO VEGETATION, PAVEMENTS, EMBANKMENTS, CURBS, SIGNS, LANDSCAPING, STRUCTURES, UTILITIES, WALKWAYS, FENCES, ETC. UNLESS SPECIFICALLY NOTED OTHERWISE.
- PROVIDE ALL INCIDENTAL AND NECESSARY MATERIALS AND WORK TO COMPLETE THE PROJECT.
- THE JOB SITE SHALL BE LEFT IN A SAFE AND SECURE CONDITION AT THE END OF EACH CONSTRUCTION WORKDAY. CLEAN UP AND REMOVE ALL RUBBISH. MAINTAIN THE WORK AREA AND PREMISES IN A CLEAN ORDERLY CONDITION AT ALL TIMES.
- THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS THAT ARE REQUIRED, BUT ARE NOT PROVIDED BY THE STATE.
- DUE TO LIMITED SPACE AT THE JOB SITE THE STATE RECOGNIZES THE NEED FOR A CONSTRUCTION STAGING AREA FOR TEMPORARY STORAGE OF CONTRACTOR'S EQUIPMENT AND MATERIALS. CONTRACTOR SHALL COORDINATE WITH THE HARBORMASTER FOR USE OF STAGING AREA(S) AT LEAST 60 DAYS PRIOR TO ANTICIPATED OCCUPANCY. THE STATE IS NOT OBLIGATED TO PROVIDE THESE SPECIFIC STAGING AREAS AS SPACE AVAILABILITY AT THE HARBOR CHANGES FROM TIME TO TIME. THE CONTRACTOR IS ENCOURAGED TO SUBMIT THEIR REQUEST FOR STAGING AREA(S) WELL IN ADVANCE. CONDITIONS OF USE OF THE STAGING AREA SHALL BE AS REQUIRED BY THE HARBOR MASTER.

GOOD HOUSEKEEPING BMPS

- STREET SWEEPING AND VACUUMING - ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEEPED OR VACUUMED EACH DAY BEFORE LEAVING THE JOB SITE.
- MATERIALS DELIVERY, STORAGE AND USE MANAGEMENT - PREVENT, REDUCE, OR ELIMINATE THE DISCHARGE OF POLLUTANTS FROM MATERIAL DELIVERY, STORAGE, AND USE TO THE STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSITE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER SOURCES OF POLLUTION SHALL NOT BE STORED IN BUFFER AREAS, NEAR AREAS OF CONCENTRATED FLOW, OR AREAS ABUTTING THE STORM WATER SEWER SYSTEM, RECEIVING WATERS, OR DRAINAGE IMPROVEMENTS THAT DISCHARGE OFF-SITE. PRIMARY AND SECONDARY CONTAINMENT CONTROLS AND COVERS SHALL BE IMPLEMENTED TO THE MAXIMUM EXTENT POSSIBLE.
- SPILL PREVENTION AND CONTROL - CREATE AND IMPLEMENT SPILL PREVENTION AND RESPONSE PLANS TO ELIMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO RECEIVING WATERS FROM LEAKS AND SPILLS BY REDUCING THE CHANCE FOR SPILLS, ABSORBING, CONTAINING, AND CLEANING UP SPILLS AND PROPERLY DISPOSING OF SPILL MATERIALS. AT MINIMUM, ALL PROJECTS SHALL CLEAN UP ALL LEAKS AND SPILLS IMMEDIATELY.
- HAZARDOUS MATERIALS - PREVENT THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL.
- VEHICLE AND EQUIPMENT CLEANING - ELIMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM VEHICLE AND EQUIPMENT CLEANING OPERATIONS BY USING OFF-SITE FACILITIES WHEN FEASIBLE, WASHING IN DESIGNATED, CONTAINED AREAS ONLY, AND ELIMINATING DISCHARGES TO THE STORM DRAIN SYSTEM BY EVAPORATING AND/ OR TREATING WASH WATER, AS APPROPRIATE OR INFILTRATING WASH WATER FOR EXTERIOR CLEANING ACTIVITIES THAT USE WATER ONLY.
- VEHICLE AND EQUIPMENT FUELING - PREVENT FUEL SPILLS AND LEAKS BY USING OFF-SITE FACILITIES, FUELING ONLY IN DESIGNATED AREAS, ENCLOSING OR COVERING STORED FUEL, AND IMPLEMENTING SPILL CONTROLS SUCH AS SECONDARY CONTAINMENT AND ACTIVE MEASURES USING SPILL RESPONSE KITS.
- VEHICLE AND EQUIPMENT MAINTENANCE - ELIMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM VEHICLE AND EQUIPMENT OPERATIONS BY USING OFF-SITE MAINTENANCE FACILITIES WHEN FEASIBLE. PERFORMING WORK IN DESIGNATED AREAS ONLY, USING SPILL PADS UNDER VEHICLES AND EQUIPMENT, CHECKING FOR LEAKS AND SPILLS, AND CONTAINING AND CLEANING UP SPILLS IMMEDIATELY.
- SOLID WASTE MANAGEMENT - PREVENT OR REDUCE DISCHARGE OF POLLUTANTS TO THE LAND, GROUNDWATER, OCEAN, AND IN STORM WATER FROM SOLID WASTE OR CONSTRUCTION AND DEMOLITION WASTE BY PROVIDING DESIGNATED WASTE COLLECTION AREAS, COLLECT SITE TRASH DAILY, AND ENSURING THAT CONSTRUCTION WASTE IS COLLECTED, REMOVED, AND DISPOSED OF ONLY AT AUTHORIZED DISPOSAL AREAS.
- SANITARY/SEPTIC WASTE MANAGEMENT - TEMPORARY AND PORTABLE SANITARY AND SEPTIC WASTE SYSTEMS SHALL BE MOUNTED OR STAKED IN, WELL-MAINTAINED AND SCHEDULED FOR REGULAR WASTE DISPOSAL AND SERVICING. SOURCES OF SANITARY AND/OR SEPTIC WASTE SHALL NOT BE STORED NEAR THE STORM DRAINAGE OR RECEIVING WATERS.
- LIQUID WASTE MANAGEMENT - LIQUID WASTE SHALL BE CONTAINED IN A CONTROLLED AREA SUCH AS A HOLDING PIT, SEDIMENT BASIN, ROLL-OFF BIN, OR PORTABLE TANK OF SUFFICIENT VOLUME AND TO CONTAIN THE LIQUID WASTES GENERATED. CONTAINMENT AREAS OR DEVICES MUST BE IMPERMEABLE AND LEAK FREE AND SHOULD NOT BE LOCATED WHERE ACCIDENTAL RELEASE OF THE CONTAINED LIQUID CAN DISCHARGE TO WATER BODIES, CHANNELS, OR STORM DRAINS.
- DUST CONTROL - DUST FROM A PROJECT SITE SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. THE WORK MUST BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1 "AIR POLLUTION CONTROL."
- BMP AND SITE MAINTENANCE - ALL BMPS SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. ADDITIONAL BMPS SHALL BE IMPLEMENTED AS NECESSARY TO ADDRESS EROSION AND SEDIMENT CONTROL AT THE PROJECT SITE.

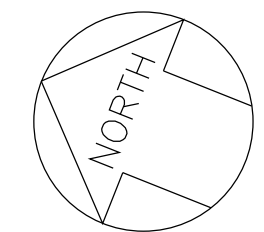
REVISION NO.	DESCRIPTION	DATE
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION		
HEEIA KEA SMALL BOAT HARBOR BULKHEAD FENDER REPAIRS KANEOHE, OAHU, HAWAII JOB NO. B78C071A		
SHEET TITLE GENERAL NOTES		
DESIGNED BY: DR		SUBMITTED: 3/30/2026
DRAWN BY: GP, SQ		DATE: 3/30/2026
CHECKED BY: DR		SCALE: -
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION  EXPIRATION DATE OF THE LICENSE 4/30/2028		DRAWING NO. C-01


