FINAL CONSTRUCTION PLANS FOR:

ANAHOLA FARM LOTS WATER PROJECT

PHASE II- WATER TANK REPLACEMENT & FACILITY IMPROVEMENTS PUBLIC WATER SYSTEM NO. 432, ANAHOLA, ISLAND OF KAUA'I

TMK: 4-8-001:001; 4-8-005:037 & 039

PREPARED FOR:

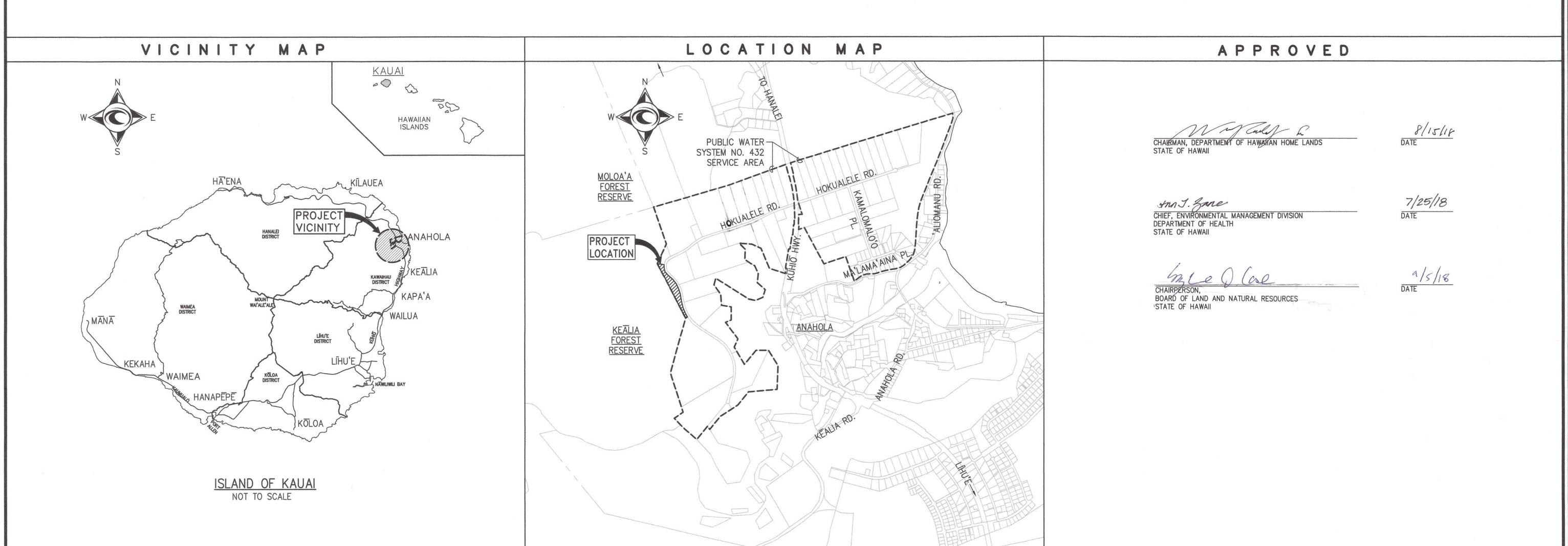


PREPARED BY:

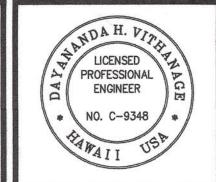


828 FORT STREET MALL, SUITE 600 HONOLULU, HAWAI'I 96813

DEPARTMENT OF HAWAIIAN HOME LANDS 91-5420 KAPOLEI PARKWAY KAPOLEI, HAWAI'I 96707



SCALE: 1" = 1,000







DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway Kapolei, Hawai'i 96707

ANAHOLA FARM LOTS WATER PROJECT Phase II - Water Tank

4-8-001:001; 4-8-005:037 & 039

Replacement & Facility Impr.

Anahola, Island of Kaua'i

TITLE SHEET

SURVEYED BY: WT DATE: AUG. 2018 SHEET NO. 1 OF 79

DRAWING NUMBER	SHEET NUMBER	DESCRIPTION OF DRAWINGS
E-7	64	CONTROL BUILDING LIGHTING PLAN PHASE I
E-8	65	WELL & BOOSTER PUMP ELECTRICAL PLAN PHASE I
E-9	66	TEMPORARY TANK ELECTRICAL PLAN PHASE I
E-10	67	OVERALL ELECTRICAL SITE PLAN PHASE II
E-11	68	CONTROL BUILDING ELECTRICAL PLAN PHASE II
E-12	69	NEW TANK ELECTRICAL PLAN PHASE II
E-13	70	GENERATOR ELECTRICAL PLAN PHASE II
E-14	71	ONE-LINE DIAGRAM DEMOLITION
E-15	72	ONE-LINE DIAGRAM NEW
E-16	73	MCC ELEVATION
E-17	74	WELL PUMP CONTROLS
E-18	75	SCADA SCHEMATIC DIAGRAM
E-19	76	HYDROPNEUMATIC BOOSTER PUMP CONTROL DIAGRAM
E-20	77	AUTO-DIALER ALARM CONTROL DIAGRAM
E-21	78	MISCELLANEOUS ELECTRICAL DETAILS I
E-22	79	MISCELLANEOUS ELECTRICAL DETAILS II

GENERAL NOTES:

- THE CONTRACTOR SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS REQUIRED FOR THE PROTECTION OF PUBLIC HEALTH, SAFETY, AND ENVIRONMENTAL QUALITY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER QUALITY AND WATER POLLUTION CONTROL STANDARDS CONTAINED IN HAWAI'I ADMINISTRATIVE RULES, TITLE 11, CHAPTER 54 "WATER QUALITY STANDARDS", AND TITLE 11, CHAPTER 55, "WATER POLLUTION CONTROL", AS WELL AS CHAPTER 14 OF THE REVISED ORDINANCES OF HONOLULU AS AMENDED. BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED AT ALL TIMES DURING CONSTRUCTION.
- 3. PERMITS SHALL BE OBTAINED BY THE CONTRACTOR.
- 4. THE CONTRACTOR SHALL CONDUCT ALL TESTS SPECIFIED AND BE RESPONSIBLE FOR EXPENSES INCURRED IN CONDUCTING THESE TESTS.
- THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL RESPOND TO COMPLAINTS MADE BY THE PUBLIC AND NEARBY RESIDENTS REGARDING DUST AND NOISE POLLUTION RESULTING FROM HIS WORK.
- THE CONTRACTOR SHALL PROVIDE SAFE ACCESS TO AND FROM ALL DRIVEWAYS
- 7. THE CONTRACTOR SHALL COORDINATE THE STORAGE OF HIS MATERIAL WITH THE ENGINEER.
- NO CONSTRUCTION EQUIPMENT SHALL BE PARKED WITHIN THE FACILITY ROADWAYS IN SUCH A MANNER THAT THE EQUIPMENT WILL OBSTRUCT THE NORMAL MOVEMENT AND SIGHT DISTANCE OF THE DRIVING MOTORIST, EXCEPT DURING ACTUAL WORKING
- THE CONTRACTOR SHALL RESTRICT ALL VEHICLES, MATERIAL STOCKPILES AND EQUIPMENT TO WITHIN THE CONTRACT LIMIT LINES. ANY TOOLS, MATERIALS. EQUIPMENT. FENCING. ETC. THAT THE CONTRACTOR KEEPS IN THIS AREA ARE STORED AT THE CONTRACTOR'S RISK. IF OTHER SHORT TERM STORAGE AREAS ARE NEEDED. THEY MAY BE ARRANGED THROUGH THE ENGINEER.
- 10. THE CONTRACTOR SHALL VERIFY AND CHECK ALL DIMENSIONS AND DETAILS SHOWN ON THE DRAWINGS PRIOR TO THE START OF CONSTRUCTION. IF DIMENSIONAL ERRORS OR CONFLICTS OCCUR. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND SHALL WAIT FOR CLARIFICATION BEFORE RESUMING OR COMMENCING WORK ON THE DISCREPANCY ITEM.
- 11. DIMENSIONS TAKE PRECEDENCE OVER SCALE.
- 12. THE DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES INCLUDE, BUT ARE NOT LIMITED TO. BRACING SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, WIND, SEISMIC, ETC. OBSERVATION VISITS TO THE SITE BY THE ENGINEER SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
- 13. ALL MATERIALS SHALL CONFORM TO THE DRAWING AND SPECIFICATIONS.
- 14. ALL WORK CALLED FOR ON THE PLANS AND NOT ITEMIZED IN THE PROPOSAL AND ALL WORK NOT CALLED FOR BUT REQUIRED FOR THE CONSTRUCTION OF THIS PROJECT, SHALL BE CONSIDERED INCIDENTAL
- 15. CONDITIONS OF THE WORK: ALL WORK SHALL BE PERFORMED IN A PROFESSIONAL AND WORKMANSHIP-LIKE MANNER. CONTRACTOR SHALL NOTIFY THE ENGINEER SHOULD CONDITIONS EXIST WHICH WILL PREVENT SUCH PERFORMANCE AND/OR ANY ADDITIONAL WORK TO BE PERFORMED BEFORE STARTING WORK.
- 16. THE EXISTING IMPROVEMENTS ON THE PREMISES AND IN ADJACENT AREAS THAT ARE NOT TO BE REMOVED SHALL BE PRESERVED AND PROTECTED. ANY AND ALL DAMAGES RESULTING FROM THE CONTRACTOR'S CONSTRUCTION ACTIVITIES SHALL BE REPLACED AND REPAIRED TO ORIGINAL CONDITION OR BETTER, TO THE SATISFACTION OF THE ENGINEER AT THE EXPENSE OF THE CONTRACTOR.
- 17. ALL EXISTING UTILITIES TO REMAIN IN USE, WHETHER OR NOT SHOWN ON THESE DRAWINGS, SHALL BE PROTECTED AT ALL TIMES BY THE CONTRACTOR DURING CONSTRUCTION UNLESS SPECIFIED ON THE DRAWINGS TO BE ABANDONED OR DEMOLISHED. ANY DAMAGE TO THE EXISTING UTILITIES SHALL BE REPAIRED AND PAID FOR BY THE CONTRACTOR.
- 18. UNLESS RELOCATION IS CALLED FOR ON THESE DRAWINGS, EXISTING UTILITIES SHALL REMAIN IN SERVICE AND IN PLACE. IF RELOCATION OF EXISTING UTILITIES IS REQUIRED FOR THE CONTRACTOR'S CONVENIENCE, INTERRUPTION OF SERVICE SHALL BE KEPT TO A MINIMUM AND SHALL BE DONE AT THE CONTRACTOR'S EXPENSE AND ONLY WITH THE APPROVAL OF THE ENGINEER.
- 19. THE CONTRACTOR SHALL MAKE PROPER ARRANGEMENTS FOR THE USE OF UTILITIES SUCH AS ELECTRICITY, WATER, ETC. AND SHALL BE RESPONSIBLE FOR THE PAYMENT OF ALL COSTS RESULTING FROM SUCH USAGE.
- 20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTRACTING A LICENSED SURVEYOR, REGISTERED IN THE STATE OF HAWAI'I, TO DO THE CONSTRUCTION STAKEOUTS

NOTES FOR GENERAL CONSTRUCTION:

- 1. ALL CONSTRUCTION WORK IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE PUBLICATIONS 'HAWAI'I STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2005" AND ITS AMENDMENTS AND THE "STANDARD DETAILS FOR PUBLIC WORKS, CITY AND COUNTY OF HONOLULU, AND THE COUNTIES OF KAUA'I, MAUI, AND HAWAI'I. THE STANDARD DETAILS ARE AVAILABLE AT THE COUNTY OF KAUA'I CLERKS OFFICE.
- 2. NO GRADING BETWEEN 7 P.M. TO 7 A.M. ON ANY GIVEN DAY OR ON SATURDAYS, SUNDAYS AND HOLIDAYS WITHOUT WRITTEN PERMISSION FROM THE COUNTY ENGINEER AND THE STATE DEPARTMENT OF HEALTH.
- CONTRACTOR TO NOTIFY PUBLIC WORKS DEPARTMENT FIVE (5) BUSINESS DAYS PRIOR TO COMMENCING ANY GRADING WORK. WHEN COMPLETED AND READY FOR FINAL INSPECTION: NOTIFY PUBLIC WORKS DEPARTMENT INSPECTION SECTION.
- CONSTRUCTION PLANS ARE VALID FOR A PERIOD OF ONE YEAR FROM THE DATE OF APPROVAL. IF CONSTRUCTION DOES NOT COMMENCE WITHIN THE ONE-YEAR TIME FROM THE DATE OF APPROVAL, THE CONSTRUCTION PLANS SHALL BE RESUBMITTED TO ALL REVIEWING AND APPROVING AGENCIES FOR REVIEW, APPROVAL AND RECERTIFICATION OF THE PLAN.
- 5. ALL GRADING, GRUBBING AND STOCKPILING WORK SHALL BE PERFORMED IN ACCORDANCE WITH COUNTY OF KAUA'I ORDINANCE NO. 808.
- AFTER EACH RAINFALL EVENT, THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS RESULTING FROM HIS WORK AND DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS, AND OTHER AREAS. THE COST INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE COUNTY ENGINEER SHALL BE PAYABLE BY THE
- DURING CLEARING OPERATIONS, THE CONTRACTOR SHALL SUPPLY A WATER TRUCK FOR DUST CONTROL PURPOSES UNTIL THE VEGETATION HAS RE-ESTABLISHED ITSELF. EXCESS WATER, INCLUDING SILT AND DIRT, SHALL NOT BE ALLOWED TO RUN-OFF THE PROPERTY.
- BENCHMARKS THAT ARE DISTURBED OR DESTROYED SHALL BE RESTORED UNDER A LICENSED LAND SURVEYOR'S DIRECTION. COPIES OF FIELD NOTES. DESCRIPTIONS AND NEW VALUES OF THE NEW BENCHMARK SHALL BE SENT TO THE DEPARTMENT OF PUBLIC WORKS SURVEY SECTION FOR REVIEW AND APPROVAL PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OVERTIME WORK AND/OR NIGHT WORK PAYMENTS FOR COUNTY'S STAFF AND INSPECTION PERSONNEL INCLUDING CONSULTANTS, WHEN THE CONTRACT REQUIRES OVERTIME OR NIGHT WORK TO BE PERFORMED, OR DIRECTS THE CONTRACTOR TO WORK ADDITIONAL SHIFTS OR OVERTIME FOR COUNTY'S CONVENIENCE
- 10. BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE EMPLOYED AT ALL TIMES TO THE MAXIMUM EXTENT PRACTICABLE TO PRÉVENT DAMAGE BY SEDIMENTATION, EROSION OR DUST TO STREAMS, WATERCOURSES, NATURAL AREAS AND THE PROPERTY OF
- 11. SURVEYS SHALL BE DONE UNDER THE SUPERVISION OF A LAND SURVEYOR LICENSED IN THE STATE OF HAWAI'I.
- 12. IF SYSTEM CONDITIONS REQUIRE NON-EMERGENCY NIGHT TIME WORK DURING THE AUTUMN SEABIRD FALL SEASON (SEPTEMBER 15 THROUGH DECEMBER 15), USE OF LIGHTING SHALL BE RESTRICTED BETWEEN 9:00 P.M. TO 4:30 A.M. IF LIGHTING OF THE WORK AREA IS REQUIRED IN SUCH SITUATION, ALL LIGHTS SHALL BE SHIELDED (MINIMUM LIGHT SPILL TOWARDS THE SKY) AND DIRECTED DOWNWARDS TO THE MAXIMUM EXTENT PRACTICABLE. MINIMUM REQUIREMENTS FOR LIGHTING BY HIOSH AND OSHA SHALL BE PROVIDED AND ASSURED BY THE CONTRACTOR. THE CONTRACTOR SHALL TRAIN ALL EMPLOYEES WORKING AT NIGHT (RECORDS RETAINED BY THE CONTRACTOR) ON HOW TO HANDLE ANY RETRIEVED DOWNED BIRDS AND SHALL HAVE APPROPRIATE EQUIPMENT AS APPROVED BY SAVE OUR SHEARWATERS (SOS) ON SITE TO HOLD AND TRANSPORT ANY RETRIEVED BIRDS TO A SOS FACILITY. THIS REQUIREMENT DOES NOT ALLOW LIGHTING AS MAY BE RESTRICTED BY OTHER GOVERNMENT AGENCIES.
- 13. PRIOR TO STARTING ANY EXCAVATION ACTIVITIES. THE CONTRACTOR SHALL CONTACT THE HAWAI'I ONE CALL CENTER AT 1-866-423-7287.
- 14. THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXIST BY THE ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA. WHEREVER CONNECTIONS OF NEW UTILITIES TO EXISTING UTILITIES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW
- 15. 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 EXISTING CITY DRAINAGE SYSTEMS, OR ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR. THE CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY.
- 16. THE CONTRACTOR MAY SUBMIT A SUBSTITUTION REQUEST TO PRECAST ANY DHHL OWNED AND/OR MAINTAINED STRUCTURE. HOWEVER, PRIOR TO CONSTRUCTION AND INSTALLATION OF ANY PRECAST STRUCTURE, THE CONTRACTOR SHALL A) SUBMIT ONE (1) SET OF SHOP DRAWINGS TO THE ENGINEER AND OBTAIN WRITTEN APPRÒVAL. NON-COMPLIANCE WITH ANY OF THESE REQUIREMENTS SHALL MEAN IMMEDIATE SUSPENSION OF ALL PRECAST CONSTRUCTION WORK AND REJECTION OF ALL PRECAST STRUCTURES ALREADY CONSTRUCTED
- 17. CONFINED SPACE

FOR ENTRY BY PERSONNEL, INCLUDING INSPECTORS, INTO A PERMIT REQUIRED CONFINED SPACE AS DEFINED IN 29 CFR PART 1910.146(b), THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING:

- ALL SAFETY EQUIPMENT REQUIRED BY THE CONFINED SPACE REGULATIONS APPLICABLE TO ALL PARTIES OTHER THAN THE CONSTRUCTION INDUSTRY, TO INCLUDE, BUT NOT LIMITED TO, THE FOLLOWING:
- a. FULL BODY HARNESS FOR UP TO TWO PERSONNEL.
- b. LIFELINE AND ASSOCIATED CLIPS.
- c. INGRESS/EGRESS AND FALL PROTECTION. d. TWO-WAY RADIOS (WALKIE-TALKIES) IF OUT OF LINE-OF-SIGHT.
- MONITORING AT A DISTANCE AT LEAST 20-FEET AWAY)
- EMERGENCY (ESCAPE) RESPIRATOR (10 MINUTE DURATION). CELLULAR TELEPHONE TO CALL FOR EMERGENCY ASSISTANCE.
- g. CONTINUOUS GAS DETECTOR (CALIBRATED) TO MEASURE OXYGEN, HYDROGEN SULFIDE, CARBON MONOXIDE AND FLAMMABLES (CAPABLE OF
- h. PERSONAL MULTI-GAS DETECTOR TO BE CARRIED BY INSPECTOR

NOTES FOR GENERAL CONSTRUCTION (CONT'D):

- CONTINUOUS FORCED AIR VENTILATION ADEQUATE TO PROVIDE SAFE ENTRY
- CONDITIONS. ONE ATTENDANT/RESCUE PERSONNEL TOPSIDE (TWO, IF CONDITIONS
- 18. PURSUANT TO CHAPTER 6E, HRS, IN THE EVENT ANY ARTIFACTS OR HUMAN REMAINS ARE UNCOVERED DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL IMMEDIATELY SUSPEND WORK AND NOTIFY THE KAUA'I POLICE DEPARTMENT, AND THE STATE DEPARTMENT OF LAND AND NATURAL RESOURCES-HISTORIC PRESERVATION DIVISION (692-8015).

NOTES FOR CONSTRUCTION WITHIN COUNTY MAINTAINED ROAD

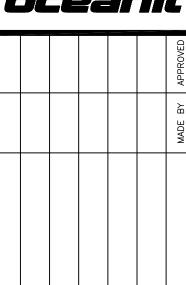
- 1. ALL DAMAGED PAVEMENT SHALL BE RESTORED TO ITS ORIGINAL CONDITION IN ACCORDANCE WITH THE "HAWAI" STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (2005)" AND ITS AMENDMENTS AND THE "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1984", AS AMENDED BY THE DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU, AND THE COUNTIES OF KAUA'I, MAUI, AND HAWAI'I, WITH 2"MINIMUM HOT MIXED ASPHALT CONCRETE PAVEMENT (STATE DESIGN MIX V) AND 8"MINIMUM BASE COURSE.
- THE CONTRACTOR SHALL PROVIDE, INSTALL MAINTAIN ALL NECESSARY SIGNS LIGHTS, FLARES, BARRICADES, MARKERS, CONES AND OTHER PROTECTIVE FACILITIES AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION AND FOR THE CONVENIENCE AND SAFETY OF THE PUBLIC TRAFFIC. ALL SUCH PROTECTIVE FACILITIES AND PRECAUTIONS TO BE TAKEN SHALL CONFORM WITH THE RULES AND REGULATIONS GOVERNING THE USE OF TRAFFIC CONTROL DEVICES AT WORK SITES ON OR ADJACENT TO PUBLIC STREETS AND HIGHWAYS ADOPTED BY THE HIGHWAY SAFETY COORDINATOR AND U.S. FEDERAL HIGHWAY ADMINISTRATION MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS DATED 2009 AND ITS AMENDMENTS.
- THE CONTRACTOR SHALL, WHENEVER NECESSARY, PROPERLY SHEET AND BRACE ALL EXCAVATIONS TO RENDER IT SECURE AND SHALL REMOVE ALL SUCH SHEETING AND BRACING BEFORE COMPLETION OF THE BACKFILL FOR WATER MAINS. THE MINIMUM COVER REQUIREMENTS (FROM TOP OF PIPE TO FINISHED GRADE OVER PIPE) IS THREE (3) FEET.
- A. PERMIT SHALL BE OBTAINED BY THE CONTRACTOR FROM THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF KAUA'I BEFORE WORK ON A PUBLIC STREET OR HIGHWAY MAY BEGIN. PERMIT FEES SHALL BE AT THE CONTRACTOR'S EXPENSE. B. DRIVEWAYS SHALL BE KEPT OPEN UNLESS OWNERS OF THE ABUTTING LOTS
- USING THESE RIGHT-OF-WAY ARE OTHERWISE PROVIDED FOR SATISFACTORILY. C. ALL WORK INCLUDING REPAIR OF DAMAGED PAVEMENT AND SHOULDERS SHALL BE INSPECTED AND APPROVED BY THE DEPARTMENT OF PUBLIC WORKS. ALL UNAPPROVED WORK SHALL BE CONSIDERED UNACCEPTABLE AND SHALL BE REWORKED AND CORRECTED AS DIRECTED BY THE DEPARTMENT OF PUBLIC WORKS. AT THE CONTRACTOR'S EXPENSE.
- D. DAMAGED SHOULDERS SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN EXISTING CONDITION.
- E. WORK ON A PUBLIC STREET AREA MAY BE PERFORMED ONLY BETWEEN THE HOURS OF 8:00 A.M. TO 3:30 P.M. MONDAY THROUGH FRIDAY, EXCEPT ON HOLIDAYS RECOGNIZED BY THE COUNTY OF KAUA'I, UNLESS OTHERWISE PERMITTED IN WRITING BY THE COUNTY ENGINEER.
- DURING NON-WORKING HOURS, ALL TRENCHED SHALL BE COVERED WITH A SAFE NON-SKID BRIDGING MATERIAL AND ALL LANES SHALL BE OPENED TO PUBLIC VEHICULAR AND PEDESTRIAN TRAFFIC.
- G. NO MATERIAL AND/OR EQUIPMENT SHALL BE STOCKPILED OR OTHERWISE STORED WITHIN COUNTY RIGHT-OF-WAY EXCEPT AT LOCATIONS DESIGNATED IN WRITING AND APPROVED BY THE COUNTY ENGINEER. H. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS SO AS TO OFFER THE
- LEAST POSSIBLE OBSTRUCTIONS AND INCONVENIENCE TO THE PUBLIC AND HE SHALL HAVE UNDER CONSTRUCTION NO GREATER LENGTH OR AMOUNT OF WORK THAT HE CAN EXECUTE PROPERLY WITH DUE REGARD TO THE RIGHTS OF THE
- I. ALL EXISTING DRAINAGE FLOW CONDITIONS SHALL BE MAINTAINED.
- THE CONTRACTOR SHALL RETAIN THE SERVICES OF A GEOTECHNICAL ENGINEER FOR QUALITY CONTROL. CERTIFICATION FROM THE GEOTECHNICAL ENGINEER SHALL BE SUBMITTED TO THE DEPARTMENT OF PUBLIC WORKS AT THE COMPLETION OF THE CONSTRUCTION WORK. THE GEOTECHNICAL ENGINEER SHALL CERTIFY THAT THE CONSTRUCTION WORK MEETS "STANDARD SPECIFICATIONS". THE GEOTECHNICAL ENGINEER SHALL ALSO SUBMIT TEST RESULTS AS REQUESTED BY THE DEPARTMENT OF PUBLIC WORKS.
- THE CONTRACTOR SHALL HOLD A PRECONSTRUCTION MEETING WITH THE CONSTRUCTION - DESIGN SECTIONS OF THE DEPARTMENT OF PUBLIC WORKS BEFORE COMMENCING ANY WORK.
- THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION TO PRESERVE BENCHMARKS (SURVEY MONUMENTS) WHENEVER THE CENTER OF A SURVEY MONUMENT IS LESS THAN THREE (3) FEET FROM THE EDGE OF CONSTRUCTION. THE CONTRACTOR SHALL RETAIN` Á LICENSED SURVEYOR TO REFERENCE THE LOCATION OF SAID SURVEY MONUMENT.
- BENCHMARKS THAT ARE DISTURBED OR DESTROYED SHALL BE RESTORED UNDER A LICENSED LAND SURVEYOR'S DIRECTION. COPIES OF FIELD NOTES, DESCRIPTIONS AND NEW VALUES OF THE NEW BENCHMARK SHALL BE SENT TO THE DEPARTMENT OF PUBLIC WORKS SURVEY SECTION FOR REVIEW AND APPROVAL PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OVERTIME OR NIGHT WORK PAYMENTS FOR COUNTY'S STAFF AND INSPECTION PERSONNEL INCLUDING CONSULTANTS WHEN THE CONTRACT REQUIRES OVERTIME OR NIGHT WORK TO BE PERFORMED, OR DIRECTS THE CONTRACTOR TO WORK ADDITIONAL SHIFTS OR OVERTIME FOR COUNTY'S CONVENIENCE.
- 10. IF SYSTEM CONDITIONS REQUIRE NON-EMERGENCY NIGHTTIME WORK DURING THE AUTUMN SEABIRD FALL SEASON (SEPTEMBER 15 THROUGH DECEMBER 15), USE OF LIGHTING SHALL BE RESTRICTED BETWEEN 9:00 P.M. TO 4:30 A.M. IF LIGHTING OF THE WORK AREA IS REQUIRED IN SUCH SITUATION, ALL LIGHTS SHALL BE SHIELDED (MINIMUM LIGHT SPILL TOWARDS THE SKY) AND DIRECTED DOWNWARDS TO THE MAXIMUM EXTENT PRACTICABLE. MINIMUM REQUIREMENTS FOR LIGHTING BY HIOSH AND OSHA SHALL BE PROVIDED AND ASSURED BY THE CONTRACTOR. THE CONTRACTOR SHALL TRAIN ALL EMPLOYEES WORKING AT NIGHT (RECORDS RETAINED BY THE CONTRACTOR) IN HOW TO HANDLE ANY RETRIEVED DOWNED BIRDS AND SHALL HAVE APPROPRIATE EQUIPMENT AS APPROVED BY SAVE OUR SHEARWATERS (SOS) ON SITE TO HOLD AND TRANSPORT ANY RETRIEVED BIRDS TO AN SOS FACILITY. THIS REQUIREMENT DOES NOT ALLOW LIGHTING AS MAY BE RESTRICTED BY OTHER GOVERNMENT AGENCIES.



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









DEPARTMENT OF HAWAIIAN HOME LANDS

Kapolei, Hawai'i 96707 ANAHOLA FARM LOTS

91-5420 Kapolei Parkway

WATER PROJECT Phase II - Water Tank Replacement & Facility Impr.

4-8-001:001; 4-8-005:037 & 039

TANK

WATER.

FARM

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Anahola, Island of Kaua`i

SHEET INDEX &

GENERAL NOTES

DRAWING N T-2 DRAWN BY: GT CHECKED BY: JM SURVEYED BY: WT DATE: AUG. 2018 SHEET NO. 2 OF 79

1. <u>GENERAL:</u>

- A. THE CONTRACTOR IS REMINDED OF THE REQUIREMENTS OF SECTION 209-WATER POLLUTION AND EROSION CONTROL AND SECTION 620-DUST CONTROL IN THE "HAWAI'I STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" 2005 AS AMENDED. SECTION 209 DESCRIBES BUT IS NOT LIMITED TO: SUBMITTAL REQUIREMENTS; SCHEDULING OF A WATER POLLUTION AND EROSION CONTROL CONFERENCE WITH THE OFFICER-IN-CHARGE; CONSTRUCTION REQUIREMENTS; METHOD OF MEASUREMENT; AND BASIS OF PAYMENT. NO WORK SHALL COMMENCE WITHOUT A BMP PLAN APPROVED BY THE DEPARTMENT OF HEALTH.
- B. THE CONTRACTOR SHALL FOLLOW THE GUIDELINES IN THE "INTERIM BEST MANAGEMENT PRACTICES MANUAL FOR CONSTRUCTION SITES FOR COUNTY OF KAUA'I" APRIL 2004 IN DEVELOPING, INSTALLING AND MAINTAINING THE BEST MANAGEMENT PRACTICES (BMPs) FOR THE PROJECT. THE CONTRACTOR MAY SUBMIT ALTERNATE METHODS TO THE ENGINEER FOR ACCEPTANCE.
- C. THE CONTRACTOR SHALL KEEP A COPY OF THE APPROVED BMP PLAN, NOI, ETC. ON THE PROJECT SITE. THE BMP PLAN SHALL BE UPDATED TO REFLECT ANY CHANGES MADE DURING THE COURSE OF CONSTRUCTION FOR THE DURATION OF THE PROJECT.
- THE OFFICER-IN-CHARGE MAY ASSESS LIQUIDATED DAMAGES OF UP TO \$27,500 FOR NONCOMPLIANCE OF EACH BMP REQUIREMENT AND EACH REQUIREMENT STATED IN SECTION 209, FOR EVERY DAY OF NON-COMPLIANCE. THERE IS NO MAXIMUM LIMIT ON THE AMOUNT ASSESSED PER DAY.
- E. THE OFFICER-IN-CHARGE MAY DEDUCT THE COST FROM THE PROGRESS PAYMENT FOR ALL CITATIONS RECEIVED BY THE DEPARTMENT FOR NON COMPLIANCE, OR THE CONTRACTOR/OWNER SHALL REIMBURSE THE STATE, AND/OR COUNTY FOR THE FULL AMOUNT OF THE OUTSTANDING COST INCURRED BY THE STATE AND/OR COUNTY.

WASTE DISPOSAL:

- WASTE MATERIALS: ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER THAT DOES NOT LEAK. THE DUMPSTER SHALL MEET ALL LOCAL AND STATE SOLID WASTE MANAGEMENT REGULATIONS. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER SHALL BE EMPTIED A MINIMUM OF TWICE PER WEEK OR AS OFTEN AS IS DEEMED NECESSARY. NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ONSITE. THE CONTRACTOR'S SUPERVISORY PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL. NOTICES STATING THESE PRACTICES SHALL BE POSTED IN THE OFFICE TRAILER AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED
- HAZARDOUS WASTE: ALL HAZARDOUS WASTE MATERIAL SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATIONS OR BY THE MANUFACTURER. THE CONTRACTOR'S SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES AND SHALL BE RESPONSIBLE FOR SEEING THAT THESE PRACTICES ARE FOLLOWED.
- SANITARY WASTE: ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK, OR AS REQUIRED.
- EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:
- A. ALL CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE EACH WEEK AND WITHIN 24 HOURS FOLLOWING ANY RAINFALL EVENT OF 0.5 INCHES OR GREATER.
- B. ALL MEASURES SHALL BE MAINTAINED IN GOOD WORKING ORDER. IF REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS AFTER THE
- C. BUILT UP SEDIMENT SHALL BE REMOVED FROM SILT FENCE, WHEN IT HAS REACHED ONE-THIRD THE HEIGHT OF THE FENCE.
- D. SILT SCREEN OR FENCE SHALL BE INSPECTED FOR DEPTH OF SEDIMENT, TEARS, TO VERIEY THAT THE FABRIC FENCE IS SECURELY ATTACHED TO THE FENCE POST OR CONCRETE SLAB AND TO VERIFY THAT THE FENCE POST ARE FIRMLY IN THE GROUND.
- E. TEMPORARY AND PERMANENT SEEDING AND PLANTING SHALL BE INSPECTED FOR BARE SPOTS, WASH OUTS AND HEALTHY GROWTH.
- F. THE CONTRACTOR SHALL SUBMIT TO THE OFFICER-IN-CHARGE A MAINTENANCE INSPECTION REPORT PROMPTLY AFTER EACH WEEKLY INSPECTION.
- THE CONTRACTOR SHALL SELECT A MINIMUM OF THREE PERSONNEL WHO SHALL BE RESPONSIBLE FOR INSPECTIONS, MAINTENANCE AND REPAIR ACTIVITIES AND FILLING OUT THE INSPECTION AND MAINTENANCE REPORT.
- PERSONNEL SELECTED FOR THE INSPECTION AND MAINTENANCE RESPONSIBILITIES SHALL RECEIVE TRAINING FROM THE CONTRACTOR. THEY SHALL BE TRAINED IN ALL THE INSPECTION AND MAINTENANCE PRACTICES NECESSARY FOR KEEPING THE EROSION AND SEDIMENT CONTROLS USED ONSITE IN GOOD WORKING CONDITIONS.
- ALL SLOPES AND EXPOSED AREAS SHALL BE GRASSED AS FINAL GRADES HAVE BEEN ESTABLISHED, GRADING TO FINAL GRADE SHALL BE CONTINUOUS, AND ANY AREA IN WHICH WORK HAS BEEN INTERRUPTED OR DELAYED OR EXPOSED FOR MORE THAN 15 DAYS SHALL BE GRASSED IN ORDER TO PREVENT DUST EMISSION, EROSION AND SILT RUNOFF. AREAS WITH IMPORTED SOILS SHALL BE GRASSED NOT MORE THAN 5 WORKING DAYS AFTER THE FINAL GRADES HAVE BEEN ESTABLISHED.
- J. TEMPORARY EROSION CONTROLS SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN PLACE AND ESTABLISHED.

WATER POLLUTION AND EROSION CONTROL NOTES (CONT'D)

4. GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES

- A. MATERIALS POLLUTION PREVENTION PLAN:
 - a. APPLICABLE MATERIALS OR SUBSTANCES LISTED BELOW ARE EXPECTED TO BE PRESENT ONSITE DURING CONSTRUCTION. OTHER MATERIALS AND SUBSTANCES NOT LISTED BELOW SHALL BE ADDED TO THE INVENTORY OF THE CONSTRUCTION CONTRACTOR'S SITE-SPECIFIC BMP PLAN.

CONCRETE FERTILIZERS **DETERGENTS** PETROLEUM BASED PRODUCTS PAINTS (ENAMEL AND LATEX) CLEANING SOLVENTS METAL STUDS WOOD MASONRY BLOCK

- b. MATERIAL MANAGEMENT SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORM WATER RUNOFF. AN EFFORT SHALL BE MADE TO STORE ONLY ENOUGH PRODUCTS AS IS REQUIRED TO DO THE JOB.
- c. ALL MATERIALS STORED ONSITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND IF POSSIBLE UNDER A ROOF OR OTHER ENCLOSURE.
- d. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL.
- e. SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
- f. A PRODUCT SHALL BE USED UP COMPLETELY BEFORE DISPOSING OF THE CONTAINER.
- g. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED.
- h. THE CONTRACTOR SHALL CONDUCT A DAILY INSPECTION TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ONSITE
- B. HAZARDOUS MATERIAL POLLUTION PREVENTION PLAN:
 - a. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE.
 - b. ORIGINAL LABELS AND MATERIALS SAFETY DATA SHEETS (MSDS) SHALL BE RETAINED AND MADE AVAILABLE TO THE OFFICER IN CHARGE UPON
 - c. SURPLUS PRODUCTS SHALL BE DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR LOCAL AND STATE RECOMMENDED REGULATIONS.
- C. ONSITE AND OFFSITE PRODUCTS SPECIFIC PLANS:
 - THE FOLLOWING PRODUCT SPECIFIC PRACTICES SHALL BE FOLLOWED ONSITE
 - a. PETROLEUM BASED PRODUCTS: ALL ONSITE VEHICLES SHALL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. PETROLEUM PRODUCTS SHALL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT SUBSTANCES USED ONSITE SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATION.
 - b. FERTILIZERS: APPLY FERTILIZER USED ONLY IN THE MINIMUM AMOUNTS RECOMMENDED BY THE MANUFACTURER. ONCE APPLIED, WORK FERTILIZER INTO THE SOIL TO LIMIT EXPOSURE TO STORM WATER. STORAGE SHALL BE IN A COVERED SHED.
- c. PAINTS: SEAL AND STORE ALL CONTAINERS WHEN NOT REQUIRED FOR USE. DO NOT DISCHARGE EXCESS PAINT TO THE ROADWAY DRAINAGE SYSTEM. DISPOSE PROPERLY ACCORDING TO MANUFACTURER'S INSTRUCTION OR STATE AND LOCAL REGULATIONS.
- d. CONCRETE TRUCKS: WASH OUT OR DISCHARGE CONCRETE TRUCK DRUM WASH WATER ONLY AT A DESIGNATED SITE. DO NOT DISCHARGE WATER IN ROADWAY DRAINAGE SYSTEM OR WATERS OF THE UNITED STATES. CONTACT DRINKING WATER BRANCH, DEPARTMENT OF HEALTH AT (808)586-4258 TO RECEIVE PERMISSION TO DESIGNATE A DISPOSAL SITE. CLEAN DISPOSAL SITE AS REQUIRED OR AS REQUESTED BY THE OWNER'S REPRESENTATIVE.
- D. SPILL CONTROL PLAN:
 - a. POST A SPILL PREVENTION PLAN TO INCLUDE MEASURES TO PREVENT AND CLEAN UP EACH SPILLWAY.
 - b. THE CONTRACTOR SHALL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR. DESIGNATE AT LEAST THREE SITE PERSONNEL WHO SHALL RECEIVE SPILL PREVENTION AND CLEANUP TRAINING. THESE INDIVIDUALS SHALL EACH BECOME RESPONSIBLE FOR A PARTICULAR PHASE OF PREVENTION AND CLEANUP. POST THE NAMES OF RESPONSIBLE SPILL PERSONNEL IN THE MATERIAL STORAGE AREA AND IN THE OFFICE TRAILER
 - c. CLEARLY POST MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP. MAKE SITE PERSONNEL AWARE OF THE PROCEDURES AND THE LOCATION OF INFORMATION AND CLEANUP SUPPLIES.
 - d. KEEP MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP IN THE MATERIAL STORAGE AREA ONSITE.

WATER POLLUTION AND EROSION CONTROL NOTES (CONT'D)

- e. CLEANUP ALL SPILLS IMMEDIATELY AFTER DISCOVERY.
- f. KEEP THE SPILL AREA WELL VENTILATED. PERSONNEL SHALL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH HAZARDOUS SUBSTANCE.
- a. REPORT SPILLS OF TOXIC HAZARDOUS MATERIAL TO THE APPROPRIATE STATE OR LOCAL GOVERNMENT AGENCY, REGARDLESS OF THE SIZE.
- 5. NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS:
- A. THE CONTRACTOR SHALL APPLY FOR, OBTAIN AND COMPLY WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS FOR KAUA'I DISTRICT PERMIT PROJECTS. THIS IS AVAILABLE AT THE KAUA'I DISTRICT OFFICE AT 3040 UMI STREET, SUITE 205. DUE TO POTENTIAL COST IMPACTS, THE CONTRACTOR NEEDS TO BE AWARE OF THESE REQUIREMENTS.
- THE CONTRACTOR SHALL OBTAIN AND COMPLY WITH NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT REQUIREMENTS FOR ALL PROJECTS WHICH WILL DISTURB ONE (1) ACRE OR MORE OF LAND. THE CONTRACTOR SHALL NOT START CONSTRUCTION UNTIL NOTICE OF GENERAL PERMIT COVERAGE (NGPC) IS RECEIVED FROM THE DEPARTMENT OF HEALTH, STATE OF HAWAI'I AND HAS SATISFIED ANY OTHER APPLICABLE REQUIREMENTS OF THE NPDES PERMIT PROGRAM.
- C. THE CONTRACTOR SHALL COMPLETE AND SUBMIT A CONTRACTOR'S CERTIFICATION OF NPDES COMPLIANCE, INCLUDING COMPLETION OF THE BEST MANAGEMENT PRACTICE (BMP) CHECKLIST AND SUBMITTAL OF A WRITTEN BMP PLAN AND DRAWINGS, PRIOR TO ISSUANCE OF THE PERMIT TO PERFORM WORK UPON COUNTY ROADWAYS.

PUBLIC HEALTH AND CONVENIENCE NOTES

- 1. CONTRACTOR SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS REQUIRED FOR THE PROTECTION OF PUBLIC HEALTH, SAFETY AND ENVIRONMENTAL QUALITY.
- 2. THE CONTRACTOR AT HIS/HER EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREÉ 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.
- NO CONTRACTOR SHALL PERFORM ANY CONSTRUCTION OPERATION SO AS TO CAUSE FALLING ROCKS, SILT OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATION OCCUR, THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS AS NECESSARY AND THE COSTS INCURRED FOR ANY REMEDIAL ACTION SHALL BE PAYABLE BY THE CONTRACTOR.
- 4. THE CONTRACTOR'S ATTENTION IS DIRECTED TO CHAPTER 46, PUBLIC HEALTH REGULATIONS, DEPARTMENT OF HEALTH, STATE OF HAWAI'I, "COMMUNITY NOISE CONTROL," IN WHICH MAXIMUM PERMISSIBLE NOISE LEVELS HAVE BEEN SET. IF THE CONSTRUCTION WORK REQUIRES A PERMIT FROM THE DIRECTOR OF HEALTH. THE CONTRACTOR SHALL OBTAIN A COPY OF CHAPTER 46 AND BECOME FAMILIAR WITH THE NOISE LEVEL RESTRICTIONS AND THE PROCEDURES FOR OBTAINING A PERMIT FOR THE CONSTRUCTION ACTIVITIES. APPLICATION AND INFORMATION ON VARIANCES ARE AVAILABLE FROM THE ENVIRONMENTAL HEALTH SERVICES DIVISION, 1250 PUNCHBOWL ST., HONOLULU, HI 96813 OR BY TELEPHONE (586-4700).
- 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMANCE WITH THE APPLICABLE PROVISIONS OF CHAPTER 54, WATER QUALITY STANDARDS, AND CHAPTER 55, WATER POLLUTION CONTROL, OF TITLE 11, ADMINISTRATIVE RULES OF THE STATE DEPARTMENT OF HEALTH. THE CONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF THE BEST MANAGEMENT PRACTICES (BMP) PLAN FOR THE

ENVIRONMENTAL NOTES

- 1. IN ACCORDANCE WITH CHAPTER 11-60.1, AIR POLLUTION CONTROL, TITLE 11, HAWAI'I ADMINISTRATIVE RULES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT EFFECTIVE CONTROL MEASURES ARE PROVIDED TO MINIMIZE OR PREVENT ANY VISIBLE DUST EMISSION CAUSED BY THE CONSTRUCTION WORK FROM IMPACTING THE SURROUNDING AREAS INCLUDING THE OFF-SITE ROADWAYS USED TO ENTER/EXIT THE PROJECT. THESE MEASURES INCLUDE BUT ARE NOT LIMITED TO THE USE OF WATER WAGONS, SPRINKLER SYSTEM, DUST FENCES, ETC.
- 2. IN ACCORDANCE WITH CHAPTER 11-55, WATER POLLUTION CONTROL AND CHAPTER 11-54, WATER QUALITY STANDARDS, TITLE 11, HAWAI'I ADMINISTRATIVE RULES, THE PROPERTY OWNER/DEVELOPER SHALL RESPONSIBLE FOR ENSURING THAT THE BEST MANAGEMENT PRACTICES (BMP) TO MINIMIZE OR PREVENT THE DISCHARGE OF SEDIMENTS, DEBRIS AND OTHER WATER POLLUTANT INTO STATE WATERS IS PROVIDED AT ALL TIMES.
- 3. IN ACCORDANCE WITH CHAPTER 11-58, SOLID WASTE MANAGEMENT CONTROL, TITLE 11. HAWAI'I ADMINISTRATIVE RULES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT GRUB MATERIAL, DEMOLITION WASTE AND CONSTRUCTION WASTE GENERATED BY THE PROJECT ARE DISPOSED OF IN A MANNER OR AT A SITE APPROVED BY THE STATE DEPARTMENT OF HEALTH. DISPOSAL OF ANY OF THESE WASTES BY BURNING IS PROHIBITED.
- 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL APPLICABLE PERMITS FROM THE DEPARTMENT OF HEALTH INCLUDING BUT NOT LIMITED TO NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES). NOTICE OF INTENT AND GENERAL PERMIT FOR STORM WATER, HYDROSTATIC TEST AND DEWATERING DISCHARGES PRIOR TO COMMENCING CONSTRUCTION. NPDES PERMIT SHALL BE REQUIRED PRIOR TO GRADING OR GRUBBING WORK OVER AN AREA OF ONE ACRE OR MORE.
- AFTER EACH RAINFALL EVENT, THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS RESULTING FROM THIS WORK AND DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS. THE COST INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE ENGINEER SHALL BE PAYABLE BY THE CONTRACTOR.
- 6. BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE EMPLOYED AT ALL TIMES TO THE MAXIMUM EXTENT PRACTICABLE TO PREVENT DAMAGE BY SEDIMENTATION. EROSION OR DUST TO STREAMS, WATER COURSES. NATURAL AREAS AND THE PROPERTY OF OTHERS.
- 7. THE CONTRACTOR SHALL OBTAIN AND COMPLY WITH NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT REQUIREMENTS FOR ALL PROJECTS WHICH WILL DISTURB ONE (1) ACRE OR MORE OF LAND. THE CONTRACTOR SHALL NOT START CONSTRUCTION UNTIL NOTICE OF GENERAL PERMIT COVERAGE (NGPC) IS RECEIVED FROM THE DEPARTMENT OF HEALTH, STATE OF HAWAI'I AND HAS SATISFIED ANY OTHER PERMITTING REQUIREMENTS OF THE NPDES PERMIT PROGRAM.
- 8. IN ACCORDANCE WITH CHAPTER 11-46, COMMUNITY NOISE, HAWAI'I ADMINISTRATIVE RULES, THE CONTRACTOR AND THE PROPERTY OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR PROVIDING EFFECTIVE CONTROL MEASURES TO MINIMIZE OR PREVENT CONSTRUCTION RELATED NOISE FROM IMPACTING THE RESIDENTS IN THE IMMEDIATE AREA. IF REQUIRED, NOISE REDUCTION MEASURES SHALL BE IMPLEMENTED BY THE CONTRACTOR DURING THE CONSTRUCTION WORK.
- 9. THE PROPERTY MAY HARBOR RODENTS WHICH WILL BE DISPERSED TO THE SURROUNDING AREAS WHEN THE SITE IS CLEARED. IN ACCORDANCE WITH CHAPTER 11-26, ENTITLED VECTOR CONTROL OF TITLE 11, HAR, THE APPLICANT SHALL ASCERTAIN THE PRESENCE OR ABSENCE OF RODENTS ON THE PROPERTY. SHOULD THE PRESENCE OF RODENTS BE DETERMINED, THE APPLICANT SHALL ERADICATE THE RODENTS PRIOR TO CLEARING THE SITE.
- 10. A COPY OF THE PLANS. CONSTRUCTION SCHEDULE AND/OR WRITTEN MEASURES THAT IS REQUIRED TO BE SUBMITTED BY THE CONTRACTOR (DUST CONTROL MEASURES/PLANS) SHOULD ALSO BE SENT TO THE DEPARTMENT OF HEALTH FOR MONITORING PURPOSES.



HIS WORK WAS PREPARED BY ME OR UNDER I SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

FARM LOTS

GENERAL NOTES

WATER TANK

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DESIGNED BY: JM | DRAWING NC T-3 DRAWN BY: GT CHECKED BY: JM SURVEYED BY: WT DATE: AUG. 2018 SHEET NO. 3 OF 79

- 3. ALL REQUIRED PROJECT SUBMITTALS (MATERIALS, SHOP DRAWINGS, CHLORINATION PLAN, ETC.) SHALL BE APPROVED BY DHHL BEFORE A PRE-CONSTRUCTION CONFERENCE CAN BE SCHEDULED. ONCE ALL PROJECT SUBMITTALS HAVE BEEN APPROVED BY THE DHHL CONSTRUCTION ENGINEER, THE DHHL CONSTRUCTION ENGINEER WILL NOTIFY THE CONTRACTOR THAT A PRECONSTRUCTION CONFERENCE CAN BE ARRANGED. THE CONTRACTOR SHALL ARRANGE A PRECONSTRUCTION CONFERENCE AT LEAST TEN (10) CALENDAR DAYS BEFORE CONSTRUCTION AND SHALL NOTIFY DHHL AT LEAST THREE (3) WORKING DAYS PRIOR TO START OF CONSTRUCTION.
- 4. THE CONTRACTOR SHALL SUBMIT THE NAMES AND TELEPHONE NUMBERS OF ITS AUTHORIZED JOB SUPERINTENDENT AND AT LEAST THREE (3) ADDITIONAL PERSONS TO CONTACT IN CASE OF AN EMERGENCY DURING NON-WORKING HOURS.
- 5. THE CONTRACTOR SHALL NOTIFY DHHL AT LEAST 24 HOURS PRIOR TO ANY TRENCHING, PIPE LAYING, BACKFILLING, TESTING OR DISINFECTION ACTIVITIES TO ENSURE THAT INSPECTION SERVICES WILL BE AVAILABLE.
- 6. ALL MATERIALS (PIPE, LUBRICANTS, PAINTS, SEALANTS, FORM OIL, CONCRETE ADMIXTURES, ETC.) IN DIRECT CONTACT WITH THE POTABLE WATER SHALL HAVE NATIONAL SANITATION FOUNDATION (NSF) CERTIFICATIONS. THE CONTRACTOR SHALL SUBMIT THESE CERTIFICATIONS TO DHHL FOR REVIEW AND APPROVAL PRIOR TO ITS APPLICATION.
- THE LOCATION OF EXISTING WATER MAINS AND APPURTENANCES SHOWN ON THE PLANS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS IN THE FIELD. EXCAVATION AROUND ANY EXISTING WATER MAIN SHALL BE DONE BY HAND.
- THE CONTRACTOR SHALL PROVIDE UNOBSTRUCTED ACCESS TO EXISTING HYDRANTS. VALVES AND WATER METERS AT ALL TIMES.
- THE CONTRACTOR SHALL SECURE ALL EXCAVATIONS IN ACCORDANCE WITH OSHA REGULATIONS.
- 10. THERE SHALL BE NO PHYSICAL CONNECTION BETWEEN A PUBLIC OR PRIVATE POTABLE WATER SYSTEM AND A NON-POTABLE WATER SYSTEM, SEWER, OR APPURTENANCE THERETO WHICH COULD PERMIT THE PASSAGE OF ANY SEWAGE OR POLLUTED WATER INTO THE POTABLE WATER SUPPLY.
- 11. TRENCH EXCAVATION, BACKFILLING IN LIFTS, AND REPAVING SHALL CONFORM TO THE "HAWAI'I STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. 2005" AS AMENDED.
- 12. WARNING TAPE SHALL BE IN ACCORDANCE WITH DIVISION 200, SECTION 212.08 OF THE "WATER SYSTEM STANDARDS." THE WARNING TAPE SHALL BE FOUR MIL THICK. NON-METALLIC, ACID AND ALKALI RESISTANT POLYETHYLENE AND 6-INCHES WIDE WITH MINIMUM STRENGTH OF 1750 PSI LENGTHWISE AND 1500 PSI CROSSWISE. TAPE COLOR SHALL BE "SAFETY PRECAUTION BLUE" AND SHALL BEAR A CONTINUOUS PRINTED INSCRIPTION "CAUTION WATER LINE BURIED BELOW". INSCRIPTION SHALL BE 2-INCHES HIGH, BLACK TEXT.
- 13. ALL HYDRANTS SHALL RECEIVE A MINIMUM SSPC SP3 SURFACE PREPARATION AND COATED IN ACCORDANCE WITH DIVISION 200, SECTION 206.01 OF THE "WATER SYSTEM STANDARDS."
- 14. UNLESS OTHERWISE DIRECTED UNDER "CHLORINATION OF WATER SYSTEM NOTES" (THIS SHEET), OR UNLESS OTHERWISE DIRECTED, PRIOR TO THE CONNECTION OF ANY PIPELINES AND/OR LATERALS TO THE EXISTING MAIN, THE PIPELINES/LATERALS INSTALLED SHALL BE CLEANED. PRESSURE TESTED. CHLORINATED, FLUSHED, AND SAMPLED IN ACCORDANCE WITH DIVISION 300, SECTIONS 302.27 TO 302.29 OF THE "WATER SYSTEM STANDARDS."

WATER SAMPLES SHALL BE TESTED FOR TOTAL COLIFORMS BY A LABORATORY CERTIFIED BY THE STATE OF HAWAII TO PERFORM COLIFORM ANALYSIS. PRESENCE OF COLIFORM BACTERIA IS UNACCEPTABLE.

IN ADDITION TO THE TEST FOR COLIFORMS, A SEPARATE TEST FOR HETEROTROPHIC PLATE COUNT (HPC) SHALL BE CONDUCTED. THE HPC COUNT SHALL BE LESS THAN 300 CFU/ML.

PRIOR TO CHLORINATION, A WATER CHLORINATION AND SANITATION CONTRACTOR WITH A C-37D LICENSE SHALL SUBMIT A CHLORINATION PLAN WITH WATER SOURCE, INJECTION POINTS, SAMPLING POINTS AND PROCEDURE CLEARLY DEFINED FOR APPROVAL BY DHHL.

THE TESTED PIPELINES AND/OR LATERALS MUST BE CONNECTED TO THE EXISTING DHHL SYSTEM WITHIN 14 CALENDAR DAYS OF PULLING THE FIRST DISINFECTION SAMPLE TESTED BY A CERTIFIED LABORATORY. DHHL WILL REQUIRE THE CONTRACTOR TO REDO THE CLEANING, PRESSURE TESTING, AND/OR DISINFECTION OF THE PIPELINES AND/OR LATERALS AT THE CONTRACTOR'S EXPENSE IF THE

WATER CONSTRUCTION NOTES (CONT'D):

CONNECTION IS NOT COMPLETED WITHIN THESE 14 CALENDAR DAYS.

- 15. POLYURETHANE FOAM "PIGS" SHALL BE "PUSHED" THROUGH THE LENGTH OF THE INSTALLED PIPELINE USING PRESSURIZED WATER.
- 16. ALL CONNECTIONS SHALL BE SCHEDULED IN COORDINATION WITH DHHL.
- a. AN ADVANCE DEPOSIT IS REQUIRED FOR OPERATING VALVES, FLUSHING LINES AND NOTIFYING CONSUMERS AFFECTED BY A WATER SHUTDOWN DURING CONNECTIONS. THE CONTRACTOR WILL BE CHARGED THE ACTUAL COST.
- b. THE CONTRACTOR SHALL PLACE THE DEPOSIT PRIOR TO SCHEDULING THE CONNECTION DATE.
- c. CONNECTIONS SHALL BE SCHEDULED ON TUESDAYS THROUGH THURSDAYS. NO CONNECTIONS SHALL BE SCHEDULED ON MONDAYS, FRIDAYS, WEEKENDS, AND HOLIDAYS, OR FROM DECEMBER 18 - JANUARY 8 OF EACH YEAR.
- d. ALL MATERIALS SHALL BE ON HAND AND APPROVED BY THE ENGINEER PRIOR TO SCHEDULING THE CONNECTION DATE.
- e. PUMPS USED TO DE-WATER THE CONNECTION AREA SHALL BE OPERATED IN THE PRESENCE OF THE CONSTRUCTION INSPECTOR PRIOR TO SCHEDULING THE CONNECTION DATE.
- f. ALL CONNECTIONS SHALL BE PERFORMED IN THE PRESENCE OF THE CONSTRUCTION INSPECTOR.
- 17. IN ORDER TO PREVENT DAMAGE TO THE POLYETHYLENE ENCASEMENT FROM EXCESSIVE HANDLING, THE POLYWRAP SHALL BE INSTALLED AROUND THE BARREL OF THE DUCTILE IRON PIPE AT ITS FINAL LOCATION ALONG THE TRENCHLINE. THE POLYETHYLENE ENCASED PIPE SHALL BE LIFTED USING A FABRIC TYPE SLING OR A SUITABLY PADDED CABLE OR CHAIN TO PREVENT DAMAGE TO THE POLYETHYLENE.
- 18. THE CONTRACTOR SHALL TAKE ALL NECESSARY COMPACTION TESTS WHILE THE WATERLINE TRENCH IS BEING BACKFILLED AND WHILE THE SUBBASE/BASECOURSE IS BEING PLACED. IF THE TEST RESULTS INDICATE THAT ADDITIONAL COMPACTION IS REQUIRED, THE CORRECTIVE WORK SHALL BE COMPLETED BEFORE ANY ADDITIONAL TRENCH EXCAVATION OR PLACING OF SUBBASE/BASECOURSE IS ALLOWED.

THE CONTRACTOR SHALL RETAIN THE SERVICES OF A REGISTERED GEOTECHNICAL ENGINEER FOR QUALITY CONTROL. THE COMPACTION TEST RESULTS SHALL BE CERTIFIED BY THE GEOTECHNICAL ENGINEER AND SUBMITTED TO DHHL, STATE HIGHWAYS DIVISION (FOR WORK DONE WITHIN STATE R/W) AND THE DEPARTMENT OF PUBLIC WORKS (FOR WORK DONE WITHIN COUNTY R/W). THE GEOTECHNICAL ENGINEER SHALL CERTIFY THAT THE COMPACTION RESULTS MEET THE REQUIREMENTS OF THE CURRENT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

- 19. THE CONTRACTOR SHALL CONNECT ALL EXISTING CONSUMER PIPING TO THE NEW SERVICE LATERALS. DHHL WILL TRANSFER THE EXISTING WATER METERS ONLY.
- 20. ALL FITTINGS SHALL BE MECHANICAL JOINT (MJ) AT EACH END UNLESS OTHERWISE NOTED. "MEGALUG" RETAINER GLANDS SHALL BE USED WITH ALL MECHANICAL JOINT FITTINGS AND VALVES USED IN CONNECTING NEW WATER MAINS TO EXISTING WATER MAINS UNLESS OTHERWISE NOTED.
- 21. ALL WATER VALVES THAT WILL BE ABANDONED IN PLACE SHALL BE PLACED IN THE "CLOSED" POSITION. REMOVE TOP SECTION OF VALVE BOX AND CONCRETE SETTLEMENT SLAB. FILL REMAINDER OF VALVE BOX WITH CONCRETE. PLACE BACKFILL AND REPAIR PAVEMENT SECTION TO APPLICABLE STATE OR COUNTY STANDARDS. BACKFILL TO FINISH GRADE IN ROAD SHOULDER AREA.
- 22. THE CONTRACTOR SHALL OBTAIN ALL APPLICABLE DEPARTMENT OF HEALTH PERMITS PRIOR TO THE START OF CONSTRUCTION. PERMITS INCLUDE, BUT ARE NOT LIMITED TO, NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMITS FOR STORM WATER, HYDROSTATIC TEST, DEWATERING, AND FOR CONSTRUCTION ACTIVITIES, INCLUDING CLEARING, GRADING, AND EXCAVATION, THAT RESULT IN THE DISTURBANCE OF EQUAL TO OR GREATER THAN ONE (1) ACRE OF TOTAL LAND AREA.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER DISPOSAL OF STORM WATER DISCHARGES AND EFFLUENT ASSOCIATED WITH CONSTRUCTION ACTIVITIES INCLUDING HYDROTESTING AND DISINFECTION OPERATIONS. TO SAFEGUARD PUBLIC HEALTH AND SAFETY IN ACCORDANCE WITH APPLICABLE DEPARTMENT OF HEALTH REQUIREMENTS. ALL PERMITS AND LICENSES FOR STORM WATER AND CONSTRUCTION WATER DISPOSAL, INCLUDING ALL APPLICATION, CHARGES, FEES, AND TAXES, ARE THE RESPONSIBILITY OF THE CONTRACTOR.

- 23. THE CONTRACTOR IS RESPONSIBLE FOR DEWATERING TRENCH AS NECESSARY WHERE GROUNDWATER IS ENCOUNTERED. ALL ASSOCIATED COSTS FOR DEWATERING SHALL BE BORNE BY THE CONTRACTOR.
- 24. THE USE OF KNOWN SEWER PUMP TRUCKS IS PROHIBITED FOR DHHL PROJECTS FOR ANY USE. INCLUDING BUT NOT LIMITED TO DEWATERING AND TESTING OF NEW FACILITIES.
- 25. THE CONTRACTOR SHALL VERIFY OUTSIDE DIAMETER OF ALL EXISTING ASBESTOS CEMENT (AC) WATERLINES TO BE CONNECTED. CONTRACTOR SHALL VERIFY USE OF PROPER GASKETS PRIOR TO CONNECTION. AC PIPE AND GASKET INFORMATION SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL

WATER CONSTRUCTION NOTES (CONT'D):

26. ALL REMOVAL, DISPOSAL AND CONNECTION WORK THAT INVOLVES ASBESTOS PIPE/MATERIAL SHALL BE DONE IN THE PRESENCE OF OR BY A LICENSED ASBESTOS CONTRACTOR.

THE LICENSED ASBESTOS CONTRACTOR SHALL SUBMIT THEIR PLAN FOR ALL ASSOCIATED REMOVAL, DISPOSAL AND CONNECTION WORK FOR THE PROJECT TO DHHL FOR REVIEW AND APPROVAL PRIOR TO CONDUCTING THE WORK.

- 27. ALL CONNECTIONS TO EXISTING AC PIPE SHALL BE AT THE NEAREST AC PIPE JOINT. AC PIPE SHALL BE REMOVED BY ENTIRE LENGTH(S) TO FACILITATE THE CONNECTION. CUTTING OF AC PIPE IS PROHIBITED.
- 28. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE OSHA, HIOSH AND FEDERAL REGULATIONS IN HANDLING AND DISPOSAL OF ASBESTOS-CEMENT PIPE. DISPOSAL OF THE PIPE SHALL BE AT AN APPROVED ASBESTOS MATERIAL DISPOSAL SITE.
- 29. ALL WATERWORKS BRASS FITTINGS SHALL BE IN COMPLIANCE WITH THE AMENDED SECTION 1417 OF SAFE DRINKING WATER ACT (SDWA) WHICH TAKES EFFECT ON JANUARY 4, 2014. THE AMENDMENT INCLUDES A CHANGE TO THE DEFINITION OF "LEAD-FREE" BY REDUCING LEAD CONTENT FROM 8% TO A WEIGHTED AVERAGE OF NOT MORE THAN 0.25% IN THE WETTED SURFACE MATERIAL. ALL WATERWORKS BRASS FITTINGS INSTALLED FOR POTABLE WATER SERVICE ON JANUARY 4, 2014 AND BEYOND SHALL CONFORM TO THE AMENDED DEFINITION OF "LEAD-FREE."

AS INDICATED IN SECTION 211 OF WATER SYSTEM STANDARDS - BRASS PRODUCTS, ALL BRASS FITTINGS SHALL CONFORM TO NSF STANDARD 61 AND SECTION 1417 OF THE SAFE DRINKING WATER ACT (SDWA), IN ADDITION, ALL BRASS FITTINGS SHALL CONFORM TO NSF STANDARD 372.

- 30. CONTRACTOR SHALL INSTALL WATER FACILITIES ONLY AFTER REACHING FINAL SUBGRADE OR HIGHER. DHHL WILL NOT ALLOW INSTALLATION OF ANY WATER FACILITIES UNTIL THE FINAL SUBGRADE LAYER AT MINIMUM HAS BEEN ACHIEVED.
- 31. PRIOR TO INSTALLATION OF NEW WATER LINES AND/OR FACILITIES, THE CONTRACTOR SHALL HAVE ALL FACILITIES SURVEYED AND STAKED OUT BY A LICENSED SURVEYOR AND THE CONTRACTOR SHALL EXPOSE, VERIFY, AND BACKFILL ALL EXISTING UNDERGROUND UTILITIES AND STRUCTURES IN CLOSE PROXIMITY TO CROSSINGS AND CONNECTIONS PRIOR TO EXCAVATION OF PIPELINE TRENCH. CONTRACTOR SHALL PROVIDE THE LICENSED SURVEYOR CUT SHEET AND THE PROBING INFORMATION TO THE DHHL CONSTRUCTION ENGINEER FOR REVIEW AND APPROVAL BEFORE MOVING FORWARD WITH INSTALLATION VIA THE SUBMITTAL REVIEW PROCESS.
- 32. DHHL SHALL BE PROVIDED TWENTY (20) WORKING DAYS FOR ALL SUBMITTAL REVIEWS FROM THE TIME OF SUBMISSION BY THE CONTRACTOR.

SPECIAL NOTES FOR DHHL OPERATED & MAINTAINED WATER SYSTEM:

- 1. THE CONTRACTOR SHALL NOTIFY AQUA ENGINEERS (808-332-7381), DHHL MASTER-PLANNED COMMUNITY BRANCH, AND DHHL LESSEES AND DHHL DESIGN & CONSTRUCTION BRANCH ONE WEEK PRIOR TO TURNING OFF WATER IN THE EXISTING
- 2. THE CONTRACTOR SHALL COORDINATE THE REMOVAL OF THE EXISTING TREES (IF NECESSARY) BY THE LESSEE. COORDINATION SHALL PERMIT ADEQUATE TIME TO ALLOW TREE REMOVAL BY THE LESSEE.

CHLORINATION OF WATER SYSTEMS:

- 1. WATER MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA STANDARD FOR DISINFECTING WATER MAINS, ANSI/AWWA C651-99, SECTION 4.4.3, CONTINUOUS FEED METHOD.
- 2. THE STORAGE TANK SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA STANDARD FOR DISINFECTING WATER STORAGE FACILITIES, ANSI/AWWA C652-92, SECTION 4.1, CHLORINATION METHOD 1.
- 3. LIQUID CHLORINE OR CALCIUM HYPOCHLORITE THAT HAS BEEN TESTED AND CERTIFIED AS MEETING THE SPECIFICATIONS OF ANSI/NSF STANDARD 60, DRINKING WATER TREATMENT CHEMICALS-HEALTH EFFECTS, SHALL BE USED FOR THE CHLORINATION OF THE WATER MAINS AND STORAGE TANK.
- 4. PRIOR TO CHLORINATION, THE WATER MAINS AND STORAGE TANK SHALL BE THOROUGHLY FLUSHED.
- 5. THE INTERIOR SURFACES OF THE WATER MAINS AND STORAGE TANK SHALL BE EXPOSED TO THE CHLORINATING SOLUTION, BY COMPLETELY FILLING THE MAIN TO REMOVE ALL AIR POCKETS, FOR A MINIMUM OF 24 HOURS AND THE FREE CHLORINE RESIDUAL SHALL NOT BE LESS THAN 10 PPM AFTER SUCH TIME.
- 6. SHOULD CALCIUM HYPOCHLORITE BE USED, NO SOLID AND/OR UNDISSOLVED PORTION OF THE COMPOUND SHALL BE INTRODUCED INTO ANY SECTION OF THE WATER MAINS AND STORAGE TANK TO BE CHLORINATED.
- 7. AT THE END OF THE 24 HOUR DISINFECTION PERIOD. REPRESENTATIVE SAMPLES SHALL BE TAKEN AND ANALYZED TO ASSURE A FREE CHLORINE RESIDUAL OF AT

CHLORINATION OF WATER SYSTEMS (CONT'D):

LEAST 10 PPM.

- 8. SHOULD THE FREE CHLORINE RESIDUAL RESULTS INDICATE ADEQUATE CHLORINATION. THE WATER MAINS AND STORAGE TANK SHALL BE THOROUGHLY FLUSHED AND FILLED WITH WATER FROM THE EXISTING SYSTEM AND AGAIN TESTED FOR FREE CHLORINE RESIDUAL. THE FLUSHING SHALL BE CONSIDERED ADEQUATE IF THE FREE CHLORINE RESIDUAL TEST RESULTS INDICATE THAT THE WATER IN THE WATER MAINS AND STORAGE TANK HAS A COMPARABLE CHLORINE RESIDUAL AS THE WATER IN THE EXISTING SYSTEM.
- 9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER DISPOSAL OF CHLORINATED WATER TO SAFEGUARD PUBLIC HEALTH AND ENVIRONMENT IN ACCORDANCE WITH APPLICABLE STATE DEPARTMENT OF HEALTH REQUIREMENTS. A NEUTRALIZING CHEMICAL SHALL BE APPLIED TO THE WATER TO BE WASTED TO THOROUGHLY NEUTRALIZE THE CHLORINE RESIDUAL REMAINING IN THE WATER IN ACCORDANCE WITH AWWA C651-99, SECTION 4.5.2, AND APPENDIX C.
- 10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FROM THE DEPARTMENT OF HEALTH, CLEAN WATER BRANCH, PRIOR TO THE START OF CONSTRUCTION FOR THE DISPOSAL OF WATER USED FOR HYDROTESTING AND CHLORINATION.
- 11. FOLLOWING THE ACCEPTABLE FLUSHING OF THE WATER MAINS AND STORAGE TANK, TWO CONSECUTIVE SETS OF ACCEPTABLE SAMPLES, TAKEN AT LEAST 24 HOURS APART FROM REPRESENTATIVE POINTS, SHALL BE SUBJECTED TO MICROBIOLOGICAL TESTS (TOTAL AND FECAL COLIFORM). FOR WATERLINES, AT LEAST ONE SET OF SAMPLES SHALL BE COLLECTED FROM EVERY 1,200 FEET OF THE NEW WATER MAIN, PLUS ONE FROM THE END OF THE LINE AND AT LEAST ONE SET FROM EACH BRANCH. FOR THE STORAGE TANK, THE SAMPLE SHALL BE COLLECTED FROM THE TANK'S EFFLUENT LINE SAMPLE TAP. POSITIVE OR INVALID TEST RESULTS WILL NOT BE ACCEPTABLE AND THE PROCESS WILL BE REPEATED.
- 12. ALL MEASUREMENTS FOR CHLORINE RESIDUAL SHALL BE ANALYZED USING E.P.A. APPROVED METHODS FOR DRINKING WATER.
- 13. ALL MICROBIOLOGICAL TEST SHALL BE PERFORMED BY A LABORATORY APPROVED BY THE DEPARTMENT OF HEALTH, STATE OF HAWAII.
- 14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ALL OF THE FOREGOING.
- 15. SEE ANSI/AWWA C651-99, SECTION 4.3.6 FOR SWABBING CHLORINATION PROCEDURES.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEMS (NPDES) AND OTHER AUTHORIZATIONS

THE GENERAL CONTRACTOR OF THE PROJECT SHALL OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE(S) FOR THE FOLLOWING:

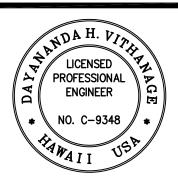
- 1. STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES THAT DISTURB ONE (1) ACRE OR MORE, AND
- 2. DISCHARGES OF HYDROTESTING EFFLUENT, DEWATERING EFFLUENT, AND WELL DRILLING EFFLUENT TO STATE WATERS.

IN ACCORDANCE WITH STATE LAW. ALL DISCHARGES RELATED TO PROJECT CONSTRUCTION OR OPERATION ARE REQUIRED TO COMPLY WITH STATE WATER QUALITY STANDARDS (HAWAII ADMINISTRATIVE RULES, CHAPTER 11- 54). BEST MANAGEMENT PRACTICES SHALL BE USED TO MINIMIZE OR PREVENT THE DISCHARGE OF SEDIMENT. DEBRIS, AND OTHER POLLUTANTS TO STATE WATERS. PERMIT COVERAGE IS AVAILABLE FROM THE DEPARTMENT OF HEALTH, CLEAN WATER BRANCH AT: http://health.hawaii.gov/cwb/

THE GENERAL CONTRACTOR IS RESPONSIBLE FOR OBTAINING OTHER FEDERAL, STATE, OR LOCAL AUTHORIZATIONS AS REQUIRED BY LAW.

<u>OTHER</u>

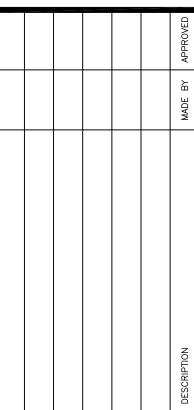
1. ALL MATERIALS (PIPE, PIPE LUBRICANTS, PAINTS, SEALANTS, FORM OIL, CONCRETE ADMIXTURES, ETC.) IN DIRECT CONTACT WITH THE POTABLE WATER SHALL HAVE NATIONAL SANITATION FOUNDATIONS (NSF) APPROVALS. THE CONTRACTOR SHALL SUBMIT THESE APPROVALS TO THE OWNER/ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ITS APPLICATION.

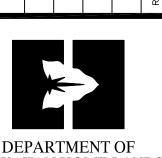


This work was prepared by Me or Under I Supervision and construction of this Project will be under My Observation.



