

STATE OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 ENGINEERING DIVISION

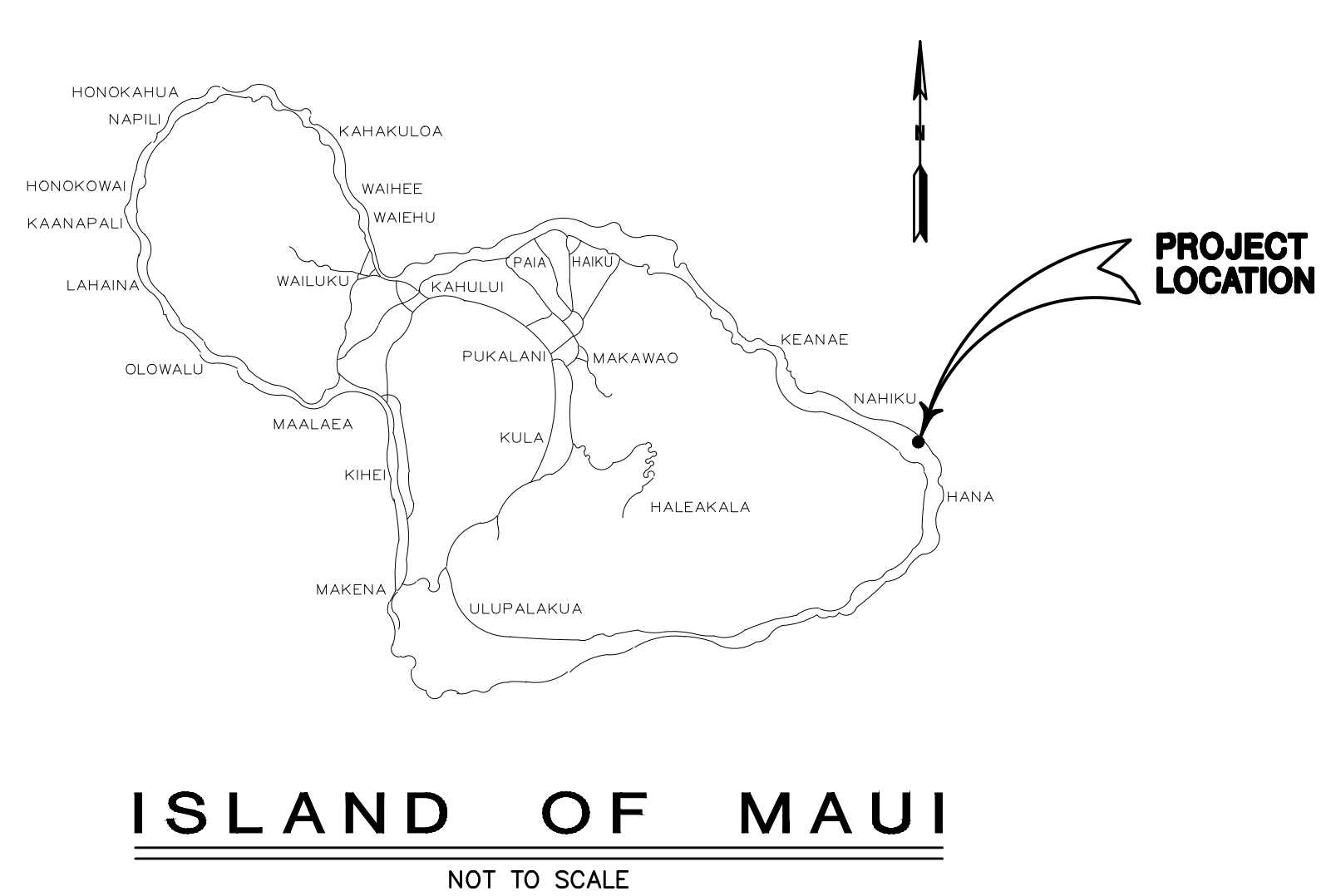
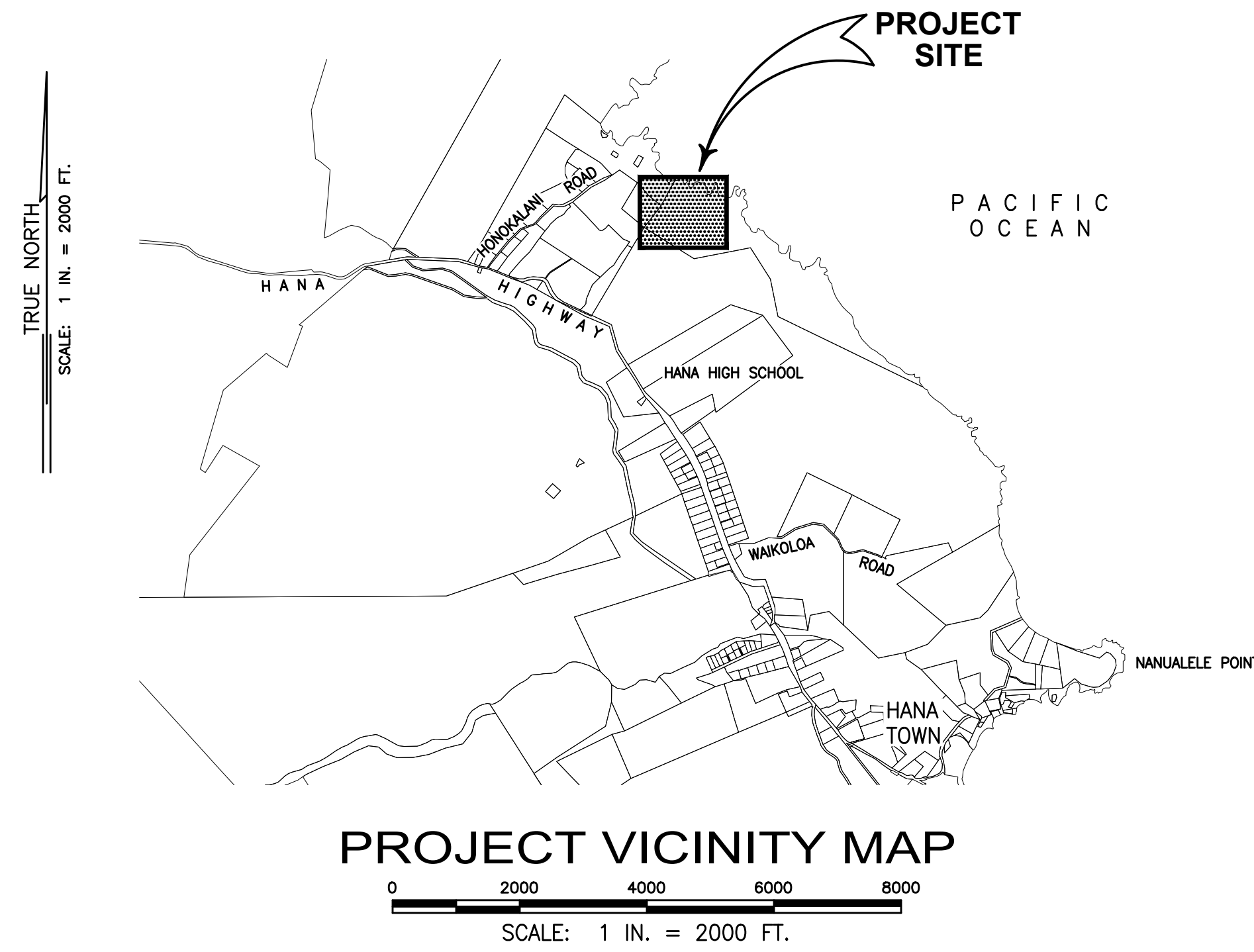
FOR
 DIVISION OF STATE PARKS

JOB NO. F55C642G

WAIANAPANAPA STATE PARK PHASE 2 IMPROVEMENTS CABIN ELECTRICAL REPAIRS

HANA, MAUI, HAWAII

T.M.K.: (2) 1-3-006: 009



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APPROVED: _____ DATE: 04/19/2023

