

GENERAL NOTES - ELECTRICAL

1.

ALL WORK SHOWN ON THE ELECTRICAL DRAWINGS IS NEW UNLESS OTHERWISE NOTED. ALL MATERIALS SHALL BE NEW AND "LISTED" OR "LABELED" AS DEFINED BY THE NATIONAL ELECTRICAL CODE (NEC). WORK FOR THIS PROJECT SHALL CONSIST OF RENOVATION OF THE EXISTING FUEL SERVICE STATION INFRASTRUCTURE AND EXISTING DISTRIBUTION SYSTEMS COMPLETE AND OPERATIONAL AS LIMITED BY THE INTENT OF THE CONTRACT DOCUMENTS.
2.

ALL WORK SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC), NATIONAL ELECTRIC SAFETY CODE (NESC) AND BUILDING ORDINANCES OF THE COUNTY OF MAUI. CONSTRUCTION PRACTICES SHALL CONFORM TO THE LATEST EDITION OF AMERICAN ELECTRICIANS' HANDBOOK BY CROFT, AND APPLICABLE INSTRUCTIONS OF MANUFACTURERS OF EQUIPMENT AND MATERIAL SUPPLIED FOR THIS PROJECT.
3.

RETENTION OF PLANS: ONE SET OF APPROVED PLANS, SPECIFICATIONS, AND COMPUTATIONS SHALL BE RETAINED BY THE BUILDING OFFICIAL FOR A PERIOD OF NOT LESS THAN 90 DAYS FROM DATE OF COMPLETION OF THE WORK COVERED THEREIN, AND ONE SET OF APPROVED PLANS SHALL BE RETURNED TO THE APPLICANT, AND SAID SET SHALL BE KEPT ON THE SITE OF THE BUILDING OR WORK AT ALL TIMES DURING WHICH THE WORK AUTHORIZED THEREBY IS IN PROGRESS.
4.

STRUCTURES UNDERGOING CONSTRUCTION, ALTERATION, OR DEMOLITION OPERATIONS, INCLUDING THOSE IN UNDERGROUND LOCATIONS, SHALL COMPLY WITH NFPA 241, STANDARD FOR SAFEGUARDING CONSTRUCTION, ALTERATION, AND DEMOLITION OPERATIONS, AND NFPA 1, AS LOCALLY AMENDED.
5.

FIRE SAFETY DURING ALTERATION:

a.

NFPA 1, 16.4.4.1 WHERE THE BUILDING IS PROTECTED BY FIRE PROTECTION SYSTEMS, SUCH SYSTEMS SHALL BE MAINTAINED OPERATIONAL AT ALL TIMES DURING ALTERATION.

b.

NFPA 1, 16.4.4.3 WHEN IT IS NECESSARY TO SHUT DOWN THE SYSTEM, THE AHJ SHALL HAVE THE AUTHORITY TO REQUIRE ALTERNATE MEASURES OF PROTECTION UNTIL THE SYSTEM IS RETURNED TO SERVICE.

c.

NFPA 1, 107.1.11 AS NECESSARY DURING EMERGENCIES, MAINTENANCE, DRILLS, PRESCRIBED TESTING, ALTERATIONS, OR RENOVATIONS, PORTABLE OR FIXED FIRE-EXTINGUISHING SYSTEMS OR DEVICES OR ANY FIRE-WARNING SYSTEM SHALL BE PERMITTED TO BE MADE INOPERATIVE OR INACCESSIBLE. A FIRE WATCH SHALL BE REQUIRED AS SPECIFIED IN SECTIONS 13.3.3.6.5.2(4xb), 13.7.1.5.3, 16.5.4, 34.6.3.3, 41.2.2.6, 41.2.2.7, 41.2.4, 41.3.5, 41.4.1, 34.5.4.3, AND 25.1.8 AT NO COST TO THE AHJ. NFPA 1, AS LOCALLY AMENDED.
6.