KANEOHE BAY



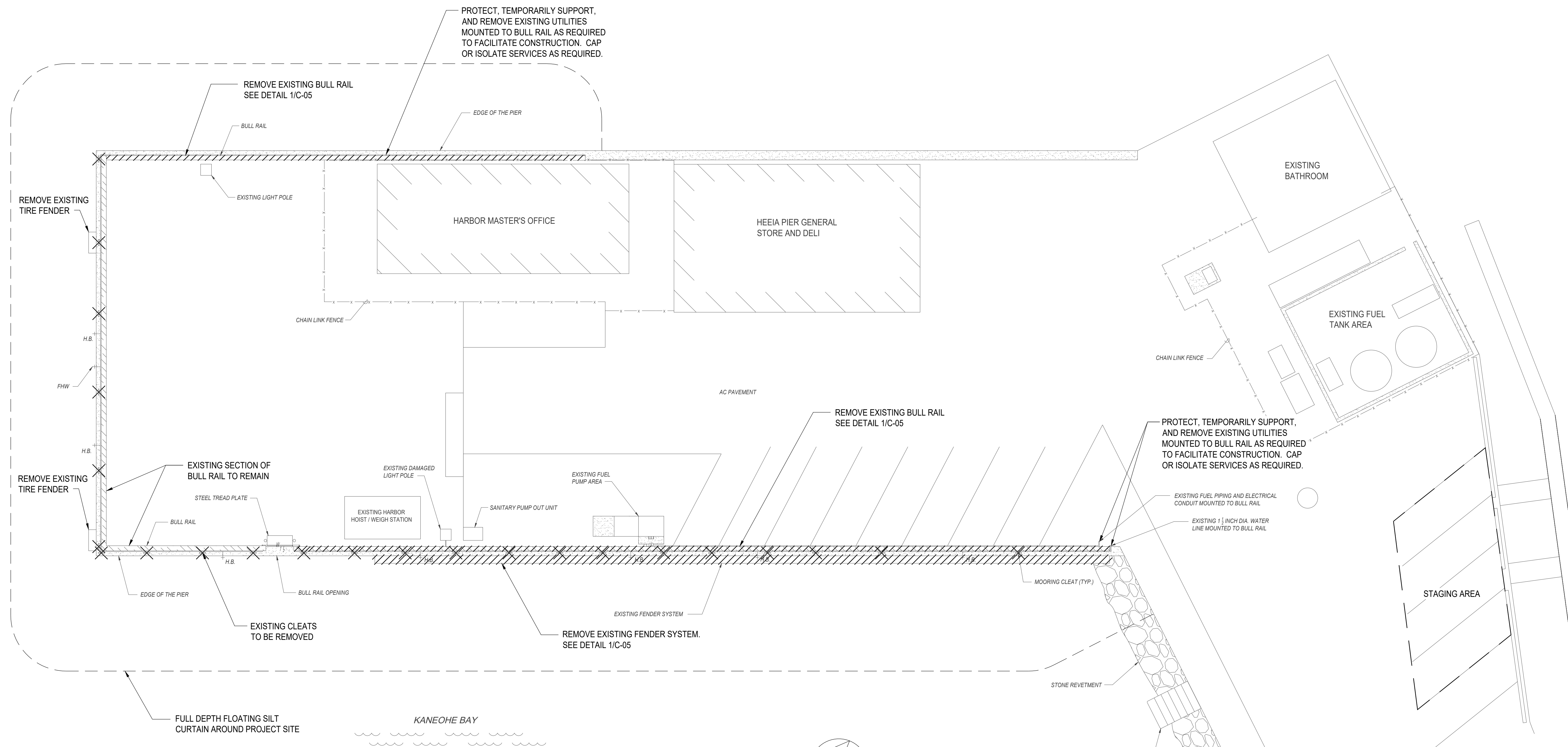
EXISTING CONDITIONS PLAN

SCALE: 1" = 10'-0"
0 15 30 45



REVISION NO.	DESCRIPTION	DATE
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION		
HEEIA KEA SMALL BOAT HARBOR BULKHEAD FENDER REPAIRS KANEOHE, OAHU, HAWAII JOB NO. B78C071A		
SHEET TITLE EXISTING CONDITIONS PLAN		
DESIGNED BY: SQ, DR	SUBMITTED: 4/21/2026	
DRAWN BY: GP, SQ	DATE: 4/21/2026	
CHECKED BY: DR	SCALE: -	
 <p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION <i>Donald K. Reilly</i> EXPIRATION DATE OF THE LICENSE 4/30/2028</p>		DRAWING NO. C-02

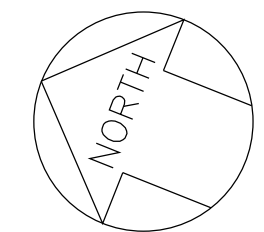
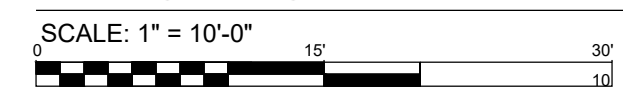
KANEOHE BAY



NOTES:

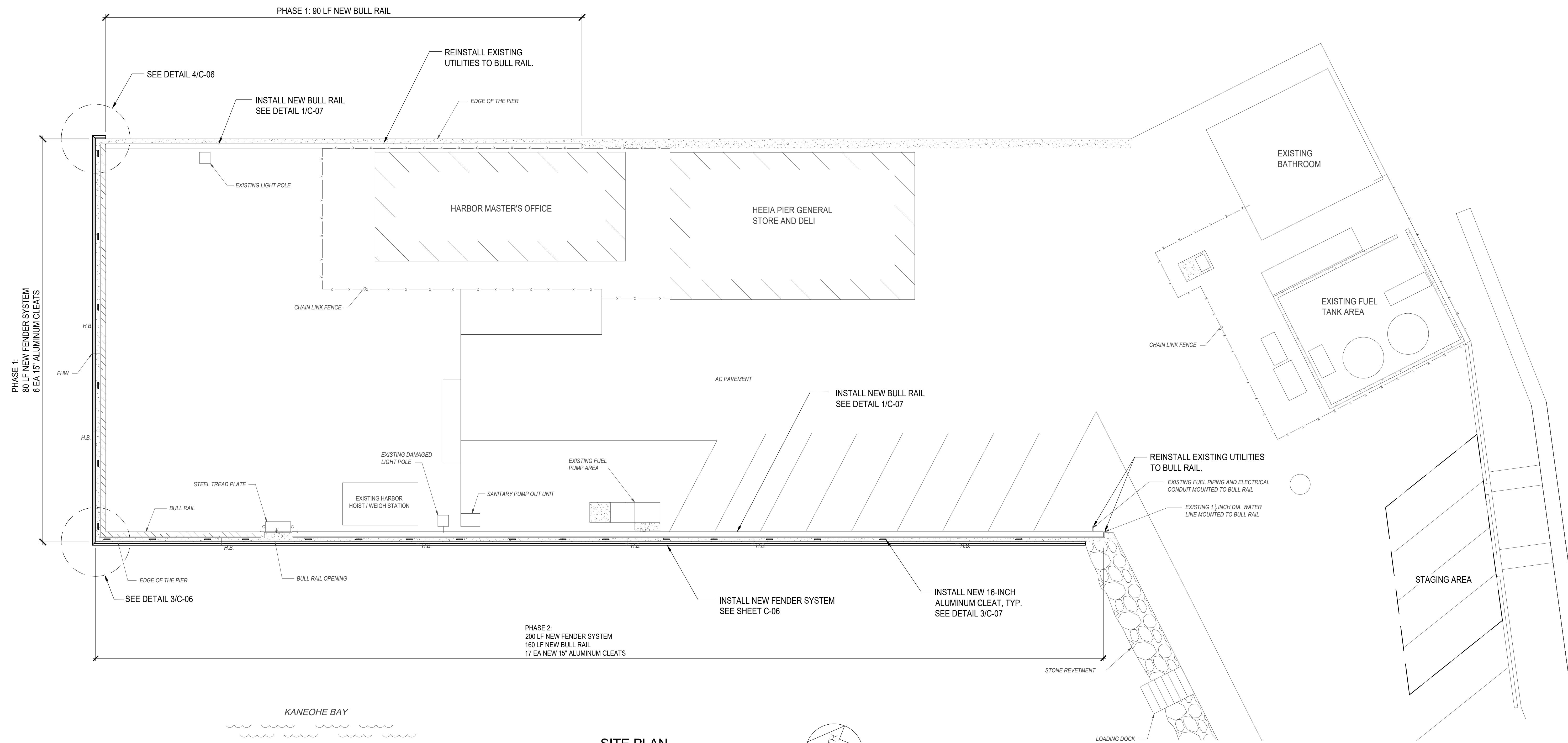
1. CONTRACTOR WORK AREA ADJACENT TO WATER SHALL BE FULLY CONTAINED WITH FULL-DEPTH FLOATING SILT CURTAINS.
2. EXISTING FENDER ANCHOR BOLTS: REMOVE WHERE FEASIBLE. WHERE REMOVAL IS NOT FEASIBLE WITHOUT DAMAGE TO SURROUNDING CONCRETE, CUT FLUSH WITH BULKHEAD FACE. CLEAN EXPOSED STEEL AND APPLY MARINE-GRADE CORROSION PROTECTION COATING. FILL ALL RESULTING HOLES AND VOIDS WITH NON-SHRINK GROUT OR EPOXY GROUT FLUSH WITH ADJACENT SURFACE.
3. EXISTING CLEAT AND BULL RAIL ANCHOR BOLTS: REMOVE WHERE FEASIBLE. WHERE REMOVAL IS NOT FEASIBLE WITHOUT DAMAGE TO SURROUNDING CONCRETE, REMOVE OR CUT AS REQUIRED TO A MINIMUM OF 1" BELOW EXISTING CONCRETE SURFACE. CLEAN EXPOSED STEEL AND APPLY MARINE-GRADE CORROSION PROTECTION COATING. FILL ALL RESULTING HOLES AND VOIDS WITH NON-SHRINK GROUT OR EPOXY GROUT FLUSH WITH ADJACENT SURFACE.
4. CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE ALL EXISTING FENDER SYSTEM COMPONENTS, BULL RAIL COMPONENTS, CLEATS, AND ASSOCIATED APPURTENANCES UNLESS OTHERWISE NOTED. NO ON-SITE DISPOSAL IS PERMITTED.

