

CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG

JOB NO. 02-06, WKK-15
DEPARTMENT OF WATER
COUNTY OF KAUA`I



Tax Map Key: 5-1-005: 131 (4th Division)
Kilauea, Kaua`i, Hawai`i

Kaua`i County Zoning Agricultural (AG) & General Plan Designation Agriculture
State Land Use Designation Zoning Agricultural District
Flood Panel 1500020060E Zone X
Class IV Zoning Permit Z-IV-2019-2, Use Permit U-2019-1 & Special Permit SP-2019-2

PREPARED BY:



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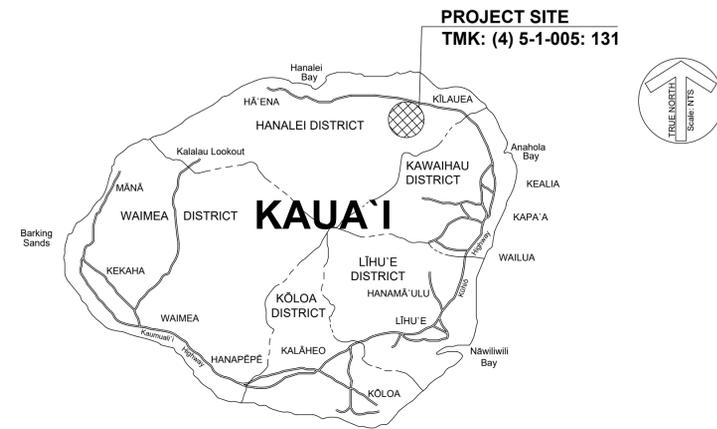
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APPROVED:

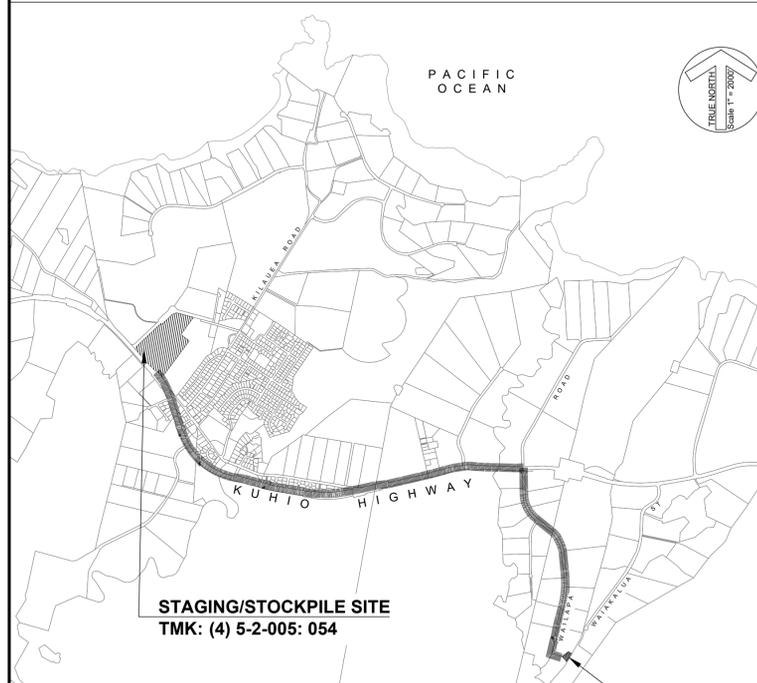
Jason Kuginoto 02/02/2026
for MANAGER & CHIEF ENGINEER, DEPARTMENT OF WATER
COUNTY OF KAUA`I DATE

N/A
CHIEF, ENVIRONMENTAL MANAGEMENT DIVISION, DEPARTMENT OF HEALTH
STATE OF HAWAII DATE

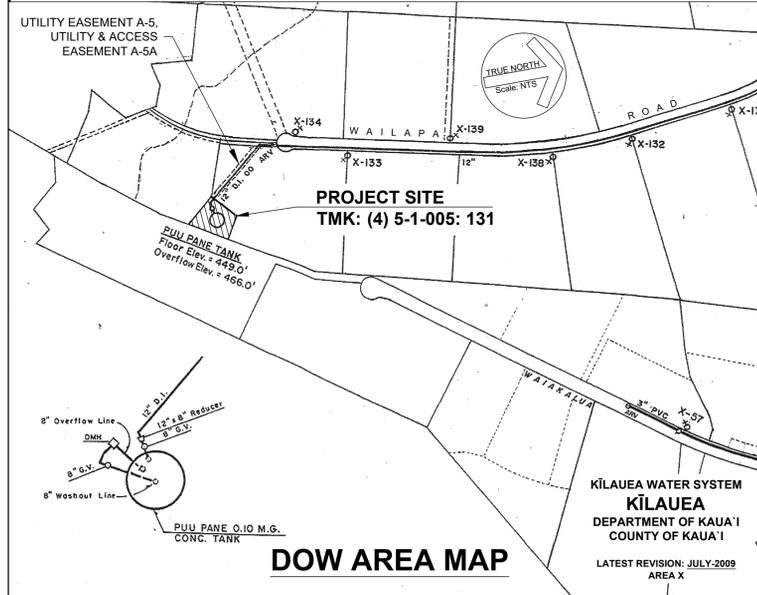
Edward P. ... 01/30/2026
DISTRIBUTION ENGINEER
KAUA`I ISLAND UTILITY COOPERATIVE DATE



ISLAND MAP



LOCATION MAP



DOW AREA MAP

KILAUEA WATER SYSTEM
KILAUEA
DEPARTMENT OF KAUA`I
COUNTY OF KAUA`I
LATEST REVISION: JULY-2009
AREA X

NOTES FOR GENERAL CONSTRUCTION

- ALL CONSTRUCTION WORK IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE PUBLICATIONS "HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", 2005 AND ITS AMENDMENTS AND THE "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION", SEPTEMBER 1984 AS AMENDED OF THE DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU, AND THE COUNTIES OF KAUAI, MAUI, AND HAWAII. STANDARD DETAILS ARE AVAILABLE AT THE COUNTY OF KAUAI CLERK'S OFFICE.
- 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 CONTRACTING OFFICER AND THE STATE DEPARTMENT OF HEALTH.
- ALL GRADING, GRUBBING AND STOCKPILING WORK SHALL BE PERFORMED IN ACCORDANCE WITH COUNTY OF KAUAI 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 ENGINEER SHALL BE PAYABLE BY THE CONTRACTOR.
- DURING CLEARING OPERATIONS, THE CONTRACTOR SHALL SUPPLY A WATER TRUCK FOR DUST CONTROL PURPOSES UNTIL VEGETATION HAS RE-ESTABLISHED ITSELF. EXCESS WATER, INCLUDING SILT AND DIRT SHALL NOT BE ALLOWED TO RUN-OFF THE PROPERTY.
- 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, WATERCOURSES, NATURAL AREAS AND THE PROPERTY OF OTHERS.
- SURVEYS SHALL BE DONE UNDER THE SUPERVISION OF A LAND SURVEYOR LICENSED IN THE STATE OF HAWAII.
- 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 TO BETWEEN 9:00 PM TO 4:30 AM. IF LIGHTING OF THE WORK AREA IS REQUIRED IN SUCH SITUATION, ALL LIGHTS SHALL BE SHIELDED (MINIMUM LIGHT SPILL TOWARD 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 A SOS FACILITY. THIS REQUIREMENT DOES NOT ALLOW LIGHTING AS MAY BE RESTRICTED BY OTHER GOVERNMENT AGENCIES.
- PRIOR TO STARTING ANY EXCAVATION ACTIVITIES, THE CONTRACTOR SHALL CONTACT THE HAWAII ONE CALL CENTER AT 1-866-423-7287.
- BENCHMARKS THAT ARE DISTURBED OR DESTROYED SHALL BE RESTORED UNDER A LICENSED LAND SURVEYOR'S DIRECTION. COPIES OF THE FIELD NOTES, DESCRIPTIONS, AND NEW VALUES OF THE NEW BENCH MARK 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 AND/OR NIGHT WORK PAYMENTS FOR COUNTY'S STAFF AND INSPECTION PERSONNEL INCLUDING CONSULTANTS, WHEN THE WORK REQUIRES OVERTIME OR NIGHT WORK TO BE PERFORMED, OR DIRECTS THE CONTRACTOR TO WORK ADDITIONAL SHIFTS OR OVERTIME FOR COUNTY'S CONVENIENCE. THE PROPERTY OWNER/ DEVELOPER 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.

KAUAI ISLAND UTILITY COOPERATIVE NOTES

- ALL WORK MUST BE COORDINATED WITH MR. BILLY WORKMAN, PHONE: (808) 246-4343, AT KAUAI ISLAND UTILITY COOPERATIVE.
- THE CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORTS AND BRACING FOR ALL THE POWER POLES THAT MAY BE AFFECTED BY THE TRENCH EXCAVATION OR AS REQUIRED BY KAUAI ISLAND UTILITY COOPERATIVE. THE COST FOR SUPPORTING AND BRACING POLES SHALL BE INCIDENTAL TO THE WATERLINE CONSTRUCTION.
- THE CONTRACTOR SHALL MAINTAIN A MINIMUM WORKING CLEARANCE OF TEN FEET FROM EXISTING OVERHEAD LINES.

HISTORICAL PRESERVATION NOTES

- SHOULD HISTORIC REMAINS SUCH AS ARTIFACTS, BURIALS, CONCENTRATIONS OF SHELL OR CHARCOAL BE ENCOUNTERED DURING CONSTRUCTION ACTIVITIES, WORK SHALL CEASE IMMEDIATELY OF 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 OFFICE AT (808) 692-8015, WHICH WILL ACCESS THE SIGNIFICANCE OF THE FIND AND RECOMMEND THE APPROPRIATE MITIGATION MEASURES IF NECESSARY. IN ADDITION, IF HUMAN BURIALS ARE FOUND, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE COUNTY OF KAUAI POLICE DEPARTMENT.

WATER CONSTRUCTION NOTES (REVISED 21-JUN-2021)

- UNLESS OTHERWISE SPECIFIED, ALL MATERIALS AND CONSTRUCTION OF WATER FACILITIES AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE "WATER SYSTEM STANDARDS, 2002" AS ADOPTED BY THE DEPARTMENT OF WATER, COUNTY OF KAUAI, INCLUDING ALL SUBSEQUENT AMENDMENTS AND ADDITIONS.
- ALL REQUIRED PROJECT SUBMITTALS (MATERIALS, SHOP DRAWINGS, ETC.) SHALL BE APPROVED BY THE DOW'S PROJECT MANAGEMENT SECTION BEFORE A PRE-CONSTRUCTION CONFERENCE CAN BE SCHEDULED. ONCE ALL PROJECT SUBMITTALS HAVE BEEN APPROVED BY DOW CONSTRUCTION ENGINEER, THE DOW CONSTRUCTION ENGINEER WILL NOTIFY THE CONTRACTOR THAT A PRE-CONSTRUCTION CONFERENCE CAN BE ARRANGED. THE CONTRACTOR SHALL ARRANGE A PRE-CONSTRUCTION CONFERENCE AT LEAST TEN (10) CALENDAR DAYS BEFORE CONSTRUCTION AND SHALL NOTIFY THE DEPARTMENT OF WATER AT LEAST THREE (3) WORKING DAYS PRIOR TO START OF CONSTRUCTION.
- 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.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF WATER AT LEAST 24 HOURS PRIOR TO ANY TRENCHING, PIPE LAYING, BACKFILLING, TESTING OR DISINFECTION ACTIVITIES TO ENSURE THAT INSPECTION SERVICES WILL BE AVAILABLE.
- 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 THE DEPARTMENT OF WATER 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.
- 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.
- TRENCH EXCAVATION, BACKFILLING IN LIFTS, AND REPAVING SHALL CONFORM TO THE "HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2005" AS AMENDED.
- 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.
- 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."
- UNLESS OTHERWISE DIRECTED, PRIOR TO THE CONNECTION OF ANY PIPELINES TO THE EXISTING MAIN, THE PIPELINES 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 THE DOW THIRTY (30) CALENDAR DAYS PRIOR TO STARTING ANTICIPATED CHLORINATION OPERATIONS. THE CHLORINATION PLAN MUST BE APPROVED BY THE DOW'S PROJECT MANAGEMENT SECTION PRIOR TO STARTING CHLORINATION OPERATIONS. ALL CHLORINATION PLANS WILL BE APPROVED BASED ON THE CURRENT DOW REQUIREMENTS AT THE TIME OF CHLORINATION PLAN SUBMITTAL.

THE TESTED PIPELINES MUST BE CONNECTED TO THE EXISTING DOW SYSTEM WITHIN 14 CALENDAR DAYS OF PULLING THE FIRST DISINFECTION SAMPLE TESTED BY A CERTIFIED LABORATORY. THE DEPARTMENT OF WATER 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 CONNECTION IS NOT COMPLETED WITHIN THESE 14 CALENDAR DAYS.

FOR DISINFECTION OF WATER LATERALS (SERVICE AND FIRE) THAT ARE TO BE CONNECTED DIRECTLY TO EXISTING DOW WATER LINES, SERVICE AND FIRE LATERALS SHALL BE DISINFECTED WITH A 1% (MINIMUM) FREE CHLORINE (LIQUID SODIUM HYPOCHLORITE) SOLUTION BY SWABBING AND/OR SOAKING, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

FOR RESERVOIRS, SECTION 303.10 SUBSECTION B.3.e.2. IS REPLACED WITH "TOTAL BACTERIAL COUNT IS LESS THAN 300 CFU/ML."

POLYURETHANE FOAM "PIGS" SHALL BE "PUSHED" THROUGH THE LENGTH OF THE INSTALLED PIPELINE USING PRESSURIZED WATER.

- ALL CONNECTIONS SHALL BE SCHEDULED IN COORDINATION WITH THE DEPARTMENT OF WATER.
 - 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.
 - THE CONTRACTOR SHALL PLACE THE DEPOSIT PRIOR TO SCHEDULING THE CONNECTION DATE.
 - SHUTDOWN 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.
 - ALL MATERIALS SHALL BE ON HAND AND APPROVED BY THE ENGINEER PRIOR TO SCHEDULING THE CONNECTION DATE.
 - PUMPS USED TO DE-WATER THE CONNECTION AREA SHALL BE OPERATED IN THE PRESENCE OF THE ENGINEER PRIOR TO SCHEDULING THE CONNECTION DATE.
 - ALL CONNECTIONS SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER.
 - NO LIVE TAPS SHALL BE SCHEDULED FROM DECEMBER 24 - DECEMBER 31 OF EACH YEAR.

16. IN ORDER TO PREVENT DAMAGE TO THE POLYETHYLENE ENCASEMENT FROM EXCESSIVE HANDLING, THE POLYETHYLENE ENCASEMENT 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.

17. 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 THE DEPARTMENT OF WATER, 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.

18. THE CONTRACTOR SHALL CONNECT ALL EXISTING CONSUMER PIPING TO THE NEW SERVICE LATERALS. THE DEPARTMENT OF WATER WILL TRANSFER THE EXISTING WATER METERS ONLY.

19. 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.

20. 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.

21. 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.

22. THE CONTRACTOR IS RESPONSIBLE FOR DEWATERING TRENCH AS NECESSARY WHERE GROUNDWATER IS ENCOUNTERED. ALL ASSOCIATED COSTS FOR DEWATERING SHALL BE BORNE BY THE CONTRACTOR.

23. THE USE OF KNOWN SEWER PUMP TRUCKS IS PROHIBITED FOR DOW PROJECTS FOR ANY USE, INCLUDING BUT NOT LIMITED TO DEWATERING AND TESTING OF NEW FACILITIES.

24. 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.

25. ALL REMOVAL, DISPOSAL AND CONNECTION WORK THAT INVOLVES ASBESTOS PIPEMATERIAL 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 DOW FOR REVIEW AND APPROVAL PRIOR TO CONDUCTING THE WORK.

26. 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.

27. 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.

28. 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.

29. CONTRACTOR SHALL INSTALL WATER FACILITIES ONLY AFTER REACHING FINAL SUBGRADE OR HIGHER. THE DEPARTMENT OF WATER WILL NOT ALLOW INSTALLATION OF ANY WATER FACILITIES UNTIL THE FINAL SUBGRADE LAYER AT MINIMUM HAS BEEN ACHIEVED.

30. 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 DOW CONSTRUCTION ENGINEER FOR REVIEW AND APPROVAL BEFORE MOVING FORWARD WITH INSTALLATION VIA THE SUBMITTAL REVIEW PROCESS.