IT IS NOT THE INTENT OF THESE PLANS AND SPECIFICATIONS TO INDICATE ALL EXISTING CONDITIONS THAT MAY BE ENCOUNTERED DURING CONSTRUCTION. THE INFORMATION ON THE EXISTING UTILITIES ARE BASED ON AVAILABLE PLANS AND A LIMITED AMOUNT OF FIELD WORK. THE LOCATIONS ARE APPROXIMATE ONLY AND THE CONTRACTOR SHALL VISIT THE PROJECT SITE AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS, THE EXTENT OF ANY DEMOLITION, RELOCATION, RECONNECTION, AND THE NEW WORK PRIOR TO THE START OF ON-SITE CONSTRUCTION ACTIVITIES. ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THE PLANS SHALL BE PROTECTED AT ALL TIMES BY THE CONTRACTOR UNLESS SPECIFIED ON THE PLANS TO BE ABANDONED OR DEMOLISHED. REPORT ANY DISCREPANCIES AND/OR DIFFERENCES BETWEEN THE EXISTING CONDITIONS AND THE CONSTRUCTION DOCUMENTS TO THE CONTRACTING OFFICER. RESOLVE ALL DISCREPANCIES AND QUESTIONS PRIOR TO THE START OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO THE FACILITIES WHETHER SHOWN OR NOT SHOWN ON PLANS. ANY REPAIR WORK SHALL BE PROVIDED AT NOT ADDITIONAL COST TO THIS PROJECT. BID SUBMISSION SHALL BE CONSIDERED AS EVIDENCE THAT THE CONTRACTOR HAS VISITED THE SITE AND RESOLVED ALL DISCREPANCIES AND QUESTIONS AND NO EXTRA PAYMENT WILL BE AUTHORIZED FOR WORK REQUIRED BY THE CONTRACTOR'S FAILURE TO DO SO.
7.

COORDINATE ALL ELECTRICAL WORK WITH THE WORK OF THE OTHER TRADES AND SCHEDULE WORK TO MINIMIZE THE NUMBER AND DURATION OF ELECTRICAL OUTAGES AND IMPACT TO THE OPERATIONS IN OR ADJACENT TO THE PROJECT AREA. COORDINATE ACCESS TO THE PROJECT AREA AND SCHEDULE ALL REQUIRED SYSTEM OUTAGES WITH THE OWNER.
8.

VERIFY AND COORDINATE ALL PENETRATIONS PRIOR TO THE START OF CONSTRUCTION. OBTAIN APPROVAL BEFORE MAKING ANY PENETRATIONS THROUGH STRUCTURAL MEMBERS OR FIRE RATED WALLS AND CEILINGS.
9.

SCAN (E.G. X-RAY, ELECTROMAGNETIC, ETC.) ALL CONCRETE WALLS OR FLOOR STRUCTURES PRIOR TO COMMENCING WITH CORING/DRILLING WORK FOR PENETRATIONS TO AVOID DAMAGING THE EXISTING REINFORCING STEEL.
10.

COORDINATE AND PROVIDE ACCESS PANELS FOR ALL CONCEALED ELECTRICAL EQUIPMENT, DEVICES, BOXES AND CONDUIT BODIES SO THAT THEY ARE ACCESSIBLE.
11.

TONING: EXISTING UNDERGROUND UTILITY LINES INDICATED ON THE DRAWINGS ARE SHOWN IN APPROXIMATE LOCATIONS BASED ON BEST AVAILABLE "RECORD" DRAWINGS AND ARE SUBJECT TO FIELD VERIFICATION BY THE CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR TONING THE PROPOSED ROUTES OF THE PROJECT DUCTLINES TO IDENTIFY ANY POTENTIAL CONFLICTS PRIOR TO EXCAVATION. DAMAGE TO EXISTING UTILITIES CAUSED BY THE CONTRACTOR, AS A RESULT OF THE FAILURE TO TONE THE ROUTE PRIOR TO EXCAVATION WORK, WILL REQUIRE THE CONTRACTOR TO REPAIR THE DAMAGE AT NO ADDITIONAL COST TO THE PROJECT. THE DAMAGED UTILITIES SHALL BE REPAIRED/RESTORED TO ITS ORIGINAL WORKING CONDITION AND TO THE SATISFACTION OF THE OWNER.
12.

PROVIDE ALL LABOR, EQUIPMENT, AND HAULING/DISPOSAL SERVICE FOR DEWATERING EFFORTS FOR NEW BELOW GRADE EXCAVATION/TRENCHING IF GROUND WATER IS ENCOUNTERED IN THE PROJECT AREA.
13.

EXISTING DEVICE AND EQUIPMENT LOCATIONS, CIRCUIT ASSIGNMENTS, WIRING CONNECTIONS, AND CONDUIT RUNS INDICATED WERE DERIVED FROM AVAILABLE REFERENCE DOCUMENTS AND LIMITED FIELD INVESTIGATION. FIELD VERIFY ALL EXISTING CONDITIONS AND MAKE ANY NECESSARY ADJUSTMENTS TO SATISFY THE INTENT OF THE DRAWINGS AND SPECIFICATION.