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oceanit





DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway Kapolei, Hawai`i 96707

ANAHOLA FARM LOTS Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i

TMK

4-8-001:001; 4-8-005:037 & 039

WATER TANK

HASE II

FARM

 \forall

GENERAL NOTES

DESIGNED BY: JM DRAWING NO T-4 DRAWN BY: GT CHECKED BY: JM SURVEYED BY: WT DATE: AUG. 2018

SHEET NO. 4 OF 79

- 2. BEFORE PAVEMENT RESTORATION MAY COMMENCE, NOTIFY THE ENGINEER AND FURNISH DATA ON TESTS PERFORMED UNDER THE SUPERVISION OF A REGISTERED CIVIL ENGINEER SUBSTANTIATING THAT THE BACKFILL HAS BEEN COMPACTED TO THE DENSITY SPECIFIED IN THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION FOR ALL TRENCHES THAT ARE OVER 2 FEET IN DEPTH IN MAJOR AND SECONDARY STREETS AND FOR ALL TRENCHES OVER FIFTY FEET IN LENGTH AND OVER 2 FEET IN DEPTH IN MINOR AND DEAD END STREETS. THE DIRECTOR MAY ALSO REQUIRE COMPACTION TESTS OF BACKFILL FOR HOLES AND FOR TRENCHES OF LESS THAN 2 FEET IN DEPTH AND ADDITIONAL COMPACTION TESTS ON TRENCHES FOR WHICH THE PERMITTEE HAS FURNISHED TEST DATA.
- 3. OPEN-CUT TRENCHES SHALL BE COVERED DURING NON-WORKING HOURS TO SAFELY SUPPORT AND MAINTAIN LEGAL VEHICULAR TRAFFIC LOADS.
- ACCOMPLISH EMERGENCY WORK INCLUDING BUT NOT LIMITED TO PATCHING HOLES, REPAIRING TEMPORARY TRENCH COVERS AND INSTALLATION OF WARNING LIGHTS OR BARRICADES WHEN THE "CONTACT FOR EMERGENCY REPAIRS" FURNISHED BY THE APPLICANT IS NOTIFIED. IF THE EMERGENCY WORK IS NOT MADE IN A REASONABLE TIME WHEN NOTIFIED OR UPON FAILURE OF THE "CONTACT FOR EMERGENCY REPAIRS," RESPOND AND PAY THE COST OF THE EMERGENCY WORK MADE BY THE DEPARTMENT OF FACILITY MAINTENANCE, DIVISION OF ROAD MAINTENANCE.
- UNDERTAKE, FOR A PERIOD OF ONE (1) YEAR AFTER THE SATISFACTORY COMPLETION AND APPROVAL OF RESTORATION WORK. ANY NECESSARY REPAIRS TO THE RESTORED WORK OR FACILITIES DISTURBED AND/OR BY THE WORK PERFORMED UNDER THIS PERMIT.
- REMOVE, RELOCATE, REPLACE, RECONSTRUCT OR ADJUST, AT HIS/HER OWN EXPENSE, ANY OF HIS/HER FACILITIES THAT MAY EXIST ON OR UNDER THE RIGHT-OF-WAY WHENEVER AND AS OFTEN AS MAY BE REQUIRED BY THE DIRECTOR OR AN AUTHORIZED REPRESENTATIVE IN ORDER TO UNDERTAKE THE CONSTRUCTION, RECONSTRUCTION OR MAINTENANCE OF SAID RIGHT-OF-WAY.
- KEEP ALL FACILITIES INSTALLED IN GOOD REPAIR SO THAT THE PRESENCE OF SUCH FACILITY ON OR UNDER THE RIGHT-OF-WAY WILL IN NO WAY IMPAIR THE USE OR USEFULNESS OF ANY IMPROVEMENT WHICH MAY NOW EXIST OR HEREAFTER COME INTO EXISTENCE.
- KEEP A COPY OF THE PLANS IN THE HANDS OF THE WORKING CREW FOR EXHIBIT UPON REQUEST OF ANY AUTHORIZED REPRESENTATIVE.
- 9. SUBMIT AS-BUILT DRAWINGS TO THE ENGINEER SHOWING THE ACTUAL CONSTRUCTION PERFORMED.

DEMOLITION NOTES

- ALL DEMOLITION SHALL BE DONE IN ACCORDANCE WITH APPLICABLE FEDERAL AND LOCAL LAWS AND DEMOLITION REGULATIONS AND ALL APPLICABLE PERMITS.
- 2. NO CONTRACTOR SHALL PERFORM ANY DEMOLITION OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES. STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY.
- THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO BIDDING. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF OWNER FOR CLARIFICATION.
- THE CONTRACTOR SHALL BRING ANY CONFLICTS AND OR ANY QUESTIONS TO THE ATTENTION OF THE OWNER PRIOR TO THE START OF DEMOLITION. ANY REMEDIAL WORK RESULTING FROM THE CONTRACTOR'S FAILURE TO DO SO SHALL BE PAID FOR BY THE CONTRACTOR AT NO COST TO THE OWNER. ALL RESTORATION WORK SHALL BE PAID FOR BY THE CONTRACTOR.
- ALL EXISTING IMPROVEMENTS AND UTILITIES THAT ARE TO REMAIN WITHIN THE DEMOLITION AND CONSTRUCTION AREAS SHALL BE PROTECTED AND MAINTAINED BY THE CONTRACTOR DURING HIS OPERATIONS, UNLESS OTHERWISE NOTED. ANY REMEDIAL WORK RESULTING FROM THE CONTRACTOR'S FAILURE TO DO SO SHALL BE PAID FOR BY THE CONTRACTOR AT NO COST TO THE CITY.
- BACKFILL AND COMPACT ALL VOIDS, HOLES, PITS, TRENCHES AND DEPRESSIONS CAUSED BY DEMOLITION OPERATIONS WITH TOPSOIL.
- 7. THE CONTRACTOR SHALL PROPERLY REMOVE AND DISPOSE OFFSITE OF ALL DEMOLITION MATERIALS AT NO ADDITIONAL COST TO THE OWNER.
- AFTER COMPLETION OF THE DEMOLITION WORK, THE CONTRACTOR SHALL CLEAN THE PROJECT LIMITS OF ALL DEMOLISHED MATERIALS. RUBBISH AND ALL OTHER DEBRIS WHICH SHALL THEN BE TRANSPORTED TO A LEGAL OFFSITE DISPOSAL SITE.
- 9. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO DEMOLITION WORK AS SHOWN ON THE EXISTING SITE, DEMOLITION AND EROSION CONTROL PLAN, SHT. <u>C-1</u>.

HISTORICAL NOTES

SHOULD HISTORIC REMAINS SUCH AS ARTIFACTS, BURIALS, CONCENTRATIONS OF SHELL OR CHARCOAL BE ENCOUNTERED DURING CONSTRUCTION ACTIVITIES, WORK SHALL CEASE IMMEDIATELY IN THE IMMEDIATE VICINITY OF THE FIND, AND THE FIND SHALL BE PROTECTED FROM FURTHER DAMAGE. THE CONTRACTOR SHALL CORDON OFF THE AREA AND IMMEDIATELY NOTIFY THE PLANNING DEPARTMENT AT (808) 241-4050 AND THE STATE HISTORIC PRESERVATION DIVISION AT (808) 692-8015. WHO WILL ASSESS THE SIGNIFICANCE OF THE FIND AND RECOMMEND THE APPROPRIATE MITIGATION MEASURES, IF NECESSARY.

GRADING NOTES

TEMPORARY DUST CONTROL MEASURES FOR GRADING

- 1. THE GRADED OR PROJECT SITE THAT IS CLEARED OF VEGETATION SHALL BE KEPT DAMP WITH WATER CONTINUOUSLY FOR SEVEN (7) DAYS A WEEK AT THE END OF EACH DAY, THE SITE SHALL BE SUFFICIENTLY DAMPENED WITH WATER ON A CONTINUAL BASIS SO THAT THE SITE WILL REMAIN MOISTENED DURING THE NIGHT.
- 2. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS SO THAT EXCAVATION, EMBANKMENT, AND IMPORTED MATERIAL SHALL BE DAMPENED WITH WATER ON A CONTINUAL BASIS TO PREVENT DUST PROBLEMS.
- 3. IN APPLYING FOR A GRADING PERMIT, THE CONTRACTOR SHALL SUBMIT PLANS, SCHEDULES AND/OR WRITTEN MEASURES WHICH PROVIDES FOR DUST CONTROL. THE DUST CONTROL MEASURES SHALL CONTAIN POSITIVE STATEMENTS WHICH REQUIRE ACTIONS OR WORK THAT PREVENT DUST PROBLEMS. NO PERMITS WILL BE ISSUED UNLESS THE COUNTY IS ASSURED THAT DUST PROBLEMS WILL BE MINIMIZED.

TEMPORARY EROSION CONTROL MEASURES FOR GRADING

- 1. TEMPORARY VEGETATIVE COVER SHALL BE PLANTED WITHIN A PERIOD OF 30 CALENDAR DAYS AFTER THE SITE HAS BEEN GRADED OR BARED OF VEGETATION OR IF THE SITE WILL BE SUSPENDED FOR MORE THAN 30 CALENDAR DAYS.
- 2. TEMPORARY VEGETATIVE COVER SHALL CONSIST OF 40 LBS. COMMON RYE GRASS SEED PER ACRE, 400 LBS. PER ACRE 10-10-10 OR EQUIVALENT FERTILIZER WORKED INTO THE SEED BED BEFORE PLANTING. TEMPORARY SPRINKLER SYSTEM IS TO BE INSTALLED CONCURRENTLY WITH ALL PLANTINGS AND MAINTENANCE OF GRASS SHALL CONFORM TO THE "HAWAI'I STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. 2005" AND ITS AMENDMENTS.

PERMANENT EROSION CONTROL MEASURES FOR GRADING

- 1. THE CONTRACTOR SHALL GRASS THE ENTIRE PROJECT SITE, EXCEPT PAVED AREAS WITH BERMUDA GRASS SPRIGS. THE GRASS SHALL BE PLANTED, FERTILIZED, AND MAINTAINED IN ACCORDANCE WITH THE "HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2005" AND ITS AMENDMENTS.
- 2. THE CONTRACTOR SHALL GRASS ALL EXPOSED AREAS THAT HAVE BEEN CONSTRUCTED TO FINAL GRADES WITHIN A PERIOD OF 30 CALENDAR DAYS.
- 3. IN LIEU OF GRASS SPRIGS (NOTE 1), THE CONTRACTOR MAY USE HYDROMULCH WITH SEEDINGS AND IRRIGATION SPRINKLER SYSTEM.

GRADING PHASES

WHEN GRADING WORK IS DONE IN PHASES, THE OFFICER-IN-CHARGE MUST ACCEPT THE COMPLETED PHASE PRIOR TO START OF WORK ON THE NEXT PHASE. EVEN AFTER A COMPLETED PHASE HAS BEEN ACCEPTED. THE GRASSING OR OTHER MEANS OF STABILIZATION MUST BE MAINTAINED UNTIL PROJECT COMPLETION.

GEOTECHNICAL NOTES

1. A GEOTECHNICAL ENGINEERING ANALYSIS ENTITLED "GEOTECHNICAL ENGINEERING EXPLORATION ANAHOLA FARM LOTS WATER SYSTEM IMPROVEMENTS. ANAHOLA, KAUAI, HAWAII" DATED OCTOBER 2017 HAS BEEN PREPARED BY GEOLABS, INC. A COPY OF THE REPORT IS ON FILE AT THE DHHL OFFICE FOR REVIEW BY THE CONTRACTOR.

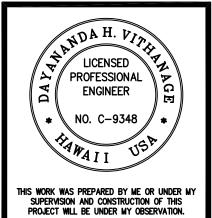
KAUA'I ISLAND UTILITY COOPERATIVE (KIUC) CONSTRUCTION NOTES

UNDERGROUND CONSTRUCTION NOTES AND REQUIREMENTS

- 1. THE LOCATION OF EXISTING KAUAI ISLAND UTILITIES COOPERATIVE FACILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS IN THE FIELD.
- 2. THE CONTRACTOR SHALL CALL BEFORE YOU DIG NUMBER AT 1-866-423-7287 FOR UNDERGROUND UTILITY LOCATES TEN DAYS BEFORE START OF CONSTRUCTION.
- 3. MAINTAIN MINIMUM 5'-0" HORIZONTAL CLEARANCE BETWEEN WATERLINES AND KIUC POLES.
- 4. WATERLINE SHALL NOT RUN DIRECTLY UNDER OVERHANGING POWERLINES.
- 5. THE CONTRACTOR SHALL NOTIFY THE KIUC'S CONSTRUCTION COORDINATOR AT (808) 246-4343 AT LEAST FIVE DAYS IN ADVANCE, IF KIUC FACILITIES WILL BE AFFECTED.
- 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COST TO ADJUST OR RELOCATE KIUC'S FACILITIES AND TO TEMPORARILY SUPPORT FACILITIES.
- 7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO KIUC FACILITIES. ANY DAMAGES SHALL BE REPORTED IMMEDIATELY TO KIUC TROUBLE CALL AT (808) 246-8200.
- 8. A MINIMUM OF 15 FEET RADIAL CLEARANCE IS REQUIRED WHEN WORKING WITHIN THE VICINITY OF ENERGIZED OVERHEAD ELECTRICAL LINES.
- 9. THESE NOTES ARE NOT INTENDED TO BE USED IN PLACE OF THE SERVICE INSTALLATION MANUAL, PLEASE REFER TO SERVICE INSTALLATION MANUAL FOR ALL SERVICE ISSUES.
- 10. CONTRACTOR SHALL CONTACT KAUAI ISLAND UTILITY COOPERATIVE (KIUC) CONSTRUCTION COORDINATOR/INSPECTOR PRIOR TO START OF WORK ON KIUC FACILITIES AND FOR SCHEDULING SITE INSPECTIONS. (WESTSIDE: 246-2323; EASTSIDE: 246-4343).

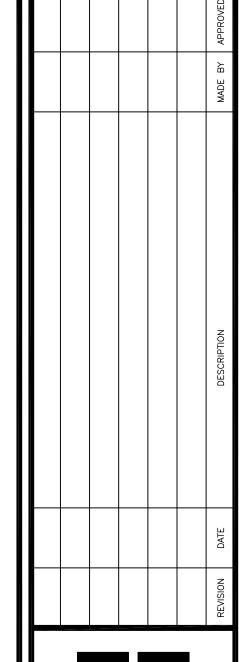
KAUA'I ISLAND UTILITY COOPERATIVE (KIUC) CONSTRUCTION NOTES

- 11. ALL CONTRACTORS ENTERING KIUC FACILITIES MUST BE APPROVED BY KIUC AND MUST HAVE PROPER LICENSING AND INSURANCE COVERAGE. CONTACT KIUC LEGAL COORDINATOR @ 246-4369 FOR DETAILS.
- 12. ALL TRENCHES AND PULLBOXES MUST BE INSPECTED BY KIUC PRIOR TO BACKFILLING AND CONCRETE-ENCASING OPERATIONS. FOR DETAILED TRENCHING AND BACKFILLING REQUIREMENTS REFER TO KIUC'S SERVICE INSTALLATION MANUAL
- 13. THE CONTRACTOR SHALL PROVIDE A POLY-LINE 200 LB. TEST LINE OR EQUIVALENT AS A PULLING WIRE IN ALL 1 INCH. 2 INCH. 3 INCH AND 4 INCH CONDUITS. IN 5 INCH AND 6 INCH CONDUITS. THE CONTRACTOR SHALL INSTALL NEPTCO WP1BOO MULETAPE AS A PULLING LINE.
- 14. ALL CONDUITS, PULLBOXES, HANDHOLES & MANHOLES SHALL BE CLEANED AND FREE FROM OBJECTIONABLE MATERIALS. CONDUIT ENDS SHALL BE ADEQUATELY COVERED UNTIL THE CONDUCTOR IS INSTALLED BY THE ELECTRIC COMPANY. (COVERS SHALL BE CARLON PLUG WITH PULL TAB SERIES P25B EQUIVALENT OR BETTER)
- 15. FOR ALL CONDUIT OTHER THAN SERVICES, REFER TO CONDUIT SCHEDULE ON DRAWINGS.
- 16. FOR ALL SERVICES WHERE THE CONDUCTOR IS 1/0 OR LESS, THE DISTANCE FROM KIUC'S HANDHOLE AND CUSTOMER'S METER IS LESS THAN 125 FEET. AND NOT CROSSING ANY DRIVEWAYS OR ROADS THE CONDUIT SHALL BE 2 INCH SCHEDULE 40 PVC. FOR SERVICES GREATER THAN 125 FEET. CONTACT KIUC PLANNER FOR FIELD VERIFICATION AND UNDERGROUND SERVICE REQUIREMENTS. ANY DEVIATIONS WILL REQUIRE KIUC WRITTEN APPROVAL
- 17. PRIMARY AND SECONDARY CONDUITS FOR NEW LINE EXTENSIONS SHALL BE SCHEDULE 40 PVC. (CARLON P&C DUCT TYPE DB EQUIVALENT OR BETTER.) UNDER DRIVEWAYS AND ROADWAYS, THE CONDUITS SHALL BE ENCASED IN A MINIMUM OF 3 INCH CONCRETE JACKET EXTENDING 12 INCHES OUTSIDE THE EDGE OF THE PAVEMENT.
- 18. SCHEDULE 80 PVC CONDUIT MAY BE SUBSTITUTED FOR THE CONCRETE ENCASED SCHEDULE 40 PVC FOR SERVICE CONDUIT ONLY CROSSING UNDER UNPAVED PRIVATE DRIVEWAYS AND ROADWAYS FROM KIUC POLE/HANDHOLE TO CUSTOMER'S METER. IF CONCRETE DRIVEWAY WILL BE BUILT OVER SERVICE CONDUIT IMMEDIATELY AFTER CONDUIT IS INSTALLED, THEN SCHEDULE 40 PVC MAY BE USED PROVIDED THAT IT MEETS WITH RULE NO. 21.
- 19. ALL PRIMARY AND SECONDARY CONDUITS WHICH ARE CROSSING STATE OR COUNTY ROADWAYS SHALL BE SCHEDULE 40 PVC ENCASED IN A MINIMUM 3 INCH CONCRETE JACKET, WHICH SHALL EXTEND A MINIMUM OF 12 INCHES OUTSIDE OF THE EDGE OF PAVEMENT.
- 20. ELECTRICAL SUPPLY DUCTS, WHEN INSTALLED NEAR COMMUNICATION CABLES, SHALL BE SEPARATED FROM COMMUNICATION DUCT SYSTEMS AND BURIED COMMUNICATION CABLES OR CONDUCTORS BY NOT LESS THAN 3 INCHES OF CONCRETE OR 12 INCHES OF EARTH WHEN PARALLELING OR CROSSING.
- 21. CHAIRS SHALL BE INSTALLED AND SPACED AT A MAXIMUM OF 5 FEET SEPARATION WHEN CONCRETE ENCASING CONDUITS.
- 22. ALL CONDUITS SHALL ENTER BOXES AT A 90 DEGREE ANGLE, PERPENDICULAR AND FLUSH TO THE WALL WITH BELL ENDS TO PREVENT CABLE DAMAGE.
- 23. 90 DEGREE CONDUIT BENDS SHALL BE FACTORY-MADE WITH A MINIMUM RADIUS OF 3 FEET IN TRENCH RUNS.
- 24. CONDUIT BENDS EXCEEDING 90 DEGREES WILL NOT BE ACCEPTED
- 25. A 36 INCH MINIMUM HORIZONTAL CLEARANCE SHALL BE MAINTAINED WHEN RUNNING KIUC CONDUITS PARALLEL TO WATER &' SEWER LINES. IF CLEARANCE IS LESS THAN 36 INCHES, KIUC CONDUIT SHALL BE CONCRETE ENCASED.
- 26. NO FOREIGN PULL BOXES, HANDHOLES, MANHOLES, CONCRETE SLABS/BOXES, STRUCTURES, ETC. ARE TO BE INSTALLED OVER KIUC FACILITIES WITH THE EXCEPTION OF HAWAIIAN TELCOM, CA TV OR WATERLINE CONDUIT CROSSINGS. SUCH CROSSING MUST BE APPROVED BY KIUC'S SERVICE ASSURANCE DEPARTMENT AND KIUC CONDUIT TO BE CONCRETE ENCASED. CONCRETE ENCASEMENT MUST BE MINIMUM OF 3 INCH ENCASEMENT AND EXTEND A MINIMUM OF 1 FOOT BEYOND CROSSING CONDUIT OR PIPE.
- 27. YELLOW MARKER TAPE TO BE PLACED 1 FOOT ABOVE ELECTRICAL CONDUITS IN THE TRENCH DURING BACKFILLING. (E-Z CODE WBT 6 INCH WIDE 4 MIL POLYETHYLENE PROTECT-A-LINE WARNING TAPE NA-0708 "ELECTRIC LINE" IN YELLOW, EQUIVALENT OR BETTER
- 28. UNLESS OTHERWISE NOTED, THE TOP OF ALL CONDUITS SHALL BE AT A DEPTH OF 24 INCHES.
- 29. ALL HANDHOLES, PULLBOXES, AND MANHOLES SHALL BE WALKER INDUSTRIES TYPE OR APPROVED EQUAL. CONTACT KIUC PRIOR TO ORDERING UNDERGROUND BOXES FOR VENDOR APPROVAL. CUSTOMER TO SUBMIT MANUFACTURER'S SHOP DRAWINGS IF SUBSTITUTING FROM WALKER INDUSTRIES TYPE.
- 30. TYPICALLY, THE TOP OF ALL ELECTRICAL UTILITY BOXES SHALL BE 1 INCH ABOVE FINISH GRADE, SINGLE PHASE TRANSFORMER PADS SHALL BE 2 INCHES ABOVE FINISH GRADE, AND THREE PHASE TRANSFORMER PADS SHALL BE 4 INCHES ABOVE FINISH GRADE UNLESS OTHERWISE NOTED SPECIAL CONDITIONS MAY APPLY TO SIDEWALKS, ROADWAYS, ETC., SEE SPECIFIC LOCATION NOTATION?
- 31. AT NO TIME SHALL CEMENT MORTAR, WOOD, OR ANY OTHER MATERIAL BE USED BETWEEN PRE-CAST SECTIONS OF KIUC PULLBOXES, HANDHOLES, OR MANHOLES. THE PERMANENT INSTALLATION OF WOODEN WEDGES TO LEVEL OR RAISE THE PRE-CAST SECTIONS SHALL NOT BE PERMITTED.
- 32. A MINIMUM OF 6 INCHES OF #3 CRUSHED ROCK BACKFILL SHALL BE PLACED LOOSELY BENEATH THE BOTTÖM SECTION OF HANDHOLES AND PULLBOXES. CRUSHED ROCK OR OTHER FOREIGN MATERIALS ARE NOT TO BE PLACED INSIDE HANDHOLES AND PULLBOXES.



Signature Expiration D of the Lice







91-5420 Kapolei Parkway Kapolei, Hawai`i 96707

ANAHOLA FARM LOTS Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i

TMK:

4-8-001:001: 4-8-005:037 & 039

DESIGNED BY: JM | DRAWING NC T-5 DRAWN BY: GT CHECKED BY: JM SURVEYED BY: WT DATE: AUG. 2018

SHEET NO. 5 OF 79

- WATER TANK **GENERAL NOTES** FARM LOTS ABBREVIATIONS:

ACP

AD

APPROX

ARV

ASPHALT CONCRETE

ALUMINUM

APPROXIMATE AIR RELIEF VALVE

AND

ASBESTOS CONCRETE PIPE

AMERICANS WITH DISABILITIES ACT

G,GR,GRD Gl	GRADE, GROUND GALVANIZED IRON	REQD RET	REQUIRED RETAINER
GALV	GALVANIZED	RP	ROYAL PALM
GB GMH	GRADE BREAK GAS MANHOLE	RPM Rt	RAISED PAVEMENT MARKER RIGHT
GP	GATE POST	ROW	RIGHT-OF-WAY
GRND	GROUND		
GRP GRVL	GROUTED RUBBLE PAVING GRAVEL	S= SCHD	APPROXIMATE SIZE, SLOPE SCHEDULE
GS	GALVANIZED STEEL	SE	SCREWED END
GUY	GUY WIRE ANCHOR	SF	SQUARE FEET (FOOT), OR SILT FENCE
Н	HEIGHT, HIGH, HORIZONTAL	SHLDR	SHOULDER
п Н=	APPROXIMATE HEIGHT	SHT(S) SLP, S	SHEET(S) SLOPE
HBV	HORIZONTAL BOTTOM VERTICAL	SIM	SIMILAR
HDWL	HEADWALL	SMH	SEWER MANHOLE
HDPE HOR, HORIZ	HIGH DENSITY POLYETHYLENE HORIZONTAL	SSL STD	SINGLE SERVICE LATERAL
HP	HIGH POINT	STA	STANDARD STATION
HR	HOUR	SWL	SWALE
HTV HTW	HORIZONTAL TOP VERTICAL HOLLOW TILE WALL	SW	SIDEWALK
11144	HOLLOW HEE WALL	SY SYMM	SQUARE YARD SYMMETRICAL
ID	INSIDE DIAMETER	STIVIV	STRIME INTOAL
IE IN	THAT IS	<u>T</u>	TANGENT, TELEPHONE
IN INV	INCH (ES) INVERT	TB TC	TOP BANK
IP	IRON PIPE	TCP	TOP CONCRETE TRAFFIC CONTROL PLAN
iPT	INTERNAL PIPE THREAD	TEL.	TELEPHONE
V	DATE OF CHOVATHDE	THK	THICK
K KV	RATE OF CURVATURE KILO-VOLT	THRD,THD TMH	THREAD TELEPHONE MANHOLE
	29	TP	TOP PAVEMENT
L	LEFT, LENGTH	TR	TOP RIPRAP
LB	POUND LENGTH OF CURVE (CURVE LENGTH)	TS= TV=	TOP STEM= TOP VALVE=
Lc LF	LINEAR FEET	TV TV	TOP VERTICAL
LP	LOW POINT	TW	TOP WALL
Lt	LEFT	TYP	TYPICAL
M&O	MAINTENANCE AND OPERATION	UON	UNLESS OTHERWISE NOTED
MAX	MAXIMUM	UP	UTILITY POLE
MB	METER BOX	US	UNITED STATES
MHHW MIN	MEAN HIGHER HIGH WATER MINIMUM	VAR.	VARIABLE, VARIOUS
MJ	MECHANICAL JOINT	VB	VALVE BOX
MLLW	MEAN LOWER LOW WATER	VC	VERTICAL CURVE
MON MPT	MONUMENT MALE END PIPE THREAD	VIF V,VER,VERT	VERIFY IN FIELD VERTICAL
MRP	MORTARED RUBBLE PAVING	VPC,VPI,VPT	VERTICAL POINT OF CURVATURE, INTERSECTION, TANGENCY
MSL	MEAN SEA LEVEL	W	WIDTH
N	NORTHING	W W/	WIDTH WITH
NIC	NOT IN CONTRACT	₩/L	WATERLINE
NTS	NOT TO SCALE	WL	WHITE LINE
OC	ON CENTER	WMB	WATER METER BOX
OD	OUTSIDE DIAMETER	WMH W/O	WATER MANHOLE WITHOUT
OH	OVERHEAD	WP WP	WORK POINT, WOOD POST
0S, 0/S	OFFSET	WSS	WATER SYSTEM STANDARDS
PAV'T	PAVEMENT	WV w./w	WATER VALVE
PC, POC	POINT OF CURVATURE	W/W	WALKWAY
PCC	POINT OF COMPOUND CURVE, PORTLAND CEMENT CONCRETE		
PE PFC	PLAIN END	I ECENID.	
%	POUNDS PER CUBIC FOOT PERCENT	<u>LEGEND:</u>	
	PHONE	——W ₆ (PER PLAN)——	EXIST. WATER LINE A.C. RE
PH	DOULT OF MITCHOSTOTION	ω	EXIST. WATER VALVE
PI	POINT OF INTERSECTION PARKER_KALON FASTENER	₩	1 **
PI PK	PARKER-KALON FASTENER		EXIST. FIRE HTURANT
PI PK PL P	PARKER-KALON FASTENER PLATE PROPERTY LINE		EXIST. FIRE HTDRAINT EXIST. BACKFLOW PREVENTER
PI PK PL P PM	PARKER-KALON FASTENER PLATE PROPERTY LINE POST MERIDIAN		EXIST. FIRE HYDRAINT EXIST. BACKFLOW PREVENTER EXIST. SERVICE LATERAL & METER BOX VARIOU
PI PK PL P PM PNE	PARKER-KALON FASTENER PLATE PROPERTY LINE POST MERIDIAN PINE	₩ ₈	EXIST. FIRE HYDRAINT EXIST. BACKFLOW PREVENTER EXIST. SERVICE LATERAL & METER BOX NEW WATER LINE VARIOU
PI PK PL P PM	PARKER-KALON FASTENER PLATE PROPERTY LINE POST MERIDIAN	₩ ₈	EXIST. FIRE HYDRAINT EXIST. BACKFLOW PREVENTER EXIST. SERVICE LATERAL & METER BOX NEW WATER LINE NEW WATER VALVE
PI PK PL P PM PNE PNRS PP PRC	PARKER-KALON FASTENER PLATE PROPERTY LINE POST MERIDIAN PINE PROJECT NOTIFICATION & REVIEW SYSTEM POWER POLE POINT OF REVERSE CURVE	₩ ₈	EXIST. FIRE HYDRAINT EXIST. BACKFLOW PREVENTER EXIST. SERVICE LATERAL & METER BOX NEW WATER LINE NEW WATER VALVE NEW FIRE HYDRAINT
PI PK PL P PM PNE PNRS PP PRC PRV	PARKER-KALON FASTENER PLATE PROPERTY LINE POST MERIDIAN PINE PROJECT NOTIFICATION & REVIEW SYSTEM POWER POLE POINT OF REVERSE CURVE PRESSURE REDUCING VALVE	₩8 ₩8 ₩8	EXIST. FIRE HYDRAIN EXIST. BACKFLOW PREVENTER EXIST. SERVICE LATERAL & METER BOX NEW WATER LINE NEW WATER VALVE NEW FIRE HYDRAINT NEW BACKFLOW PREVENTER
PI PK PL P PM PNE PNRS PP PRC PRV PRVC	PARKER-KALON FASTENER PLATE PROPERTY LINE POST MERIDIAN PINE PROJECT NOTIFICATION & REVIEW SYSTEM POWER POLE POINT OF REVERSE CURVE PRESSURE REDUCING VALVE POINT OF REVERSE VERTICAL CURVE	₩ ₈	EXIST. FIRE HYDRAIN EXIST. BACKFLOW PREVENTER EXIST. SERVICE LATERAL & METER BOX NEW WATER LINE NEW WATER VALVE NEW FIRE HYDRAINT NEW BACKFLOW PREVENTER NEW SERVICE LATERAL & METER BOX
PI PK PL P PM PNE PNRS PP PRC PRV PRVC PT PVI	PARKER-KALON FASTENER PLATE PROPERTY LINE POST MERIDIAN PINE PROJECT NOTIFICATION & REVIEW SYSTEM POWER POLE POINT OF REVERSE CURVE PRESSURE REDUCING VALVE POINT OF REVERSE VERTICAL CURVE POINT OF TANGENCY, POINT POINT OF VERTICAL INTERSECTION	₩8 ₩8 ₩8	EXIST. FIRE HYDRAIN EXIST. BACKFLOW PREVENTER EXIST. SERVICE LATERAL & METER BOX NEW WATER LINE NEW WATER VALVE NEW FIRE HYDRAINT NEW BACKFLOW PREVENTER NEW SERVICE LATERAL & METER BOX UTILITY POLE
PI PK PL P PM PNE PNRS PP PRC PRV PRVC PT	PARKER-KALON FASTENER PLATE PROPERTY LINE POST MERIDIAN PINE PROJECT NOTIFICATION & REVIEW SYSTEM POWER POLE POINT OF REVERSE CURVE PRESSURE REDUCING VALVE POINT OF REVERSE VERTICAL CURVE POINT OF TANGENCY, POINT	₩8 ₩8 ₩ ₩ ₩	EXIST. FIRE HTDRAINT EXIST. BACKFLOW PREVENTER EXIST. SERVICE LATERAL & METER BOX NEW WATER LINE NEW WATER VALVE NEW FIRE HYDRANT NEW BACKFLOW PREVENTER NEW SERVICE LATERAL & METER BOX

RADIUS

ROAD

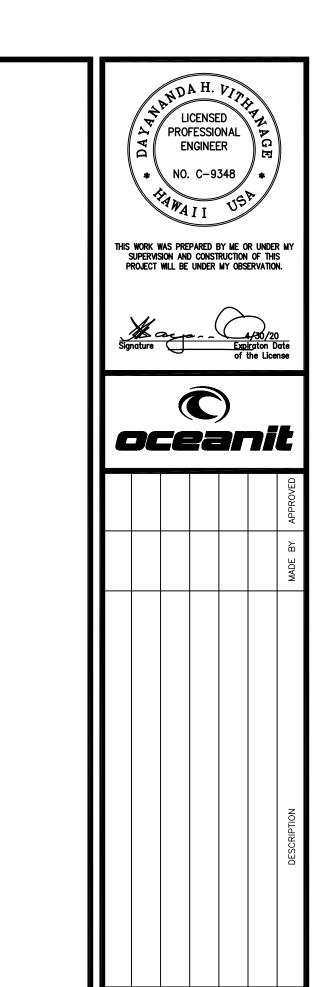
REINFORCEMENT REFERENCE

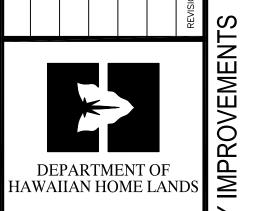
REINFORCED CONCRETE

REINFORCED CONCRETE JACKET

REINFORCED CONCRETE PIPE

RC RCJ RCP RD REINF REF





HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway
Kapolei, Hawai`i 96707

ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i

TMK:
4-8-001:001; 4-8-005:037 & 039

ABBREVIATIONS
& LEGEND

ABBREVIATIONS
& LEGEND

& LEGEND

ANS: ANAHOLA FARM LOTS SHEET NO. 6 OF **79**

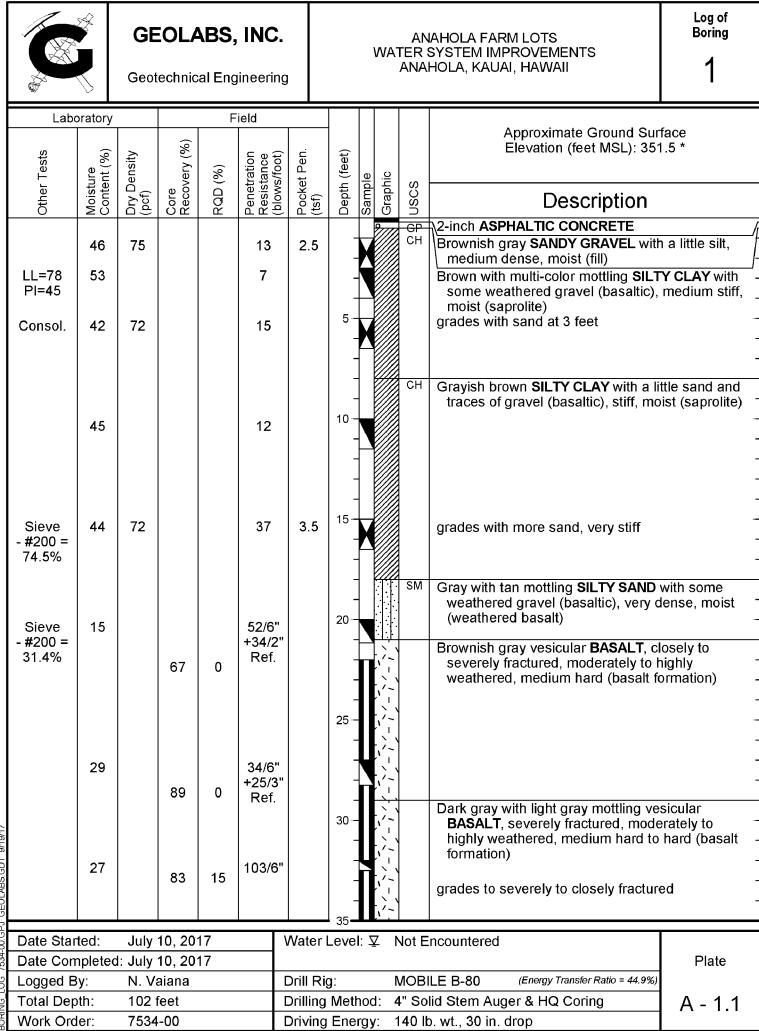
DESIGNED BY: JM
DRAWN BY: GT
CHECKED BY: JM
SURVEYED BY: WT

DRAWING NO.

T-6

DRAWING NO.

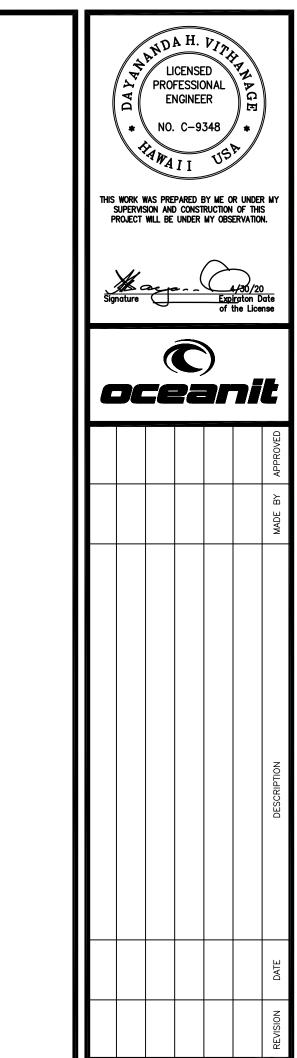
DATE: AUG. 2018



		-	INC.		Log of Boring								
	Labo	oratory			F	ield							
	Other Tests	Other Tests Moisture Content (%) Dry Density (pcf) Core Recovery (%) RQD (%) Penetration Resistance				Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	nscs	(Continued from previous pla	te)
				100	92			- - - - 75 -		-7/-7/-7/-		grades to slightly fractured	
				100	92			-		-/:/-/:/		Gray with brown BASALT , massive	to slightly
				100	95			80	- - - - - - - - - - - - - - - - - - -			fractured, moderately weathered, formation)	
				100	50			85 - -		7/-1/-1/			
								90 -				Gray with seams of white BASALT, fractured, moderately weathered, (basalt formation)	medium hard
				100	67			-		\\.\.\\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.		Gray with some orangish brown BA moderately to slightly fractured, moderated, hard (basalt formation)	oderately
				100	92			95 -		\ \ \\\		grades to severely fractured Gray BASALT, slightly fractured, mo	oderately
19/17								100 -		7/-1/-/1		weathered, hard (basalt formation)	
DT 9/								-				Boring terminated at 102 feet	
J GEOLABS.GDT 9/19/17								- - 105	-			* Elevations estimated from Site Plants on May 30, 2017.	an transmitted
7534-00.GPJ	Date Star			10, 20 ⁻		\	Vater	Leve	l: <u>Z</u>	Z N	lot E	ncountered	
	Date Con	•			17) will [7]				400	U.F.D. 90 (France Transfer Date = 4400)	Plate
907 s	Logged B			aiana			Orill Ri		hod			ILE B-80 (Energy Transfer Ratio = 44.9%)	A 4 0
ORING	Total Dep		102 f				Orilling Oriving					lid Stem Auger & HQ Coring b. wt., 30 in. drop	A - 1.3
Ж	© Work Order: 7534-00						-11V111 <u>(</u>	عاات و	чуу		70 II	5. W., 00 III. GIOP	

	GEOLABS, INC Geotechnical Engineerin							١		TER :	IAHOLA FARM LOTS SYSTEM IMPROVEMENTS HOLA, KAUAI, HAWAII	Log of Boring		
	Laboratory Field \$\frac{\partial}{2}{2} \frac{\partial}{2}{2} \part					Pen.	et)				Approximate Ground Surface Elevation (feet MSL): 350 *			
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Po (tsf)	Depth (feet)	Sample	Graphic	nscs	Description			
Sieve - #200 = 80.7%	43	72			17	3.0		X		GP CH	2-inch ASPHALTIC CONCRETE Brownish gray SANDY GRAVEL with medium dense, moist (fill) Brown with multi-color mottling SILT some weathered gravel (basaltic), (saprolite)	Y CLAY with		
Direct Shear	37	70			12	2.3	5-	X			grades to medium stiff			
LL=80 PI=48	51				9		10-			СН	Grayish brown SILTY CLAY with a liggravel (basaltic), stiff, moist (sapro			
	46	67			25	2.5	15-				grades with more weathered gravel Boring terminated at 16.5 feet	(basaltic)		
							20 -	- - - -						
							25 -	- - - -						
DT 9/19/17							30 -	- - - -						
J GEOLABS.GDT 9/19/17							35=	-						
Date Star			13, 20 ²		\	Vater		l: ∑	<u>7</u> N	Not E	incountered	Plate		
S Logged B	Date Completed: July 13, 2017 Logged By: N. Vaiana Total Depth: 16.5 feet						Drill Rig: MOBILE B-80 (Energy Transfer Ratio = 44.9%)					A - 2		

					, INC			Log of Boring				
Labo	oratory			F	ield							
Other Tests	Other Tests Moisture Content (%) Dry Density (pcf) Core Recovery (%) RQD (%) Penetration Resistance (Alaws fract)		Penetration Resistance	et Pen.	(+00+)	Depth (feet) Sample		S	Approximate Ground Surface Elevation (feet MSL): 345.5 *			
Othe	Mois	Ory [Sore	RQD (%)	Pene Resis	Pocket	(ISI)	Japr	Graphic	nscs	Description	
	21 32	82	04		34			-\		CH	Orangish brown SILTY CLAY with so and gravel (basaltic), very stiff, mo	
TXUU S _u =3.9 ksf	36	83			33	4.3	3	5 -		СН	Dark orangish brown SILTY CLAY , I (saprolite)	nard, moist
	45				9		1) - 			grades with sand	
	36	74			49	2.8	3 1	5		СН	Brownish gray with multi-color mottl CLAY with some sand, weathered cobbles (basaltic), very stiff, moist	gravel, and
LL=106 PI=72			21	- - - - -		СН	Dark brown with gray mottling SILT'some sand and weathered gravel moist (saprolite) grades with seems of gray clay	CLAY with (basaltic), stiff,				
	29	80			27		2:	5		SM	Dark gray with tan mottling SILTY Some weathered gravel (basaltic), dense, moist (weathered basalt)	
	39				17		3	- - - -			Boring terminated at 31.5 feet	
								1				
Date Star	tod.	luke	13, 20	17	<u> </u>	Wate	3:		<u>Ι</u>	lot F	Incountered	
Date Star						vvalt	,ı Le	v€I.	<u>*</u>	NUL E	เทษบนทีเซเซน	Plate
Logged B	y:		aiana			Drill F					ILE B-80 (Energy Transfer Ratio = 44.9%)	
Total Dep		31.5				Drillin					lid Stem Auger	A - 3
Work Ord	ier:	7534	I-UÜ			Driving Energy: 140 lb. wt., 30 in. drop						





DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway
Kapolei, Hawai`i 96707

ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i
TMK:

TMK: 4-8-001:001; 4-8-005:037 & 039

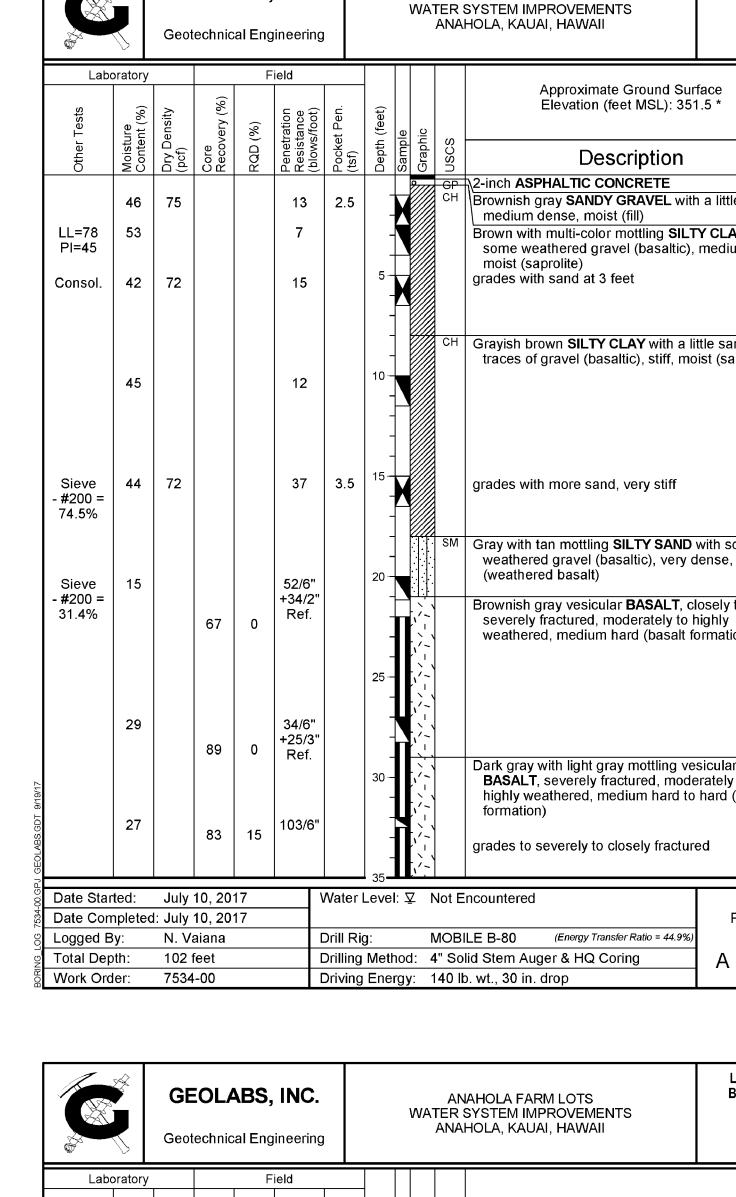
BORING LOGS

AND NOTES

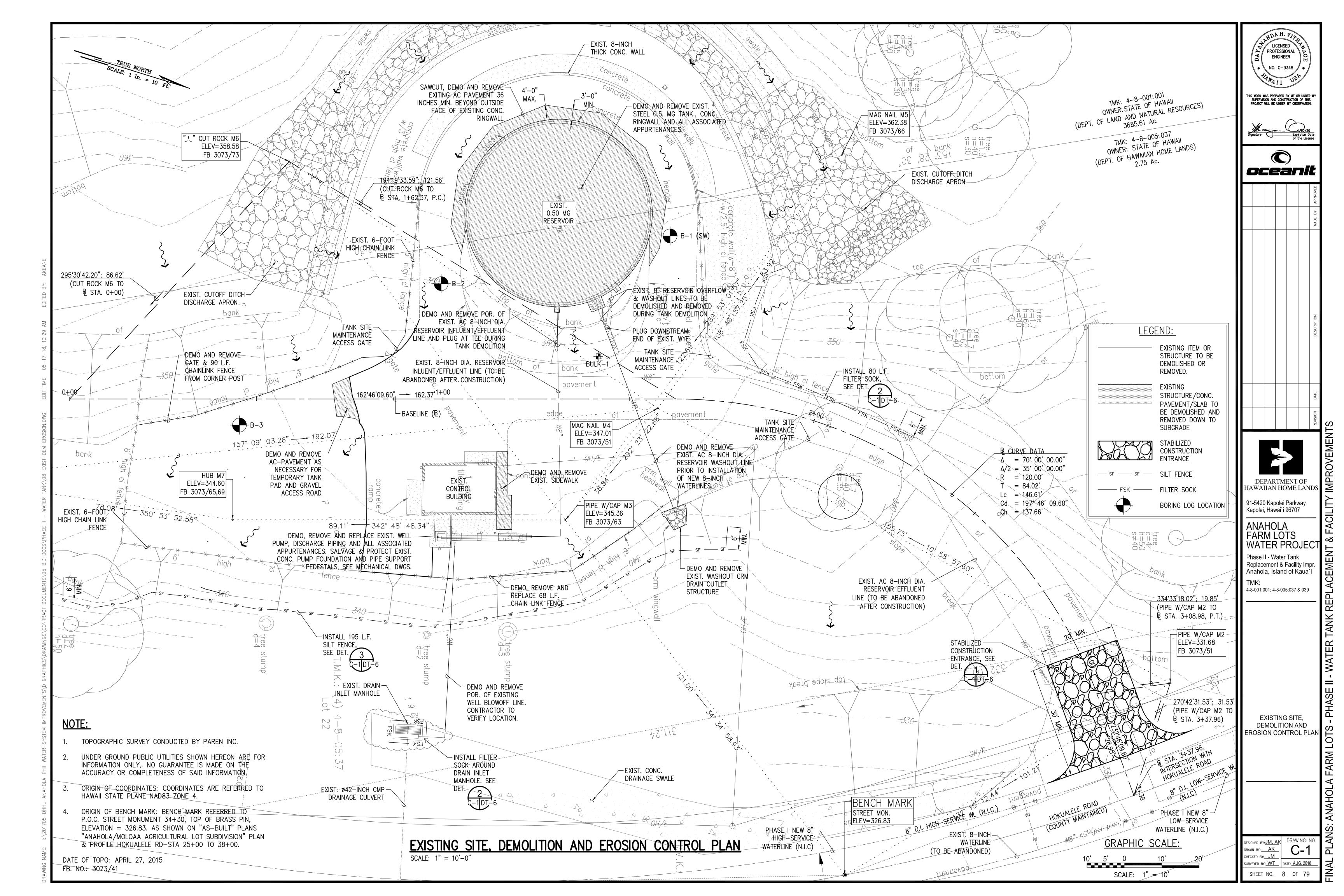
ANS: ANAHOLA FARM LOTS - PHASE II - WATER TANK REPLA G-1 DRAWN BY:____ CHECKED BY:____ SHEET NO. 7 OF 79

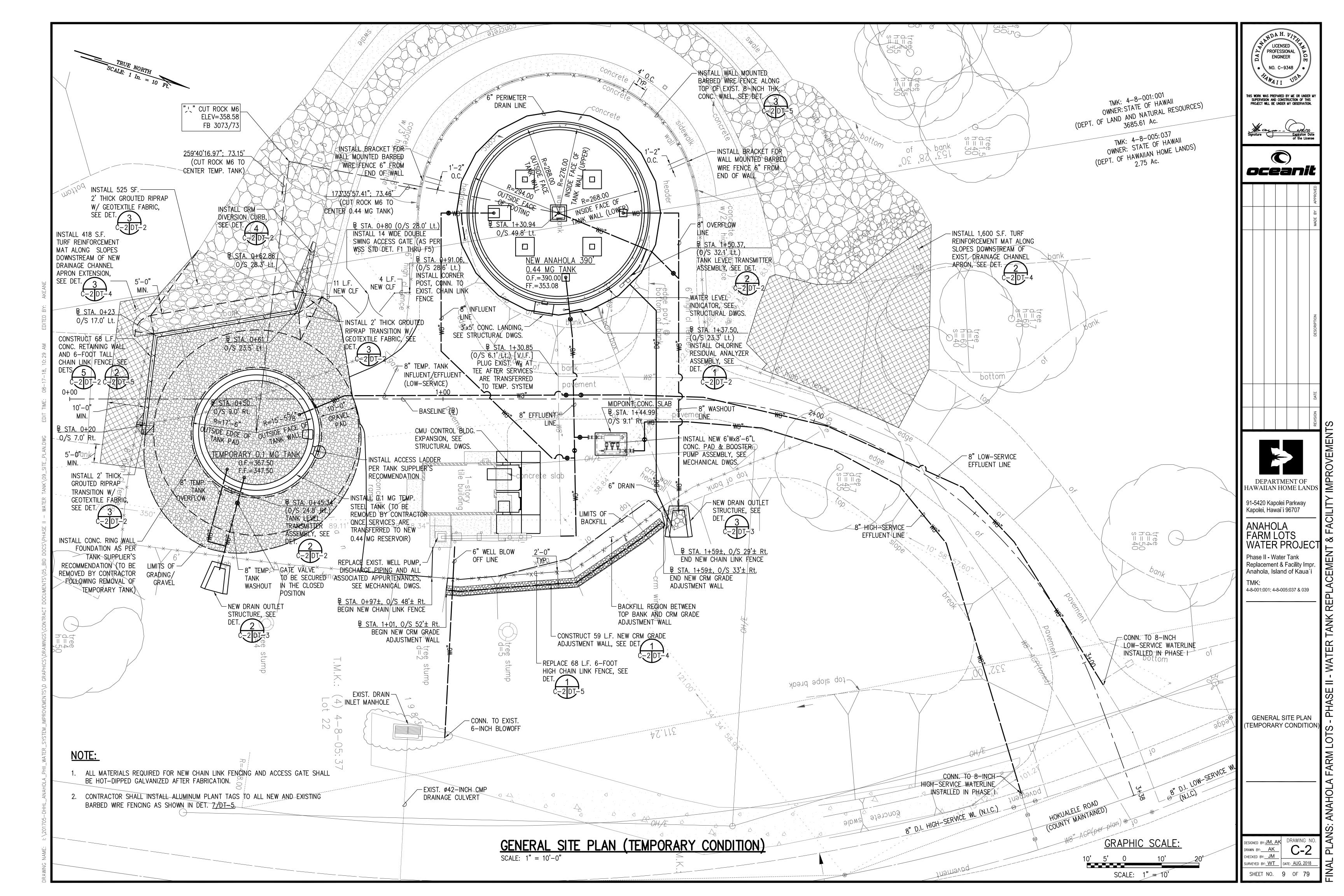


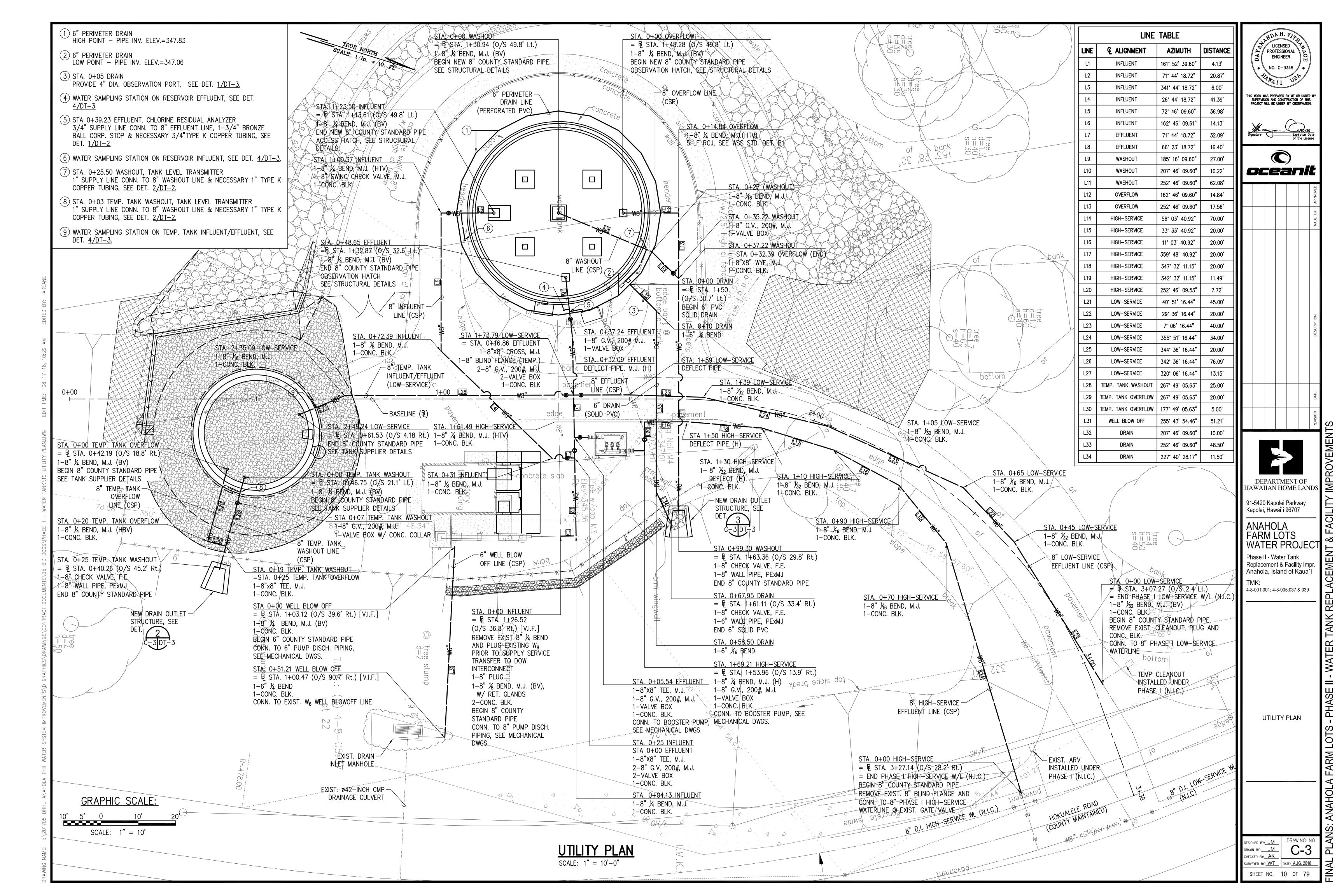
- 1. THE INFORMATION FOR THE BORING LOGS WERE TAKEN FROM A GEOTECHNICAL ENGINEERING EXPLORATION REPORT PREPARED FOR THE PROJECT BY GEOLABS, INC., DATED OCTOBER 25, 2017.
- 2. SEE SHEET C-1 FOR APPROXIMATE BORING LOCATIONS.
- 3. THE BORING LOGS INDICATED THE APPROXIMATE SUBSURFACE SOIL CONDITION ENCOUNTERED ONLY AT THOSE TIMES AND LOCATIONS WHERE THE BORINGS WERE MADE, AND MAY NOT REPRESENT CONDITIONS AT OTHER TIMES AND LOCATIONS.
- 4. IF ANY DISCREPANCIES BETWEEN THESE PLANS AND THE GEOTECHNICAL ENGINEERING EXPLORATION REPORT ARE FOUND, THE REPORT SHALL TAKE PRECEDENCE.

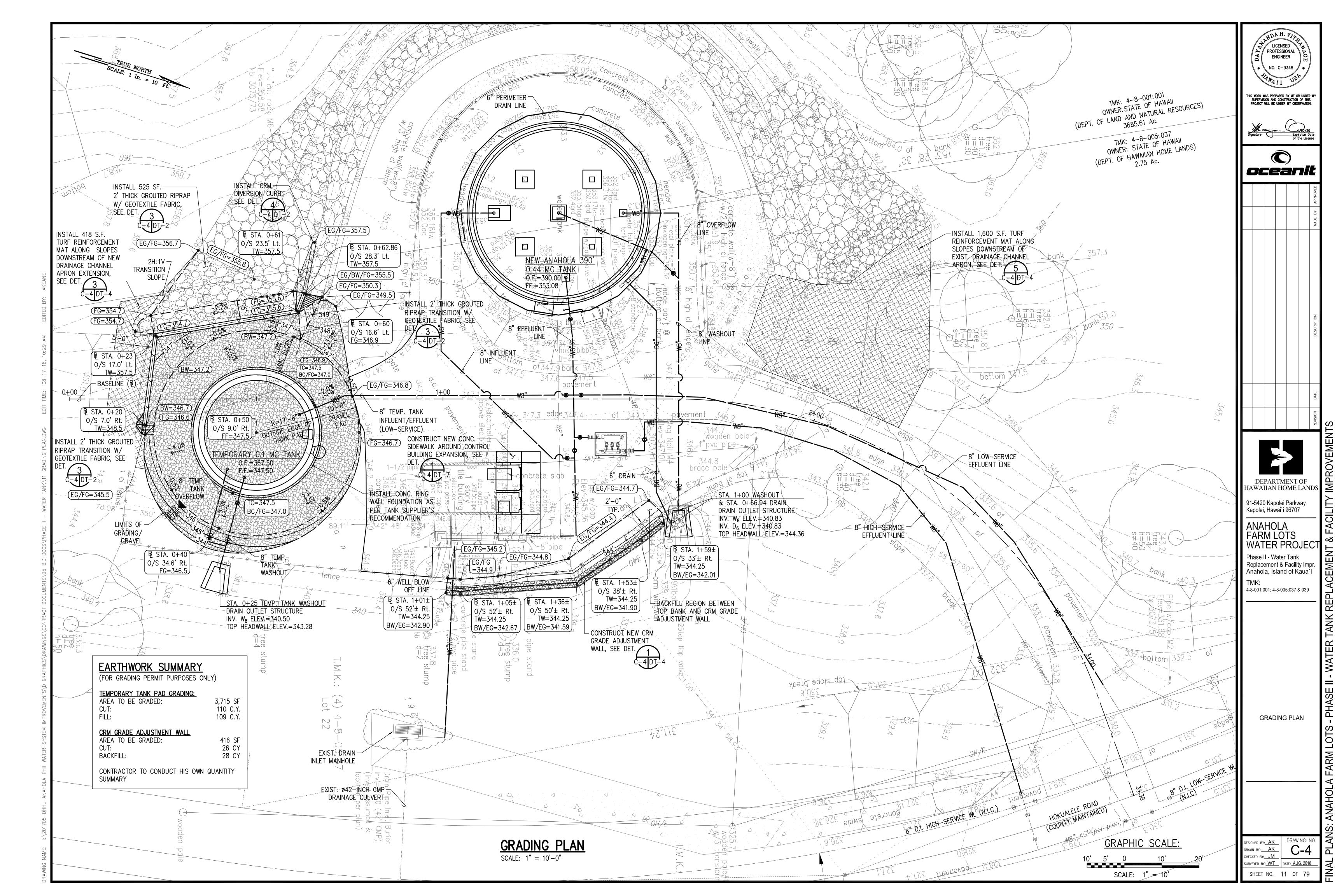


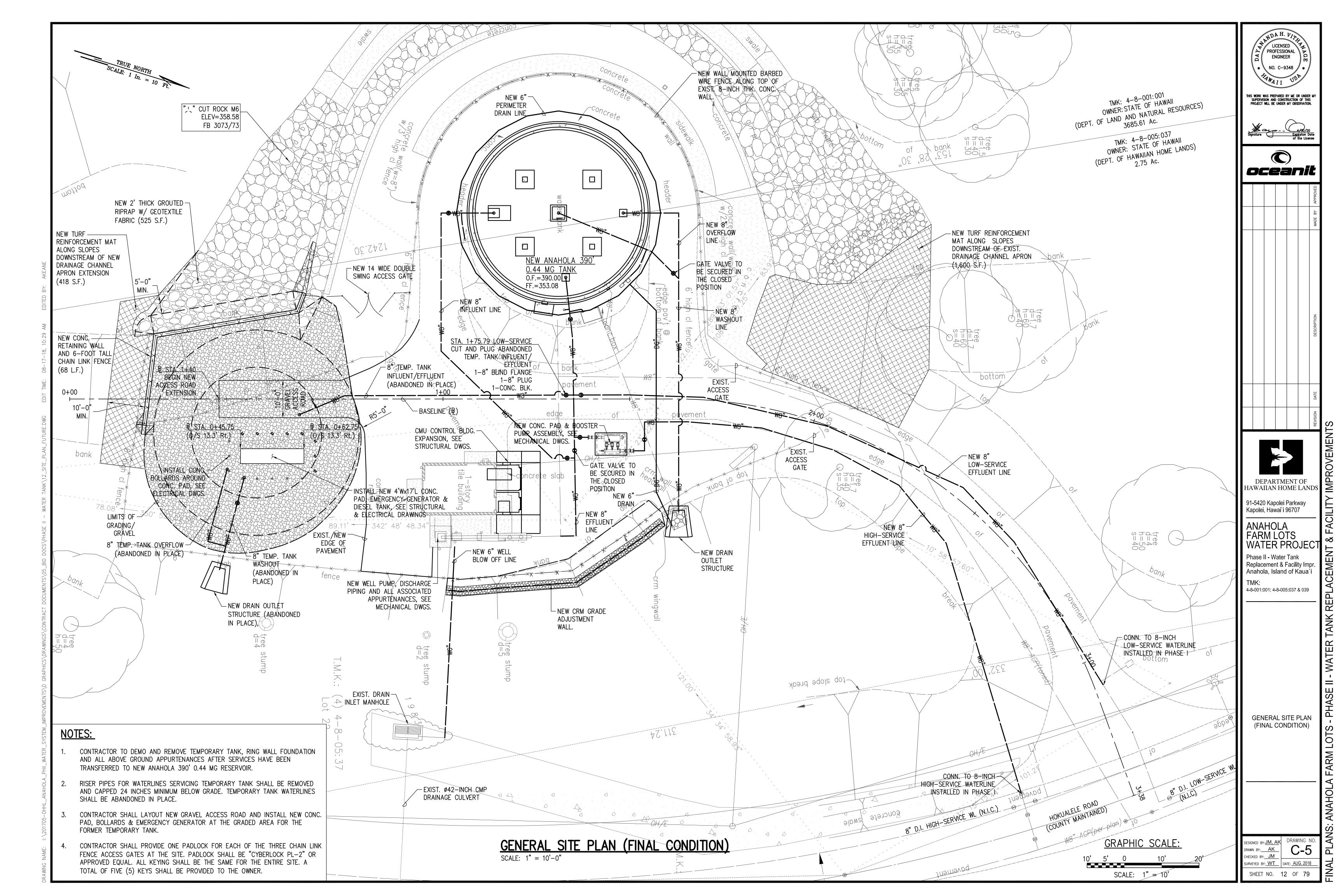
Other Tests	ratory ②		echnic	al Eng	, INC.		WATER SYSTEM IMPROVEMENTS ANAHOLA KALIAL HAWAII						
. Tests	(%			F	ield	1							
Other	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample -Graphic	nscs	(Continued from previous pl	ate)		
UC= 2110 psi			95	23			- - - 40 -						
UC= 1120 psi			100	83			- - - 45 -			Gray BASALT , slightly fractured, m weathered, hard (basalt formation	oderately i)		
			100	75			- - 50 -	-					
			100	92			- - - 55 -						
			100	50			- - - 60 -			grades to closely to moderately fractured			
			100	75			- - - 65 -						
			100	67			- - - 70						
Date Star			10, 20´		,	Water	Leve	l: <u>V</u> 1	Not E	ncountered			
Date Con Logged B		l: July ′ N. Va		17	-	Drill Rig	 g:	1	MOB	ILE B-80 (Energy Transfer Ratio = 44.9%	Plate		
Total Dep Work Ord	th:	102 f	eet			Drilling Driving	Meth	nod: 4	1 " So	lid Stem Auger & HQ Coring b. wt., 30 in. drop	A - 1.2		

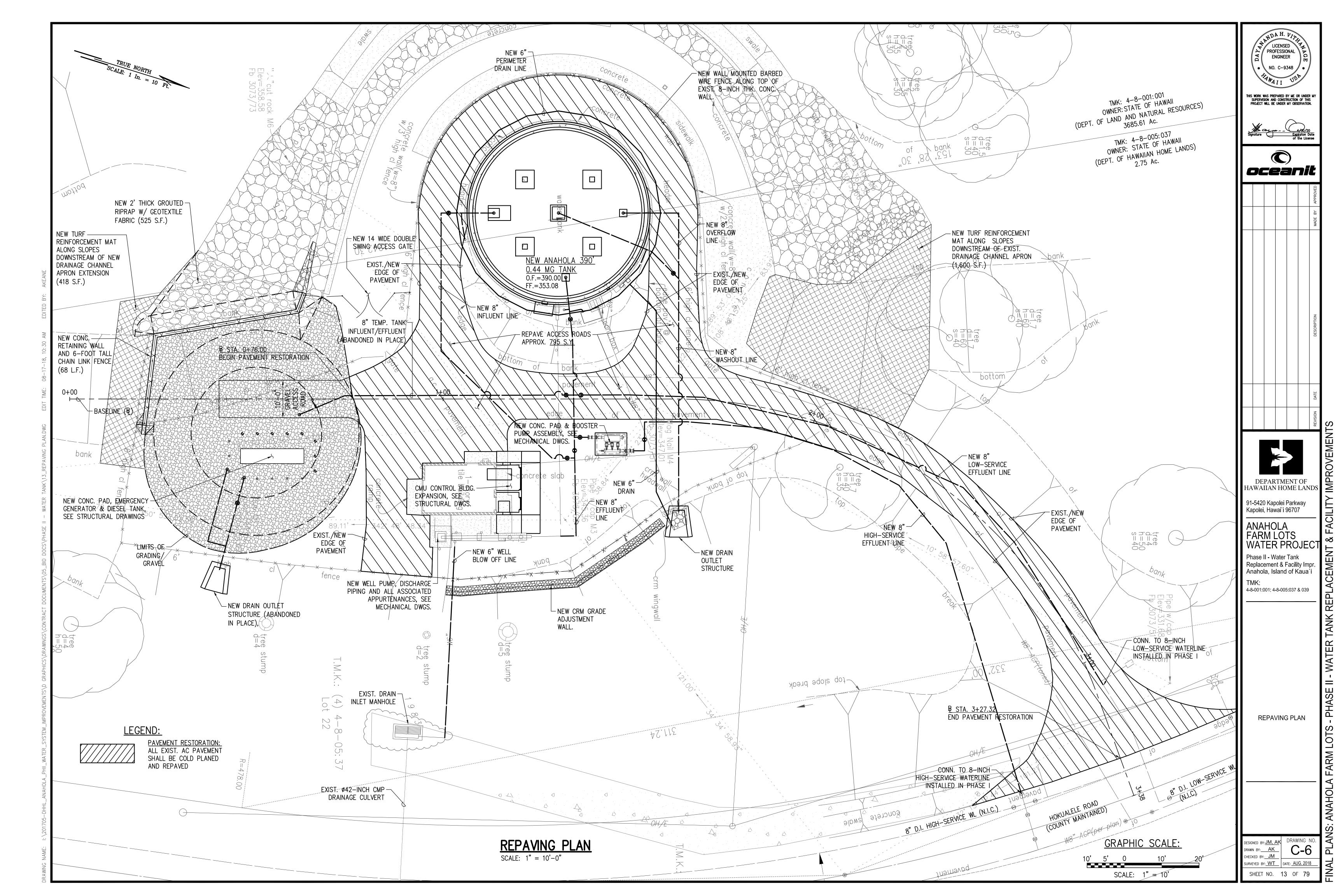


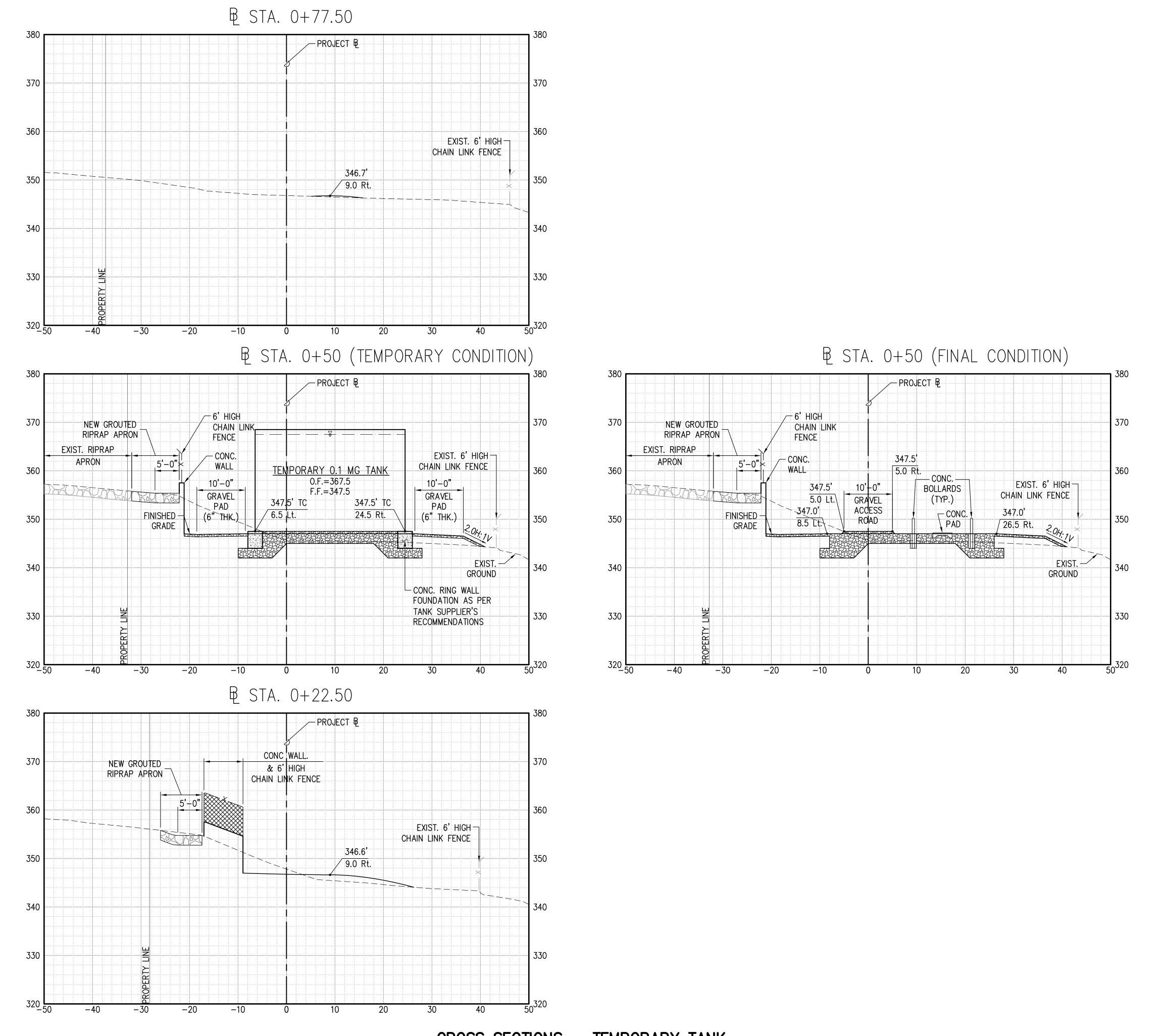




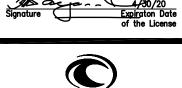




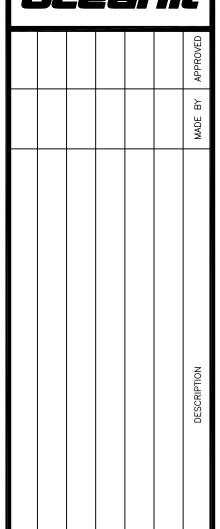


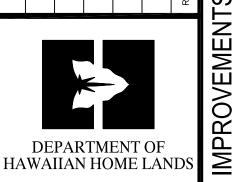


THIS WORK WAS PREPARED BY ME OR UNDER M SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.









91-5420 Kapolei Parkway
Kapolei, Hawai`i 96707

ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i

TMK: 4-8-001:001; 4-8-005:037 & 039

CROSS SECTIONS TEMPORARY TANK

DESIGNED BY: AK
DRAWN BY: AK
CHECKED BY: JM
SURVEYED BY: WT
DRAWING NO.

C-7

DRAWING NO.