31. THE DEPARTMENT SHALL BE PROVIDED TWENTY (20) WORKING DAYS FOR ALL SUBMITTAL REVIEWS FROM THE TIME OF SUBMISSION BY THE CONTRACTOR.

32. UNLESS OTHERWISE SPECIFIED, ALL DUCTILE IRON PIPES, VALVES, AND FITTINGS, SHALL BE ENCASED IN ONE LAYER OF 8 MIL MINIMUM THICKNESS POLYETHYLENE MATERIAL IN ACCORDANCE WITH ANSI A-21.5 AND AWWA C105. THE POLYETHYLENE ENCASEMENT FILM SHALL BE MANUFACTURED FROM VIRGIN POLYETHYLENE AND SHALL CONSIST OF THREE LAYERS OF CO-EXTRUDED LINEAR LOW-DENSITY POLYETHYLENE (LLDPE), FUSED INTO A SINGLE THICKNESS OF NOT LESS THAN 8 MILS. THE INSIDE SURFACE OF THE POLYETHYLENE WRAP TO BE IN CONTACT WITH THE PIPE EXTERIOR SHALL BE INFUSED WITH A BLEND OF AN ANTIMICROBIAL TO MITIGATE MICROBIOLOGICALLY INFLUENCED CORROSION AND A VOLATILE CORROSION INHIBITOR TO CONTROL GALVANIC CORROSION. POLYETHYLENE MATERIAL SHALL HAVE PERMANENT MARKINGS PER AWWA C105.

COPPER SERVICE LATERALS SHALL BE ENCASED WITH POLYETHYLENE WRAP FROM THE CONNECTION TO THE WATER MAIN TO THE ANGLE BALL VALVE LOCATED IN THE WATER METER BOX.

		<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p>	
<p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.</p>		<p>CONSTRUCTION NOTES</p>	
<p>APPROVED:</p> <p><i>W. Eddy</i> Exp. 4/26 Signature</p>	<p>02/02/2026 DATE</p>	<p>C-1</p>	
<p>KODANI & ASSOCIATES ENGINEERS, LLC LĪHŪE, KAUAI, HAWAII 96766</p>			
DESIGNED BY: ATM	DRAWN BY: TP.	DATE: 01-28-2026	SHEET 2 OF 65

ENVIRONMENTAL CONTROL NOTES FOR GRADING

- IN ACCORDANCE WITH CHAPTER 11-60.1, AIR POLLUTION CONTROL, TITLE 11, HAWAII ADMINISTRATIVE RULES, THE PROPERTY OWNER / DEVELOPER 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 SYSTEMS, DUST FENCES, ETC.
- IN ACCORDANCE WITH CHAPTER 11-55, WATER POLLUTION CONTROL AND CHAPTER 11-54, WATER QUALITY STANDARDS, TITLE 11, HAWAII ADMINISTRATIVE RULES, THE PROPERTY OWNER / DEVELOPER SHALL BE RESPONSIBLE FOR ENSURING THAT THE BEST MANAGEMENT PRACTICE (BMP) TO MINIMIZE OR PREVENT THE DISCHARGE OF SEDIMENTS, DEBRIS AND OTHER WATER POLLUTANT INTO STATE WATERS ARE PROVIDED AT ALL TIMES.
- IN ACCORDANCE WITH CHAPTER 11-58, SOLID WASTE MANAGEMENT CONTROL, TITLE 11, HAWAII ADMINISTRATIVE RULES, THE PROPERTY OWNER / DEVELOPER 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.
- THE PROPERTY OWNER / DEVELOPER 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 CONTACTING OFFICER SHALL BE PAYABLE BY THE CONTRACTOR.
- 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, WATERCOURSES, NATURAL AREAS AND THE PROPERTY OF OTHERS.
- THE CONTRACTOR SHALL OBTAIN AND COMPLY WITH NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT 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 HAWAII AND HAS SATISFIED ANY OTHER APPLICABLE REQUIREMENTS OF THE NPDES PERMIT PROGRAM.
- IN ACCORDANCE WITH CHAPTER 11-46, COMMUNITY NOISE CONTROL, HAWAII ADMINISTRATIVE RULES, THE CONTRACTOR AND THE PROPERTY OWNER AND 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.
- 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 CONTRACTOR 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.
- A COPY OF THE PLANS, CONSTRUCTION SCHEDULE AND / OR WRITTEN MEASURES THAT IS REQUIRED TO BE SUBMITTED BY THE CONTRACT (DUST CONTROL MEASURES / PLANS) SHOULD ALSO BE SENT TO THE DEPARTMENT OF HEALTH FOR MONITORING PURPOSES.

TEMPORARY DUST CONTROL MEASURES FOR GRADING

- 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.
- 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.
- 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.

TEMPORARY EROSION CONTROL MEASURES FOR GRADING

- 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 THIRTY (30) CALENDAR DAYS.
- 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. PLANTING AND MAINTENANCE OF GRASS SHALL CONFORM TO THE "HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2005" AND ITS AMENDMENTS.

PERMANENT EROSION CONTROL MEASURES FOR GRADING

- 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.
- THE CONTRACTOR SHALL GRASS ALL EXPOSED AREAS THAT HAVE BEEN CONSTRUCTED TO FINAL GRADES WITHIN A PERIOD OF 30 CALENDAR DAYS.
- IN LIEU OF GRASS SPRIGS (NOTE 1), THE CONTRACTOR MAY USE HYDROMULCH WITH SEEDINGS AND IRRIGATION SPRINKLER SYSTEM.

WATER POLLUTION AND EROSION CONTROL NOTES

- GENERAL**
A. THE CONTRACTOR IS REMINDED OF THE REQUIREMENTS OF SECTION 209-WATER POLLUTION AND EROSION CONTROL AND SECTION 620-DUST CONTROL, IN THE "HAWAII 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 ENGINEER; 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 KAUAI" APRIL 2004 IN DEVELOPING, INSTALLING AND MAINTAINING THE BEST MANAGEMENT PRACTICES (BMP'S) 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.

D. THE CONTACTING OFFICER MAY ASSESS LIQUIDATED DAMAGES OF UP TO \$27,500 FOR NON-COMPLIANCE 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 CONTACTING OFFICER 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.

2. WASTE DISPOSAL

A. **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 (2) 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.

B. **HAZARDOUS WASTE:** ALL HAZARDOUS WASTE MATERIALS 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.

C. **SANITARY WASTE:** ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK, OR AS REQUIRED.

3. 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 INSPECTION.

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 VERIFY THAT THE FABRIC IS SECURELY ATTACHED TO THE FENCE POSTS OR CONCRETE SLAB AND TO VERIFY THAT THE FENCE POSTS 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 THE ENGINEER A MAINTENANCE INSPECTION REPORT PROMPTLY AFTER EACH WEEKLY INSPECTION.

G. 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.

H. 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 ORDER.

I. 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 FINAL GRADES HAVE BEEN ESTABLISHED.

J. TEMPORARY EROSION CONTROLS SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN-PLACE AND ESTABLISHED.

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 & LATEX)	CLEANING SOLVENTS
METAL STUDS	WOOD
TAR	MASONRY BLOCK

b. MATERIAL MANAGEMENT PRACTICES 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 ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE.

b. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHEETS (MSDS) SHALL BE RETAINED AND MADE AVAILABLE TO THE ENGINEER UPON REQUEST.

c. SURPLUS PRODUCTS SHALL BE DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR LOCAL AND STATE RECOMMENDED REGULATIONS.

C. ON-SITE AND OFF-SITE PRODUCTS SPECIFIC PRACTICES PLANS

a. **PETROLEUM BASED PRODUCTS:** MONITOR ALL ON-SITE VEHICLES FOR LEAKS AND PERFORM REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. STORE PETROLEUM PRODUCTS IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. APPLY ASPHALT SUBSTANCES USED ON-SITE ACCORDING TO THE MANUFACTURER'S RECOMMENDATION.

b. **FERTILIZERS:** APPLY FERTILIZERS 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. TRANSFER THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.

c. **PAINTS:** SEAL AND STORE ALL CONTAINERS WHEN NOT REQUIRED FOR USE. DO NOT DISCHARGE EXCESS PAINT TO THE HIGHWAY DRAINAGE SYSTEM. DISPOSE PROPERLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS 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 THE HIGHWAY DRAINAGE SYSTEM OR WATERS OF THE UNITED STATES. CONTACT DRINKING WATER BRANCH, DEPARTMENT OF HEALTH AT (808) 586-4285 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 CLEANUP EACH SPILL.

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 ONSITE.

c. CLEARLY POST MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP. MAKE SITE PERSONNEL AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES.

d. KEEP MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP IN THE MATERIAL STORAGE AREA ONSITE.

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 A HAZARDOUS SUBSTANCE.

g. 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 COMPLY WITH THE TERMS AND CONDITIONS OF THE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS.

B. 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 A GRADING PERMIT.

HYDRO-TESTING BEST MANAGEMENT PRACTICES (BMPs)

1. CONTRACTOR SHALL COMPLY WITH TERMS AND CONDITIONS OF THE NPDES PERMIT FOR DISCHARGE OF HYDRO-TESTING WATERS.

2. ALL WATER USED FOR HYDRO-TESTING SHALL BE POTABLE WATER.

3. ALL WATER THAT IS USED FOR HYDRO-TESTING SHALL BE TESTED AND PROPERLY DISPOSED AFTER HYDRO-TESTING.

4. THE DISCHARGE WATER SHALL BE TESTED FOR TURBIDITY AND CHLORINE. THE TURBIDITY SHALL BE LESS THAN 10 NTU AND THE CHLORINE SHALL BE "TRACE".

5. CLEAN, NON-CHLORINATED WATER MAY BE DISCHARGED INTO THE STORM DRAIN INLET LOCATED WITHIN THE PROJECT SITE.

6. HYDRO-TEST WATER DISCHARGE RATES INTO THE ON-SITE STORM DRAIN SHALL BE LIMITED TO 200 GALLONS PER MINUTE (GPM).

ABBREVIATIONS

A.C.	ASBESTOS CEMENT (WHEN USED TO DESIGNATE PIPE TYPE)	RET	RETAINER
a.c.	ASBESTOS CEMENT (WHEN USED TO DESIGNATE PIPE TYPE)	ROW	RIGHT OF WAY
AC	APHALT CONCRETE (WHEN USED TO DESIGNATE PAVEMENT TYPE)	R-O-W	RIGHT OF WAY
AM	ANTE MERIDIAN (BEFORE NOON)	RT	RIGHT
APPROX	APPROXIMATE	RWGV	RESILIENT WEDGE BEVEL GEAR GATE VALVE
APR	APRIL	S4C	TYPE OF BACKFILL MATERIAL
ARV	AIR RELIEF VALVE OR COMBINATION AIR VALVE	SDMH	STORM DRAIN MANHOLE
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS	SEPT	SEPTEMBER
AT&T	AMERICAN TELEPHONE AND TELEGRAPH	SHT	SHEET
AUG	AUGUST	SIC	SANDWICH ISLE COMMUNICATIONS, INC.
▲ (BL)	BASELINE	smh	SEWER MANHOLE
BGGV	BEVEL GEAR GATE VALVE	SMH	SEWER MANHOLE
BMP	BEST MANAGEMENT PRACTICE	SS	STAINLESS STEEL
BO	BLOW OFF	ST	STREET
BV	BUTTERFLY VALVE (WHEN USED TO DESIGNATE A VALVE)	STA	STATION
BVB	BOTTOM VERTICAL (WHEN USED TO DESIGNATE A BEND)	STD	STANDARD
BWS	BOARD OF WATER SUPPLY	STRUC	STRUCTURAL
CL (CL)	CENTERLINE	STY	STYRENE
CB	CATCH BASIN	T	TANGENT (LENGTH, WHEN USED TO DESIGNATE CURVE DATA)
C.I.	CAST IRON	TCP	THICKNESS (WHEN USED TO DESIGNATE MATERIAL CHARACTERISTICS)
CL	CLASS	THK	THICK
COK	COUNTY OF KAUAI	TMK	TAX MAP KEY
CONC	CONCRETE	TV	TOP VERTICAL
CU	COPPER	TVB	TOP VERTICAL BEND
Δ	DEFLECTION OR CURVE ANGLE (DELTA)	TYP	TYPICAL
Ø (D)	DIAMETER	V	VERTICAL
DEC	DECEMBER	VBP	VERTICAL BEND
DET	DETAIL	VCP	VITRIFIED CLAY PIPE
D.I.	DUCTILE IRON (WHEN USED TO DESIGNATE A MATERIAL TYPE)	W	WITH
DI	DRAIN INLET (WHEN USED TO DESIGNATE A STRUCTURE)	W	WIDTH
DL	DRAIN LINE	WL	WATERLINE
DIA	DIAMETER	WSS	WATER SYSTEM STANDARDS
DOW	DEPARTMENT OF WATER	X	BY
DWS	DRAWING	ZRC	ZINC RICH COATING
DWS	DEPARTMENT OF WATER SUPPLY		
EA	EACH		
EW	EACH WAY		
ELEC	ELECTRICAL		
ELEV	ELEVATION		
EP	EDGE PAVEMENT		
ex.	EXISTING		
EX.	EXISTING		
EXP	EXPIRE		
FE	FLANGE END		
FEB	FEBRUARY		
FH	FIRE HYDRANT		
FT	FEET		
GALV	GALVANIZE		
GF	GROVE FARM		
g.s.	galvanized steel		
GV	GATE VALVE		
H	HORIZONTAL		
HDOT	HAWAII DEPARTMENT OF TRANSPORTATION		
HDPE	HIGH-DENSITY POLYETHYLENE		
HEX	HEXAGONAL		
HORIZ	HORIZONTAL		
htel	HAWAIIAN TELCOM		
HTEL	HAWAIIAN TELCOM		
HWY	HIGHWAY		
I.D.	INSIDE DIAMETER		
INCH	INCHES		
IRR	IRRIGATION		
INT	INTERSECTION		
INV	INVERT		
JAN	JANUARY		
JUN	JUNE		
JUL	JULY		
KDOW	KAUAI DEPARTMENT OF WATER		
LC	LENGTH OF CURVE		
LF	LINEAR FEET		
LG	LONG		
LT	LEFT		
MAR	MARCH		
MAX	MAXIMUM		
MH	MANHOLE		
MIN	MINIMUM		
MJ	MECHANICAL JOINT		
MPH	MILES PER HOUR		
MPT	MALE PIPE THREAD		
NA (N/A)	NOT APPLICABLE		
NO	NUMBER		
NOV	NOVEMBER		
N.T.S.	NOT TO SCALE		
O/S	OFFSET		
OC	ON CENTER		
OCT	OCTOBER		
O.T.	OUTSIDE DIAMETER		
PC	POINT OF CURVATURE		
PE	PROFESSIONAL ENGINEER		
PH	PHONE		
PL	PROPERTY LINE		
PLCS	PLACES		
PLH	PUHI-LIHUE-HANAMAULU		
PM	POST MERIDIAN (AFTER NOON)		
PP	POWER POLE		
PT	POINT OF TANGENT		
PVC	POLYVINYL CHLORIDE		
R	RADIUS		
RD	ROAD		
RED	REDUCER		
REF	REFERENCE		
REIN	REINFORCEMENT		



WILLIAM A. EDDY JR.
LICENSED PROFESSIONAL ENGINEER
No. 8100-C
HAWAII, U.S.A.