DEMOLITION AND BMP PLAN



REVISION NO.	DESCRIPTION	DATE
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION HEEIA KEA SMALL BOAT HARBOR BULKHEAD FENDER REPAIRS KANEOHE, OAHU, HAWAII JOB NO. B78C071A		
SHEET TITLE DEMOLITION AND BMP PLAN		
DESIGNED BY: SQ, DR	SUBMITTED: 4/21/2026	
DRAWN BY: GP, SQ	DATE: 4/21/2026	
CHECKED BY: DR	SCALE: -	
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION EXPIRATION DATE OF THE LICENSE 4/30/2028		DRAWING NO. C-03

KANEOHE BAY

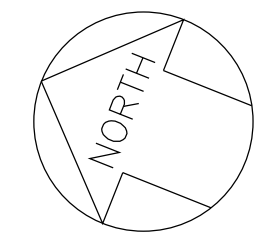
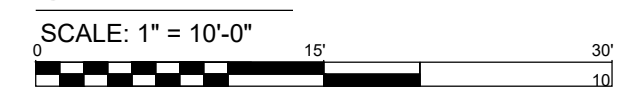


PHASE 1:
80 LF NEW FENDER SYSTEM
6 EA 15' ALUMINUM CLEATS

PHASE 1: 90 LF NEW BULL RAIL


PHASE 2:
200 LF NEW FENDER SYSTEM
160 LF NEW BULL RAIL
17 EA NEW 15' ALUMINUM CLEATS

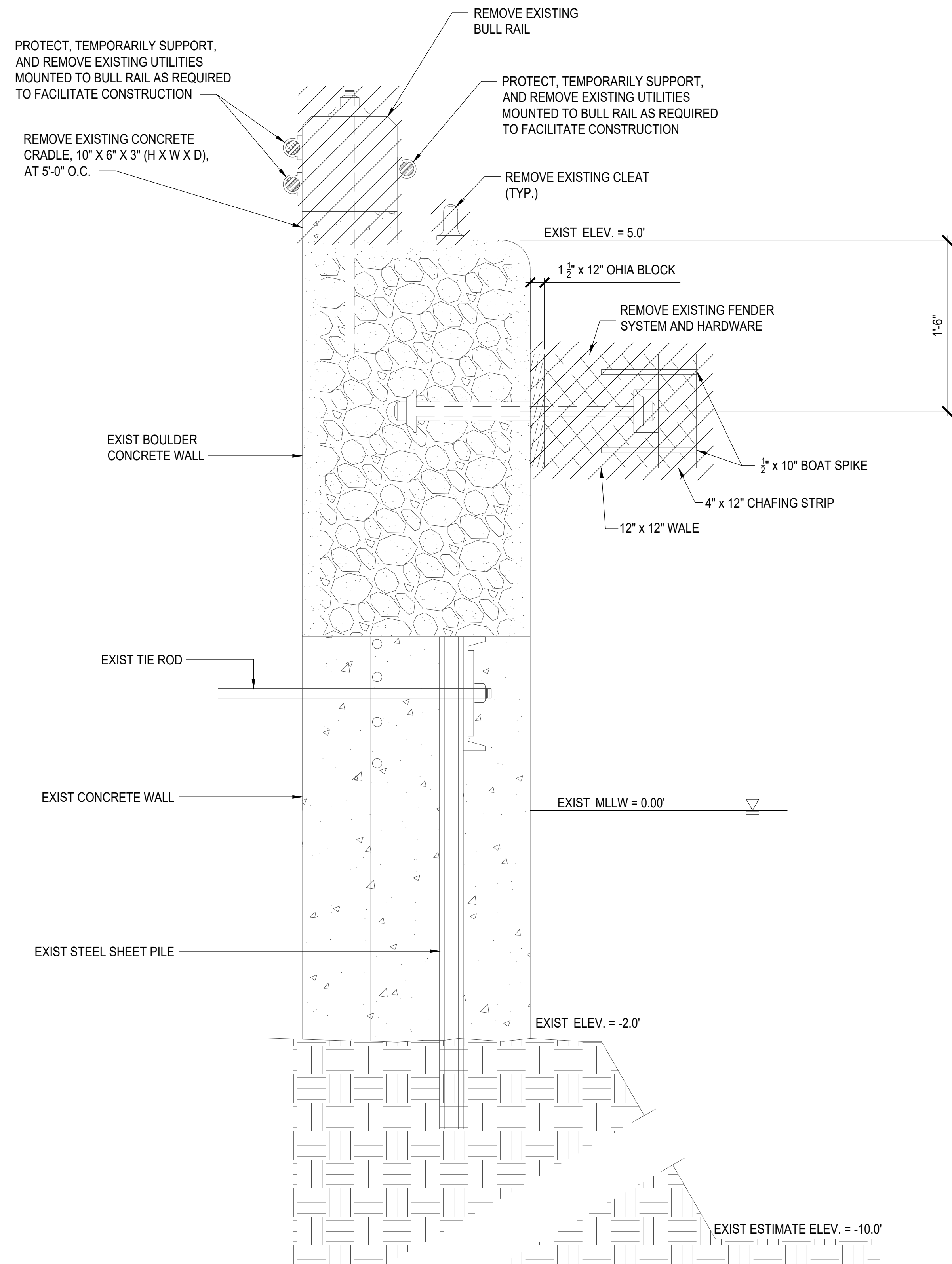
SITE PLAN



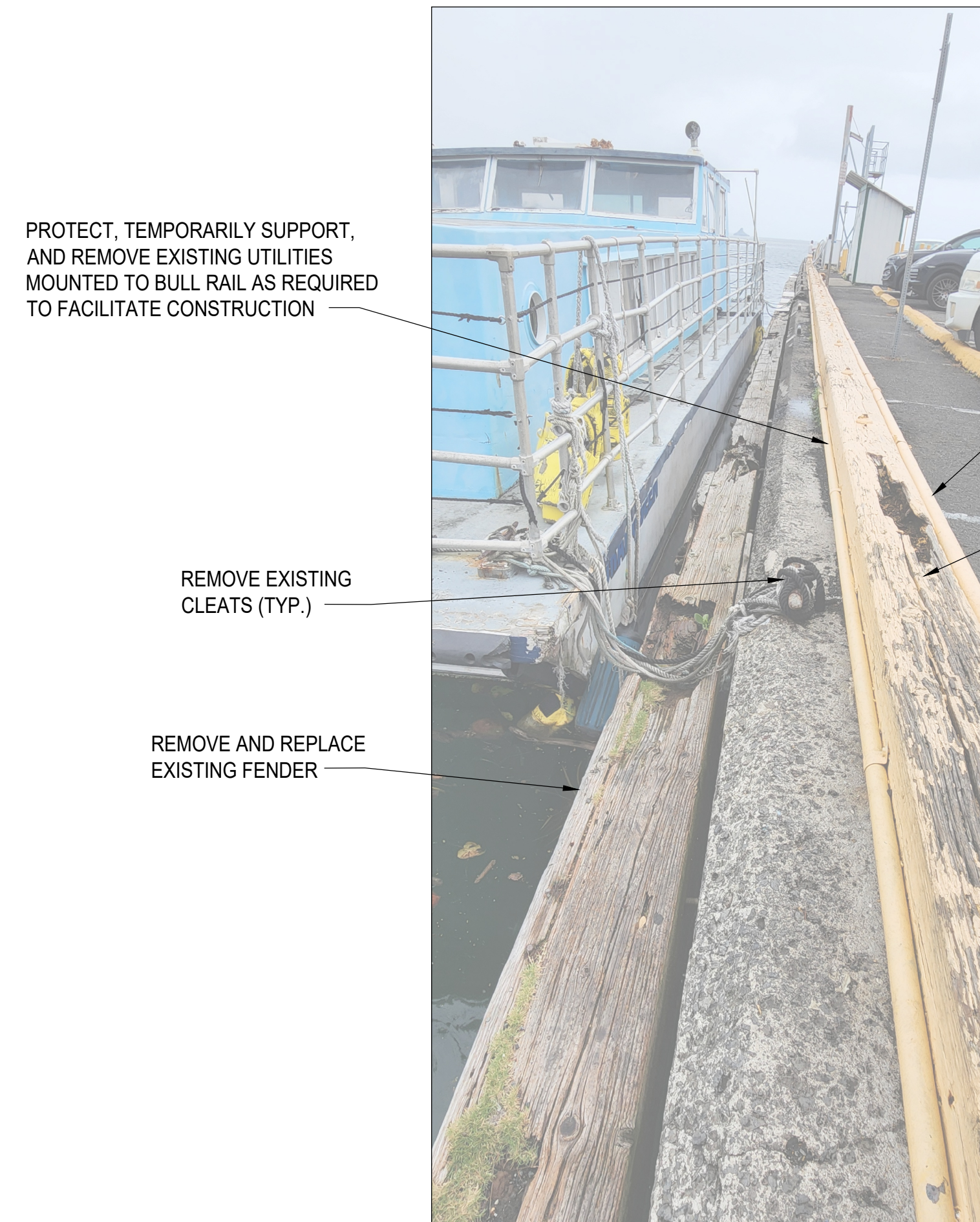
NOTES:

1. EACH PHASE (FENDERS, CLEATS, AND BULL RAIL) SHALL BE COMPLETELY FINISHED AND READY FOR USE BEFORE COMMENCING THE NEXT PHASE.
2. CONTRACTOR WORK AREA ADJACENT TO WATER SHALL BE FULLY CONTAINED WITH FULL-DEPTH FLOATING SILT CURTAINS.
3. REINSTALL EXISTING UTILITIES TO BULL RAIL IN ORIGINAL CONFIGURATION. PROVIDE NEW CORROSION-RESISTANT SUPPORTS, ANCHORS, AND HARDWARE AS REQUIRED TO RESTORE FULL FUNCTIONALITY. MATCH EXISTING ROUTING AND ELEVATIONS.
4. MATERIAL STORAGE AND CONTRACTOR STAGING AREA SHALL BE COORDINATED WITH ENGINEER AND HARBOR MASTER FOR LOCATION. AREA SHALL BE SURROUNDED AND PROTECTED BY APPROPRIATE BMPS TO PREVENT STORMWATER RUNOFF AND WATER QUALITY IMPACTS.

REVISION NO.	DESCRIPTION	DATE
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION		
HEEIA KEA SMALL BOAT HARBOR BULKHEAD FENDER REPAIRS KANEOHE, OAHU, HAWAII JOB NO. B78C071A		
SHEET TITLE SITE PLAN		
DESIGNED BY: SQ, DR	SUBMITTED: 4/21/2026	
DRAWN BY: GP, SQ	DATE: 4/21/2026	
CHECKED BY: DR	SCALE: -	
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION  EXPIRATION DATE OF THE LICENSE 4/30/2028		DRAWING NO. C-04




1 EXISTING FENDER AND BULL RAIL DEMOLITION DETAIL
 SCALE: 1/8" = 1'-0"
 0 4" 8" 12" 16" 24"

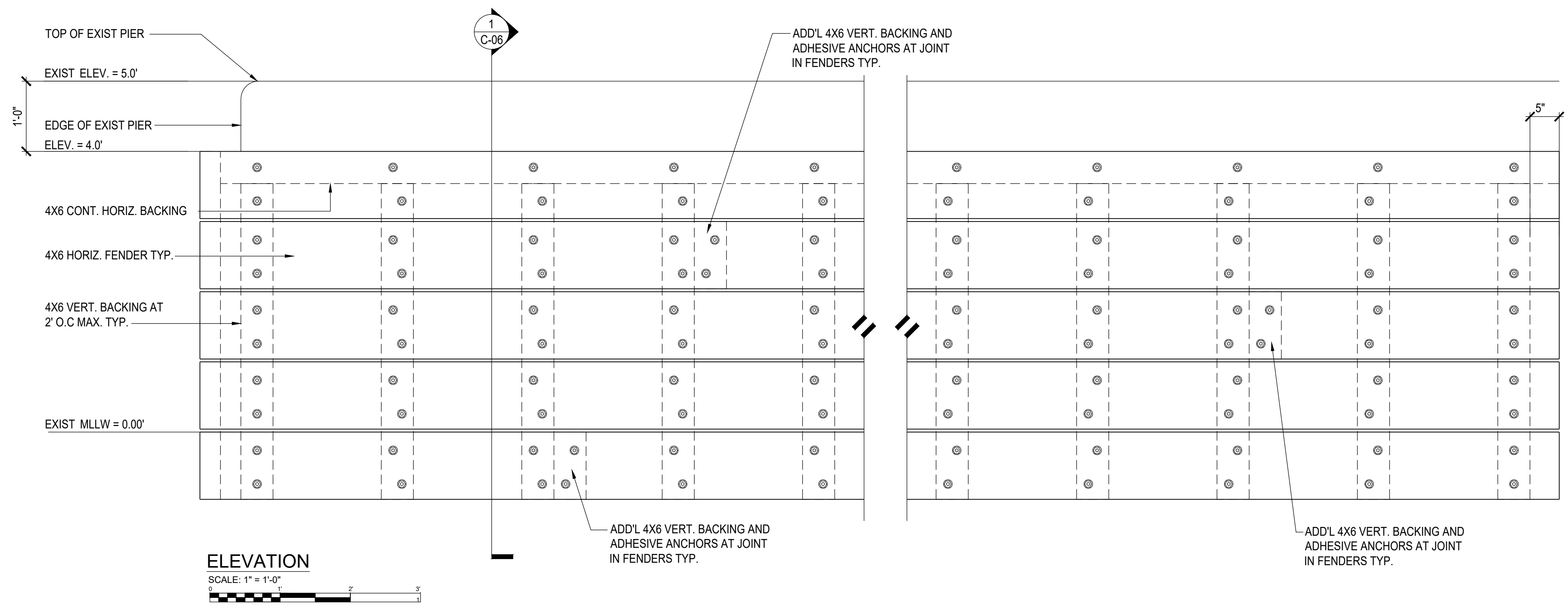


2 EXISTING CONDITIONS / DEMOLITION
 NOT TO SCALE

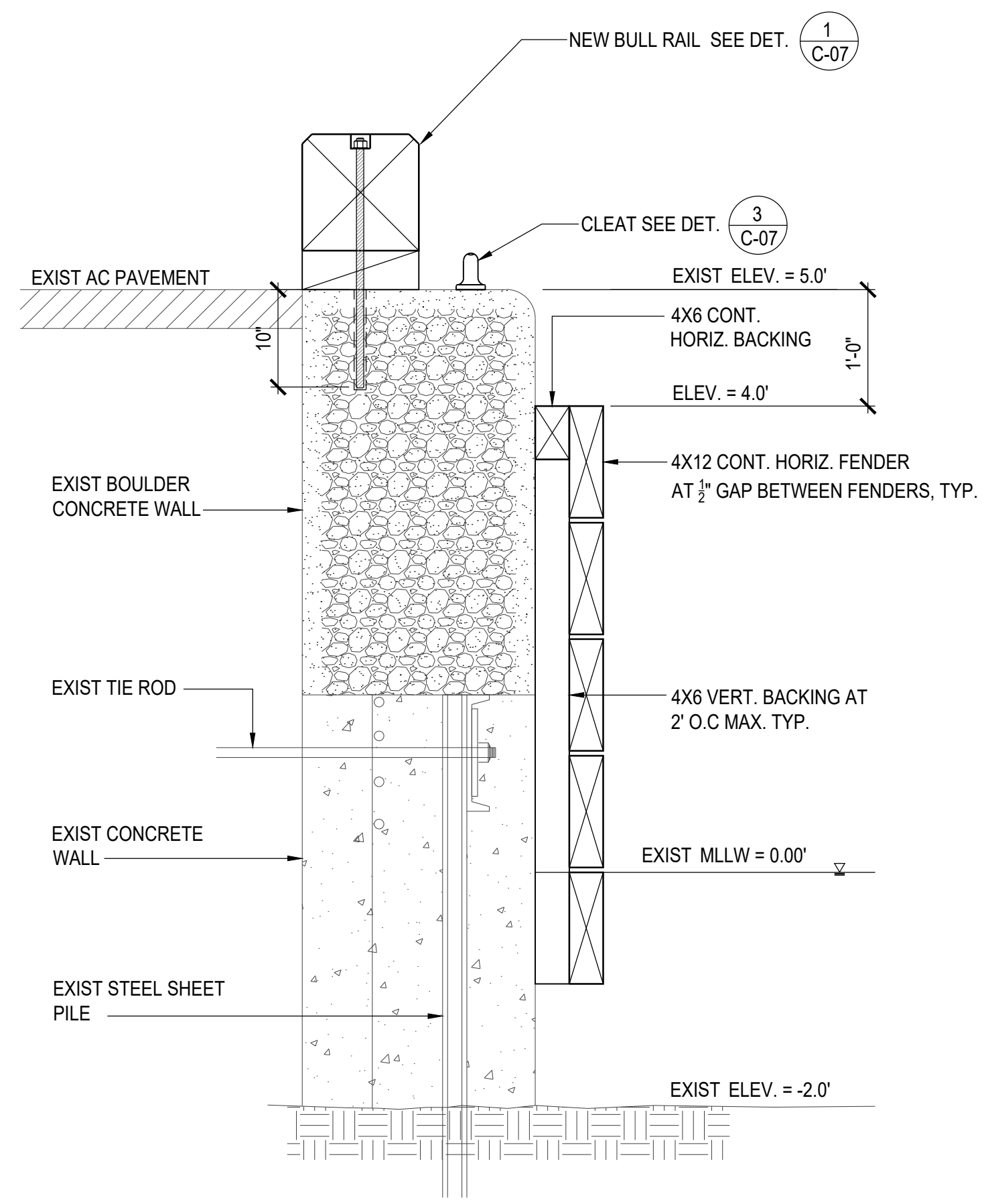
NOTES:

- EXISTING FENDER ANCHOR BOLTS: REMOVE WHERE FEASIBLE. WHERE REMOVAL IS NOT FEASIBLE WITHOUT DAMAGE TO SURROUNDING CONCRETE, CUT FLUSH WITH BULKHEAD FACE. CLEAN EXPOSED STEEL AND APPLY MARINE-GRADE CORROSION PROTECTION COATING. FILL ALL RESULTING HOLES AND VOIDS WITH NON-SHRINK GROUT OR EPOXY GROUT FLUSH WITH ADJACENT SURFACE.
- EXISTING CLEAT AND BULL RAIL ANCHOR BOLTS: REMOVE WHERE FEASIBLE. WHERE REMOVAL IS NOT FEASIBLE WITHOUT DAMAGE TO SURROUNDING CONCRETE, REMOVE OR CUT AS REQUIRED TO A MINIMUM OF 1" BELOW EXISTING CONCRETE SURFACE. CLEAN EXPOSED STEEL AND APPLY MARINE-GRADE CORROSION PROTECTION COATING. FILL ALL RESULTING HOLES AND VOIDS WITH NON-SHRINK GROUT OR EPOXY GROUT FLUSH WITH ADJACENT SURFACE.
- EXISTING UTILITIES MOUNTED TO THE BULL RAIL (INCLUDING BUT NOT LIMITED TO WATER LINES, FUEL PIPING, AND ELECTRICAL CONDUIT) SHALL BE REMOVED AS REQUIRED AND REINSTALLED IN-KIND ON THE NEW BULL RAIL. CONTRACTOR SHALL COORDINATE WITH THE ENGINEER FOR ALL UTILITY RECONNECTIONS. PROTECT ALL UTILITIES DURING CONSTRUCTION.

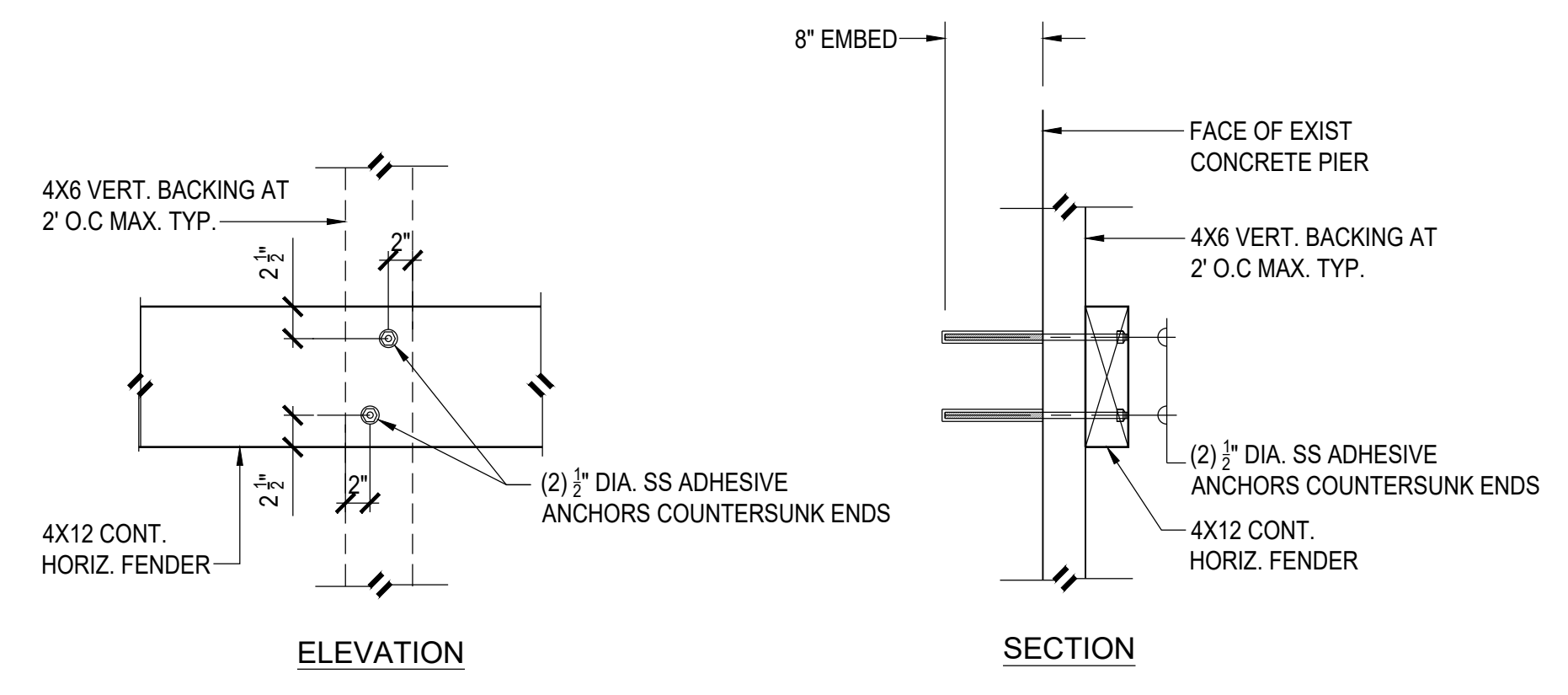
REVISION NO.	DESCRIPTION	DATE
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION HEEIA KEA SMALL BOAT HARBOR BULKHEAD FENDER REPAIRS KANEOHE, OAHU, HAWAII JOB NO. B78C071A		
		
SHEET TITLE DEMOLITION DETAILS		
DESIGNED BY: SQ, DR	SUBMITTED: 4/21/2026	
DRAWN BY: GP, SQ	DATE: 4/21/2026	
CHECKED BY: DR	SCALE: -	
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION <i>Donald K. Rilly</i> EXPIRATION DATE OF THE LICENSE 4/30/2028		DRAWING NO. C-05