DATE: AUG. 2018 SHEET NO. 14 OF 79

GRAPHIC SCALE:

SCALE: 1" = 10'

<u>CROSS SECTIONS - TEMPORARY TANK</u>

SCALE: HOR.: 1" = 10'-0" VER.: 1" = 10'-0"

₽ STA. 1+30.94 —PROJECT ₽ 390 NEW ANAHOLA 390' 0.44 MG TANK 0.F.=390.00 F.F.=353.08 — WALL MOUNTED BARBED E/CONC. WALL WIRE FENCE — TOP FOOTING EL.=353.0' E/CONC. — SWALE 353.08' 49.8 Lt. REPLACE 6' HIGH CHAIN LINK FENCE ACCESS — EXIST. GROUND ACCESS ROAD ROAD ← EXIST. GROUND FINISH GRADE 350 NEW CRM GRADE ADJUSTMENT WALL PERFORATED PERFORATED DRAIN DRAIN 340 340 BOT. FOOTING EL.=349.83' 330 330 320 320



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DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway
Kapolei, Hawai`i 96707

ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i
TMK:

TMK:

4-8-001:001; 4-8-005:037 & 039

CROSS SECTION NEW CONCRETE WATER TANK

GRAPHIC SCALE:

SCALE: 1" = 10'

10' 5' 0

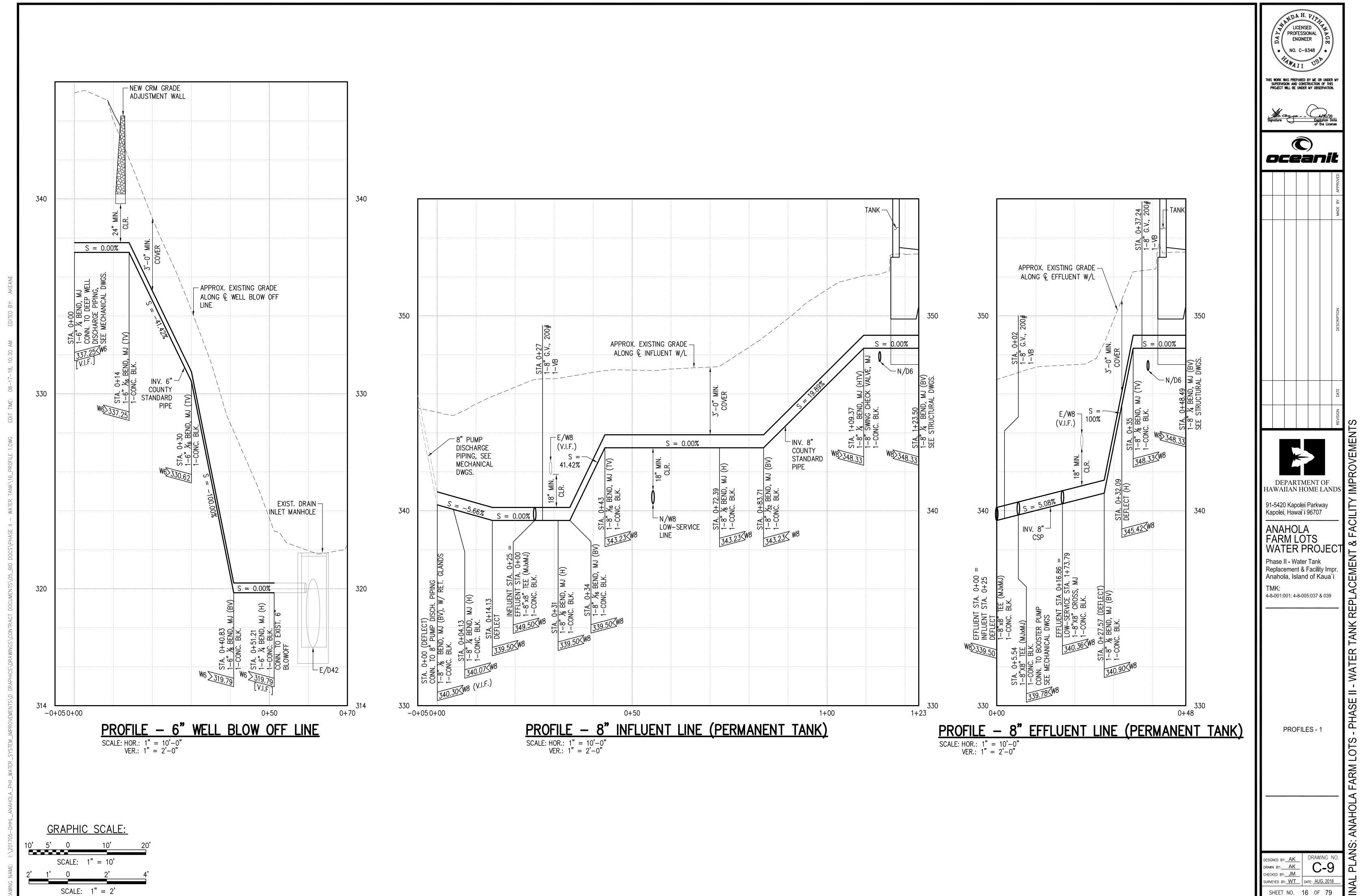
ANS: ANAHOLA FARM LOTS - PHASE II - WATER TANK REPLA C-8 DESIGNED BY: AK
DRAWN BY: AK
CHECKED BY: JM
SURVEYED BY: WT

DRAWING NO.

C-8

DRAWING NO.

DATE: AUG. 2018 SHEET NO. 15 OF 79

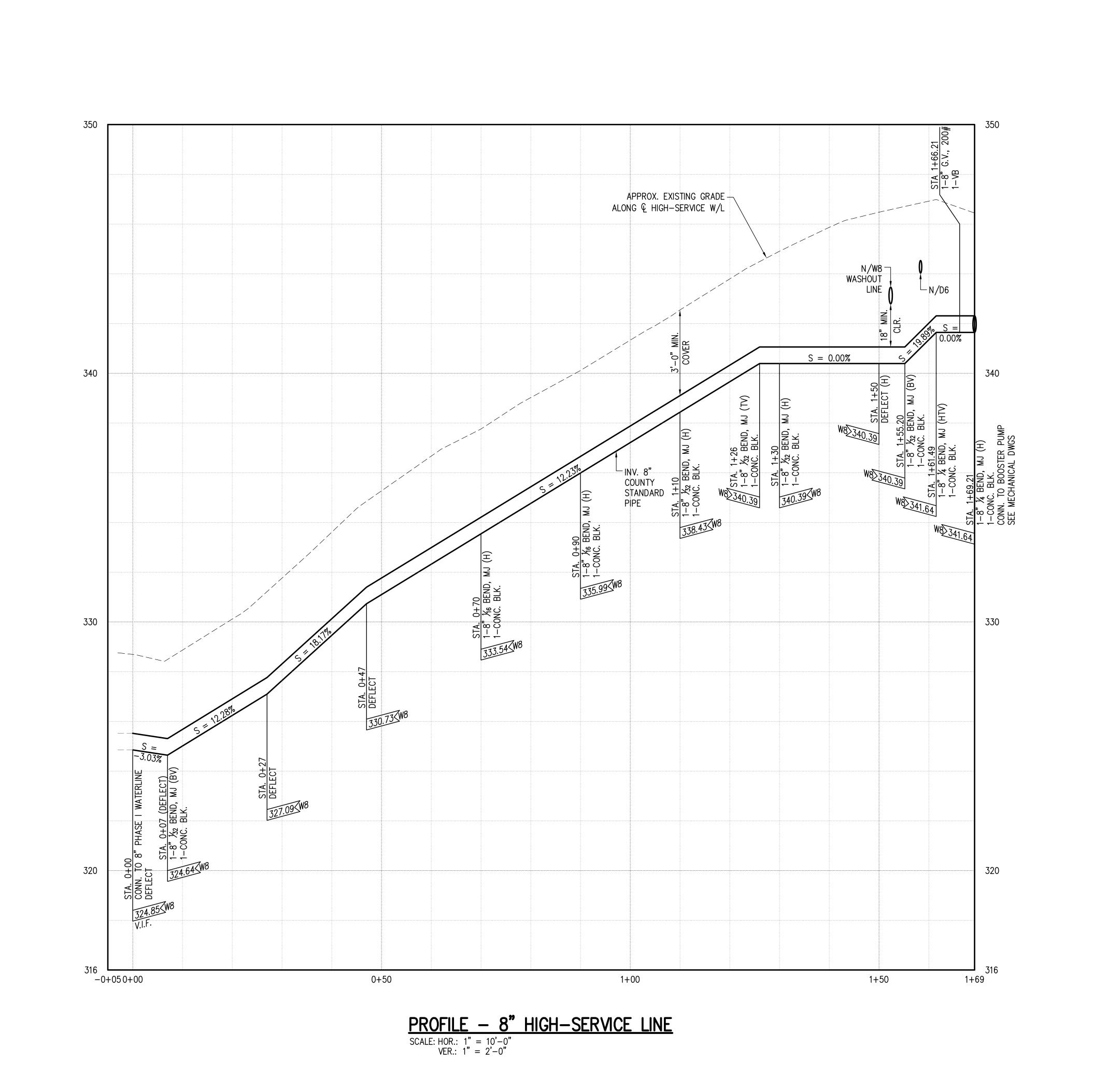


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TMK: 4-8-001:001; 4-8-005:037 & 039

ANS: ANAHOLA FARM LOTS - PHASE II - WATER TANK REPLA

DRAWING NO.



GRAPHIC SCALE:

SCALE: 1" = 2'

SCALE: 1" = 10'



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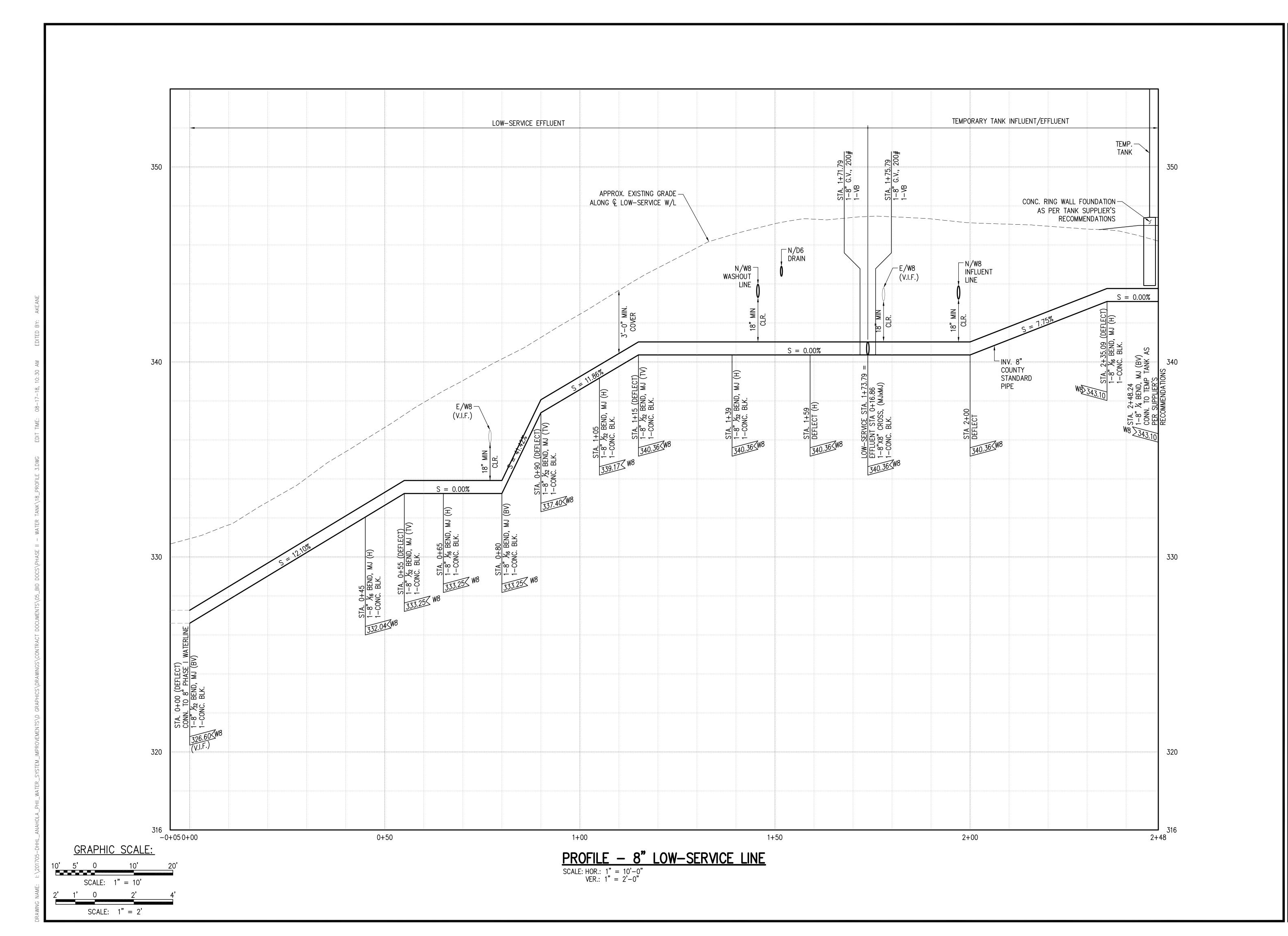
91-5420 Kapolei Parkway
Kapolei, Hawai'i 96707

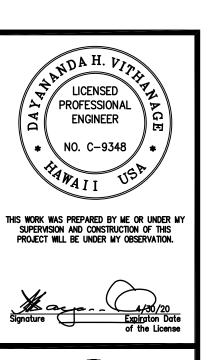
ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua'i
TMK:
4-8-001:001; 4-8-005:037 & 039

PROFILES - 2

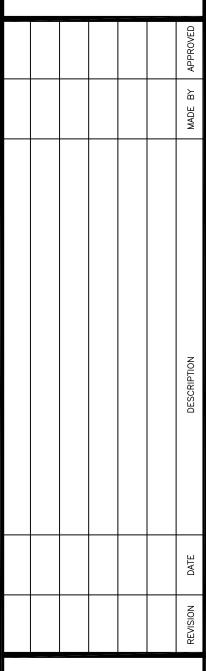
PROFILES - 2

DESIGNED BY: _AK
DRAWN BY: _AK
CHECKED BY: _JM
SURVEYED BY: _WT
SHEET NO. 17 OF 79









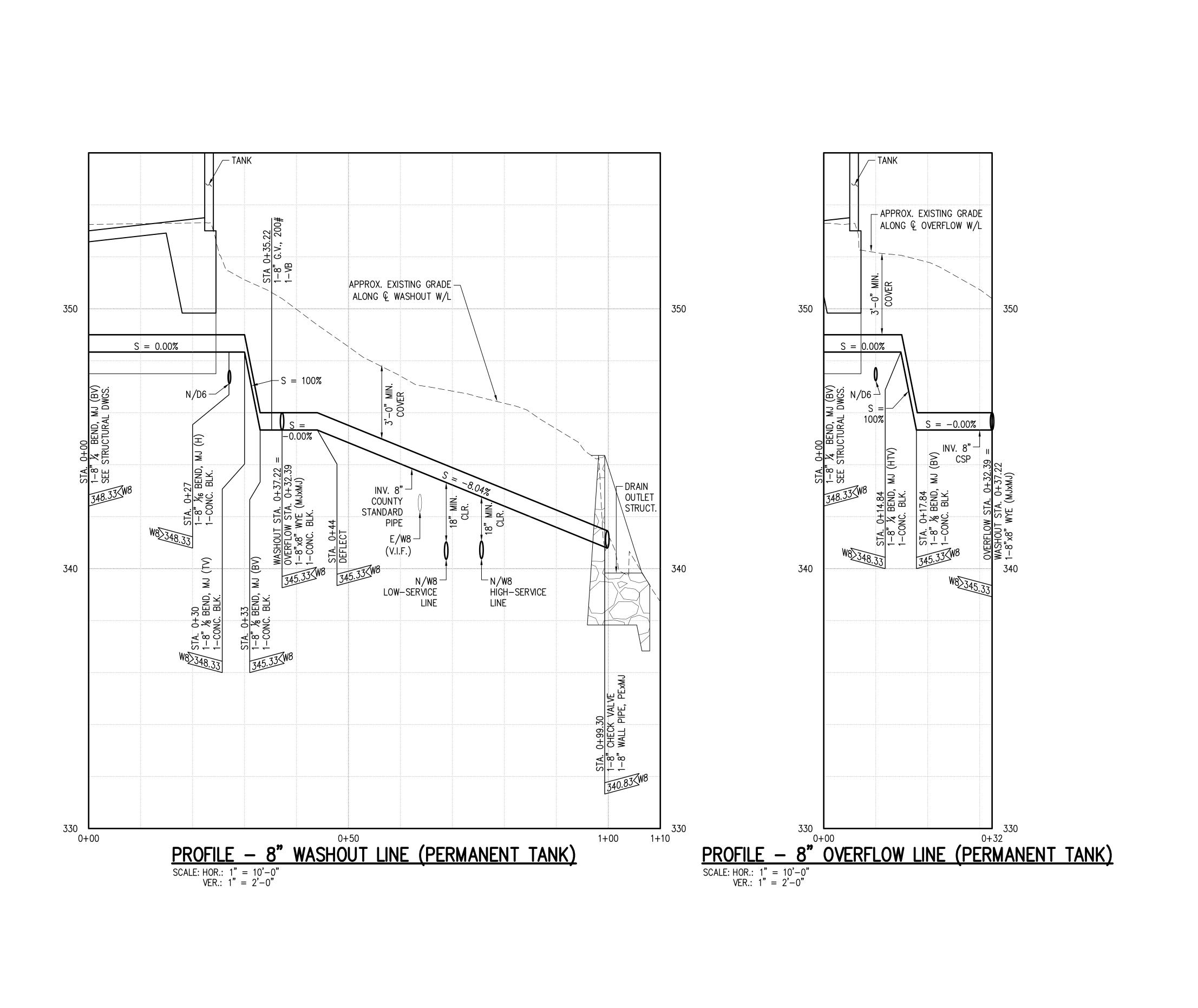


91-5420 Kapolei Parkway
Kapolei, Hawai'i 96707

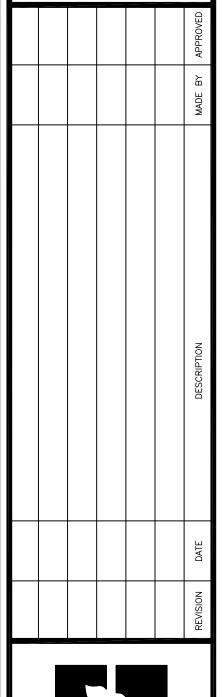
ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua'i

TMK:
4-8-001:001; 4-8-005:037 & 039

PROFILES - 3



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. oceanit



DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway
Kapolei, Hawai'i 96707

ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua'i
TMK:
4-8-001:001; 4-8-005:037 & 039

PROFILES - 4

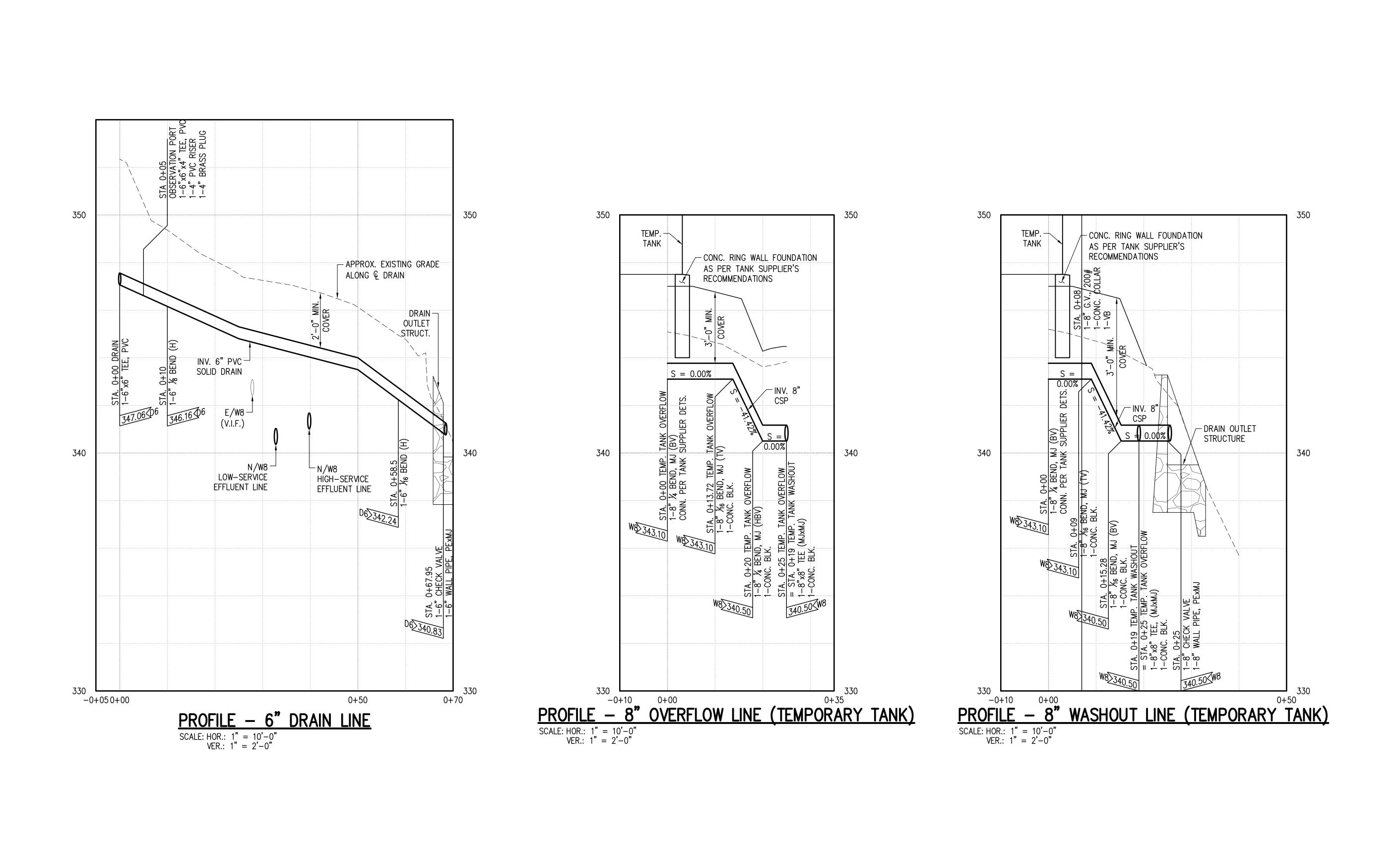
PROFILES - 4

DESIGNED BY: AK
DRAWN BY: AK
CHECKED BY: JM
SURVEYED BY: WT
SHEET NO. 19 OF 79

SCALE: 1" = 10'

SCALE: 1" = 2'

GRAPHIC SCALE:

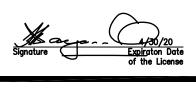


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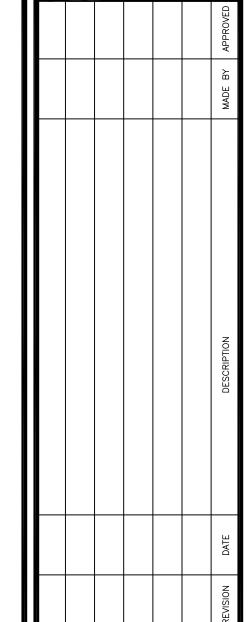
SCALE: 1" = 10'

SCALE: 1" = 2'

LICENSED **PROFESSIONAL ENGINEER** THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.









91-5420 Kapolei Parkway
Kapolei, Hawai'i 96707

ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua'i
TMK:
4-8-001:001; 4-8-005:037 & 039

PROFILES - 5

PROFILES - 5

DESIGNED BY: AK
DRAWN BY: AK
CHECKED BY: JM
SURVEYED BY: WT
SHEET NO. 20 OF 79

LICENSED **PROFESSIONAL** ENGINEER NO. C-9348

THIS WORK WAS PREPARED BY ME OR UNDER M SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.





DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway Kapolei, Hawai`i 96707

ANAHOLA FARM LOTS

FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i

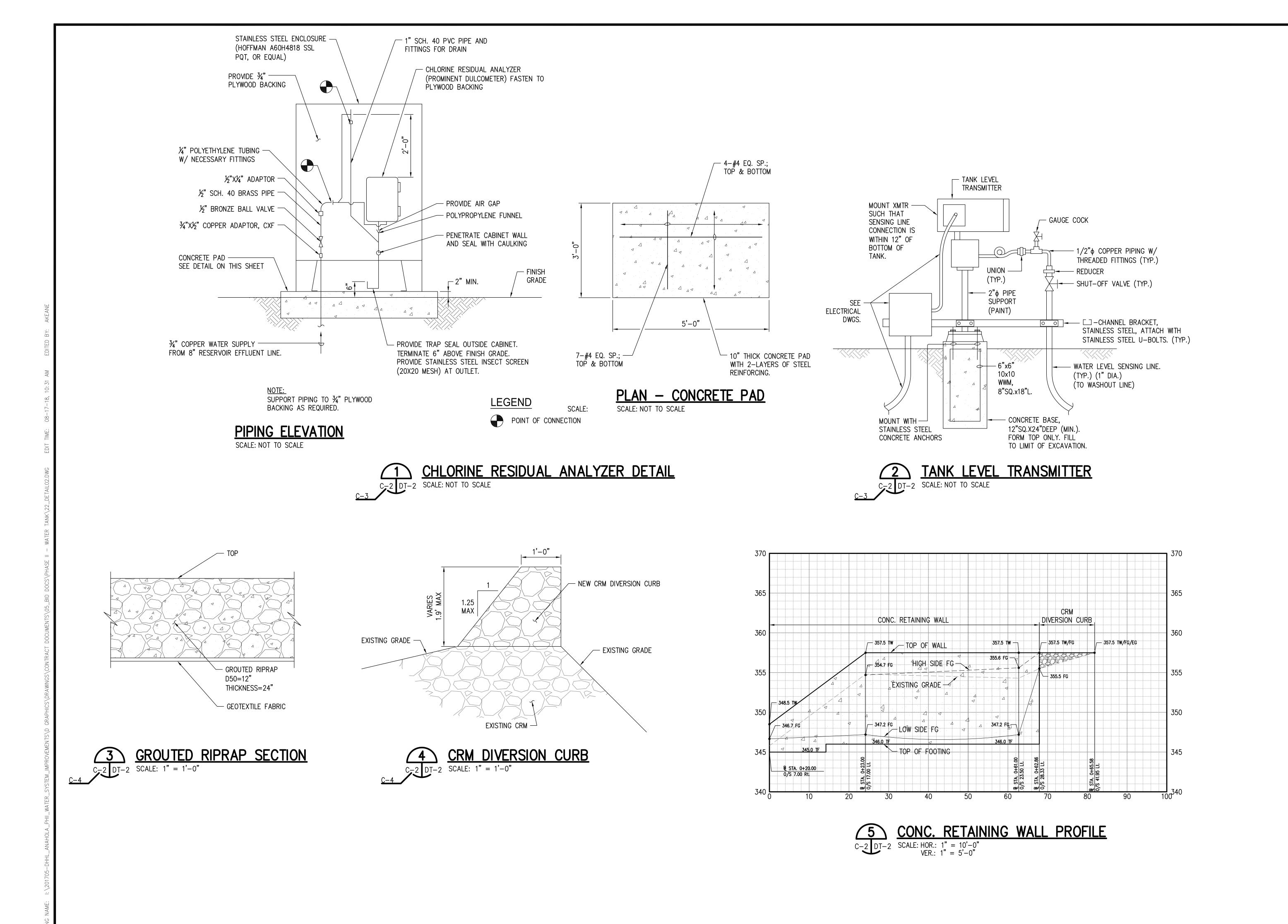
TMK: 4-8-001:001; 4-8-005:037 & 039

TRENCHING AND

RESTORATION DETAILS

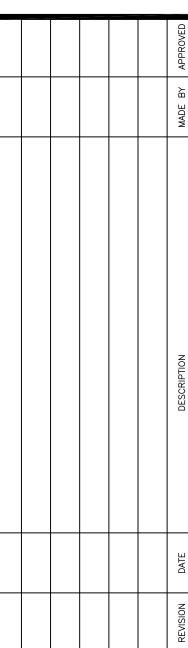
PHASE II - WATER TANK

DRAWN BY: AK DT-1 CHECKED BY: JM SURVEYED BY: WT DATE: AUG. 2018 SHEET NO. 21 OF 79



LICENSED PROFESSIONAL **ENGINEER** NO. C-9348 This work was prepared by Me or Under M Supervision and construction of this Project will be under My Observation. Signature Expiraton Datof the Licer





DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway
Kapolei, Hawai`i 96707

ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i
TMK:

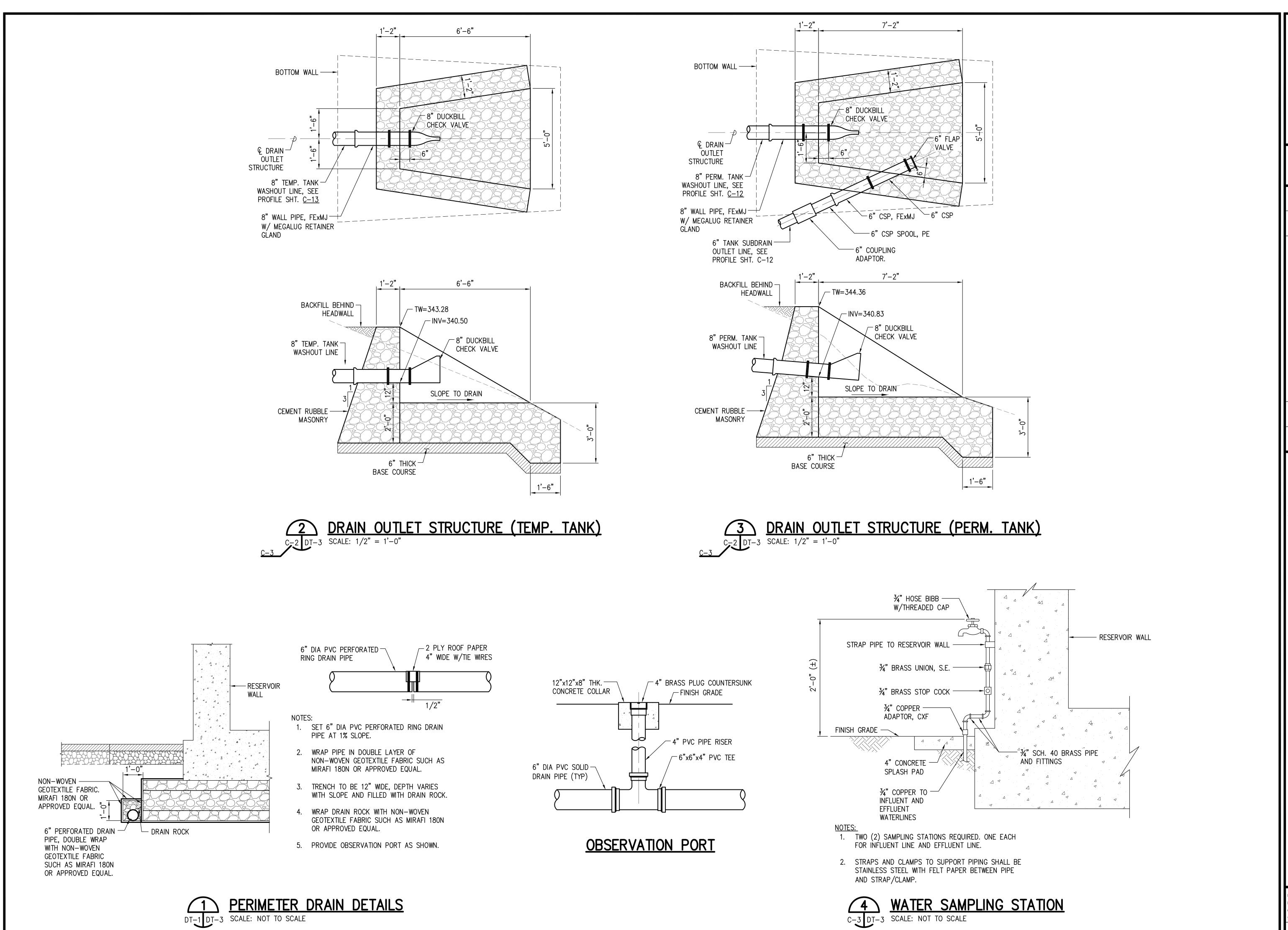
TMK 4-8-001:001; 4-8-005:037 & 039

MISCELLANEOUS DETAILS

ANS: ANAHOLA FARM LOTS - PHASE II - WATER TANK REPL DESIGNED BY: AK
DRAWN BY: GT
CHECKED BY: JM
SURVEYED BY: WT

DRAWING NO.

SHEET NO. 22 OF 79

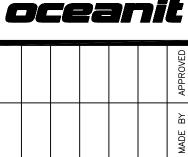


LICENSED **PROFESSIONAL** ENGINEER NO. C-9348

THIS WORK WAS PREPARED BY ME OR UNDER M SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.









91-5420 Kapolei Parkway
Kapolei, Hawai'i 96707

ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua'i
TMK:

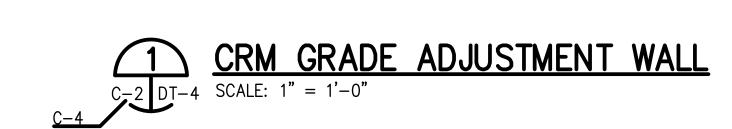
TMK 4-8-001:001; 4-8-005:037 & 039

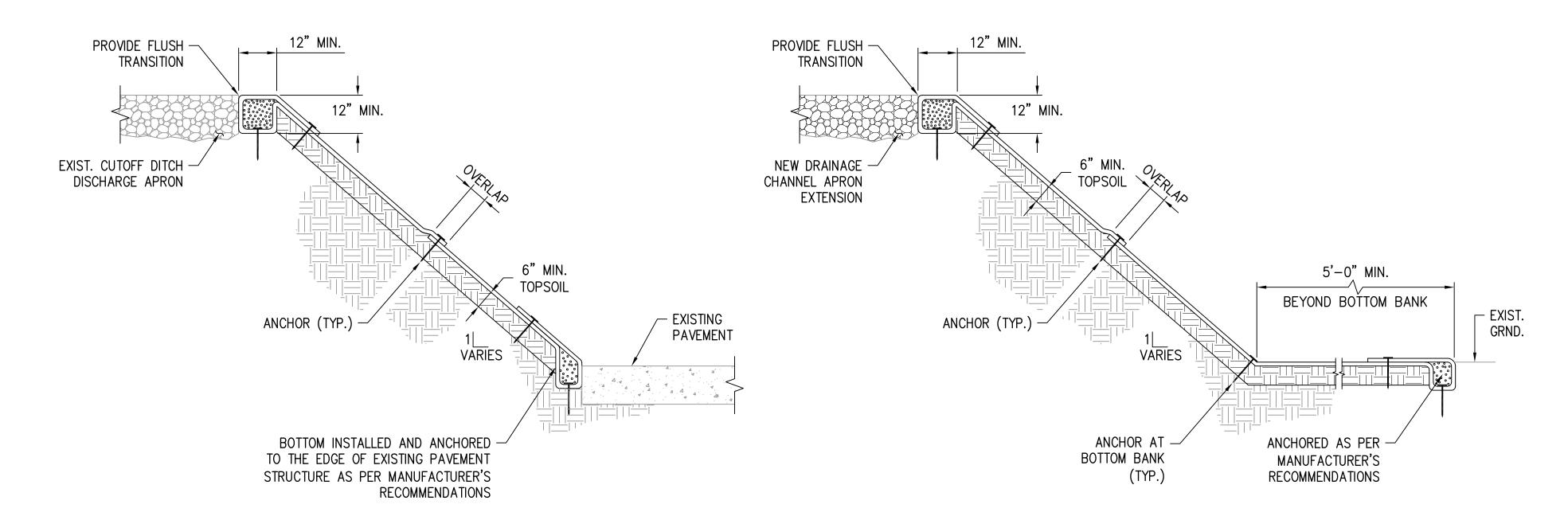
MISCELLANEOUS DETAILS

- PHASE II - WATER TANK REPL

ANAHOLA FARM LOTS

DESIGNED BY: AK
DRAWN BY: GT
CHECKED BY: JM
SURVEYED BY: WT
DRAWING NO.
DRAWING NO.
DT-3 SHEET NO. 23 OF 79







C-2 DT-4 NOT TO SCALE

TURF REINFORCEMENT MAT - 2

WALL FOUNDATION NOTES:

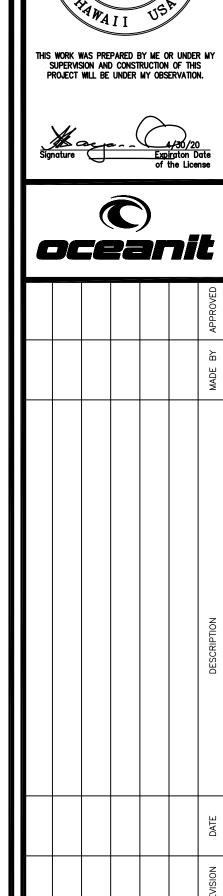
THE SOILS UNDERLYING THE WALL FOUNDATION SHALL BE PROOFROLLED UNDER OBSERVATION AND REVIEWED BY THE GEOTECHNICAL ENGINEER TO CHECK IF;

- 1. OVER EXCAVATION AND RECOMPACTION OR
- 2. REPLACEMENT WITH GRANULAR STRUCTURAL FILL IS REQUIRED. OTHERWISE COMPACT SUBGRADE SOILS TO 90% OF MAXIMUM DRY DENSITY.
- 3. THE CONSTRUCTION OF THE CRM WALL SHALL BE STARTED AND COMPLETED DURING NON-RAIN DAYS TO PREVENT FAILURE OF THE SLOPE DURING CONSTRUCTION.

TURF REINFORCEMENT MAT NOTES:

- 1. CLEAR AND GRUB THE EXISTING SLOPE AND REMOVE ANY TREE STUMPS OR OTHER DEBRIS WHICH COULD POTENTIALLY DAMAGE THE TURF REINFORCEMENT MAT (TRM).
- 2. PREPARE SOIL BEFORE INSTALLING TRM, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER AND SEED.
- BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE TRM IN A 12-INCH (MIN.) DEEP x 12-INCH (MIN.) WIDE TRENCH AS PER MANUFACTURER'S RECOMMENDATIONS. BACKFILL AND COMPACT THE TRENCH AFTER ANCHORING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 30-INCH (MIN.) PORTION OF TRM BACK OVER SEED AND COMPACTED SOIL. SECURE TRM OVER COMPACTED SOIL AS PER MANUFACTURERS'S RECOMMENDATIONS.
- 4. ROLL THE TRM DOWN AND HORIZONTALLY ACROSS THE SLOPE. ALL TRM MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING ANCHORS IN APPROPRIATE LOCATIONS AS PER MANUFACTURER'S RECOMMENDATIONS.
- 5. THE EDGES OF PARALLEL TRM MUST BE ANCHORED AND OVERLAPPED AS PER MANUFACTURER'S RECOMMENDATIONS.
- 6. CONSECUTIVE TRM SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE), AND ANCHORED AS PER MANUFACTURER'S RECOMMENDATION. ANCHOR THROUGH OVERLAPPED AREA, APPROXIMATELY 12-INCH (MAX.) APART ACROSS THE ENTIRE TRM WIDTH. (IN LOOSE SOIL CONDITIONS, THE USE OF ANCHOR LENGTH GREATER THAN 6-INCH MAY BE NECESSARY TO PROPERLY SECURE THE
- ANCHORS SHALL BE WOOD OR STEEL, AS RECOMMENDED BY MANUFACTURER. STAKES OR STAPLES AS RECOMMENDED BY THE MANUFACTURER MAY ALSO BE USED.
- 6-INCH TOPSOIL SHALL BE USED WITH THE TRM AS NEEDED. THE TRM SHALL BE GRASSED WITH BERMUDA GRASS. THE GRASS SHALL BE PLANTED, FERTILIZED, AND MAINTAINED IN ACCORDANCE WITH THE "HAWAI'I STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2005" AND ITS AMENDMENTS. THE CONTRACTOR MAY USE HYDROMULCH TO GRASS THE TRM.







DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway Kapolei, Hawai`i 96707

ANAHOLA FARM LOTS
WATER PROJECT
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Anahola, Island of Kaua`i

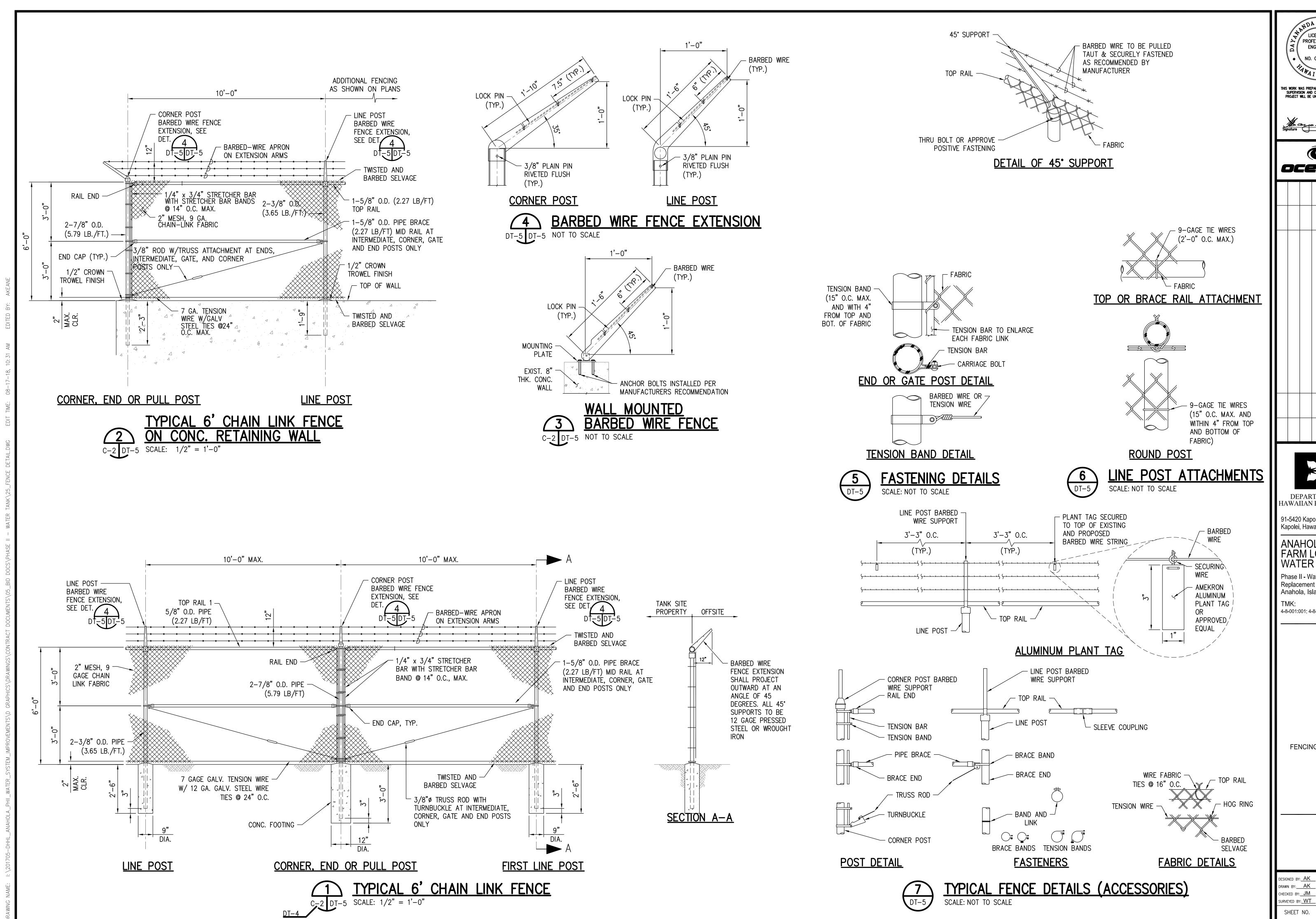
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SLOPE PROTECTION AND GRADE ADJUSTMENT WALL DETAILS

PHASE II - WATER TANK REPL

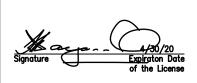
DESIGNED BY: JM, AK
DRAWN BY: AK
CHECKED BY: JM

SURVEYED BY: WT DATE: AUG. 2018 SHEET NO. 24 OF 79

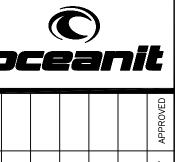


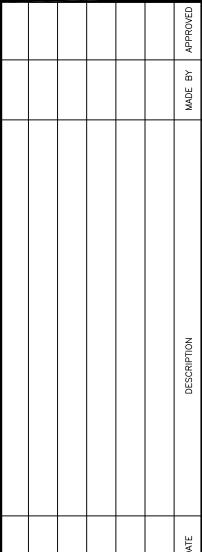
LICENSED **PROFESSIONAL** ENGINEER NO. C-9348

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91-5420 Kapolei Parkway Kapolei, Hawai`i 96707

ANAHOLA

FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i

4-8-001:001; 4-8-005:037 & 039

FENCING DETAILS

DESIGNED BY: AK DRAWING NO. DRAWING NO. DRAWING NO. SURVEYED BY: WT DATE: AUG. 2018 SHEET NO. 25 OF 79

NOT TO SCALE

EROSION CONTROL NOTES AND BEST MANAGEMENT PRACTICES (BMPS):

- 1. MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY TRENCHING WORK IS INITIATED. THESE MEASURES SHALL BE PROPERLY CONSTRUCTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD AND SHALL REMAIN IN PLACE UNTIL THE PERMANENT GROUND COVER IS FULLY ESTABLISHED.
- 2. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN TEMPORARY FIBER ROLL BARRIER AS INDICATED ON THIS SHEET. FIBER ROLL ALIGNMENT AND LENGTH SHOWN ARE APPROXIMATE. CONTRACTOR SHALL ADJUST ACTUAL LOCATIONS TO ACCOMMODATE HIS/HER CONSTRUCTION METHODS AND RETAIN SILT ON—SITE.
- 3. CONSTRUCTION SHALL BE SEQUENCED TO MINIMIZE THE EXPOSURE TIME OF CLEARED SURFACE AREA. PRE—CONSTRUCTION VEGETATIVE GROUND COVER SHALL NOT BE DESTROYED, REMOVED OR DISTURBED MORE THAN TWENTY (20) CALENDAR DAYS PRIOR TO SITE DISTURBANCE.
- 4. TEMPORARY STOCKPILING OF EXCAVATED MATERIAL SHALL NOT BE PERMITTED AT THE PROJECT SITE. ALL EXCESS EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE DAILY.
- 5. GOOD HOUSEKEEPING SHALL BE UTILIZED TO ENSURE PROTECTION OF ROADWAYS FROM MUD, DIRT AND DEBRIS.
- 6. THE CONTRACTOR SHALL ENSURE THAT ALL TIRES OF CONSTRUCTION VEHICLES ARE SUFFICIENTLY CLEANED OFF SO THAT DIRT OR DEBRIS IS NOT TRACKED OFF THE CONSTRUCTION SITE. WASHING OFF TIRE WILL NOT BE ACCEPTABLE UNLESS THE RUNOFF IS CONTAINED AND DOES NOT ENTER THE STORM DRAIN SYSTEM.
- 7. AT THE END OF TRENCHING OPERATIONS AND AT THE COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL INSPECT ALL CATCH BASIN, DRAIN INLET AND DRAIN MANHOLE SURROUNDING THE PROJECT SITE. ANY ACCUMULATED SEDIMENT AND DEBRIS FOUND IN THE STORM DRAIN STRUCTURES SHALL BE REMOVED. FLUSHING INTO THE DRAIN STRUCTURES IS PROHIBITED.
- 8. ANY DIRT OR GRASSED AREA DISTURBED SHALL BE RESTORED BY RE-GRASSING THE AREA OR BY SEEDED HYDROMULCH. THE GRASS SHALL BE FULLY ESTABLISHED AT COMPLETION OF THE PROJECT.
- 9. STORM WATER FLOWING TOWARD THE CONSTRUCTION AREA SHALL BE DIVERTED BY USING APPROPRIATE CONTROL MEASURES AS PRACTICAL. ADDITIONALLY, STORM WATER SHALL NOT BE PERMITTED TO SHEETFLOW OVER THE OPEN DRILL PITS.
- 10. REMOVE ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS WITHIN 24 HOURS.

MAINTENANCE:

- 1. INSPECT AND FIBER ROLL DAILY AND IMMEDIATELY AFTER EACH RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
- 2. SHOULD THE FABRIC ON A FIBER ROLL DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FIBER ROLL SHALL BE REPLACED PROMPTLY.
- 3. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT. SEDIMENT SHALL BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE—THIRD THE HEIGHT OF THE BARRIER.
- 4. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE FIBER ROLL IS NO LONGER REQUIRED SHALL BE REMOVED BY THE CONTRACTOR.

FILTER SOCK NOTES:

- 1. COMPOST FILTER SOCKS SHOULD BE EITHER PREFABRICATED OR ASSEMBLED AT SITE.
- 2. COMPOST USED FOR FILTER SOCK FILLER MATERIAL SHALL NOT CONTAIN ANY BIOSOLIDS AND SHALL COMPLY WITH ALL LOCAL, STATE AND FEDERAL GUIDELINES.
- 3. FILTER SOCK MATERIALS ARE:
 - A. HIGH DENSITY POLYETHYLENE (HDPE) EXPANDABLE, TUBULAR, BIODEGRADABLE OR PHOTODEGRADABLE:
 - . POLYESTER KNITTED MESH NETTING FABRIC SOCK: OR
 - COMPOSITE TWO LAYERED COMPOST SOCK CAN BE CONSTRUCTED USING A POLYESTER KNITTED MESH NETTING FABRIC SOCK AS THE OUTERMOST LAYER AND HDPE EXPANDABLE, TUBULAR, BIODEGRADABLE OR PHOTODEGRADABLE NETTING AS THE INNERMOST LAYER.
- 4. LOCATE COMPOST FILTER SOCKS ON LEVEL CONTOURS SPACED AS FOLLOWS:
 - A. SLOPE INCLINATION OF 4:1 (H:V) OR FLATTER: COMPOST FILTER SOCKS AND/OR BERMS SHOULD BE PLACE AT A MAXIMUM INTERVAL OF 20 FT.
 - B. SLOPE INCLINATION BETWEEN 4:1 AND 2:1 (H: V): COMPOST FILTER SOCKS (USE OF BERMS NOT RECOMMENDED) SHOULD BE PLACED AT A MAXIMUM INTERVAL OF 15 FT. (A CLOSER SPACING IS MORE EFFECTIVE).
 - C. SLOPE INCLINATION OF 2:1 (H:V) OR GREATER: COMPOST FILTER SOCKS SHOULD BE PLACED AT MAXIMUM INTERVAL OF 10 FT.
- 5. TURN THE ENDS OF THE COMPOST FILTER SOCKS UP SLOPE TO PREVENT RUNOFF FROM GOING AROUND THE ROLL.
- 6. STAKE COMPOST FILTER SOCKS WITH STAKES WITH A MINIMUM LENGTH OF 14 IN AND SPACED 4 FT ON CENTER.
- 7. IF MORE THAN ONE COMPOST FILTER SOCKS IS PLACED IN A ROW, THE ROLLS SHOULD BE OVERLAPPED A MINIMUM OF 6 INCHES, NOT ABUTTED.
- 8. A SANDBAG SHALL BE PLACED ON THE DOWN SLOPE SIDE OF THE FILTER SOCK BARRIER AT A SPACING OF 6 FEET ON CENTER AND AT EACH OVERLAP.
- 9. THE OUTERMOST LAYER OF THE FILTER SOCK SHALL HAVE AN APPARENT OPENING SIZE NO GREATER THAN ¾".
- 10. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT. SEDIMENT SHALL BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE—THIRD THE HEIGHT OF THE BARRIER.
- 11. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER SOCK IS NO LONGER REQUIRED SHALL BE REMOVED BY THE CONTRACTOR.

SILT FENCE NOTES:

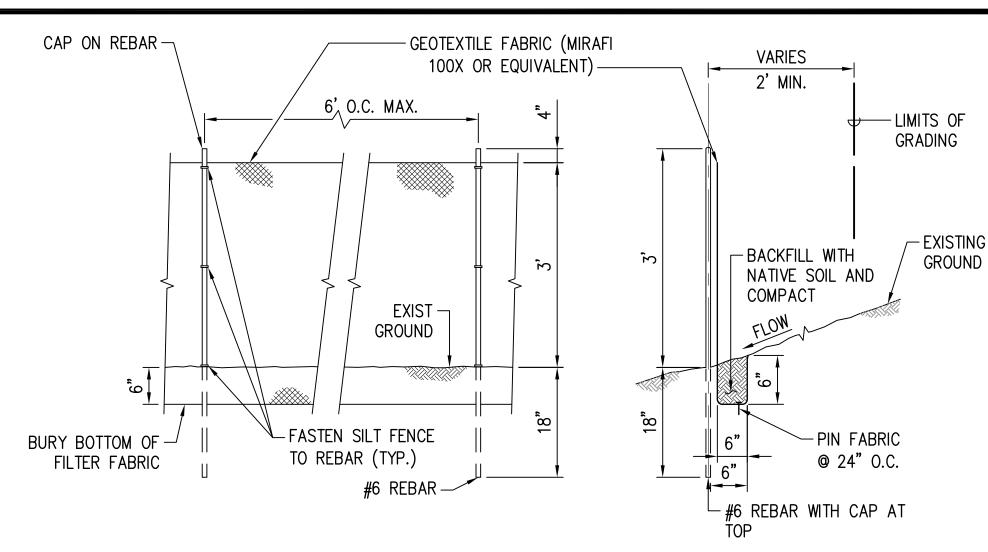
FIBER ROLLS LOCATED ON GROUND WITH STEEPER THAN A 4:1 GRADE SHALL

REQUIRE ANCHORING.

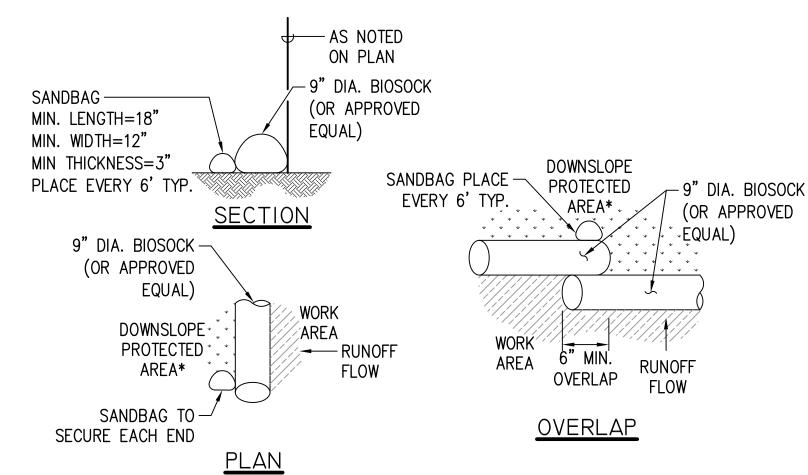
- 1. THE HEIGHT OF A SILT FENCE SHALL NOT EXCEED 36 INCHES (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE).
- 2. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED.
- 3. POSTS SHALL BE #6 REBAR SPACED A MAXIMUM OF 6 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 18 INCHES)
- 4. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 6 INCHES WIDE AND 6 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER.
- 5. FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 18 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH AS A LINER. THE TRENCH SHALL BE BACK FILLED WITH AN 6-INCH THICK LAYER OF NATIVE SAND. THE FABRIC SHALL NOT EXTEND MORE THAN 24 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
- 6. SILT FENCES SHALL BE NOT BE REMOVED UNTIL THE COMPLETION OF CONSTRUCTION ACTIVITIES AND THE SITE HAS BEEN RESTORED TO THE SATISFACTION OF THE OWNER.
- 7. FILTER FABRIC SHALL BE MIRAFI SILT FENCE, AMOCO SILT STOP (WIDTH 4'- 6") #1380 OR APPROVED EQUAL.

PERMANENT EROSION CONTROL NOTES:

- 1. THE CONTRACTOR SHALL GRASS THE ENTIRE PROJECT SITE, EXCEPT PAVED AND GRAVEL AREAS, WITH BERMUDA GRASS SPRIGS. THE GRASS SHALL BE PLANTED, FERTILIZED, AND MAINTAINED IN ACCORDANCE WITH THE "HAWAI'I STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2005" AND ITS AMENDMENTS.
- 2. THE CONTRACTOR SHALL GRASS ALL EXPOSED AREAS THAT HAVE BEEN CONSTRUCTED TO FINAL GRADES WITHIN A PERIOD OF 30 CALENDAR DAYS.
- 3. IN LIEU OF GRASS SPRIGS (NOTE 1), THE CONTRACTOR MAY USE HYDROMULCH AND IRRIGATION SPRINKLER SYSTEM.

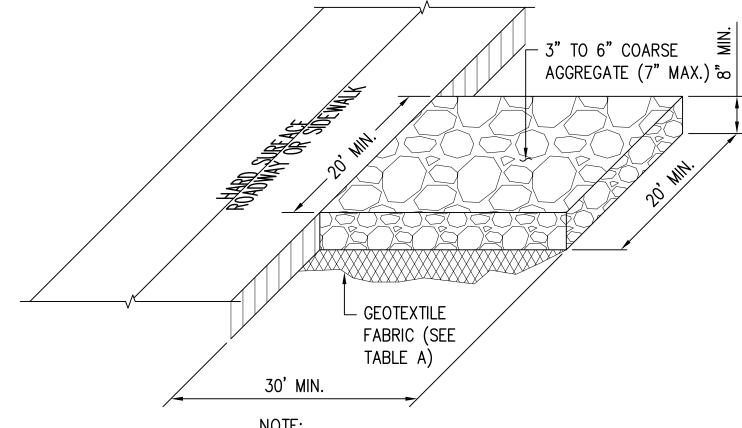






*DOWNSLOPE PROTECTED AREA MAY BE ROADWAY





NOTE: REFER TO BMP FACT SHEET TR-1.

TABLE A GEO	TEXTILE REQUIREMENTS
PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3768)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)



LICENSED PROFESSIONAL ENGINEER

* NO. C-9348 *

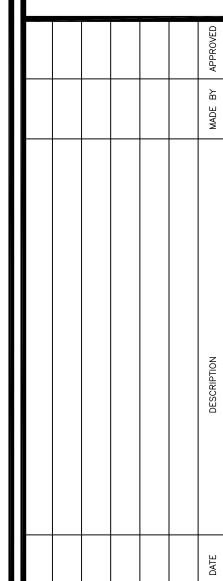
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

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

A/30/20
Signature

Expiraton Date of the License





DEPARTMENT OF HAWAIIAN HOME LANDS

HAWAIIAN HOME LAND

91-5420 Kapolei Parkway

Kapolei, Hawai`i 96707

ANAHOLA
FARM LOTS
WATER PROJECT

Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i

4-8-001:001; 4-8-005:037 & 039

EROSION CONTROL

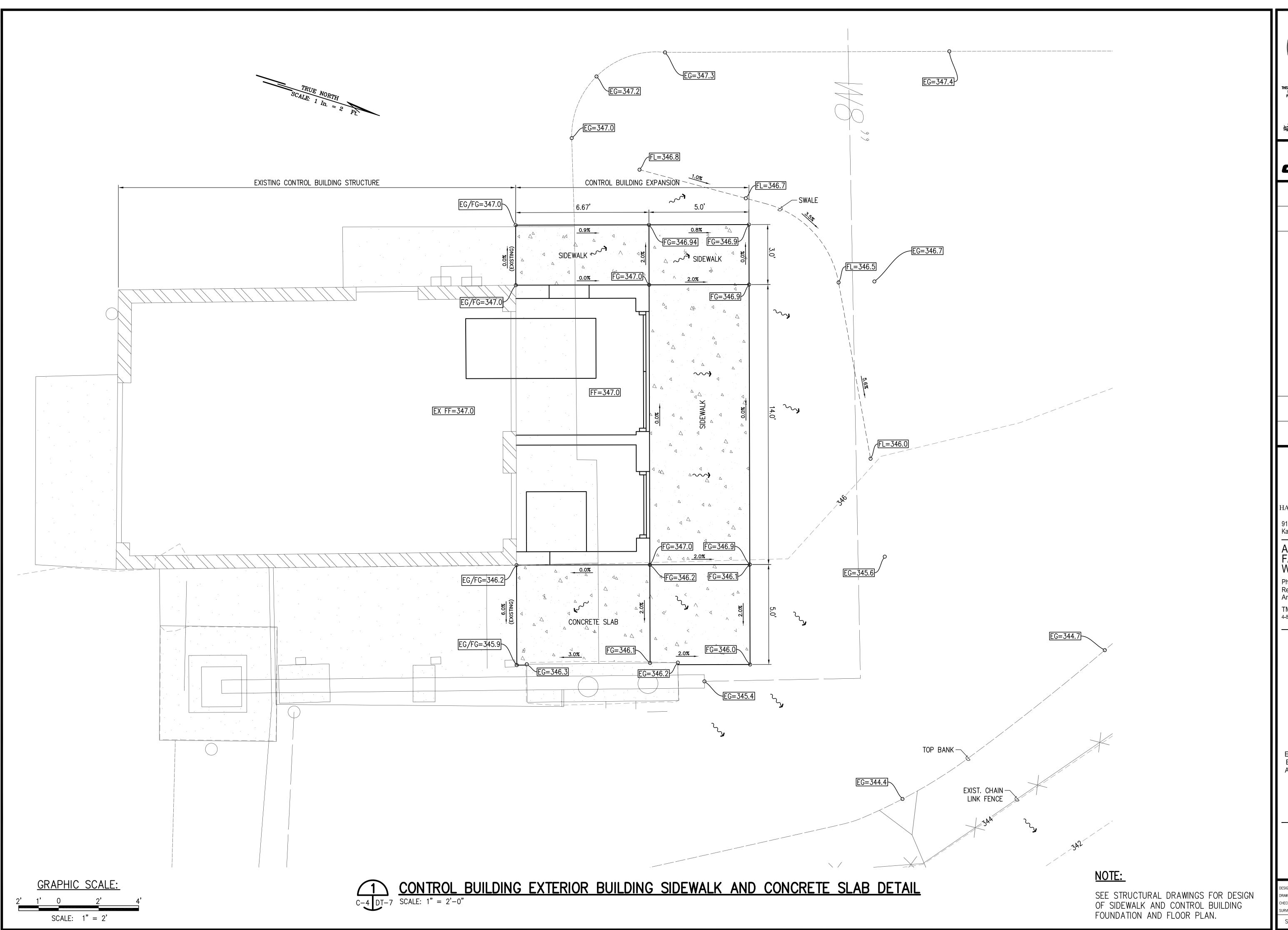
TYPICAL DETAILS

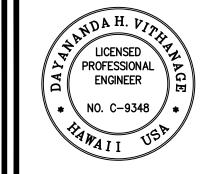
HASE II - WATER TANK

DESIGNED BY: AK
DRAWN BY: AK
CHECKED BY: JM
SURVEYED BY: WT
DRAWING NO.
DT-6

DT-6

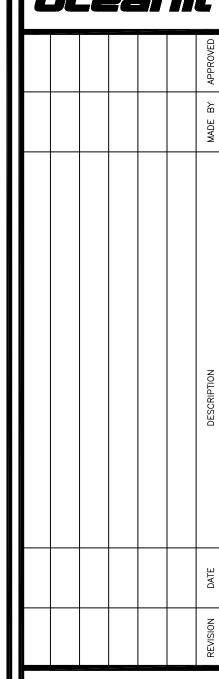
DATE: AUG. 2018













DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway
Kapolei, Hawai`i 96707

ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i
TMK:

TMK: 4-8-001:001; 4-8-005:037 & 039

EQUIPMENT BUILDING EXTERIOR SIDEWALK AND CONCRETE SLAB DETAIL

DESIGNED BY: GT
DRAWING NO.
DT-7
CHECKED BY: JM
SURVEYED BY: WT
DATE: AUG. 2018

SHEET NO. 27 OF 79

- 2. CONES OR DELINEATORS SHALL BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
- 3. TRAFFIC CONTROL DEVICES SHALL BE INSTALLED SUCH THAT THE SIGN OR DEVICE FARTHEST FROM THE WORK AREA SHALL BE PLACED FIRST. THE OTHERS SHALL THEN BE PLACED PROGRESSIVELY TOWARD THE WORK AREA.
- 4. REGULATORY AND WARNING SIGNS WITHIN THE CONSTRUCTION ZONE THAT ARE IN CONFLICT WITH THE TRAFFIC CONTROL PLANS SHALL BE REMOVED OR COVERED. ALL SIGNS SHALL BE RESTORED UPON COMPLETION OF THE WORK.
- 5. FLAGGERS AND/OR POLICE OFFICERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.
- 6. SIGN SPACING (D), TAPER LENGTHS (T) AND SPACING OF CONES OR DELINEATORS SHALL BE AS SHOWN ON THE TRAFFIC CONTROL PLANS.
- 7. ALL TRAFFIC LANES SHALL BE A MINIMUM OF 10 FEET WIDE.
- 8. ALL CONSTRUCTION WARNING SIGNS SHALL BE PROMPTLY REMOVED OR COVERED WHENEVER THE MESSAGE IS NOT APPLICABLE OR NOT IN USE.
- 9. THE BACKS OF ALL SIGNS SHALL BE PROMPTLY REMOVED OR COVERED TO PRECLUDE THE DISPLAY OF INAPPLICABLE SIGN MESSAGES (I.E., WHEN SIGNS HAVE MESSAGES ON BOTH FACES), WHENEVER THE MESSAGES ARE NOT APPLICABLE OR NOT IN USE.
- 10. AT THE END OF EACH DAY'S WORK OR AS SOON AS THE WORK IS COMPLETED, THE PERMITTEE SHALL REMOVE ALL TRAFFIC CONTROL DEVICES NO LONGER NEEDED TO PERMIT FREE AND SAFE PASSAGE OF PUBLIC TRAFFIC. REMOVAL SHALL BE IN THE REVERSE ORDER OF INSTALLATION.
- 11. REPLACE PERMANENT PAVEMENT MARKINGS AND TRAFFIC SIGNS UPON COMPLETION OF EACH PHASE OF WORK.
- 12. POLICE OFFICERS/FLAGGERS SHALL BE PRESENT AT ALL TIMES.
- 13. WHEN REQUIRED BY THE COUNTY OF KAUA'I, AN ADVERTISEMENT SHALL BE PLACED IN THE NEWSPAPER BY THE CONTRACTOR FOR ANY LANE CLOSURE. THE ADVERTISEMENT SHALL BE MADE ONE (1) WEEK BEFORE ANY LANE CLOSURE AND SHALL CONTAIN THE FOLLOWING INFORMATION:
 - A. MAP OF THE TRAFFIC CHANGE LIMITS;
 - B. NOTICE OF STARTING AND ENDING DATES, TIMES AND DURATION;
- C. MAP TO SHOW LANE CLOSURE;
- D. EXPLANATION OF LANE CLOSURE, "NOTICE TO MOTORISTS AND PEDESTRIANS"

THE CONTRACTOR SHALL BE REQUIRED TO HAVE ANY LANE CLOSURE ANNOUNCED DAILY OVER THE RADIO TWO (2) DAYS BEFORE STARTING DATE UNTIL THE WORK IS COMPLETED. BOTH ADVERTISEMENTS IN THE NEWSPAPER AND OVER THE RADIO SHALL BE PAID FOR BY THE CONTRACTOR. THE CONTRACTOR SHALL ALSO NOTIFY THE HOSPITALS, POLICE, FIRE, AND AMBULATORY SERVICES OF THE LANE CLOSURES.

- 14. ALL WORKERS WITHIN THE COUNTY R/W WHO ARE EXPOSED TO EITHER VEHICLES USING THE ROADWAY OR TO CONSTRUCTION EQUIPMENT SHALL WEAR HIGH VISIBILITY SAFETY APPAREL THAT MEETS THE PERFORMANCE CLASS 2 OR 3 REQUIREMENTS OF ANSI/ISEA 107-2004. "WORKERS" ARE DEFINED AS PEOPLE ON FOOT WHOSE DUTIES PLACE THEM WITHIN THE ROAD RIGHT OF WAY, SUCH AS, BUT NOT LIMITED TO CONSTRUCTION AND MAINTENANCE FORCES, EQUIPMENT OPERATORS, SURVEY CREW, UTILITY CREW, RESPONDERS TO INCIDENTS (EG. EMT AND FIREMEN), AND LAW ENFORCEMENT PERSONNEL DIRECTING TRAFFIC, INVESTIGATING ACCIDENTS, HANDLING LANE CLOSURES AND ROADWAY CONSTRUCTION.
- 15. ALL TRAFFIC CONTROL DEVICE SHALL BE REFLECTORIZED WHEN USED AT NIGHT. CONES SHALL BE EQUIPPED WITH REFLECTORIZED COLLAR WHEN USED AT NIGHT. FLASHING LIGHTS SHALL BE USED WITH BARRICADES AND STEADY BURN LIGHTS WHEN USED IN A SERIES FOR CHANNELIZATION. FLAGGER STATIONS SHALL BE ADEQUATELY ILLUMINATED AT NIGHT.
- 16. CONTRACTOR TO PROVIDE ACCESS AND/OR DIRECTION SIGNS TO REROUTE PEDESTRIAN TRAFFIC.

HOKUALELE ROAD (COUNTY MAINTAINED)

ONE LANE ROAD AHEAD

48"X48"

100'

ROAD WORK AHEAD

10 м.р.н.

W21-10

48"x 48"

W13-1(10)

24"x 24"

- 17. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO MINIMIZE THE USE AND DURATION OF STEEL PLATES. ALL STEEL PLATES SHALL HAVE A NON-SKID SURFACING. THE COUNTY MAY REQUIRE THE BACKFILLING AND PATCHING OF THE TRENCH DUE TO THE EXCESSIVE USE OF STEEL PLATES.
- 18. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE NON-SLIP BRIDGING MATERIAL, INCLUDING SHORING OVER TRENCHES IN PAVEMENT AREAS. THE BRIDGING SHALL BE ABLE TO SUPPORT ALL TYPES OF VEHICULAR AND PEDESTRIAN TRAFFIC.

ROAD WORK

G20-2A 36"X18"

100'

100 FEET

W20-7A

48"x 48"

SUPPLEMENTAL

PLATE 24"x 18"

19. WHERE PEDESTRIAN WALKWAYS EXIST, THEY SHALL BE MAINTAINED IN A SAFE AND PASSABLE CONDITION OR OTHER FACILITIES FOR PEDESTRIANS SHALL BE PROVIDED. PASSAGES BETWEEN WALKWAYS AT INTERSECTIONS SHALL LIKEWISE BE PROVIDED.

100'

100' TAPER

CONES

20' O.C.

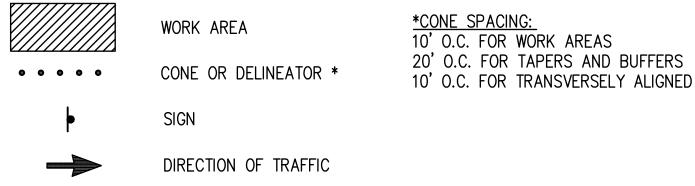
115' BUFFER SPACE

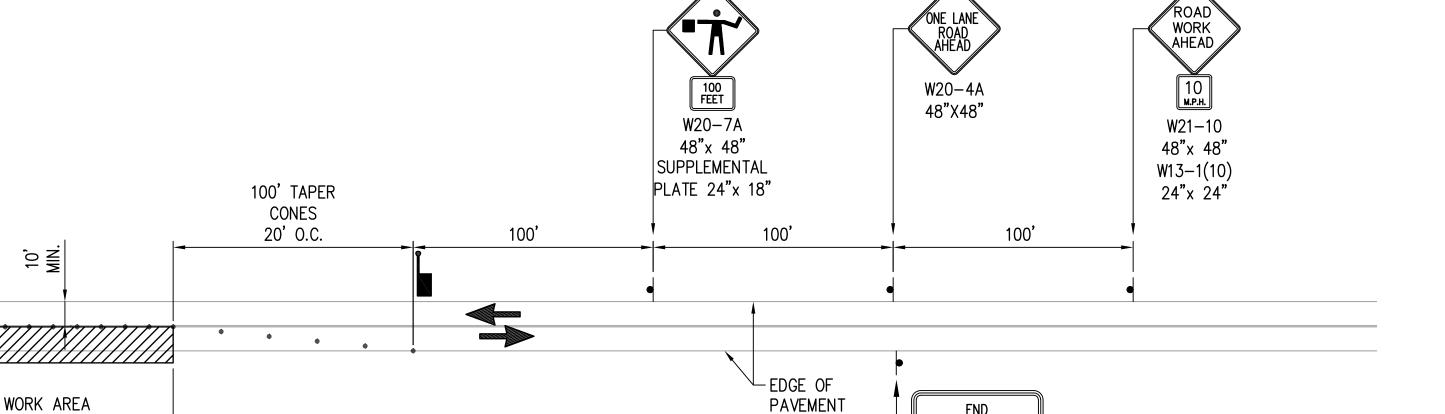
CONES

10' O.C.

TRAFFIC CONTROL LEGEND:

FLAGGER





ROAD WORK

G20-2A 36"X18"

<u>TYPICAL TRAFFIC CONTROL PLAN - ONE LANE CLOSURE</u> SCALE: NOT TO SCALE

CONES

10' O.C.

PHASE II - WATER TANK REPL

DESIGNED BY: JM
DRAWN BY: GT
CHECKED BY: JM

DRAWING NO.

TC-1 SURVEYED BY: WT DATE: AUG. 2018 SHEET NO. 28 OF 79

GENERAL NOTES:

- 1. THE CONTRACTOR SHALL VERIFY ALL FIELD DIMENSIONS AND CONDITIONS PRIOR TO STARTING WORK ALL DISCREPANCIES SHALL BE PROMPTLY REPORTED TO THE ENGINEER.
- 2. ALL OMISSIONS OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR STRUCTURAL ENGINEER BEFORE PROCEEDING WITH ANY WORK SO INVOLVED.
- 3. ALL WORKS SHALL CONFORM TO THE INTERNATIONAL BUILDING CODE. LATEST EDITION, AS ADOPTED BY THE COUNTY OF KAUA'I.
- 4. UNLESS SPECIFICALLY DETAILED ELSEWHERE, CONTRACTOR SHALL FOLLOW TYPICAL DETAILS ON THIS SHEET.
- DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR JOB SITE SAFETY. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE DESIGN AND PROVISION OF ALL TEMPORARY BRACING. SHORING GUYS.
- 6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING SHORING LAGGING, AND PROTECTION OF ADJACENT PROPERTIES AND UTILITIES. EXISTING AREAS OR CONDITIONS DISTURBED BY THE CONTRACTOR'S ACTIVITIES SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
- 7. THE CONTRACTOR SHALL VERIFY ALL NOTED DIMENSIONS PRIOR TO STARTING WORK AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- 8. THE TERM RESERVOIR AND TANK MAY BE USED INTERCHANGEABLY.