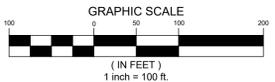
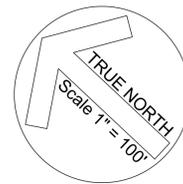
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

REVISION	DATE	DESCRIPTION	BY	APPROVED
<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p> <p>CONSTRUCTION NOTES</p>				
APPROVED:		DATE		
 Signature		02/02/2026 DATE		
BY MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI				
C-2				

KODANI & ASSOCIATES ENGINEERS, LLC
LIHUE, KAUAI, HAWAII 96766

DESIGNED BY: ATM	DRAWN BY: TP.	DATE: 01-28-2026	SHEET 3 OF 65
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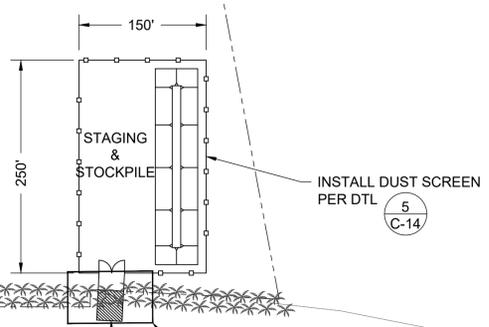
3,744.62 S
5,244.98 W
"KILAUEA" Δ



TMK 5-2-005: 058
KILAUEA OHANA PLATEAU LLC

TMK 5-2-005: 054
COUNTY OF KAUAI

TMK 5-2-005: 024
B&D PROPERTIES LLC



TEMPORARY DRIVEWAY APPROACH
APPROX. 30-FT WIDE
CONTRACTOR TO OBTAIN PERMIT FROM THE STATE OF HAWAII,
DEPARTMENT OF TRANSPORTATION, HIGHWAYS DIVISION

K U H I O H W Y

KOLO ROAD

KILAUEA ROAD

KAKALA STREET

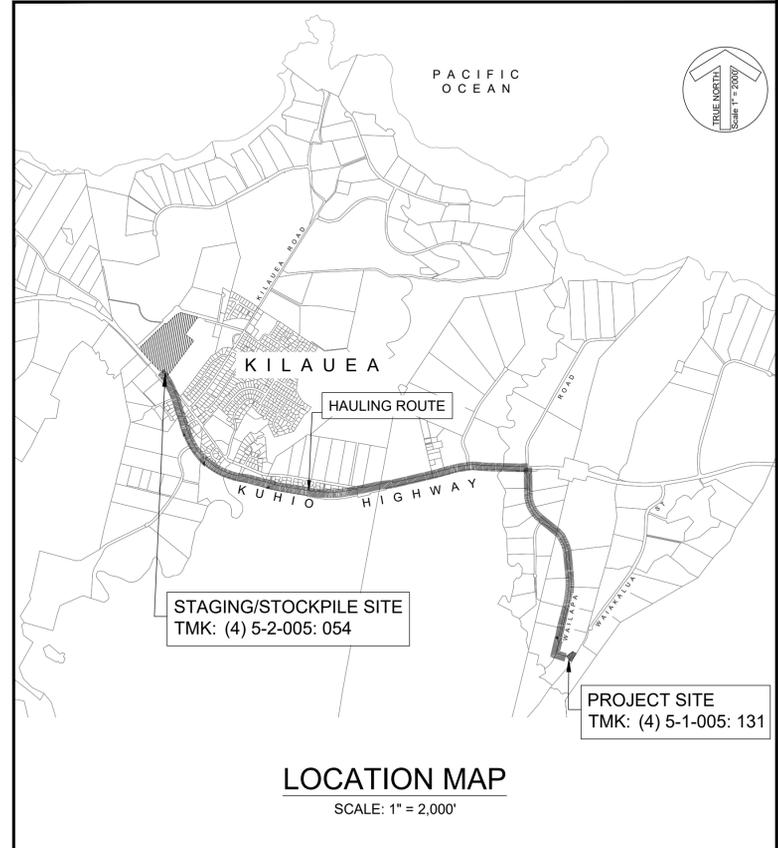
KOMA STREET

STREET

KALAMANIA ROAD

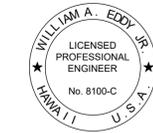
STAGING & STOCKPILE PLAN

SCALE: 1" = 100'



LOCATION MAP

SCALE: 1" = 2,000'



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

W. Eddy Exp. 4/26
Signature

REVISION	DATE	DESCRIPTION	BY	APPROVED

**CONSTRUCT KILAUEA
466' TANK, 1.0 MG**

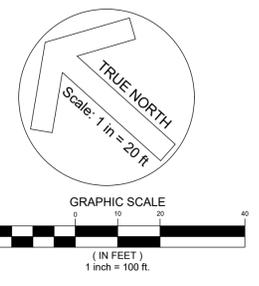
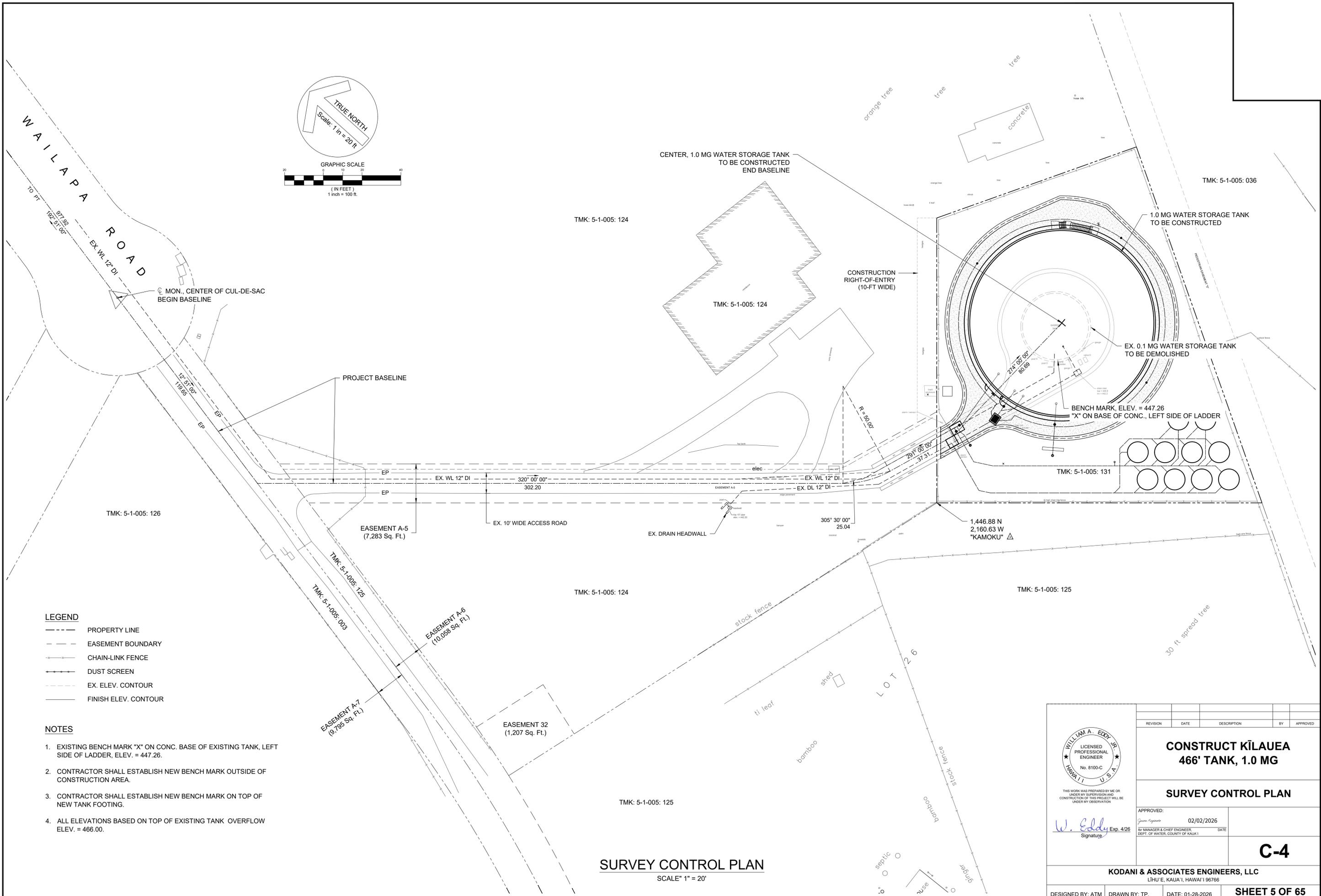
STAGING & STOCKPILE SITE

APPROVED: *John Sigmond* 02/02/2026
DATE
BY: MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI

C-3

KODANI & ASSOCIATES ENGINEERS, LLC
LIHU'E, KAUAI, HAWAII 96766

260128 Kilauea Tank 04-4014.dwg

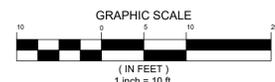
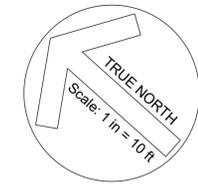


- LEGEND**
- PROPERTY LINE
 - - - EASEMENT BOUNDARY
 - - - CHAIN-LINK FENCE
 - - - DUST SCREEN
 - - - EX. ELEV. CONTOUR
 - FINISH ELEV. CONTOUR

- NOTES**
1. EXISTING BENCH MARK "X" ON CONC. BASE OF EXISTING TANK, LEFT SIDE OF LADDER, ELEV. = 447.26.
 2. CONTRACTOR SHALL ESTABLISH NEW BENCH MARK OUTSIDE OF CONSTRUCTION AREA.
 3. CONTRACTOR SHALL ESTABLISH NEW BENCH MARK ON TOP OF NEW TANK FOOTING.
 4. ALL ELEVATIONS BASED ON TOP OF EXISTING TANK OVERFLOW ELEV. = 466.00.

SURVEY CONTROL PLAN
SCALE" 1" = 20'

<p>W. Eddy Signature</p>	REVISION	DATE	DESCRIPTION	BY	APPROVED
	<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p>				
	<p>SURVEY CONTROL PLAN</p>				
	APPROVED:		02/02/2026	DATE	
<p>W. Eddy Signature</p>		<p>Exp. 4/26</p>	<p>MANAGER & CHIEF ENGINEER DEPT. OF WATER, COUNTY OF KAUAI</p>		
<p>KODANI & ASSOCIATES ENGINEERS, LLC LIHUE, KAUAI, HAWAII 96766</p>					
DESIGNED BY: ATM	DRAWN BY: TP.	DATE: 01-28-2026	<p>SHEET 5 OF 65</p>		

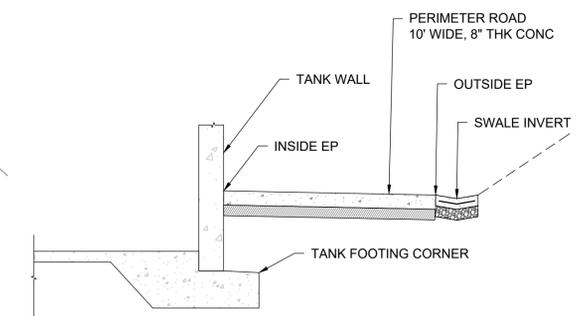


LEGEND

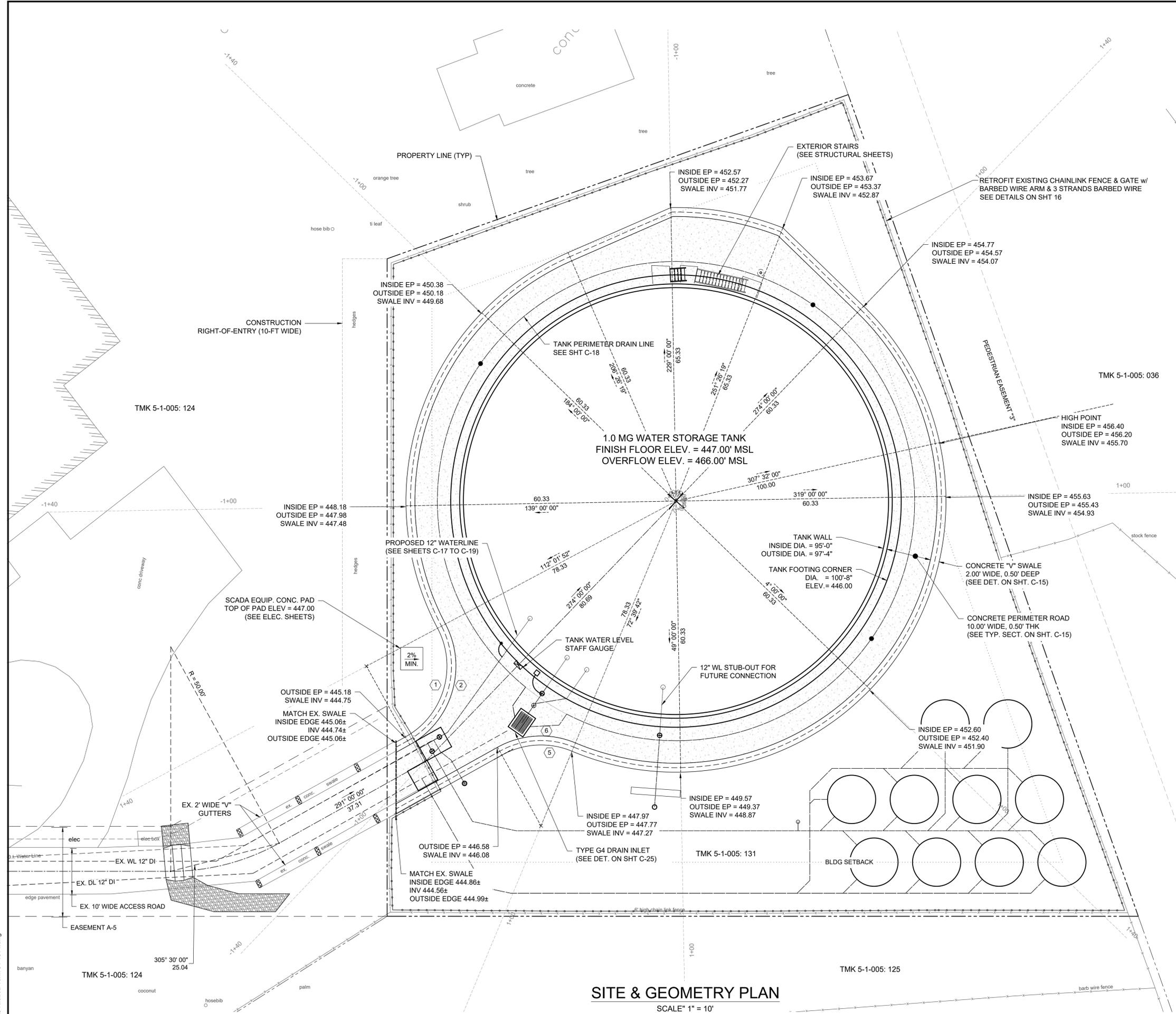
- PROPERTY LINE
- - - EASEMENT BOUNDARY
- CHAIN-LINK FENCE
- DUST SCREEN
- - - EX. ELEV. CONTOUR
- FINISH ELEV. CONTOUR
- BUILDING SETBACK LINE

NOTES

1. EXISTING BENCH MARK "X" ON CONC. BASE OF EXISTING TANK, LEFT SIDE OF LADDER, ELEV. = 447.26.
2. CONTRACTOR SHALL ESTABLISH NEW BENCH MARK OUTSIDE OF CONSTRUCTION AREA.
3. CONTRACTOR SHALL ESTABLISH NEW BENCH MARK ON TOP OF NEW TANK FOOTING.
4. ALL ELEVATIONS BASED ON TOP OF EXISTING TANK OVERFLOW ELEV. = 466.00.
5. SEE SHEETS C-17 TO C-19 FOR FACILITY PIPING.
6. BUILDING SETBACKS AS FOLLOWS: FRONT 10-FT, SIDE 12-FT & REAR 12-FT.