14.

RE-ROUTE ALL EXISTING CONDUIT, WIRING AND CABLING TO REMAIN WITHIN THE PROJECT AREA AS NECESSARY TO FACILITATE THE INSTALLATION OF ALL NEW EQUIPMENT. REMOVE AND RE-INSTALL ELECTRICAL EQUIPMENT, INCLUDING LIGHTS, TO REMAIN AS REQUIRED.
15.

WORK INCIDENTAL TO THE CONTRACT AND NECESSARY TO COMPLETE THE PROJECT, ALTHOUGH NOT SPECIFICALLY REFERRED TO IN THE CONTRACT DOCUMENTS, SHALL BE FURNISHED AND PERFORMED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT. AN EXAMPLE OF SUCH INCIDENTAL WORK ARE OUTLET BOXES, JUNCTION BOXES AND PULL BOXES REQUIRED FOR THE INSTALLATION OF ELECTRICAL DEVICES, AND EQUIPMENT. ALL INCIDENTAL WORK SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
16.

ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ALL CONDUIT AND WIRING FOR THE POWER CONNECTION TO ALL EQUIPMENT AS INDICATED IN THE DRAWINGS AND SPECIFICATIONS. IF THESE CHANGES REQUIRE AN INCIDENTAL CONDUIT AND WIRING REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM MAY NOT BE SHOWN IN THE DRAWINGS OR SPECIFICATIONS. CONTRACTOR SHALL COORDINATE INCIDENTAL CONDUIT AND WIRING REQUIREMENTS BETWEEN ALL TRADES TO ENSURE THE INCIDENTAL CONDUIT AND WIRING IS PROVIDED AND THE AFFECTED SYSTEMS OPERATE AS INTENDED.
17.

THE LOCATION OF ALL ELECTRICAL APPARATUS AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND BEFORE INSTALLING, STUDY THE CIVIL AND MECHANICAL DETAILS AND MAKE INSTALLATION IN THE MOST LOGICAL MANNER. CIRCUIT ROUTING IS TYPICAL AND MAY BE VARIED IN ANY MANNER. ANY PIECE OF EQUIPMENT/DEVICE MAY BE RELOCATED WITHIN 10' BEFORE INSTALLATION AT THE DIRECTION OF THE CONTRACTING OFFICER WITHOUT ADDITIONAL CHARGE TO THE PROJECT.
18.

SHOULD PROJECT CONDITIONS REQUIRE REARRANGEMENT OF THE PROJECT'S WORK, THE CONTRACTOR SHALL MARK SUCH CHANGES ON THE AS-BUILT DRAWINGS. IF THESE CHANGES REQUIRE AN ALTERNATE METHOD TO THOSE SPECIFIED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL SUBMIT DRAWINGS TO REFLECT THE PROPOSED ALTERNATE METHODS TO THE CONTRACTING OFFICER FOR REVIEW AND APPROVAL. THE CONTRACTOR SHALL NOT PROCEED UNTIL APPROVAL IS OBTAINED. REARRANGEMENT OF WORK FOR THE PURPOSE OF COORDINATION SHALL NOT BE CONSIDERED AN ITEM FOR EXTRA COST.
19.

THE EXISTING ELECTRICAL, TELECOM, FIRE ALARM, AND OTHER ELECTRICALLY-RELATED SYSTEMS IN AREAS ADJACENT TO, OUTSIDE OF, AND/OR OTHERWISE PASSING THROUGH THE PROJECT LIMITS, MUST REMAIN OPERATIONAL DURING THE CONSTRUCTION PERIOD AND POST-CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE DUE CARE AND CAUTION WHEN WORKING NEAR ANY EXISTING EQUIPMENT, DEVICES, OR CABLING/CIRCUITING. PROVIDE NEW JUNCTION BOXES, CONDUITS & WIRING, AND THE LABOR REQUIRED TO FACILITATE THE REQUIRED OPERATIONAL CONTINUITY. BOXES, CONDUITS AND WIRING SHALL BE IN ACCORDANCE WITH THE NEC. ANY DAMAGE TO THE EXISTING EQUIPMENT, DEVICES OR CABLING/CIRCUITING RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE IMMEDIATELY REPAIRED OR OTHERWISE RESTORED TO ITS ORIGINAL WORKING CONDITION AT NO ADDITIONAL COST TO THE PROJECT.
20.