RESERVOIR NOTES:

- 1. UNLESS NOTED OTHERWISE, RESERVOIR MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE COUNTY OF KAUA'I DEPARTMENT OF WATER STANDARDS TITLED "WATER SYSTEM STANDARDS", DATED 2002, AS AMENDED.
- MATERIALS IN CONTACT WITH THE RESERVOIR INTERIOR SHALL BE CERTIFIED TO BE SUITABLE FOR POTABLE
- ALL CONSTRUCTION JOINTS IN THE RESERVOIR WALL SHALL BE WATERPROOFED WITH A NEOPRENE OR RUBBER WATERSTOP. WATERSTOP SHALL BE BULB TYPE AS ACCEPTED BY THE ENGINEER ALL WATERSTOP INTERSECTIONS SHALL BE JOINED BY VULCANIZING TO ENSURE A WATERTIGHT JOINT. ALL COMPONENTS SHALL
- 4. PROVIDE 2 COATS OF EPOXY SEAL AT ALL RESERVOIR INTERIOR SURFACES INCLUDING FLOOR SLAB, WALL COLUMNS AND PIPING.

CONCRETE FOR RESERVOIR

- ALL CONCRETE WORK SHALL CONFORM TO ACI 318-02. REQUIREMENTS STATED BELOW, IF DIFFERENT FROM THE "WATER STANDARDS" SHALL TAKE PRECEDENCE OVER THE "WATER SYSTEM STANDARDS"
- 2. THE MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS AND MAXIMUM WATER/CEMENT

RATIO BY WE	IGHT SHALL BE:	STRENGTH	MAXIMUM W
	BOTTOM SLAB & PERIMETER GRADE BM STRENGTH	4,000 PSI	0.42
RESERVOIR -	⟨ WALLS	4,000 PSI	0.42
	COLS., & ROOF STRUCTURAL SLAB	4,000 PSI	0.42
	ALL OTHER CONCRETE	4,000 PSI	0.50

- 3. SHRINKAGE REDUCING ADMIXTURE SHALL BE ADDED TO CONCRETE OF WALL AND FLOOR SLAB OF RESERVOIR AS REQUIRED TO COMPENSATE FOR TOTAL SHRINKAGE ANTICIPATED. DOSAGE SHALL BE BASED ON HISTORICAL OR TEST DATA OF CONCRETE SHRINKAGE. ADMIXTURE SHALL BE SRA, BASF, GRACE.
- 4. SEE PROJECT SPECIFICATION FOR COMPLETE MIX DESIGN INFORMATION AND ACCEPTABLE ADMIXTURES
- USE INTEGRAL WATERPROOFING ADMIXTURE IN CONCRETE FOR BOTTOM SLAB INCLUDING GRADE BEAM. WALLS AND COLUMNS WHICH CONFORMS TO ASTM C94 AND IS APPROVED FOR USE WITH POTABLE WATER BY NSF OR UL ADMIXTURE SHALL BE "KIM" AS MANUFACTURED "KRYTON" OR APPROVED EQUAL. READY MIX CONCRETE SUPPLIER SHALL BE RESPONSIBLE FOR COORDINATING/VERIFYING WITH ADMIXTURE MANUFACTURER ALL RECOMMENDED PROCEDURES AND QUANTITIES OF USING INTEGRAL WATERPROOFING ADMIXTURE.
- RESERVOIR CONCRETE SHALL BE CURED AS NOTED BELOW:
- RESERVOIR WALLS (WET FORMS KEPT IN PLACE) . 14 DAYS **ROOF SLAB** . 14 DAYS
- RESERVOIR FLOOR SLAB SHALL BE CURED BY CONTINUOUS WATER IMMERSION UNTIL RESERVOIR IS PUT INTO SERVICE. ROOF SLAB AND WALLS SHALL BE CURED BY CONTINUOUS WATER MIST OR COVERED WITH A WATER RETAINING MATERIAL

REINFORCING STEEL

- 1. ALL REINFORCING BARS SHALL CONFORM TO ASTM A615 GRADE 60.
- 2. LOW HYDROGEN WELDING RODS SHALL BE USED FOR ALL WELDING TO REINFORCING BARS
- REINFORCING SHALL BE SPLICED ONLY AS NOTED IN DRAWINGS. FOR TANK WALL, CIRCUMFERENTIAL HORIZONTAL REINFORCING SPLICE LOCATIONS SHALL BE STAGGERED AS SHOWN IN DETAIL D/S-1. ALL OTHER SPLICES SHALL BE APPROVED BY THE STRUCTURAL ENGINEER.
- 4. BARS NOTED "CONT." SHALL HAVE A MINIMUM SPLICE LENGTH OF 48 BAR DIAMETER, BUT NOT LESS THAN 2'-0".
- MINIMUM CONCRETE COVER, CAST-IN-PLACE CONCRETE, UNLESS NOTED OTHERWISE.
- (A) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH

(B) CONCRETE EXPOSED TO EARTH OR WEATHER: NO. 6 THROUGH NO. 18 BARS NO. 5 BAR, W31 OR D31 WIRE, AND SMALLER (C) CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND: NO. 14 AND NO. 18 BARS NO. 11 BAR AND SMALLER BEAMS, COLUMNS:

PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS

PRIOR TO PLACEMENT OF ANY REINFORCEMENT, THE GEOTECHNICAL ENGINEER SHALL SUBMIT A LETTER TO THE DHHL FOR APPROVAL CERTIFYING THAT THE SOILS CONDITION, INCLUDING COMPACTION AND BACKFILL COMPLIES WITH THE DESIGN CONDITION.

STRUCTURAL DESIGN CRITERIA:

WIND CRITERIA:

V = 105 mph

Kzt = 1.10

EXPOSURE C

BASED ON THE 2006 IBC (AS AMENDED BY STATE BUILDING CODE) AND ASCE 7-05, THE FOLLOWING ARE DESIGN PARAMETERS:

ROOF LOADS: ROOF LIVE LOAD 2. SEISMIC SPECTURAL RESPONSE ACCELERATIONS $S_1 = 0.07g$ $S_s = 0.23g$ SITE CLASS B

Kd = 0.75 for C&C and MWFRS

4. IMPORTANCE FACTOR FOR IBC: Ie = 1.5Iw = 1.15

5. FOR THE TEMPORARY STEEL WATER TANK: THE MORE STRINGENT OF THE FOLLOWING: IBC 2006 AS AMENDED BY THE STATE BUILDING CODE ASCE 7-05 AWWA D103-09 ACI 350-06

FOUNDATION NOTES:

- FOUNDATION DESIGN IS BASED ON GEOTECHNICAL ENGINEERING EXPLORATION REPORT PREPARED BY GEOLAB INC., ENTITLED "ANAHOLA FARM LOTS WATER SYSTEM IMPROVEMENTS" DATED OCTOBER 25, 2017 AND LETTER DATED JUNE 13, 2018 PREPARED FOR OCEANIT.
- 2. IN ORDER TO PROVIDE A UNIFORM BEARING SURFACE FOR THE FOOTINGS AND INTERIOR CONCRETE FLOOR OF THE RESERVOIR STRUCTURE, PROVIDE A MINIMUM 24-INCH THICK LAYER OF COMPACTED AGGREGATE SUB-BASE MATERIAL BELOW THE FOOTINGS AND CONCRETE/FINISHED FLOOR OF THE RESERVOIR TANK. THIS REQUIREMENT SHALL ALSO APPLY TO THE TEMPORARY STEEL TANK. THE 24-INCH THICK AGGREGATE SUB-BASE LAYER SHALL EXTEND BEYOND THE EDGES OF THE RESERVOIR BY AT LEAST 24 INCHES. THE AGGREGATE SUB-BASE LAYER SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT RELATIVE COMPACTION.
- TWO LAYERS OF TRIXIAL GEOGRID, SUCH AS TENSAR TRIAX GRID TX7 SHALL BE INCORPORATED INTO THE 24-INCH THICK LAYER OF AGGREGATE SUB-BASE MATERIAL BENEATH THE FOOTINGS AND INTERIOR CONCRETE FLOOR OF THE RESERVOIR TO SPREAD THE LOAD AND REDUCE THE LOADING ON THE UNDERLYING SUB-GRADE SOILS. THE TWO LAYERS OF TRIAXIAL GEOGRID WITHIN THE 24-INCH THICK AGGREGATE SUB-BASE MATERIAL SHALL BE LOCATED 6 AND 18 INCHES ABOVE THE BOTTOM OF THE SUB-GRADE.
- 4. PRIOR TO PLACING THE AGGREGATE SUB-BASE MATERIAL AND TRIAXIAL GEOGRID, A NON-WOVEN GEOTEXTILE FABRIC, SUCH AS MIRAFI 180N OR EQUIVALENT SHALL BE PROVIDED BELOW AND ALONG THE EDGES OF THE OVER-EXCAVATION FOR THE
- 5. THE BOTTOM OF THE OVER EXCAVATIONS SHALL BE RE-COMPACTED TO A FIRM UNYIELDING SURFACE. SOFT AND OR LOOSE MATERIALS ENCOUNTERED SHALL BE OVER EXCAVATED TO EXPOSE UNDERLYING FIRM MATERIALS. THE OVER-EXCAVATION SHALL BE BACKFILLED WITH AGGREGATE SUB-BASE AND COMPACTED TO 95 PERCENT RELATIVE COMPACTION.
- CONTROL BUILDING: FOOTINGS SHALL BEAR DIRECTLY ON THE ON-SITE SOILS THAT ARE COMPACTED TO A FIRM AND UNYIELDING SURFACE PRIOR TO THE PLACEMENT OF REINFORCING STEEL OR CONCRETE. FOOTING SUB-GRADES SHALL BE RE-COMPACTED TO A FIRM AND UNYIELDING SURFACE PRIOR TO THE PLACEMENT OF ANY REINFORCING OR CONCRETE SOFT AND/OR LOOSE MATERIALS ENCOUNTERED A THE BOTTOM OF FOOTING EXCAVATION SHALL BE OVER EXCAVATED TO EXPOSE UNDERLYING FIRM MATERIALS. THE OVER-EXCAVATION SHALL BE BACKFILLED WITH AGGREGATE SUB-BASE AND COMPACTED TO A MINIMUM 95 PERCENT RELATIVE COMPACTION OR THE FOOTING MAY BE DEEPER TO BEAR ON THE UNDERLYING FIRM MATERIALS. AN 18-INCH THICK LAYER OF COMPACTED AGGREGATE BASE COURSE MATERIAL SHALL BE PLACED BELOW THE SLAB-ON-GRADE. PRIOR TO PLACING THE AGGREGATE SUB-BASE, THE BOTTOM OF EXCAVATION SHALL BE SCARIFIED TO A DEPTH OF 8 INCHES, MOISTURE-CONDITIONED TO AT LEAST 2 PERCENT ABOVE OPTIMUM MOISTURE CONTENT, AND COMPACTED TO A MINIMUM OF 95 PERCENT RELATIVE COMPACTION. THE UNDERLYING SUB-GRADE SOILS AND AGGREGATE SUB-BASE MATERIAL SHALL BE WETTED AND KEPT MOIST UNTIL THE FINAL PLACEMENT OF NEW SLAB CONCRETE. EXTERIOR WALKWAYS SHALL BE ALSO HAVE THE 18-INCH THICK LAYER OF AGGREGATE SUB-BASE AS THE INTERIOR SLAB OF THE CONTROL BUILDING AND BE PREPARED SIMILARLY.
- ALL FOOTINGS, INCLUDING THE RESERVOIR, CONTROL BUILDING AND RETAINING WALLS SHALL BE FOUNDED A MINIMUM OF 24 INCHES BELOW THE ADJACENT FINISHED GRADE.
- 8. FOUNDATION NEXT TO UTILITY TRENCHES SHALL BE EMBEDDED BELOW A ONE HORIZONTAL TO ONE VERTICAL (1H:1V) IMAGINARY PLANE EXTENDING UPWARD FROM THE BOTTOM EDGE OF THE UTILITY TRENCH, OR THE FOUNDATION SHALL BE EXTENDED TO A DEPTH AS DEEP AS THE INVERTS OF THE UTILITY LINES.
- 9. RETAINING WALL SHALL BEAR SIMILARLY ON EXISTING ON-SITE SOILS AS THE CONTROL BUILDING. THE WALLS HAVE BEEN DESIGNED FOR ON-SITE SOILS TO BE USED FOR BACKFILL MATERIAL. BACKFILL SHALL BE COMPACTED TO 90 PERCENT RELATIVE COMPACTION. OVER-COMPACTION OF THE RETAINING WALLS SHALL BE AVOIDED. RETAINING WALL SHALL UTILIZE MANUFACTURED DRAIN BOARDS SUCH AS MIRADRAIN OR ENKADRAIN PLACED DIRECTLY BEHIND WALL. THERE SHALL A 4 INCH PERFORATED DRAIN ENCASED IN A 1 FOOT BY 1 FOOT CONTINUOUS #3 FILTER ROCK AND WRAPPED IN GEOSYNTHIC FABRIC CONTINUOUSLY AT THE BOTTOM OF THE WALL. THE PERFORATED PIPE SHALL BE HYDRAULICALLY CONNECTED TO 4-INCH DIAMETER WEEP HOLES DAY LIGHTING ALONG THE BOTTOM OF THE WALL AT 6 FEET ON CENTER.
- 10. FILL PLACEMENT AND COMPACTION: GENERAL FILLS AND BACKFILL SHALL BE MOISTURE CONDITIONED TO ABOUT 2 PERCENT ABOVE THE OPTIMUM MOISTURE, PLACE IN LEVEL LIFTS ON EXCEEDING 8 INCHES IN LOOSE THICKNESS, AND COMPACTED TO AT LEAST 90 PERCENT RELATIVE COMPACTION. AGGREGATE SUB-BASE MATERIALS SHALL BE MOISTURE CONDITIONED TO ABOVE OPTIMUM CONTENT, AND PLACED SIMILARLY.
- 11. FOUNDATION DESIGN IS BASED ON THE FOLLOWING PARAMETERS

ALLOWABLE BEARING PRESSURE:

RESERVOIR . 3,500 PSF (INCREASE BY 1/3 FOR TRANSIENT LOADS) CONTROL BUILDING 2.500 PSF 2,500 PSF **RETAINING WALLS** RESERVOIR SUBGRADE REACTION 200 PCI COEFFICIENT OF FRICTION 0.40 PASSIVE RESISTANCE . 300 PCF (NEGLECT UPPER FOOT IF UNPAVED) **ACTIVE PRESSURE FOR RETAINING WALL:** 36 PCF LEVEL BACKFILL, ACTIVE LEVEL BACKFILL, AT-REST 54 PCF 2H:1V BACKFILL, ACTIVE 55 PCF (28 PCF VERTICAL) 2H:1V BACKFILL, AT-REST . 71 PCF (35 PCF VERTICAL) SURCHARGE LATERAL PRESSURE:

55% OF VERTICAL SURCHARGE (RESTRAINED) 12. A LICENSED (IN THE STATE OF HAWAII) GEOTECHNICAL ENGINEER SHALL BE RETAINED BY CONTRACTOR TO PROVIDE GEOTECHNICAL SERVICES AND GEOTECHNICAL SPECIAL INSPECTION DURING CONSTRUCTION. THE CRITICAL ITEMS REQUIRING SPECIAL INSPECTION INCLUDE:

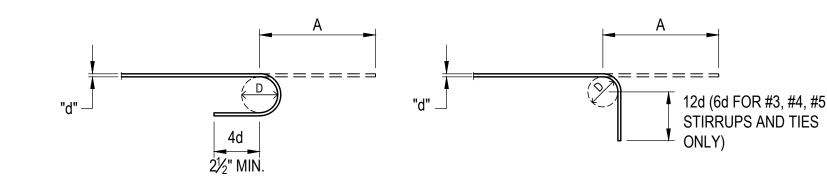
. 35% OF VERTICAL SURCHARGE (UNRESTRAINED)

- 1. OBSERVATION OF SHALLOW FOUNDATION EXCAVATIONS.
- 2. OBSERVATION OF SUB-GRADE PREPARATIONS.
- 3. OBSERVATION OF FILL AND BACKFILL PLACEMENT
- 4. COMPACTION TEST

SPECIAL INSPECTION REQUIREMENT:

UNIFORM LOAD SURCHARGE

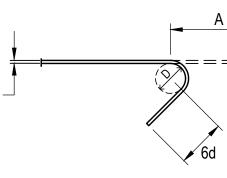
- SPECIAL INSPECTION IS REQUIRED FOR THIS PROJECT. SPECIAL INSPECTION AS SPECIFIED IN THE 2006 INTERNATIONAL BUILDING CODE IS REQUIRED FOR THE FOLLOWING:
 - A. ALL WORK INVOLVING THE SUBGRADE SHALL BE MONITORED BY A LICENSED GEOTECHNICAL ENGINEER.
 - B. CONCRETE FOR RESERVOIR
 - C. REINFORCING STEEL FOR RESERVOIR AND RETAINING WALLS ONLY.
 - D. TEMPORARY STEEL TANK SPECIAL INSPECTOR PROVIDED BY MANUFACTURER.
- CONTRACTOR SHALL HIRE AN INDEPENDENT QUALIFIED PERSON WHO IS APPROVED BY THE OWNER TO DO THE SPECIAL INSPECTIONS AS REQUIRED. SPECIAL INSPECTION OF STEEL TANK SHALL BE DONE BY STEEL TANK MANUFACTURER OR DESIGNATED PERSON REPRESENTING STEEL TANK MANUFACTURER.
- 3. SEE ITEM 12 OF FOUNDATION NOTES ABOVE FOR GEOTECHNICAL SPECIAL INSPECTION.
- 4. THE CONTRACTOR SHALL COORDINATE AND BE RESPONSIBLE FOR CONTACTING THE SPECIAL INSPECTOR(S) IN A TIMELY MANNER SUCH THAT ALL SPECIAL INSPECTIONS ARE EXECUTED.



STANDARD HOOK 180°

BAR BEND 90°

MINIMUM EXTENSION LENGTHS "A"								
BAR	STANDARI	HOOKS	TIES AND STIRRUPS					
SIZE	180° HOOKS	90° HOOKS	90° HOOKS	135° HOOKS				
#3	6"	7"	5"	6"				
#4	8"	9"	6"	7"				
#5	9"	11"	7"	9"				
#6	11"	13"	14"	12"				
#7	12"	15"	16"	14"				
#8	14"	17"	19"	16"				
#9	19"	21"	NA	NA				
#10	21"	24"	NA	NA				
#11	24"	26"	NA	NA				
#14	34"	34"	NA	NA				
#18	45"	45"	NA	NA				

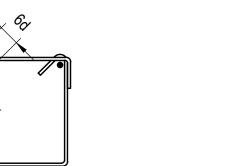


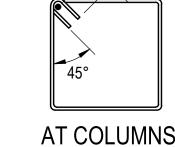
BAR BEND 135°

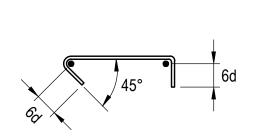
BAR SIZE	D
#3,#4,#5	6 d
#6,#7,#8	o u
#9,#10,#11	8 d
#14,#18	10 d
· ·	

TYP. REBAR BENDING

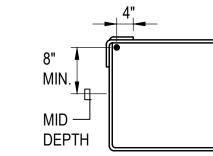
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AT BEAMS



ALTERNATE AT BEAMS

COLUMN CROSS TIES

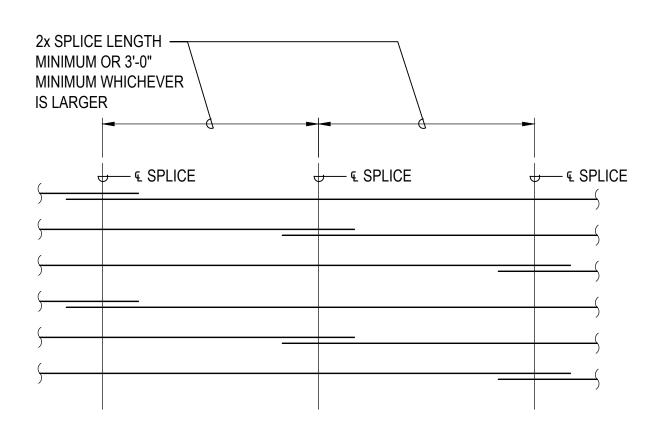
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NOTES:

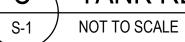
- 1 THESE DETAILS SHALL APPLY TO #3, #4, AND #5 BARS GRADE 40 AND GRADE 60.
- 2. ALL BARS SHALL BE BENT COLD.
- 3. MINIMUM FINISHED BEND DIAMETER = 4d FOR #3, 4, AND #15 BARS.

TYPICAL TIE AND STIRRUP DETAIL

NOT TO SCALE

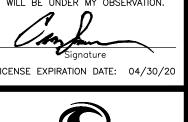




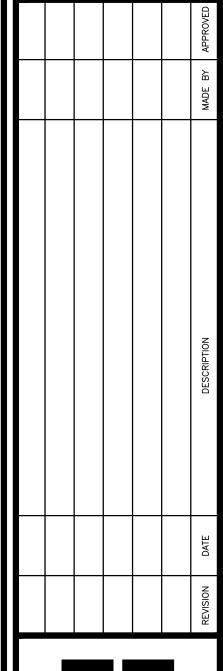




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91-5420 Kapolei Parkway Kapolei, Hawai`i 96707

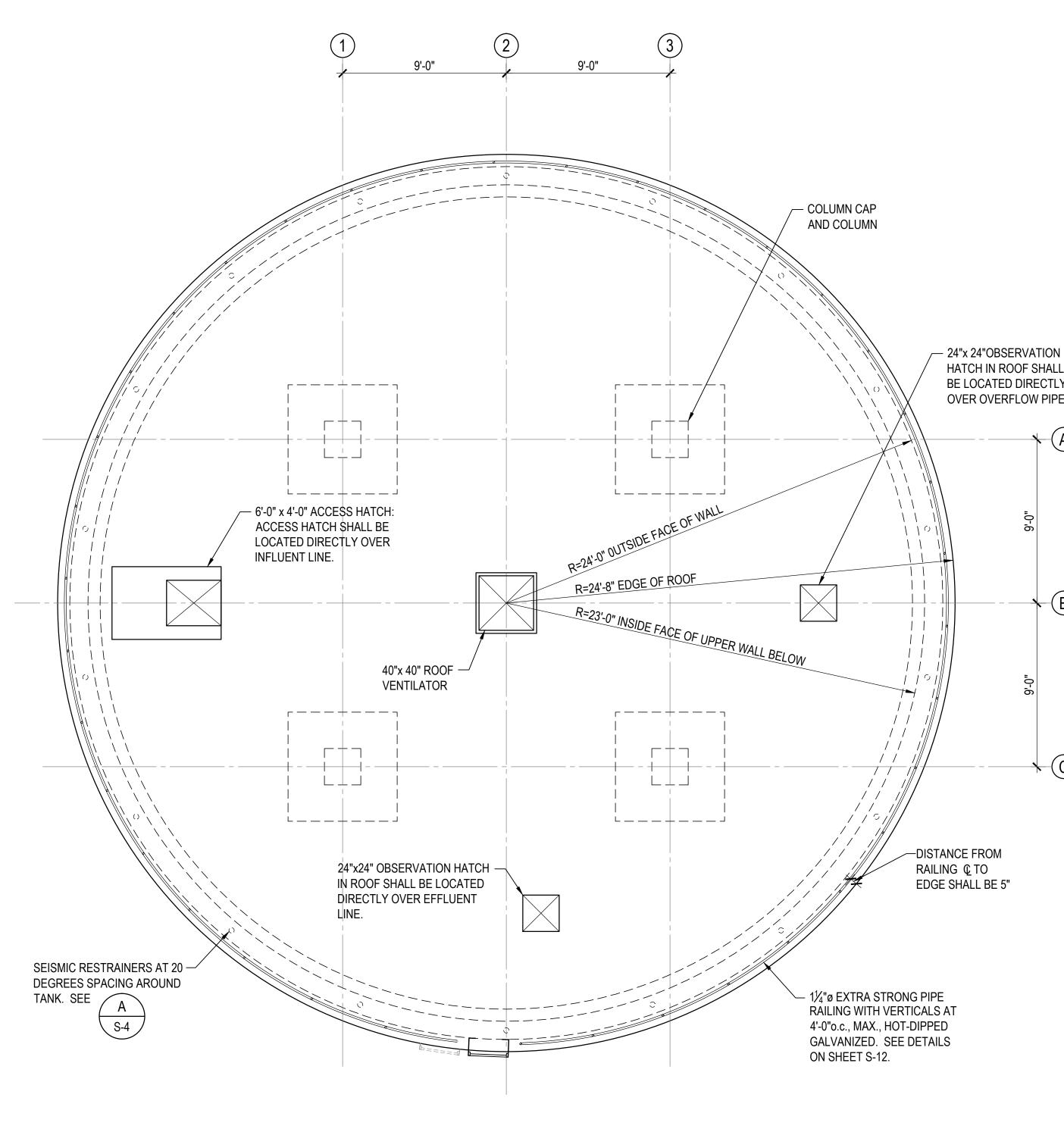
ANAHOLA FARM LOTS WATER PROJECT Replacement & Facility Impr. Anahola, Island of Kaua`i

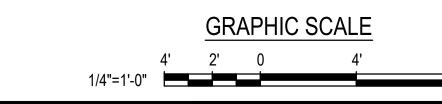
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GENERAL NOTES AND TYPICAL DETAILS

DRAWING N ESIGNED BY: CS DRAWN BY: MM S-1 CHECKED BY: CS SURVEYED BY: WT DATE: AUG. 2018 SHEET NO. 29 OF 79

- 1. ALL INTERSECTIONS AND SPLICES OF RUBBER WATERSTOPS TO BE JOINED BY VULCANIZING OR OTHER APPROVED MEANS TO FORM A WATERTIGHT CONNECTION.
- 2. APPLY SIKAGUARD 75 COAT TO ALL INTERIOR SURFACES AS REQUIRED TO PATCH & REPAIR ALL IMPERFECTIONS INCLUDING HONEYCOMBS, ETC. CHIP OUT ALL LOOSE CONCRETE BEFORE PATCHING REPAIRS.
- 3. ONCE THE RESERVOIR FLOOR IS POURED, 6" MIN. OF WATER SHALL BE MAINTAINED IN THE RESERVOIR FOR THE REMAINDER OF THE PROJECT.
- 4. TESTING OF CYLINDERS SHALL BE PAID FOR BY THE CONTRACTOR, AND SHALL BE DONE BY AN INDEPENDENT TESTING LABORATORY APPROVED BY THE DHHL. SIX (6) CYLINDERS PER POUR - APPROXIMATELY 30 CYLINDERS REQUIRED.
- 5. EXTERIOR WALL SURFACE: COLOR "KAUAI GREEN"
- A. PRIMER: ICI DEVOE COATING 4030 TRU GLAZE-WB WATERBORNE EPOXY PRIMER AT 200-270 SF/GAL (4.0-8.0 MILS WET, 2.0-4.0 MILS DFT) OR APPROVED EQUAL.
- B. FINISH: (2 COATS) 2406 DULUX PROFESSIONAL EXTERIOR 100% ACRYLIC SEMI-GLOSS FINISH AT 300-400 SF/GAL (4.1-5.4 MILS WET, 1.5-2.0 MILS DFT) PER COAT OR APPROVED EQUAL.
- 6. PROVIDE REINFORCEMENT, BOLTS, REGLETS, DOWELS, WATERSTOP, AND OTHER ITEMS AS SHOWN ON PLAN. ALL ITEMS TO BE CAST IN CONCRETE SHALL BE POSITIVELY SECURED IN PLACE TO PREVENT MOVEMENT DURING CONCRETE PLACEMENT.
- 7. CONTRACTOR SHALL LOCATE AND ENCASE ALL PROPERTY PINS IN CONCRETE.
- 8. LEAKAGE TEST TO BE PERFORMED AFTER THE INSTALLATION OF THE INTERIOR PERIMETER SEAL AND PRIOR TO THE INTERIOR TANK EPOXY COATING.
- 9. INTERIOR WALL, COLUMNS AND FLOOR SURFACE (DO NOT COAT BOTTOM OF ROOF):
- 1. INTERIOR COATINGS: RAVEN "AQUATAPOXY A-6", 2 COMPONENT EPOXY, 90 MIL. DFT OR APPROVED EQUAL.

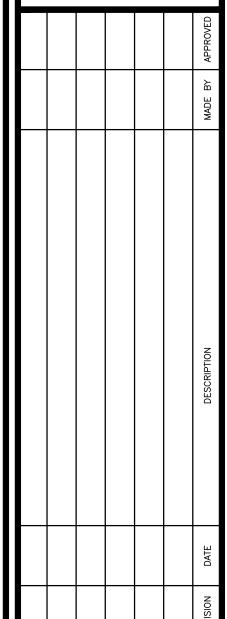




LICENSED / PROFESSIONAL **ENGINEER**

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DEPARTMENT OF

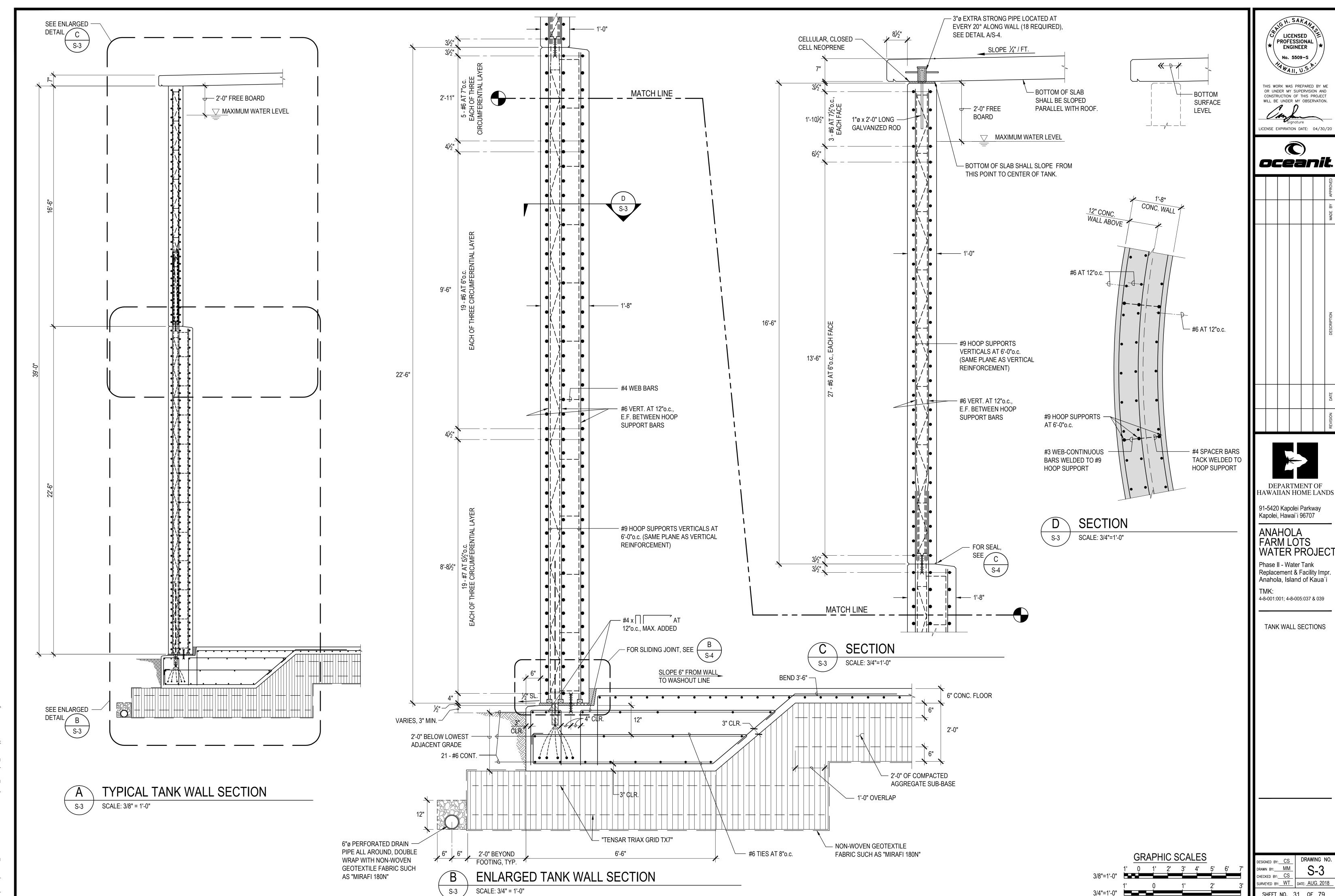
HAWAIIAN HOME LANDS 91-5420 Kapolei Parkway Kapolei, Hawai`i 96707

ANAHOLA FARM LOTS WATER PROJECT Phase II - Water Tank Replacement & Facility Impr. Anahola, Island of Kaua`i

4-8-001:001; 4-8-005:037 & 039

FLOOR AND ROOF PLANS

S-2 CHECKED BY: CS SURVEYED BY: WT DATE: AUG. 2018 SHEET NO. 30 OF 79



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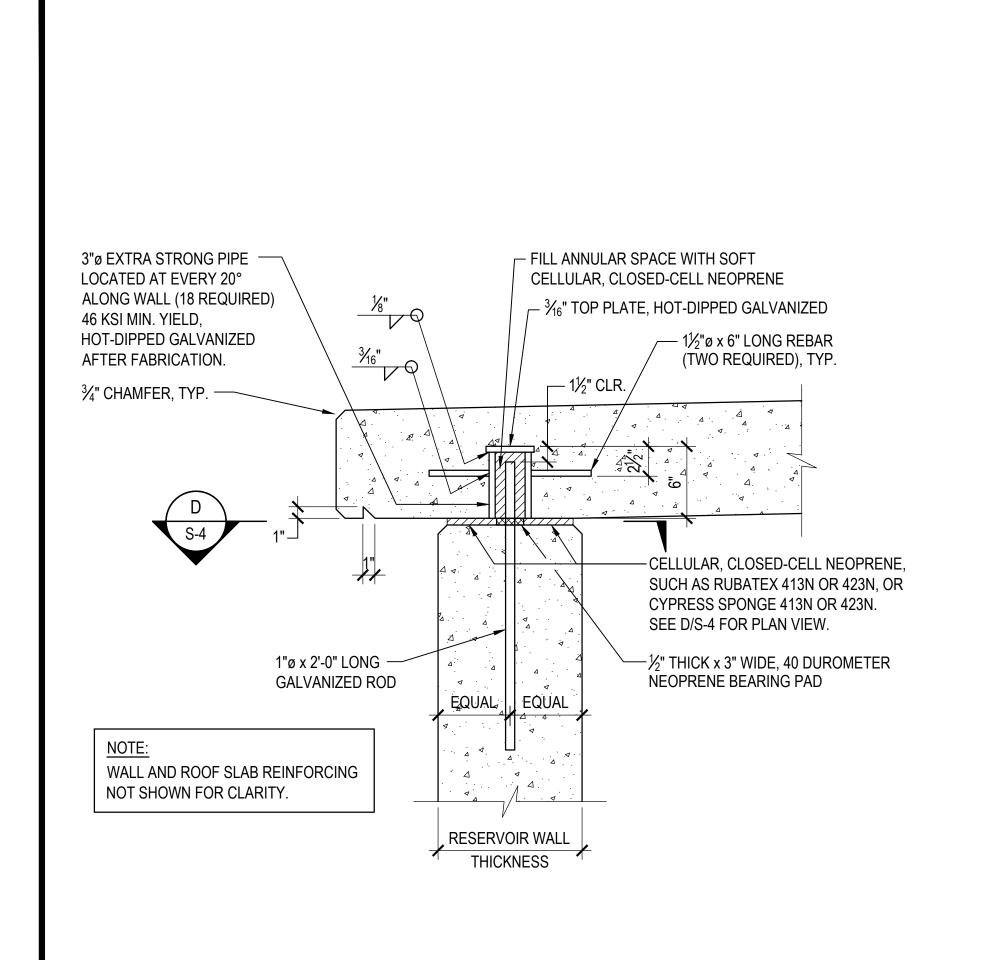
oceanit

DEPARTMENT OF HAWAIIAN HOME LAND

ANAHOLA FARM LOTS WATER PROJECT

TANK WALL SECTIONS

SURVEYED BY: WT DATE: AUG. 2018



1'-8" CIM 1061 FINISH FLOOR ELEV., SEE CIVIL - AQUATAPOXY COATING OR APPROVED EQUAL. APPLY TO ALL INTERIOR #8 HOOP SUPPORT AT -SURFACES INCLUDING COLUMNS, EXCEPT 4'-0"o.c. AT & OF WALL FOR BOTTOM OF CONCRETE ROOF. DO NOT APPLY AQUATAPOXY OVER CIM 1061. ABUT AQUATAPOXY TO CIM 1061. #3 CONT. WEB BARS WELDED TO #8 HOOP 2" CLR. SUPPORT 1. PREPARE THE CONCRETE IN ACCORDANCE TO MANUFACTURER'S SEISMIC CABLES, ½"ø GALVANIZED -INSTRUCTION. STRANDS, 5 STRANDS PER 2. FILL THE TAPERED GAP WITH THE CIM ASSEMBLY, TIE TO WALL 1000 TROWEL GRADE. (DO NOT APPLY REINFORCEMENT AS REQUIRED. SEE DETAIL A AQUATAPOXY WITHIN TAPERED GAP) ALLOW THE CIM 1000 TROWEL GRADE S-5 TO CURE A MINIMUM OF 12 HOURS (AT 70 DEGREES F MINIMUM) BEFORE WATER STOP, SEE APPLYING THE 60 MIL 1061 6-INCHES ONTO THE WALL AND FLOOR SLOPE 1/2" AND -TROWEL SMOOTH VARIES, 3" MIN. - TIE-OFF WATER STOP AT 12"o.c., T& B, EACH WAY PRECAST CONCRETE BLOCK SUPPORTS CENTER LINES OF SEISMIC CABLES

1. PREPARE THE CONCRETE IN ACCORDANCE TO MANUFACTURER'S INSTRUCTION. 2. FILL THE TAPERED GAP WITH THE CIM 1000 TROWEL GRADE. 3. ALLOW THE CIM 1000 TROWEL GRADE TO CURE A MINIMUM OF 12 HOURS (AT 70 DEGREES F MINIMUM) BEFORE APPLYING THE 60 MIL 1061 6-INCHES ONTO EITHER SIDE OF JOINT. TIE-OFF WATER STOP AT -12"o.c., T&B, EACH WAY.

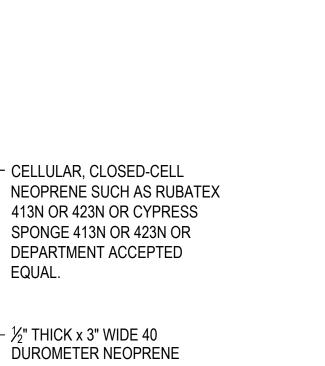
REINFORCING NOT SHOWN FOR CLARITY.

DETAIL

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

BOTTOM OF WALL SLIDING JOINT DETAIL

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



½" THICK x 3" WIDE 40 DUROMETER NEOPRENE BEARING PAD, PLACE CONTINUOUSLY

- CELLULAR, CLOSED-CELL

413N OR 423N OR CYPRESS

SPONGE 413N OR 423N OR

DEPARTMENT ACCEPTED

EQUAL.

GLUE ALL PADS TO TOP OF WALL WITH ADHESIVE SUCH AS "R-27780" BY "HANNA" RUBBER OR DEPARTMENT ACCEPTED EQUAL.

ROOF SLIDING JOINT DETAIL

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

1"ø x 2'-0" LONG -GALVANIZED ROD

PLAN VIEW OF TOP OF WALL

SCALE: 1-1/2" = 1'-0" S-4 /

E = NUMBER OF RIBS PER SIDE CONDITION WITH CENTER BULB	k A	
	E = NUMBER OF RIBS PER SIDE F CONDITION WITH CENTER BULB	

JOINT LOCATION	А	В	С	D	E	F	"VINYLEX" BRAND	"GREEN STREAK BRAND"
WALL TO WALL	6"	-	3/8"	1⁄4" TO 3⁄8"	7	-	R6-38	679
WALL TO FOOTING	9"	1"	3/8"	3/8"	7 OR 8	1/4"	RB9-38H	735

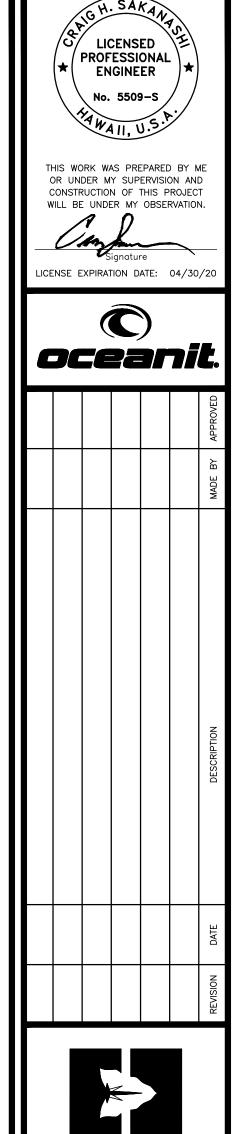
NOTES:

- 1. All SPLICES SHALL BE MADE IN ACCORDANCE WITH MANUFACTUR'S RECOMMENDATIONS. SPLICE ALL JOINTS/INTERSECTIONS.
- 2. WATER STOP SHALL BE TIED OF AT EACH END, IN EITHER DIRECTION AT 12"o.c. MAX.
- 3. ALL PRODUCTS SHALL BE NSF 61 APPROVED.

NOT TO SCALE

S-4

WATER STOP





91-5420 Kapolei Parkway Kapolei, Hawai`i 96707

ANAHOLA FARM LOTS WATER PROJECT

Phase II - Water Tank Replacement & Facility Impr. Anahola, Island of Kaua`i

4-8-001:001; 4-8-005:037 & 039

SLIDING JOINT DETAILS

- PHASE II - WATER

FARM LOTS

SURVEYED BY: WT DATE: AUG. 2018 SHEET NO. 32 OF 79

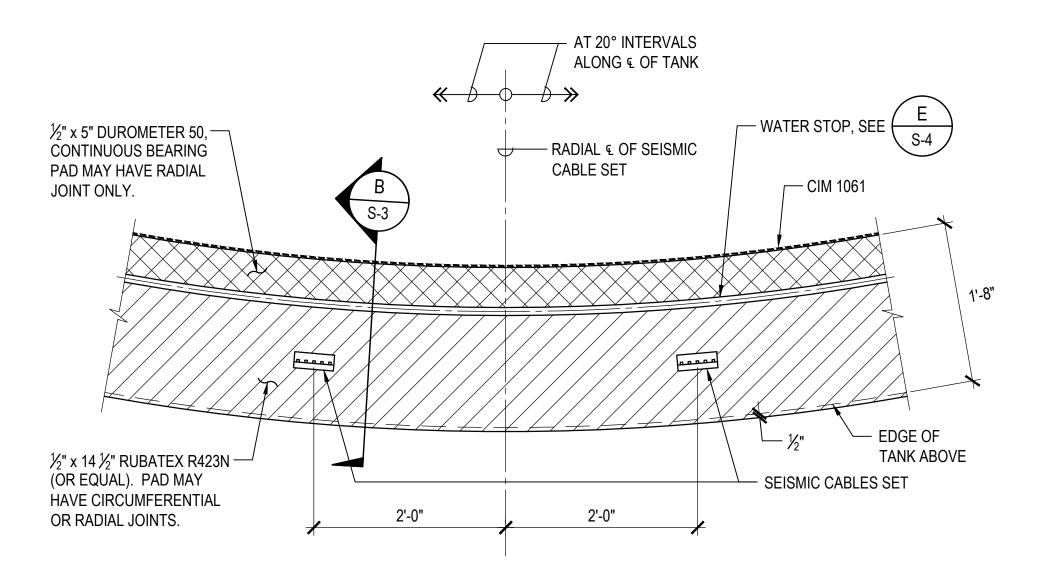
SEE B/S-5 AND C/S-5 FOR PLAN VIEW.

DETAIL OF SEISMIC CABLE ASSEMBLY

S-5 NOT TO SCALE

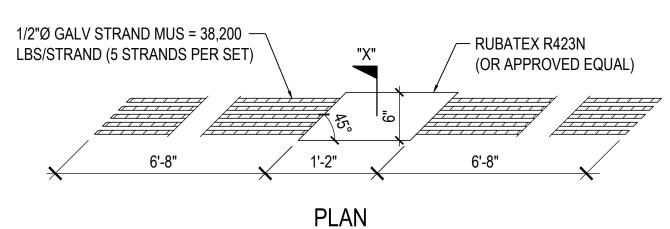
S-5

NOT TO SCALE



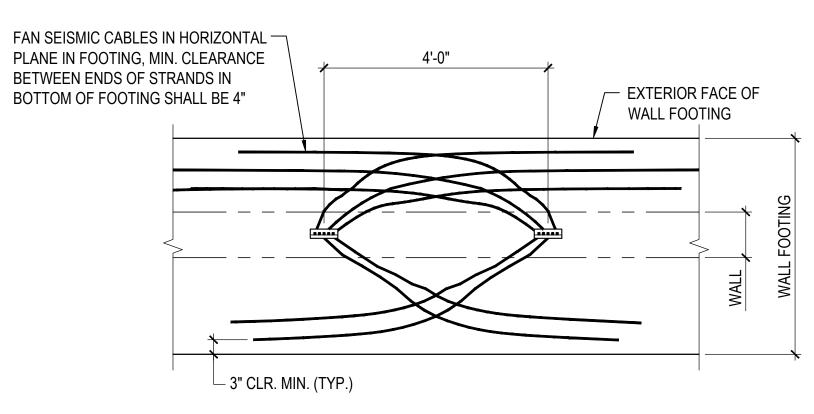
PLAN VIEW OF SLIDING JOINT AT BASE OF WALL

½"ø GALVANIZED STRAND (TYP.) 4 AT 1" "MONARCH" CELLULAR CLOSED-CELL RUBBER (SPONGE RUBBER) (OR DEPARTMENT ACCEPTED EQUAL) (USE TWO PIECES GLUED TOGETHER WITH CONTACT GLUE) "X" SECTION



- 1. ONE SET OF SEISMIC CABLE SHALL CONSIST OF TWO SEISMIC CABLE ASSEMBLIES FACING OPPOSITE DIRECTIONS.
- 2. EACH SET OF SEISMIC CABLE SHALL BE PLACED AT 20° INTERVALS ALONG THE WALL. A TOTAL OF 18 (EIGHTEEN) SETS.

TYPICAL SEISMIC CABLE ASSEMBLY NOT TO SCALE S-5



PLAN OF FOOTING

SEISMIC CABLE SET MAY BE PLACED ON EITHER SIDE OF CENTER OF FOOTING, 3" CLEARANCE TO EDGE OF FOOTING MUST BE MAINTAINED.

SEISMIC CABLE SET IN WALL FOOTING NOT TO SCALE S-5

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LICENSED
PROFESSIONAL

ENGINEER



91-5420 Kapolei Parkway Kapolei, Hawai`i 96707

ANAHOLA FARM LOTS WATER PROJECT Phase II - Water Tank Replacement & Facility Impr. Anahola, Island of Kaua`i

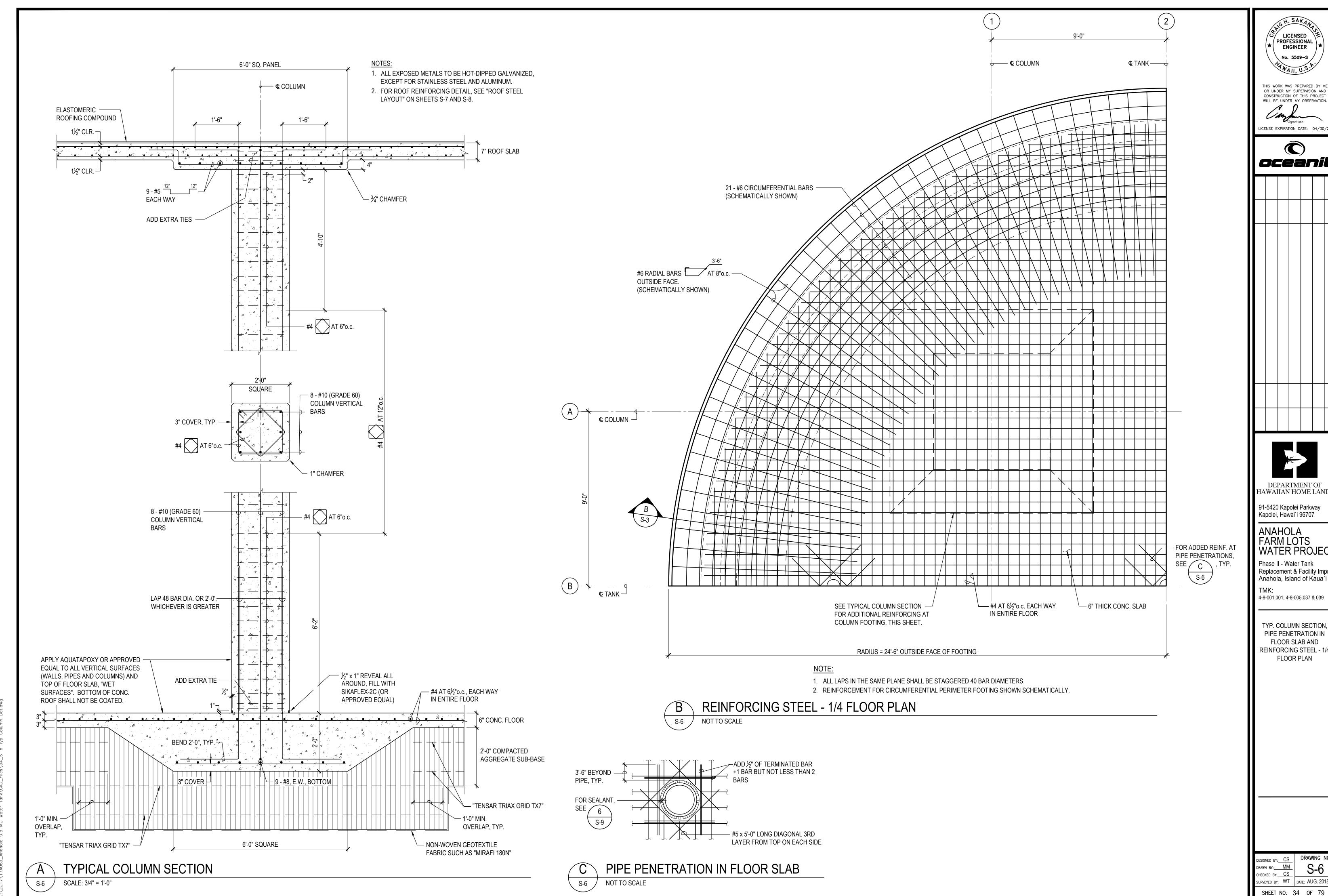
4-8-001:001; 4-8-005:037 & 039

SEISMIC CABLE PLANS

AND DETAILS

FARM LOTS - PHASE II - WATER TANK

SURVEYED BY: WT DATE: AUG. 2018 SHEET NO. 33 OF 79



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DEPARTMENT OF

HAWAIIAN HOME LANDS

Kapolei, Hawai`i 96707 ANAHOLA

FARM LOTS WÄTER PROJECT Phase II - Water Tank Replacement & Facility Impr. Anahola, Island of Kaua`i

4-8-001:001; 4-8-005:037 & 039

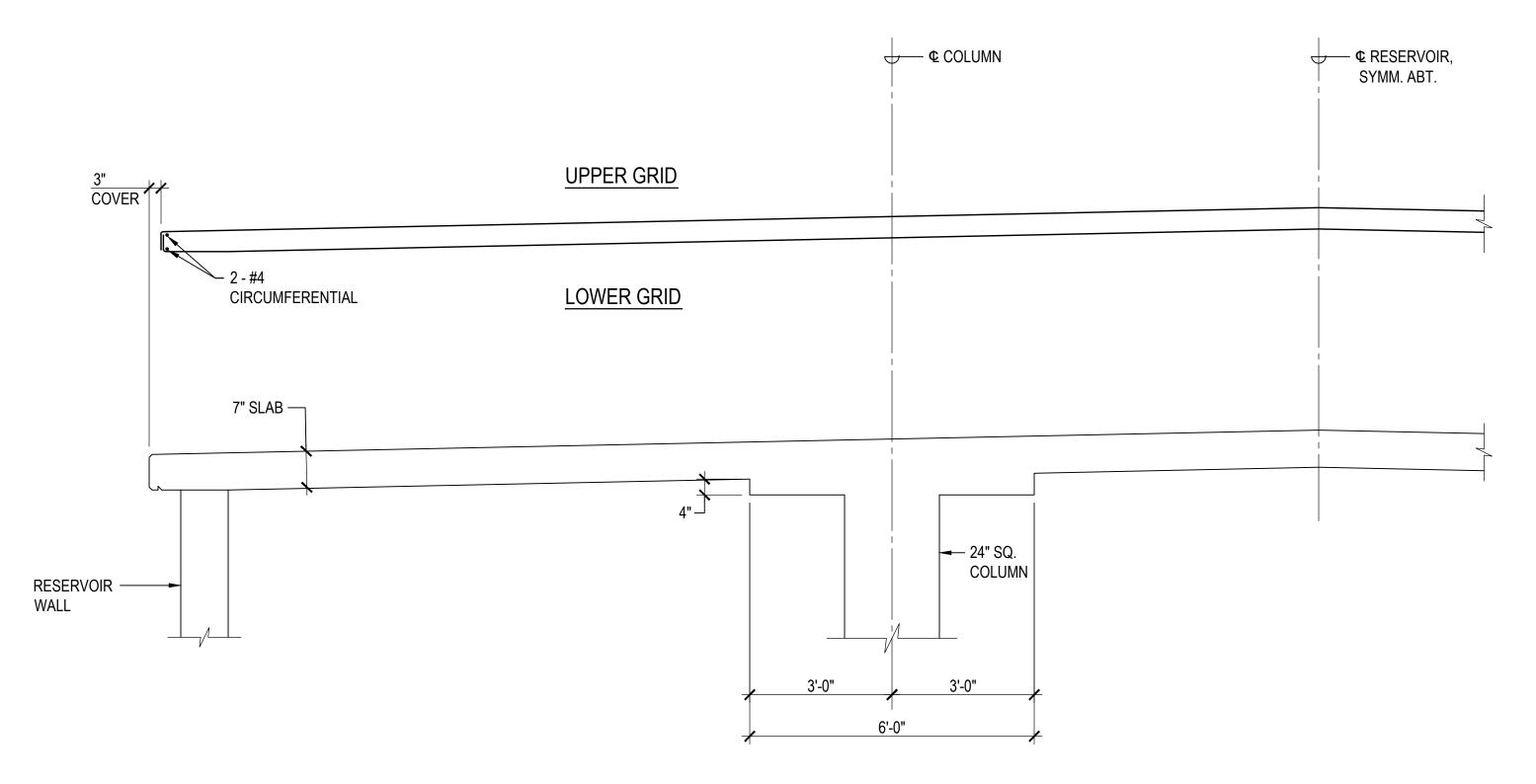
TYP. COLUMN SECTION,

PIPE PENETRATION IN FLOOR SLAB AND REINFORCING STEEL - 1/4 FLOOR PLAN

FARM LOTS - PHASE II - WATER

S-6 CHECKED BY: CS SURVEYED BY: WT DATE: AUG. 2018

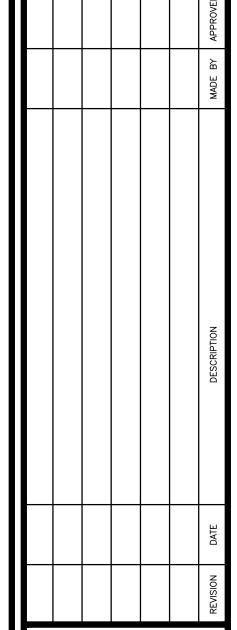
1/2 PLAN ROOF STEEL - UPPER GRID SCALE: 1/4" = 1-0"



LICENSED **ENGINEER** THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

LICENSE EXPIRATION DATE: 04/30/2





DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway Kapolei, Hawai`i 96707

ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i
TMK:

Phase II - Water Tank Replacement & Facility Impr. Anahola, Island of Kaua`i

4-8-001:001; 4-8-005:037 & 039

ROOF STEEL - UPPER GRID REINFORCING STEEL COLUMN STRIP

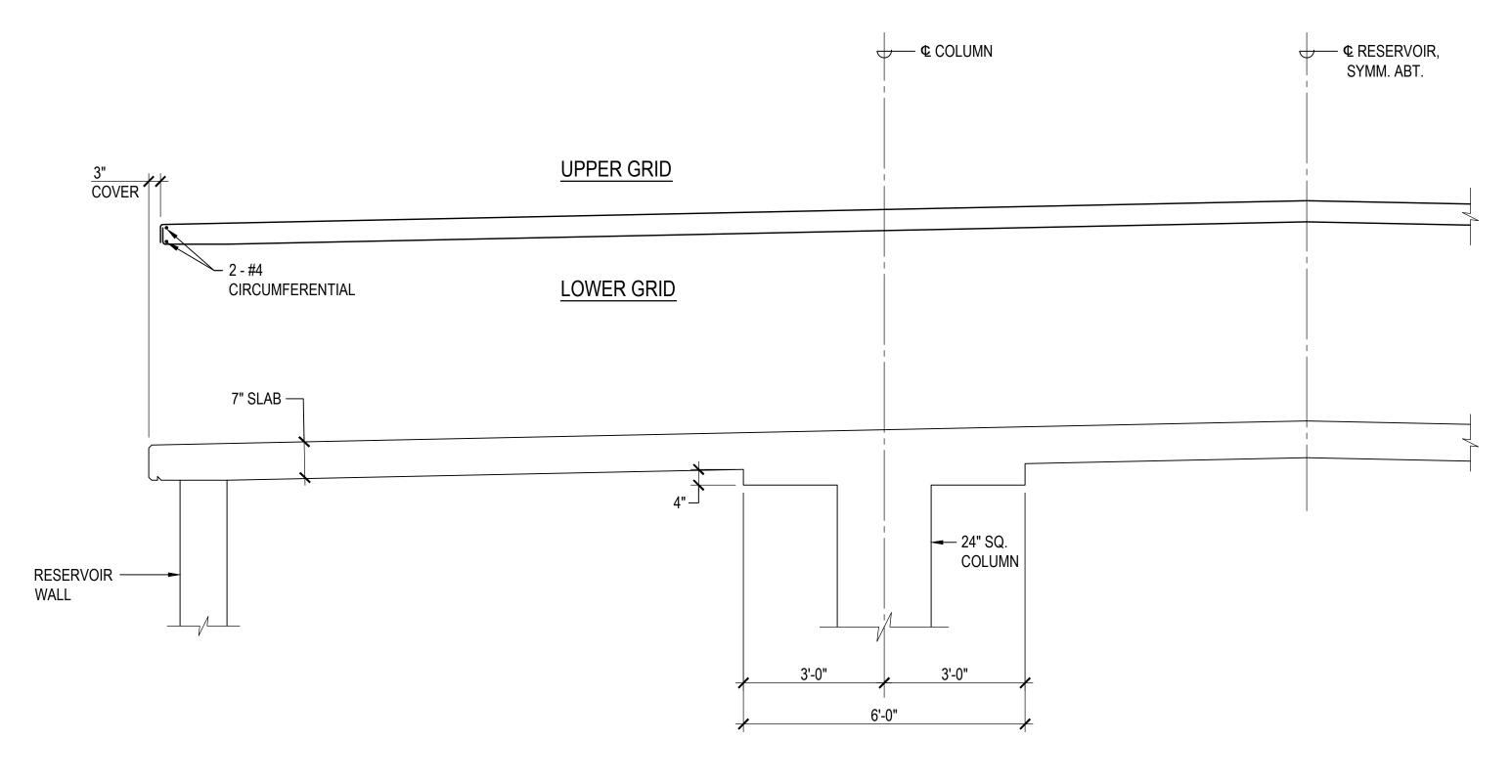
S: ANAHOLA FARM LOTS - PHASE II - WATER TANK S-7 SURVEYED BY: WT DATE: AUG. 2018

REINFORCING STEEL COLUMN STRIP

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

A 1/2 PLAN ROOF STEEL - LOWER GRID

S-8 SCALE: 1/4" = 1-0"



LICENSED PROFESSIONAL ENGINEER

No. 5509-S

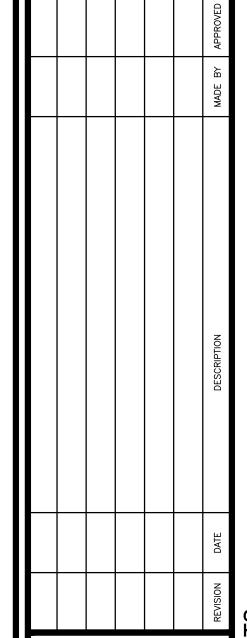
HAWAII, U.S.P.

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

Signature

LICENSE EXPIRATION DATE: 04/30/20







HAWAIIAN HOME LAND 91-5420 Kapolei Parkway Kapolei, Hawai`i 96707

ANAHOLA FARM LOTS WATER PROJECT

WATER PROJECT

Phase II - Water Tank

Replacement & Facility Impr.

Anahola, Island of Kaua`i

TMK: 4-8-001:001; 4-8-005:037 & 039

ROOF STEEL - LOWER GRID REINFORCING STEEL COLUMN STRIP

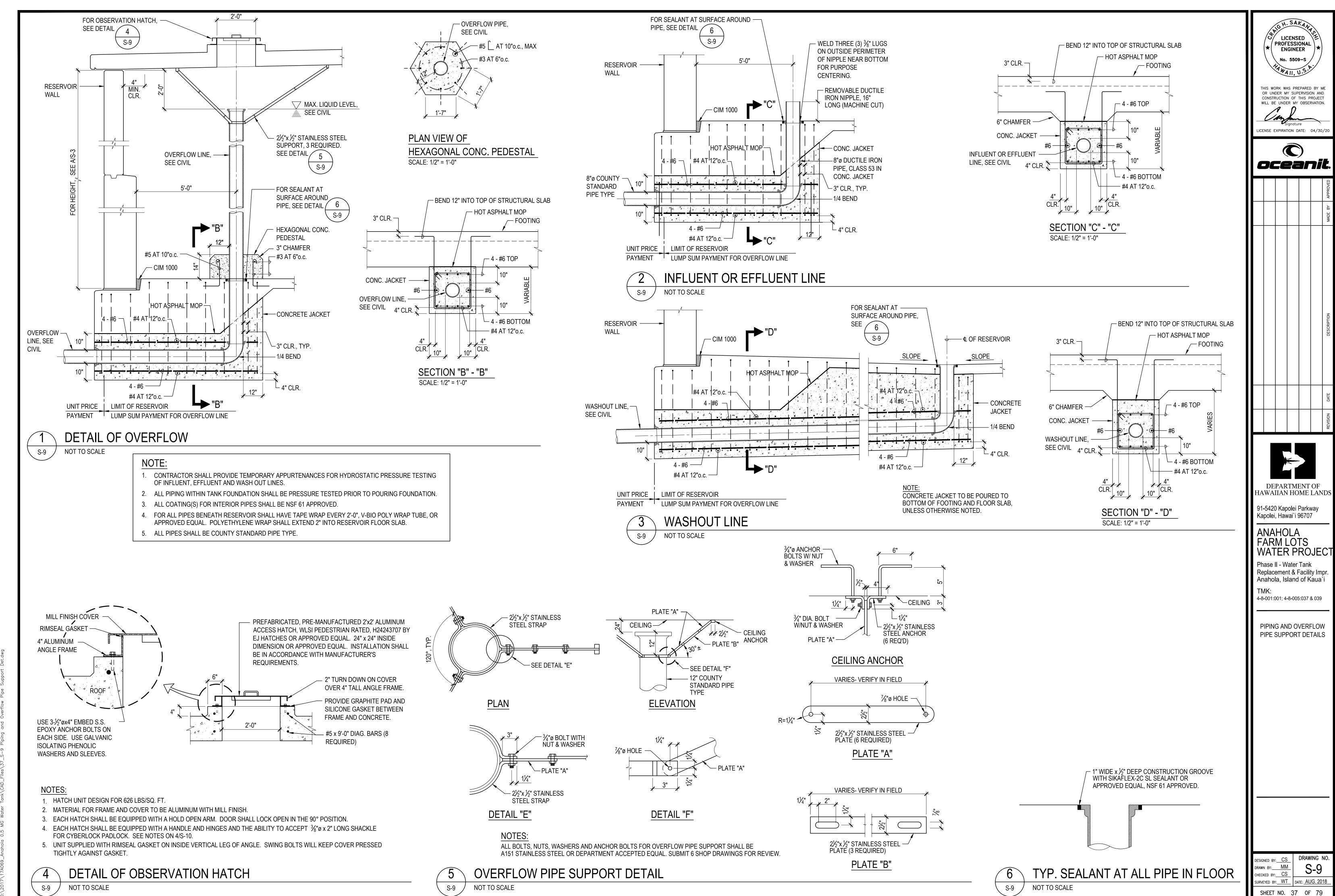
FARM LOTS - PHASE II - WATER TANK

DESIGNED BY: CS DRAWING NO.

DRAWN BY: MM S-8

CHECKED BY: CS

SURVEYED BY: WT DATE: AUG. 2018



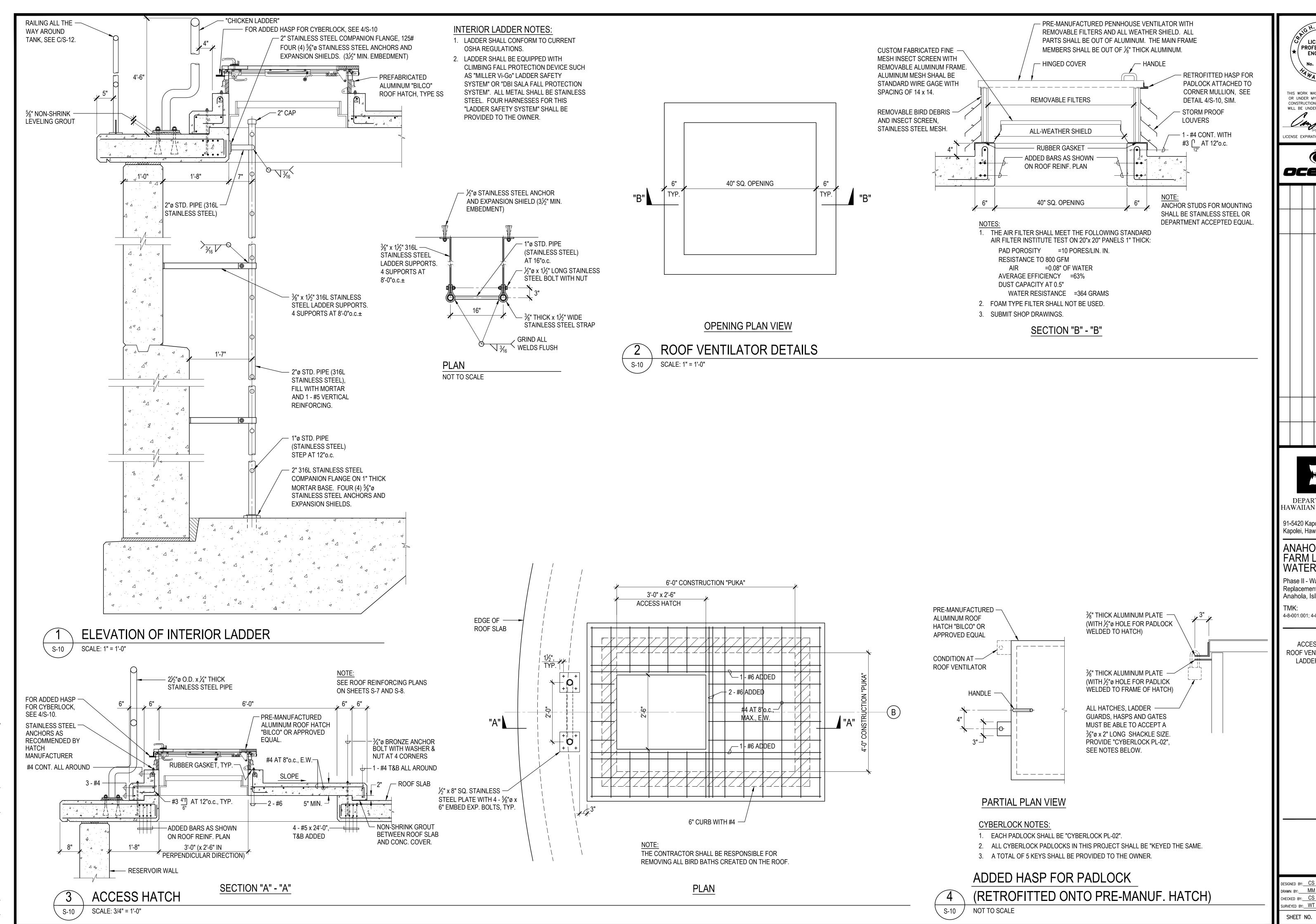
LICENSED

ENGINEER

FARM LOTS

DRAWING N

S-9



LICENSED PROFESSIONAL **ENGINEER** No. 5509-S THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/ oceanit DEPARTMENT OF

HAWAIIAN HOME LANDS 91-5420 Kapolei Parkway Kapolei, Hawai`i 96707

ANAHOLA FARM LOTS

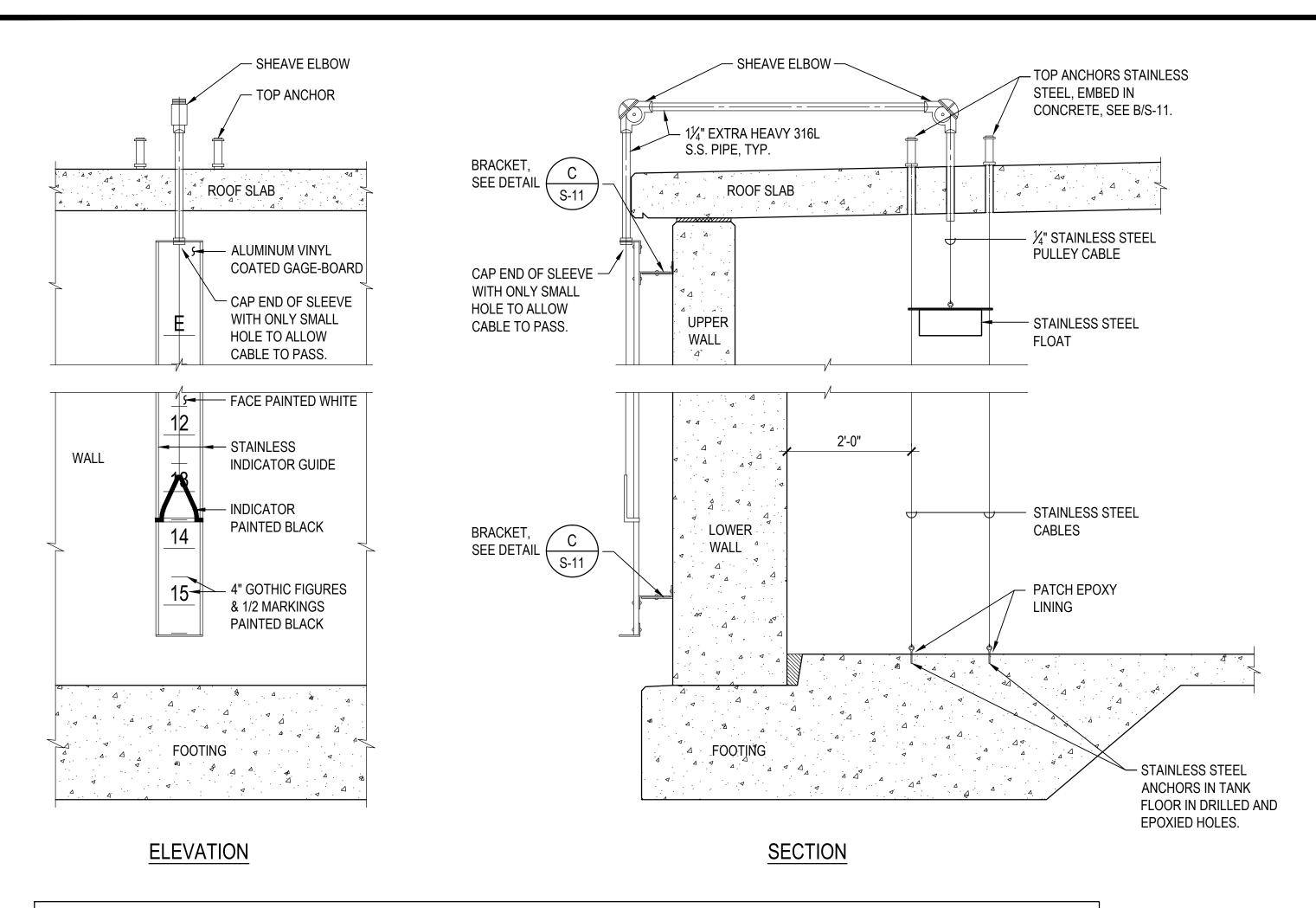
WATER PROJECT Phase II - Water Tank Replacement & Facility Impr. Anahola, Island of Kaua`i

4-8-001:001; 4-8-005:037 & 039

ACCESS HATCH, **ROOF VENTILATOR AND** LADDER DETAILS

S-10 SURVEYED BY: WT DATE: AUG. 2018 SHEET NO. 38 OF 79

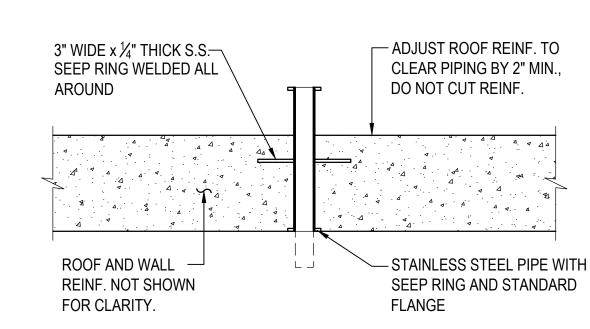
FARM LOTS



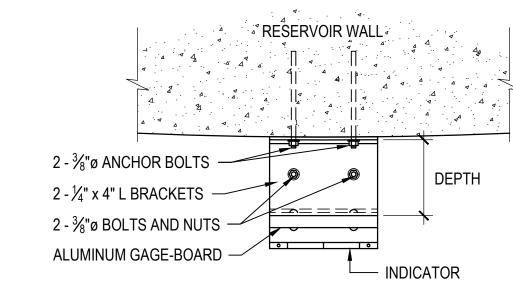
WATER LEVEL INDICATOR SHALL BE "VAREC LIQUID INDICATOR", (MODEL 6700 WITH GUIDED FLOAT) OR EQUAL, AND INSTALLED AT A LOCATION THAT CAN BE SEEN FROM THE ACCESS ROAD. ALL BRACKET AND FASTENERS SHALL BE STAINLESS STEEL. WATER LEVEL INDICATOR SHALL BE LOCATED AS CLOSE TO THE ACCESS HATCH AS POSSIBLE.