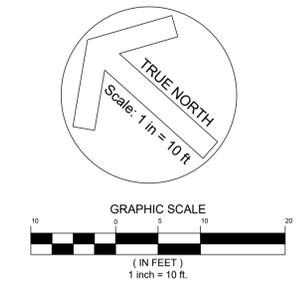
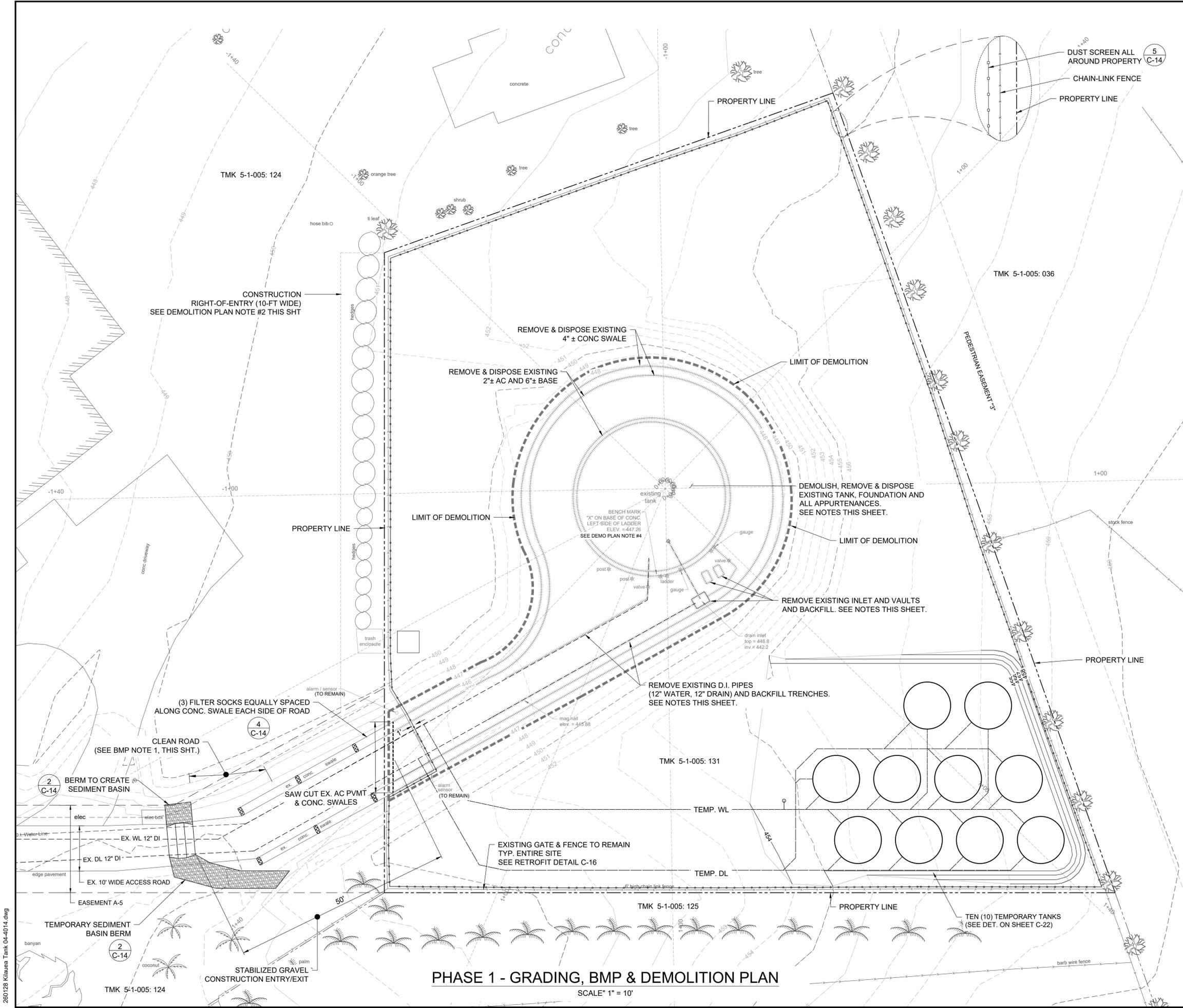
LOCATION OF ELEVATION CALLOUTS
NOT TO SCALE



SITE & GEOMETRY PLAN
SCALE 1" = 10'

<p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.</p> <p><i>W. Eddy</i> Exp. 4/26 Signature</p>	<table border="1"> <tr> <th>REVISION</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> <th>APPROVED</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	REVISION	DATE	DESCRIPTION	BY	APPROVED					
	REVISION	DATE	DESCRIPTION	BY	APPROVED						
	<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p>										
<p>SITE & GEOMETRY PLAN</p>											
<p>APPROVED: <i>John Signoret</i> 02/02/2026 DATE</p> <p>BY: MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI</p>	<p>C-5</p>										
<p>KODANI & ASSOCIATES ENGINEERS, LLC LIHUE, KAUAI, HAWAII 96766</p>											
<p>DESIGNED BY: ATM DRAWN BY: TP. DATE: 01-28-2026</p>	<p>SHEET 6 OF 65</p>										

260128 Kilauea Tank 04-4014.dwg



LEGEND

- ===== LIMITS OF REMOVAL
- ⊙ EXISTING TO BE REMOVED
- - - - - LIMIT OF DEMOLITION
- - - - - PROPERTY LINE
- - - - - EASEMENT BOUNDARY
- - - - - CHAIN-LINK FENCE
- DUST SCREEN
- - - - - EX. ELEV. CONTOUR
- FINISH ELEV. CONTOUR

BMP NOTES:

1. PRIOR TO CONSTRUCTION, CONTRACTOR TO REMOVE ALL EXISTING SEDIMENT AT LOW POINT OF ROAD DOWN TO EXISTING AC PAVEMENT.
2. CONTRACTORS SHALL PROVIDE CONCRETE WASH BOXES AS NEEDED TO PREVENT THE DISCHARGE OF CONCRETE WASTE POLLUTANTS.
3. ALL UN-PAVED GROUND SURFACE AREAS TO RECEIVE WEED BARRIER AND GRAVEL. SEE LANDSCAPE PLAN SHEET C-9.
4. CONTRACTOR TO REMOVE ALL EROSION CONTROL MEASURES ONCE PROJECT IS COMPLETED.

DEMOLITION PLAN NOTES

1. DEMOLITION OF THE EXISTING TANK, PIPES AND APPURTENANCES SHALL NOT BEGIN UNTIL THE TEMPORARY TANKS, WATERLINES, SCADA CONTROLS, AND OTHER NEW APPURTENANCES ARE INSTALLED, IN SERVICE AND DEPARTMENT OF WATER ISSUES APPROVAL TO PROCEED.
2. ANY STRUCTURE, FENCING, TREES OR PLANTS DAMAGED WITHIN THE CONSTRUCTION RIGHT-OF-ENTRY AREA SHALL BE RESTORED BY THE CONTRACTOR TO EQUAL OR BETTER CONDITION AS SOON AS POSSIBLE AT NO ADDITIONAL COST TO THE PROPERTY OWNER OR THE DEPARTMENT OF WATER.
3. SEE TECHNICAL SPECIFICATION SECTION SP-25, DEMOLITION.
4. EXISTING BENCH MARK "X" ON CONC. BASE OF EXISTING TANK, LEFT SIDE OF LADDER, ELEV = 447.26. CONTRACTOR SHALL ESTABLISH NEW BENCH MARK OUTSIDE OF AREA OF WORK FOR CONSTRUCTION.

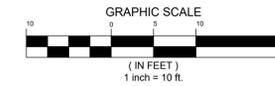
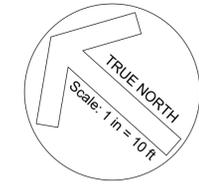
GRADING PHASE I NOTES

1. PHASE I GRADING INCLUDES INSTALLATION OF TEMPORARY TANKS, WATERLINES, SCADA CONTROLS, HYDRO-TESTING AND OTHER WORK REQUIRED TO BRING THE TEMPORARY TANKS ON-LINE.
2. PRIOR TO TRENCHING, THE CONTRACTOR SHALL VERIFY THE LOCATION, INVERT AND MATERIAL OF THE EXISTING LINES AT THE CONNECTIONS OF THE NEW LINES. IF EXISTING LINES CONFLICT WITH THE NEW LINES, INFORM DOW IMMEDIATELY. DO NOT PROCEED WITH TRENCHING UNLESS AUTHORIZED BY DOW.
3. SEE PHASE I GRADING SECTIONS ON SHTS C-10 & C-11.
4. SEE SHEETS C-17 TO C-19 FOR FACILITY PIPING.

	<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p>
	<p>PHASE 1 - GRADING, BMP & DEMOLITION PLAN</p>
	<p>APPROVED: <i>W. Eddy</i> Exp. 4/26 Signature</p>
	<p>DATE: 02/02/2026</p>
<p>KODANI & ASSOCIATES ENGINEERS, LLC LIHULU, KAUAI, HAWAII 96766</p>	
<p>C-6</p>	<p>SHEET 7 OF 65</p>

260128 Kilauea Tank 04-1014.dwg

PHASE 1 - GRADING, BMP & DEMOLITION PLAN
SCALE: 1" = 10'

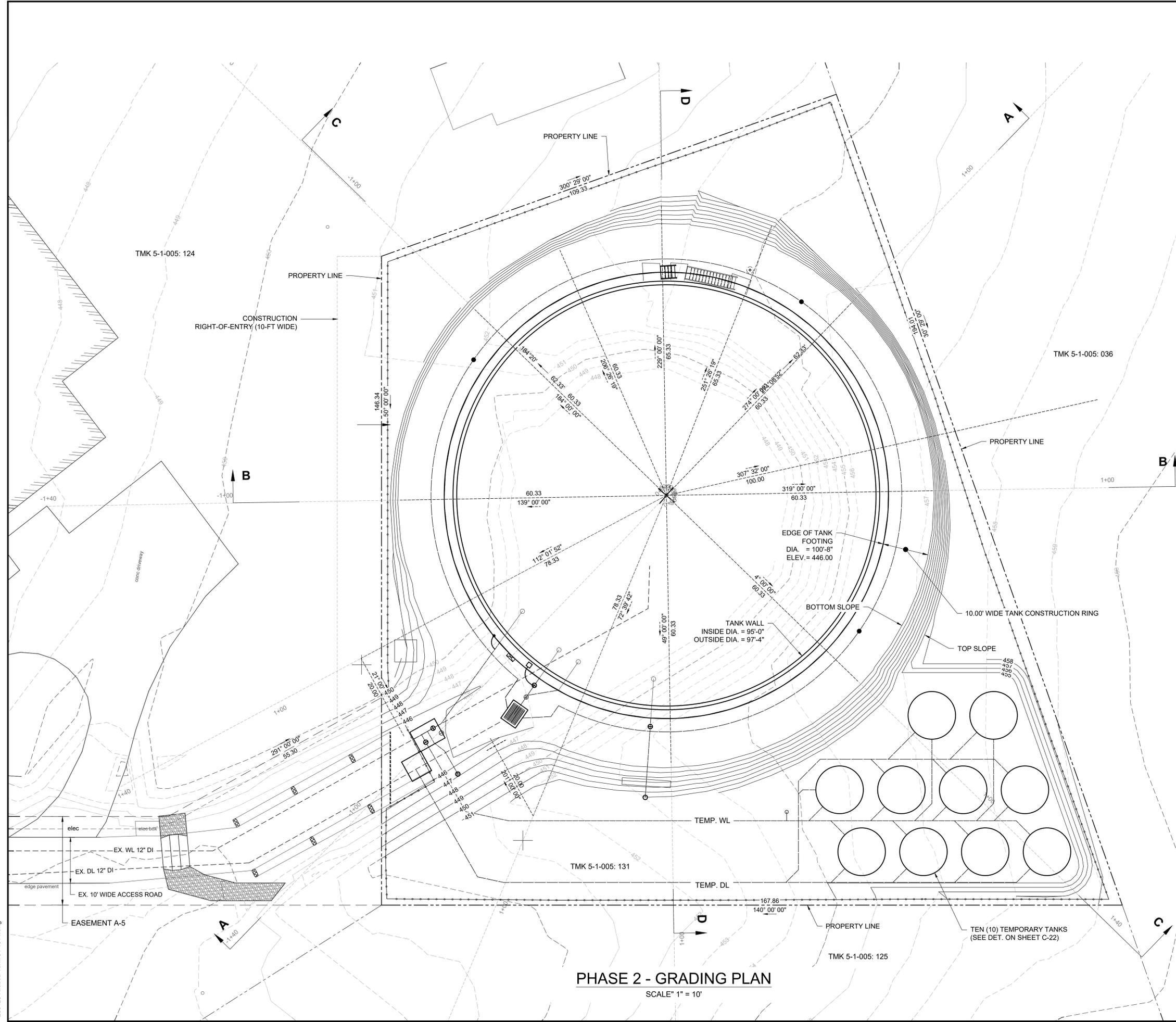


LEGEND

- PROPERTY LINE
- - - EASEMENT BOUNDARY
- - - CHAIN-LINK FENCE
- - - DUST SCREEN
- - - EX. ELEV. CONTOUR
- FINISH ELEV. CONTOUR

NOTES

1. PHASE II GRADING INCLUDES THE EARTHWORK REQUIRED TO CONSTRUCT THE 1.0 MG TANK.
2. PHASE II GRADING WILL PROCEED AFTER PHASE I GRADING IS COMPLETE AND ACCEPTED BY THE DEPARTMENT OF WATER.
3. SEE PHASE II GRADING SECTIONS ON SHTS C-10 & C-11.
4. SEE SHEETS C-17 TO C-19 FOR FACILITY PIPING.



PHASE 2 - GRADING PLAN

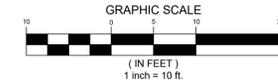
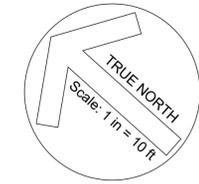
SCALE" 1" = 10'

<p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.</p> <p><i>W. Eddy</i> Exp. 4/26 Signature</p>	REVISION	DATE	DESCRIPTION	BY	APPROVED
	<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p>				
	<p>PHASE 2 - GRADING PLAN</p>				
	<p>APPROVED: <i>John Reynolds</i> 02/02/2026 MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI</p>				
<p>KODANI & ASSOCIATES ENGINEERS, LLC LIHUE, KAUAI, HAWAII 96766</p>					
DESIGNED BY: ATM	DRAWN BY: TP.	DATE: 01-28-2026	SHEET 8 OF 65		

260128 Kilauea Tank 04-4014.dwg

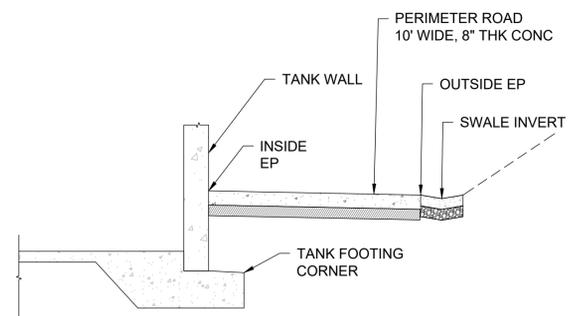
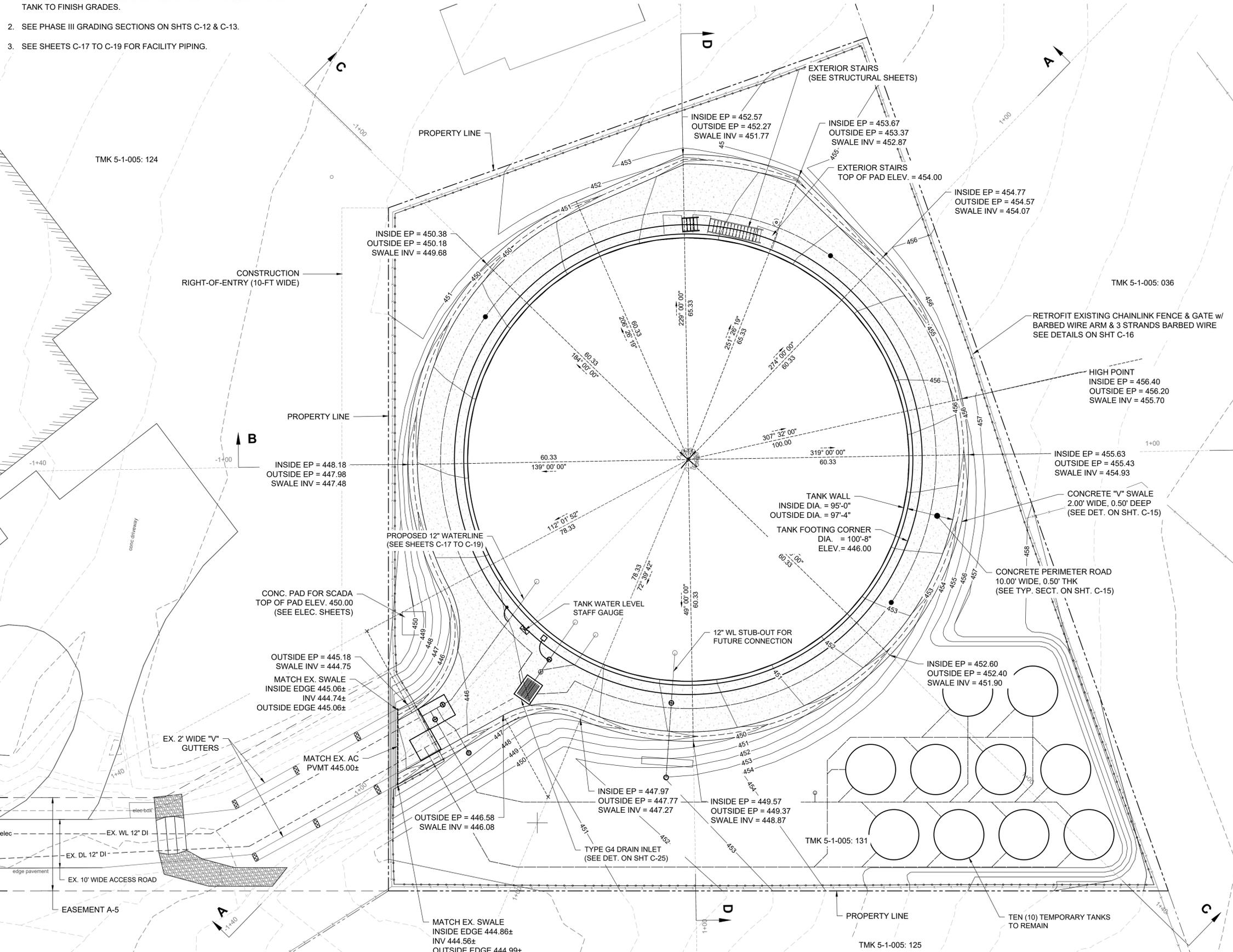
NOTES

1. PHASE III GRADING ENTAILS BACKFILLING AND PARTIAL BURY 1.0 MG TANK TO FINISH GRADES.
2. SEE PHASE III GRADING SECTIONS ON SHTS C-12 & C-13.
3. SEE SHEETS C-17 TO C-19 FOR FACILITY PIPING.