THE ELECTRICAL DRAWINGS ARE BASED ON PROPOSED EQUIPMENT. VERIFY ALL SYSTEM REQUIREMENTS (ELECTRICAL, MECHANICAL, SPECIALTY SYSTEMS, ETC.) WITH THE SELECTED SYSTEM'S MANUFACTURER OR AUTHORIZED REPRESENTATIVE PRIOR TO COMMENCING WITH ANY WORK. COORDINATE RATINGS OF OVERCURRENT PROTECTION DEVICES, DISCONNECT SWITCHES, CONDUIT & WIRING TO MATCH THE ACTUAL EQUIPMENT SUPPLIED FOR THE PROJECT. CORRECT ALL DISCREPANCIES SO AS TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM. RECORD CHANGES ON THE AS-BUILT DRAWINGS.
21.

ALL EQUIPMENT AND APPARATUS SHALL BE CAPABLE OF FITTING IN THE SPACES SHOWN WHILE MEETING THE MANUFACTURER'S RECOMMENDED ACCESS REQUIREMENTS AND APPLICABLE CODE REQUIREMENTS. REVIEW ALL SPACES WHERE EQUIPMENT IS TO BE INSTALLED PRIOR TO ORDERING OF EQUIPMENT AND NOTIFY THE CONTRACTING OFFICER OF ANY INADEQUATE CLEARANCES OR CONDITIONS THAT WILL PREVENT THE PROPER INSTALLATION, MAINTENANCE, AND OPERATION OF THE EQUIPMENT.
22.

CONCEAL ALL CONDUIT WHEREVER REASONABLY POSSIBLE; EXPOSED CONDUITS ARE PERMITTED ONLY WHERE SPECIFICALLY SHOWN ON THE DRAWINGS. ALL EXPOSED CONDUITS IN FINISHED AREAS SHALL BE INSTALLED IN THE LEAST VISIBLE LOCATIONS. CARE SHALL BE TAKEN TO INSTALL CONDUIT IN THE MOST AESTHETICALLY PLEASING MANNER.
23.

PROVIDE TYPEWRITTEN CIRCUIT DIRECTORIES FOR ALL PANELS, NEW OR MODIFIED, REFLECTING THE CIRCUIT ARRANGEMENTS AS THEY WERE ACTUALLY INSTALLED.
24.

AN ADHESIVE VINYL NAMEPLATE SHALL BE PROVIDED FOR ALL SWITCHES, RECEPTACLES, DISCONNECT SWITCHES, MOTOR STARTERS AND MISCELLANEOUS DEVICES REQUIRING POWER. THE NAMEPLATE SHALL INDICATE THE PANELBOARD SERVING THE DEVICE AND THE CORRESPONDING CIRCUIT ASSIGNMENT. LETTERING SHALL BE A MINIMUM OF 1/4" HIGH. UTILIZE BROTHER "P-TOUCH" LABEL MAKER OR APPROVED SUBSTITUTE.
25.

A GREEN, EQUIPMENT GROUND CONDUCTOR SIZED IN ACCORDANCE WITH THE NEC ARTICLE 250 SHALL BE INSTALLED IN ALL FEEDER AND BRANCH CIRCUITS WHETHER INDICATED ON CONTRACT DRAWINGS OR NOT. INSTALL THIS CONDUCTOR IN ALL RACEWAYS INCLUDING THOSE INSTALLED FOR SWITCH LEGS AND ATTACH TO THE DEVICE OR EQUIPMENT USING A SUITABLE GROUNDING LUG.
26.

DO NOT USE A COMMON NEUTRAL FOR MULTIPLE BRANCH CIRCUITS INSTALLED IN A COMMON CONDUIT. PROVIDE A DEDICATED NEUTRAL FOR EACH INDIVIDUAL CIRCUIT. WHERE MULTIPLE DEDICATED NEUTRALS ARE INSTALLED IN A COMMON CONDUIT, PROVIDE COLOR CODING OF THE DIFFERENT NEUTRAL CONDUCTORS IN ACCORDANCE WITH THE NEC (WHITE, GRAY, THREE CONTINUOUS WHITE OR GRAY STRIPES, ETC.)
27.