Curt Cottrell
 CURT COTTRELL
 ADMINISTRATOR
 DIVISION OF STATE PARKS
 DEPARTMENT OF LAND AND NATURAL RESOURCES

APPROVED: _____ DATE: 04/18/2023

Carty S. Chang
 CARTY S. CHANG, P.E.
 CHIEF ENGINEER
 ENGINEERING DIVISION
 DEPARTMENT OF LAND AND NATURAL RESOURCES

DRAWING NO.
T-1

GENERAL NOTES

- COMPLY WITH THE LATEST APPLICABLE RULES, REGULATIONS, REQUIREMENTS, AND SPECIFICATIONS OF THE LOCAL LAWS AND ORDINANCES, STATE AND FEDERAL LAWS, NATIONAL ELECTRICAL CODE, COUNTY OF MAUI ELECTRICAL CODE, STATE FIRE MARSHAL, UNDERWRITER'S LABORATORY, NATIONAL ELECTRICAL SAFETY CODE, LIFE SAFETY CODE.
- CONTRACTOR TO OBTAIN AND PAY THE ELECTRICAL PERMIT AS REQUIRED BY LOCAL ORDINANCES AND ARRANGE FOR PERIODIC INSPECTION BY LOCAL AUTHORITIES AS WORK PROGRESSES.
- PROVIDE PROTECTION FOR MATERIAL AND EQUIPMENT FROM LOSS, DAMAGE, CORROSION, AND EFFECTS OF MOISTURE. REPAIR OR REPLACE DAMAGED ITEMS AT NO ADDITIONAL COST TO THE OWNER.
- VISIT PROJECT SITE PRIOR TO BID SUBMITTAL TO ASCERTAIN CONDITIONS AND COST ALLOWANCES THAT AFFECT THE PROPOSED WORK.
- CHECK THE APPROXIMATE LOCATIONS OF WIRING DEVICES AND ELECTRICAL EQUIPMENT FOR CONFLICTS WITH STRUCTURAL MEMBERS, OTHER SYSTEM COMPONENTS, AND FIXED EQUIPMENT. CONSULT ENGINEER IN EVENTS OF CONFLICTS AND MAKE NECESSARY CHANGES AT NO ADDITIONAL COST TO THE OWNER.
- INSTALL MATERIALS AND EQUIPMENT IN A WORKMANLIKE MANNER AND IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, UNLESS OTHERWISE SPECIFIED OR DIRECTED BY ENGINEER. CONTRACTOR SHALL UPDATE THE PANEL SCHEDULE FOR ANY PANEL REVISED DURING THIS WORK.
- CONTRACTOR TO COMPLY WITH ALL HECO STANDARDS AND REQUIREMENTS TO OBTAIN ELECTRICAL AND TELEPHONE SERVICES. OWNER SHALL PAY FOR ALL HECO CHARGES.
- MATERIALS AND WORKMANSHIP SUBJECT TO INSPECTION AT ANY TIME BY OWNER OR HIS REPRESENTATIVES. CORRECT ANY WORK OR MATERIALS NOT IN ACCORDANCE WITH DRAWINGS OR FOUND TO BE DEFICIENT OR DEFECTIVE IN A MANNER SATISFACTORY TO OWNER AT NO ADDITIONAL COST.
- PROVIDE ALL FIRST QUALITY, NEW MATERIALS, FREE FROM DEFECTS, SUITABLE FOR SPACE PROVIDED, AND APPROVED BY UL WHEREVER STANDARD HAVE BEEN PROVIDED BY THAT AGENCY.
- PROVIDE STANDARD MATERIALS AND EQUIPMENT OF MANUFACTURERS REGULARLY ENGAGED IN THE PRODUCTION OF THESE PRODUCTS. PROVIDE PRODUCTS OF A SINGLE MANUFACTURER WHERE TWO OR MORE UNITS OF THE SAME CLASS ARE REQUIRED.
- ALL WIRING TO BE TYPE THWN/THHN COPPER, UNLESS NOTED OTHERWISE. #12 AWG MINIMUM. ALL WIRING SHALL BE IN CONDUIT, 1/2" MIN.
- CONTRACTOR SHALL UPDATE THE PANEL SCHEDULE FOR ANY PANEL REVISED DURING THIS WORK.
- PRIOR TO ROUGH-IN AND FINAL CONNECTION, VERIFY ELECTRICAL CHARACTERISTICS AND EXACT LOCATION OF EQUIPMENT.
- GROUT AND SEAL ALL CONDUIT PENETRATIONS OF WALLS AND FLOOR SLABS TO PRESERVE FIRE RATING AND WATERTIGHT INTEGRITY. (WHERE NECESSARY)
- ALL PENETRATIONS OF FIRE-RESISTIVE FLOORS OR WALLS SHALL BE PROTECTED BY MATERIALS AND INSTALLATION DETAILS THAT CONFORM TO UNDERWRITERS LABORATORIES LISTINGS FOR "THROUGH-PENETRATION FIRE STOP SYSTEMS."
- THE CONTRACTOR SHALL EMPLOY QUALIFIED AND EXPERIENCED WORKMEN FOR THIS WORK. ALL RESTORATION WORK SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT AND/OR THE OWNER.
- CONTRACTOR SHALL SUBMIT AN AS-BUILT DRAWING TO OWNER AT COMPLETION OF PROJECT AS-BUILT DRAWINGS REFER TO DOCUMENTS MAINTAINED AND ANNOTATED BY CONTRACTOR DURING CONSTRUCTION AND INCLUDE RECORD DRAWINGS IN ACCORDANCE WITH CHANGES AND NEW INFORMATION FOR SCHEDULES, LISTS, AND DRAWINGS.
- ELECTRICAL IDENTIFICATION: ALL SAFETY SWITCHES, PANELS, STAND ALONE CIRCUIT BREAKERS, SWITCHBANKS, AND ALL SWITCHES AT THE SWITCHBANKS SHALL BE IDENTIFIED BY AN ATTACHED NAMEPLATE. NAMEPLATES FOR INDIVIDUAL SAFETY SWITCHES AND CIRCUIT BREAKERS SHALL IDENTIFY CIRCUIT AND PANEL. NAMEPLATES FOR PANELS SHALL IDENTIFY PANEL NAME. NAMEPLATES FOR LIGHT/FAN SWITCHES SHALL IDENTIFY SWITCHING CIRCUIT.

- NAMEPLATES: ENGRAVED THREE LAYER LAMINATED PLASTIC, BLACK, WHITE LETTERS ON A BLACK BACKGROUND. 1/8" LETTERING FOR SWITCHES. 1/4" LETTERING FOR PANELS.
- DEGREASE AND CLEAN SURFACES TO RECEIVE NAMEPLATES
- INSTALL NAMEPLATE PARALLEL TO EQUIPMENT LINES.
- SECURE NAMEPLATES TO EQUIPMENT WITH SCREWS OR ADHESIVE.
- EMBOSSSED TAPE WILL NOT BE PERMITTED FOR ANY APPLICATION.

ABBREVIATION LIST

ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
EMT	ELECTRICAL METALLIC TUBING
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HECO	HAWAIIAN ELECTRIC COMPANY, LTD.
ICEA	INSULATED CABLE ENGINEERS ASSOCIATION
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
PVC	POLYVINYLCHLORIDE
UBC	UNIFORM BUILDING CODE
UL	UNDERWRITER LABORATORIES