WATER LEVEL INDICATOR

NOT TO SCALE \ S-11 /



TYP. PIPE THROUGH ROOF NOT TO SCALE S-11



NOTES:

1. FOR SIZE OF INDICATOR BOARD AND BRACKET REQUIREMENTS, SEE MANUFACTURER LITERATURE. 2. BRACKETS, ANCHORS, NUTS AND BOLTS SHALL BE STAINLESS STEEL (TYPICAL).

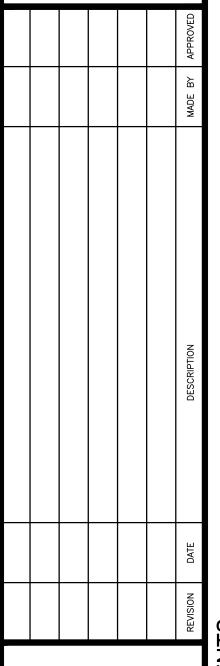
PLAN VIEW



LICENSED
PROFESSIONAL **ENGINEER**

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91-5420 Kapolei Parkway Kapolei, Hawai`i 96707

ANAHOLA FARM LOTS WATER PROJECT

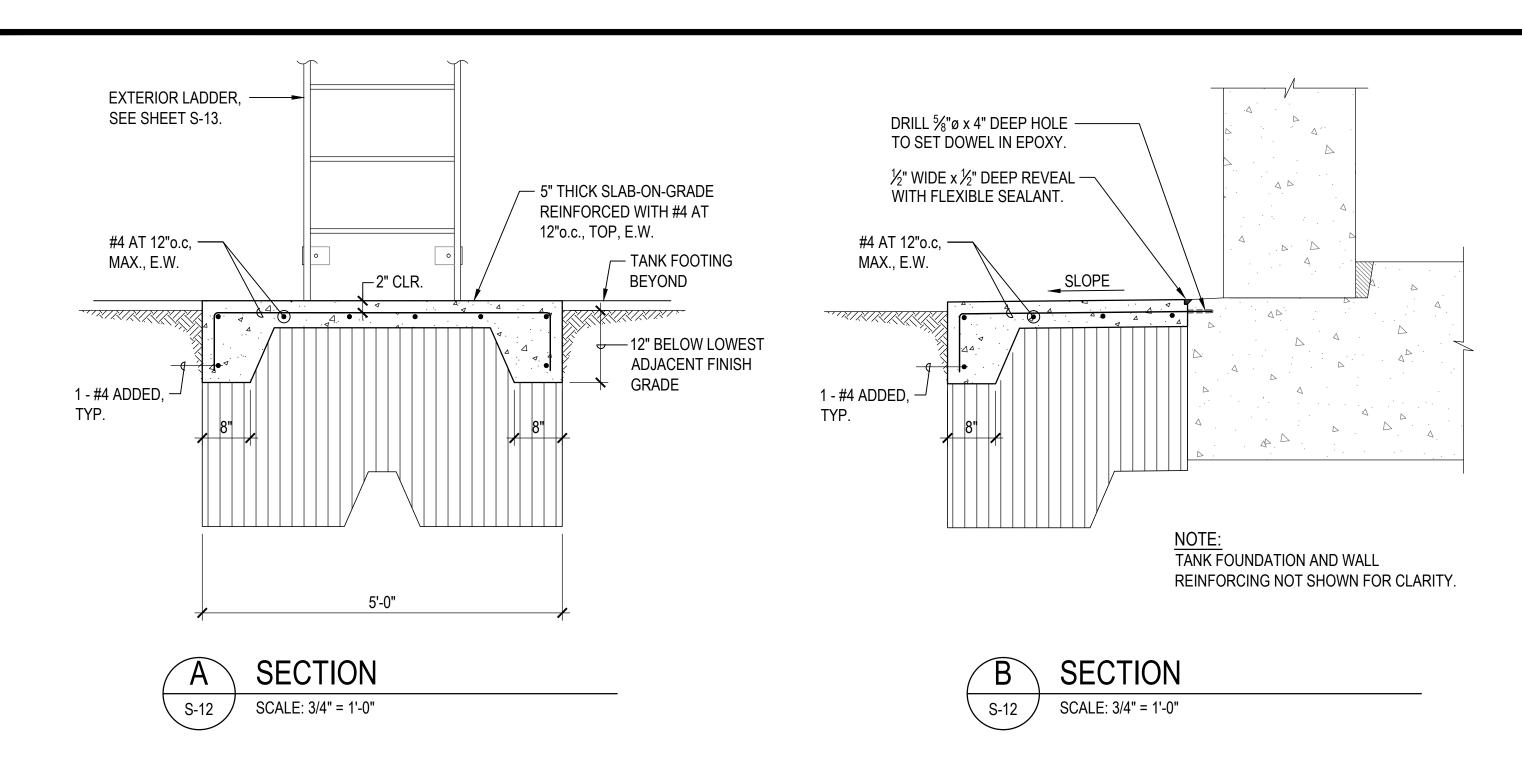
Phase II - Water Tank Replacement & Facility Impr. Anahola, Island of Kaua`i

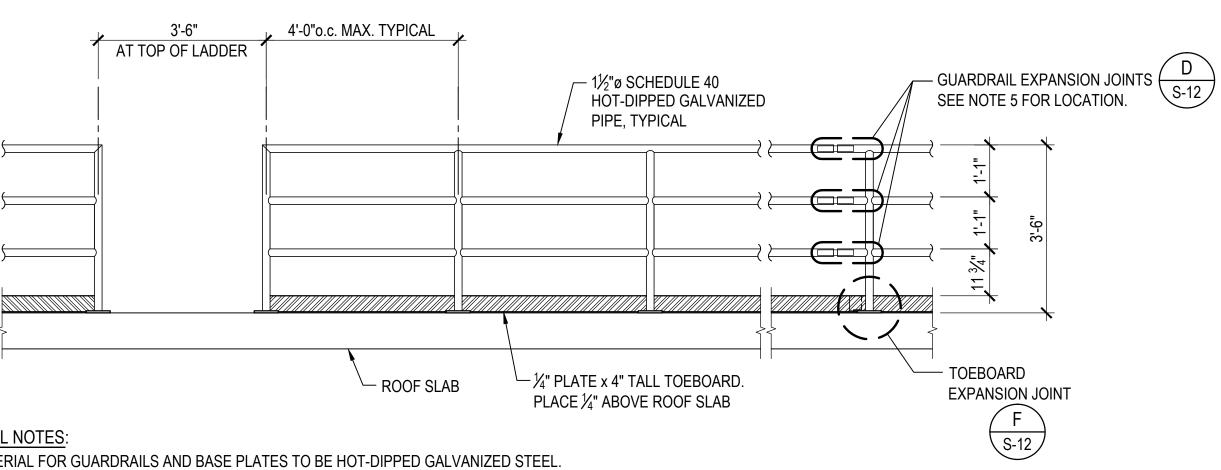
TMK: 4-8-001:001; 4-8-005:037 & 039

WATER LEVEL INDICATOR, TYPICAL PIPE THROUGH ROOF AND BRACKET DETAILS

ANS: ANAHOLA FARM LOTS - PHASE II - WATER TANK

DESIGNED BY: CS
DRAWN BY: MM
CHECKED BY: CS
SURVEYED BY: WT
DRAWING NO.
S-11
DATE: AUG. 2018 SHEET NO. 39 OF 79

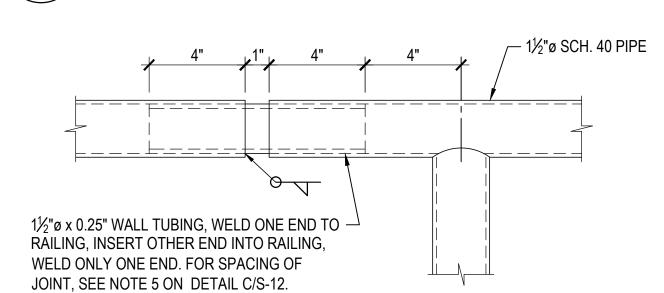




GUARDRAIL NOTES:

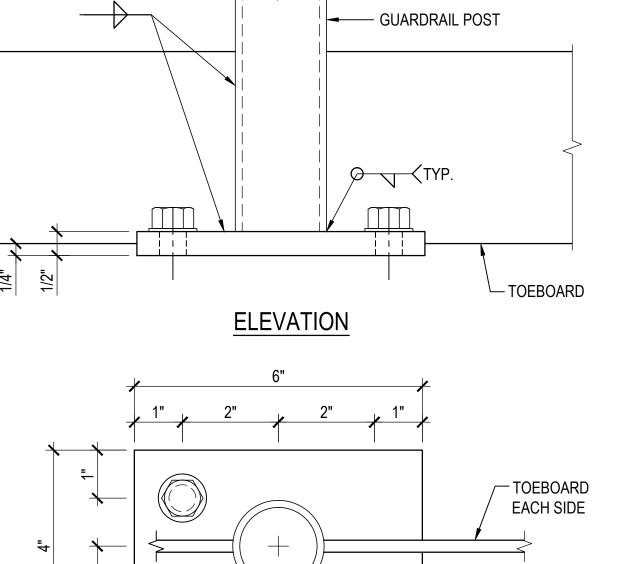
- 1) ALL MATERIAL FOR GUARDRAILS AND BASE PLATES TO BE HOT-DIPPED GALVANIZED STEEL
- 2) ALL WELDS TO BE 1/4" MINIMUM. ALL WELD TRANSITIONS TO BE SMOOTH AND FREE OF BURRS AND SHARP EDGES.
- 3) USE STAINLESS STEEL 316 FOR ALL BOLTS UNLESS NOTED OTHERWISE.
- 4) WHERE STAINLESS STEEL BOLTS ARE IN CONTACT WITH DISSIMILAR METALS, USE INSULATING SLEEVES AND PHENOLIC WASHERS TO ELECTRICALLY ISOLATE THE BOLTS.
- 5) FABRICATE GUARDRAIL IN AS LONG LENGTHS AS POSSIBLE. PROVIDE EXPANSION JOINTS IN AT LEAST ONE END OF EVERY FABRICATED SECTION NOT TO EXCEED 24'-0".

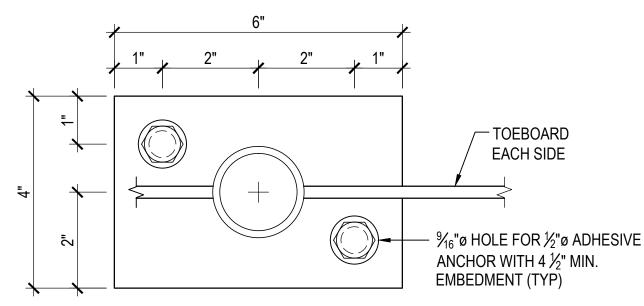




RAILING EXPANSION JOINT

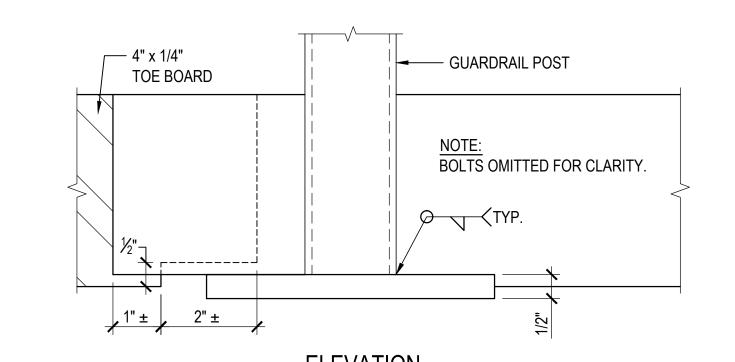
S-12 SCALE: 3" = 1'-0"

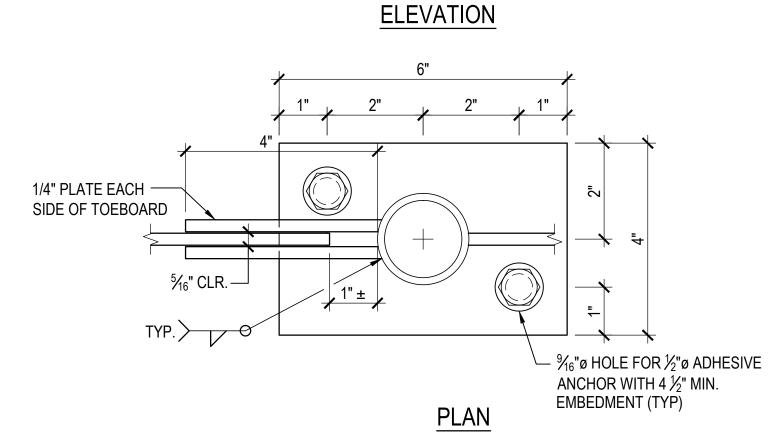




TYPICAL BASE PLATE NOT TO SCALE S-12 /

<u>PLAN</u>





TOEBOARD EXPANSION JOINT NOT TO SCALE S-12

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ICENSE EXPIRATION DATE: 04/30/ | oceanit

DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway Kapolei, Hawai`i 96707

ANAHOLA FARM LOTS WATER PROJECT Phase II - Water Tank Replacement & Facility Impr. Anahola, Island of Kaua`i

4-8-001:001; 4-8-005:037 & 039

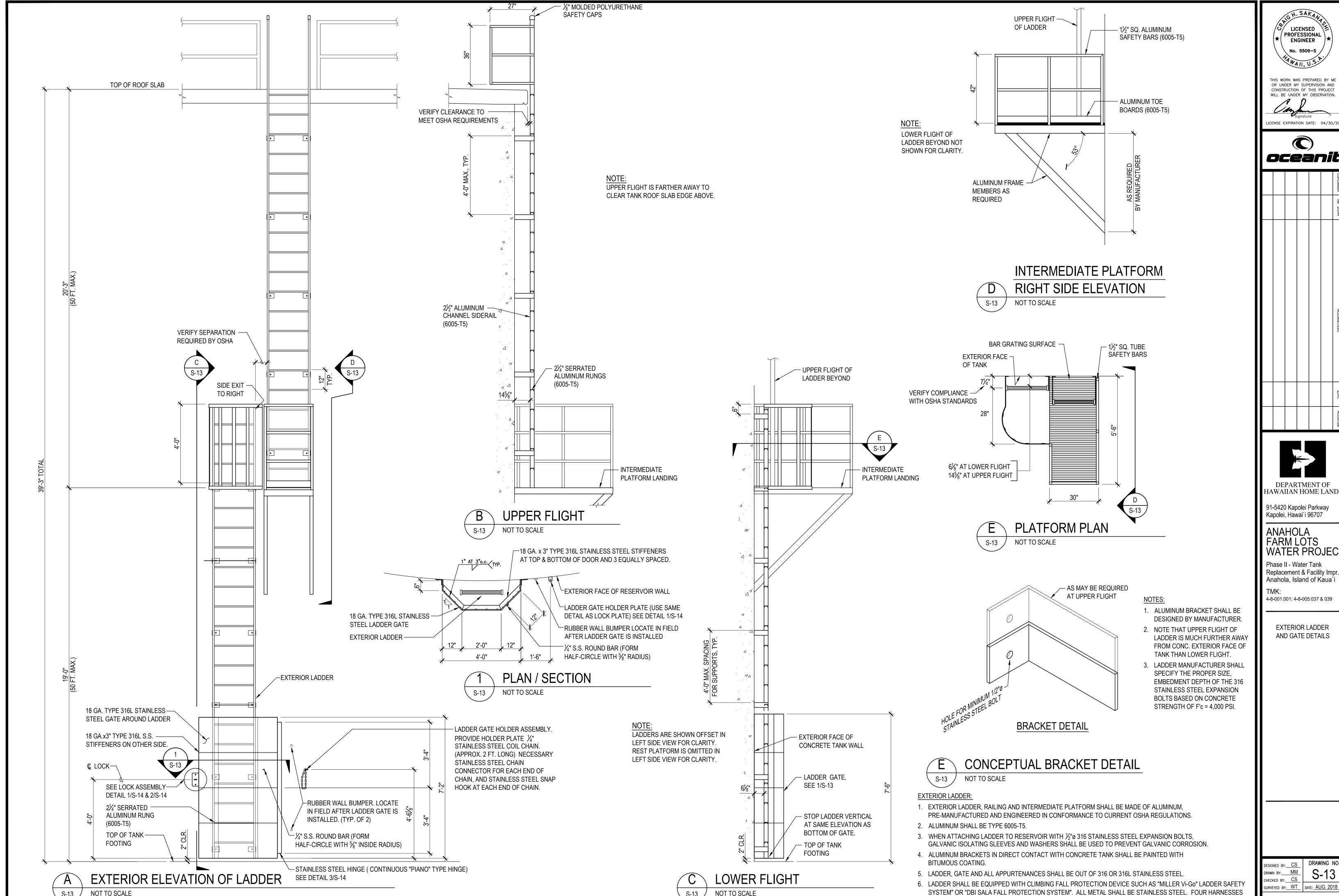
EXTERIOR LADDER

PLAN AND DETAILS

FARM LOTS - PHASE II - WATER

S-12

DESIGNED BY: CS
DRAWN BY: MM
CHECKED BY: CS SURVEYED BY: WT DATE: AUG. 2018 SHEET NO. 40 OF 79



S-13

NOT TO SCALE

SHALL BE PROVIDED TO THE OWNER BY THE MANUFACTURER

NOT TO SCALE

S-13

LICENSED PROFESSIONAL **ENGINEER** THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. ICENSE EXPIRATION DATE: 04/30/

DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway

ANAHOLA FARM LOTS

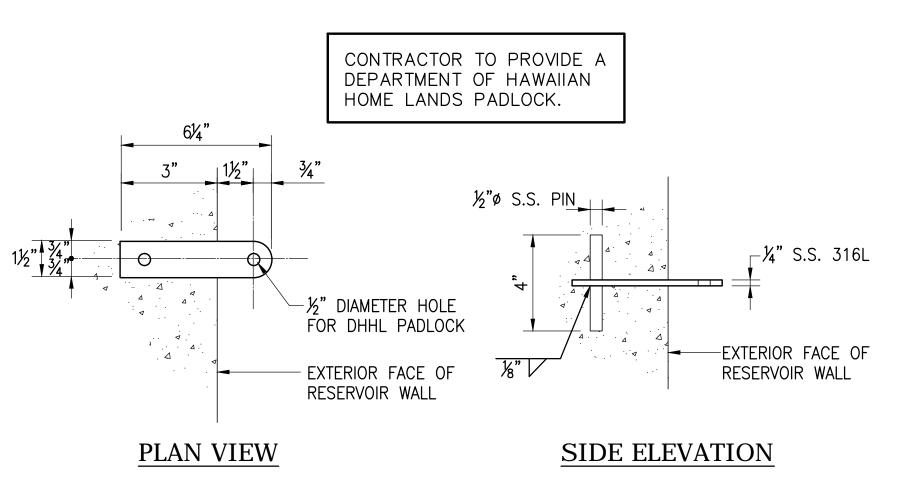
WATER PROJECT Phase II - Water Tank Replacement & Facility Impr. Anahola, Island of Kaua`i

4-8-001:001; 4-8-005:037 & 039

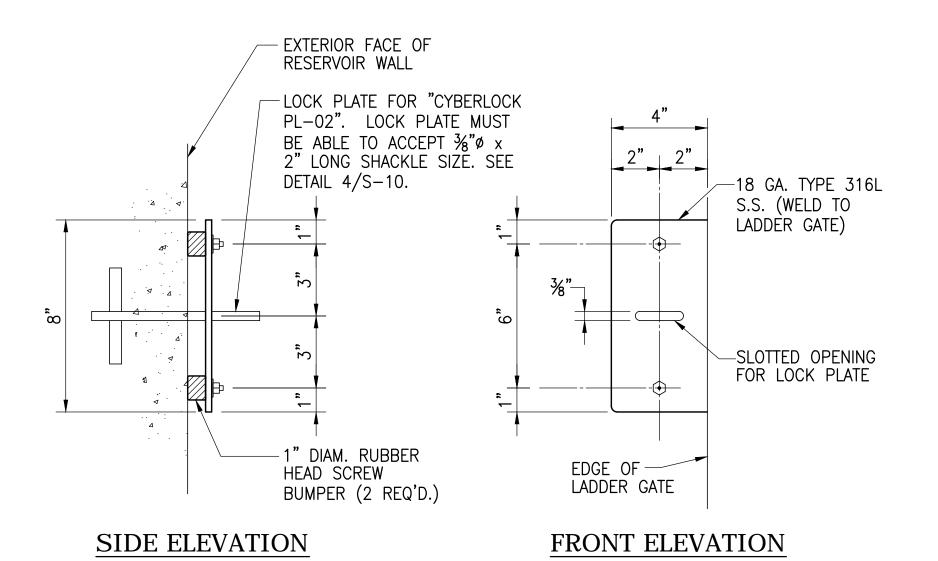
EXTERIOR LADDER AND GATE DETAILS

DRAWING NO S-13 DRAWN BY: MM

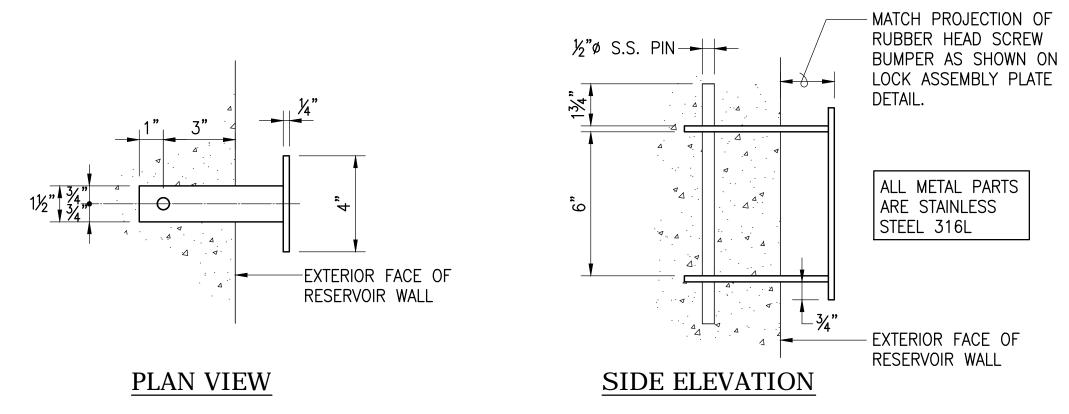
SHEET NO. 41 OF 79



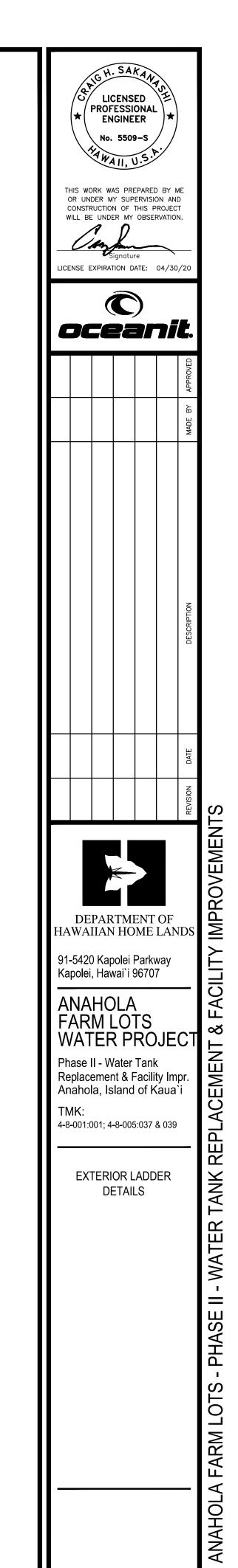
\LOCK PLATE DETAIL S-14 SCALE: 3" = 1'-0"







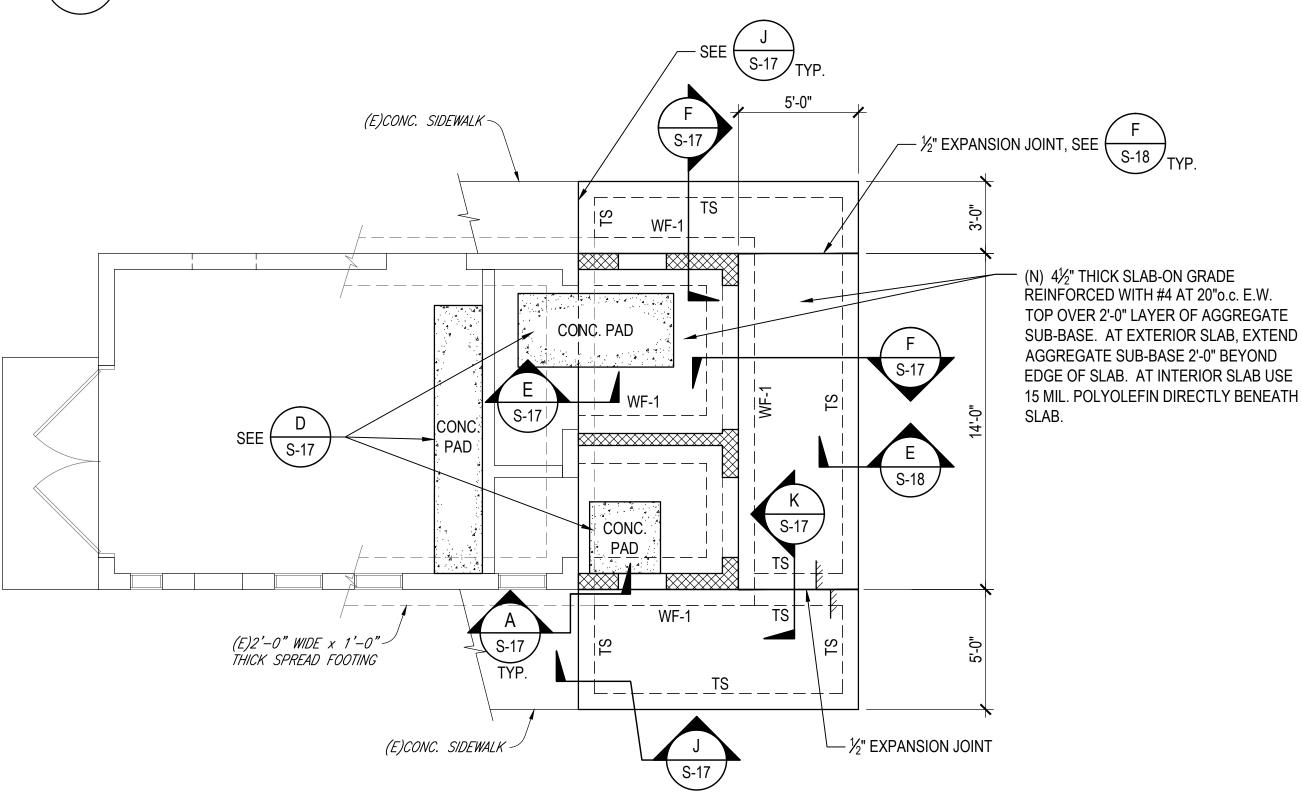
3 HINGE ANCHOR PLATE DETAIL S-14 SCALE: 3'' = 1'-0''



ANS: ANAHOLA FARM LOTS - PHASE II - WATER TANK DESIGNED BY: CS
DRAWN BY: MM
CHECKED BY: CS
SURVEYED BY: WT
DATE: AUG. 2018

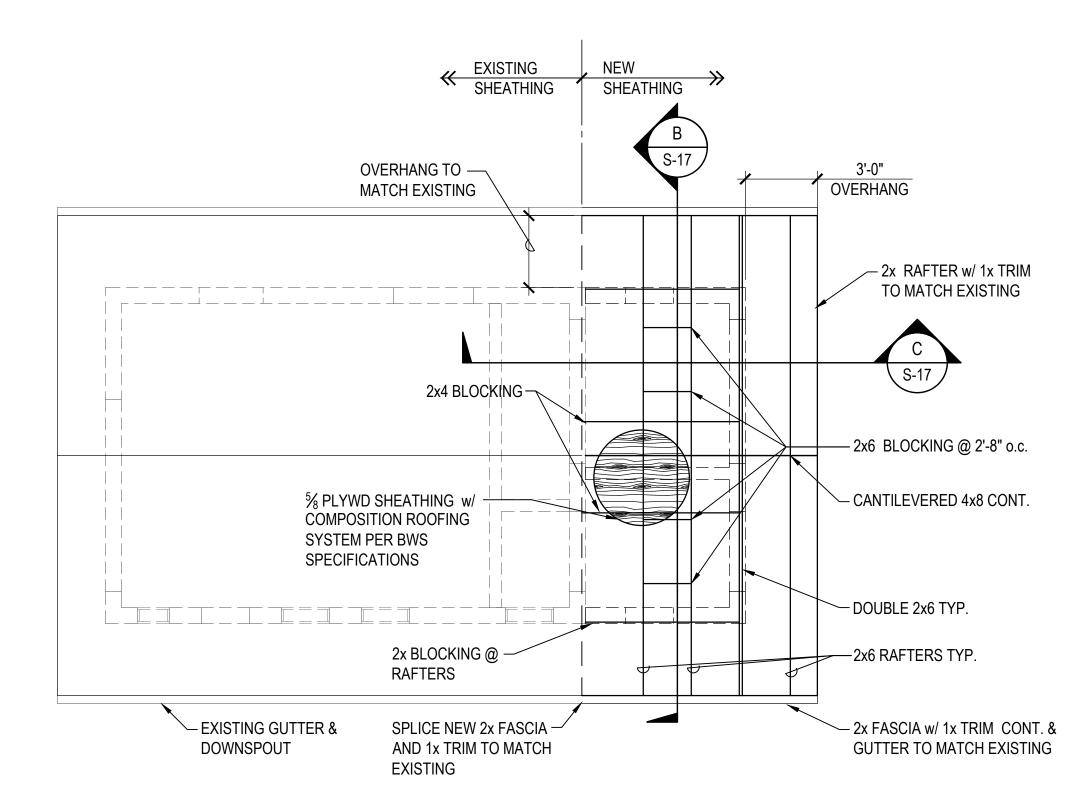
EQUIPMENT BUILDING - DEMOLITION

SCALE: 1/4" = 1'-0" S-15



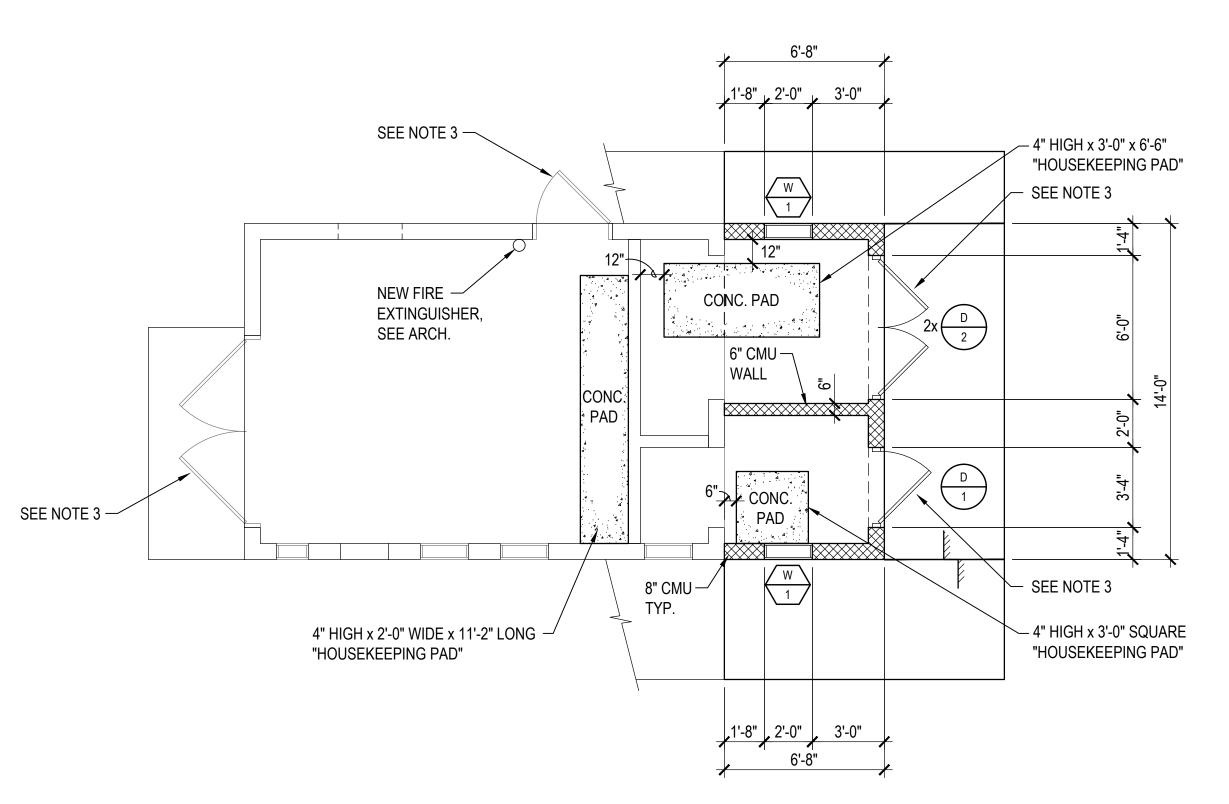
EQUIPMENT BUILDING - FOUNDATION PLAN

S-15 SCALE: 1/4" = 1'-0"



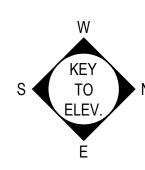
EQUIPMENT BUILDING - ROOF FRAMING PLAN

SCALE: 1/4" = 1'-0" S-15

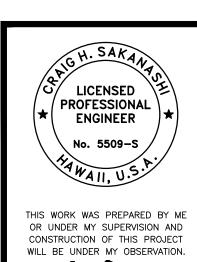


EQUIPMENT BUILDING - FLOOR PLAN

S-15 / SCALE: 1/4" = 1'-0"



- 1. REINFORCE ALL CMU WALLS WITH #4 VERTICAL @ 16" oc CENTERED AND #4 HORIZONTAL AT 16"o.c. USE 2 - #4 VERT. (ONE ON EACH FACE) AT ALL JAMBS @ WINDOWS, LOUVERS AND DOORS. SOLID GROUT ALL WALLS.
- 2. NEW WALL FOOTINGS BOTTOM ELEVATION SHALL MATCH THE EXISTING WALL FOOTING.
- 3. ALL EXISTING AND NEW CYLINDERS ON DOOR HARDWARE SHALL BE REPLACED WITH "CYBERLOCK" CYLINDERS KEYED THE SAME FOR ENTIRE PROJECT (INCLUDING PL-02 PADLOCKS).



LICENSE EXPIRATION DATE: 04/30/2

|| oceanit.

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED

DEPARTMENT OF

HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway Kapolei, Hawai`i 96707 ANAHOLA

FARM LOTS FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i

4-8-001:001; 4-8-005:037 & 039

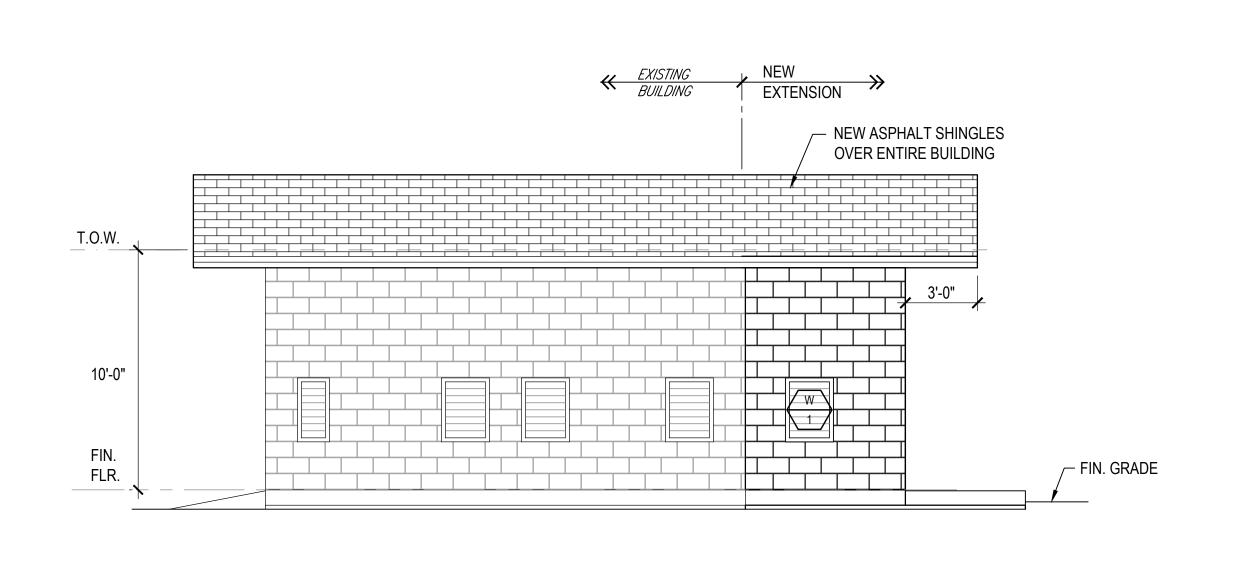
EQUIPMENT BUILDING
DEMOLITION, FOUNDATION
AND ROOF FRAMING PLANS

DRAWING NO S-15

FARM LOTS

DESIGNED BY: CS
DRAWN BY: MM
CHECKED BY: CS SURVEYED BY: WT DATE: AUG. 2018

SHEET NO. 43 OF 79



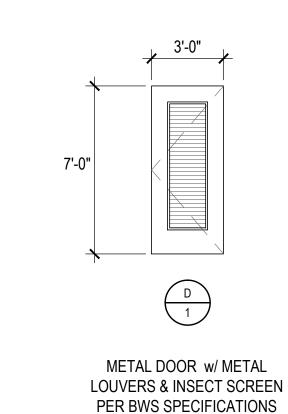
EAST ELEVATION

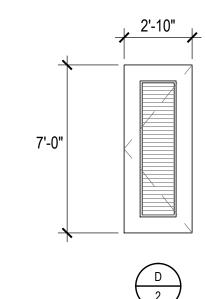
NOT TO SCALE

— ATTIC VENT TO MATCH EXISTING SLOPE TO MATCH -EXISTING, TYP. — T1-11 SIDING TO - GUTTER TO MATCH EXISTING MATCH EXISTING T.O.W. EXISTING FIN. / FIN. GRADE FLR. - SEE NOTE 3 ON SHEET S-15. NEW FINISH FLOOR LEVEL TO MATCH EXISTING

NEW NORTH ELEVATION

NOT TO SCALE

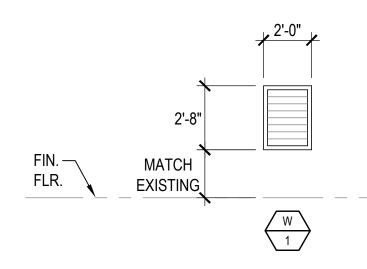




METAL DOOR w/ METAL LOUVERS & INSECT SCREEN PER BWS SPECIFICATIONS



DOOR SCHEDULE



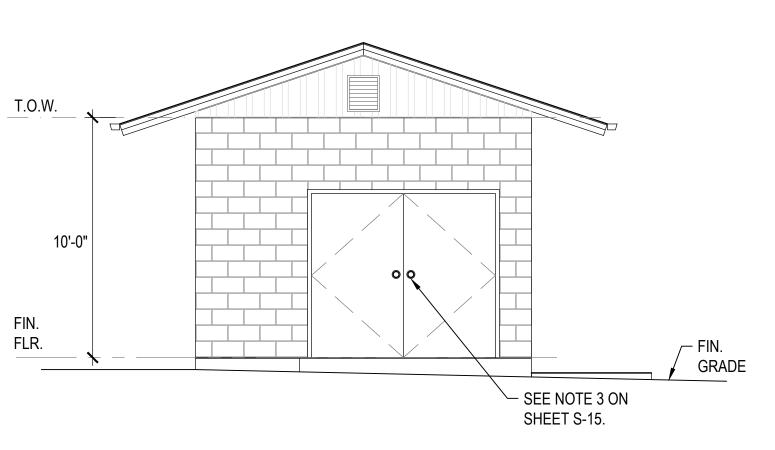
/ FIN. GRADE

METAL LOUVERS w/ INSECT SCREEN PER BWS SPECIFICATIONS



HARDWARE NOTE:

DOOR AND WINDOW HARDWARE PER BWS SPECIFICATIONS

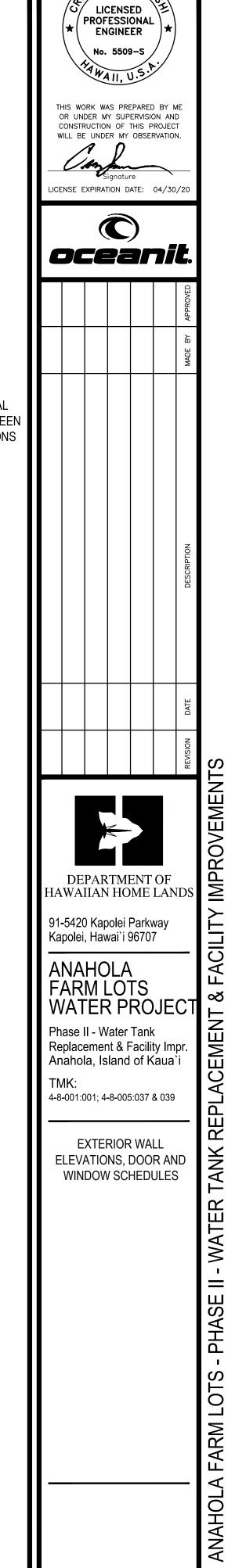


SOUTH ELEVATION NOT TO SCALE

WEST ELEVATION NOT TO SCALE

- SEE NOTE 3 ON

SHEET S-15.

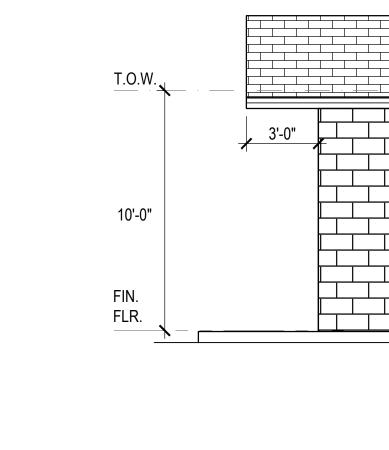


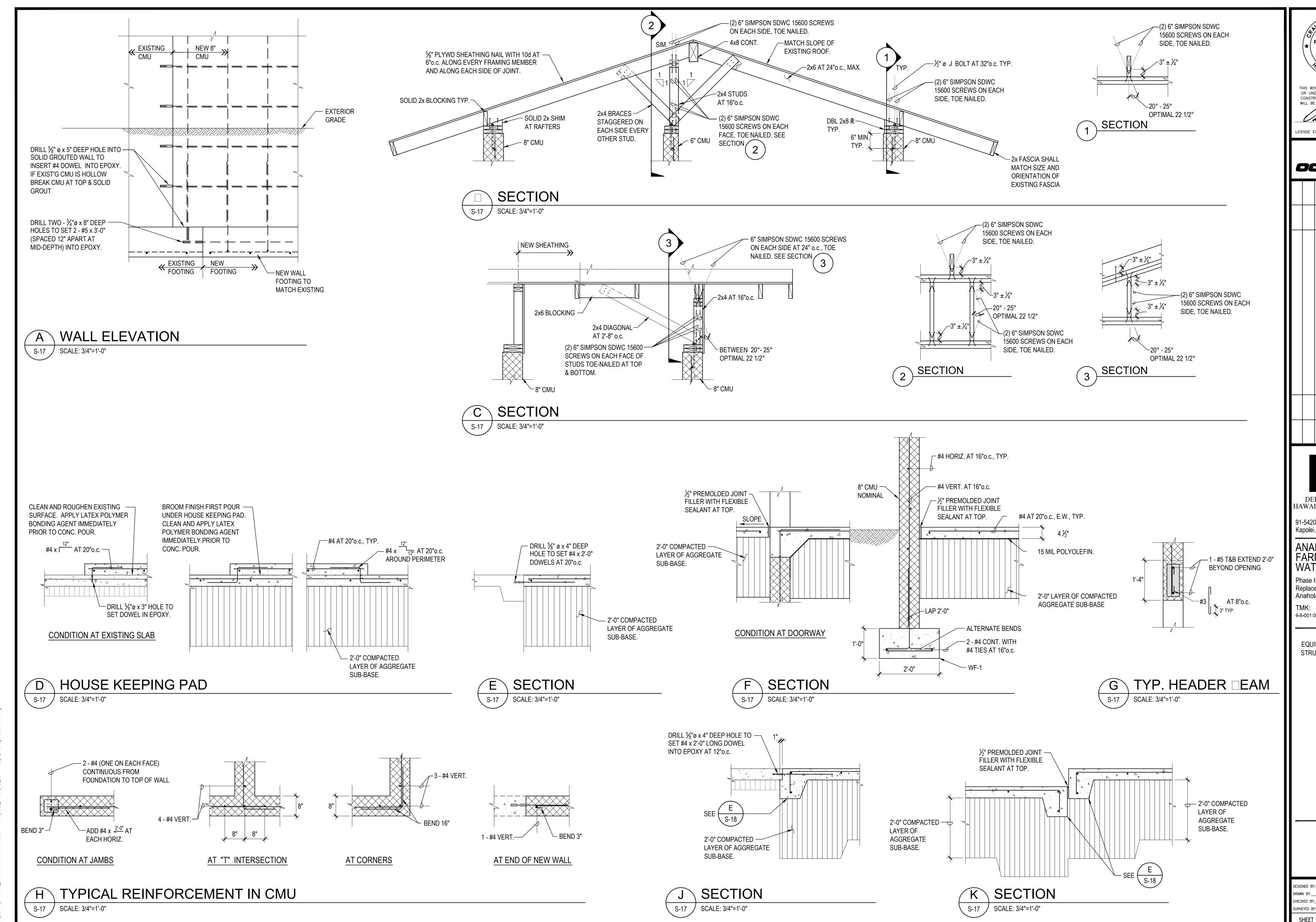
FARM LOTS - PHASE II - WATER

S-16

SURVEYED BY: WT DATE: AUG. 2018

SHEET NO. 44 OF 79





GH. SAKAN LICENSED PROFESSIONAL ENGINEER THIS WORK WAS PREPARED BY ME

OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/2

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DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway Kapolei, Hawai'i 96707

ANAHOLA FARM LOTS FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i

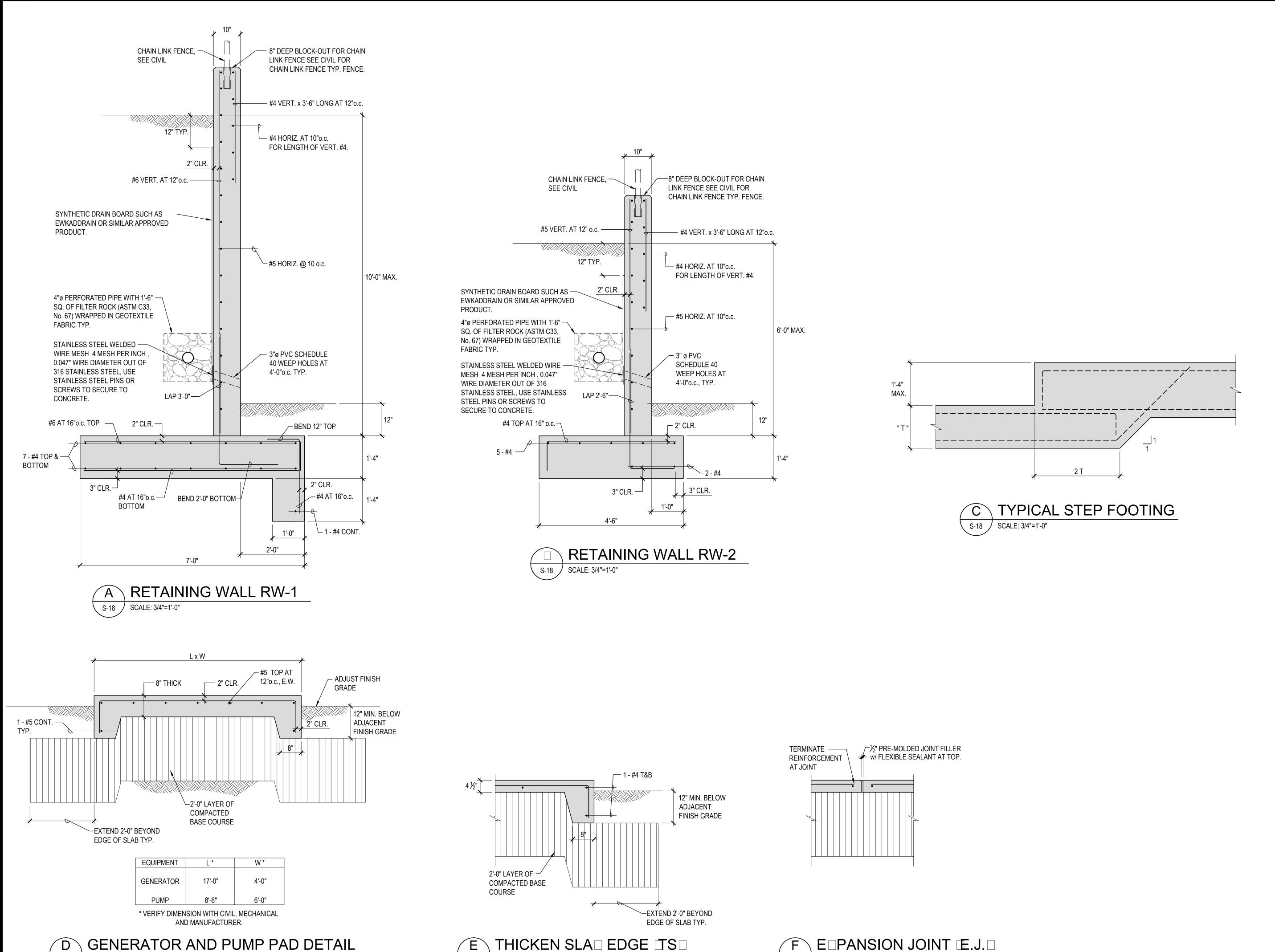
4-8-001:001; 4-8-005:037 & 039

EQUIPMENT BUILDING

STRUCTURAL DETAILS

A FARM LOTS - PHASE II - WATER TANK

DESIGNED BY: CS
DRAWN BY: MM
CHECKED BY: CS S-17 SURVEYED BY: WT DATE: AUG. 2018 SHEET NO. 45 OF 79



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/2 oceanit DEPARTMENT OF HAWAIIAN HOME LANDS 91-5420 Kapolei Parkway Kapolei, Hawai`i 96707 ANAHOLA FARM LOTS WATER PROJECT Phase II - Water Tank Replacement & Facility Impr. Anahola, Island of Kaua`i TMK: 4-8-001:001; 4-8-005:037 & 039 **RETAINING WALL** TYPES AND SECTIONS DESIGNED BY: CS
DRAWN BY: MM
CHECKED BY: CS
SURVEYED BY: WT
DRAWING NO.
S-18
DRAWING NO.
D

FARM LOTS - PHASE II - WATER TANK

SHEET NO. 46 OF 79

LICENSED PROFESSIONAL **ENGINEER**

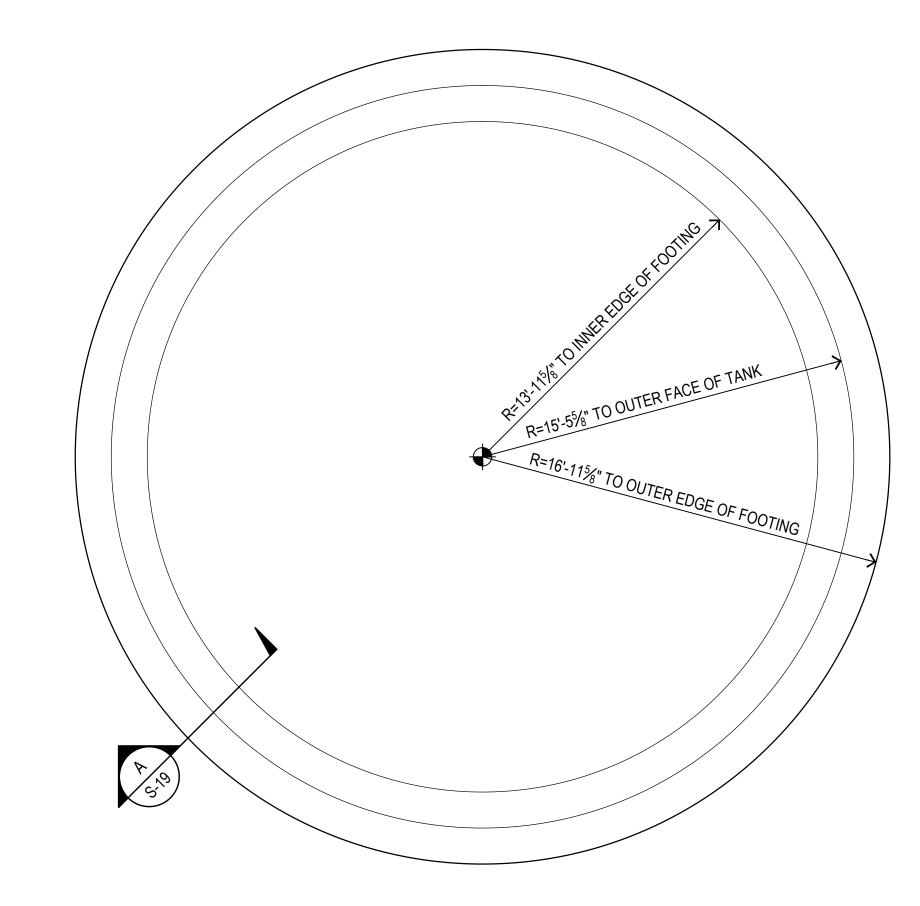
S-18 N.T.S.

S-18 SCALE: 3/4" = 1'-0"

S-18 / SCALE: 3/4" = 1'-0"

SCHEMATIC TEMPORARY TANK FOUNDATION

S-19 | SCALE: 3/4"=1'-0"



S-19 | SCALE: 1/4"=1'-0"

SCHEMATIC FOUNDATION PLAN FOR TEMPORARY STEEL TANK

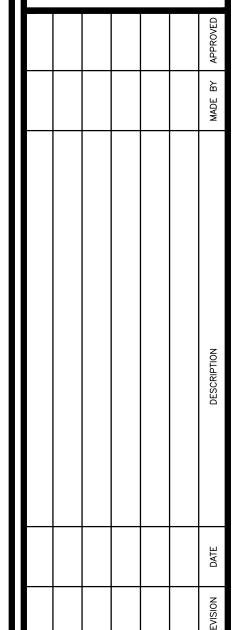
1. FOUNDATION SHOWN IS FOR SCHEMATIC PURPOSES ONLY. THE CONCRETE RING FOUNDATION SHALL BE DESIGNED BY A STRUCTURAL ENGINEER HIRED BY THE TANK MANUFACTURER. THE STRUCTURAL ENGINEER SHALL BE REGISTERED IN THE STATE OF HAWAII. DRAWINGS AND CALCULATIONS FOR THE FOUNDATION AND ENTIRE TANK ASSEMBLY SHALL BE SEALED BY THE STRUCTURAL ENGINEER. A COPY OF THE DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED FOR RECORD.

- 2. PARAMETERS FOR THE DESIGN OF THE TANK CAN BE FOUND ON SHEET S-1 OF THESE CONTRACT DRAWINGS. GEOTECHNICAL RECOMMENDATIONS ARE CONTAINED IN THE GEOTECHNICAL REPORT DONE FOR THIS PROJECT. THE TANK MANUFACTURER'S STRUCTURAL ENGINEER SHALL OBTAIN A COPY OF THE REPORT AND ADHERE TO ITS RECOMMENDATIONS.
- 3. THE STEEL TANK SHALL BE DESIGNED TO MEET THE FOLLOWING REFERENCES. IF THERE ARE CONFLICTING REQUIREMENTS, THE MORE STRINGENT SHALL APPLY: A. 2006 INTERNATIONAL BUILDING CODE AS ADOPTED IN THE HAWAII BUILDING CODE
- B. ASCE 7-05
- C. AWWA 103-09 4. SEE CIVIL AND SPECIFICATIONS FOR ALL APPURTENANCES THAT SHALL BE PROVIDED.
- 5. SEE CIVIL FOR ALL PIPING BENEATH TANK.

LICENSED
PROFESSIONAL **ENGINEER**

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





DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway

Kapolei, Hawai`i 96707 ANAHOLA

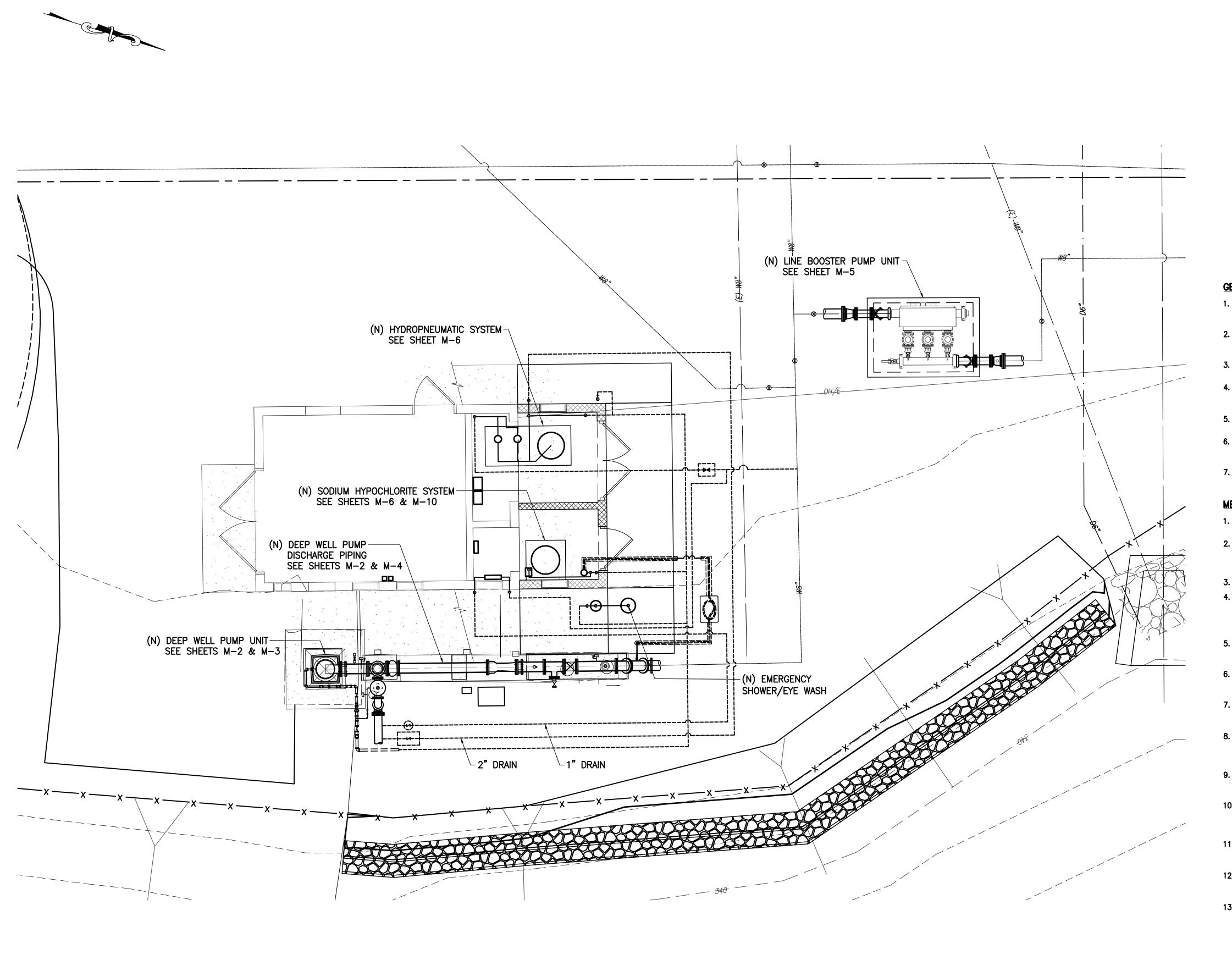
FARM LOTS FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i

4-8-001:001; 4-8-005:037 & 039

TEMPORARY TANK FOUNDATION PLAN

AND SECTION

DESIGNED BY: CS
DRAWN BY: MM
CHECKED BY: CS S-19 SURVEYED BY: WT DATE: AUG. 2018 SHEET NO. 47 OF 79



MECHANICAL SITE PLAN

MECHANICAL LEGEND						
SYMBOLS	ABBR.	DESCRIPTION				
		EXISTING TO REMAIN				
		NEW MECHANICAL\PLUMBING WORK				
	(E)	EXISTING				
	(N)	NEW				
<i>/////////</i>		EXISTING TO BE REMOVED				
	FOS FUEL OIL SUPPLY					
	FOR FUEL OIL RETURN					
	TYP. TYPICAL					
	POC	POINT OF CONNECTION				

GENERAL NOTES:

- 1. DRAWINGS INDICATE THE GENERAL ARRANGEMENT AND SHALL BE FOLLOWED AS CLOSELY AS ACTUAL FIELD CONDITIONS PERMIT. REASONABLE MODIFICATIONS TO SUIT JOB CONDITIONS SHALL NOT CONSTITUTE A BASIS FOR ADDITIONAL COMPENSATION.
- 2. PROMPTLY NOTIFY AND COORDINATE WITH THE OWNER OF DISCREPANCIES OR MAJOR DEVIATIONS FROM THE PLANS DUE TO UNFORESEEN OR VARYING FIELD CONDITIONS WHICH PREVENT HIM FROM FULFILLING THE TERMS OF THE CONTRACT.
- 3. VERIFY ALL CONDITIONS AND DIMENSIONS RELATED TO THE PROJECT BEFORE COMMENCING WITH THE
- 4. FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT, INCLUDING CUTTING AND PATCHING AS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM. ALL MATERIALS SHALL BE NEW, FREE FROM DEFECTS, AND CONFORM TO CODE.
- 5. PATCH ALL SURFACES EXPOSED FROM CUTTING AND/OR REMOVAL WORK. PATCHING SHALL MATCH THE FINISH OF THE ADJACENT SURFACES.
- 6. ALL ITEMS AND MATERIALS TO BE REMOVED SHALL BE DONE IN SUCH A MANNER AS TO PREVENT DAMAGE TO ITEMS AND MATERIALS TO REMAIN. ALL SUCH DAMAGES SHALL BE SATISFACTORILY REPAIRED AT NO ADDITIONAL COST TO THE DHHL.
- 7. ALL WASTE MATERIALS SHALL BE PROMPTLY REMOVED AND DISPOSED.

MECHANICAL CONSTRUCTION NOTE:

- 1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE KDOW WATER SYSTEM STANDARDS, DATED 2002, AS AMENDED.
- 2. COORDINATE AND SCHEDULE WORK ACTIVITIES TO ENSURE THAT THE EXISTING ANAHOLA WELL & TANK FACILITY IS FREE AND CLEAR OF ANY OBSTRUCTIONS THAT WOULD PREVENT OR INTERFERE WITH ITS NORMAL OPERATION AND MAINTENANCE BY DHHL AND AQUA ENGINEERS, INC. PERSONNEL.
- 3. INFORM DHHL IN WRITING 72 HOURS IN ADVANCE OF COMMENCING WITH THE MECHANICAL WORK.
- 4. ALL SCHEDULED SHUT DOWNS OF THE WELL PUMP REQUIRED FOR THE PERFORMANCE OF THE CONTRACT MUST BE APPROVED IN WRITING BY THE DHHL. THE DHHL RESERVES THE RIGHT TO RESCHEDULE ANY PROPOSED SHUT DOWN WHEN IT IS DEEMED IN THE BEST INTEREST TO THE DEPARTMENT. THE CONTRACTOR SHALL UNDERSTAND THAT HE SHALL NOT BE ENTITLED TO ANY CLAIMS AGAINST THE DHHL DUE TO ANY RESCHEDULING OF SHUT DOWNS OF THE WELL PUMP.
- 5. ALL CONNECTIONS TO EXISTING WATERLINES SHALL BE DONE BY THE CONTRACTOR UNDER DHHL SUPERVISION. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, BACKFILL, TRAFFIC CONTROL, AND PROVIDE ALL MATERIALS AND EQUIPMENT TO COMPLETE THE CONNECTIONS.
- 6. DISINFECT WATER SYSTEM COMPONENTS IN CONTACT WITH DRINKING WATER AND PERFORM ALL ASSOCIATED TESTING. THE PERSON TO DO THE WORK SHALL BE LICENSED IN THE STATE OF
- 7. ALL DISTURBED AREAS SHALL BE RESTORED TO ITS ORIGINAL CONDITION, OR BETTER. GRASSED AREAS DISTURBED BY THE CONTRACTOR'S ACTIVITIES SHALL BE REGRASSED AND MAINTAINED UNTIL THE GRASS HAS ESTABLISHED ITSELF AND SOIL CANNOT BE DISPLACED.
- 8. INSPECT WELL CASING UPON REMOVAL OF THE EXISTING WELL PUMP. INSPECTION SHALL BE BY VIDEO CAMERA AND A DVD COPY OF THE VIDEO—LOG SHALL BE SUBMITTED TO DHHL. THE CONTRACTOR SHALL IMMEDIATELY INFORM DHHL OF ANY DEFECTS OR DAMAGE TO THE WELL CASING.
- 9. PREPARE AND PAINT ALL SURFACES OF PIPING, EQUIPMENT, AND APPURTENANCES IN ACCORDANCE WITH THE KDOW WATER SYSTEM STANDARDS. COLOR WILL BE AS SELECTED BY
- 10. ALL EXISTING WATERLINES, WATERLINE APPURTENANCES, AND OTHER EXISTING UTILITIES SHOWN ON THE PLANS ARE OBTAINED FROM THE LATEST RELIABLE SOURCES. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXACT LOCATION OF ALL UTILITIES AND SHALL BEAR THE COST FOR DAMAGES DONE BY HIM DURING THE CONTRACT PERIOD.
- 11. ALL MATERIALS IN CONTACT WITH POTABLE WATER SHALL BE NSF-61, ANNEX G AND NSF-372CERTIFIED. PROOF OF CERTIFICATION SHALL BE INCLUDED WITH THE CONTRACTOR'S SUBMITTALS.
- 12. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD BEFORE ORDERING COMPONENTS TO ENSURE ALL EQUIPMENT, PIPING, AND APPURTENANCES FIT PROPERLY FOR INSTALLATION AND OPERATION
- 13. ALL MECHANICAL EQUIPMENT SHALL BE COMMISSIONED ONSITE BY THE MANUFACTURER'S FACTORY—TRAINED REPRESENTATIVE TO ENSURE MECHANICAL EQUIPMENT OPERATES SATISFACTORILY. ONSITE TRAINING SHALL ALSO BE PROVIDED FOR DHHL AND AQUA ENGINEERS PERSONNEL

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REVISION DATE DESCRIPTION
DATE
DATE
DATE
REVISION

DEPARTMENT OF

HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway Kapolei, Hawai`i 96707

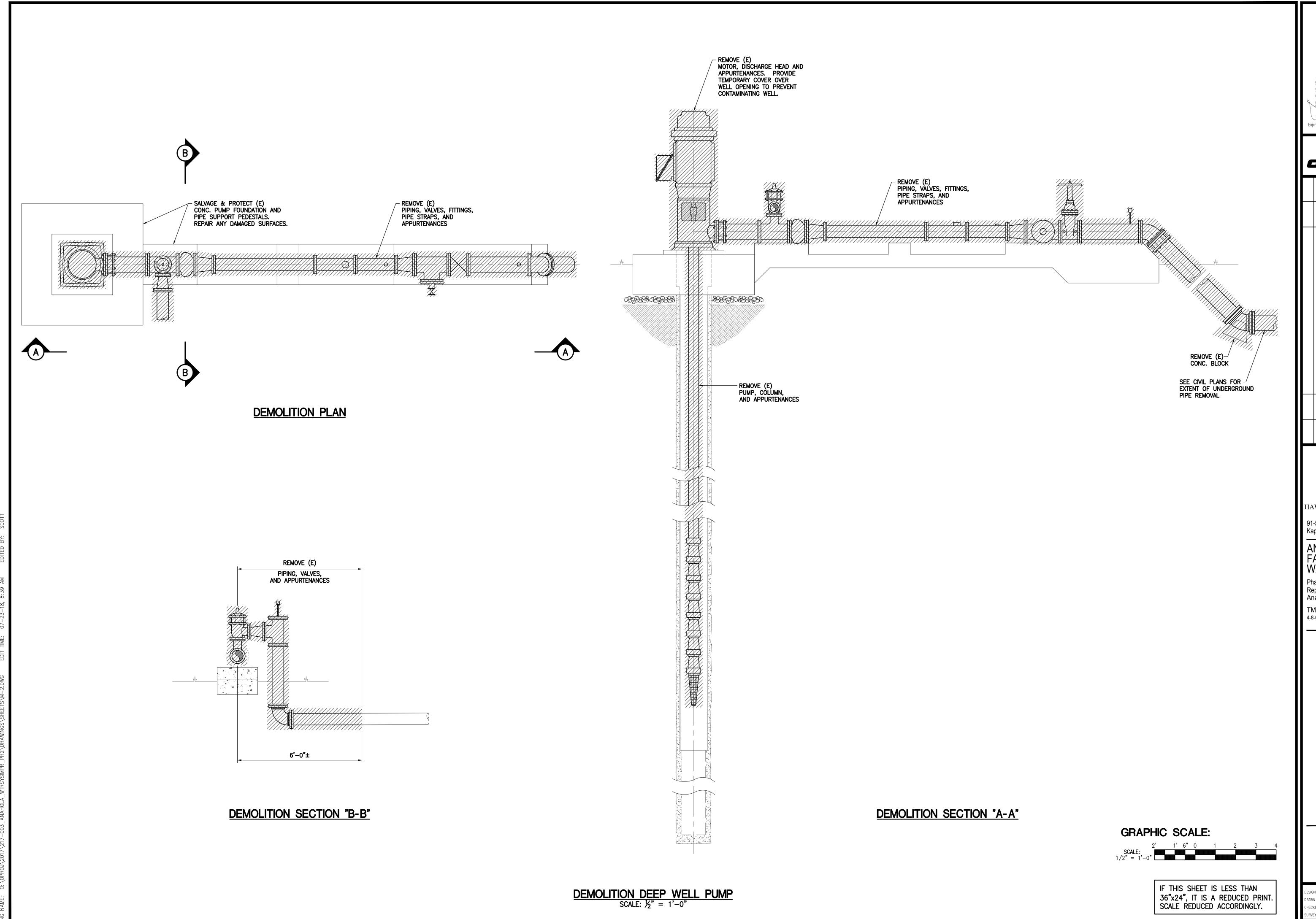
ANAHOLA FARM LOTS WATER PROJECT

Phase II - Water Tank Replacement & Facility Impr. Anahola, Island of Kaua`i

TMK: 4-8-001:001; 4-8-005:037 & 039

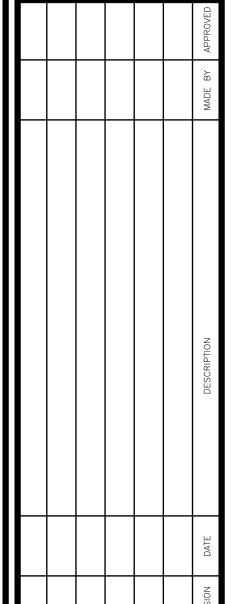
MECHANICAL

SITE PLAN



Signature
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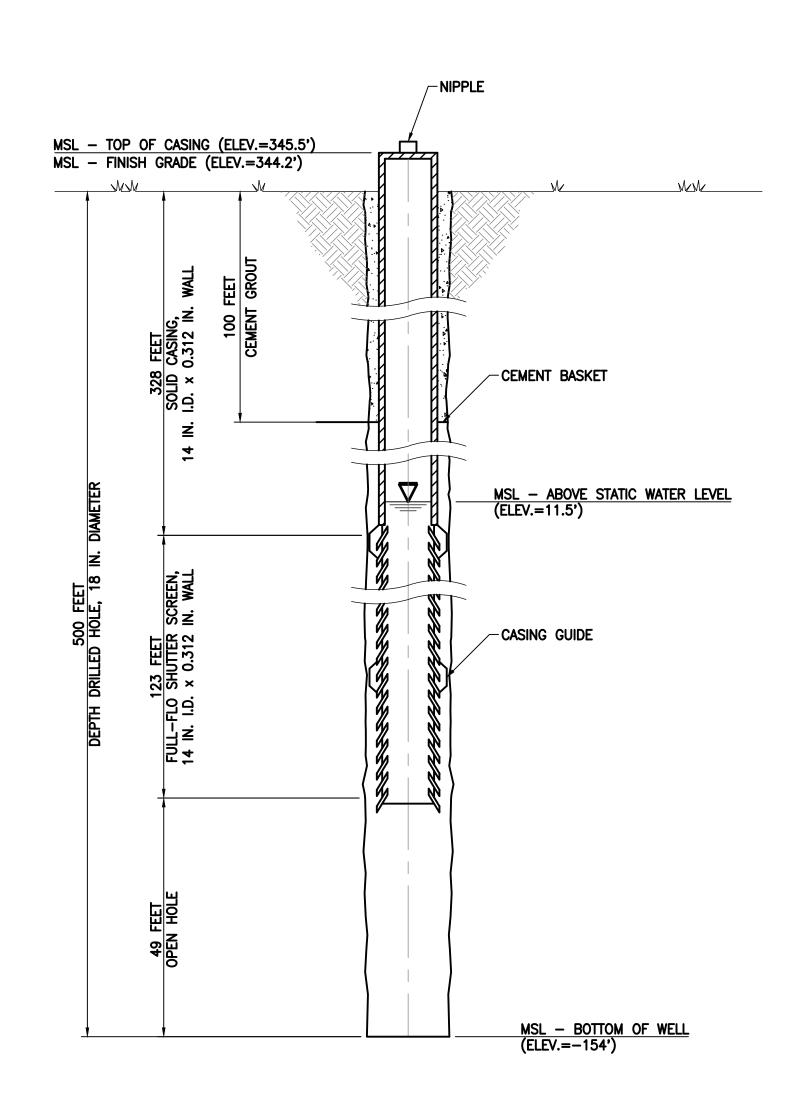
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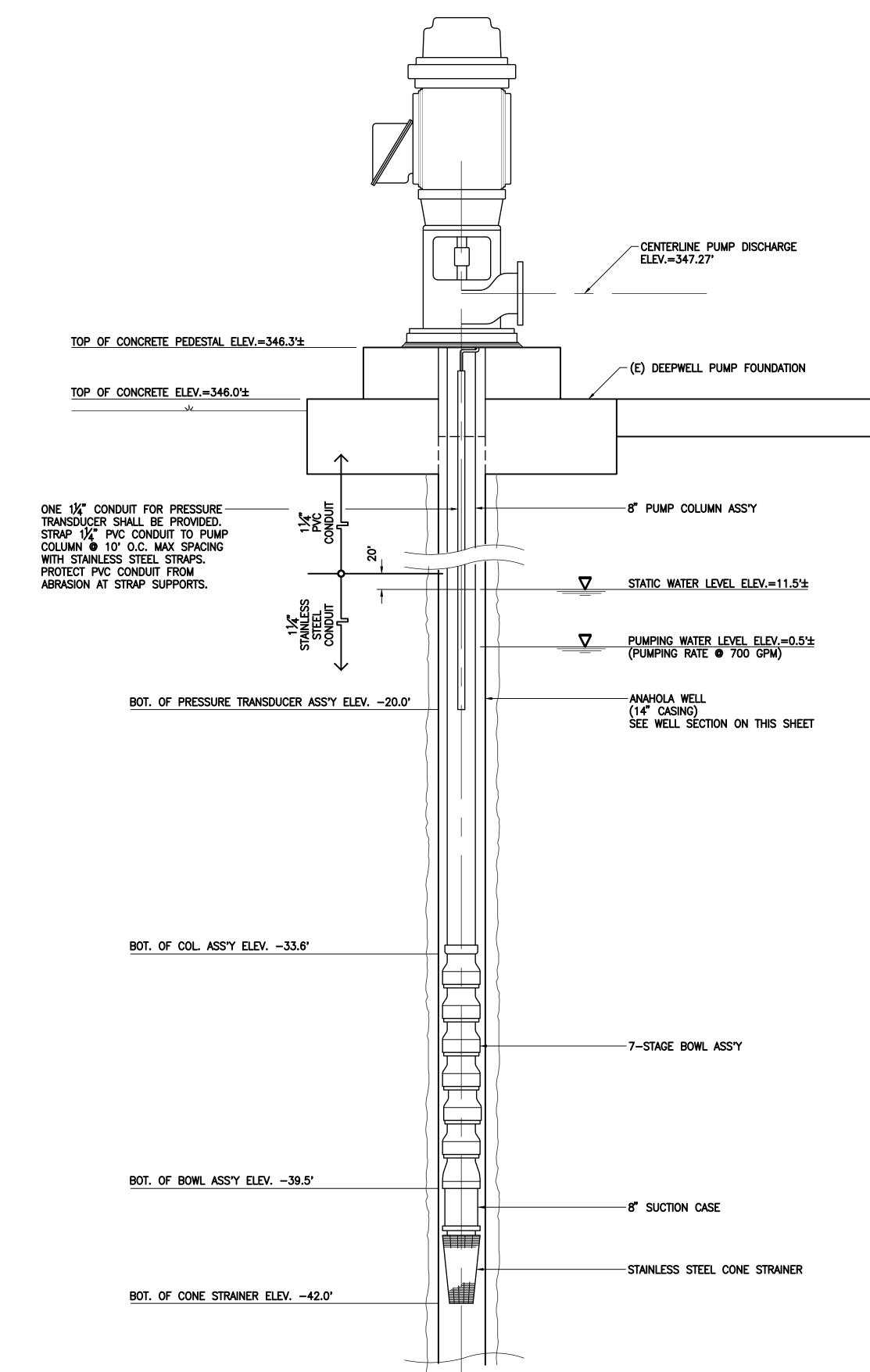
ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i
TMK:

TMK: 4-8-001:001; 4-8-005:037 & 039

DEMOLITION DEEP WELL PUMP



SECTION THRU EXISTING ANAHOLA WELL (0919-03)



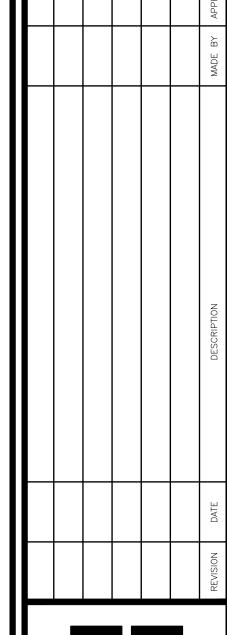


- 1. ALL ELEVATIONS ARE REFERENCED TO MEAN SEA LEVEL (MSL ELEV.=0.0').
- 2. THE PRESSURE SENSOR ASSEMBLY SHALL BE PROVIDED FOR CONTINUOUS WELL LEVEL MONITORING. THE CONTRACTOR SHALL ENSURE THE PRESSURE SENSOR CAN EASILY PASS THROUGH ANY BENDS IN THE CONDUITS.
- 3. CONTRACTOR TO VERIFY STATIC WATER LEVEL BEFORE PUMP INSTALLATION. LENGTH OF SUBMERGENCE FOR PRESSURE SENSOR & MONITOR TUBE ASSEMBLIES SHALL BE ADJUSTED AS
- 4. PUMP/MOTOR DESIGN: FLÓW: 700 GPM MOTOR: 125 HP, 460 VOLTS 3 PHASE, 60 HERTZ
- 5. THE CONTRACTOR SHALL VIDEOLOG THE ENTIRE DEPTH OF THE EXISTING WELL PRIOR TO INSTALLING THE WELL PUMP. THE DHHL SHALL BE IMMEDIATELY NOTIFIED OF ANY DAMAGE FOUND BY THE CONTRACTOR. A DVD COPY OF THE VIDEOLOG SHALL BE SUBMITTED TO THE DHHL.
- 6. THE CONTRACTOR SHALL CONDUCT A WELL ALIGNMENT AND PLUMBNESS TEST PRIOR TO INSTALLING THE WELL PUMP. THE CONTRACTOR SHALL ENSURE THE PUMP CAN BE INSTALLED TO THE ELEVATIONS SHOWN ON THE PLANS WITHOUT DAMAGING ANY COMPONENT OF THE PUMP INSTALLATION AND/OR DAMAGING THE EXISTING WELL CASING.
- 7. THE CONTRACTOR SHALL PROVIDE A CABLE STORAGE REEL OF ADEQUATE CAPACITY FOR THE PRESSURE SENSOR CABLE.