LEGEND

- PROPERTY LINE
- - - EASEMENT BOUNDARY
- - - CHAIN-LINK FENCE
- - - DUST SCREEN
- - - EX. ELEV. CONTOUR
- FINISH ELEV. CONTOUR



PHASE 3 - GRADING PLAN
SCALE: 1" = 10'

<p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.</p> <p><i>W. Eddy</i> Exp. 4/26 Signature</p>	<p>REVISION DATE DESCRIPTION BY APPROVED</p>
	<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p>
	<p>PHASE 3 - GRADING PLAN</p>
<p>APPROVED: <i>John Reynolds</i> 02/02/2026 DATE</p> <p>BY: MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI</p>	<p>C-8</p>
<p>KODANI & ASSOCIATES ENGINEERS, LLC LĪHŪ'E, KAUAI, HAWAII 96766</p>	
<p>DESIGNED BY: ATM DRAWN BY: TP. DATE: 01-28-2026</p>	<p>SHEET 9 OF 65</p>

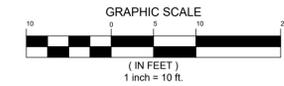
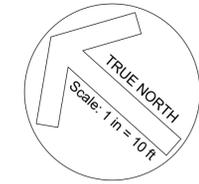
260128 Kilauea Tank 04-1014.dwg

LOT COVERAGE NOTES:

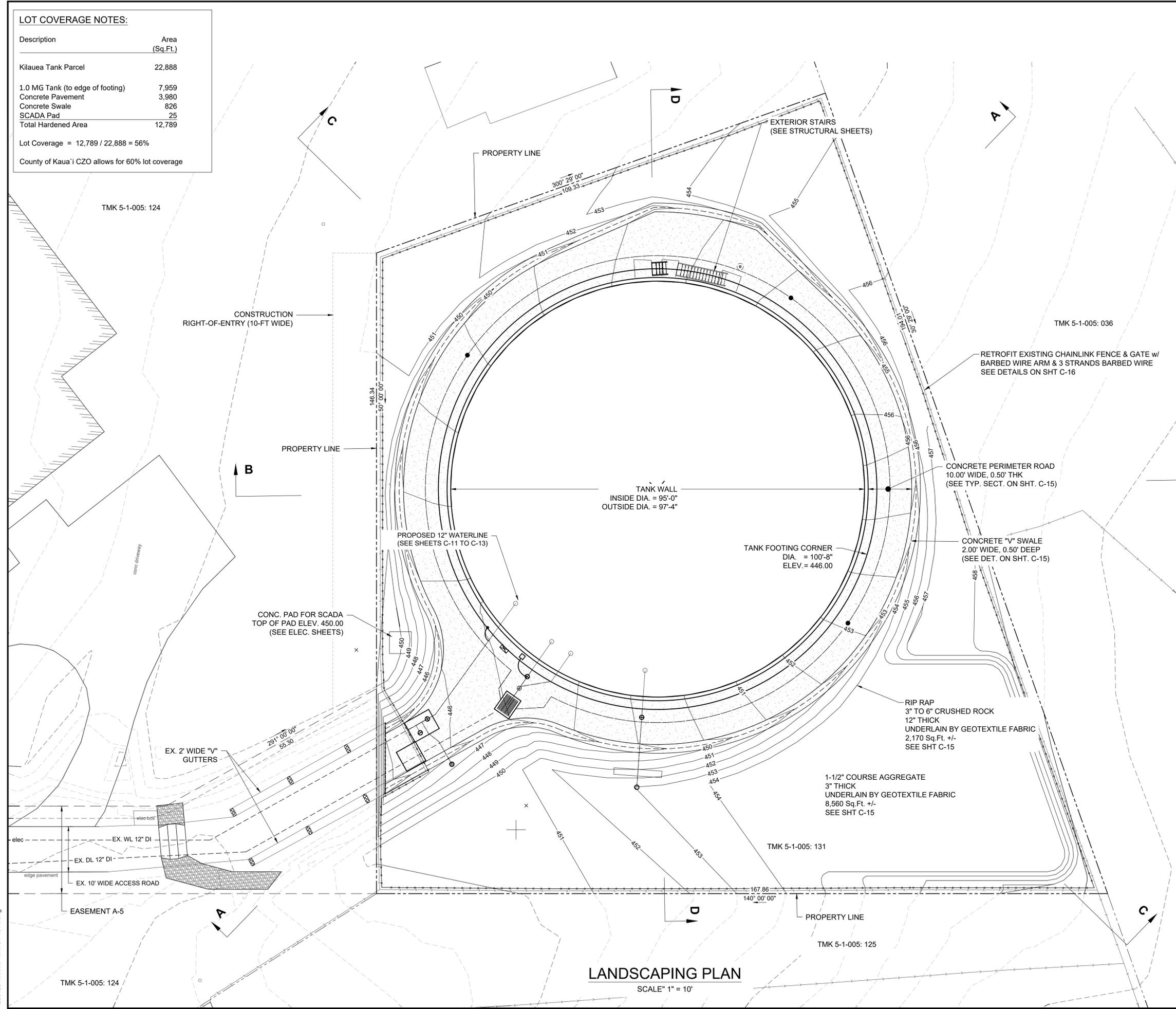
Description	Area (Sq.Ft.)
Kilauea Tank Parcel	22,888
1.0 MG Tank (to edge of footing)	7,959
Concrete Pavement	3,980
Concrete Swale	826
SCADA Pad	25
Total Hardened Area	12,789

Lot Coverage = 12,789 / 22,888 = 56%

County of Kauai CZO allows for 60% lot coverage



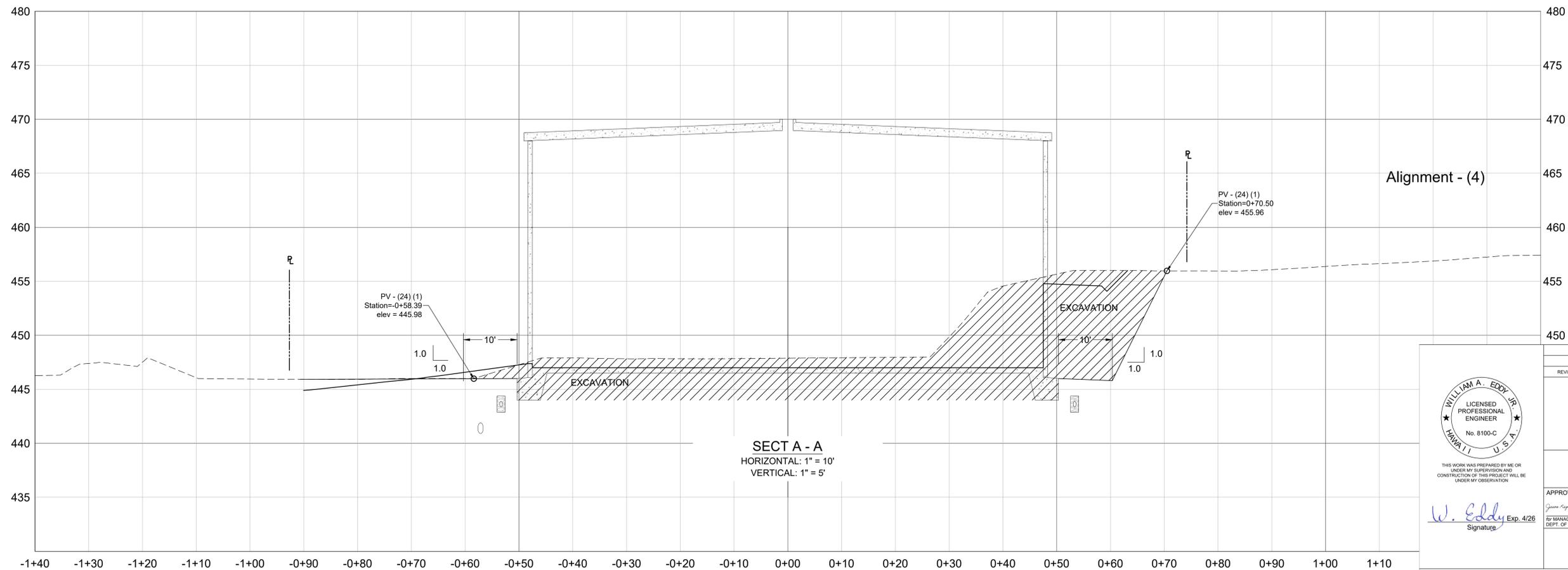
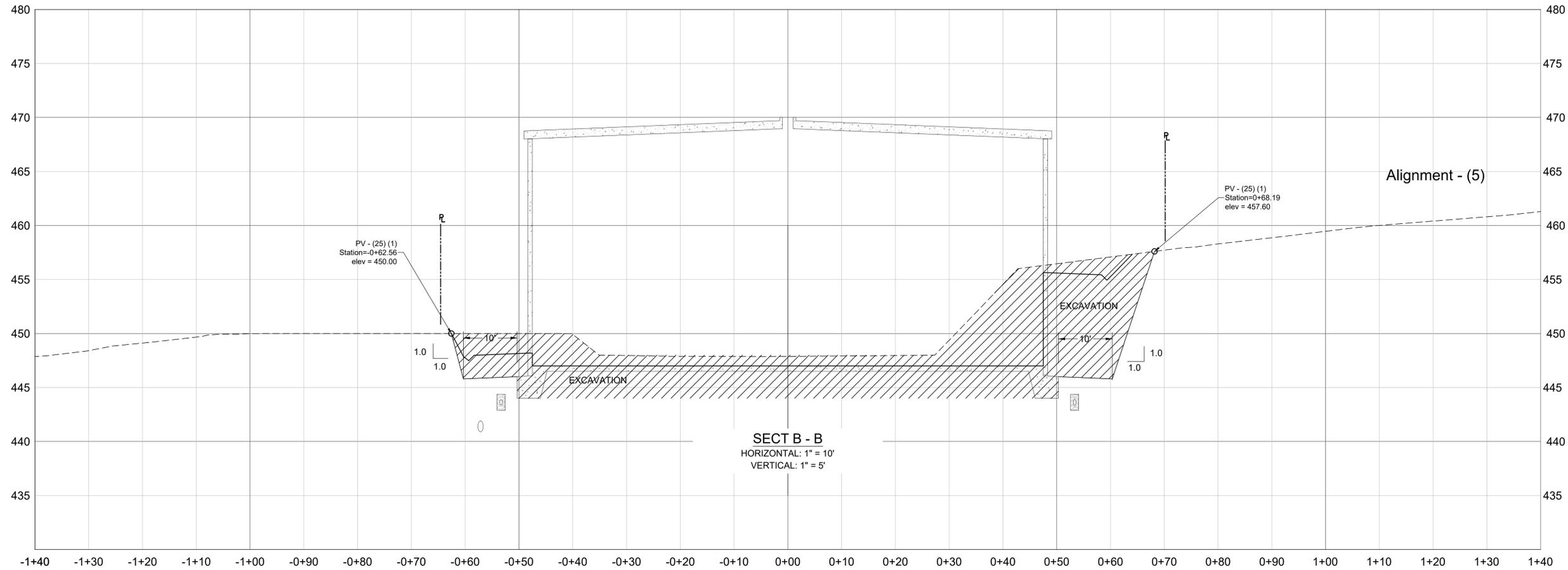
- LEGEND**
- PROPERTY LINE
 - - - EASEMENT BOUNDARY
 - CHAIN-LINK FENCE
 - DUST SCREEN
 - - - EX. ELEV. CONTOUR
 - FINISH ELEV. CONTOUR
 - CONCRETE
 - RIP RAP, GROUND COVER
 - 1-1/2' COURSE AGGREGATE, GROUND COVER



LANDSCAPING PLAN
SCALE: 1" = 10'

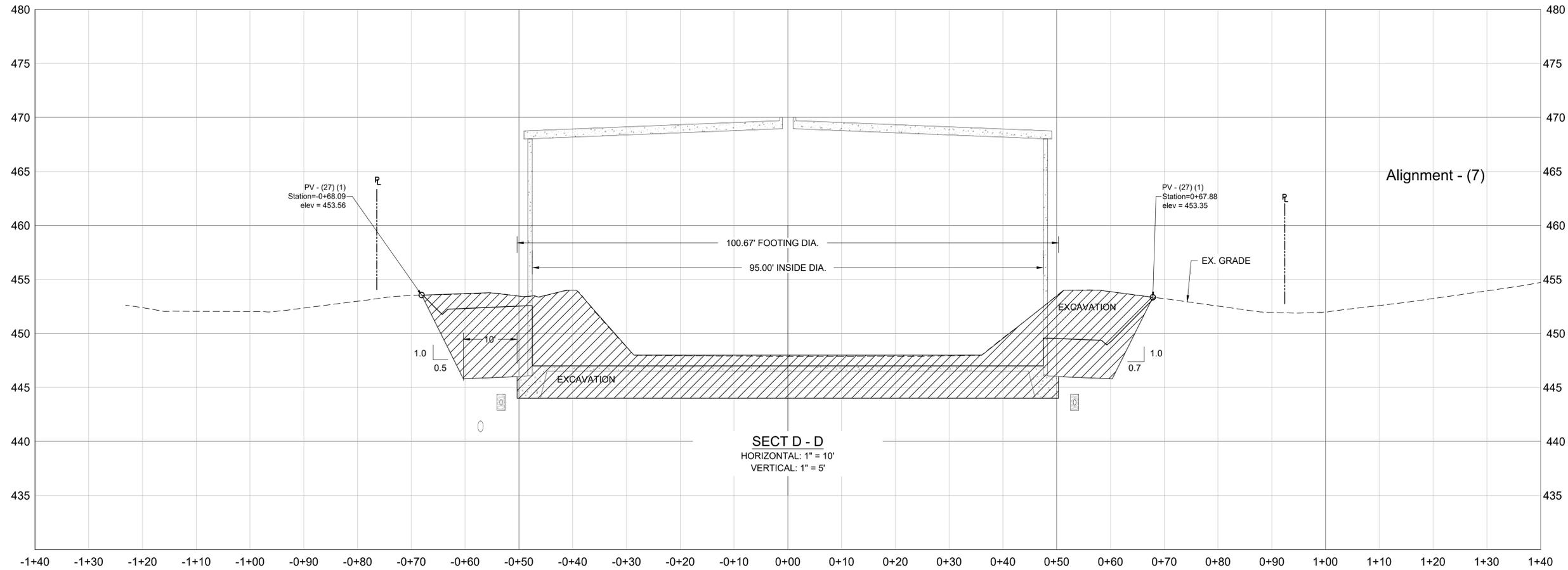
<p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.</p> <p>Signature: <i>W. Eddy</i> Exp. 4/26</p>	<table border="1"> <thead> <tr> <th>REVISION</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> <th>APPROVED</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISION	DATE	DESCRIPTION	BY	APPROVED					
	REVISION	DATE	DESCRIPTION	BY	APPROVED						
<p align="center">CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p> <p align="center">LANDSCAPING PLAN</p>	<p>APPROVED: <i>Janice Sigwalt</i> 02/02/2026 <small>MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI</small></p>										
<p align="center">C-9</p>	<p align="center">KODANI & ASSOCIATES ENGINEERS, LLC <small>LĪHŪ'E, KAUAI, HAWAII 96766</small></p>										
<p>DESIGNED BY: ATM DRAWN BY: TP. DATE: 01-28-2026</p>	<p align="right">SHEET 10 OF 65</p>										