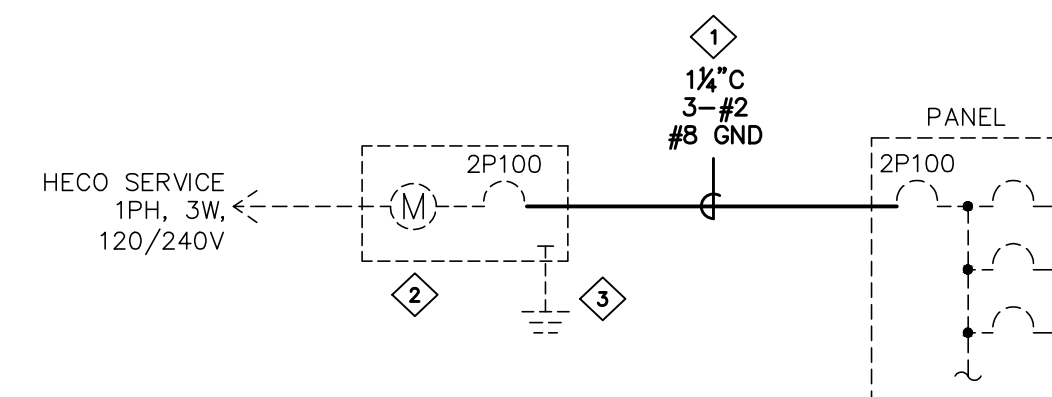
SYMBOL LEGEND

	BRANCH CIRCUITS, TO BE VERIFIED
	EXISTING JUNCTION BOX
	EXISTING DUPLEX CONVENIENCE OUTLET
	EXISTING DUPLEX CONVENIENCE OUTLET, MOUNTED ABOVE COUNTER
	EXISTING WALL SWITCH
	EXISTING DISTRIBUTION PANEL
	EXISTING METER/MAIN
	EXISTING WALL MOUNTED LIGHT FIXTURE
	EXISTING CEILING MOUNTED LIGHT FIXTURE
GFCI	DENOTES A GROUND FAULT CIRCUIT INTERRUPTER DEVICE
+18"	INDICATES MOUNTING HEIGHT OF DEVICE ABOVE FINISHED FLOOR/GRADE
WP	DENOTES WATERPROOF DEVICE, NOT "WHILE-IN-USE" TYPE UNLESS INDICATED

NOTE ON SYMBOLS:
MOUNTING ELEVATIONS ARE AS NOTED ABOVE.
ELEVATIONS PROVIDED ON PLANS TAKE PRECEDENCE.

DEMOLITION NOTES

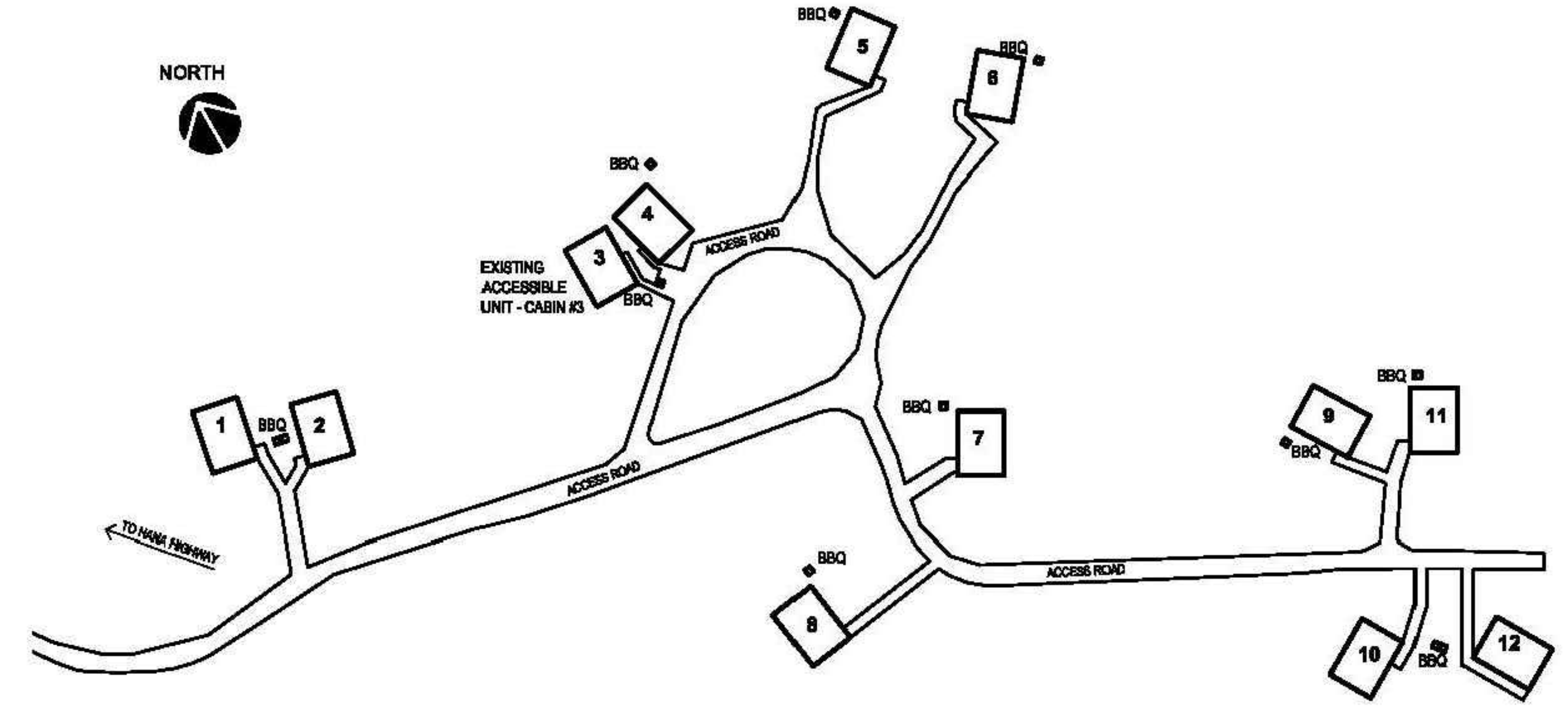
- THE DRAWINGS ARE INTENDED TO SHOW THE GENERAL SCOPE OF WORK AND DO NOT NECESSARILY SHOW EVERY DEVICE, BOX, CONDUIT, PANEL, SERVICES THAT MAY BE ENCOUNTERED DURING DEMOLITION AND SHALL REMOVE OR RE-ROUTE THESE ITEMS AS DIRECTED.
- REMOVE ALL UNUSED CONDUIT AND WIRING FROM DEMOLITION AREA, BACK TO THE ELECTRICAL PANEL OR NEXT DEVICE OUTSIDE PROJECT LIMITS, INCLUDING WIRING DISCONNECTED UNDER THIS CONTRACT AND WIRING UNCOVERED BY DEMOLITION.
- REMOVE ALL UNUSED RACEWAY FROM DEMOLITION AREA NOT CONCEALED IN CONCRETE OR PLASTER, INCLUDING RACEWAY DISCONNECTED UNDER THIS CONTRACT AND RACEWAY UNCOVERED BY DEMOLITION.
- MAINTAIN CIRCUIT CONTINUITY AS REQUIRED FOR EQUIPMENT AND DEVICES INDICATED TO REMAIN, INCLUDING THOSE OUTSIDE OF PROJECT LIMITS. COORDINATE WITH NEW WORK AND RE-ROUTE CONDUIT AND WIRE AS REQUIRED TO AVOID CONFLICT WITH NEW WORK.
- ALL REMAINING JUNCTION AND PULL BOXES SHALL BE ACCESSIBLE AS PER NATIONAL ELECTRICAL CODE (N.E.C.). THE CONTRACTOR SHALL MOVE EXISTING BOXES, ETC. AS REQUIRED BY NEW CONSTRUCTION.
- ALL MATERIALS REMOVED REMAIN THE PROPERTY OF THE OWNER. IF THE OWNER CHOOSES TO DISCARD THESE MATERIALS THEN THE CONTRACTOR SHALL DISPOSE OF THEM.



TYPICAL SINGLE-LINE DIAGRAM

TYPICAL SINGLE-LINE DIAGRAM NOTES:

- RE-WIRE METER/MAIN TO EXISTING PANEL IN NEW CONDUIT, USE RIGID GALVANIZED STEEL CONDUIT AS REQUIRED FOR EXTERIOR SPACE, ALL SUPPORTS AND STRAPS TO BE 316L STAINLESS STEEL, PAINTED AS REQUIRED.
- REPLACE METER SOCKET/MAIN WITH NEW 316L STAINLESS STEEL TYPE, COORDINATE WITH HECO.
- VERIFY ENTIRE PLUMBING SYSTEM TO BE COMPLETELY BONDED TO ELECTRICAL GROUNDING SYSTEM, ADD MINIMUM ONE (1) GROUND ROD 6' MINIMUM FROM EXISTING GROUND ROD, CONDUCT EARTH RESISTANCE TEST, ADD ADDITIONAL GROUND RODS UNTIL MEASURED EARTH RESISTANCE IS 25 OHMS OR LESS.