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ANAHOLA FARM LOTS

Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i

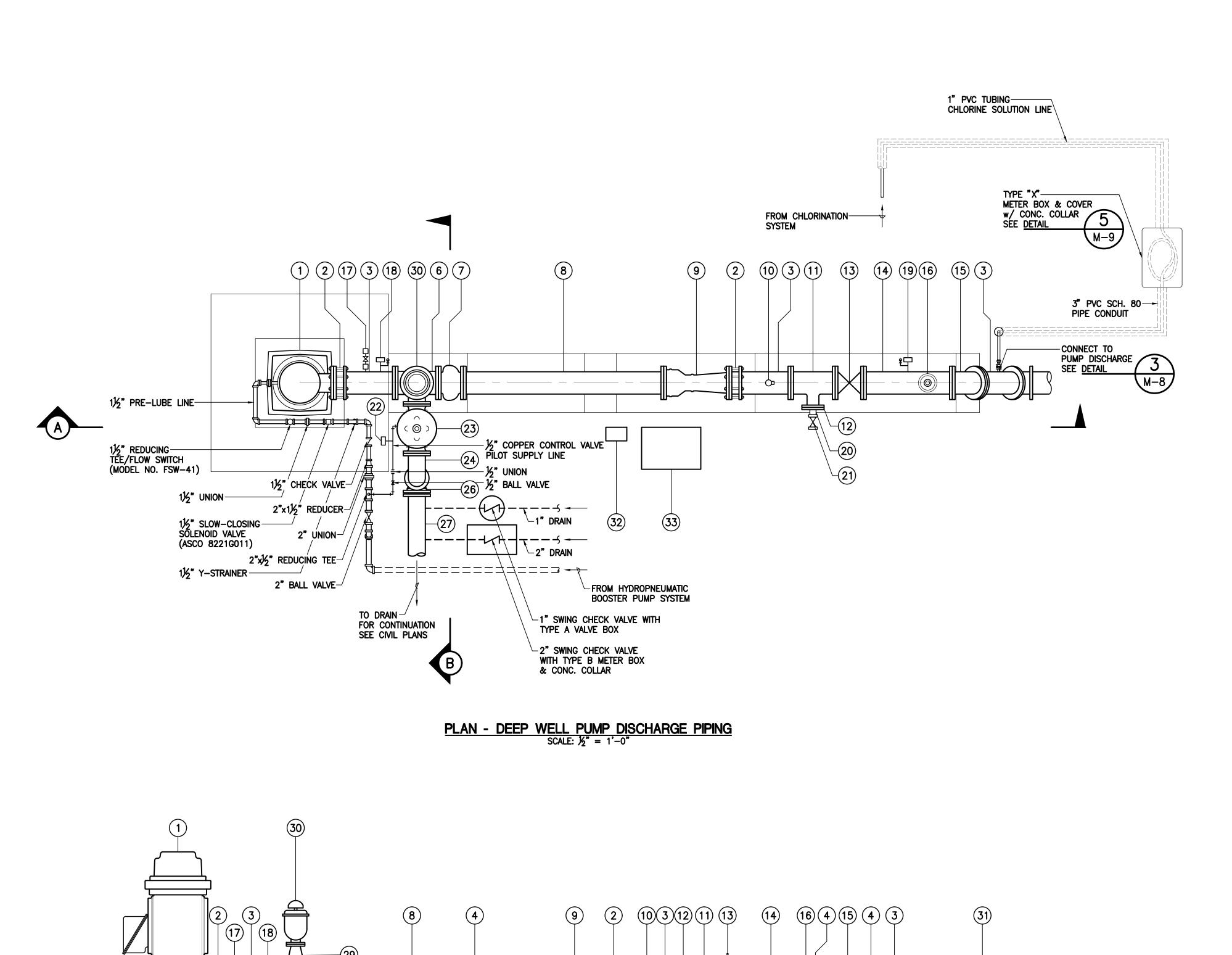
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DEEPWELL PUMP **GENERAL EXISTING**

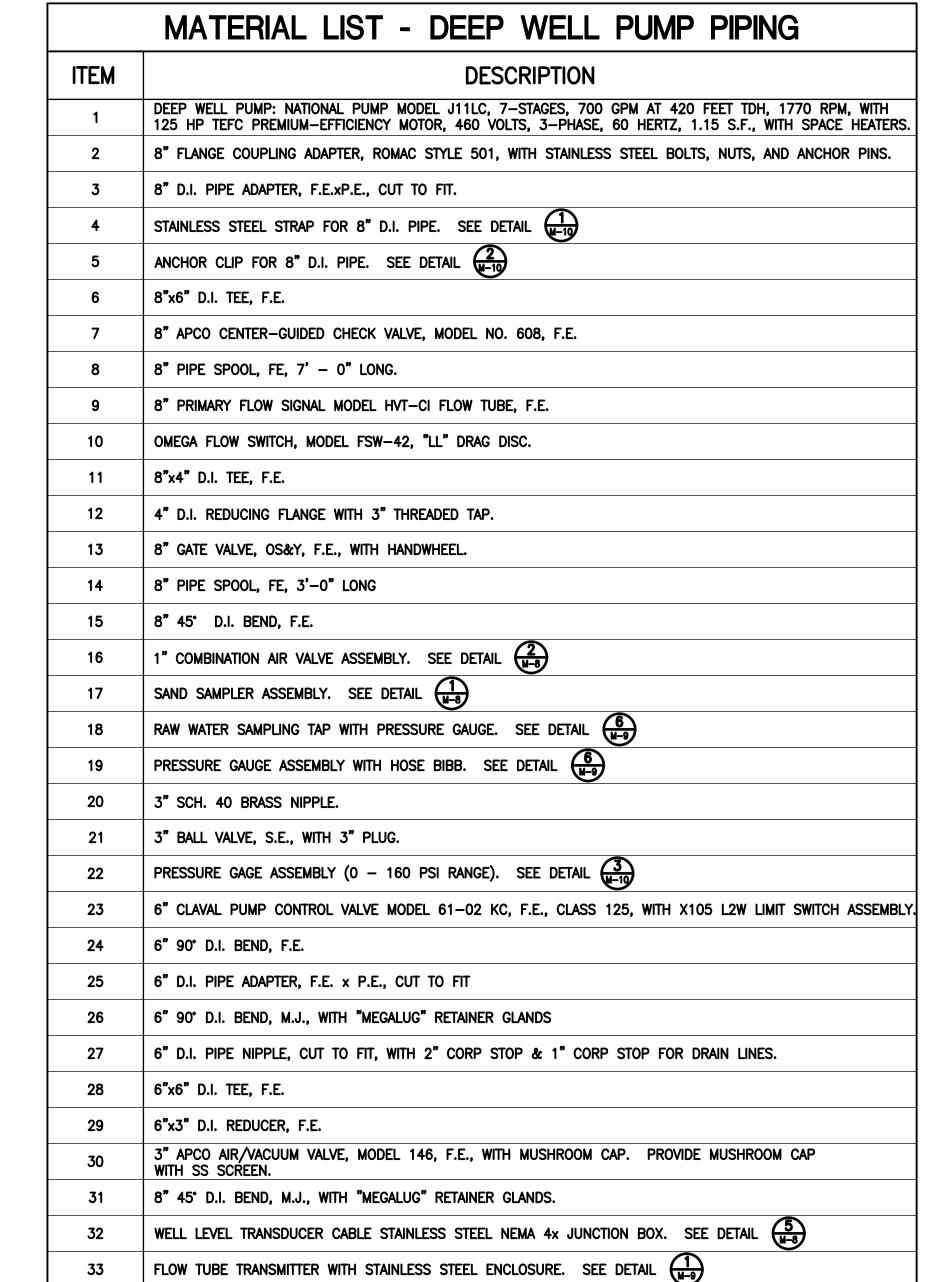
ARRANGEMENT & SECTION THRU ANAHOLA WELL (0919-03)

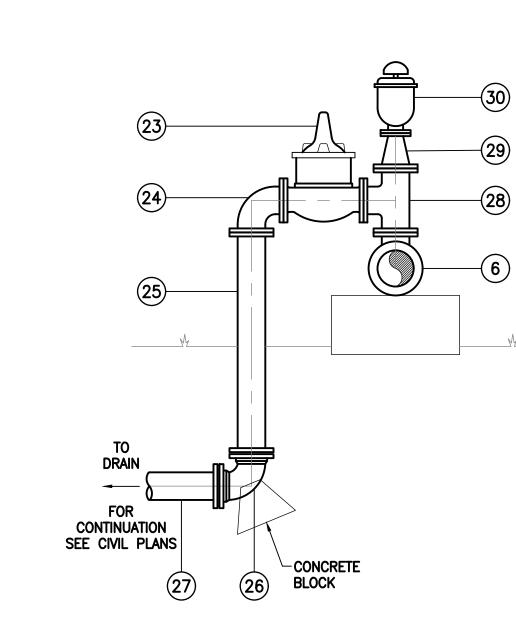
SHEET NO. 50 OF 79

DEEPWELL PUMP GENERAL ARRANGEMENT



1'-6"

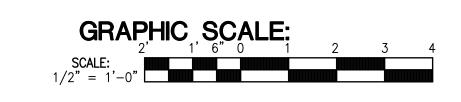




FOR CONTINUATION SEE CIVIL PLANS

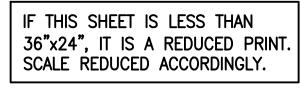
OF FLOW

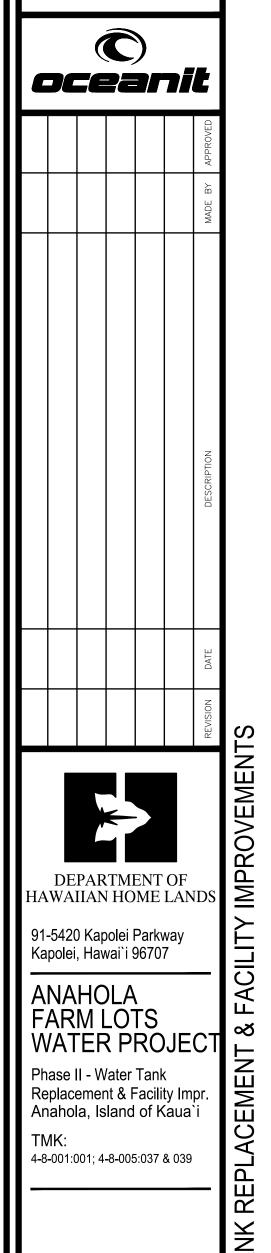
CONCRETE BLOCK



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∫ Signature

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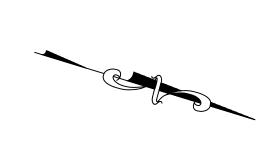
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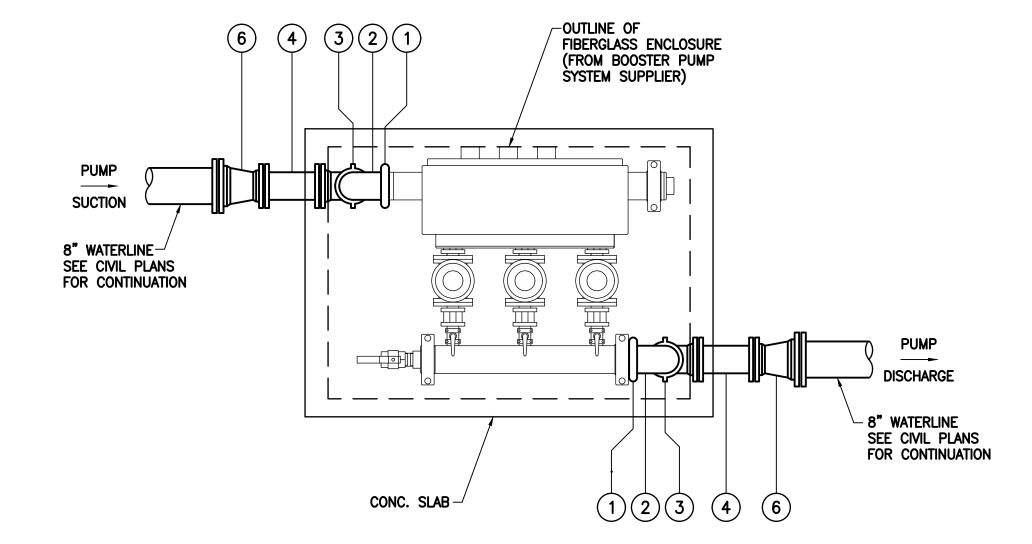
SECTION "A-A" - DEEP WELL PUMP DISCHARGE PIPING

SCALE: ½" = 1'-0"

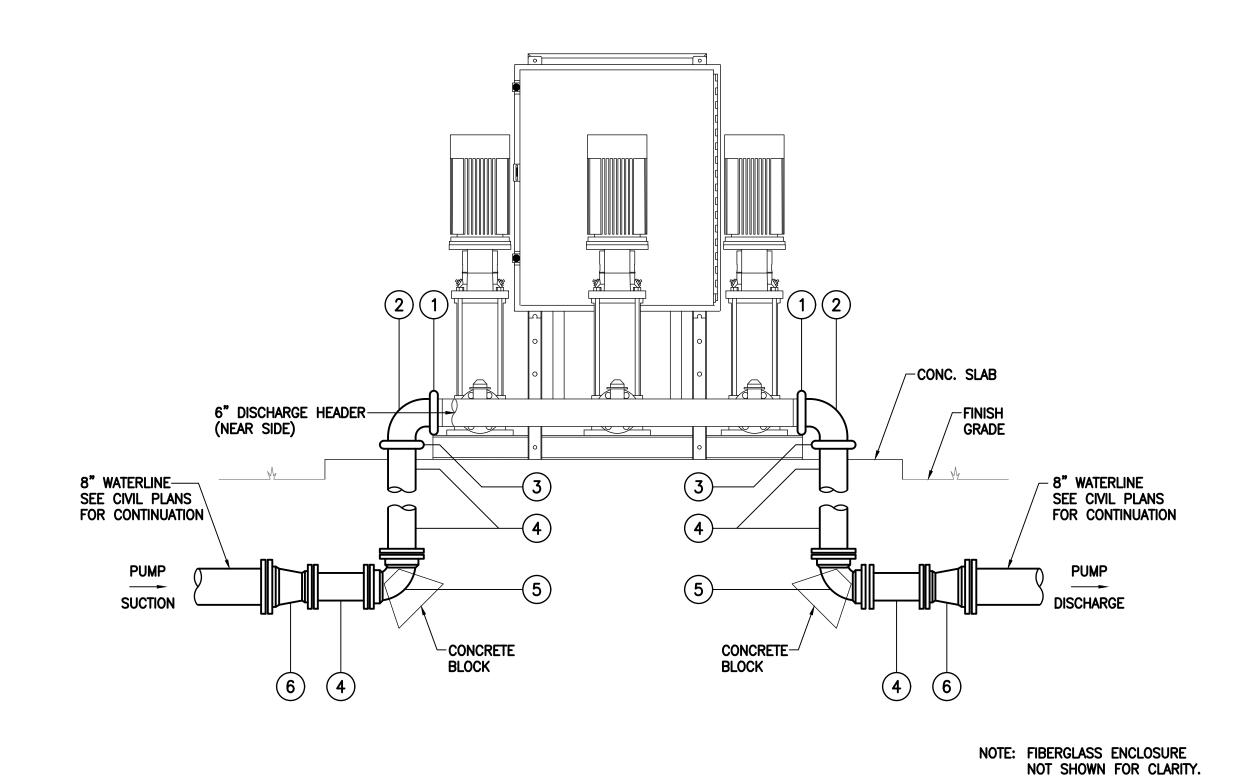
DEEP WELL PUMP DISCHARGE PIPING PLAN & SECTION

SHEET NO. **51** OF **79**





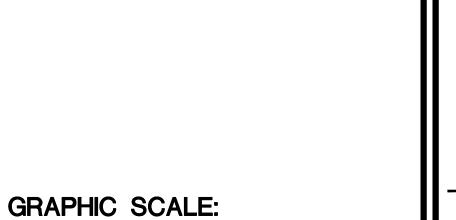
BOOSTER PUMP - PLAN
NOT TO SCALE



BOOSTER PUMP - ELEVATION NOT TO SCALE

	MATERIAL LIST - BOOSTER PUMP PIPING					
ITEM	DESCRIPTION					
1	6" VICTAULIC TRANSITION COUPLING STYLE 307, WITH GRADE M FLUSH SEAL GASKET AND TYPE 316 STAINLESS STEEL NUTS AND BOLTS.					
2	6" 90° D.I. ELBOW, WITH COAL TAR EPOXY COATING. VICTAULIC FITTING NO. 10-C.					
3	6" VICTAULIC GROOVED COUPLING FOR DUCTILE IRON PIPE STYLE 31, WITH GRADE M FLUSH SEAL GASKET AND TYPE 316 STAINLESS STEEL NUTS AND BOLTS.					
4	6" D.I. PIPE NIPPLE, CUT TO FIT.					
5	6" 90° D.I. BEND, M.J., WITH "MEGALUG" RETAINER GLANDS.					
6	8"x6" D.I. REDUCER, M.J.					

PACKAGED LINE BOOSTER PUMP SYSTEM					
PUMP	MOTOR	REMARKS			
VERTICAL, MULTI-STAGE, 145 GPM AT 115 FEET TDH. GRUNDFOS MODEL 32-2-2, OR APPROVED EQUAL.	3 PHASE, 60 HZ,	SYSTEM TO PROVIDE VARIABLE FLOW AT A CONSTANT PRESSURE USING A PROPORTIONAL—INTEGRAL—DERIVATIVE PLC CONTROLLER AND VARIABLE SPEED DRIVES; SYSTEM CONDITION POINT: 276 GPM AT 50 PSI; MODEL: PFV—7.5—6 (TRIPLEX) BY PREMIER FLOW, LLC, OR APPROVED EQUAL; WITH FIBERGLASS ENCLOSURE.			



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DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway
Kapolei, Hawai`i 96707

ANAHOLA
FARM LOTS
WATER PROJECT

Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i

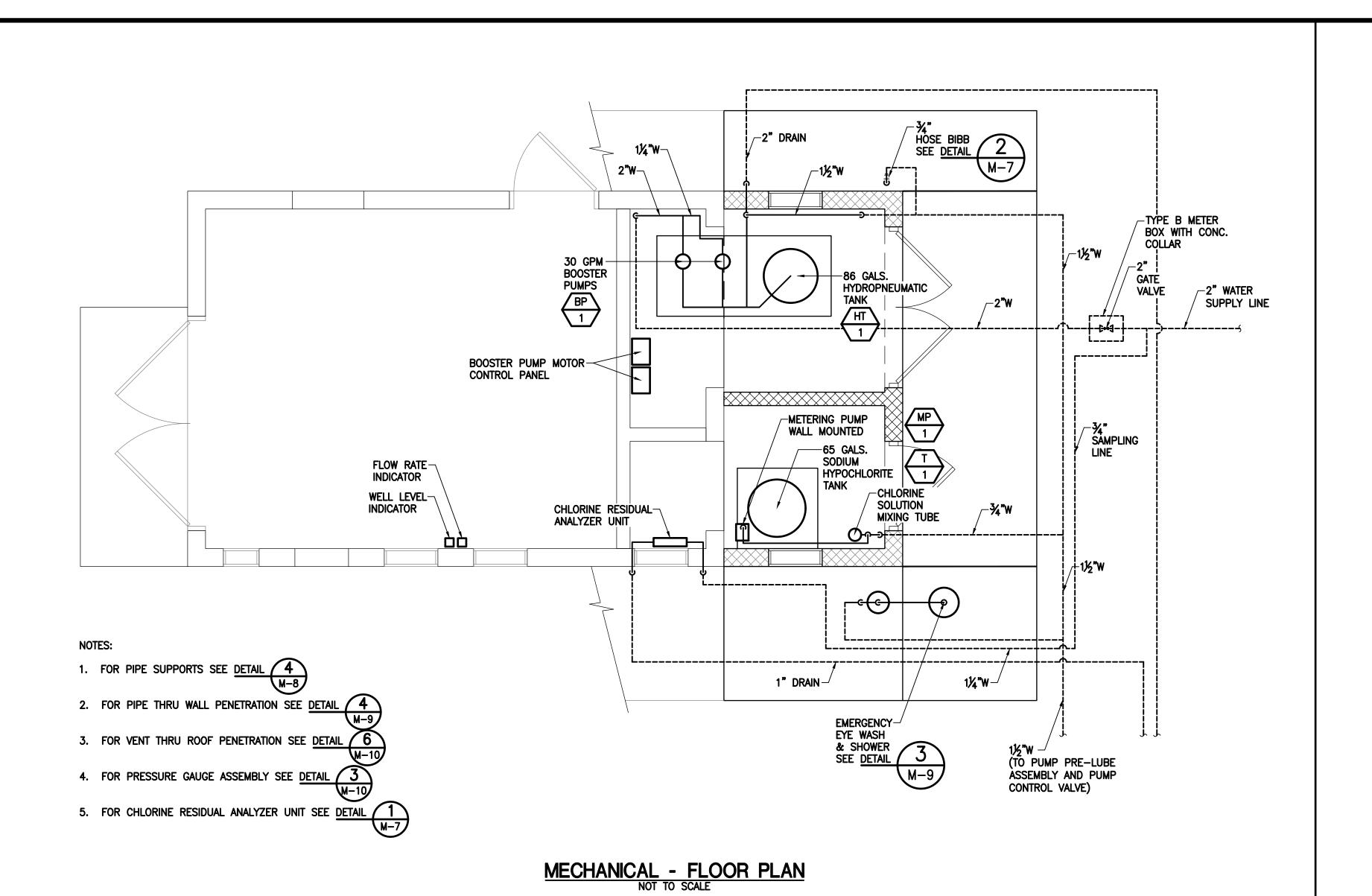
TMK:

TMK: 4-8-001:001; 4-8-005:037 & 039

LINE BOOSTER PUMP SYSTEM

ANAHOLA FARM LOTS

SHEET NO. **52** OF **79**

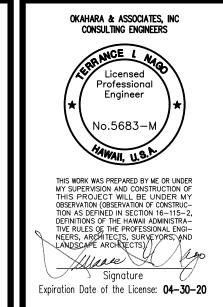


CHLORINE SOLUTION METERING PUMP SCHEDULE					
SYMBOL	QTY.	DESCRIPTION	QTY.		
MP 1	1 EACH	METERING PUMP: POSITIVE DISPLACEMENT, CONSTANT SPEED, DIAPHRAGM TYPE PUMP, w/ STEEL MOUNTING BRACKET, 0-4 GPH, 115 V, 60 HZ, 44 WATTS.	PROMINENT GAMMA/X OR APPROVED EQUAL		

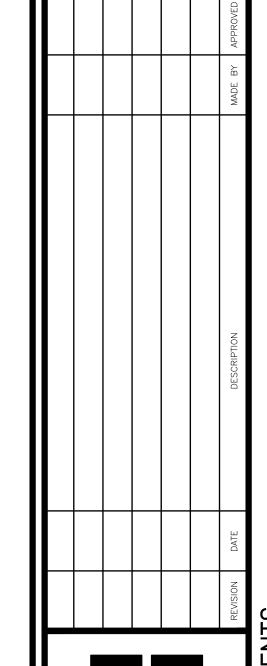
	CH	LORINE SOLUTION TANK SCHEDU	ILE
SYMBOL	QTY.	DESCRIPTION	QTY.
T	1 EACH	TANK: VERTICAL DOUBLE WALL TYPE, HIGH DENSITY LINEAR, POLYETHYLENE 65 GALLON CAPACITY, WITH DRAIN, FILL AND VENT CONNECTIONS.	ASS MANN MODEL NO. IMT65 OR APPROVED EQUAL

HYDROPNEUMATIC SYSTEM EQUIPMENT SCHEDULE								
	PUM	Р		ELEC	CTRICAL	HYDROPNEUMATIC	DECODIDATION	CYMDOL
GPM	FEET H	EAD	NO.	HP	VOLTAGE	TANK	DESCRIPTION	SYMBOL
30	140		2 EACH	2	208/3/60	86 GALLONS WITH BUTYL DIAPHRAGM	BOOSTER PUMP: GRUNDFOS VERTICAL MULTI-STAGE STAINLESS STEEL PUMP MODEL NO. CRI 5-6 WITH OVAL FLANGES AND TEFC MOTOR (2-REQUIRED) DUTY POINT: 30 GPM AT 140 FEET HEAD HYDROPNEUMATIC TANK:	BP 1

MISCELLANEOUS EQUIPMENT SCHEDULE
NOT TO SCALE







DEPARTMENT OF HAWAIIAN HOME LANDS

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ANAHOLA
FARM LOTS
WATER PROJECT

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Anahola, Island of Kaua`i

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MECHANICAL

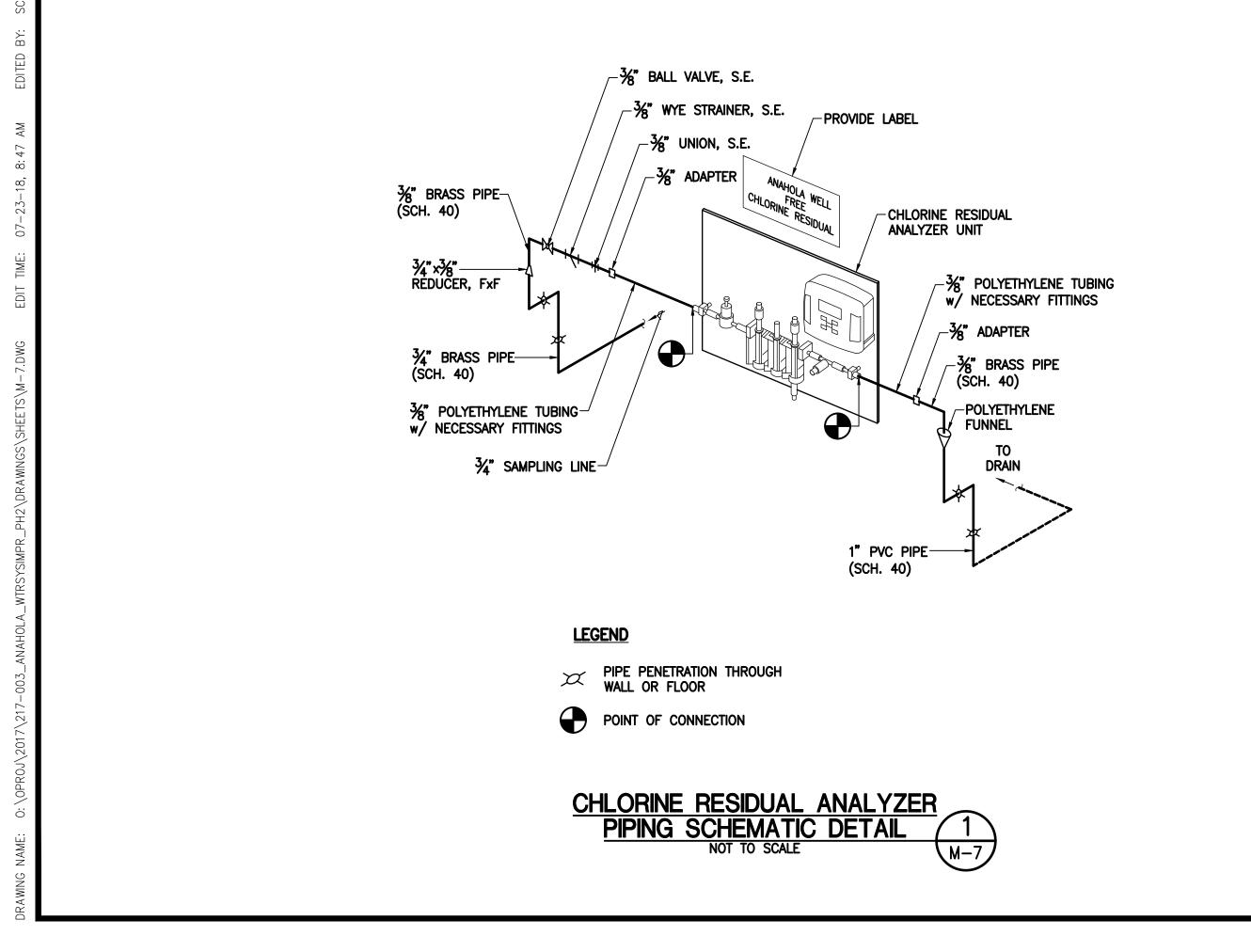
FLOOR PLAN **MISCELLANEOUS EQUIPMENT** SCHEDULE

M-6

SHEET NO. **53** OF **79**

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1/2" BALL VALVE \neg

PRESSURE:

SWITCH

-¾" HOSE BIBB

- 11/4" CHECK VALVE

HYDROPNEUMATIC SYSTEM PIPING DIAGRAM
NOT TO SCALE

_BOOSTER PUMP

HYDROPNEUMATIC

TYPE B METER BOX

w/ CONC. COLLAR

WELL PUMP

DISCHARGE LINE

CHLORINE RESIDUAL

ANALYZER

_2" GATE VALVE

TO SODIUM

HYPOCHLORITE

SYSTEM

PIPE PENETRATION THROUGH WALL OR FLOOR

LEGEND:

PRESSURE GAUGE -(0-160 PSI)

2" BALL VALVE-

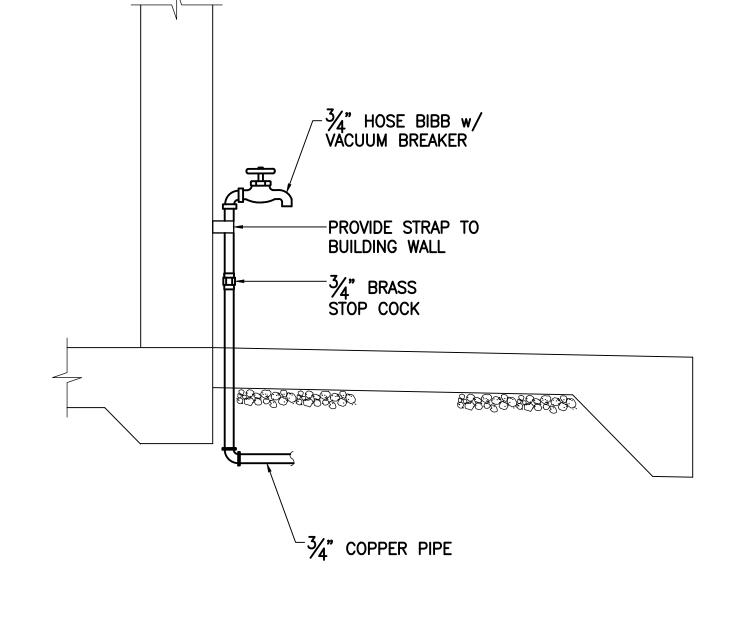
BOOSTER-PUMP

11/4" BALL VALVE-

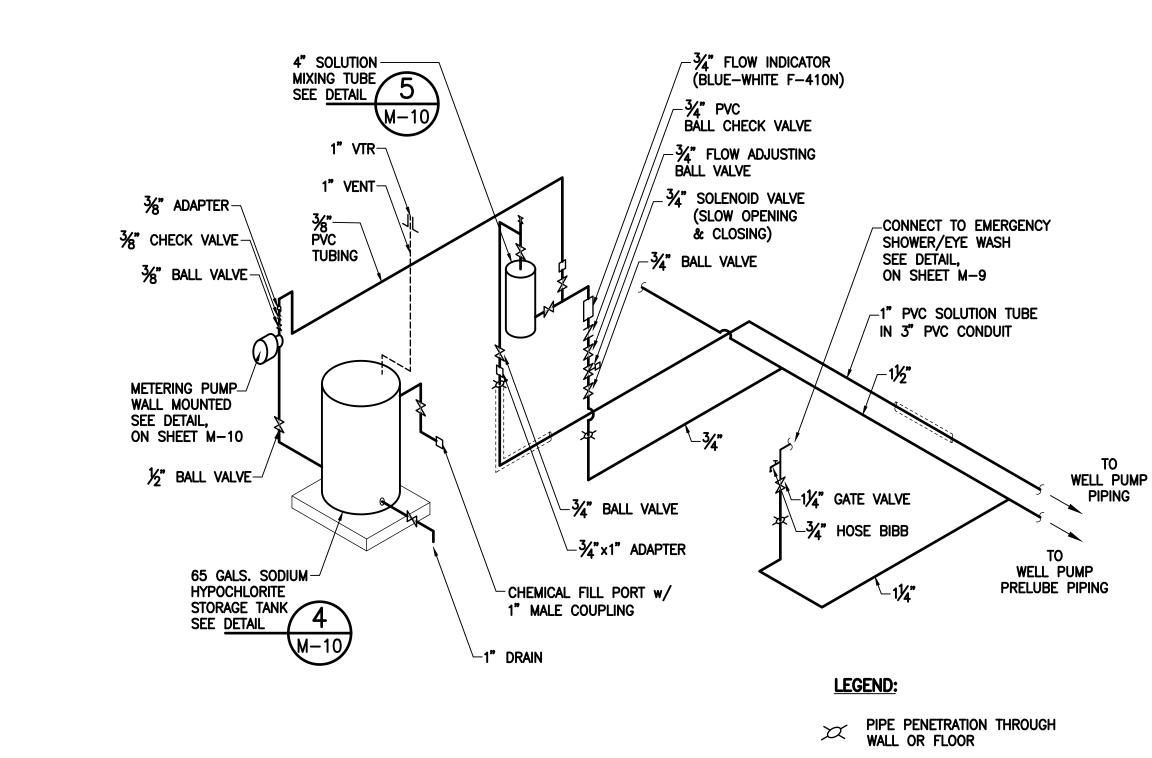
11/4" Y-STRAINER-

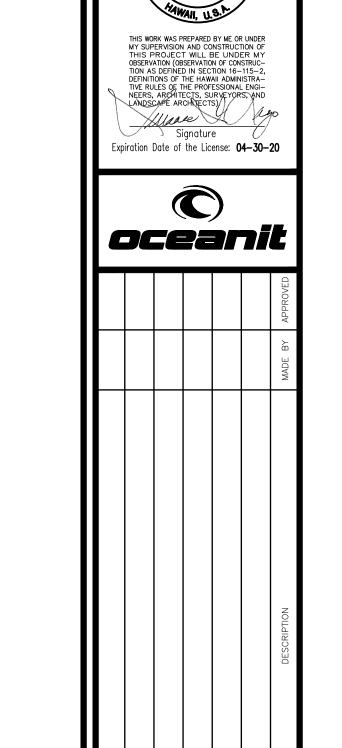
11/4" BALL VALVE

½" BALL VALVE-



SODIUM HYPOCHLORITE SYSTEM PIPING DIAGRAM NOT TO SCALE





OKAHARA & ASSOCIATES, INC CONSULTING ENGINEERS

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ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i

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MECHANICAL DIAGRAMS SCHEMATIC

DETAILS

ANAHOLA FARM LOTS

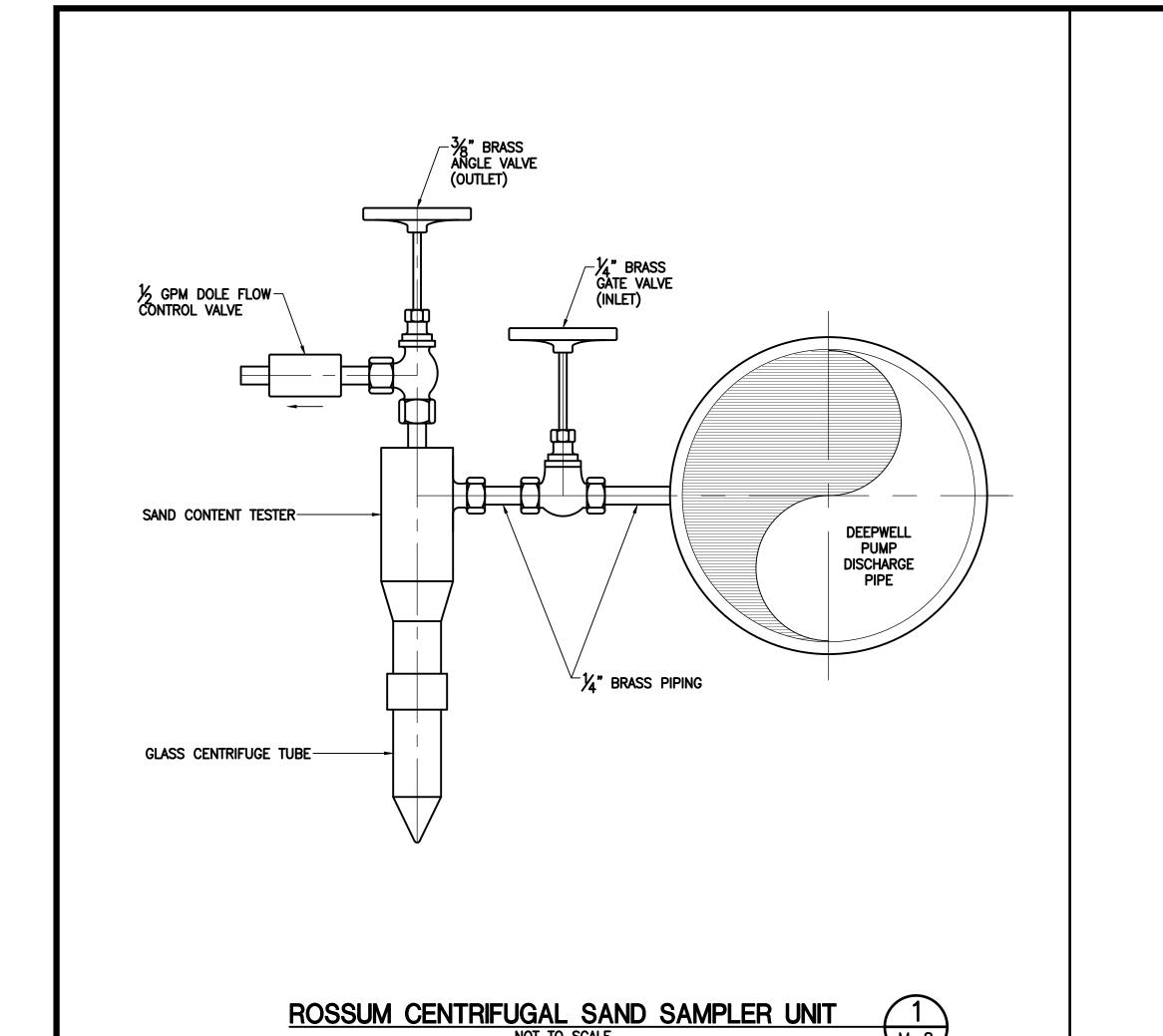
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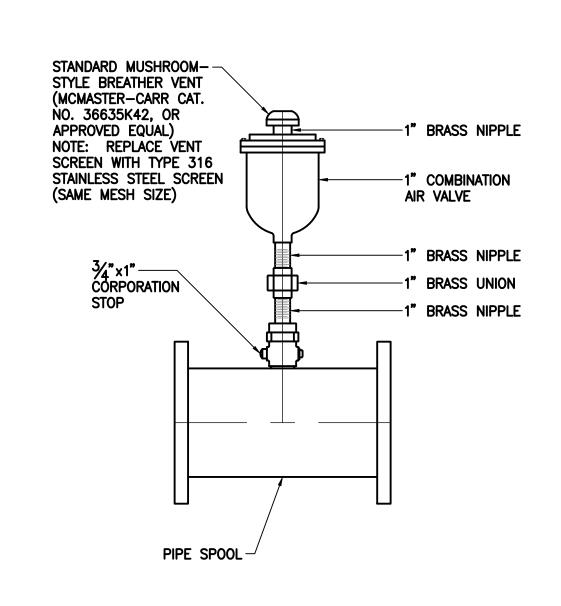
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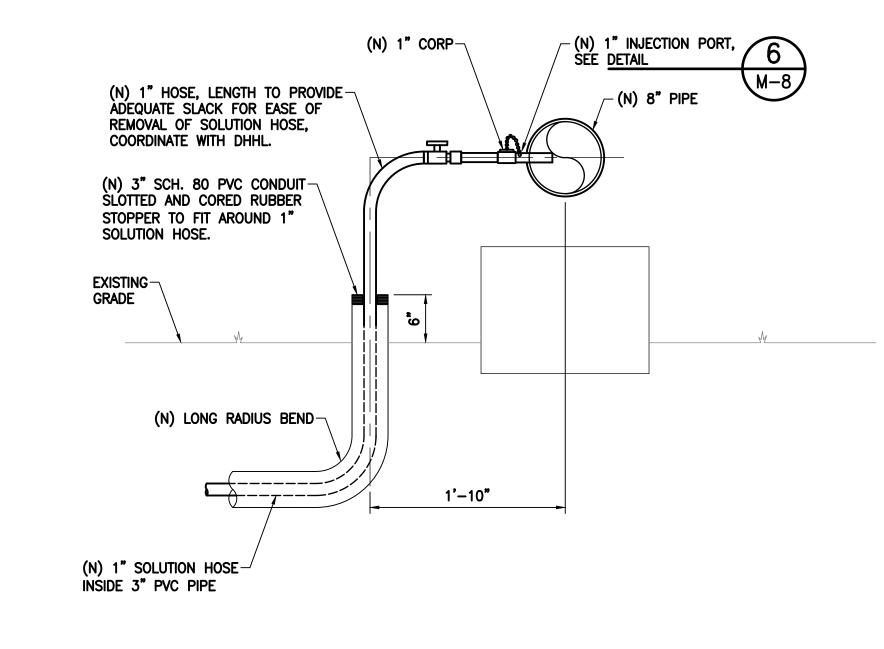
M-7





1" COMBINATION AIR VALVE ASSEMBLY DETAIL

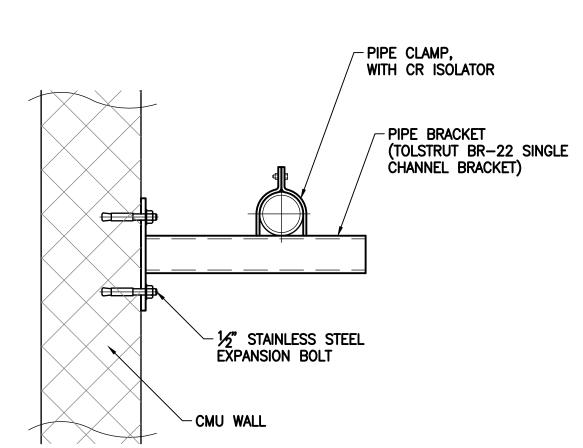
NOT TO SCALE



CHLORINE SOLUTION LINE DETAIL

NOT TO SCALE

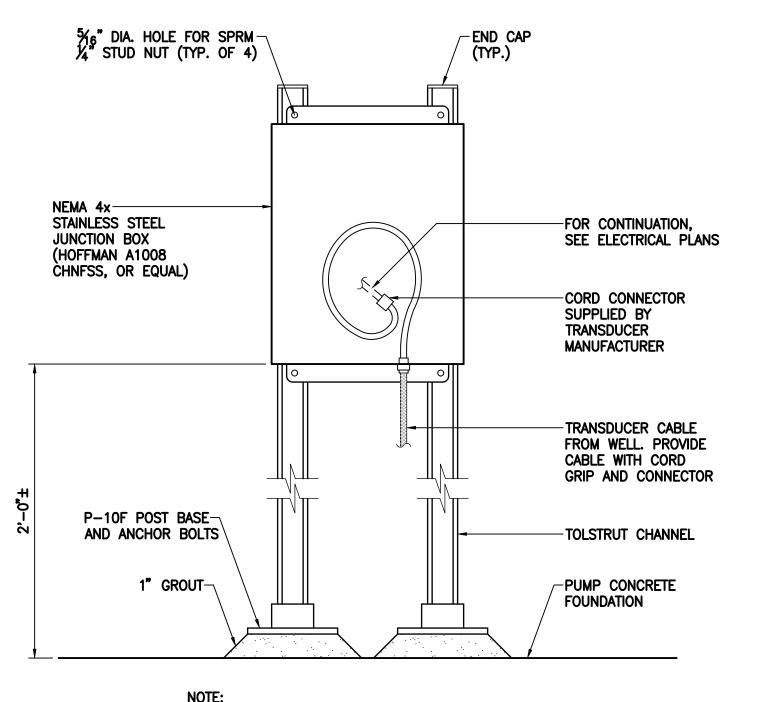




1. PART NOS. FOR CHANNELS AND FITTINGS ARE FROM TOLSTRUT CHANNELS AND FITTINGS. MANUFACTURED BY TOLCO. AN EQUAL PRODUCT MAY BE SUBSTITUTED.

2. ALL CHANNELS, FITTINGS AND FASTENERS SHALL BE STAINLESS

SUPPORT BRACKET FOR PIPE OR TUBING
NOT TO SCALE



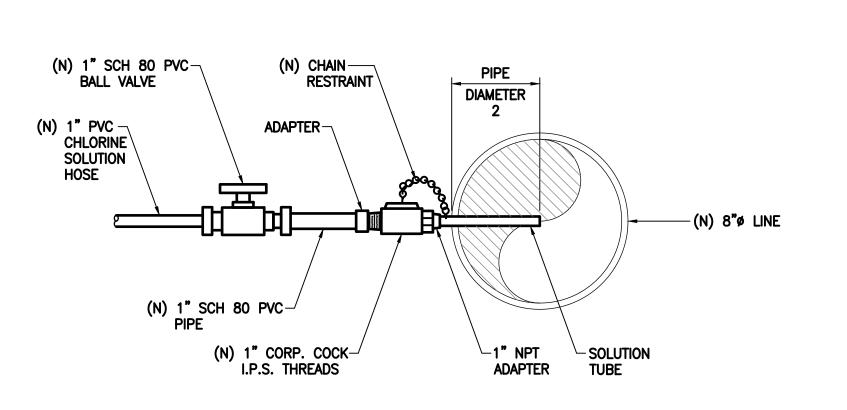
1. PART NOS. FOR CHANNELS AND FITTINGS ARE FROM TOLSTRUT CHANNELS AND FITTINGS. MANUFACTURED BY TOLCO. AN EQUAL PRODUCT MAY BE SUBSTITUTED.

2. ALL CHANNELS, FITTINGS AND FASTENERS SHALL BE STAINLESS STEEL.

3. PROVIDE 11/4" SCH. 40 STAINLESS STEEL CONDUIT FOR TRANSDUCER CABLE FROM WELL TO JUNCTION BOX. PROVIDE NECESSARY STAINLESS STEEL FITTINGS AND PIPE SUPPORT STRAPS.

WELL LEVEL TRANSDUCER CABLE JUNCTION BOX DETAIL

NOT TO SCALE



CHLORINE SOLUTION INJECTOR ASSEMBLY DETAIL

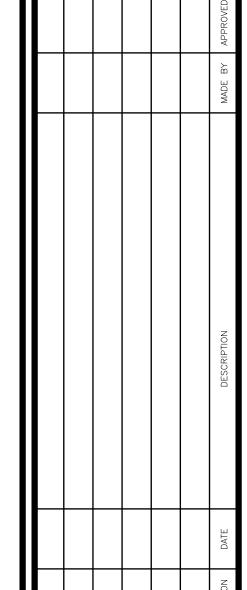
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DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway

Kapolei, Hawai`i 96707 ANAHOLA FARM LOTS

FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i

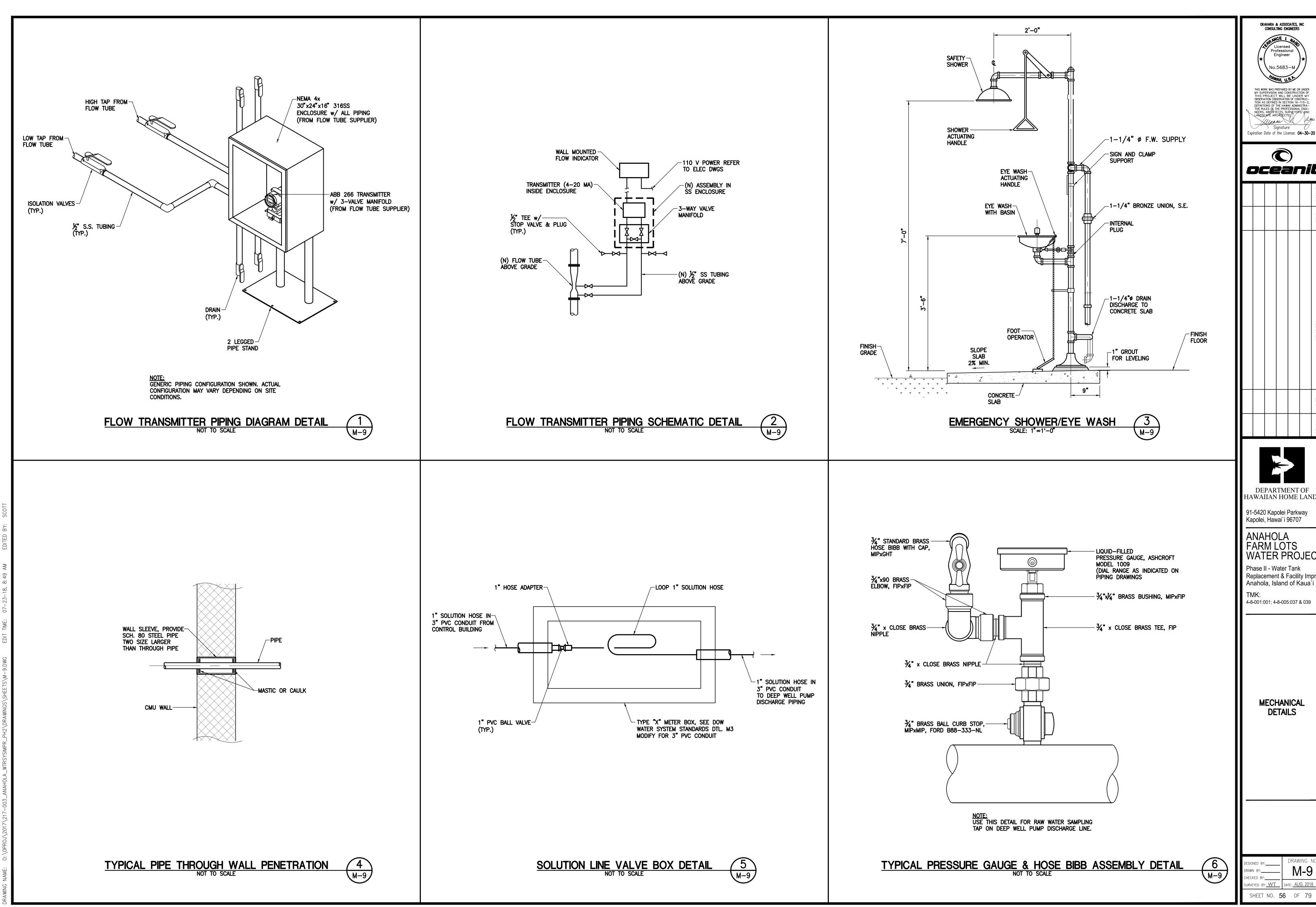
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MECHANICAL

DETAILS

ANAHOLA FARM LOTS

M-8 SHEET NO. **55** OF **79**



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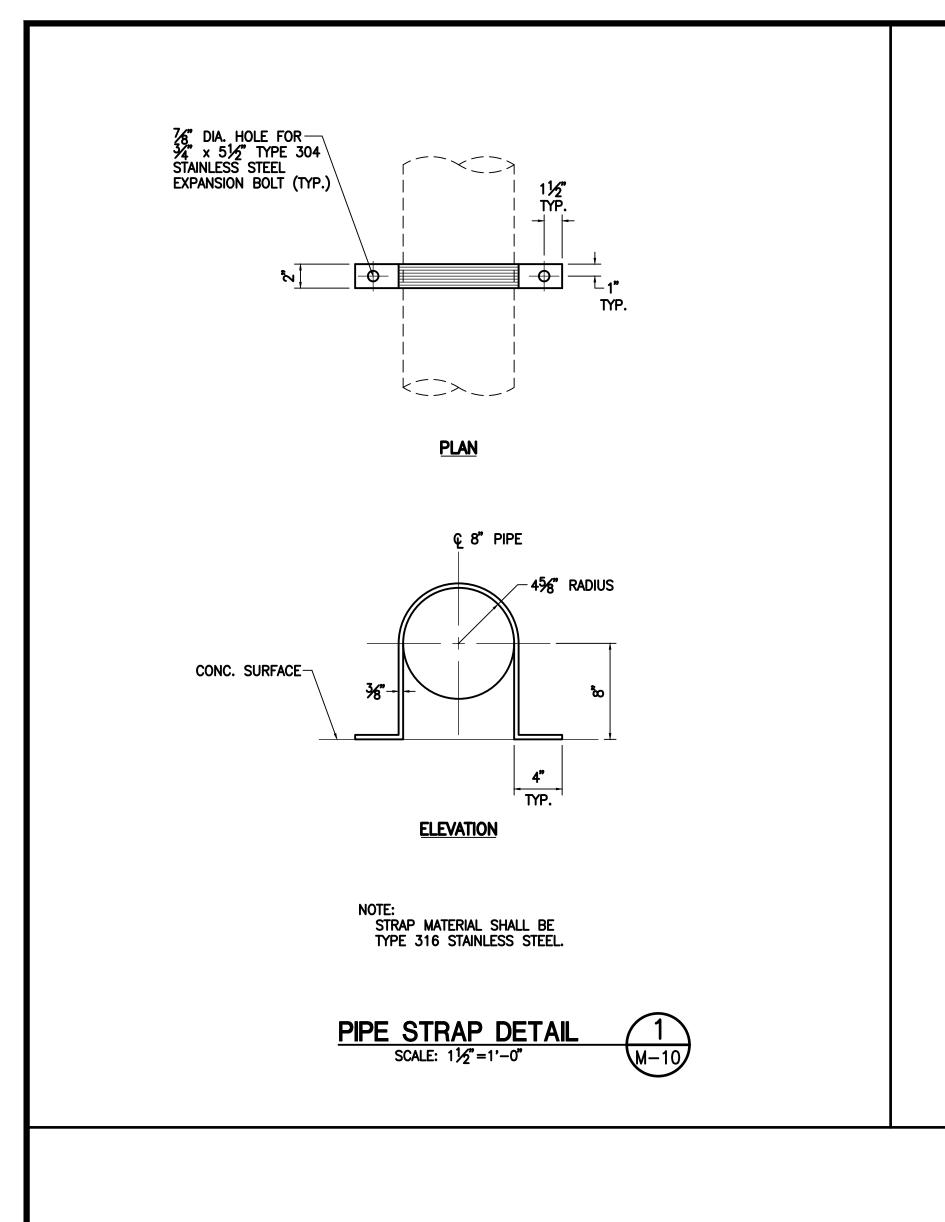
ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i
TMK: 4-8-001:001; 4-8-005:037 & 039 **MECHANICAL** ANAHOLA FARM LOTS

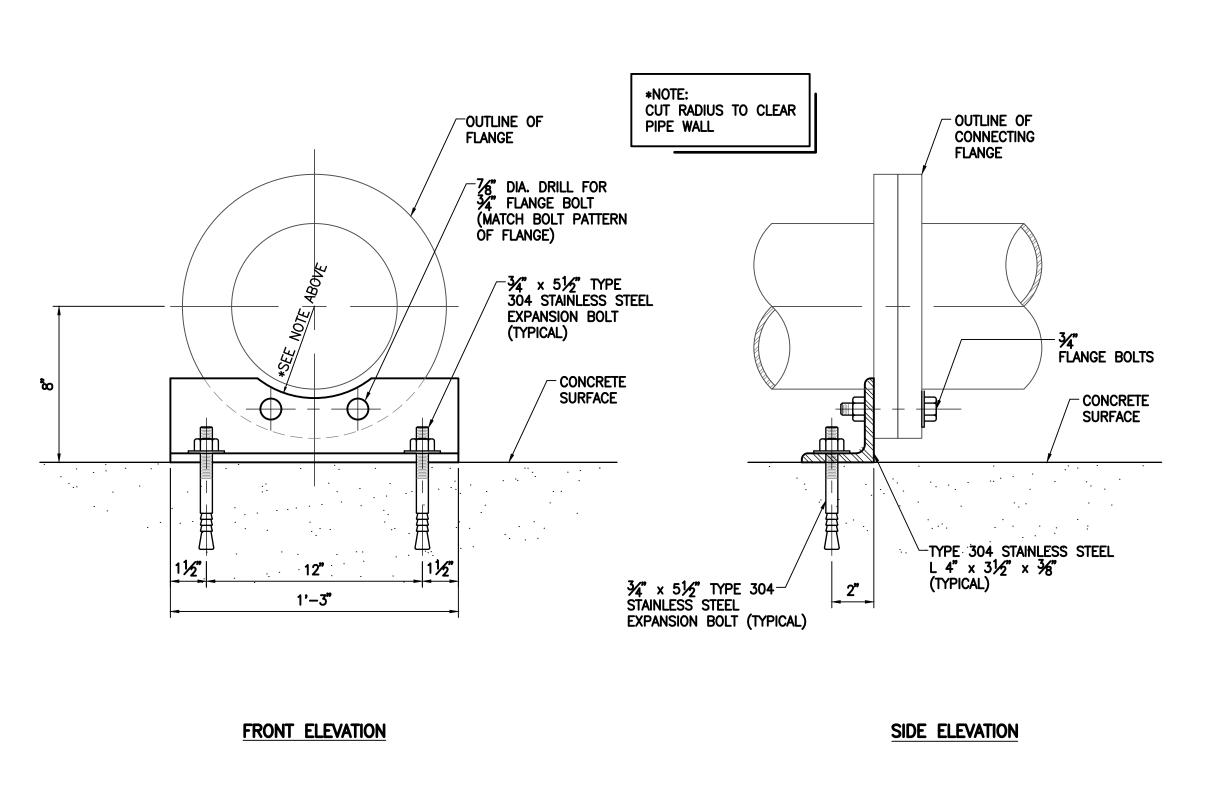
∫ Signature

M-9

SHEET NO. **56** OF **79**

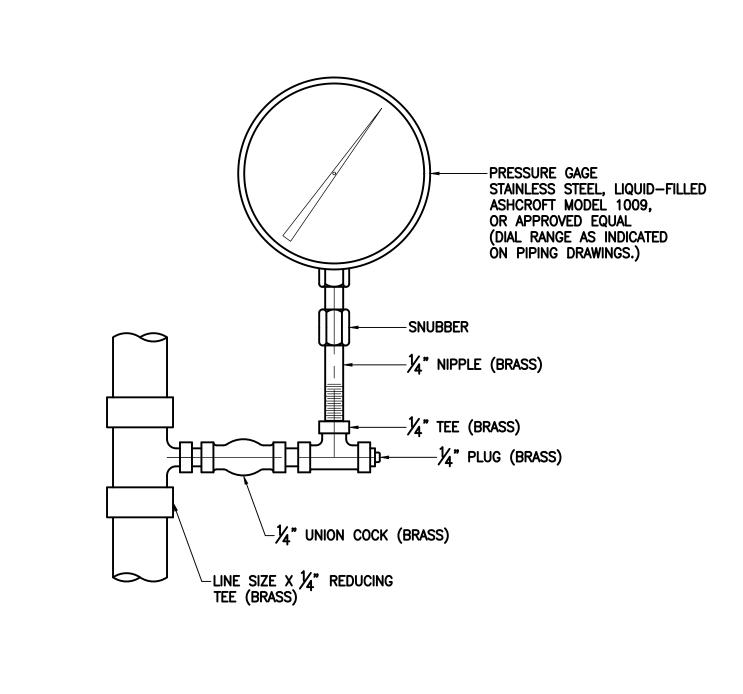
DETAILS





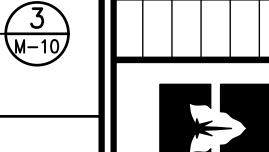
HOLD DOWN CLIP DETAIL (8" PIPE)

NOT TO SCALE



TYPICAL PRESSURE GAUGE ASSEMBLY DETAIL

NOT TO SCALE



DEPARTMENT OF HAWAIIAN HOME LANDS

OKAHARA & ASSOCIATES, INC CONSULTING ENGINEERS

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Expiration Date of the License: 04-30-20

oceanit

91-5420 Kapolei Parkway
Kapolei, Hawai`i 96707

ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i
TMK:

TMK: 4-8-001:001; 4-8-005:037 & 039

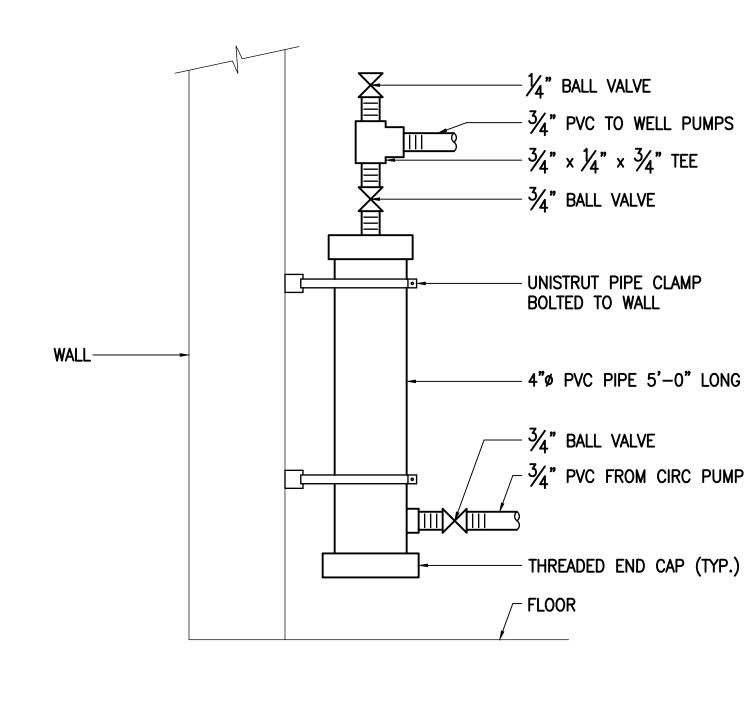
> **MECHANICAL DETAILS**

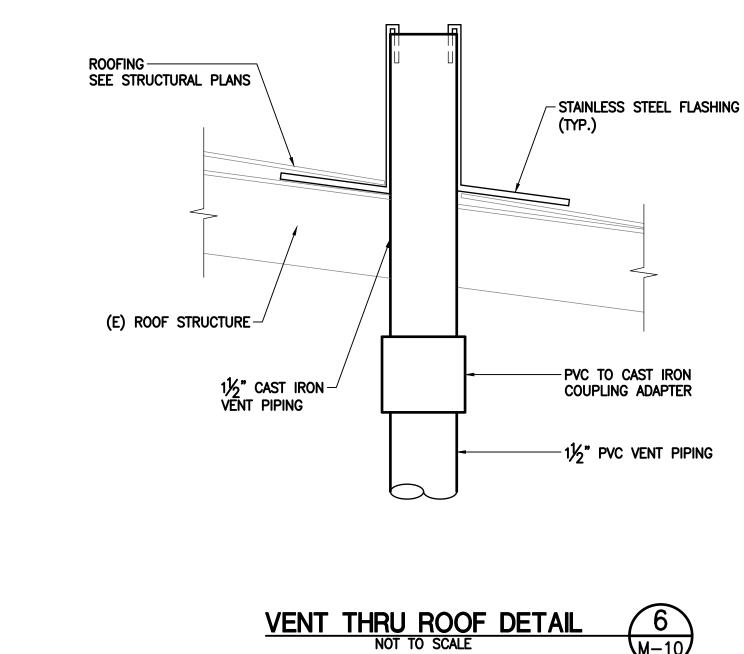
> > ANAHOLA FARM LOTS

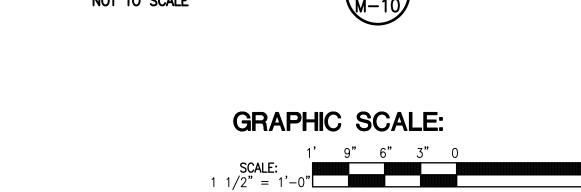
M-10

SHEET NO. **57** OF **79**

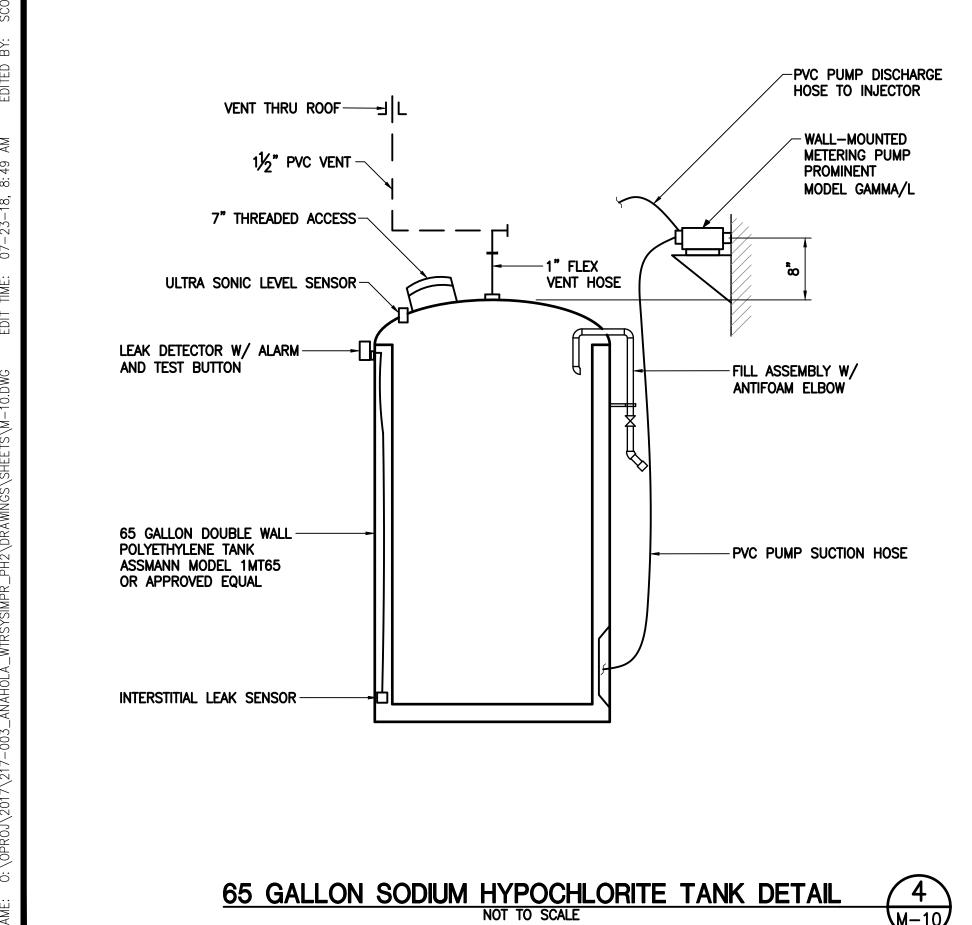
GRAPHIC SCALE:

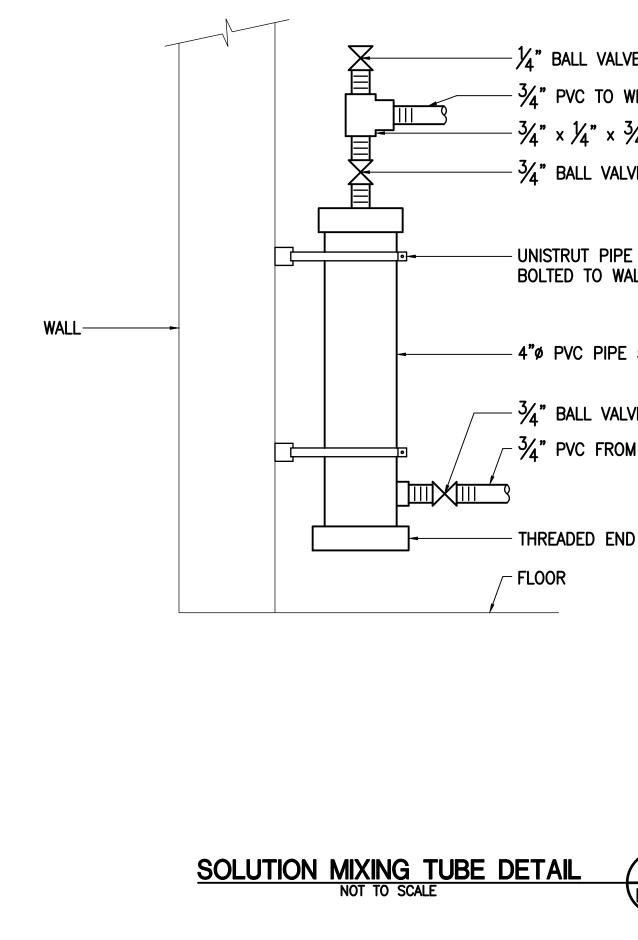






IF THIS SHEET IS LESS THAN 36"x24", IT IS A REDUCED PRINT. SCALE REDUCED ACCORDINGLY.