260128 Kilauea Tank 04-4014.dwg

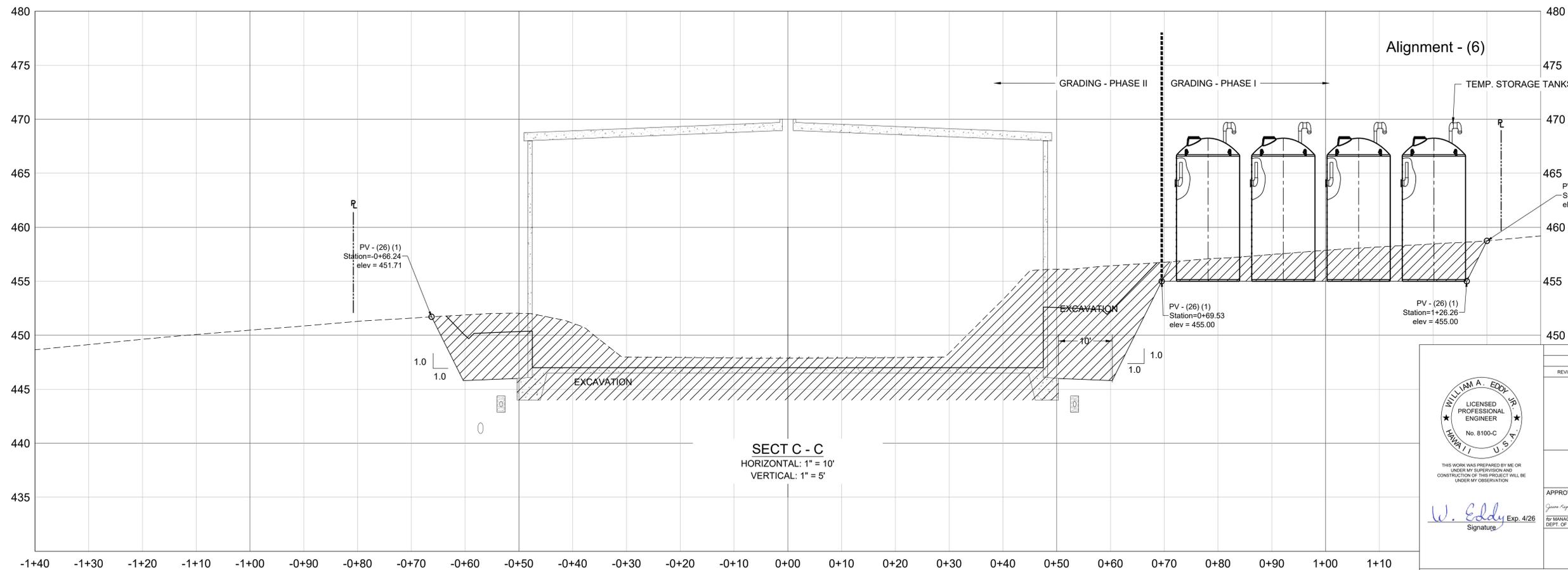


		<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p> <p>PHASES 1 & 2 - GRADING SECTIONS</p>	
<p>APPROVED: <i>W. Eddy</i> Signature</p>		<p>DATE: 02/02/2026</p>	
<p>KODANI & ASSOCIATES ENGINEERS, LLC LIHUE, KAUAI, HAWAII 96766</p>		<p>C-10</p>	
DESIGNED BY: ATM	DRAWN BY: TP.	DATE: 01-28-2026	SHEET 11 OF 65

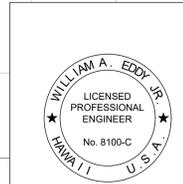
260128 Kilauea Tank 04-1014.dwg



SECT D - D
 HORIZONTAL: 1" = 10'
 VERTICAL: 1" = 5'



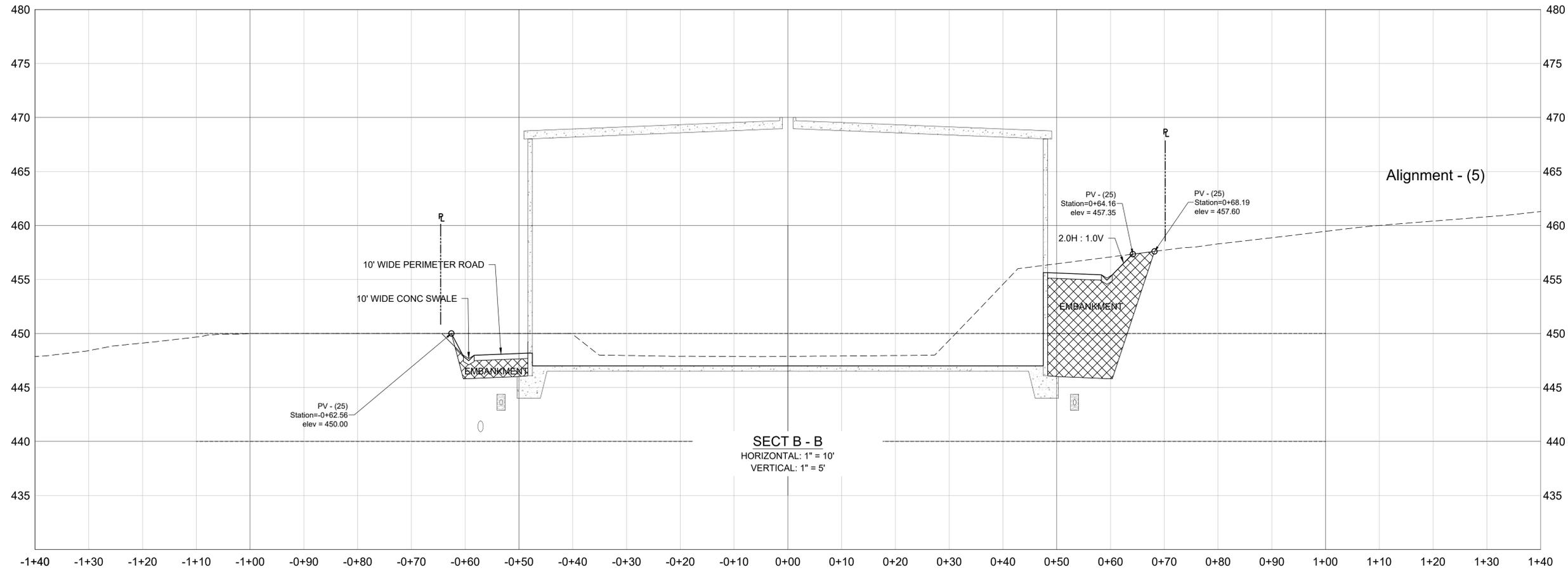
SECT C - C
 HORIZONTAL: 1" = 10'
 VERTICAL: 1" = 5'



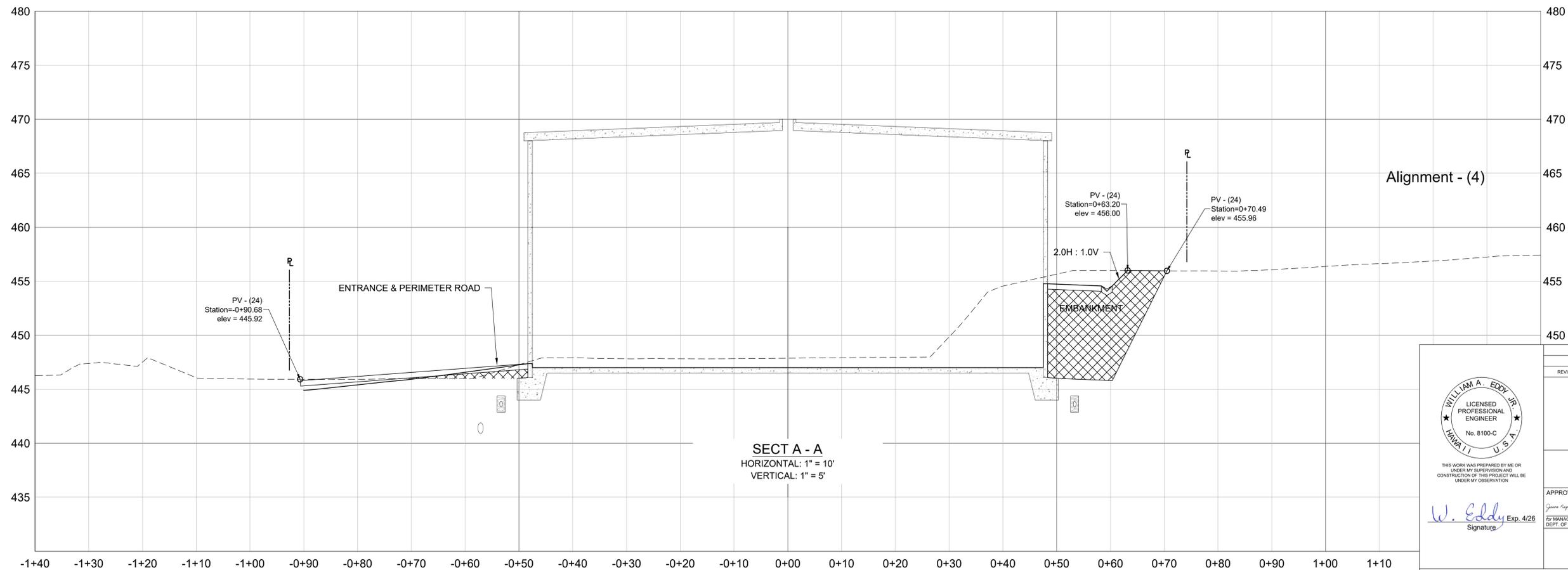
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
 W. Eddy
 Signature Exp. 4/26

REVISION	DATE	DESCRIPTION	BY	APPROVED
CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG				
PHASE 1 & 2 - GRADING SECTIONS				
APPROVED:		DATE: 02/02/2026		
BY: <i>John Sigmond</i>		DATE: 02/02/2026		
C-11				

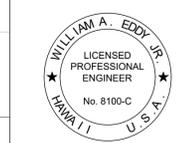
260128 Kilauea Tank 04-1014.dwg



SECT B - B
HORIZONTAL: 1" = 10'
VERTICAL: 1" = 5'



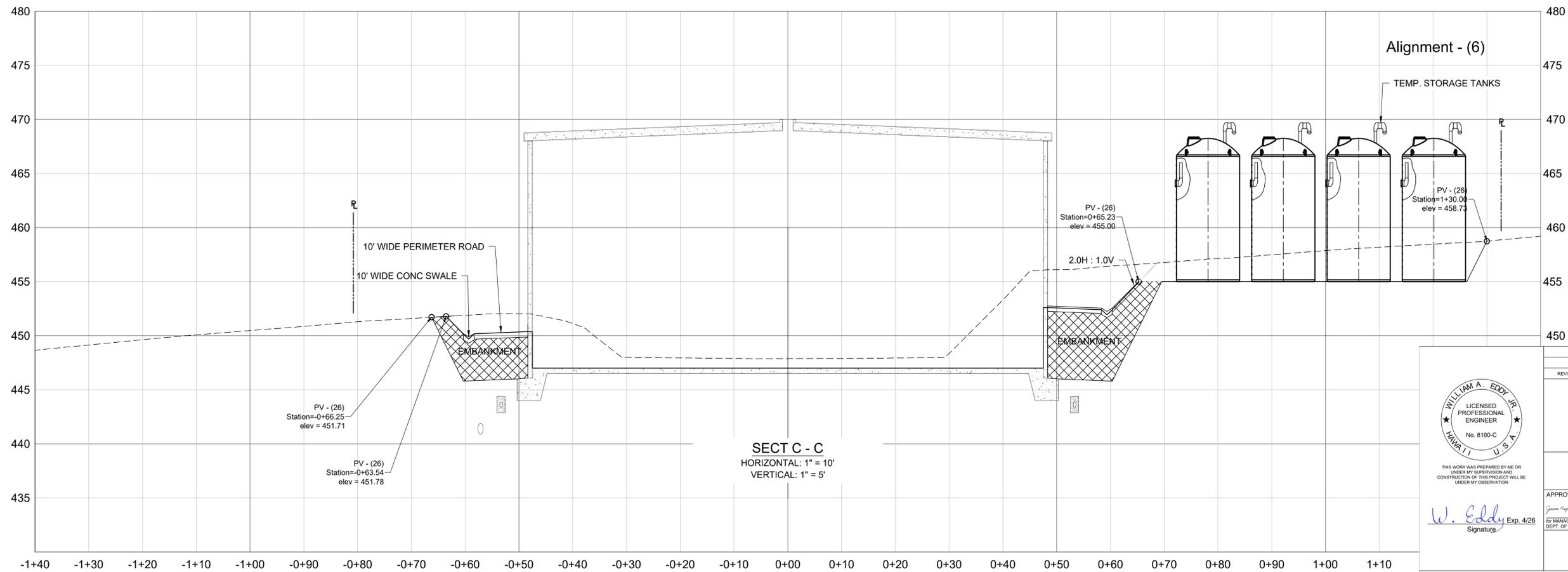
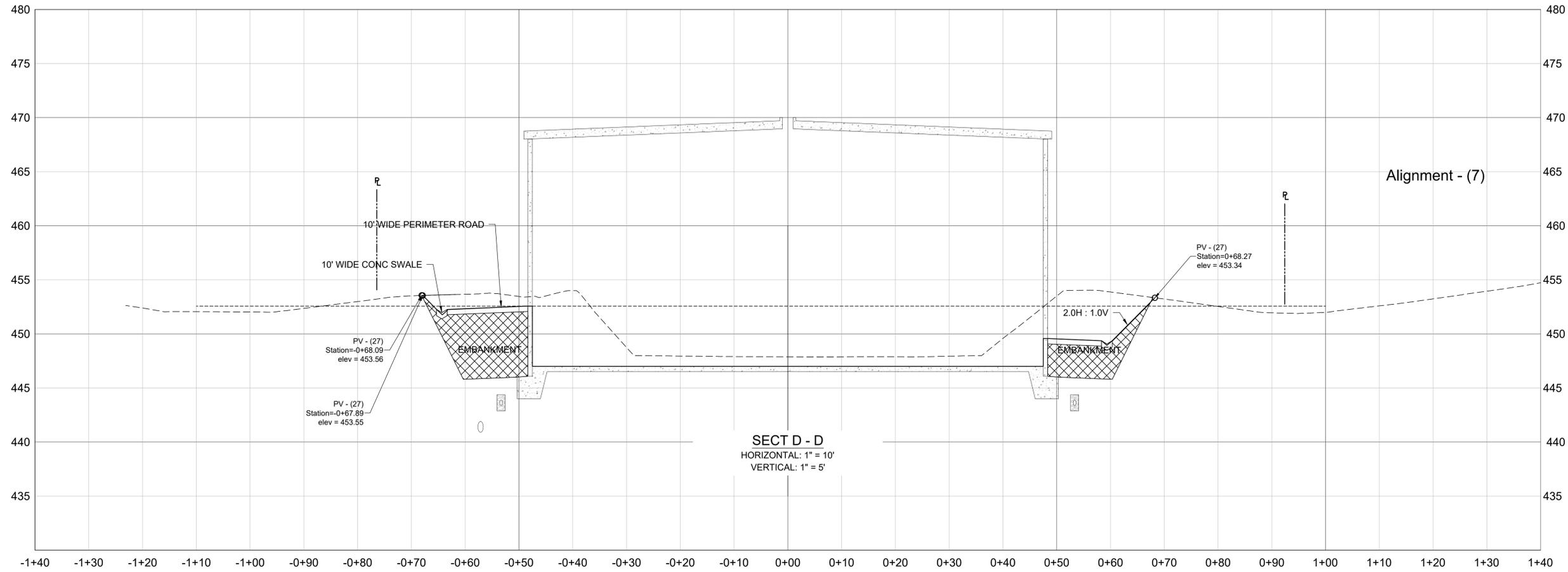
SECT A - A
HORIZONTAL: 1" = 10'
VERTICAL: 1" = 5'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
W. Eddy Exp. 4/26
Signature

REVISION	DATE	DESCRIPTION	BY	APPROVED
CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG				
PHASE 3 - GRADING SECTIONS				
APPROVED:		DATE: 02/02/2026		
BY: <i>W. Eddy</i>		DEPT. OF WATER, COUNTY OF KAUAI		
C-12				