ELECTRICAL SITE PLAN

NOT TO SCALE

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DEPT. OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION
STATE OF HAWAII

WAIANAPANAPA STATE PARK
PHASE 2 IMPROVEMENTS
CABIN ELECTRICAL REPAIRS
HANA, MAUI, HAWAII TMK: (2) 1-3-006-009

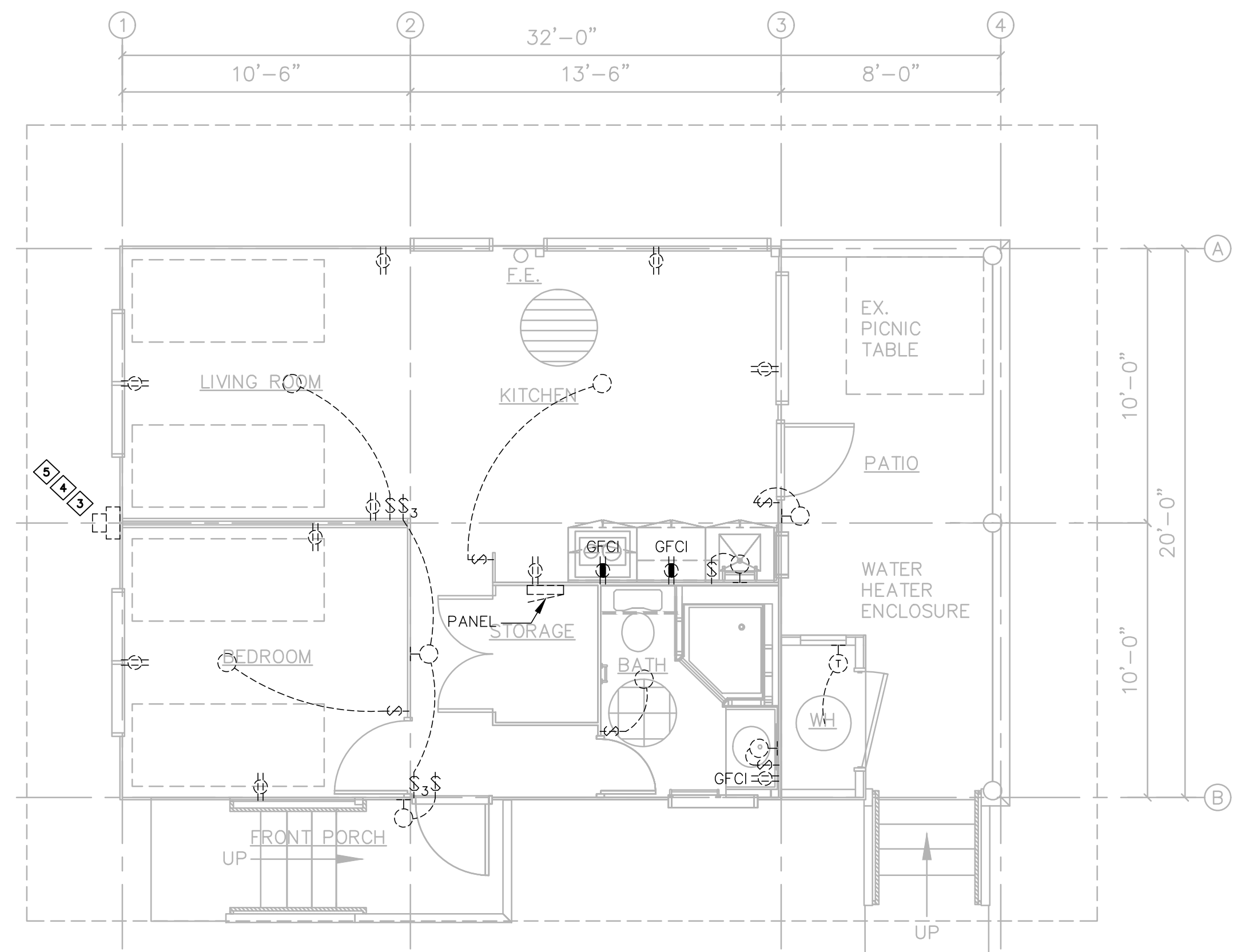
**ELECTRICAL SITE PLAN, GENERAL NOTES,
SYMBOL LEGEND, SINGLE-LINE DIAGRAM**

ECM, INC		JOB NO.	DRAWING NO.
DESIGNED BY: JF	CHECKED BY: JF	F55C642G	E-1
DRAWN BY: RB	APPROVED BY: JF	DATE	SHEET
SCALE: AS SHOWN	EXPIRATION DATE OF THE LICENSE 4/30/24	DEC. 2022	2 OF 5 SHEETS

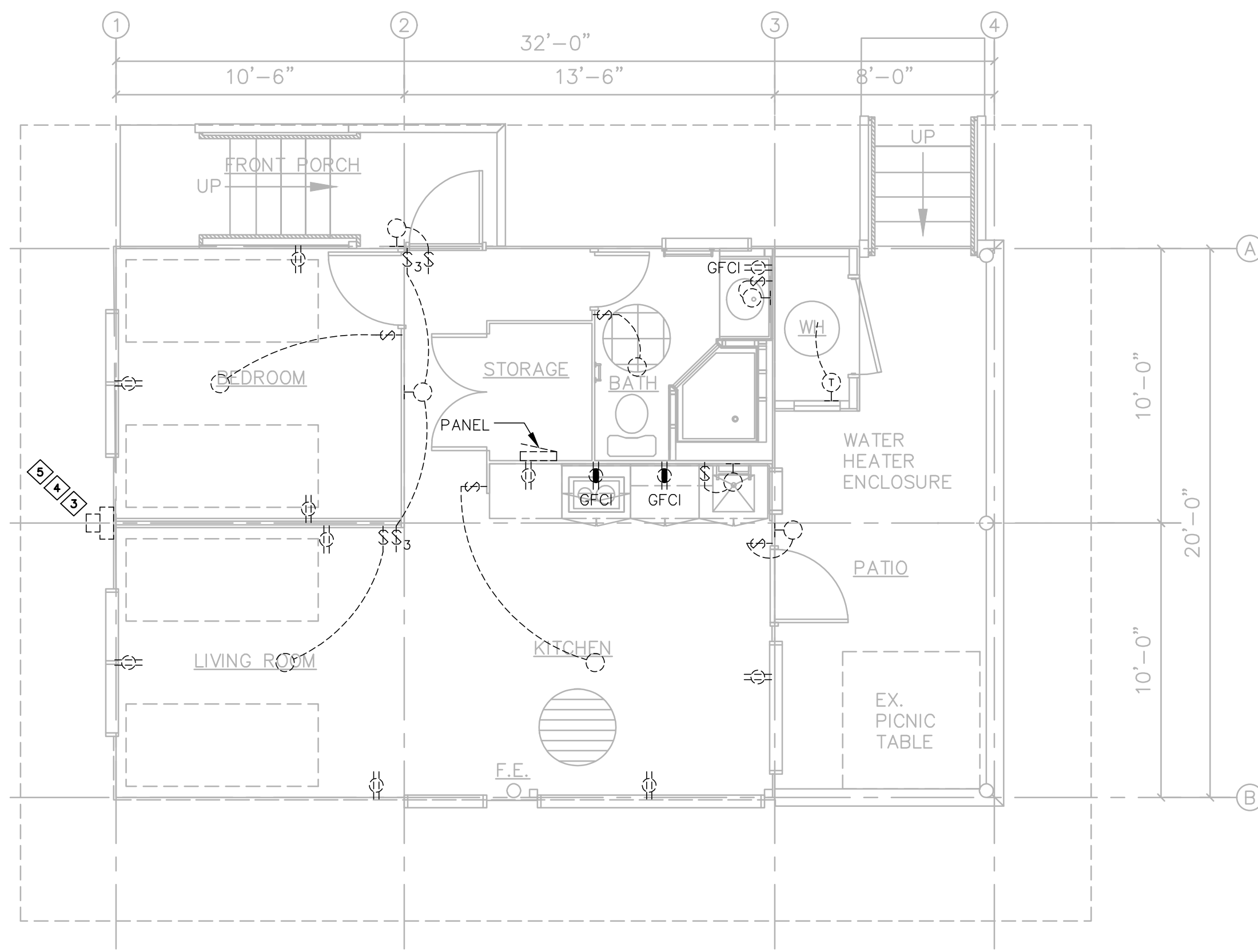
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION WILL BE UNDER MY OBSERVATION

JERAL M. FUKUDA
 LICENSED PROFESSIONAL ENGINEER
 No. 10378-E
 HAWAII, U.S.A.