	TROL SCHEMATIC DIAGRAM SYMBOLS
ESS	EMERGENCY STOP SWITCH (MANUAL) WITH MANUAL RESET
OL	OVERLOAD
R1-R10	CONTROL RELAYS
PVSC	PUMP CONTROL VALVE SOLENOID
LSC	PUMP CONTROL VALVE LIMIT SWITCH
SV1-SV2	SOLENOID VALVES
RA-RF	CONTROL RELAYS
CR1-CR2	CONTROL RELAYS
FSC	MAIN LINE FLOW SWITCH (CLOSES WITH FLOW)
RTM	RUNNING TIME METER
G	GREEN LIGHT
R	RED LIGHT
A	AMBER LIGHT
B	BLUE LIGHT
AR	PUMP START AUXILIARY RELAY
PRL	PHASE REVERSAL/LOSS RELAY
ST1-ST2	SEQUENCE TIMERS
TD1	TIME DELAY RELAY, ON DE-ENERGIZATION, 0-10 MIN. ADJUSTABLE, SET AT 2 MIN.
TD2	TIME DELAY RELAY, ON ENERGIZATION, 0-60 SECONDS ADJUSTABLE, SET AT 10 SECONDS
TDA	BACKSPIN SEQUENCE TIMER
BR	BACKSPIN AND GROUND FAULT RELAY
MP	THREE PHASE MOTOR PROTECTOR SYSTEM
SPD	SURGE PROTECTIVE DEVICE
	SOLID STATE STARTER

GENERA	Δ Ι .	CON	STR	UCT	ION	NOTES
		$\mathcal{O} \mathcal{O} \mathcal{O} \mathcal{O}$				

- 1. CONTRACTOR SHALL COORDINATE ALL WORK WITH THE KAUAI ISLAND UTILITY COOPERATIVE AND HAWAIIAN TELCOM.
- 2. PROVIDE POLYOLEFIN 200LB TEST PULLCORD IN ALL EMPTY CONDUITS, UNLESS OTHERWISE NOTED.
- 3. ALL ELECTRICAL EQUIPMENT ENCLOSURES AND EQUIPMENT MOUNTING HARDWARE FOR OUTDOOR INSTALLATION SHALL BE TYPE 316 STAINLESS STEEL, UNLESS OTHERWISE NOTED.

	ELECTRICAL SYMBOLS					
SYMBOL	DESCRIPTION					
0	LED LIGHT, CEIL. MTD.					
Ю	LED NIGHT LIGHT, WALL MTD.					
\$ a	LT. SW., 1P, CONTROLLING OUTLET(S) "a", MTD. +48"					
\ominus	DUPLEX RECEPTACLE, NEMA 5-15R, 120V, MTD. +18" OR AS NOTED					
-	DUPLEX RECEPTACLE, WITH GROUND FAULT CIRCUIT INTERRUPTER, NEMA 5-20R, 120V, MTD +18" OR AS NOTED					
	ELECTRICAL PANELBOARD					
H	JUNCTION BOX, CEIL. MTD., 4-11/16" NOM.					
<u> </u>	JUNCTION BOX, WALL MTD., 4-11/16" NOM.					
	JUNCTION BOX MTD. ON CHANNEL SUPPORT, SEE DETAIL 3/E-21					
M	MOTOR CONNECTION					
(E)	EQUIPMENT CONNECTION					
DS	DOOR SECURITY SWITCH, SEE DETAIL 2/E-22					
(I)	TANK LEVEL TRANSMITTER CONNECTION					
FS	MAIN LINE FLOW SWITCH					
(S)	GATE MAGNETIC SECURITY SWITCH, SEE DETAIL 1/E-21					
PCV	PUMP CONTROL VALVE SOLENOID CONNECTION					
WLT	WELL LEVEL TRANSMITTER CONNECTION					
LS	LIMIT SWITCH CONNECTION FLOW TUBE TRANSMITTER CONNECTION					
FT						
M/H	MOTOR AND MOTOR HEATER CONNECTION					
WP	DENOTES "WEATHERPROOF"					
	FLEXIBLE CONDUIT, LIQUIDTIGHT					
	CONDUIT OR DUCTLINE BELOW REF. FL. OR GROUND					
	EXISTING DUCTLINE					
—— Е-ОН-——	NEW OVERHEAD UTILITY LINE					
e-oh	EXISTING OVERHEAD UTILITY LINE					
	12" X 20" WATER METER TYPE PRECAST CONCRETE					
	PULLBOX, WITH STEEL COVER AND WITH "CONTROLS"					
	INSCRIBED ON COVER					
	ELECTRIC/SIGNAL DUCTLINE WITH DESIGNATORS; ITEMS					
± :=	IN CIRCLE INDICATES DUCT SECTION TYPE, WITH DUCT					
—	COMPLEMENTS NOTED BELOW (TYPE "A" DUCT INDICATED					
	WITH 2-4"E DUCTS, AND TYPE "C" DUCT					
LAYC	WITH 1-2"T DUCT; E=ELECTRIC, T=TELEPHONE, A=ANTENNA CABLE					
2 45 4 25	C=CONTROLS, I=INSTRUMENTATION); SEE SHEET E-3 FOR					
2- 4 E 1-2T	DUCT SECTION DETAILS AND REQUIREMENTS					
	S ON CONDUITS INDICATE 2 WIRES; — III— INDICATES					
3 WIRFS: — LILL	HINDICATES 4 WIRES, ETC.					

KIUC CONSTRUCTION NOTES

- These notes are not intended to be used in place of the Service Installation Manual, please refer to Service Installation Manual for all service issues.
- 2. Contractor shall contact Kauai Island Utility Cooperative's ("KIUC") Construction Coordinator/Inspector prior to start of work on KE facilities and for scheduling site inspections. [Westside: 246-2323; Eastside: 246-4343]
- 3. Contractor shall contact KIUC's Distribution Engineer @ 246-2373 for design approvals, standard detail drawings, and any items not addressed in these notes or drawings.
- 4. All contractors entering KIUC facilities must be approved by KIUC and must have proper licensing and insurance coverage. Contact KIUC Legal Coordinator @ 246-4369 for details.
- 5. All trenches and pullboxes must be inspected by KIUC prior to backfilling and concrete—encasing operations. For detailed trenching and backfilling requirements refer to KIUC's Service Installation Manual.
- 6. The Contractor shall provide a Poly-Line 200 lb. test line or equivalent as a pulling wire in all 1", 2", 3" & 4" conduits. In 5" and 6" conduits, the contractor shall install NEPTCO WP1800 muletape as a pulling line.
- 7. All conduits, pullboxes, handholes, & manholes shall be cleaned and free from objectionable materials. Conduit ends shall be adequately covered until the conductor is installed by the electric company. (Covers shall be Carlon Plug with Pull Tab series P258 equivalent or better)
- 8. For all conduits other than services, refer to conduit schedule on drawings.
- 9. For all services where the conductor is 1/0 or less, the distance from KIUC's handhole and Customer's meter is less than 125 feet, and not crossing any driveways or roads the conduit shall be 2 inch Schedule 40 PVC. For services greater than 125 feet', contact KIUC planner for field verification and underground service requirements. Any deviations will require KIUC written approval.
- 10. Primary and Secondary conduits for new line extensions shall be Schedule 40 PVC. (Carlon P&C Duct Type DB equivalent or better.) Under driveways and roadways, the conduits shall be encased in a minimum of 3 inch concrete jacket extending 12" outside the edge of pavement.
- 11. Schedule 80 PVC conduits may be substituted for the concrete encased Schedule 40 PVC for service conduit only crossing under unpaved private driveways & roadways from KIUC pole/handhole to customer's meter. If concrete driveway will be built over service conduit immediately after conduit is installed, than Schedule 40 PVC may be used provided that it meets with Rule No. 21.
- 12. All primary and secondary conduits which are crossing state or county roadways shall be Schedule 40 PVC encased in a minimum 3 inch concrete jacket, which shall extend a minimum of 12 inches outside of the edge of pavement.
- 13. Electrical supply ducts, when installed near communication cables, shall be separated from communication duct systems and buried communication cables or conductors by not less than 3 inches of concrete or 12 inches of earth when paralleling or crossing.
- 14. Chairs shall be installed and spaced at a maximum of 5 feet separation when concrete encasing conduits.
- 15. All conduits shall enter boxes at 90 degree angle, perpendicular and flush to the wall with bell ends to prevent cable damage.
- 16. 90 degree conduit bends shall be factory made with a minimum radius of 3 feet in trench runs.
- 17. Conduit bends exceeding 90 degrees will not be accepted.
- 18. A 36 inch minimum horizontal clearance shall be maintained when running KIUC conduits parallel to water & sewer lines. If clearance is less than 36 inches, KIUC conduit shall be concrete
- 19. No foreign pullboxes, handholes, manholes, concrete slabs/boxes, structures, etc. are to be installed over KIUC facilities with the exception of HTI, CATV or waterline conduit crossings. Such crossing must be approved by KIUC's Service Assurance Department and KIUC conduit to be concrete encased. Concrete encasement must be a minimum of 3 inch encasement and extend a minimum of 1 foot beyond crossing conduit or pipe.
- 20. Yellow marker tape to be placed 1 foot above electrical conduits in the trench during backfilling. (E-Z CODE WBT 6 inch wide 4 Mill polyethylene Protect-A-Line Warning Tape NA-0708 "ELECTRIC LINE" in yellow, equivalent or better)
- 21. Unless otherwise noted, the top of all conduits shall be at a depth of 24 inches.
- 22. All handholes, pullboxes, and manholes shall be Walker Industries type or approved equal. Contact KIUC prior to ordering underground boxes for vendor approval. Customer to submit manufacturer's shop drawings if substituting from Walker Industries type.
- 23. Typically, the top of all electrical utility boxes shall be 1 inch above finish grade, single phase transformer pads shall be 2 inches above finish grade, and three phase transformer pads shall be 4 inches above finish grade unless otherwise noted. (Special conditions may apply to sidewalks, roadways, etc. see specific location notation)
- 24. At no time shall cement mortar, wood or any other material be used between pre—cast sections of KIUC pullboxes, handholes, or manholes. The permanent installation of wooden wedges to level or raise the pre—cast sections shall not be permitted.
- 25. A minimum of 6 inches of #3 crushed rock backfill shall be placed loosely beneath the bottom section of handholes and pullboxes. Crushed rock or other foreign materials are not to be placed inside handholes and pullboxes.

LICENSED PROFESSIONAL **ENGINEER ∖**No. 14288−E, THIS WORK WAS PREPARED

Y ME OR UNDER MY SUPERVISION WILL □E UNDER MY O□SERVATION APRIL 30, 2020 E PIRATION DATE OF THE LICENSE

			APPROVED
			MADE BY
			DESCRIPTION
			DATE
			REVISION



91-5420 Kapolei Parkway

Kapolei, Hawai`i 96707 ANAHOLA FARM LOTS

WATER PROJECT Phase II - Water Tank Replacement & Facility Impr.
Anahola, Island of Kaua`i

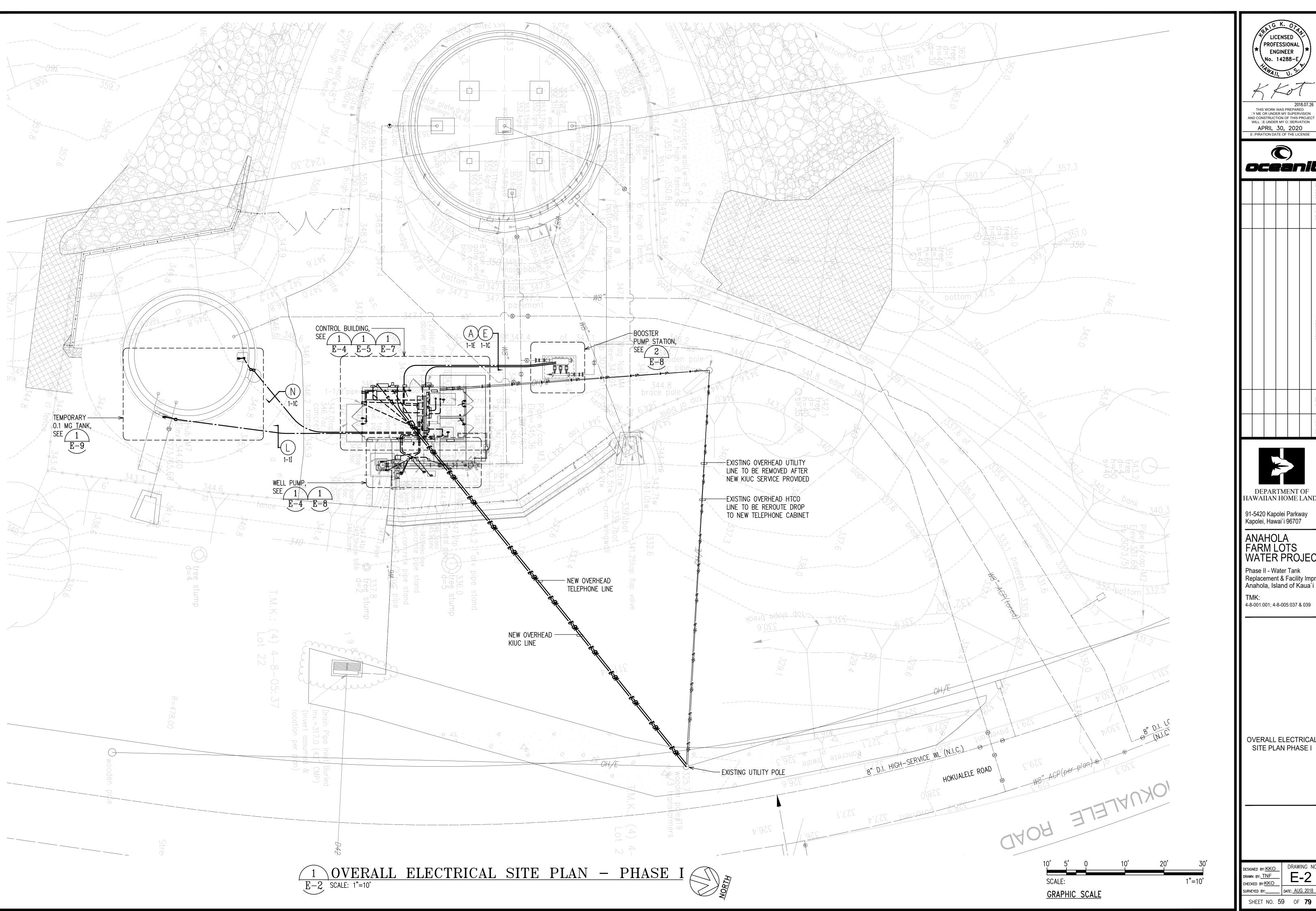
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GENERAL NOTES AND ELECTRICAL SYM□OLS

PHASE II - WATER TANK

DRAWING NO. DRAWN BY: TNF CHECKED BY:KKO SURVEYED BY: _____ DATE: AUG. 2018

SHEET NO. **58** OF **79**



THIS WORK WAS PREPARED

Y ME OR UNDER MY SUPERVISION
AND CONSTRUCTION OF THIS PROJECT
WILL = UNDER MY OSERVATION APRIL 30, 2020



91-5420 Kapolei Parkway Kapolei, Hawai`i 96707

ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i
TMK:

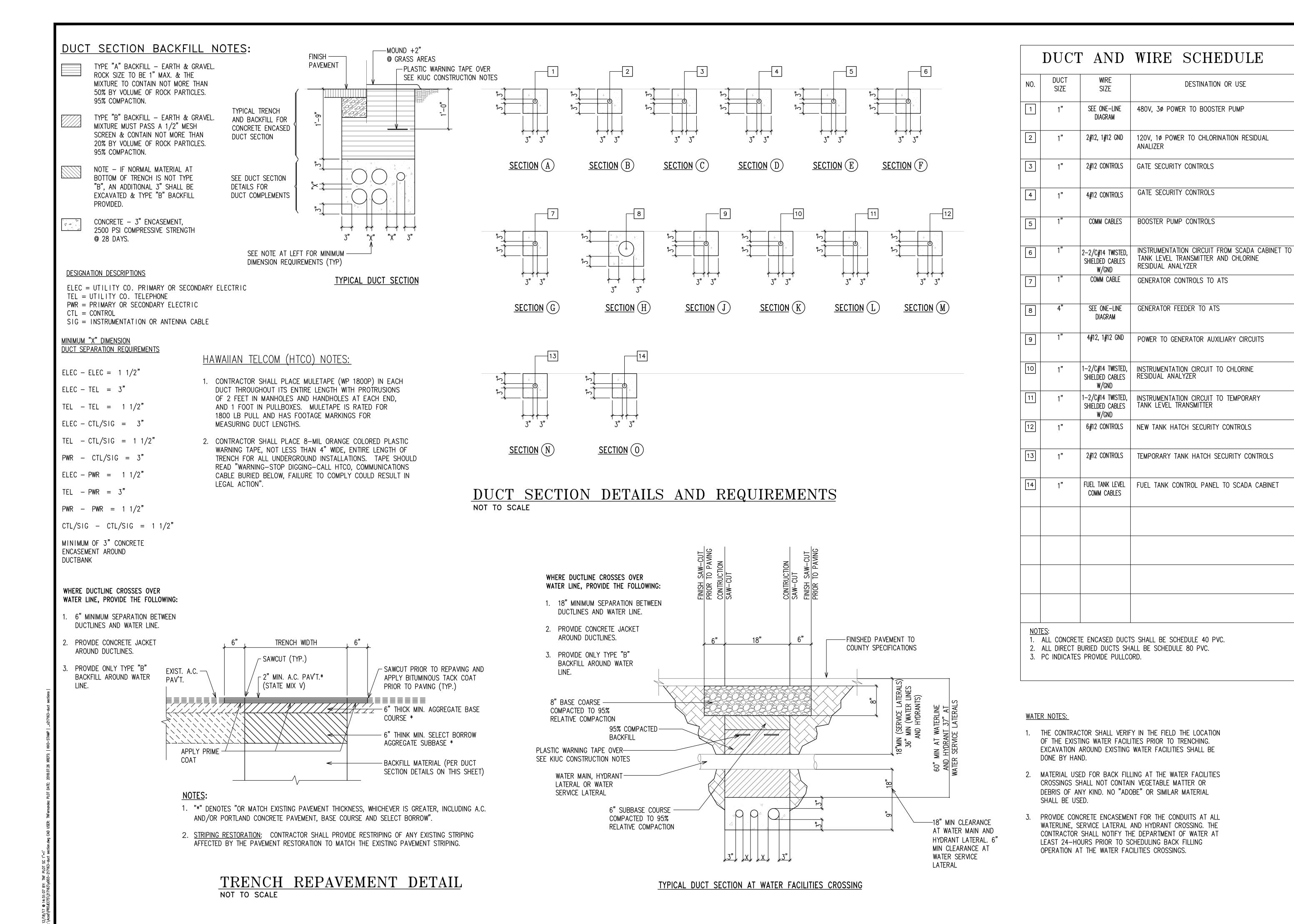
TMK: 4-8-001:001; 4-8-005:037 & 039

OVERALL ELECTRICAL SITE PLAN PHASE I

DRAWING NO. DESIGNED BY:<u>KKO</u>

DRAWN BY:<u>TNF</u>

CHECKED BY:<u>KKO</u>



LICENSED PROFESSIONAL ENGINEER
No. 14288-E

2018.07.2

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Y ME OR UNDER MY SUPERVISION
AND CONSTRUCTION OF THIS PROJECT
WILL IE UNDER MY OSERVATION

APRIL 30, 2020

ESPIRATION DATE OF THE LICENSE

© oceanit

MADE BY APPROVED

DEPARTMENT OF

DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway Kapolei, Hawai`i 96707 ANAHOLA FARM LOTS

WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.

Anahola, Island of Kaua`i TMK:

HASE II - WATER TANK REPLA

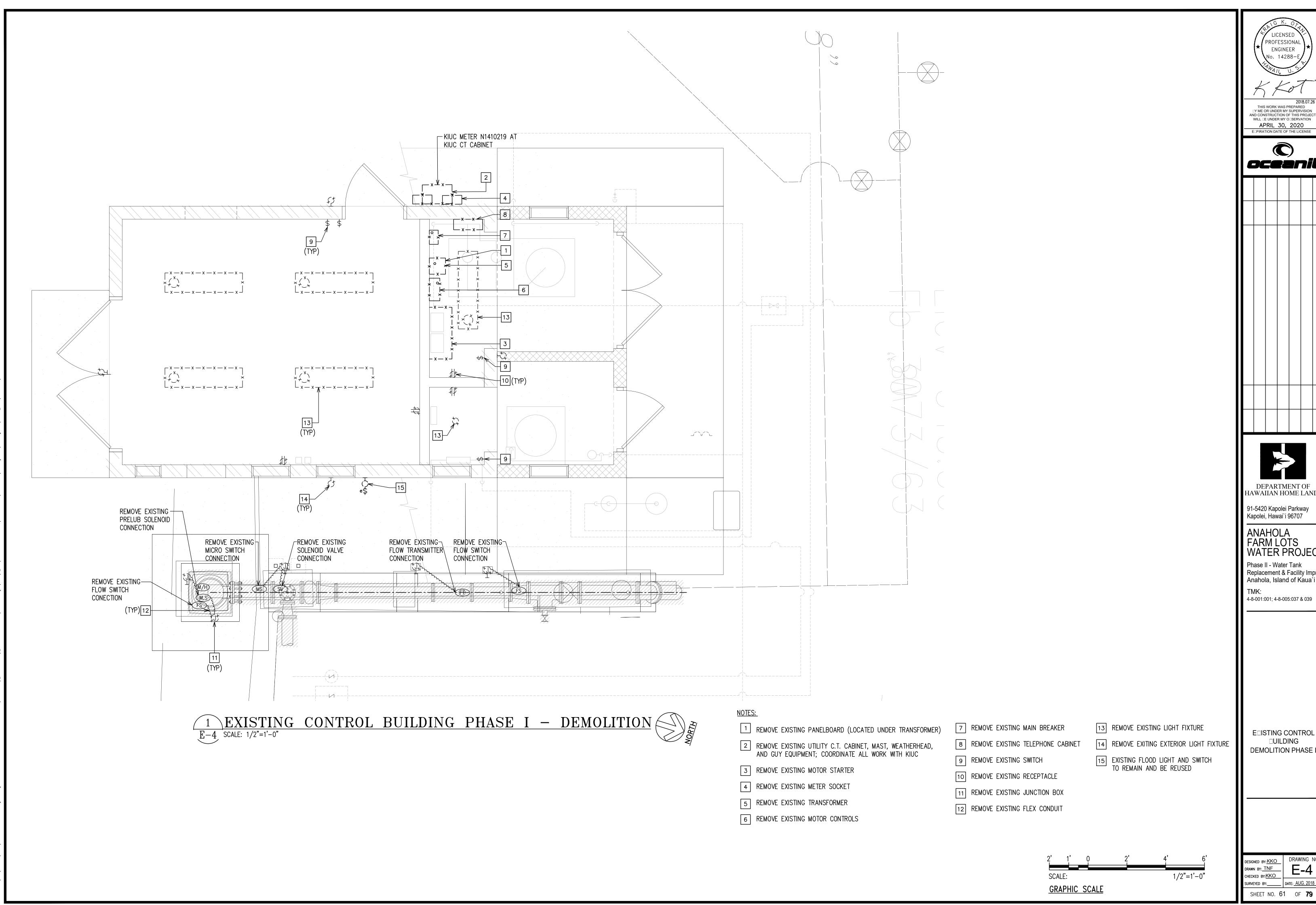
4-8-001:001; 4-8-005:037 & 039

DUCT SECTION
DETAILS AND
REDUIREMENTS

IGNED BY: KKO
WN BY: TNF
WN BY: TNF

DESIGNED BY: KKO
DRAWN BY: TNF
CHECKED BY: KKO
SURVEYED BY:

SHEET NO. 60 OF 79



THIS WORK WAS PREPARED

"Y ME OR UNDER MY SUPERVISION
AND CONSTRUCTION OF THIS PROJEC
WILL "E UNDER MY O"SERVATION APRIL 30, 2020

DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway Kapolei, Hawai`i 96707

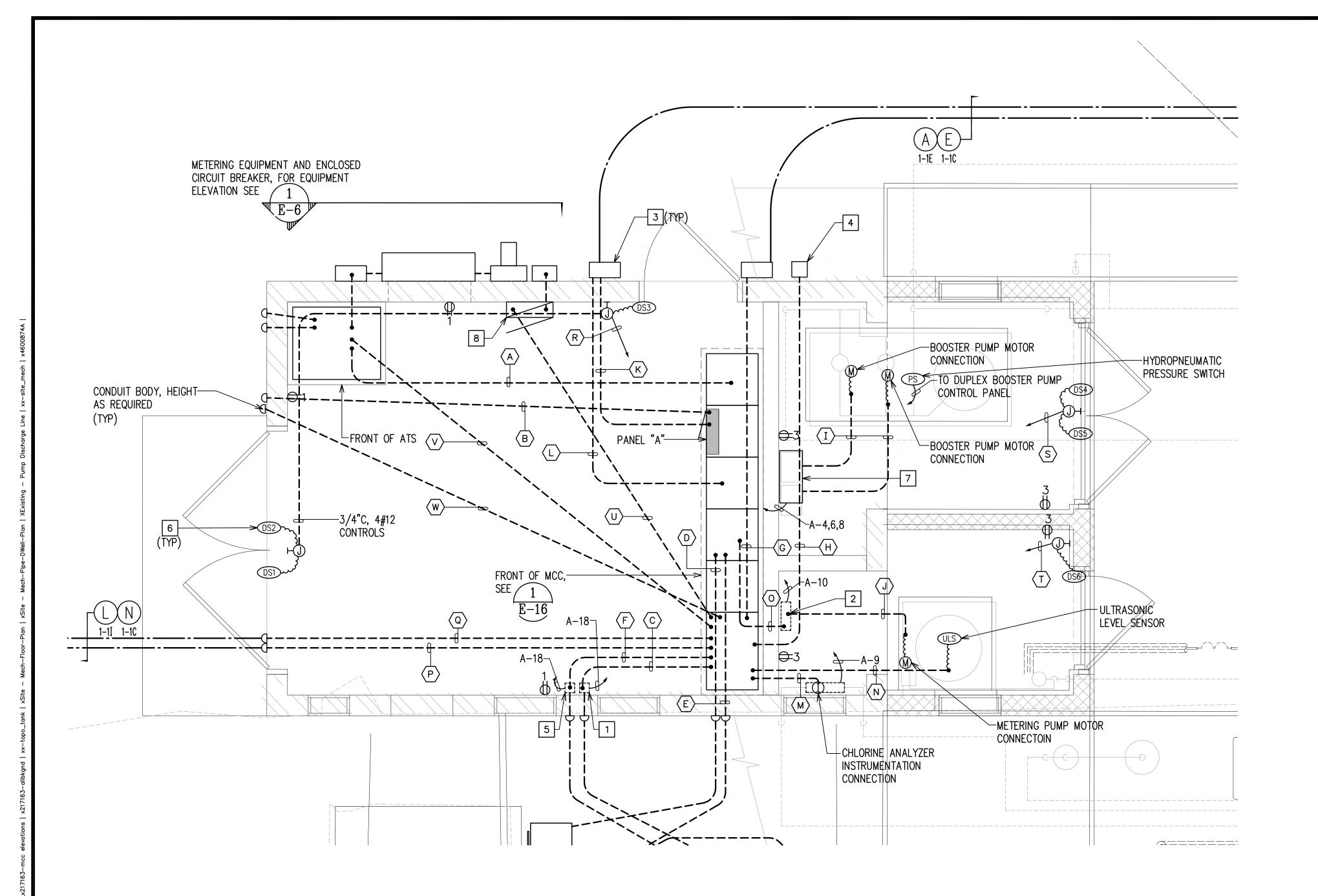
ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i
TMK:

TMK: 4-8-001:001; 4-8-005:037 & 039

E□ISTING CONTROL □UILDING

DEMOLITION PHASE I

DRAWING NO **E-4** SURVEYED BY: _____ DATE: AUG. 2018



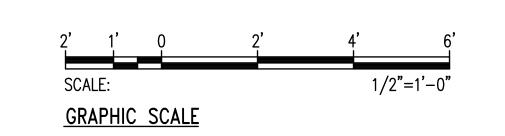
CONTROL BUILDING ELECTRICAL PLAN PHASE I SCALE: 1/2"=1'-0"

EQUIPMENT NOTES:

- FLOW RATE INDICATOR (PROVIDED BY OTHERS)
- CHLORINE METERING PUMP CONTROL PANEL (PROVIDED BY OTHERS)
- 12"SQ X 6"D NEMA 4XSS WALL MOUNTED JUNCTION BOX
- 6"SQ X 6"D NEMA 4XSS WALL MOUNTED JUNCTION BOX
- WELL LEVEL INDICATOR (PROVIDED BY OTHERS)
- DOOR SECURITY SWITCH, SEE DETAIL 2/E-22
- DUPLEX BOOSTER PUMP CONTROL PANEL, SEE SHEET E-19
- TELEPHONE CABINET, SEE ELEVATION 2/E-6
- REMOVE ALL TEMPORARY EQUIPMENT, CONDUIT, AND WIRES IN PHASE II. TEMPORARY DUCTLINES SHALL BE ABANDONED IN PLACE.

		A.I.C. IN	VOLTS, DUSTRI CE MOU	AL-BOLT	-										
CKT.	USE: L-LTS, R-RECEP, PFB-PROVISION FUTURE BKR.,	BRE	AKER	WIRE SIZE			KVA	ON BUS	SES		WIRE SIZE	BRE		USE: L-LTS, R-RECEP, PFB-PROVISION FUTURE BKR.,	CKT.
	S-SPARE, F-FAN, W-WARMER	POLE	AMPS		PHA	SE A	PHA	SE B	PHA	SE C		POLE	AMPS	S-SPARE, F-FAN, W-WARMER	
1	R - CONTROL BUILDING	1	20	12	1.0	0.5					12	1	20	L	2
3	R - CONTROL BUILDING	1	20	12			1.0	1.8			12	3	20	HYDRO BOOSTER PUMP PANEL	4
5	SCADA CABINET	1	20	12					1.0	1.8					6
7	CHLORINE RESIDUAL ANALYZER	1	20	12	0.4	1.8									8
9	CHLORINE RESIDUAL ANALYZER	1	20	12			0.4	1.0			12	1	20	METERING PUMP CONTROL PANEL	10
11	MOTOR HEATER	1	20	12					1.0	1.0	12	1	20	WELL PUMP TEST CKT	12
13	MCC STRIP HEATER	1	20	12	1.0	1.0					12	1	20	GENERATOR AUXILARY	14
15	S	1	20				0.5	1.0			12	1	20	GENERATOR AUXILARY	16
17	S	1	20						0.5	0.5	12	1	20	FLOW RATE/WELL LEVEL INDICATOR	R 18
19	PFB-PROVISION FUTURE BKR.,					0.5						1	20	S	20
21	PFB-PROVISION FUTURE BKR.,													PFB-PROVISION FUTURE BKR.,	22
23								•						PFB-PROVISION FUTURE BKR.,	24
	CONNECTED LOAD PER PHASE					6.2		5.7		5.8		•	•		
	DEMAND LOAD PER PHASE					4.3		4.0		4.1					
													TOTAL	CONNECTED LOAD (KVA)	17.
													DEMAN	ID FACTOR	709
													TOTAL	DEMAND LOAD (KVA)	12.
													HIGH LE	EG (AMPS)	36.

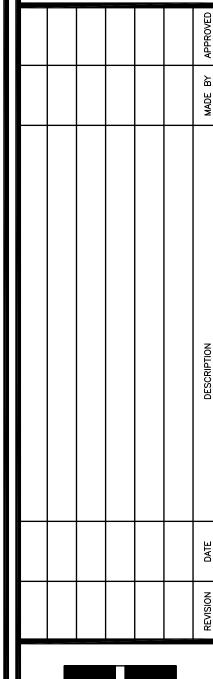
NO.	CONDUIT	WIRE	DESTINATION OR USE
(A)	SIZE 4"	SIZE SEE ONE-LINE	ATS TO MOTOR CONTROL CENTER
(B)	1"	DIAGRAM 4#12, 1#12 GND	120V POWER FROM PANEL "A" TO GENERATOR AUXILIARY CONNECTION
		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	TEST T SHERT THEE TO TESTER THE T
©	1"	1-2/C #14 TWISTED, SHIELDED CABLE W/ GND	FLOW TRANSMITTER INSTRUMENTATION CIRCUIT TO SCADA CABINET
D	2"	SEE ONE-LINE DIAGRAM	POWER FROM MCC TO WELL PUMP NO. 1
E	1"	8#12 CONTROLS	WELL PUMP CONTROLS TO WELL CONTROLS
F	1"	1-2/C #14 TWISTED, SHIELDED CABLE W/ GND	WELL LEVEL TRANSMITTER CIRCUIT TO SCADA CABINET
G	1"	12#12 CONTROLS, COMM CABLE	CONTROLS TO SCADA CABINET
H	1"	2-2/C #14 TWISTED, SHIELDED CABLE W/ GND	INSTRUMENTATION CIRCUIT FROM CHLORINE RESIDUAL ANALYZER AND TANK LEVI TRANSMITTER TO SCADA CABINET
(I)	1"	3#12, 1#12 GND	208V POWER FROM BOOSTER PUMP CONTROL PANEL TO BOOSTER PUMP
J	1"	2#12, 1#12 GND	120V POWER FROM METERING PUMP CONTROL PANEL TO METERING PUMP
⟨K⟩	1"	2#12, 1#12 GND	120V POWER FROM PANEL "A" TO CHLORINE ANALYZER
(L)	1"	SEE ONE-LINE DIAGRAM	480V POWER FROM MCC TO BOOSTER PUMP
M	1"	1-2/C #14 TWISTED, SHIELDED CABLE W/ GND	INSTRUMENTATION CIRCUIT FROM CHLORINE RESIDUAL ANALYZER TO SCADA CABINET
N	1"	1-2/C #14 TWISTED, SHIELDED CABLE W/ GND	ULTRA SONIC LEVEL SENSOR FROM CHLORINE TANK TO SCADA CABINET
0	1"	4#12 CONTROLS	CHLORINE METERING PUMP CONTROLS
P	1"	1-2/C #14 TWISTED, SHIELDED CABLE W/ GND	INSTRUMENTATION CIRCUIT FROM TEMPORARY TANK LEVEL INDICATOR TO SCADA CABINET
Q	1"	2#12 CONTROLS	TEMPORARY TANK HATCH SECURITY CONTROLS
R	1"	6#12 CONTROLS	DOOR SECURITY CONTROLS TO SCADA CABINET
<u>(s)</u>	1"	4#12 CONTROLS	DOOR SECURITY CONTROLS TO SCADA CABINET
T	1"	2#12 CONTROLS	DOOR SECURITY CONTROLS TO SCADA CABINET
U	2"	TELEPHONE CABLES	TELEPHONE CABINET TO SCADA CABINET
⟨v⟩	1"	COMM CABLES	ATS TO SCADA CABINET
⟨w⟩	1"	FUEL TANK LEVEL COMM CABLES	GENERATOR FUEL TANK LEVEL TO SCADA CABINET



LICENSED PROFESSIONAL **ENGINEER** \No. 14288-E

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DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway
Kapolei, Hawai`i 96707

ANAHOLA
FARM LOTS
WATER PROJECT

Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i

4-8-001:001; 4-8-005:037 & 039

CONTROL BUILDING ELECTRICAL PLAN PHASE I

DRAWING NO. DESIGNED BY: KKO

DRAWN BY: TNF

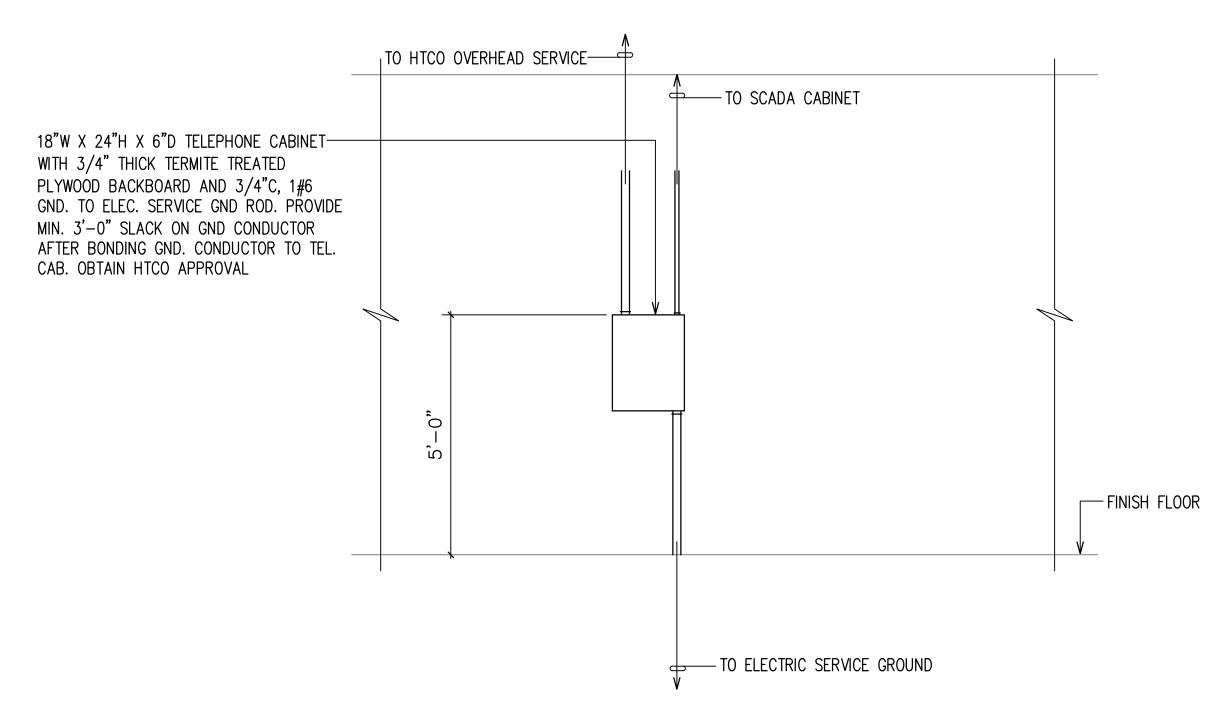
CHECKED BY: KKO

SHEET NO. 62 OF **79**

NOTE

- 1. "*" INDICATES PROVISIONS FOR KIUC SEAL.
- 2. OBTAIN KIUC SHOP DRAWING APPROVAL FOR PULLBOX AND METER SOCKETS.
- 3. GROUND AND BOND PER N.E.C.
- 4. PROVIDE MIN. 4'-0" CLEAR AND LEVEL WORKSPACE CLEARANCE IN FRONT OF METERING EQUIPMENT.
- 5. ALL EQUIPMENT ENCLOSURES SHALL BE RATED NEMA 4XSS.
- 6. PROVIDE A PERMANENT IDENTIFICATION LABELS FOR ALL METER SOCKETS TO IDENTIFY THE UNIT OR SPACE SERVED.
- 7. AT TIME OF INSTALLATION, PROVIDE AND INSTALL METER SOCKET COVERS (PLASTIC) AND BANDS FOR ALL BLANK METER SOCKETS. IDENTIFY COVERS SO COVERS CAN BE RETURNED.
- 8. CUSTOMER SHALL COMPLY WITH ALL OF KIUC'S ESIM REQUIREMENTS.

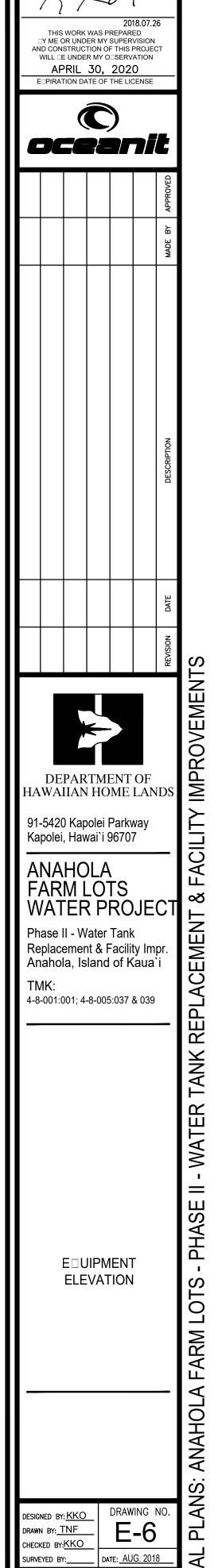




2 TELEPHONE CABINET ELEVATION E-6 SCALE: 1/2"=1'-0"

NOTES

1. ONCE KIUC SERVICE LINES ARE INSTALLED, CONTACT HTCO AT (808)643—4411 TWO WEEKS PRIOR OR EARLIER OF WHEN TELEPHONE SERVICE IS NEEDED AT SITE AND REQUEST FOR "REROUTE DROP". PROVIDE PHONE NUMBER OF SITE WHEN REQUESTING REROUTING OF TELEPHONE SERVICE.



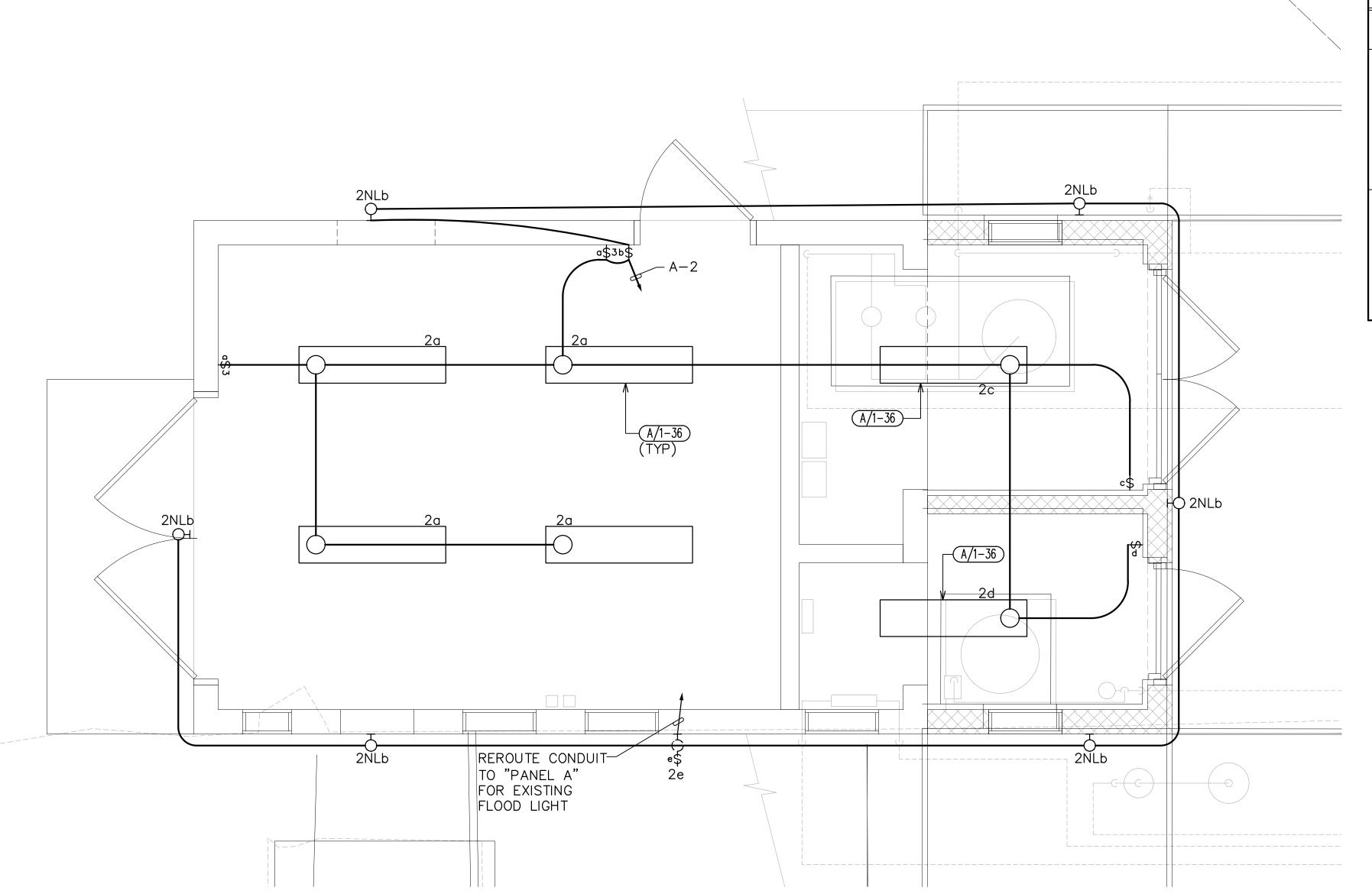
SHEET NO. **63** OF **79**

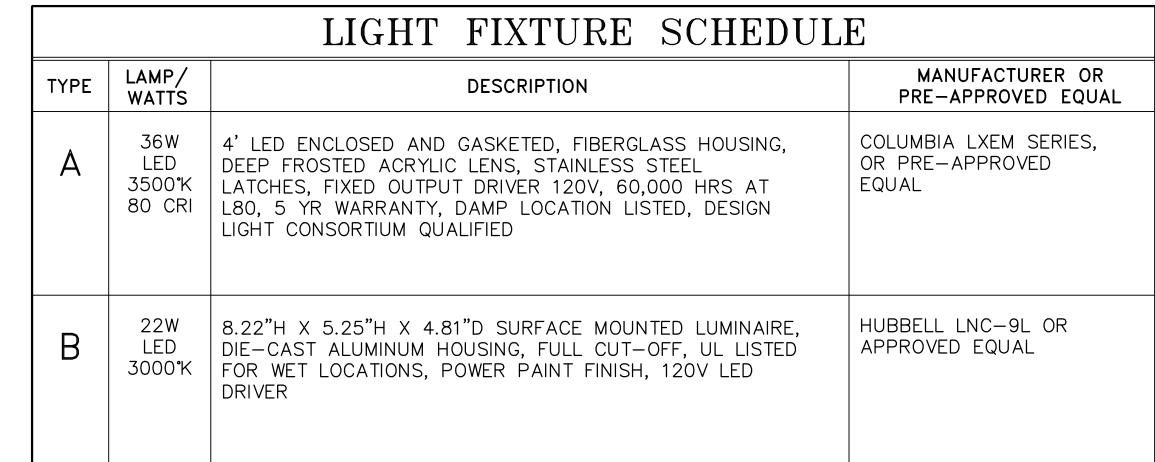
LICENSED PROFESSIONAL ENGINEER No. 14288–E

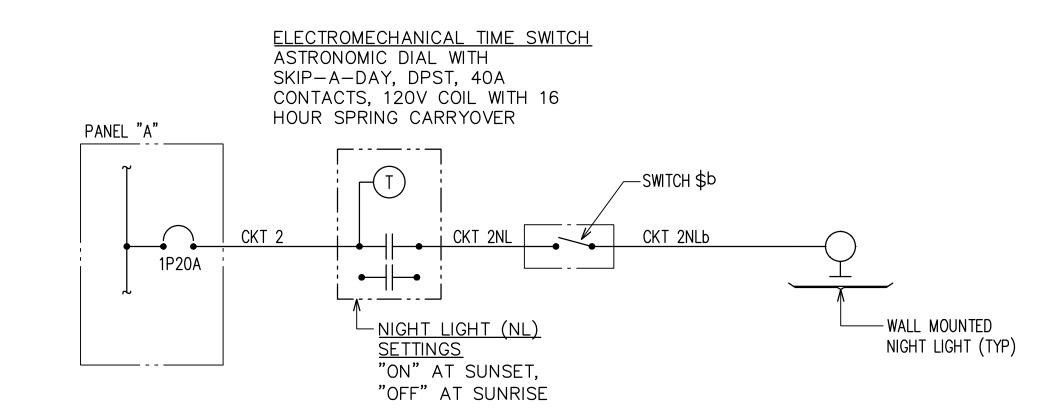
2' 1' 0 2' 4' 6'

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

GRAPHIC SCALE

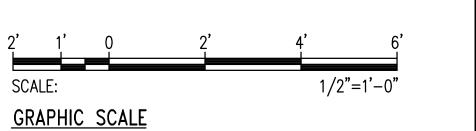






2 TYPICAL NIGHT LIGHT CONTROL DIAGRAM E-7

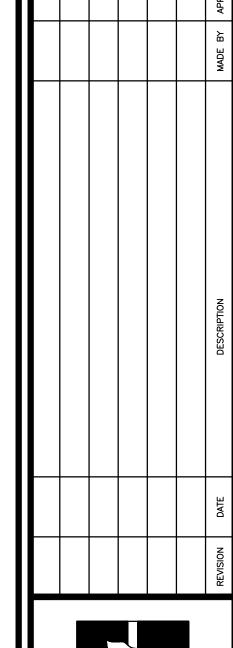
CONTROL BUILDING LIGHTING PLAN PHASE I SCALE: 1/2"=1'-0"



LICENSED PROFESSIONAL **ENGINEER** No. 14288-E

> THIS WORK WAS PREPARED
>
> YME OR UNDER MY SUPERVISION
> AND CONSTRUCTION OF THIS PROJECT
>
> WILL E UNDER MY OSERVATION APRIL 30, 2020





DEPARTMENT OF HAWAIIAN HOME LANDS

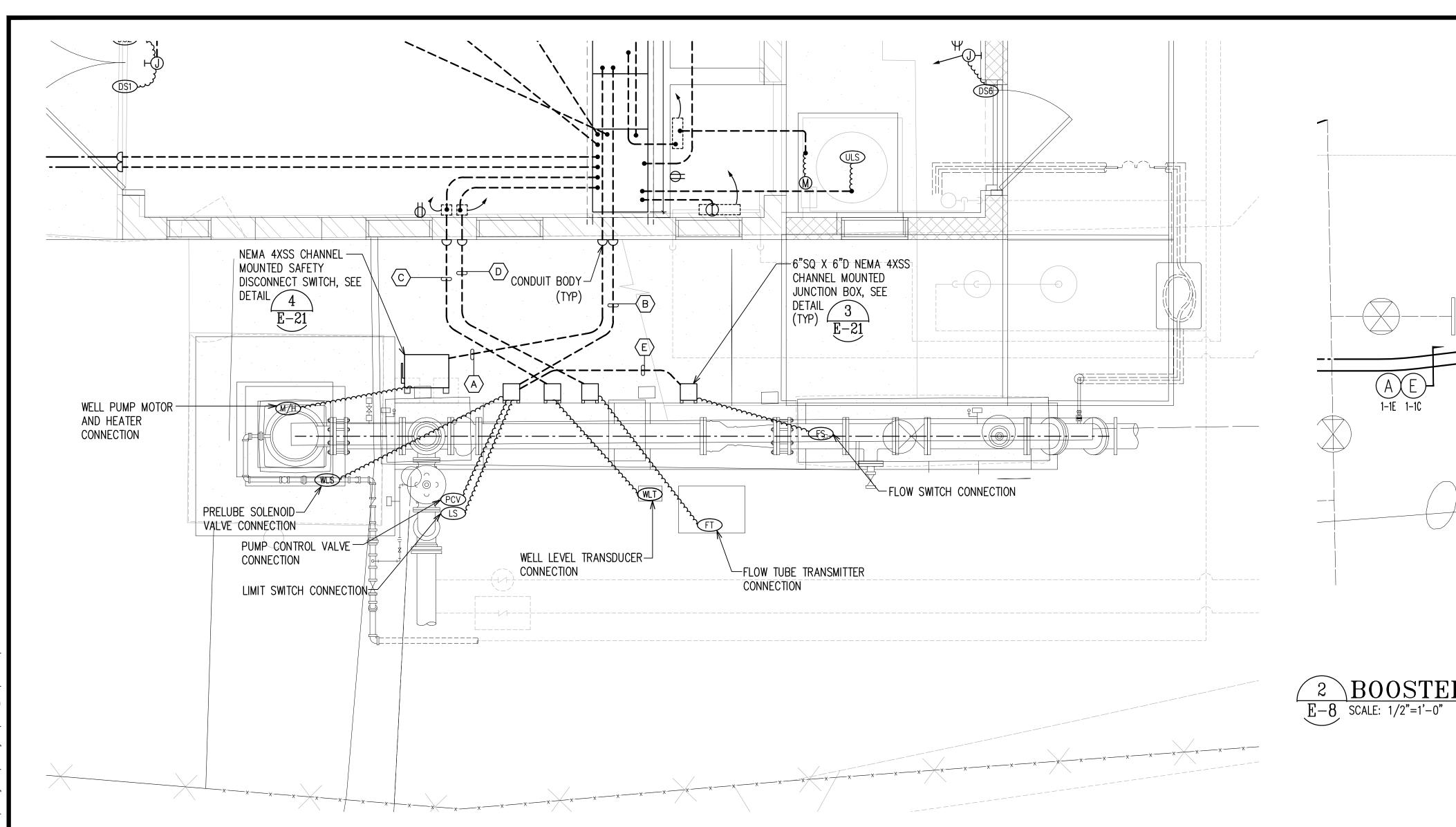
91-5420 Kapolei Parkway
Kapolei, Hawai`i 96707

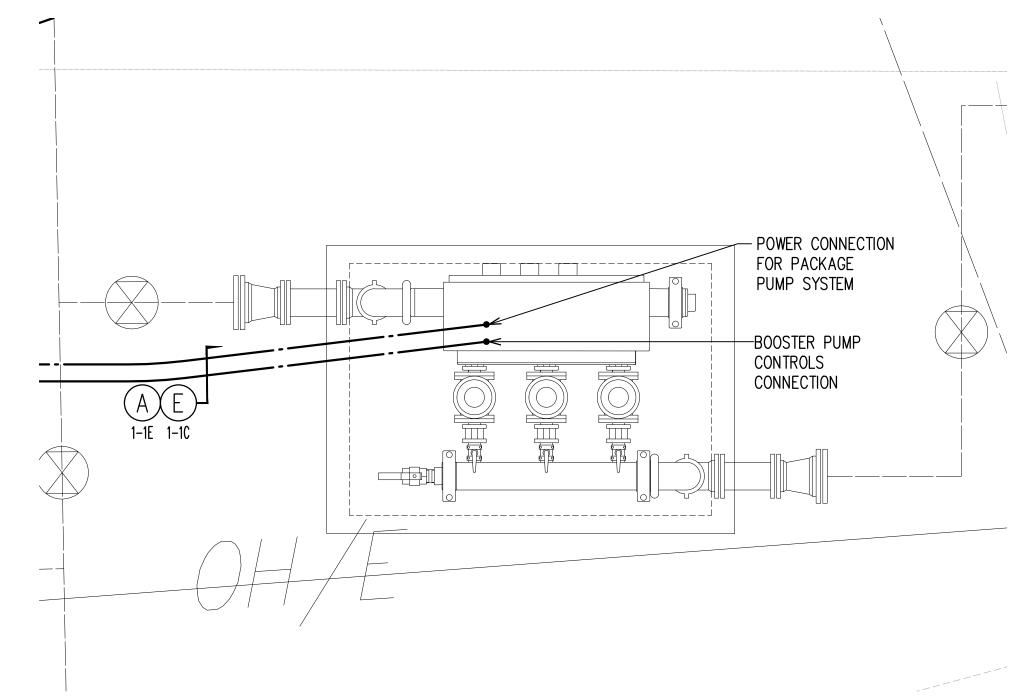
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FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i

TMK:

TMK: 4-8-001:001; 4-8-005:037 & 039

CONTROL DUILDING LIGHTING PLAN



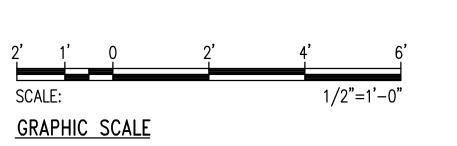


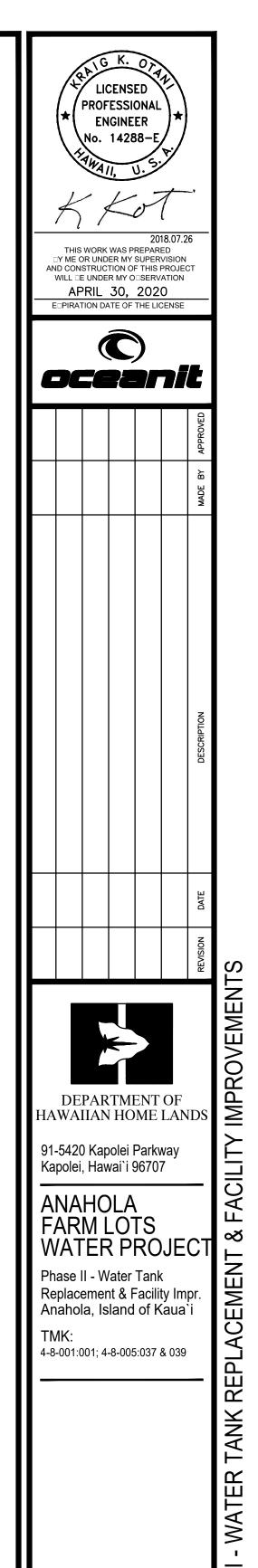
BOOSTER PUMP ELECTRICAL PLAN PHASE 1
E-8 SCALE: 1/2"=1'-0"





		CONDU	IT AND WIRE SCHEDULE
NO.	CONDUIT SIZE	WIRE SIZE	DESTINATION OR USE
A	2"	SEE ONE-LINE DIAGRAM	POWER FROM MCC TO WELL PUMP MOTOR
B	1"	8#12 CONTROLS,	WELL PUMP CONTROLS
(C)	1"	1-2/C#14 TWISTED, SHIELDED CABLES, W/GND	INSTRUMENTATION CIRCUIT FROM WELL LEVEL TRANSMITTER TO WELL LEVEL INDICATOR
D	1"	FLOW SENSOR CABLE	INSTRUMENTATION CIRCUIT FROM FLOW TRANSMITTER TO FLOW RATE INDICATOR
E	1"	2#12 CONTROLS	FLOW SWITCH TO WELL CONTROLS



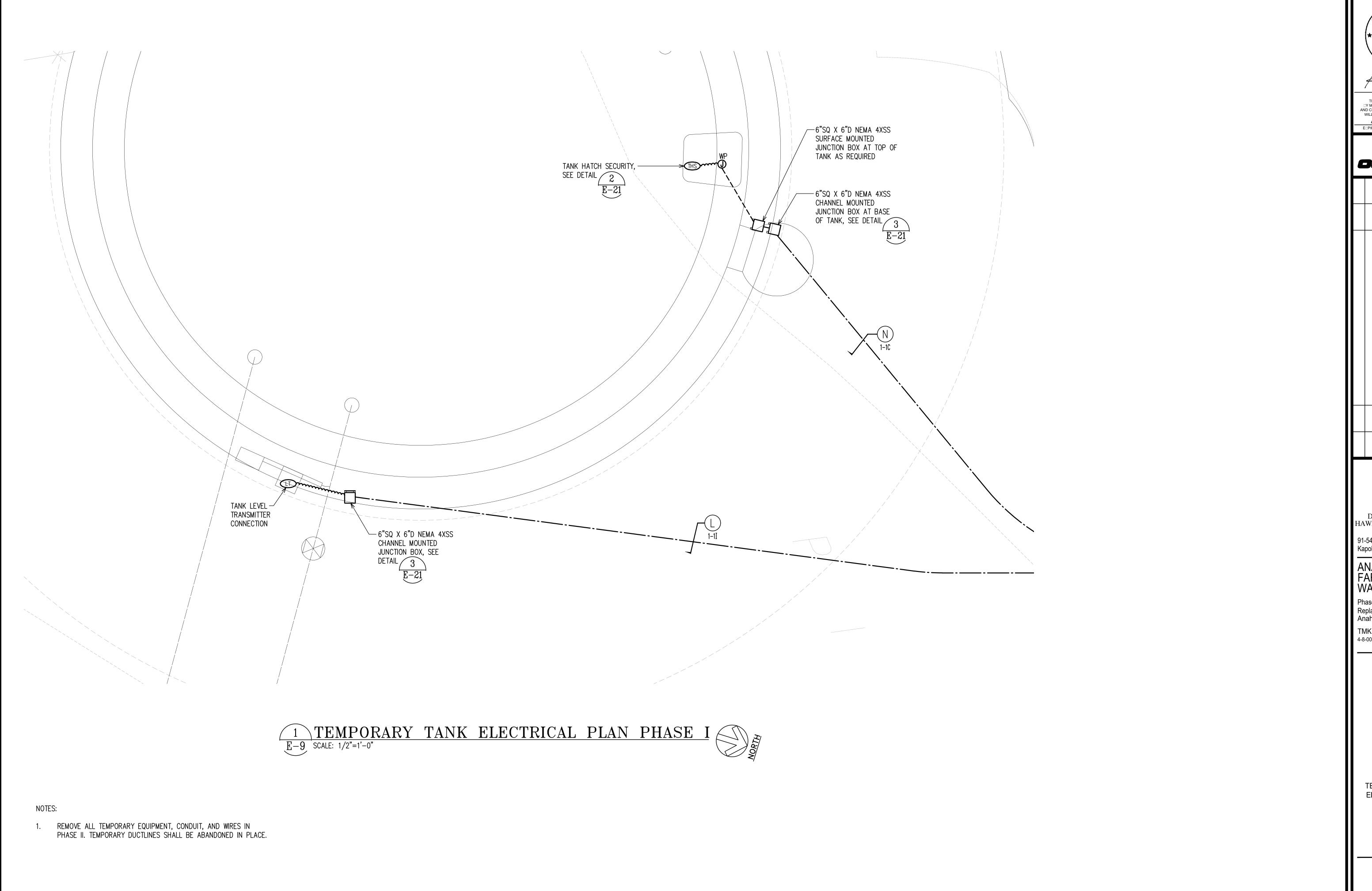


WELL & □OOSTER PUMP ELECTRICAL PLAN PHASE I

DESIGNED BY: KKO

DRAWN BY: TNF

CHECKED BY: KKO SHEET NO. 65 OF **79**



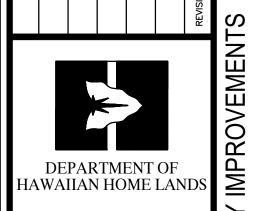
LICENSED / PROFESSIONAL **ENGINEER** No. 14288-E

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AND CONSTRUCTION OF THIS PROJECT
WILL IE UNDER MY OUSERVATION APRIL 30, 2020

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91-5420 Kapolei Parkway Kapolei, Hawai`i 96707

ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i
TMK:

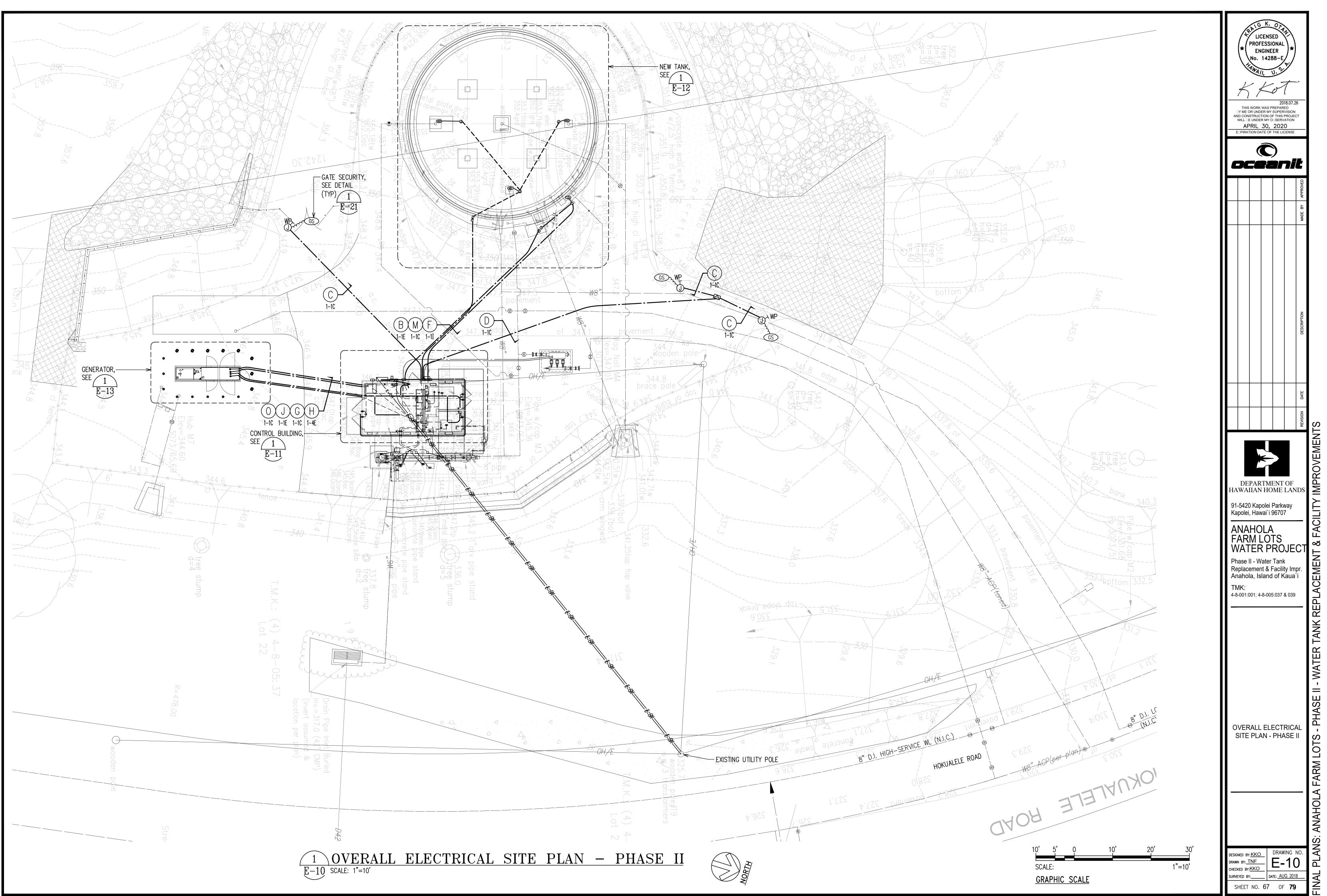
TMK: 4-8-001:001; 4-8-005:037 & 039

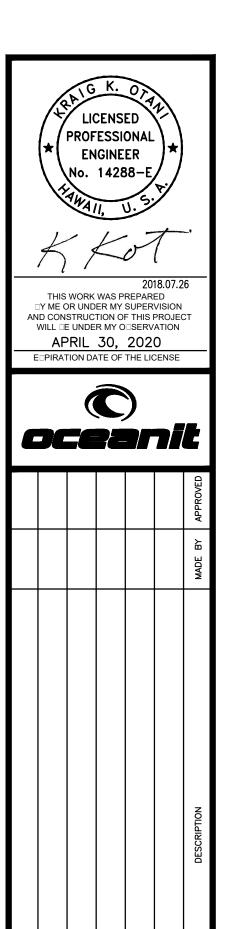
TEMPORARY TANK ELECTRICAL PLAN

DESIGNED BY: KKO
DRAWN BY: TNF
CHECKED BY: KKO
SURVEYED BY: DATE: AUG. 2018 SHEET NO. 66 OF **79**

1/2"=1'-0"

GRAPHIC SCALE



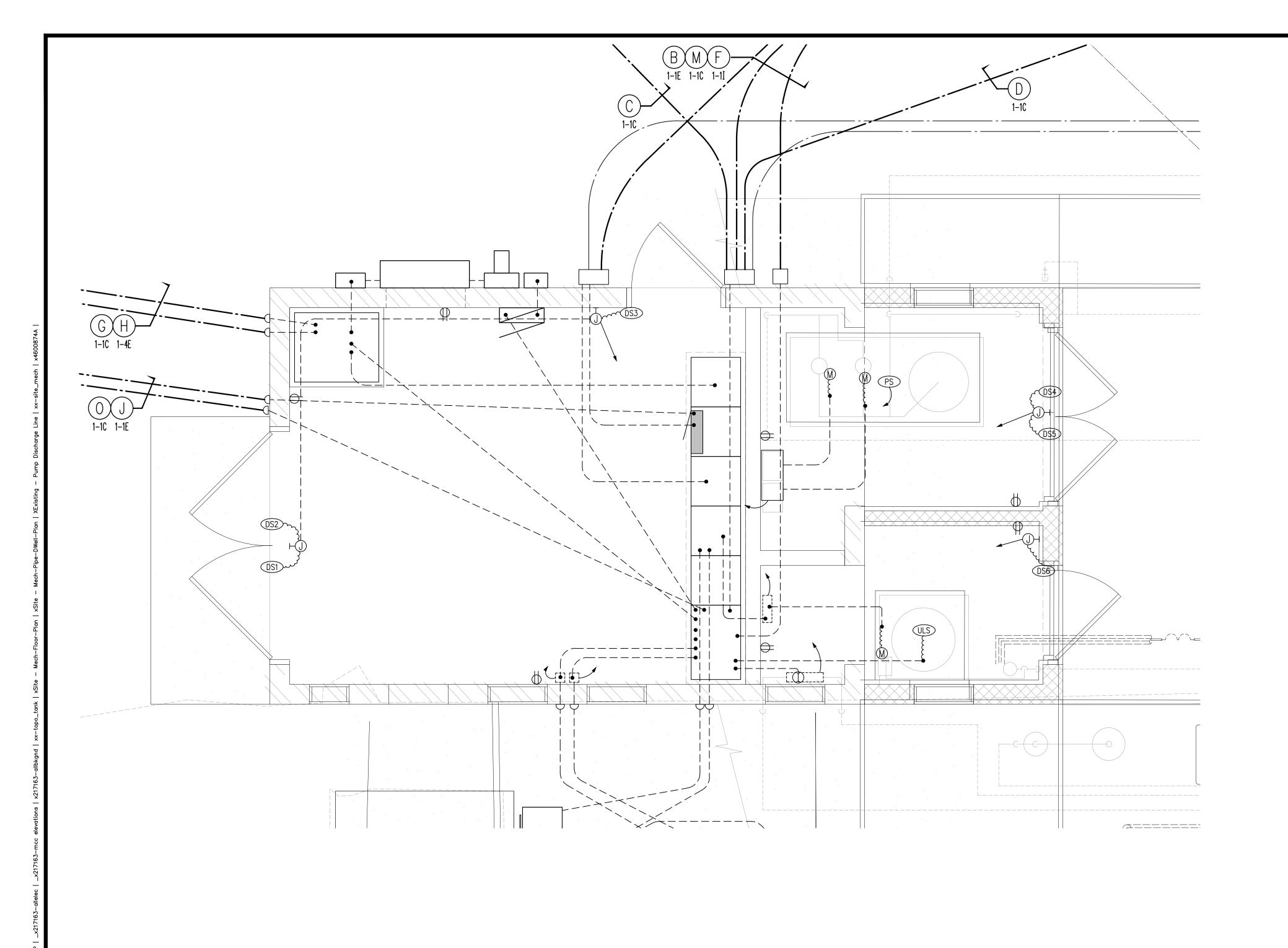




TMK: 4-8-001:001; 4-8-005:037 & 039

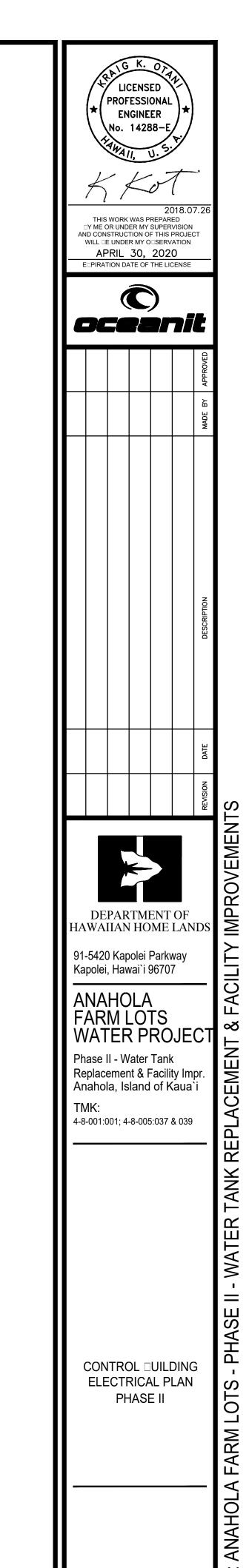
OVERALL ELECTRICAL SITE PLAN - PHASE II

DESIGNED BY: KKO
DRAWN BY: TNF
CHECKED BY: KKO
SURVEYED BY: DATE: AUG. 2018



CONTROL BUILDING ELECTRICAL PLAN – PHASE II SCALE: 1/2"=1'-0"

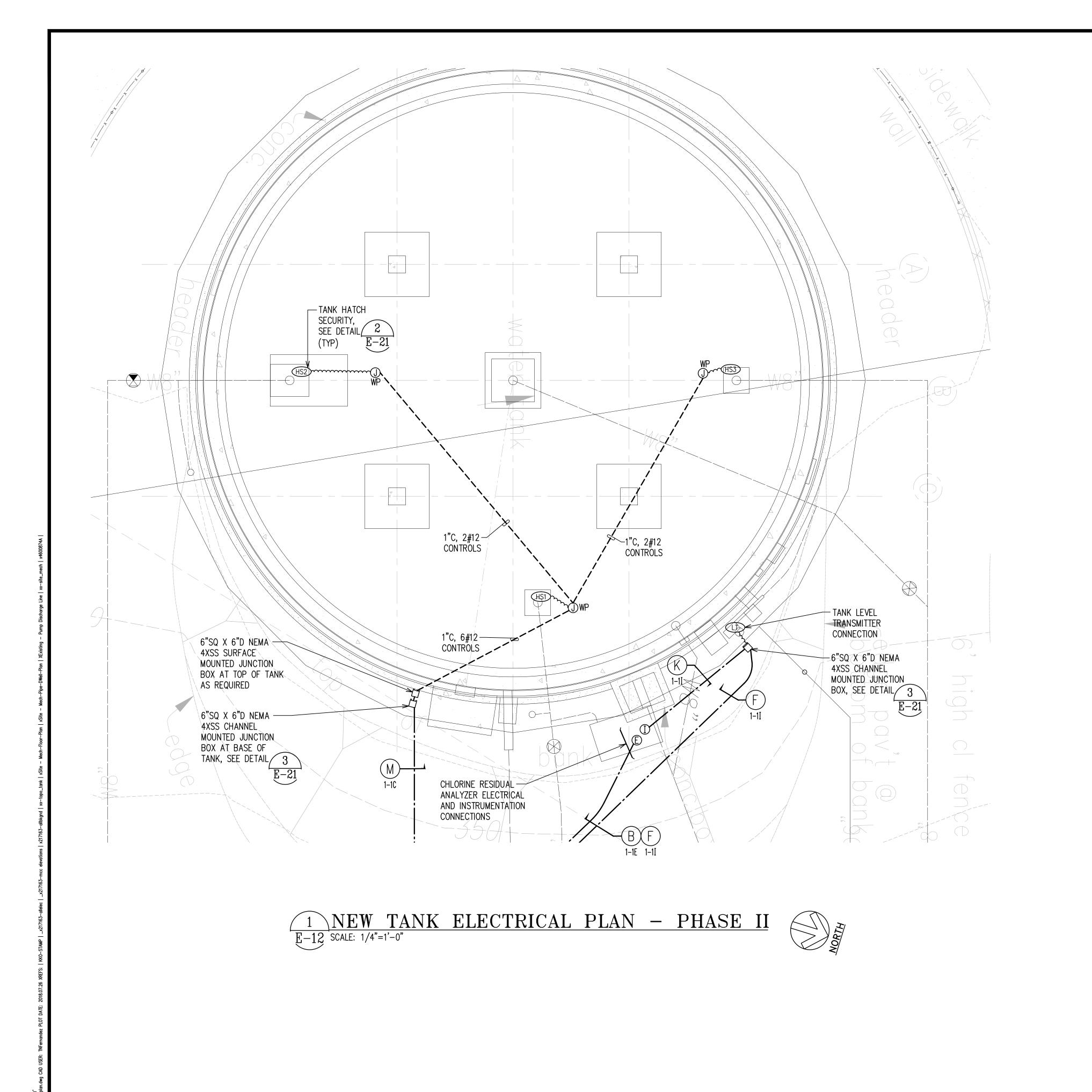




SHEET NO. 68 OF **79**

2' 1' 0 2' 4' 6'

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



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Kapolei, Hawai`i 96707

ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i
TMK: TMK: 4-8-001:001; 4-8-005:037 & 039 NEW TANK ELECTRICAL PLAN PHASE II

DESIGNED BY: KKO
DRAWN BY: TNF
CHECKED BY: KKO

DRAWING NO.