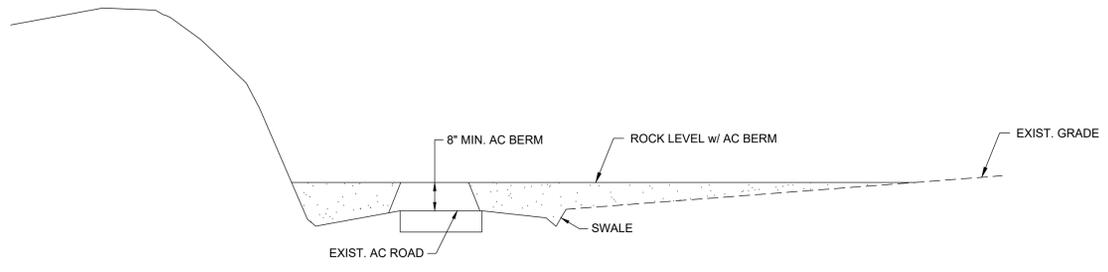
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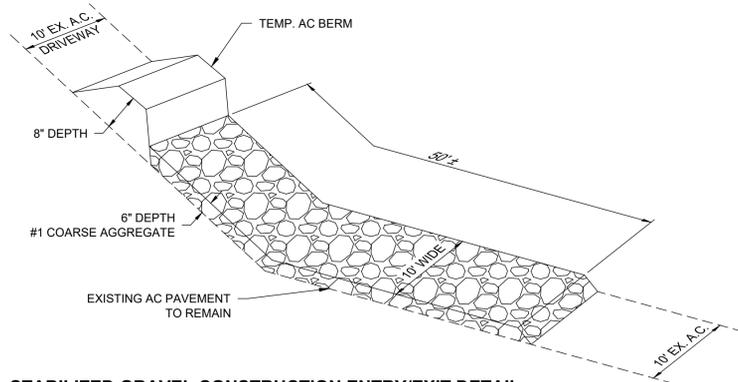
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 W. Eddy
 Signature Exp. 4/26

REVISION	DATE	DESCRIPTION	BY	APPROVED
CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG				
PHASE 3 - GRADING SECTIONS				
APPROVED:		DATE: 02/02/2026		
BY: <i>John Sigmond</i>		DEPT. OF WATER, COUNTY OF KAUAI		
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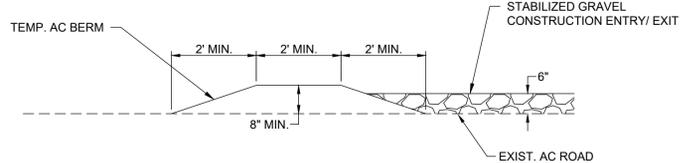
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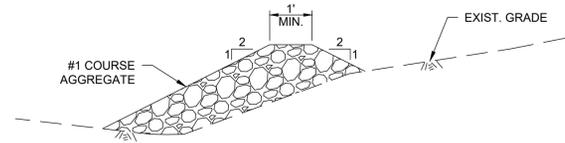
SECT A-A



1 STABILIZED GRAVEL CONSTRUCTION ENTRY/EXIT DETAIL
N.T.S.

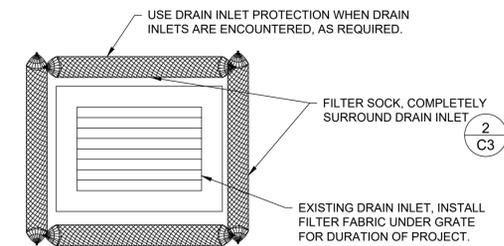


SECT B-B

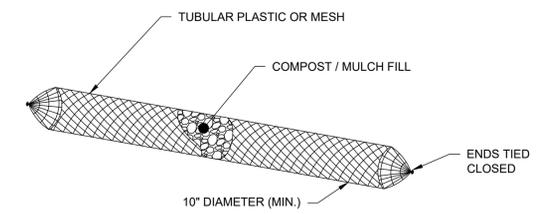


SECT C-C

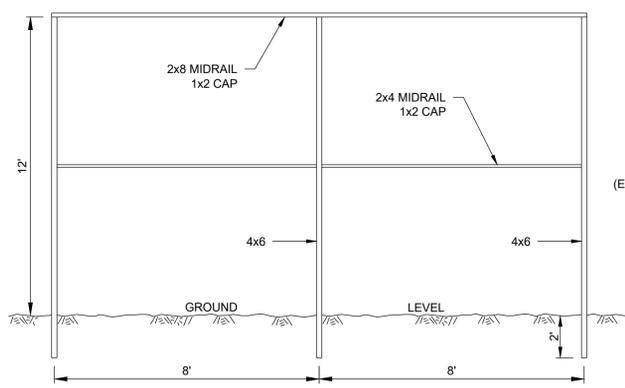
2 TEMPORARY SEDIMENT BASIN BERM SECTIONS
N.T.S.



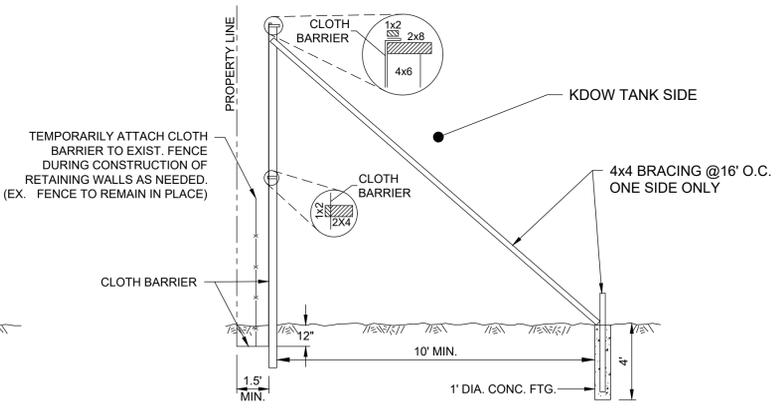
3 DRAIN INLET PROTECTION
N.T.S.



4 COMPOST FILTER BERM (FILTER SOCK)
N.T.S.



FRONT VIEW



SECTIONAL VIEW

5 DUST SCREEN DETAIL
N.T.S.

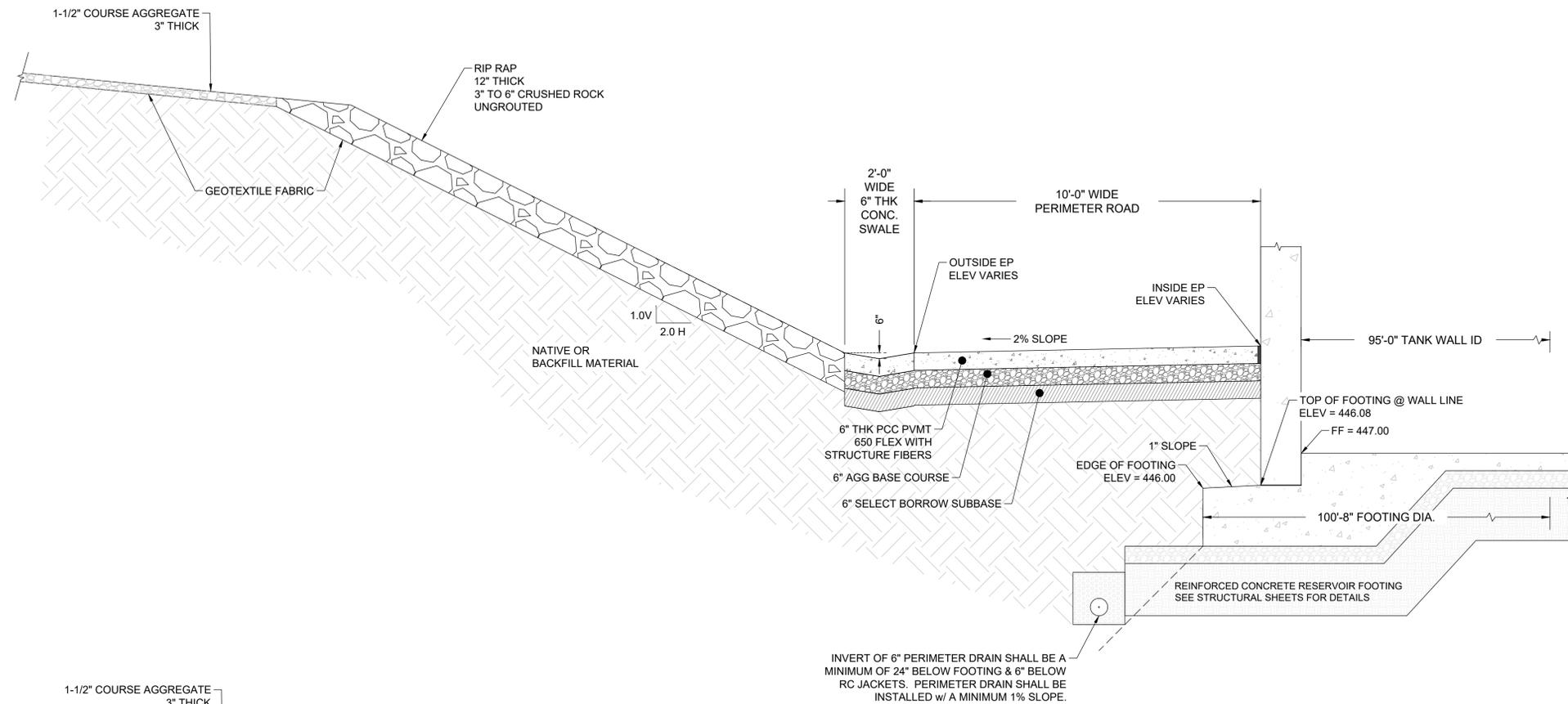
EROSION CONTROL NOTES:

- SEE SHEET C-2 FOR EROSION CONTROL NOTES.
- PRIOR TO CONSTRUCTION, CONTRACTOR TO REMOVE ALL EXISTING SEDIMENT AT LOW POINT OF ROAD DOWN TO EXISTING AC PAVEMENT.
- IN THE IMMEDIATE LOCATION OF RETAINING WALLS, THE DUST SCREEN MAY BE TEMPORARILY REMOVED IN ORDER TO CONSTRUCT THE WALLS. CONTRACTOR WILL BE RESPONSIBLE TO TAKE EFFECTIVE MEASURES TO PREVENT DUST FROM LEAVING THE SITE DURING THIS TEMPORARY TIME PERIOD. THE DUST FENCE MUST BE RE-INSTALLED AS SOON AS POSSIBLE AFTER WALLS HAVE BEEN CONSTRUCTED.
- CONTRACTORS SHALL PROVIDE CONCRETE WASH BOXES AS NEEDED TO PREVENT THE DISCHARGE OF CONCRETE WASTE POLLUTANTS.
- ALL UN-PAVED GROUND SURFACE AREAS TO RECEIVE WEED BARRIER AND GRAVEL (APPROX. 0.24 ACRES)
- CONTRACTOR TO REMOVE ALL EROSION CONTROL MEASURES ONCE PROJECT IS COMPLETED.

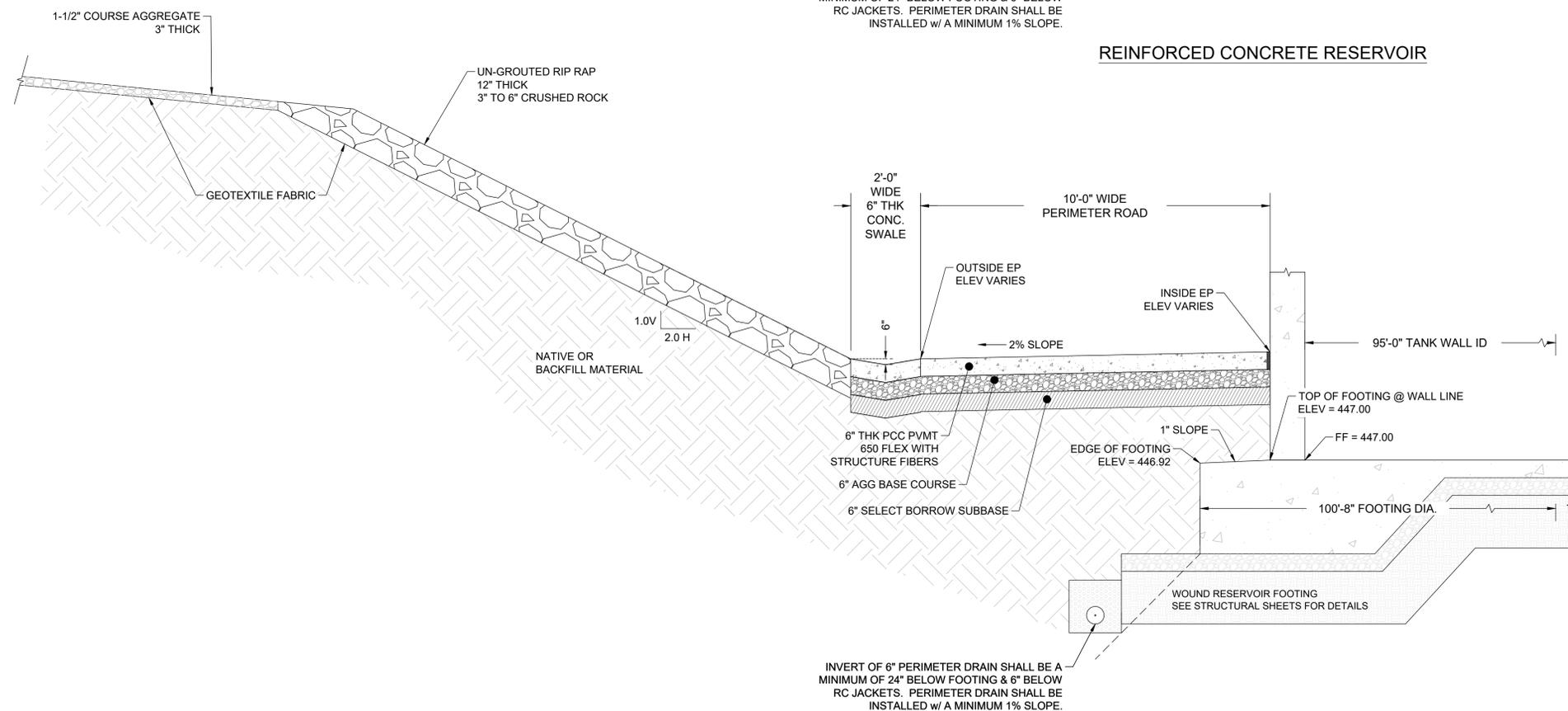
DUST SCREEN NOTES:

- CLOTH BARRIER NOT SHOWN IN FRONT VIEW.
- CLOTH BARRIER TO BE A "GEOTEXTILE" OR "NURSERY SHADE".
- LUMBER SIZES ARE NOMINAL INCHES.
- AS SHOWN, CLOTH TO BE BURIED AT BASE TO INDICATED DIMENSION.
- 1X2 CLOTH BARRIER CAPS TO BE NAILED @ 12" O.C.
- BURLAP IS NOT ACCEPTABLE AS THE CLOTH BARRIER.
- CLOTH TO HAVE NO HORIZONTAL SEAMS.
- VERTICAL SEAMS TO BE MADE OVER UPRIGHTS ONLY.
- ALL SEAMS TO BE CAPPED WITH MINIMUM OF 1X2.
- ALL JOINTS TO BE SECURELY FASTENED BY MECHANICAL MEANS.
- TREES SHALL BE TRIMMED, AS REQUIRED, TO INSTALL DUST BARRIER.
- TREE TRIMMINGS SHALL BE DISPOSED OF OFFSITE.
- CONTRACTOR TO PROVIDE ADDITIONAL BRACING WHEN DUST BARRIER IS LOCATED ON TOP OF SLOPE.