Carty Chang
 E-signed 2023-04-18 07:43PM HST
 carty.s.chang@hawaii.gov
 State of Hawaii
 Chief Engineer

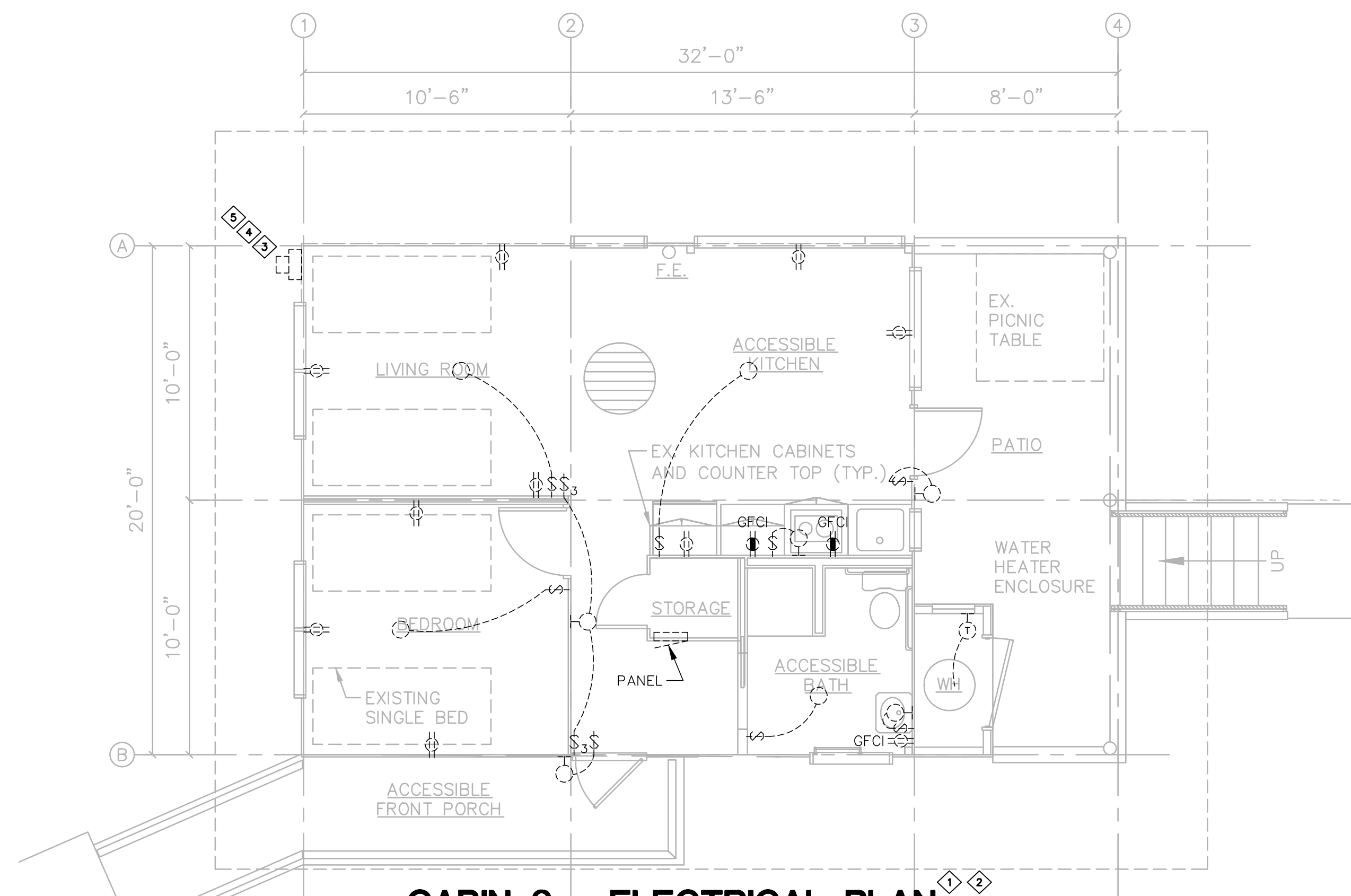


CABIN 1 - ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"



CABIN 2 & 6 - ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

- PLAN NOTES:**
- 1 ALL RECEPTACLES, LIGHT SWITCHES, LIGHTING FIXTURES, AND JUNCTION BOXES TO BE RE-WIRED IN NEW CONDUIT BACK TO PANEL, FOLLOW EXISTING CIRCUITING, VERIFY CIRCUIT AS INDICATED, VERIFY EXACT DEVICE QUANTITIES & LOCATIONS, ROUTE CONDUITS AS REQUIRED WITH: 1) RIGID GALVANIZED STEEL CONDUIT IN ALL EXTERIOR SPACES INCLUDING ABOVE CEILING AND UNDER CABIN FLOOR; 2) ELECTRICAL METALLIC TUBING (EMT) IN INTERIOR SPACES; AND 3) NON-METALLIC SURFACE RACEWAYS IN KITCHEN COUNTER AREA, REPLACE OUTLET/JUNCTION BOXES AS REQUIRED TO ACCOMMODATE NEW CONDUIT/WIRING OR IF DAMAGED, PAINT ALL CONDUITS TO MATCH, SEAL ALL PENETRATIONS.
 - 2 PROVIDE NEW DEVICE COVER PLATE FOR ALL DEVICES WITH CIRCUIT NUMBER INDICATED.
 - 3 REPLACE METER SOCKET WITH 316L STAINLESS STEEL TYPE, COORDINATE WITH HECO, ALL ACCESSORIES USED IN CONJUNCTION WITH NEW METER SOCKET INCLUDING BUT NOT LIMITED TO SCREWS, LOCKNUTS, LEVERS, AND CLASPS SHALL BE 316L OR HIGHEST GRADE AVAILABLE STAINLESS STEEL, VERIFY EXACT LOCATION.
 - 4 VERIFY ENTIRE PLUMBING SYSTEM TO BE COMPLETELY BONDED TO ELECTRICAL GROUNDING SYSTEM, ADD MINIMUM ONE (1) GROUND ROD 6' MINIMUM FROM EXISTING GROUND ROD, CONDUCT EARTH RESISTANCE TEST, ADD ADDITIONAL GROUND RODS UNTIL MEASURED EARTH RESISTANCE IS 25 OHMS OR LESS.
 - 5 RE-WIRE MAIN SERVICE CABLE IN CONDUIT.



CABIN 3 - ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

PANEL (TYP.)										A.I.C. RATING		10K			
VOLTAGE		120/240V		PHASE		1		WIRE		3W5N		CIRCUITS		16	
MOUNTING		SURFACE		MAIN BRKR		2P100		BREAKER		BOLT ON		MAIN BUS		100A	
CKT	DESCRIPTION	PHASE A	PHASE B	BRKR	WIRE	CKT	DESCRIPTION	PHASE A	PHASE B	BRKR	WIRE	CKT	DESCRIPTION	PHASE A	PHASE B
1	R. KITCHEN COUNTER	0.2		1P20	#12	2	WATER HEATER	2.3		2P30	#10				
3	R. KITCHEN COUNTER		0.2	1P20	#12	4			2.3						
5	R. REFRIGERATOR	0.2		1P20	#12	6	L: LIGHTS	0.4		1P20	#12				
7	R. BATHROOM		0.2	1P20	#12	8	R. LIVING & DINING	0.9		1P20	#12				
9	L: KITCHEN LIGHT	0.1		1P20	#12	10	R. BEDROOM	0.5		1P20	#12				
11	PFB					12	HOT PLATE		2.3	2P30	#10				
13	PFB					14									
15	PFB					16	PFB								
TOTALS		0.5	0.4			TOTALS		5.5	5.5						
TOTAL CONNECTED LOAD:		11.9 KVA												R: DENOTES RECEPTACLE LOAD	
ESTIMATED DEMAND:		1.0												L: DENOTES LIGHTING LOAD	
TOTAL EST. DEMAND LOAD:		11.9 KVA												50 A @ V = 240V	