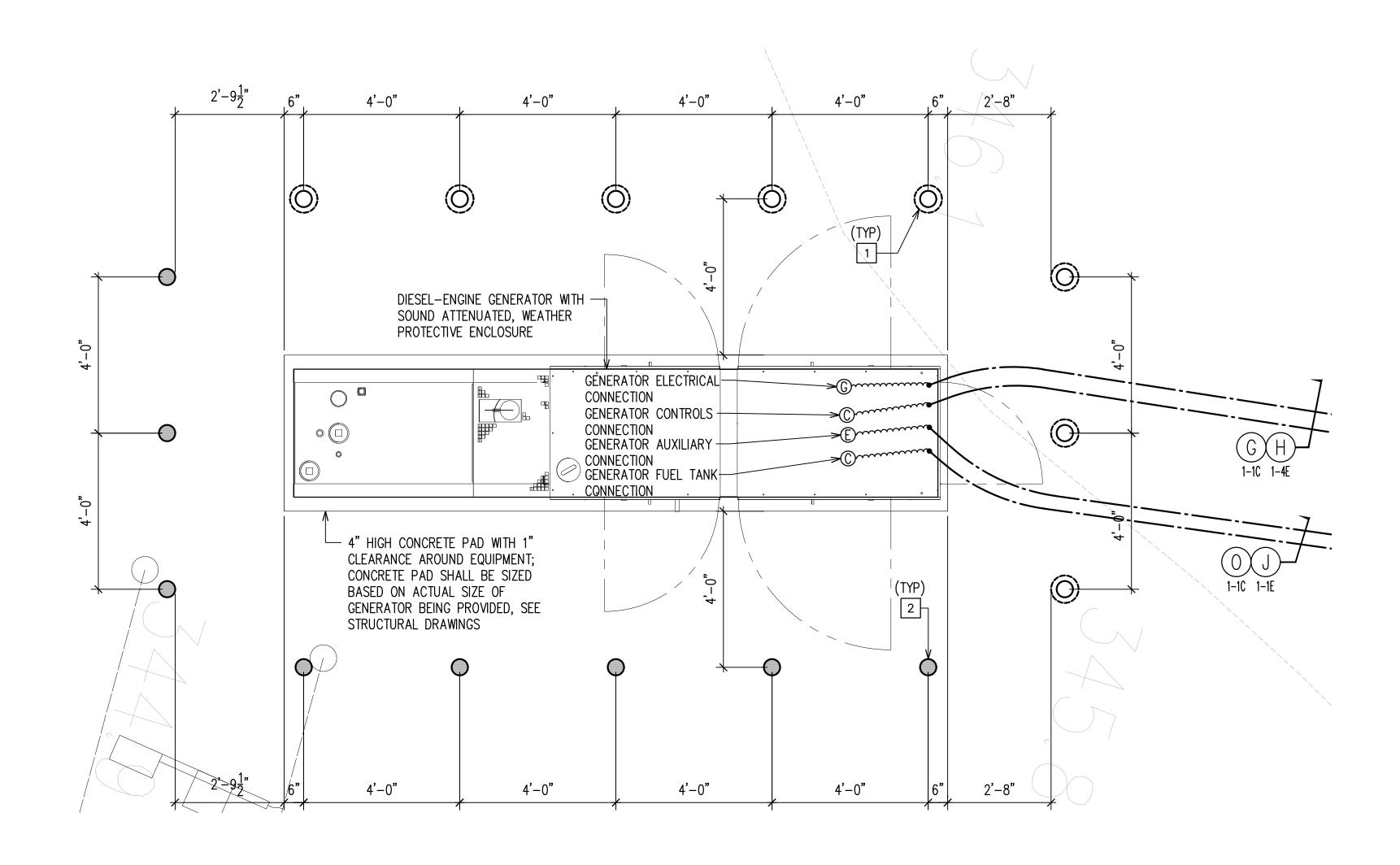
E-12

SHEET NO. 69 OF **79**

ENGINEER

4' 2' 0 4' 8' 12

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



GENERATOR ELECTRICAL PLAN - PHASE II
E-13 SCALE: 1/2"=1'-0"



1 REMOVABLE STANCHIONS, SEE DETAIL 1/E-22

2 STATIONARY STANCHIONS, SEE DETAIL 1/E-22

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DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway
Kapolei, Hawai`i 96707

ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i
TMK:

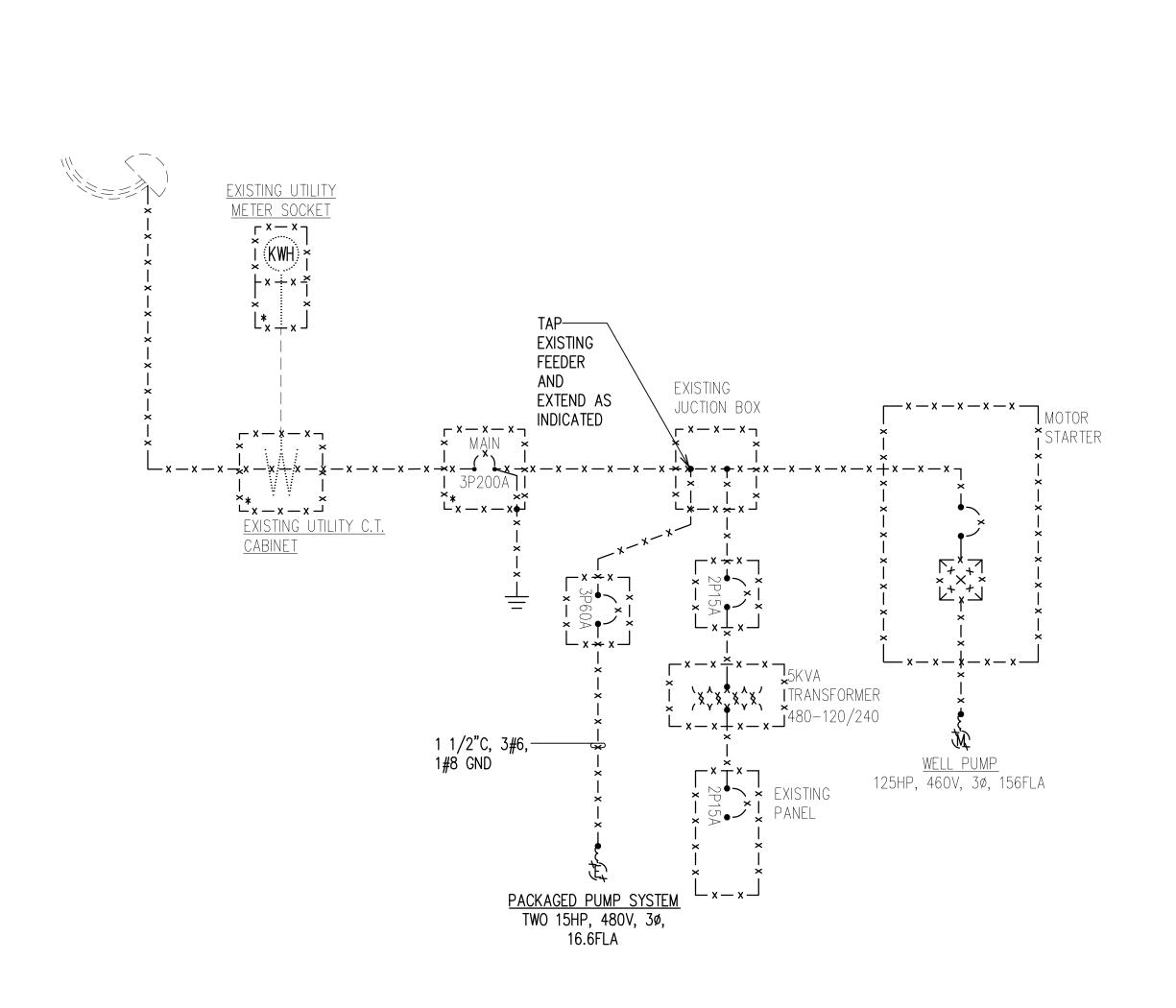
TMK: 4-8-001:001; 4-8-005:037 & 039

GENERATOR ELECTRICAL PLAN PHASE II

DESIGNED BY: KKO
DRAWN BY: TNF
CHECKED BY:KKO
SURVEYED BY:

SHEET NO. 70 OF 79

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



ONE-LINE DIAGRAM - DEMOLITION
E-14



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EDPIRATION DATE OF THE LICENSE

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REVISION	DATE	DESCRIPTION	MADE BY	APPROVEI

DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway
Kapolei, Hawai`i 96707

ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i

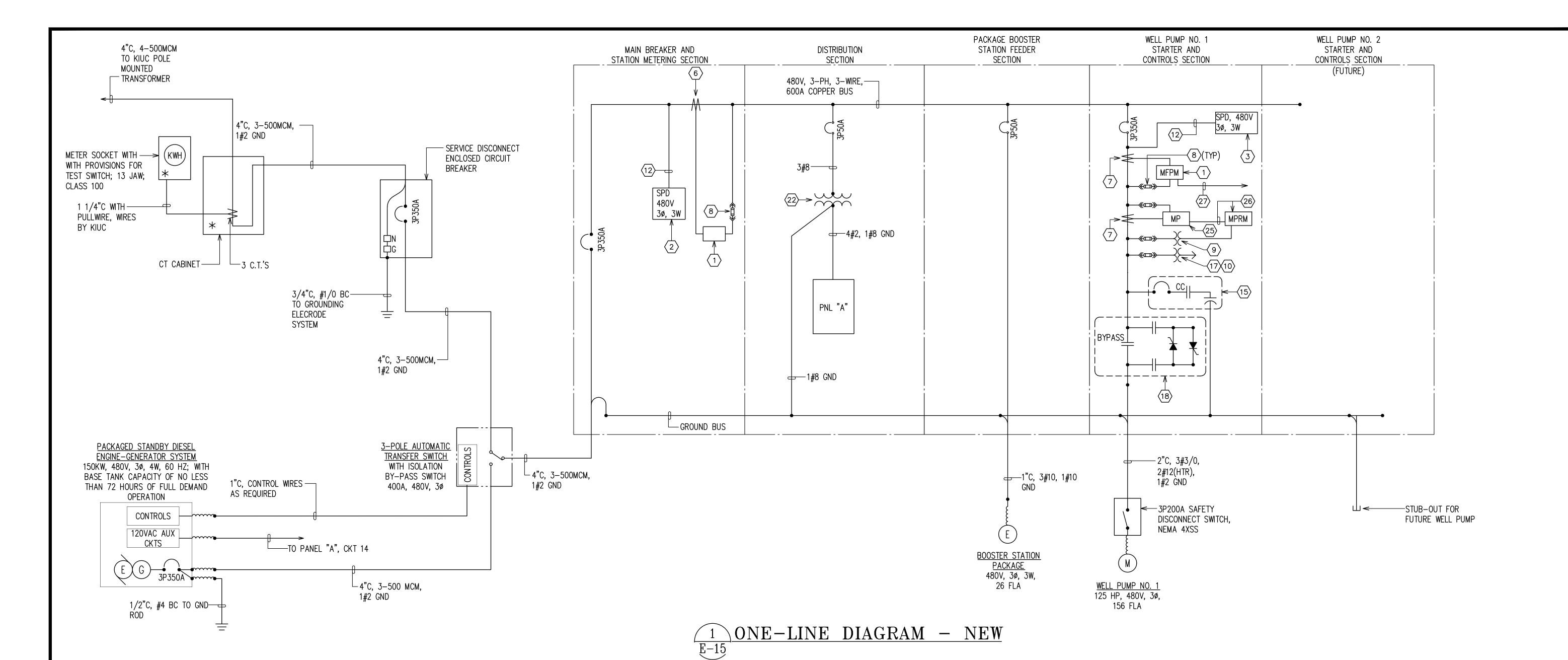
TMK:
4-8-001:001; 4-8-005:037 & 039

ONE-LINE DIAGRAM
DEMOLITION

ONE-LINE DIAGRAM
DEMOLITION

DESIGNED BY: KKO
DRAWN BY: TNF
CHECKED BY: KKO
SURVEYED BY:

SHEET NO. 71 OF 79



MCC SCHEDULE OF INSTRUMENTS KEY ON KEY ON KEY ON DESCRIPTION DESCRIPTION DESCRIPTION PLAN PLAN PLAN THREE PHASE DIGITAL MULTI-FUNCTION POWER MONITOR 3#14, FURNISHED AS PART OF SURGE PROTECTION DEVICE. 21 AS SHORT AS POSSIBLE (MAX. LENGTH 30") DRY-TYPE TRANSFORMER, 30 KVA, 480-208Y/120V, MAIN ELECTRICAL SERVICE SURGE PROTECTION (13) DEVICE, 480V, 3ø, 3W 3 PHASE, 4 WIRE, 80℃ BRANCH FEEDER SURGE PROTECTION (14) 23 DEVICE, 480V, 3ø, 3W $\langle 4 \rangle$ CAPACITOR AND CAPACITOR BREAKER PER PUMP MOTOR MANUFACTURER'S RECOMMENDATIONS, INCLUDING ISOLATION THREE PHASE MOTOR PROTECTOR, SYMCOM, INC. MOTOR SAVER CONTACTOR (CC) TO REMOVE CAPACITORS FROM SYSTEM MODEL 777KW SERIES WITH MODBUS INTERFACE DURING PUMP MOTOR START UP THREE PHASE MOTOR PROTECTOR REMOTE MANAGER, SYMCOM, (16) INC. MODEL RM-2000 SERIES, WITH REQUIRED RS485MS-2W $\langle 6 \rangle$ CURRENT TRANSFORMER, 600V, 400:5 SERIAL INTERFACE FOR CONNECTING TO MODEL 777KW MOTOR PROTECTOR CURRENT TRANSFORMER, 600V, 50:5 CONTROL TRANSFORMER, 600V FOR 480-120V, 2 KVA TYPE RS485 NETWORK CABLE FOR INPUT INTO SCADA 150 HP MOTOR STARTER, SOLID-STATE TYPE WITH BYPASS (7A) SYSTEM CONTACTOR, AND SCR ISOLATION CONTACTORS WITH SOLID STATE OVERLOAD HEATERS SELECTED TO MATCH FUSE HOLDER WITH FUSE, 600V, SIZE BY MANUFACTURER MOTOR NAMEPLATE RATING AT 460V, 3 PHASE 9 CONTROL TRANSFORMER, 600V FOR 480-120V, KVA AS REQ'D (19) $\langle 10 \rangle$ TO CONTROL CIRCUIT 20 $\langle 11 \rangle$

NOTES:

- ALL GROUNDING SYSTEMS SHALL BE PROVIDED PER NEC ARTICLE 250.
- 2. ALL FEEDER CIRCUIT BREAKERS FOR PUMP MOTORS SHALL BE PROVIDED WITH PROVISIONS FOR LOCKING IN THE "OFF" POSITION.
- SECONDARY SERVICE: 480Y/277V, 3-PHASE, 4-WIRE. SHORT CIRCUIT RATING: ____ A.I.C.
- 4. VERIFY EXACT SHORT CIRCUIT CAPACITY WITH KIUC AND PROVIDE REQUIRED EQUIPMENT RATINGS.
- 5. * INDICATES PROVISIONS FOR KIUC SEALS.
- 6. PROVIDE METERING WIRES, #12 THHN STRANDED COPPER: PT WIRES: P1-BLACK, P3-ORANGE, PN-WHITE CT WIRES: C1-BLUE, C2-YELLOW, C3-BROWN, CN-GREEN FINAL CONNECTIONS TO BE BY MECO. CONTRACTOR TO LEAVE A 6'-0" COIL OF METERING WIRES IN THE CT CABINET AND A 2'-0" COIL OF METERING WIRES IN THE METER SOCKET ENCLOSURE. PROVIDE NO. 8 COPPER GROUND CONDUCTOR IN CONDUIT WITH 6'-0" COIL IN CT CABINET AND 2'-0" COIL IN METER SOCKET ENCLOSURE. FINAL CONNECTIONS OF

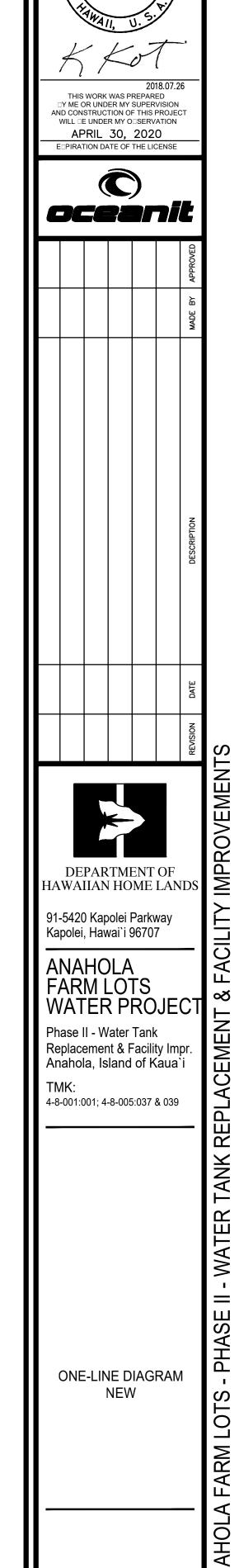
480Y/277V, 3Ø SYSTEM SERVICE DATA:

1. SERVICE VOLTAGE: 480Y/277V, 3ø, 4W

GROUND CONDUCTOR TO BE BY KIUC.

- 2. LOAD DATA: CONNECTED:
 - 146 KVA
- DEMAND: 146 KVA MISC LOAD: 20 KVA SERVICE CONDUCTORS:
- METE 5. TYPE

500MCM					
ERING:	KIUC	STD			
E: OVE	RHEAD)			



DRAWN BY: TNF
CHECKED BY: KKO

SHEET NO. **72** OF **79**

SURVEYED BY:_____

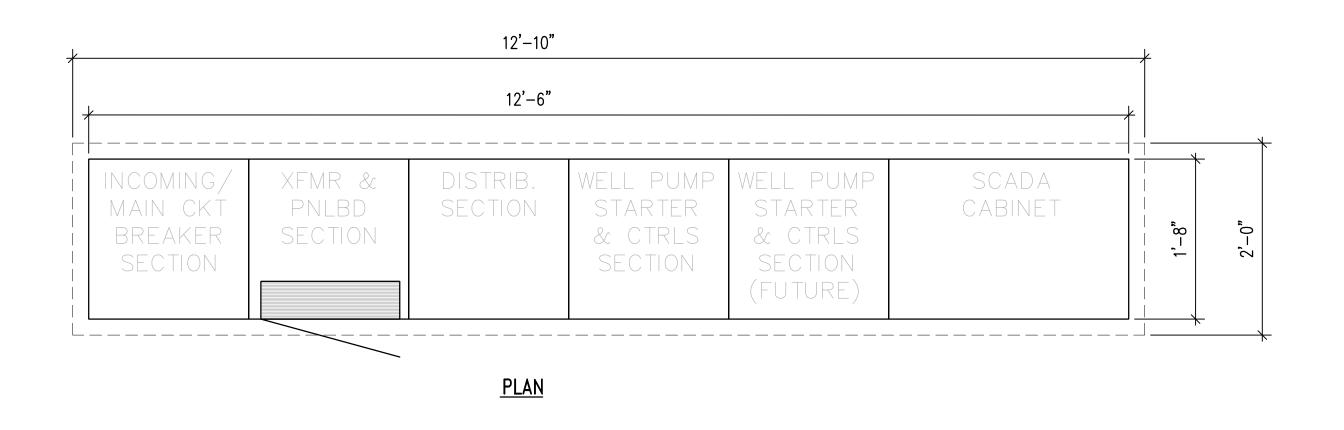
__ DATE: <u>AUG. 2018</u>

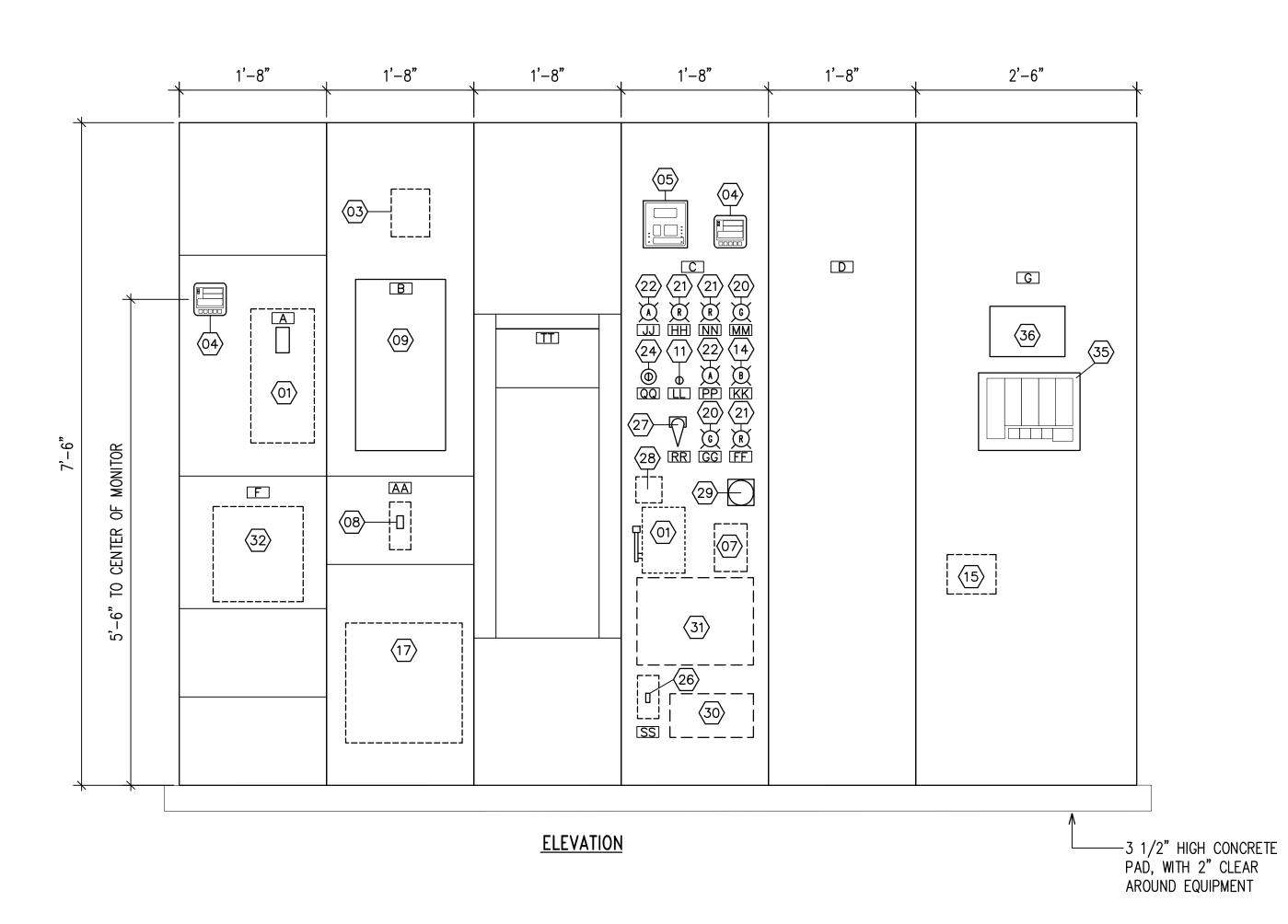
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∖No. 14288−E

ENGINEER





MCC NOTES:

- 1. MOTOR CONTROLLERS SHALL HAVE PROVISIONS FOR LOCKING IN THE "OFF" POSITION.
- 2. MAXIMUM MOUNTING HEIGHT OF ALL DEVICES (TO CENTER OF DEVICE FROM BOTTOM OF MCC) SHALL BE 6'-0".
- MCC SHALL BE PROVIDED WITH REQUIRED SPACE HEATERS, AND WIRED TO CIRCUIT A-13.
- 4. MCC SHALL BE BOLTED TO CONCRETE PAD AS APPROPRIATE.
- 5. ENTIRE MOTOR CONTROL CENTER SHALL BE CONSTRUCTED ACCORDING TO UL 845. ENCLOSURE SHALL BE RATED NEMA 1.



I	MCC COMPONENTS		MCC NAMEPLATES
EM	DESCRIPTION	ITEM	DESCRIPTION
)1	CIRCUIT BREAKER (480V)	A	MAIN CIRCUIT BREAKER
2	NICHT LICHT TIME CWITCH	В	PANEL "A"
3 1	NIGHT LIGHT TIME SWITCH DIGITAL MULTI-FUNCTION POWER MONITOR	C D	WELL PUMP NO. 1 STARTER & CONTROLS WELL PUMP NO.2 STARTER & CONTROLS (FUTURE)
<u>-</u>	MOTOR PROTECTOR REMOTE MANAGER	E	WELL FOMF NO.2 STANTEN & CONTROLS (FOTONE)
, }	MOTOR TROTECTOR REMOTE MANAGER	F	SURGE PROTECTIVE DEVICE
7	BRANCH FEEDER SPD (480V)	G	SCADA CABINET
}	TRANSFORMER CIRCUIT BREAKER	Н	
)	PANEL "A"	J	
<u> </u>	TROUBLE RESET PUSHBUTTON	K	
) - ,		L	
) 	BLUE LED LIGHT	M N	
-)	AUTO-DIALER	P	
	AOTO BIALLIX	Q	
,	DRY TYPE TRANSFORMER	R	
)	· · · · · · · · · · · · · · · · · · ·	S	
)		T	
)	GREEN LED LIGHT	U	
	RED LED LIGHT	V	
) -	AMBER LED LIGHT	W	
<u> </u>	EVEDOSNOV OTOD DUGUBUTTON	X	
<u> </u>	EMERGENCY STOP PUSHBUTTON	Y	
) }	CAPACITOR CIRCUIT BREAKER		
) 7	SELECTOR SW. (HAND-OFF-REMOTE) PISTOL	A ROV	E NAMEPLATES TO BE 9" x 2 1/4" x 1/8"
	GRIP		TO WITH 5/8" WHITE LETTERING & BEVELED
3	TEST/NORMAL SWITCH	EDGES	•
9	RUNNING TIME METER	-	MCC NIAMEDIATEC
)	CAPACITOR		MCC NAMEPLATES
<u> </u>	SOLID STATE SOFT STARTER	ITEM	DESCRIPTION
<u>2</u> 3	MAIN SERVICE SPD (480V)	AA	TRANSFORMER CIRCUIT BREAKER
) - -		BB	
5	PLC		
, }	TOUCH PANEL	DD	
		EE	
		FF	
		GG	
		HH	MAIN LINE FLOW
		JJ	ALARM-NO FLOW
		KK	ON FLOAT CONTROL
		LL	TROUBLE RESET
		MM	MOTOR STOPPED
		NN	MOTOR RUNNING
		PP	HIGH DISCHARGE PRESSURE
		QQ	EMERGENCY STOP & RESET
		RR	HAND-OFF-AUTO
		SS	CAPACITOR CIRCUIT BREAKER
			DOOCTED DUMP CTATION
		TT	BOOSTER PUMP STATION
		A DOV	NAMEPLATES TO BE 4" x 2" x 1/8"
		I ADOM	- NAMELLATES TO DE T A Z A T/O

LICENSED PROFESSIONAL **ENGINEER** No. 14288-E, THIS WORK WAS PREPARED

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AND CONSTRUCTION OF THIS PROJECT WILL \Box E UNDER MY O \Box SERVATION APRIL 30, 2020

DEPARTMENT OF HAWAIIAN HOME LANDS

91-5420 Kapolei Parkway
Kapolei, Hawai`i 96707

ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i
TMK:

TMK: 4-8-001:001; 4-8-005:037 & 039

MCC ELEVATION

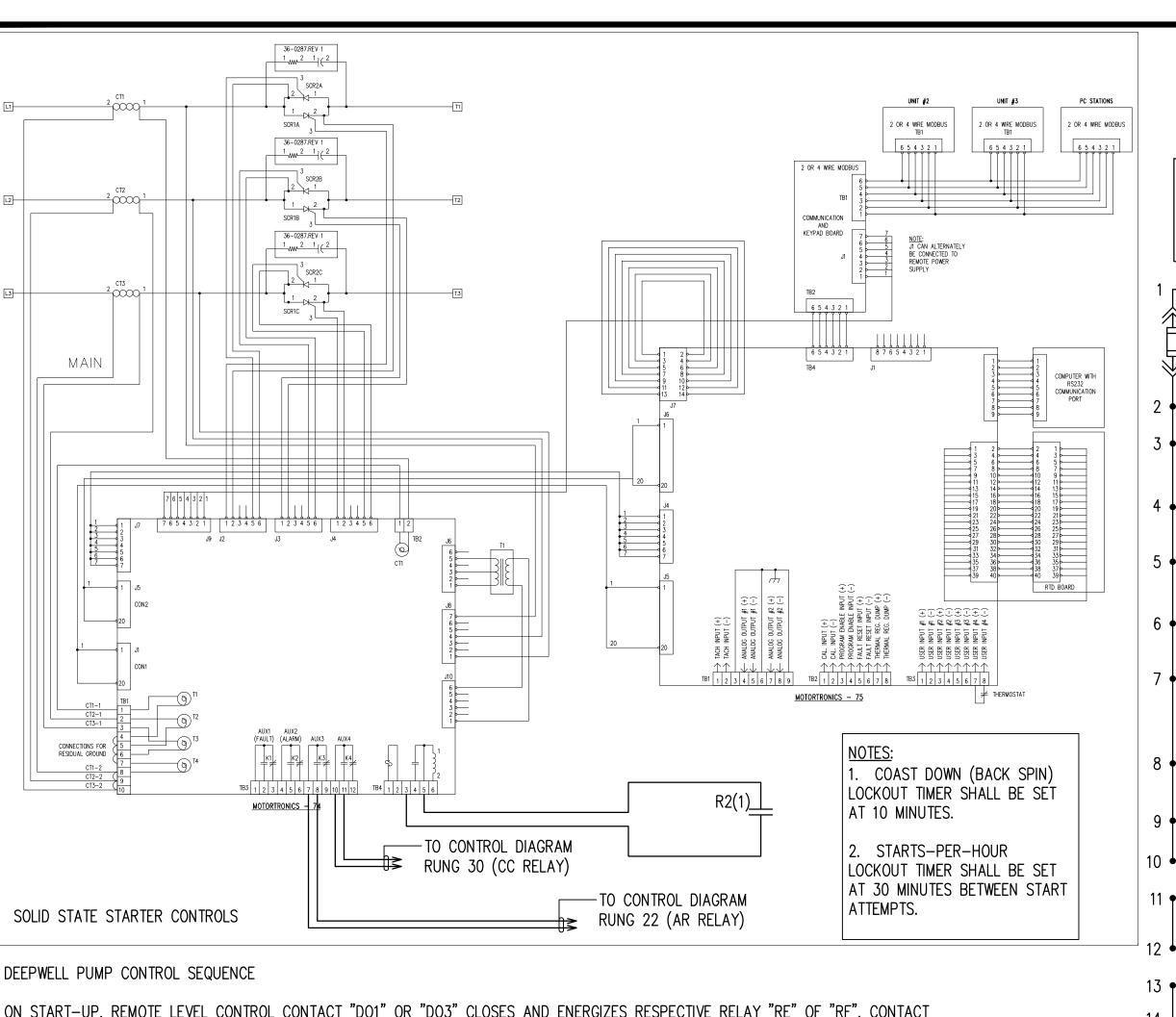
DESIGNED BY: KKO

DRAWN BY: TNF

CHECKED BY: KKO

DRAWING NO.

E-16 SHEET NO. 73 OF 79



ON START-UP, REMOTE LEVEL CONTROL CONTACT "DO1" OR "DO3" CLOSES AND ENERGIZES RESPECTIVE RELAY "RE" OF "RF". CONTACT "RE(1)" OR "RF(1)" CLOSES AND ENERGIZES SEQUENCE TIMER "Q" AND LIGHTS A BLUE LIGHT, PROVIDED THE SSS "COAST DOWN LOCKOUT TIMER" HAS TIMED OUT FROM THE LAST PUMP CYCLE OR THE SSS "STARTS-PER-HOUR LOCKOUT TIMER" HAS TIMED OUT.

"Q(1)" CLOSES AND ENERGIZES WATER LUBE SOLENOID "WLS", WHICH STARTS THE LUBRICATION OF THE PUMP SHAFT THROUGHOUT THE PUMP CYCLE.

AFTER THE LUBRICATION HAS STARTED, CONTACT "Q(2)" CLOSES AND ENERGIZES RELAY "R1". "R1(1)" CLOSES AND STARTS THE PUMP MOTOR VIA THE SOLID STATE STARTER [TB4(3-5)]. "R2(1)" CLOSES ADN AFTER A TIME DELAY "Q(3) CLOSES AND ENERGIZES "PUMP CONTROL VALVE SOLENOID".

AFTER THE PUMP CONTROL VALVE CLOSES, PUMP CONTROL VALVE MICRO SWITCH "LSC(1)" CLOSES AND WITH "R2(2)" CLOSED, KEEPS RELAY "R2" ENERGIZED THROUGHOUT THE PUMPING CYCLE.

CONTACT "R2(3)" CLOSES AND ENERGIZES POST-LUBE TIME-DELAY RELAY "PLR", WHICH CLOSES CONTACT "PLR(1)".

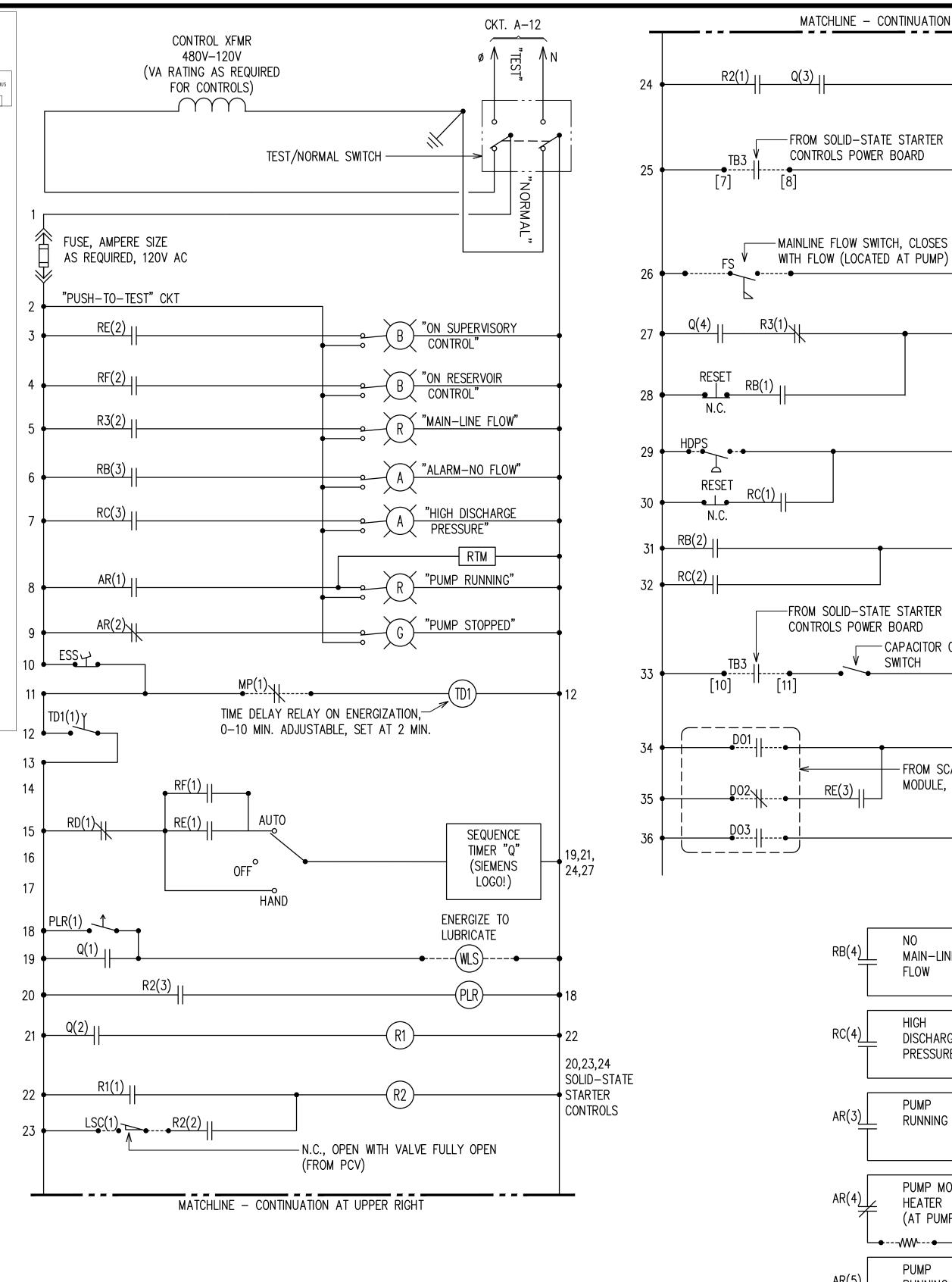
AFTER THE PUMP MOTOR IS RUNNING AT FULL SPEED, CONTACT "TB3(10-11)" FROM THE SOLID STATE STARTER CLOSES AND ENERGIZES CAPACITOR ISOLATION CONTACTOR "CC", WHICH ENERGIZES THE POWER FACTOR CORRECTION CAPACITORS.

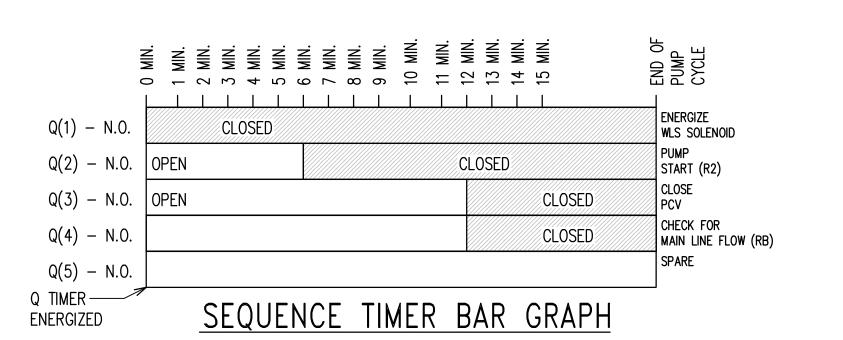
AFTER THERE IS MAIN LINE FLOW, (APPROXIMATELY 12 MINUTES AFTER PUMP START, ADJUSTABLE), FLOW SWITCH "FS" CLOSES AND ENERGIZES RELAY "R3". CONTACT "Q(4)" CLOSES AND CHECKS FOR MAIN LINE FLOW. IF THERE IS NO WATER FLOW, RELAY "RB" IS ENERGIZED THROUGH "Q(4)" AND "R3(1)". "RB(2) CLOSES AND STARTS THE PUMP SHUTDOWN SEQUENCE VIA RELAY "RD".

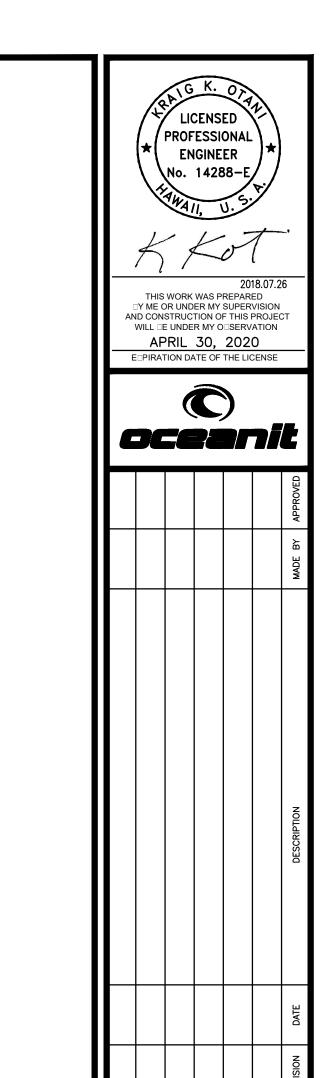
"HIGH DISCHARGE PRESSURE" ALARM CONDITION:

IF THERE IS A HIGH DISCHARGE PRESSURE IN THE MAIN LINE, "HDPS" CLOSES AND ENERGIZES RELAY "RC". "RC(1)" CLOSES AND HOLDS IN RELAY "RC"; "RC(1)" CLOSES AND ILLUMINATES AN AMBER LIGHT UNTIL MANUALLY RESET. "RC(2)" CLOSES STARTS THE PUMP SHUTDOWN SEQUENCE VIA RELAY "RD".

ON SHUTDOWN, REMOTE LEVEL CONTRL CONTACT "DO1" OR "DO3" OPENS AND DE-ENERGIZES RESPECTIVE RELAY "RE" AND "RF". CONTACTS "RE(1)" OR "RF(1)" OPENS AND DE-ENERGIZES SEQUENCE TIMER "Q". "Q(3)" OPENS AND DE-ENERGIZES PUMP CONTROL VALVE SOLENOÌD "PVSC", WHICH OPENS THE PUMP CONTROL VALVE. WHEN THE PUMP CONTROL VALVE IS FULLY OPEN, PUMP CONTROL VALVE MICRO SWITCH "LSC(1)" OPENS AND DE-ENERGIZES RELAY "R2". "R2(1)" OPENS AND STOPS THE PUMP. CONTACT "R2(3)" OPENS AND DE-ENERGIZES POST-LUBE RELAY "PLR". AFTER A TIME DELAY, CONTACT "PLR(1)" OPENS AND DE-ENERGIZES WATER LUBE SOLENOID "WLS" AND STOPS POST-LUBRICATION.







MATCHLINE - CONTINUATION AT LOWER LEFT

-CAPACITOR ON-OFF

MAIN-LINE

DISCHARGE

PRESSURE

PUMP

RUNNING

PUMP MOTOR

HEATER

→---**///**---**→**

PUMP

RUNNING

(AT PUMP)

AR(4)

FLOW

-FROM SCADA DIGITAL OUTPU'

TO SCADA DIGITAL

SEE DIAGRAM 1

NPUT MODULE,

CKT A-11

TO CHLORINATION

METERING PUMP

CONTROL PANEL

MODULE, SEE DIAGRAM /

SWITCH

SCADA

CABINET

28,31,6, SCADA

CABINET

30,32,7, SCADA **CABINET**

CAPACITOR

CONTACTOR

(SEE SHEET

È-15)

15,3,35



91-5420 Kapolei Parkway Kapolei, Hawai`i 96707 ANAHOLA FARM LOTS

WATER PROJECT ≥ Phase II - Water Tank Replacement & Facility Impr. Anahola, Island of Kaua`i

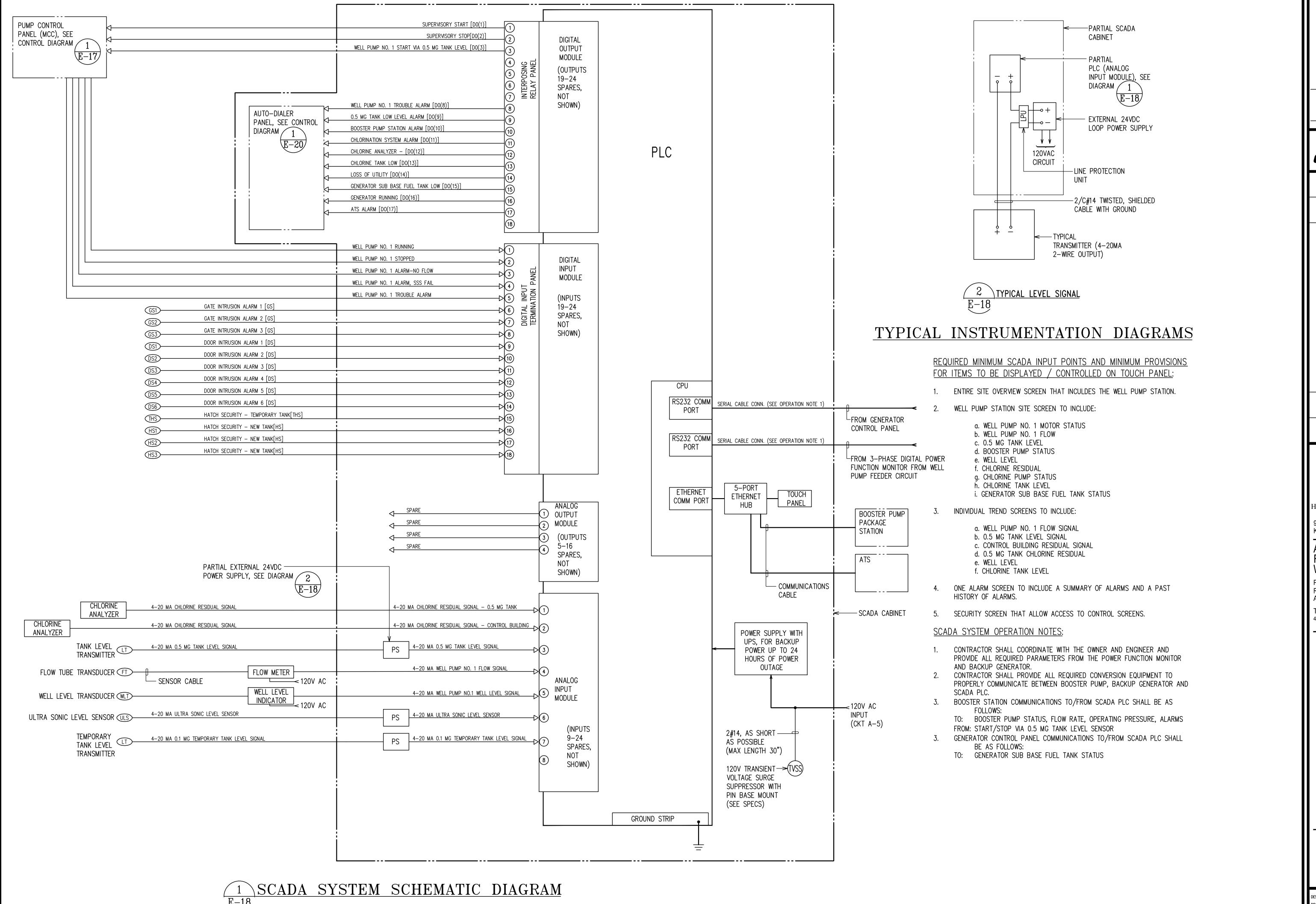
4-8-001:001; 4-8-005:037 & 039

WELL PUMP CONTROLS

DRAWN BY: TNF
CHECKED BY: KKO

E-17 DATE: <u>AUG. 2018</u> SURVEYED BY:____ SHEET NO. **74** OF **79**

WELL PUMP CONTROL SCHEMATIC DIAGRAM

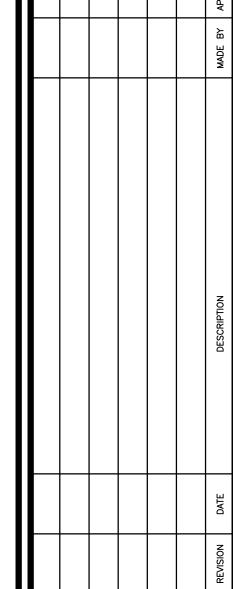


LICENSED **PROFESSIONA ENGINEER ∖**No. 14288−E

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Y ME OR UNDER MY SUPERVISION WILL □E UNDER MY O□SERVATION APRIL 30, 2020 E PIRATION DATE OF THE LICENSE







91-5420 Kapolei Parkway

Kapolei, Hawai`i 96707 ANAHOLA FARM LOTS

WATER PROJECT
Phase II - Water Tank Phase II - Water Tank Replacement & Facility Impr. Anahola, Island of Kaua`i

4-8-001:001; 4-8-005:037 & 039

SCADA SCHEMATIC

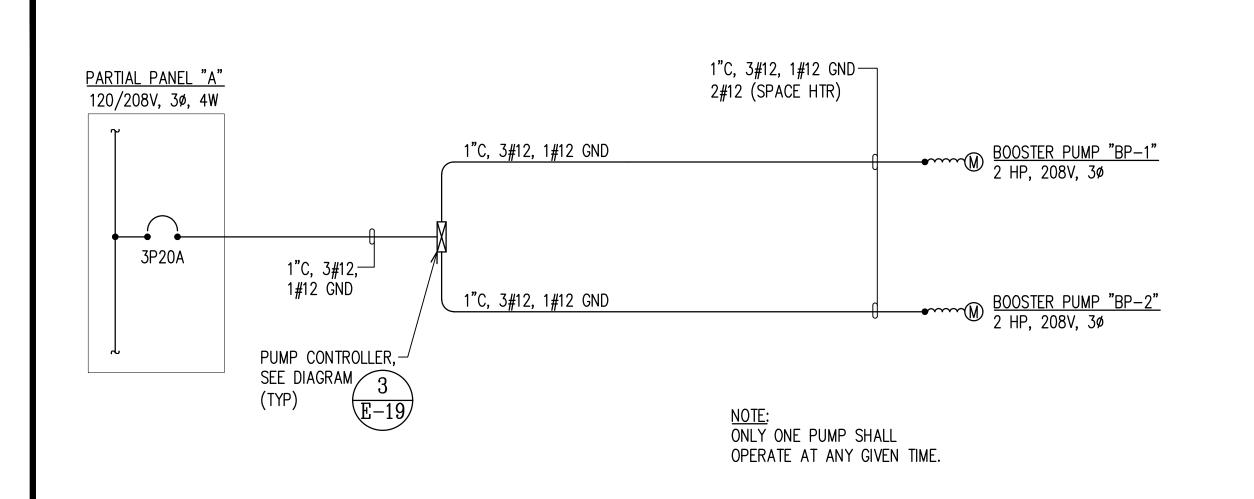
DIAGRAM

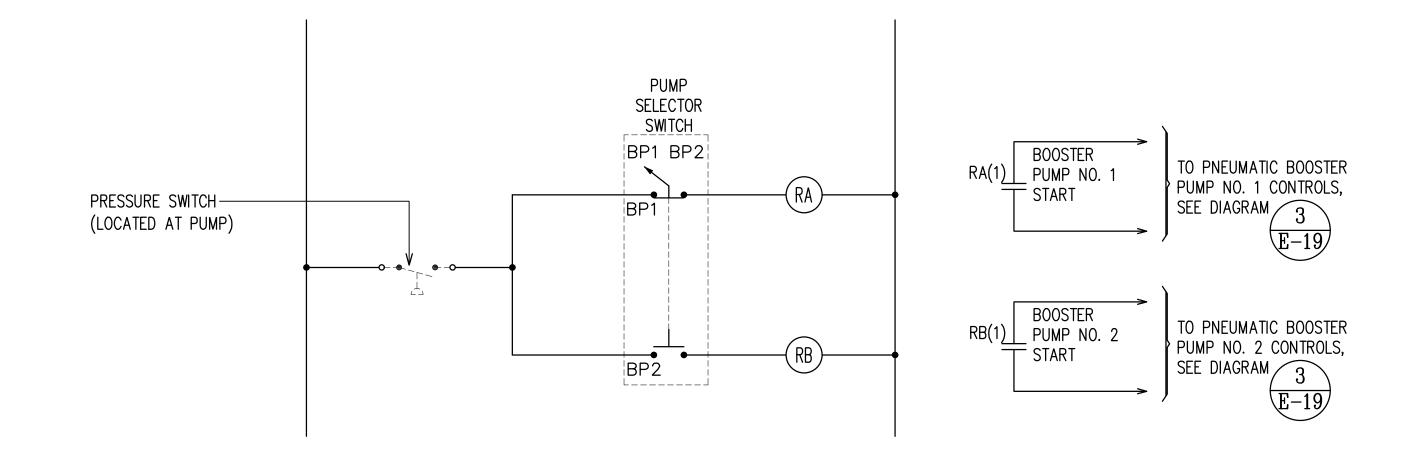
DESIGNED BY: KKO

DRAWING NO.

E-18 DATE: <u>AUG. 2018</u> SURVEYED BY:____

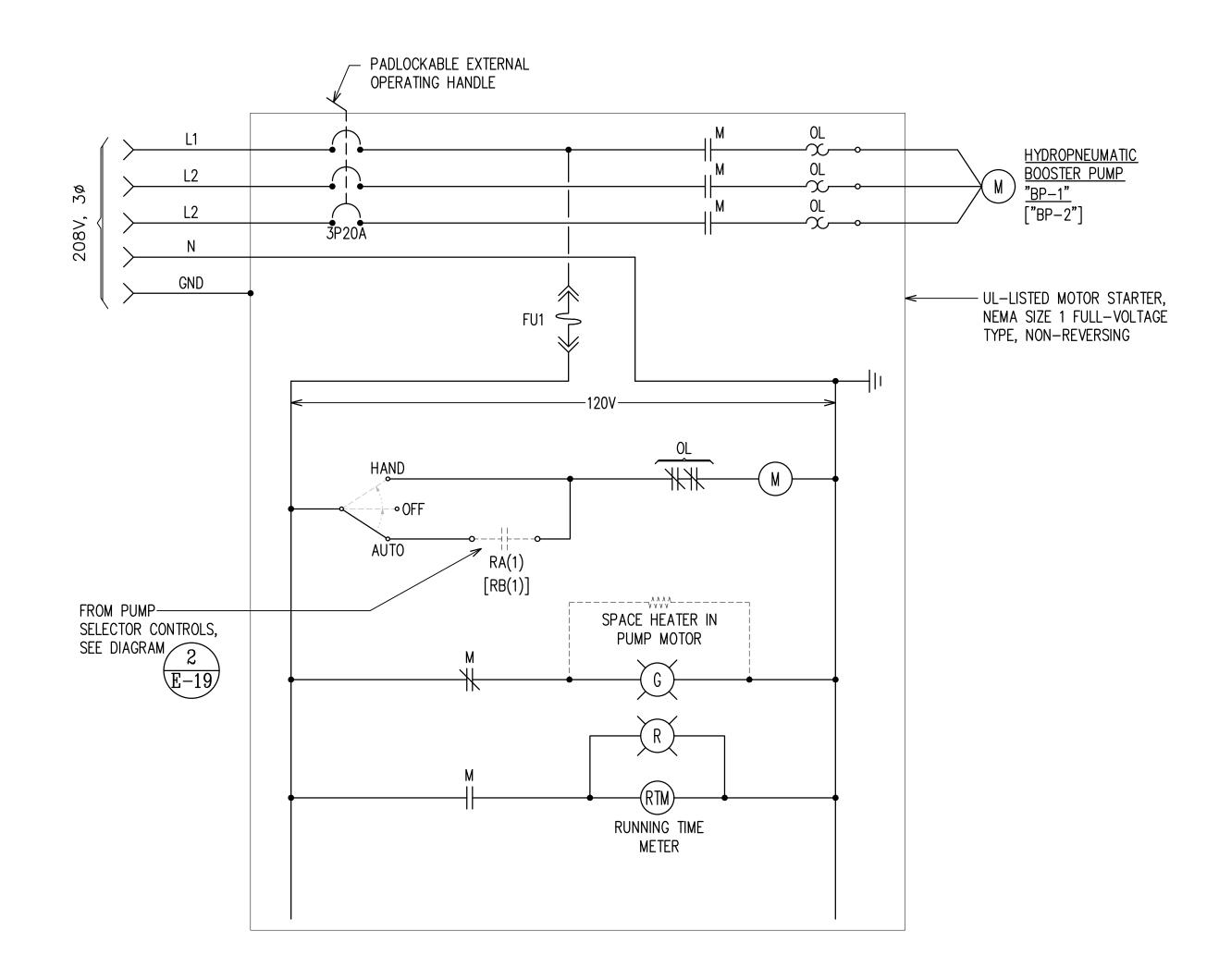
SHEET NO. **75** OF **79**



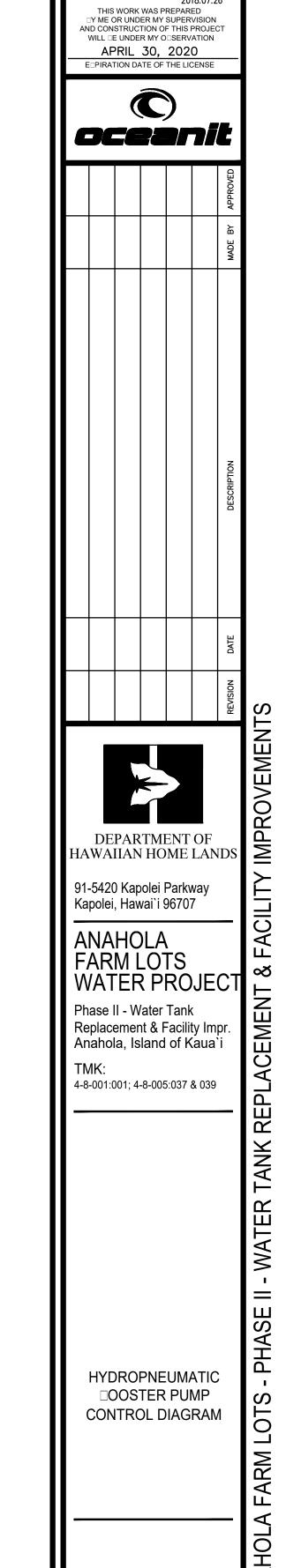


PHYDROPNEUMATIC BOOSTER PUMP SELECTOR CONTROL DIAGRAM

1 HYDROPNEUMATIC BOOSTER PUMP ONE-LINE DIAGRAM E-19



TYPICAL PNEUMATIC BOOSTER PUMP CONTROL DIAGRAM



DESIGNED BY: KKO
DRAWN BY: TNF
CHECKED BY: KKO

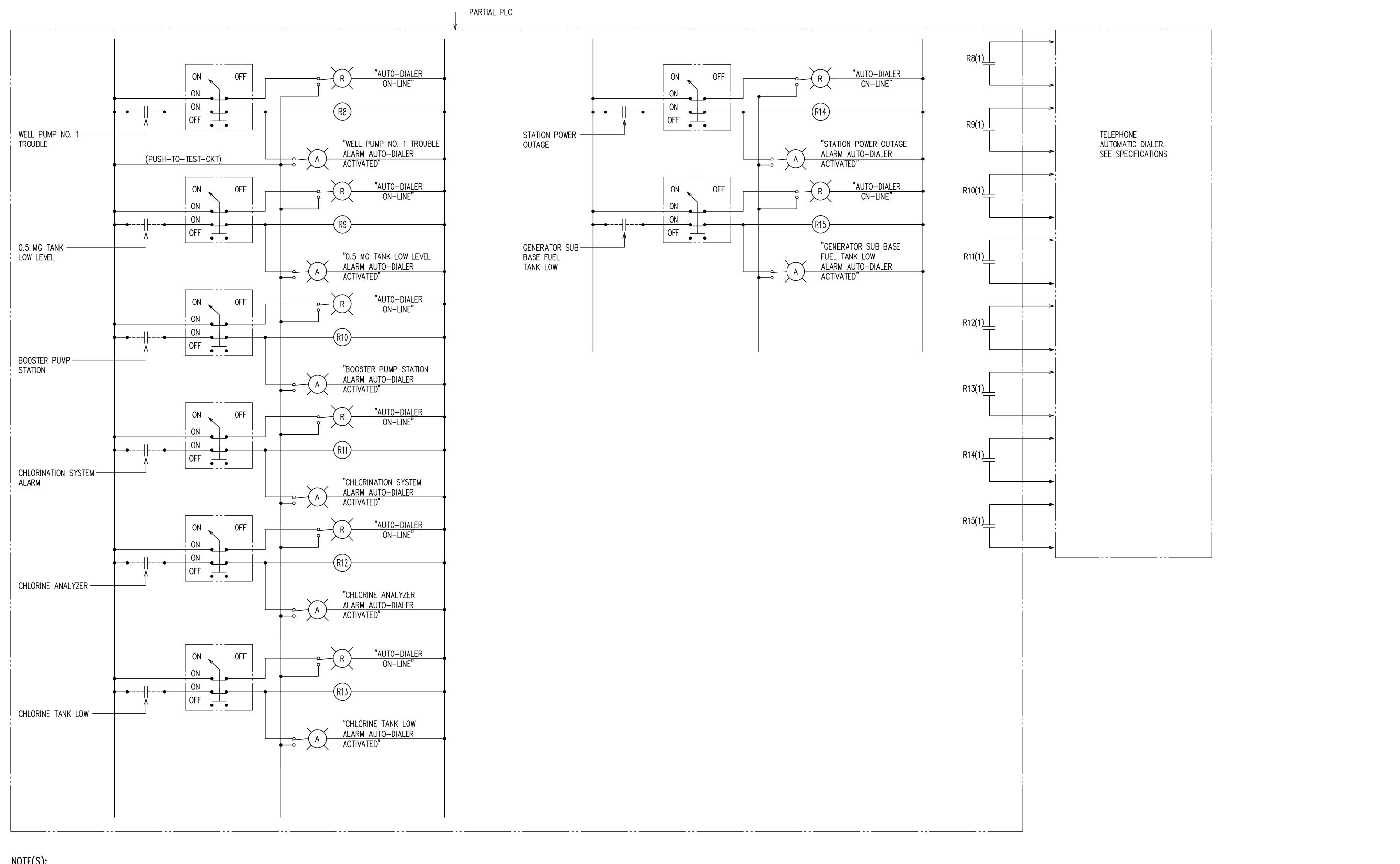
DRAWING NO.

E-19

SHEET NO. 76 OF 79

LICENSED

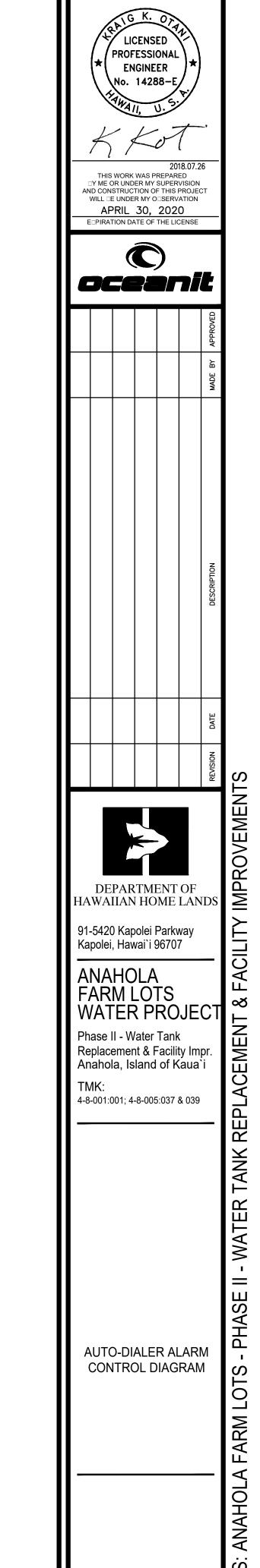
ENGINEER No. 14288-E



NOTE(S):

1. AUTO-DIALER ALARM CONTROL SYSTEM SHALL BE PART OF SCADA TOUCH PANEL.



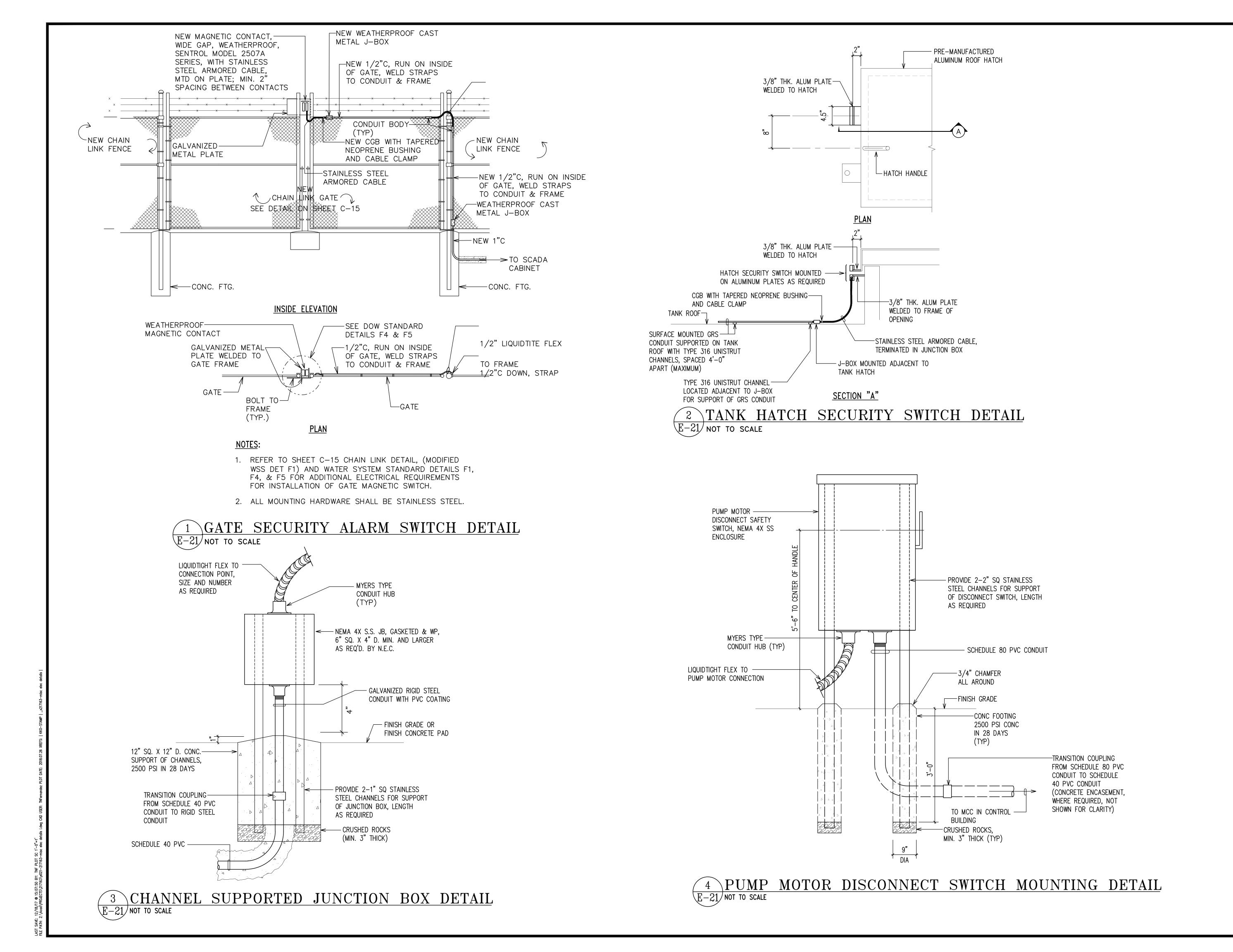


DESIGNED BY: KKO
DRAWN BY: TNF
CHECKED BY: KKO

DRAWING NO.

E-20

SHEET NO. 77 OF 79



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Y ME OR UNDER MY SUPERVISION WILL □E UNDER MY O□SERVATION APRIL 30, 2020 E□PIRATION DATE OF THE LICENSE oceanit DEPARTMENT OF HAWAIIAN HOME LANDS 91-5420 Kapolei Parkway Kapolei, Hawai`i 96707 ANAHOLA FARM LOTS WATER PROJECT
Phase II - Water Tank Phase II - Water Tank Replacement & Facility Impr. Anahola, Island of Kaua`i 4-8-001:001; 4-8-005:037 & 039 **MISCELLANEOUS** ELECTRICAL DETAILS I DESIGNED BY: KKO

DRAWING NO

DRAWING NO

E-21

DATE: <u>AUG. 2018</u>

SHEET NO. 78 OF **79**

SURVEYED BY:_____

LICENSED

PROFESSIONAL

ENGINEER

∖No. 14288−E

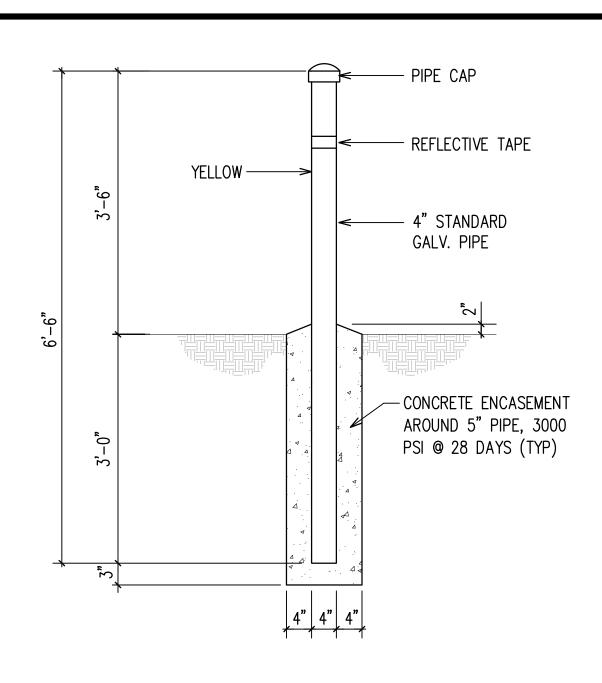


STANCHION NOTES:

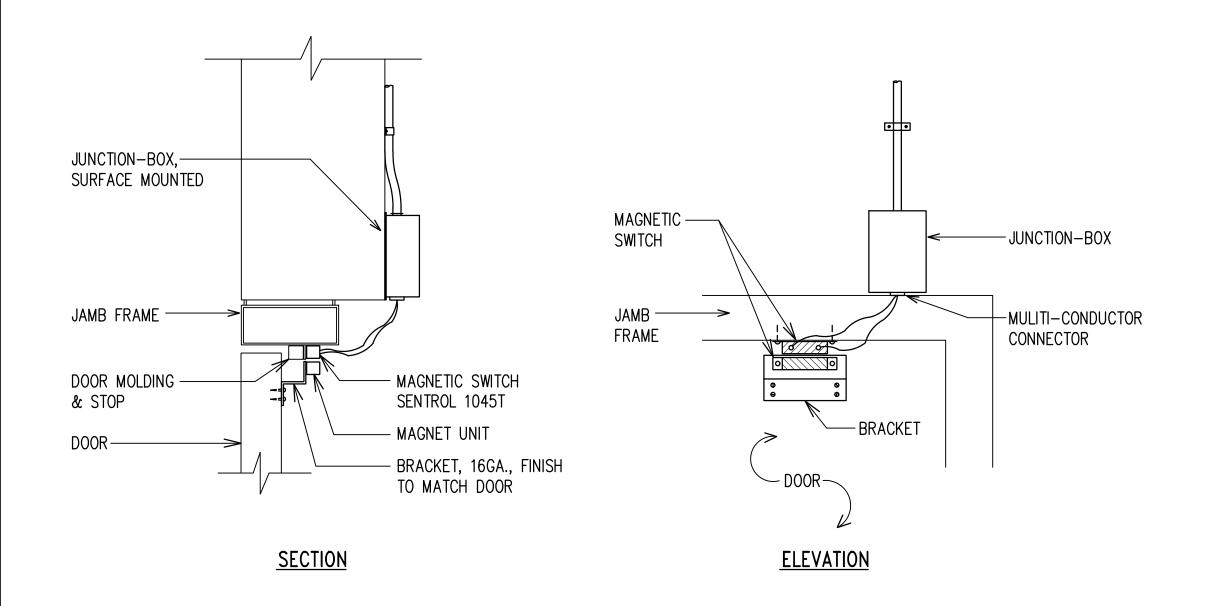
E-22 NOT TO SCALE

- 1. STANCHIONS SHALL CONFORM TO ASTM A43.
- WELDED NUTS ARE FOR INSERTING BOLTS TO ACT AS HANDLES FOR LIFTING REMOVABLE STANCHIONS. TWO BOLTS SHALL BE PROVIDED AND USED TO INSTALL ALL STANCHIONS. BOLTS TO BE REMOVED AFTER INSTALLATION AND TURNED OVER TO OWNER.
- 3. STANCHIONS SHALL BE PAINTED YELLOW PER ANSI SPEC Z535.1 TO COMPLY WITH OSHA 1910.144 FOR COLOR CODING.
- 4. A 2" WIDE STRIP OF REFLECTIVE TAPE SHALL BE PLACED 6" BELOW THE TOP OF STANCHION.





STATIONARY STANCHION



2 DOOR SECURITY ALARM SWITCH DETAIL

THIS WORK WAS PREPARED

Y ME OR UNDER MY SUPERVISION
AND CONSTRUCTION OF THIS PROJECT WILL □E UNDER MY O□SERVATION APRIL 30, 2020 oceanit DEPARTMENT OF HAWAIIAN HOME LANDS 91-5420 Kapolei Parkway
Kapolei, Hawai`i 96707

ANAHOLA
FARM LOTS
WATER PROJECT
Phase II - Water Tank
Replacement & Facility Impr.
Anahola, Island of Kaua`i
TMK: MISCELLANEOUS ELECTRICAL DETAILS II - MATER TANK REPLACE

WISCELLANEOUS ELECTRICAL DETAILS II - WATER TANK REPLACE

WISCELLANEOUS EL TMK: 4-8-001:001; 4-8-005:037 & 039

LICENSED / PROFESSIONAL **ENGINEER**

No. 14288-E

DESIGNED BY: KKO
DRAWN BY: TNF
CHECKED BY: KKO

DRAWING NO.

E-22

SHEET NO. 79 OF **79**