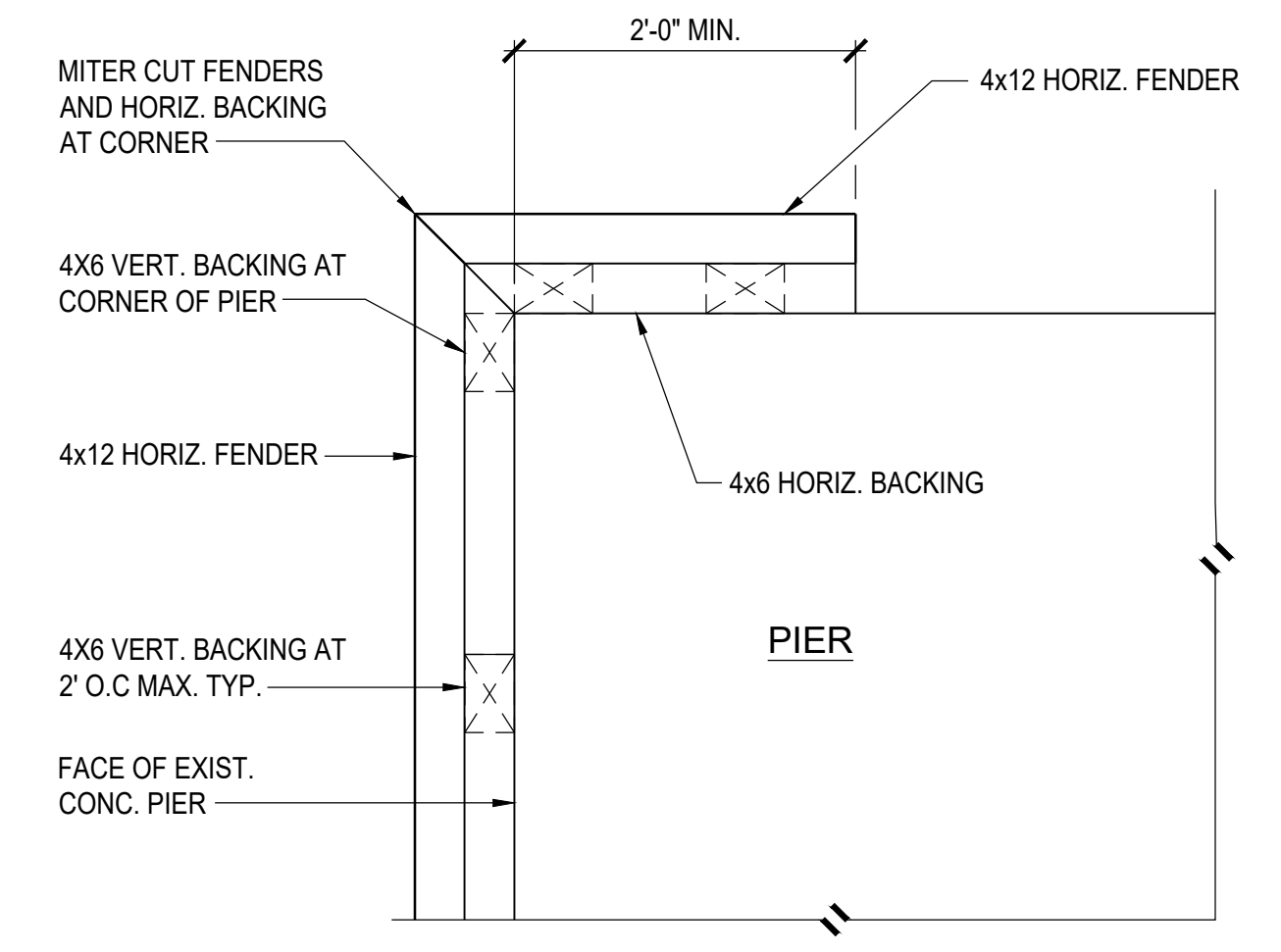
- NOTES:**
- MEMBERS SHALL BE RECYCLED STRUCTURAL PLASTIC LUMBER, TRIMAX STRUCTURAL LUMBER BY TRIMAX BUILDING PRODUCTS; OR APPROVED EQUAL.
 - PLASTIC LUMBER DIMENSIONS ARE NOMINAL SIZES.
 - STAINLESS STEEL ANCHORS SHALL BE FABRICATED FROM 2205 DUPLEX GRADE ALLOY.
 - CONTRACTOR HAS OPTION TO INSTALL ADDITIONAL S.S. ADHESIVE ANCHORS THROUGH 4x6 BACKING MEMBERS TO AID IN ERECTION. ANCHORS SHALL NOT CONFLICT WITH EACH OTHER.
 - STAGGER JOINTS IN HORIZ. FENDERS. FENDERS SHALL BE CONTINUOUS OVER A MIN. OF 3 VERT. BACKING SUPPORTS.
 - COUNTERSUNK END OF THREADED ROD/NUT SHALL BE 1/4" MIN. TO 1/2" MAX. BELOW FACE OF FENDER.
 - PLASTIC LUMBER FENDER COLORS: BLACK OR GREY.



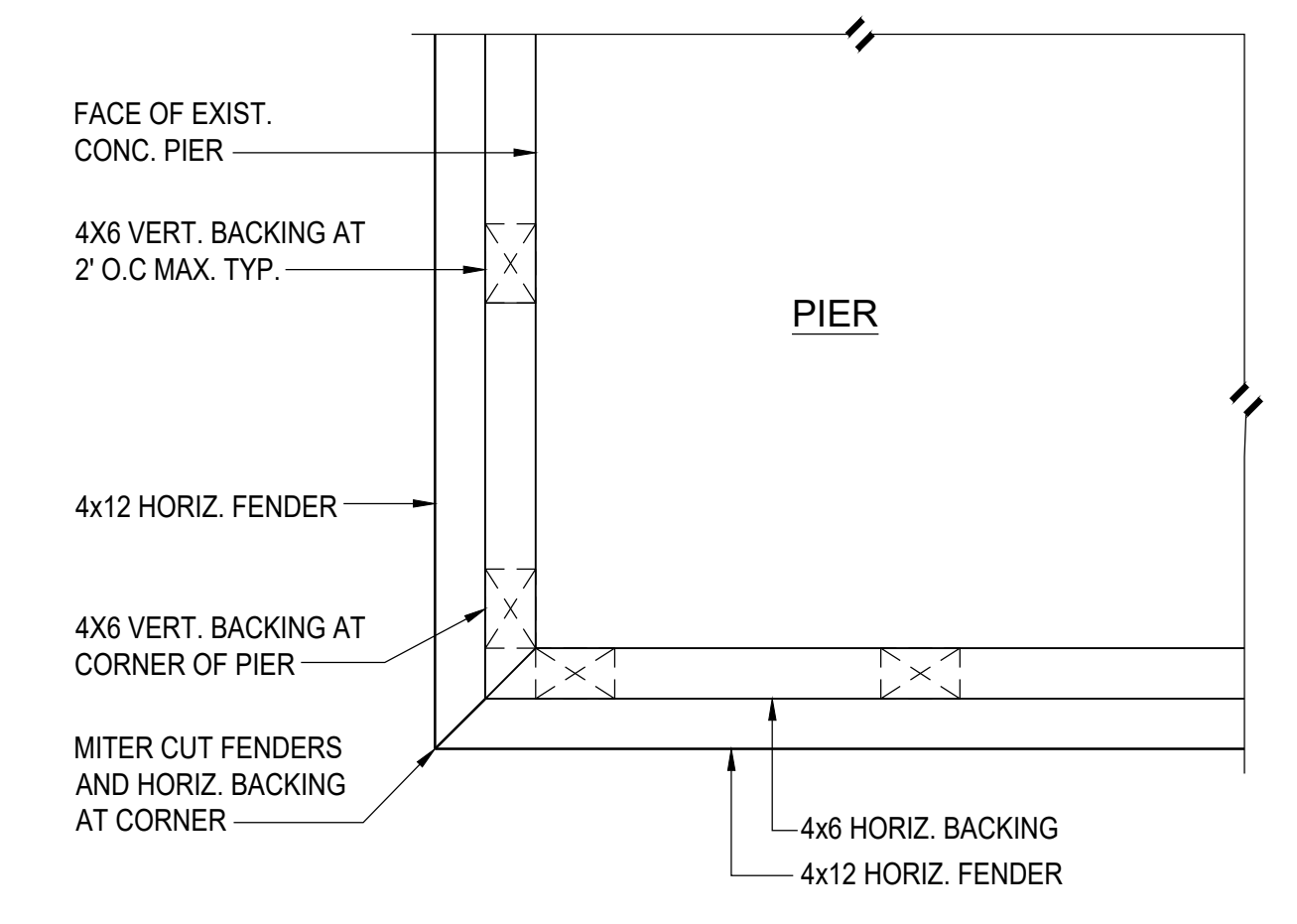
1
SECTION
SCALE: 1" = 1'-0"