PROVIDE NYLON PULLSTRINGS IN ALL EMPTY CONDUITS UNLESS OTHERWISE INDICATED.

28.

THE TELECOMMUNICATIONS RACEWAY SYSTEM INSTALLATION SHALL COMPLY WITH TIA/EIA AND BISC1 STANDARDS UNLESS OTHERWISE NOTED.
29.

CONDUIT BODIES (e.g. LB, LR, etc.) SHALL NOT BE PERMITTED IN THE TELECOMMUNICATIONS RACEWAY SYSTEMS UNLESS SPECIFICALLY INDICATED TO BE UTILIZED AND LISTED FOR TELECOMMUNICATIONS SYSTEM USE.
30.

PROVIDE INSULATED BUSHINGS AT ALL TELECOMMUNICATIONS CONDUIT TERMINATIONS AT ALL BOXES, BACKBOARDS, AND CONDUIT STUBS.
31.

ALL SURFACE MOUNTED DEVICES SHALL BE INSTALLED UTILIZING FACTORY PAINTED SURFACE MOUNTING ACCESSORIES AND MATCHING DEVICE BOXES FOR THE MOST AESTHETICALLY PLEASING INSTALLATION.
32.

PROVIDE KNOCK-OUT PLUGS FOR ALL UNUSED CONDUIT PENETRATIONS IN BOXES AND ENCLOSURES DUE TO CONDUIT REMOVAL.
33.

PENETRATIONS THROUGH FIRE-RATED WALLS, CEILINGS AND FLOORS SHALL BE SEALED TO MAINTAIN FIRE RATINGS. UTILIZE 3M CP25, PUTTY 303 OR OTHER SUITABLE UL-LISTED SEALING SYSTEM.
34.

PATCH, REFINISH, AND PAINT ALL PENETRATIONS THROUGH WALLS AND SLABS TO MATCH FINISH OF ADJACENT SURFACES.
35.

RESTORE/REPAIR ANY DAMAGE TO EXISTING SURFACES RESULTING FROM THE INSTALLATION OF NEW ELECTRICAL ITEMS. THE AREAS REPAIRED SHALL MATCH THE ADJACENT SURFACES IN TEXTURE, FINISH, AND COLOR.
36.

PAINTING OF ELECTRICAL EQUIPMENT:

a.

INTERIOR LOCATIONS - PRIME AND PAINT ALL EXPOSED CONDUITS, BOXES, FITTINGS, SUPPORT CHANNELS, MOUNTING HARDWARE AND ACCESSORIES WITH TWO FINISH COATS TO MATCH THE SURFACE ON WHICH THEY ARE MOUNTED OR TO MATCH THE FINISH OF THE ADJACENT SURFACES. EQUIPMENT SURFACES/COMPONENTS WITH A FACTORY-APPLIED PAINT FINISH NEED NOT BE PAINTED.

b.

EXTERIOR LOCATIONS - PRIME ALL EXPOSED CONDUITS, BOXES, FITTINGS, SUPPORT CHANNELS, MOUNTING HARDWARE AND ACCESSORIES WITH A 2-PART EPOXY PRIMER AND FINISH WITH 2 COATS OF AN ALIPHATIC ACRYLIC URETHANE PAINT. PAINT FINISH TO MATCH THE SURFACE ON WHICH THEY ARE MOUNTED OR TO MATCH THE FINISH OF THE ADJACENT SURFACES. STAINLESS STEEL MATERIALS NEED NOT BE PAINTED.
37.

FOR ALL SWITCHGEAR, SWITCHBOARDS AND PANELBOARDS, PROVIDE A PERMANENTLY AFFIXED PLAQUE INDICATING THE SOURCE OF THE POWER SERVING THE APPARATUS IN QUESTION IN ACCORDANCE WITH THE NEC FOR WORKSPACE CLEARANCE IN AREAS OF LIMITED ACCESS.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-03-21, PHASE 2	2022	34	46

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LICENSED PROFESSIONAL ENGINEER

No. 9756-E

HAWAII, U.S.A.

4/30/24

EXP. DATE

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This work was prepared by me or under my supervision.

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

GENERAL NOTES-ELECTRICAL

MAUI DISTRICT BASEYARD OFFICE EXPANSION &

RENOVATION, PART 2

Project No. HWY-M-03-21, Phase 2

Scale: NONE

Date: JULY 2022

SHEET No. E002 OF 14 SHEETS

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