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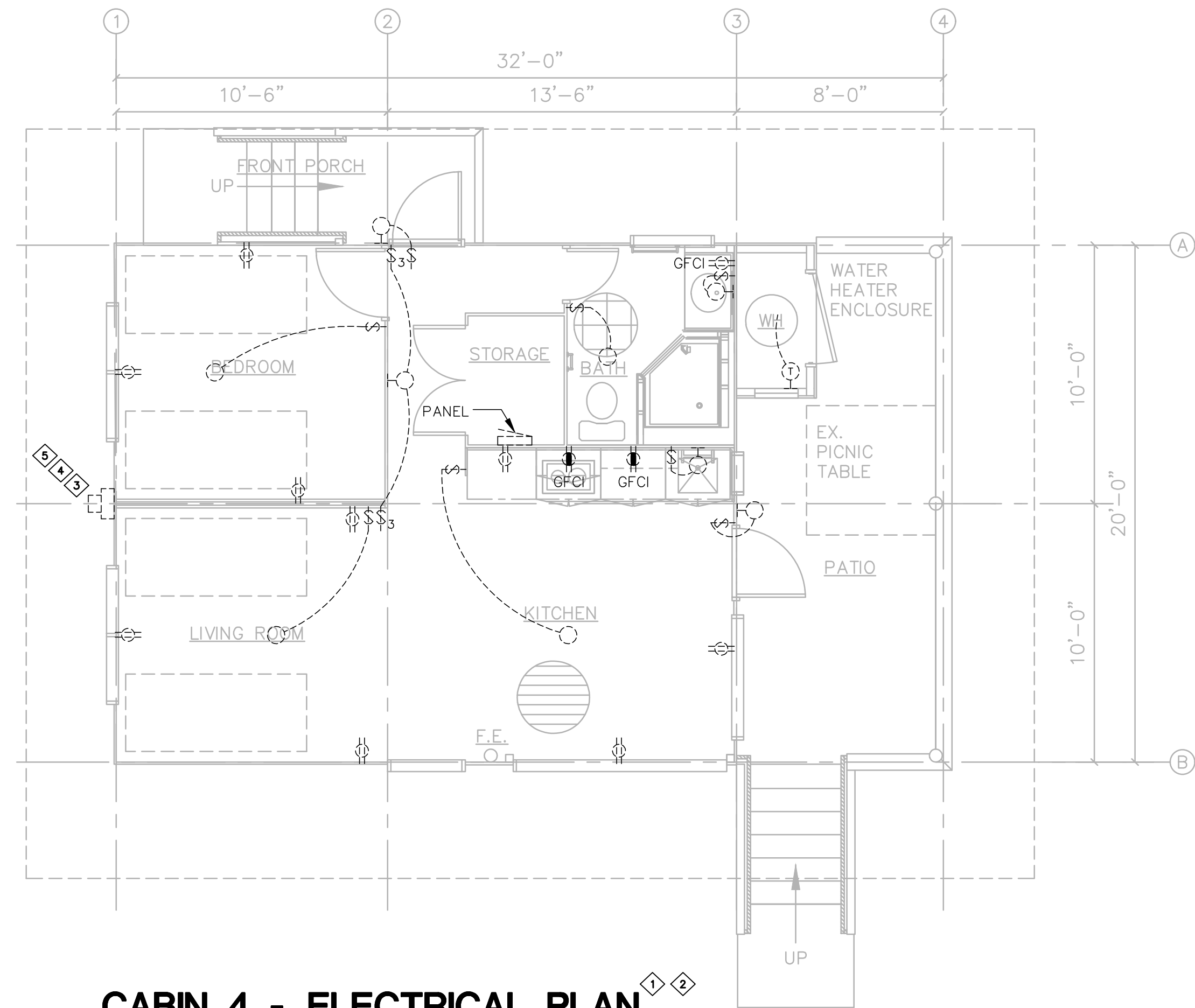
WAIANAPANAPA STATE PARK
PHASE 2 IMPROVEMENTS
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HANA, MAUI, HAWAII TMJK: (2) 1-3-006-009

ELECTRICAL PLAN - CABINS 1, 2, 3, & 6

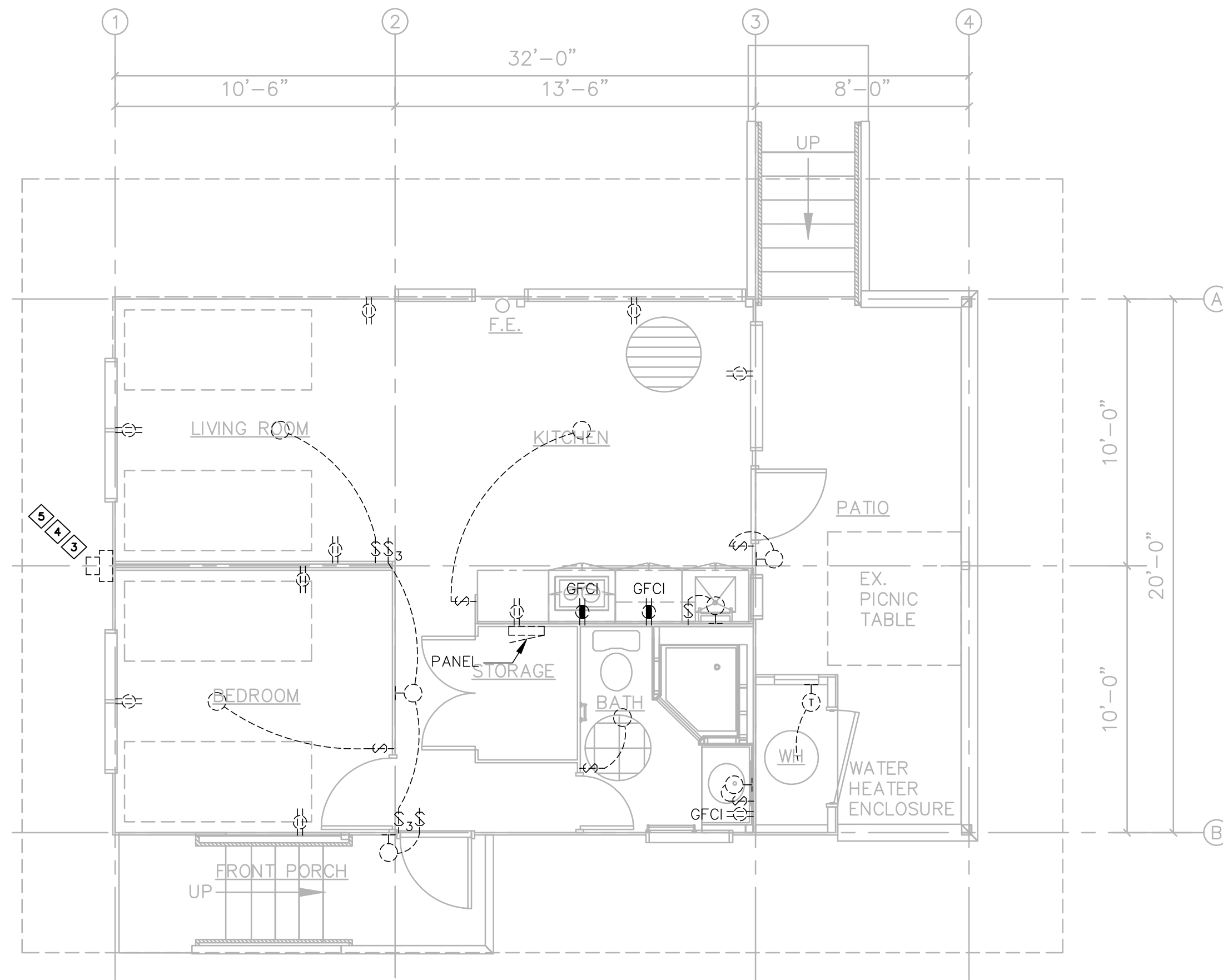
ECM, INC		JOB NO.	DRAWING NO.
DESIGNED BY: JF	CHECKED BY: JF	F55C642G	E-2
DRAWN BY: RB	APPROVED BY: JF	DATE	SHEET 3
SCALE: AS SHOWN	EXPIRATION DATE OF THE LICENSE 4/30/24	DEC. 2022	OF 5 SHEETS