2
CONNECTION DETAIL
SCALE: 1" = 1'-0"

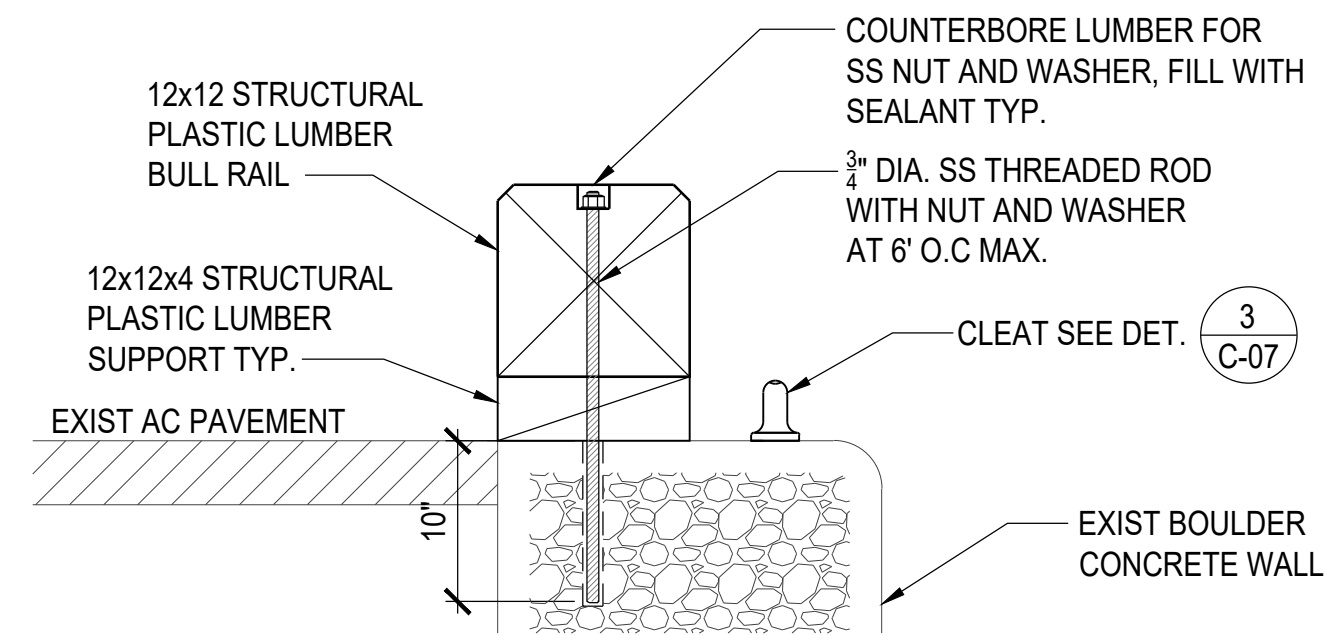


4
OUTSIDE CORNER DETAIL (EAST)
SCALE: 1" = 1'-0"



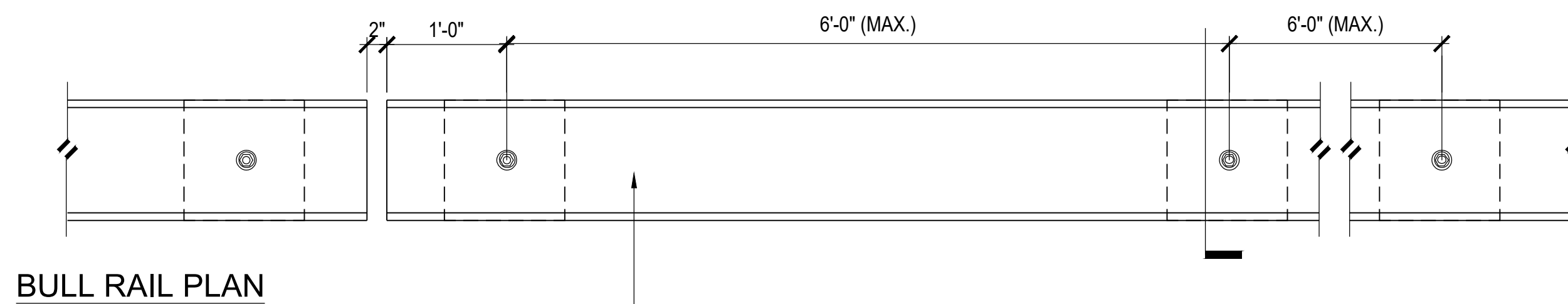
3
OUTSIDE CORNER DETAIL (WEST)
SCALE: 1" = 1'-0"

REVISION NO.	DESCRIPTION	DATE
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION		
HEEIA KEA SMALL BOAT HARBOR BULKHEAD FENDER REPAIRS KANEHOE, OAHU, HAWAII JOB NO. B78C071A		
SHEET TITLE FENDER DETAILS		
DESIGNED BY: SQ, DR	SUBMITTED: 4/21/2026	
DRAWN BY: GP, SQ	DATE: 4/21/2026	
CHECKED BY: DR	SCALE: -	
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION <i>Donald K. Reilly</i> EXPIRATION DATE OF THE LICENSE 4/30/2028		DRAWING NO. C-06

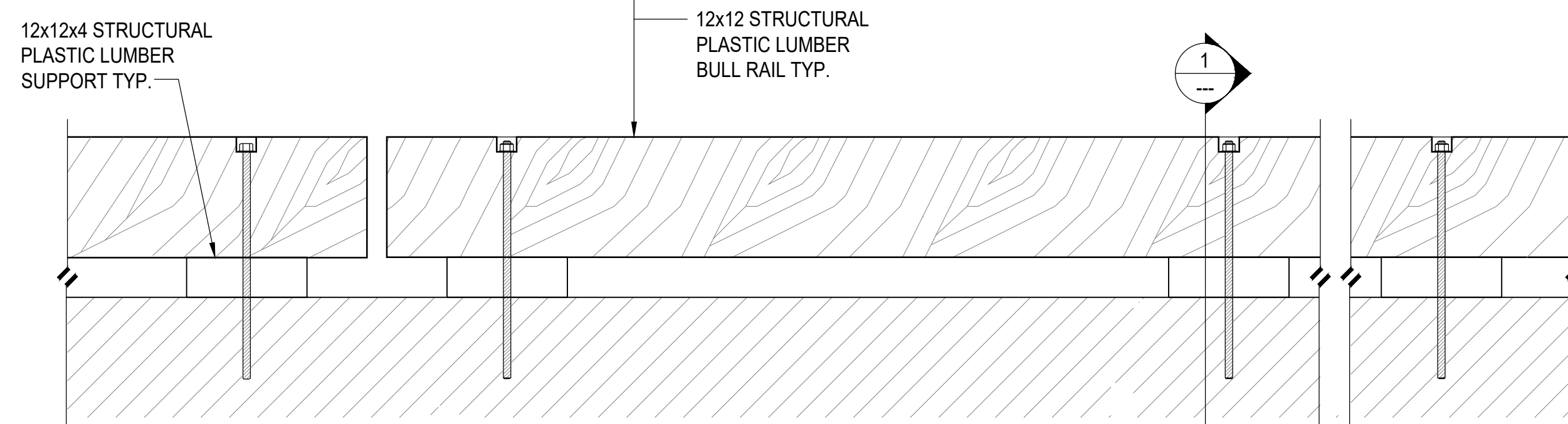


NOTE:
SEE DETAIL 2/C-07 FOR PLAN AND ELEVATION VIEW.

1 BULL RAIL DETAIL
SCALE: 1" = 1'-0"

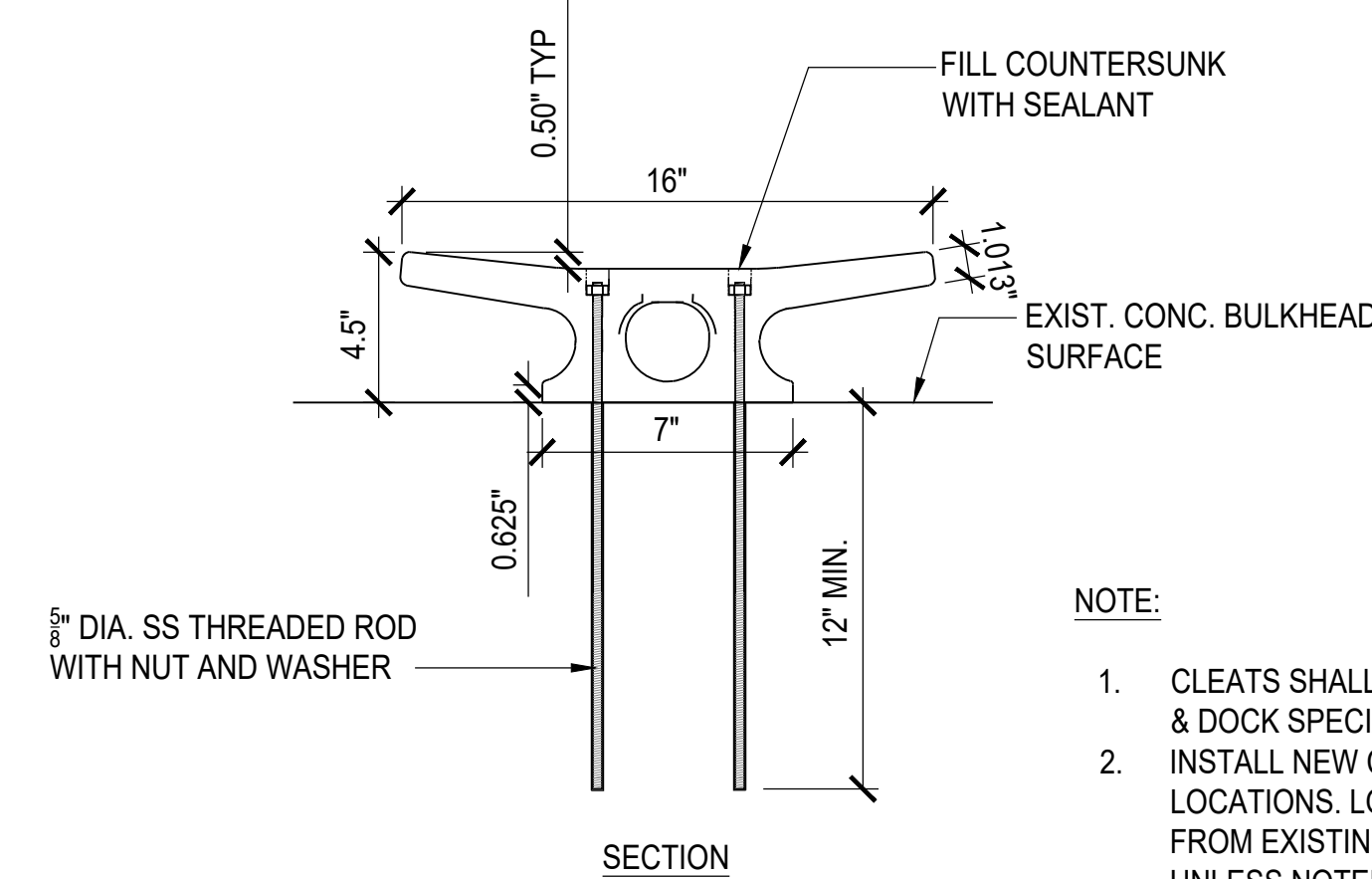
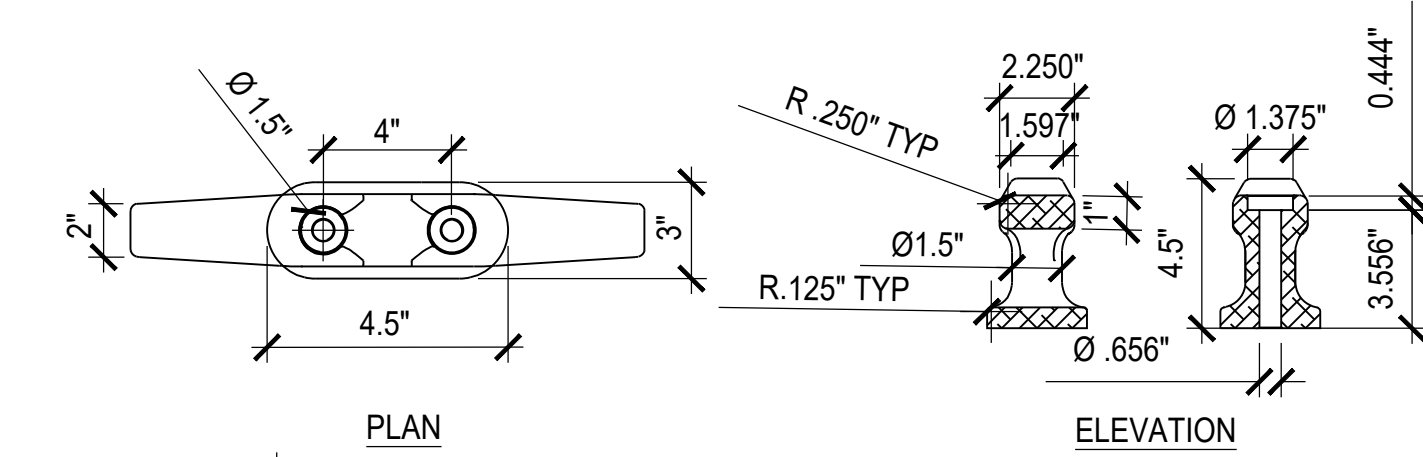
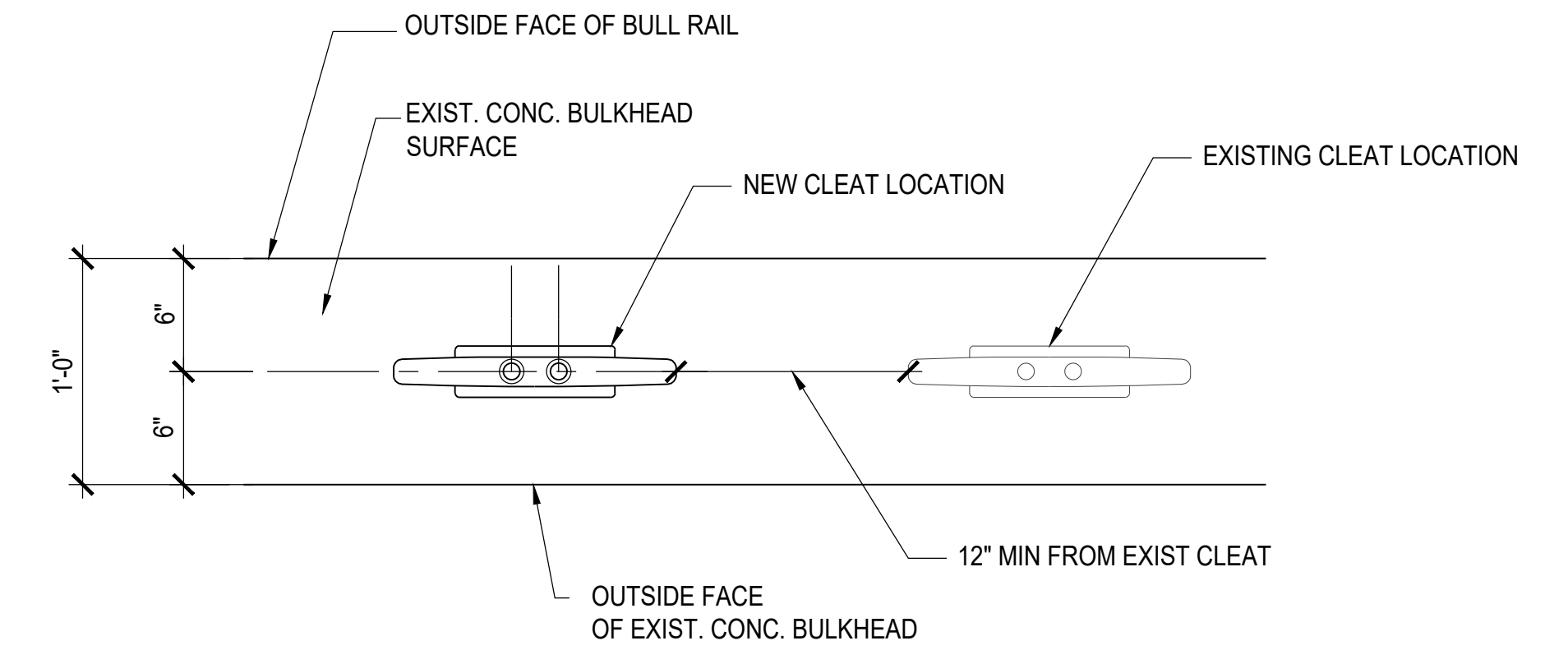


BULL RAIL PLAN



BULL RAIL ELEVATION

2 BULL RAIL PLAN AND ELEVATION
SCALE: 1" = 1'-0"



- NOTE:
- CLEATS SHALL BE 16" ALUMINUM CLEATS BY BLUEWATER MARINE & DOCK SPECIALTIES, INC., OR APPROVED EQUAL.
 - INSTALL NEW CLEATS Laterally ADJACENT TO EXISTING CLEAT LOCATIONS. LOCATE NEW ANCHORS A MINIMUM OF 12 INCHES FROM EXISTING/ABANDONED ANCHOR BOLT LOCATIONS (TYP.), UNLESS NOTED OTHERWISE.
 - CONTRACTOR SHALL FIELD VERIFY EXISTING CONCRETE THICKNESS, EDGE DISTANCES, AND SUBSTRATE CONDITION PRIOR TO DRILLING. ANCHORS SHALL BE INSTALLED IN SOUND CONCRETE ONLY. WHERE REQUIRED EMBEDMENT OR EDGE DISTANCE CANNOT BE ACHIEVED DUE TO EXISTING CONDITIONS, CONTRACTOR SHALL NOT PROCEED AND SHALL NOTIFY THE ENGINEER FOR DIRECTION PRIOR TO INSTALLATION.

3 CLEAT DETAIL
SCALE: NOT TO SCALE

REVISION NO.	DESCRIPTION	DATE
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION		
HEEIA KEA SMALL BOAT HARBOR BULKHEAD FENDER REPAIRS KANEHOE, OAHU, HAWAII JOB NO. B78C071A		
SHEET TITLE BULL RAIL AND CLEAT DETAILS		
DESIGNED BY: SQ, DR	SUBMITTED: 4/21/2026	
DRAWN BY: GP, SQ	DATE: 4/21/2026	
CHECKED BY: DR	SCALE: -	
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION <i>Donald K. Rely</i> EXPIRATION DATE OF THE LICENSE 4/30/2028		DRAWING NO. C-07