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Chief Engineer

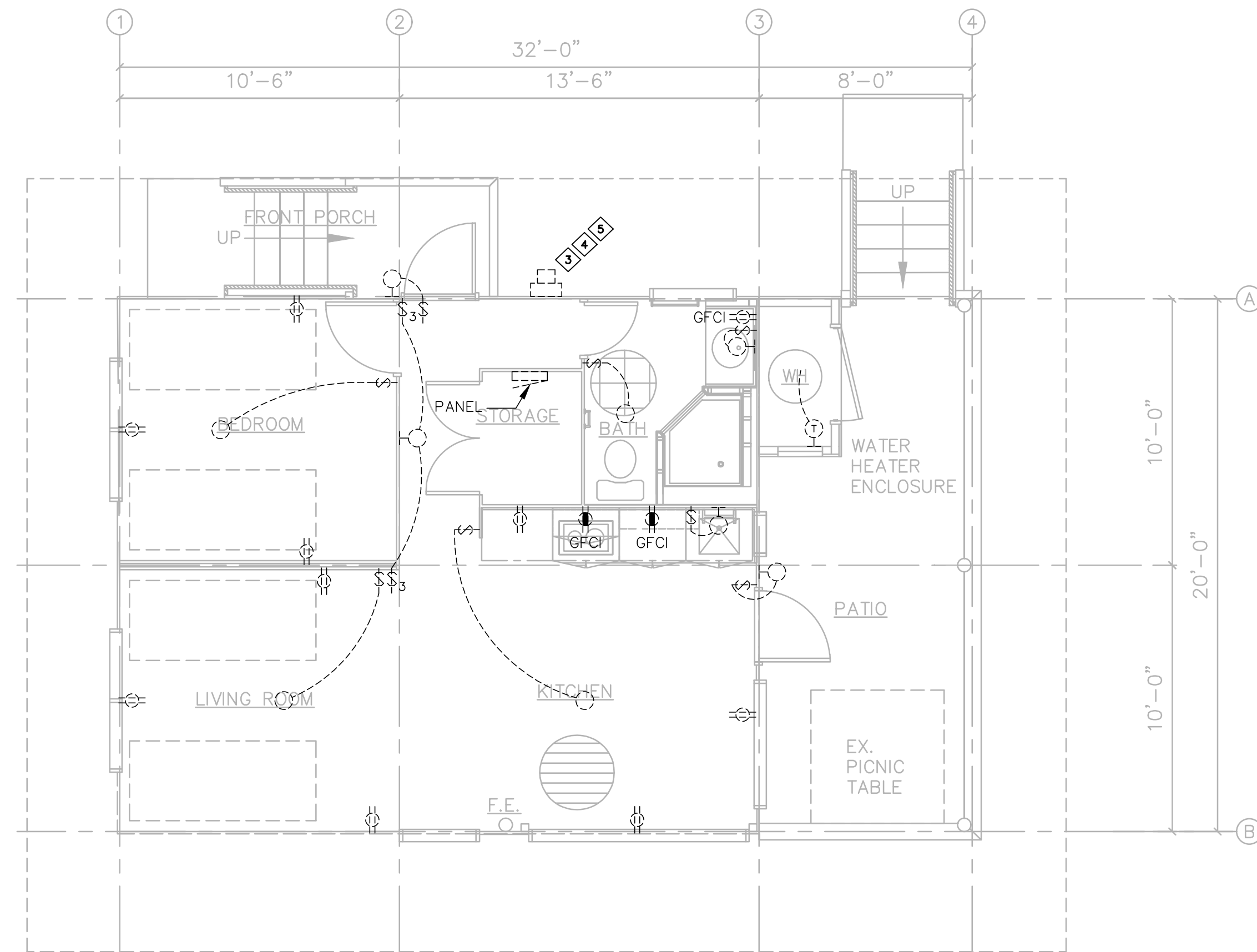
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CABIN 4 - ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"



CABIN 5 - ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"



CABIN 7 & 9 - ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

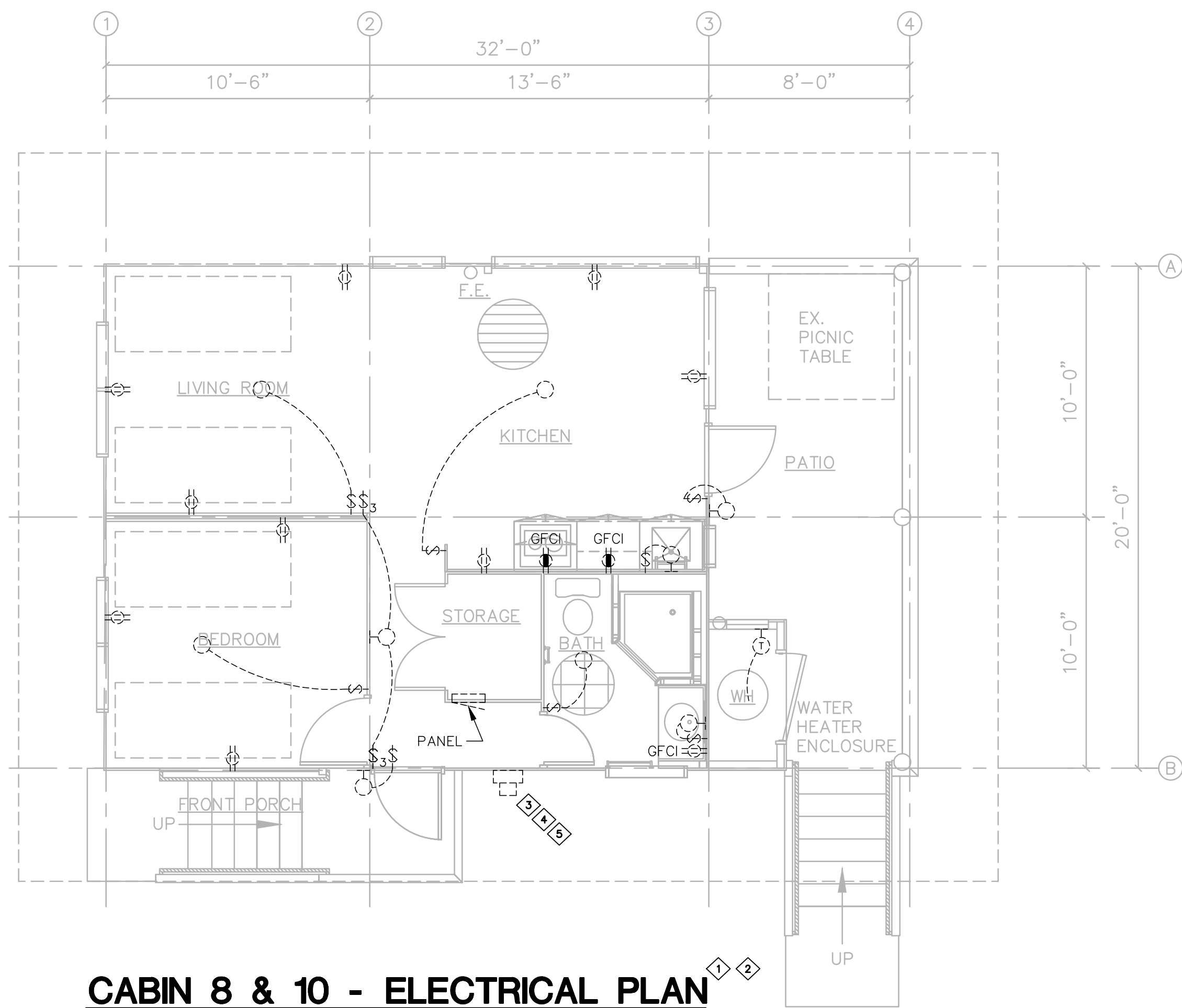
PLAN NOTES:

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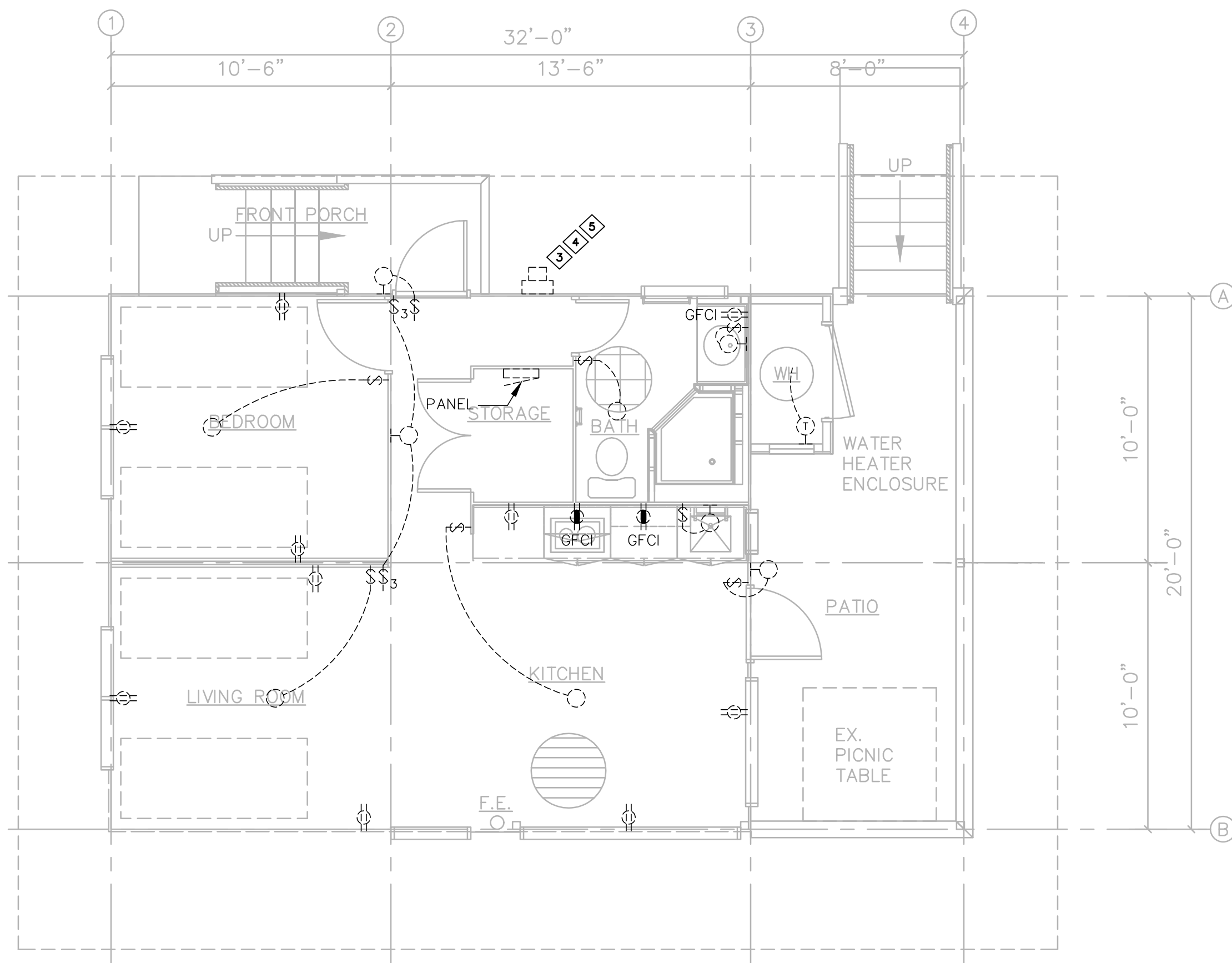
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WAIANAPANAPA STATE PARK PHASE 2 IMPROVEMENTS CABIN ELECTRICAL REPAIRS <small>HANA, MAUI, HAWAII TMK: (2) 1-3-006-009</small>			
ELECTRICAL PLAN - CABINS 4, 5, 7, & 9		JOB NO. F55C642G	DRAWING NO. E-3
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SCALE: AS SHOWN		EXPIRATION DATE OF THE LICENSE 4/30/24	OF 5 SHEETS

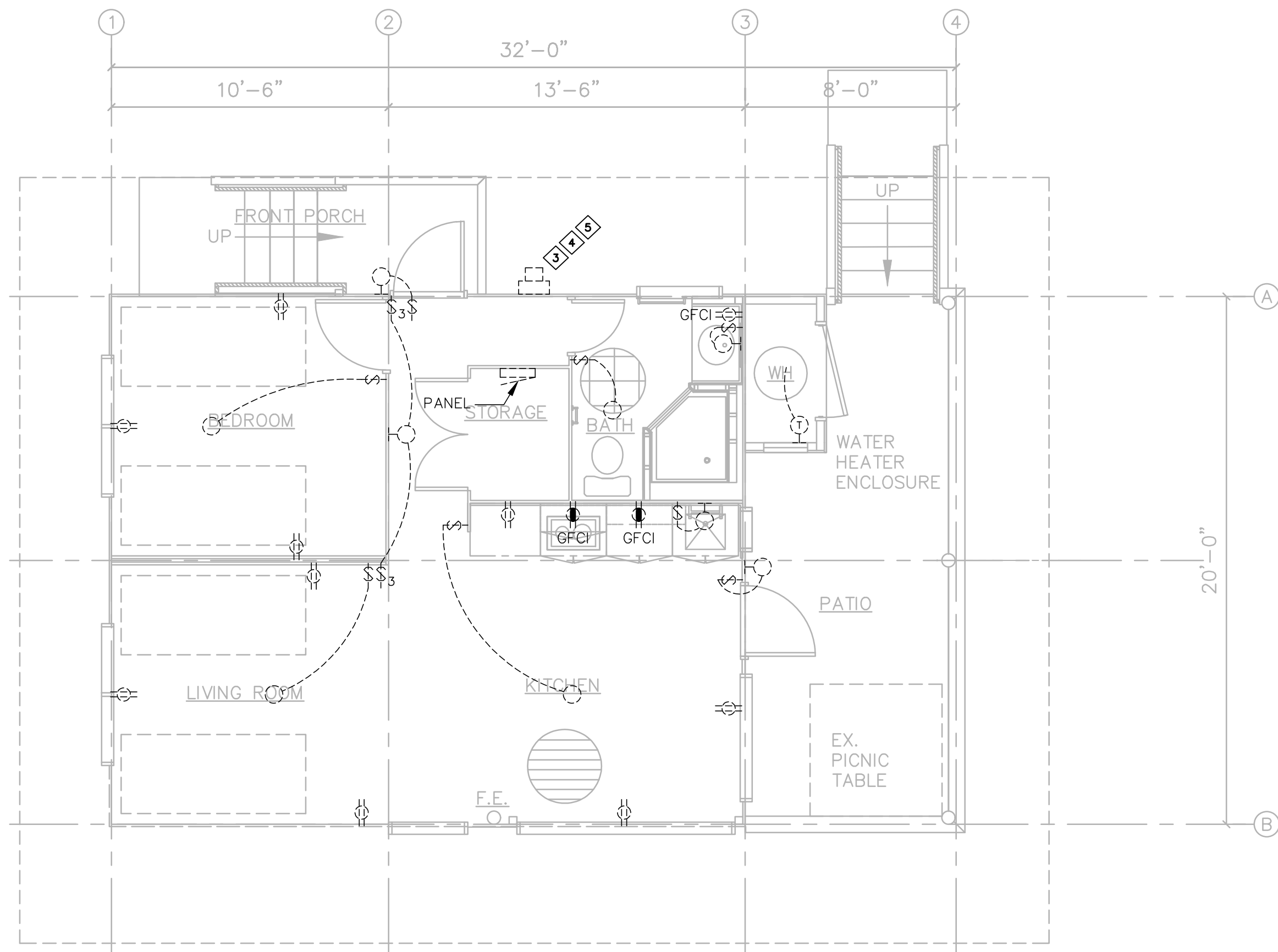
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 Chief Engineer



CABIN 8 & 10 - ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"



CABIN 11 - ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"



CABIN 12 - ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

PLAN NOTES:

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DESIGNED BY: JF	CHECKED BY: JF	DATE	SHEET 5
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