	<table border="1"> <tr> <th>REVISION</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> <th>APPROVED</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	REVISION	DATE	DESCRIPTION	BY	APPROVED						<p align="center">CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p>
	REVISION	DATE	DESCRIPTION	BY	APPROVED							
<p align="center">DETAILS - BMP</p>	<p align="center">C-14</p>											
<p>APPROVED: <i>W. Eddy</i> Exp. 4/26 Signature</p>	<p>DATE: 02/02/2026</p>	<p align="center">KODANI & ASSOCIATES ENGINEERS, LLC LIHUE, KAUAI, HAWAII 96766</p>										
<p>DESIGNED BY: ATM</p>	<p>DRAWN BY: TP.</p>	<p>DATE: 01-28-2026</p>	<p align="right">SHEET 15 OF 65</p>									



REINFORCED CONCRETE RESERVOIR



WOUND RESERVOIR

PERIMETER ROAD, SWALE & SLOPE DETAIL
SCALE: 1" = 2'

<p>WILLIAM A. EDDY, JR. LICENSED PROFESSIONAL ENGINEER No. 8100-C HAWAII U.S.A.</p> <p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.</p> <p><i>W. Eddy</i> Exp. 4/26 Signature</p>	REVISION	DATE	DESCRIPTION	BY	APPROVED
	<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p>				
	<p>DETAILS</p>				
	APPROVED:		02/02/2026	DATE	
<p>MANAGER & CHIEF ENGINEER DEPT. OF WATER, COUNTY OF KAUAI</p>					
<p>C-15</p>					
<p>KODANI & ASSOCIATES ENGINEERS, LLC LIHŪ'E, KAUAI, HAWAII 96766</p>					
DESIGNED BY: ATM	DRAWN BY: TP.	DATE: 01-28-2026	<p>SHEET 16 OF 65</p>		

- 1. STA. -0+20± (WL "A")
CONNECT TO EXISTING 12" D.I. INFL./EFFL. LINE
1-12"x12", D.I. TEE, M.J. W/ MEGALUGS
2-12" D.I. PIPE NIPPLES, CUT TO FIT
1-12" G.V., M.J. W/ MEGALUGS, 12" LONG
1-1" COMBO ARV, SEE DETAIL ON SHEET C-24
2-VALVE BOXES
3-12" D.I. SLEEVES, M.J. W/12" LONG
1-CONC. BLOCK W/ STRUCT. STRUTS
FOR CONNECTION SCHEMATIC DETAIL,
SEE SHEET C-23
FOR PROFILE, SEE SHEET C-20
- 2. STA. -0+16.50 (WL "A")
1-12" ½ D.I. BEND, M.J. W/ MEGALUGS (T.V.)
- 3. STA. -14.50 (WL "A")
1-12" ½ D.I. BEND, M.J. W/ MEGALUGS (B.V.)
- 4. STA. -0+06.50 (WL "A")
1-12" ½ D.I. BEND, M.J. W/ MEGALUGS (B.V.)
- 5. STA. 0+00 (WL "A")
1-12" ½ D.I. BEND, M.J. W/ MEGALUGS (H)
1-12" ½ D.I. BEND, M.J. W/ MEGALUGS (T.V.)
1-CONC. BLOCKS
- 6. STA. 0+03 (WL "A")
1-12" G.V., M.J. W/ MEGALUGS
1-VALVE BOX
- 7. STA. 0+06.25 (WL "A")
1-12" ½ D.I. BEND, M.J. W/ MEGALUGS (H)
1-CONC. BLOCK
- 8. STA. -0+28± (DL "A")
BEGIN 6" DRAIN LINE "A"
1-SHALLOW DRAIN MANHOLE
1-6" D.I. PIPE NIPPLE
2-12" D.I. PIPE NIPPLES
2 LAYERS OF STAINLESS STEEL SCREEN
(3x3x0.063) & (12x12x0.032)
FASTEN TO END OF DRAIN LINE "A"
W/ STAINLESS STEEL STRAP
1-6" D.I. SLEEVE, 12" LONG
1-12" D.I. SLEEVES, 12" LONG
FOR DETAIL SHEET C-25
FOR PROFILE SEE C-20
- 9. STA. -0+19 (DL "A")
1-6" ½ D.I. BEND, M.J.x.F.E. (B.V.)
1-CONC. BLOCK
- 10. STA. -0+12 (DL "A")
1-6" ½ D.I. BEND, M.J. W/ MEGALUGS (T.V.)
1-D.I. PIPE ADAPTER, F.E.x.P.E.
1-6" TRANSITION COUPLING
- 11. STA. 0+00 (DL "A")
1-6" ½ HDPE ELBOW
- 12. STA. 0+06 (DL "A")
1-6" ½ HDPE ELBOW
- 13. STA. 0+67.50 (DL "A")=
STA. 0+00 (DL "B")
BEGIN 6" HDPE DRAIN LINE "B"
1-6"x6" WYE
- 14. STA. 0+04 (DL "B")
1-6" ½ HDPE ELBOW
- 15. STA. 0+24 (DL "B")
1-6" ½ HDPE ELBOW
- 16. STA. 0+33.22 (DL "B")
1-6" ½ HDPE ELBOW

- LEGEND**
- PROPERTY LINE
 - EXISTING UTILITIES
 - X- EXISTING CHAIN-LINK FENCE
 - PROPOSED ELEVATION CONTOUR
 - PROPOSED WATERLINE
 - PROPOSED DRAIN LINE

NOTES

1. PIPE JOINT RESTRAINTS FOR MECHANICAL JOINT (MJ) FITTINGS AND MJ VALVES SHALL BE "MEGALUG" SERIES AS MANUFACTURED BY EBAA IRON, INC., OR APPROVED EQUAL (WEDGE TYPE), WHERE EVER CALLED FOR ON THE PLANS AND SPECIFICATIONS

PHASING OF WORK FOR CIVIL PIPING

COORDINATE EACH PHASE OF CIVIL PIPING WORK WITH THE WORK SEQUENCES OF THE SITE GRADING, CONSTRUCTION OF NEW TANK, INSTALLATION OF THE TEMPORARY WATER STORAGE TANKS, INSTALLATION OF ELECTRICAL WORK, AND INSTALLATION OF MECHANICAL WORK.

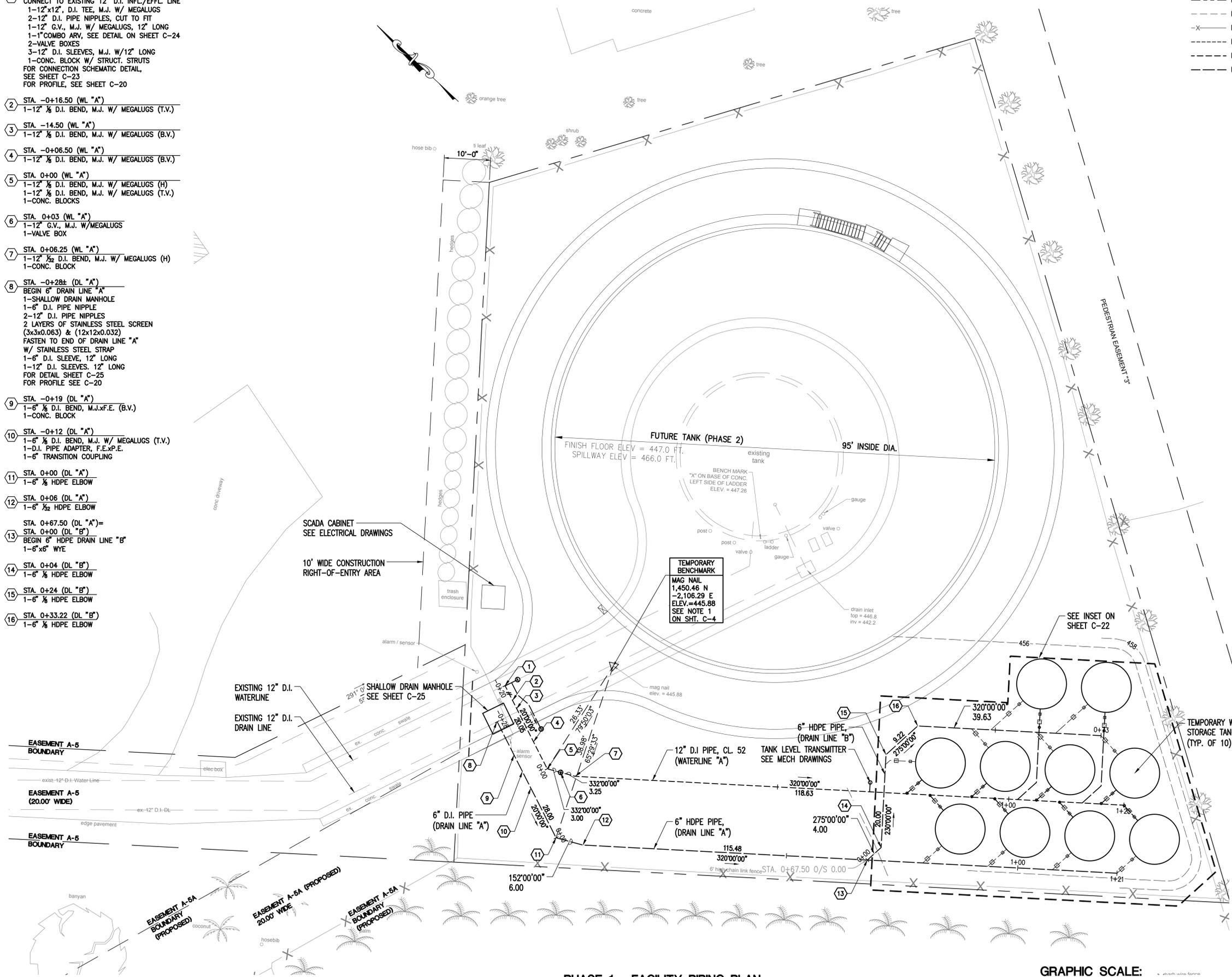
PHASE 1:

THE PHASE 1 CIVIL PIPING IS INTENDED TO PROVIDE THE MEANS TO FILL AND, IF NECESSARY, TO DRAIN THE TEMPORARY STORAGE TANKS. THE 0.10-MG TANK WILL CONTINUE TO OPERATE UNTIL THE TEMPORARY TANKS HAVE BEEN APPROVED FOR USE BY THE DEPARTMENT OF WATER.

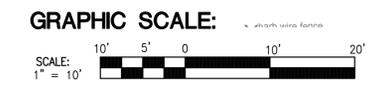
1. FURNISH & INSTALL 12" WATERLINE "A".
2. FURNISH & INSTALL 6" DRAIN LINE "A", AND 6" DRAIN LINE "B".
3. FURNISH & INSTALL SHALLOW DRAIN MANHOLE. MAKE CONNECTION TO THE EXISTING 12" DRAIN LINE AND 6" TEMPORARY DRAIN LINE.
4. CONNECT 12" WATERLINE "A" TO EXISTING 12" INFLUENT/EFFLUENT LINE.

NOTES FOR TEMPORARY WATER STORAGE TANKS:

1. THE EXISTING 0.10-MG WATER STORAGE TANK SHALL REMAIN IN SERVICE UNTIL THE TEMPORARY WATER STORAGE TANKS HAVE BEEN INSTALLED, TESTED, AND PLACED ON LINE AND IN SATISFACTORY OPERATING CONDITION. THE 0.10-MG WATER STORAGE TANK SHALL BE TAKEN OUT OF SERVICE ONLY AFTER THE CONTRACTOR HAS RECEIVED WRITTEN APPROVAL TO DO SO FROM THE DEPARTMENT OF WATER.
2. THE TEMPORARY WATER AND DRAIN LINES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR THROUGHOUT THE DURATION OF CONSTRUCTION. THE PLAN AND PROFILES ARE PROVIDED FOR BIDDING PURPOSES AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL APPURTENANCES, SHOWN OR NOT SHOWN ON THE DRAWINGS, FOR THE TEMPORARY WATER AND DRAIN LINES TO PERFORM AS INTENDED. ALL PIPE SEGMENTS, FITTINGS, VALVES, JOINTS, RESTRAINTS, SUPPORT PEDESTALS, REACTION BLOCKS, ETC. REQUIRED SHALL BE INCIDENTAL TO THE COST OF THE TEMPORARY LINE.
3. FURNISH AND INSTALL WATERLINE "A" FROM THE TEMPORARY WATER STORAGE TANKS TO THE EXISTING 12-INCH INFLUENT/EFFLUENT WATERLINE. DISINFECT AND HYDROTEST THE WATERLINE. NPDES PERMIT FOR HYDROTESTING WATERS DISCHARGE SHALL BE ACQUIRED BY THE CONTRACTOR PRIOR TO DISCHARGE. IN ADDITION, ALL NECESSARY BMP'S SHALL BE INSTALLED AS REQUIRED BY STATE, LOCAL, AND FEDERAL RULES AND REGULATIONS.
4. CONNECT NEW WATERLINE TO EXISTING 12-INCH INFLUENT/EFFLUENT WATERLINE. DOWN TIME FOR THIS CONNECTION SHALL BE BETWEEN THE HOURS OF 9PM-5AM. CONTRACTOR SHALL COORDINATE WITH DOW REGARDING AVAILABLE DATES AND TIMES TO SCHEDULE THE CONNECTION.
5. FURNISH AND INSTALL DRAIN LINE "A" AND "B" FROM THE TEMPORARY WATER STORAGE TANKS TO THE EXISTING 12-INCH DRAIN LINE. TEMPORARY DRAIN LINES MAY BE LAID ON THE SURFACE OF THE GROUND SECURED FIRMLY IN PLACE TO PREVENT MOVEMENT AND/OR BREAKAGE DURING USAGE. ALL PIPING SHALL BE PLACED, TESTED, AND COMPLETE PRIOR TO TAKING THE 0.10-MG WATER STORAGE TANK OFFLINE.
6. AFTER CONNECTION IS MADE, THE EXISTING 0.10-MG WATER STORAGE TANK SHALL BE SHUT OFF BUT REMAIN AVAILABLE FOR SERVICE UNTIL THE TEMPORARY WATER STORAGE TANKS HAVE BEEN SATISFACTORILY TESTED AND IN OPERATION FOR 7 CONSECUTIVE DAYS. DEMOLITION OF THE EXISTING 0.10-MG WATER STORAGE TANK MAY COMMENCE ONLY AFTER RECEIVING WRITTEN APPROVAL TO DO SO FROM THE DEPARTMENT OF WATER.
7. THE CONTRACTOR SHALL PROTECT THE EXISTING 0.10-MG WATER STORAGE TANK AND THE TEMPORARY WATER STORAGE TANKS FROM ANY DAMAGE WHILE IT IS EITHER IN OPERATION OR STAND BY MODE.
8. INSTALL NEW SCADA CABINET/EQUIPMENT TO NEW LOCATION AND PROVIDE TEMPORARY CONTROL AND INSTRUMENTATION TO TEMPORARY TANK.
9. CONTRACTOR SHALL MAKE ANY AND ALL PROVISIONS NECESSARY TO PROTECT THE JOB SITE FROM DAMAGE SHOULD THE TEMPORARY TANKS INADVERTENTLY OVERFLOW AND SPILL WATER INTO THE JOB SITE.



PHASE 1 - FACILITY PIPING PLAN
SCALE: 1"=10'



<p>CODY A. MPRADO LICENSED PROFESSIONAL ENGINEER NO. 19249-C HAWAII, U.S.A.</p> <p>This work was prepared by me or under my supervision and construction to this project will be under my observation.</p> <p><i>Cody Mprado</i> Signature Expiration Date of License 4/30/26</p>	<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p>
	<p>PHASE 1 - FACILITY PIPING PLAN</p>
	<p>APPROVED: _____ DATE: 02/02/2026</p> <p>BY: _____ DATE: _____</p>
	<p>C-17</p>
<p>OKAHARA AND ASSOCIATES, INC. HILO, HAWAII 96720</p>	
<p>DESIGNED BY: CM/MCS DRAWN BY: JP DATE: 30 JAN 2026</p>	<p>SHEET 18 OF 65</p>

C:\PROJ\2012\12-003R_KILAUEA_TANK\CADD\SHEETS\SHEET - PHASE 1 - SITE - FACILITY PIPING.DWG

- 1 STA. 0+00 (INFL./EFFL. LINE)
CONNECT TO RESERVOIR 12" D.I. INFLUENT/EFFLUENT LINE
1-12" D.I. SLEEVE, M.J. W/ MEGALUGS, 12' LONG
1-12" D.I. PIPE NIPPLE, CUT TO FIT
1-12" G.V., M.J. W/ MEGALUGS,
1-VALVE BOX
FOR PROFILE, SEE SHEET C-21
- 2 STA. 0+22.5± (INFL./EFFL. LINE)
CONNECT TO EXISTING 12" D.I. WATERLINE
CUT & PLUG UPSTREAM 12" D.I. WATERLINE
1-12" 1/16 D.I. BEND, M.J. W/ MEGALUGS (H)
1-12" D.I. SLEEVE, 12' LONG
2-12" D.I. PIPE NIPPLE, CUT TO FIT
SEE SCHEMATIC DETAIL ON SHEET C-23
- 3 CONNECTION FOR WATER SAMPLING STATION
1-3/4" BALL CORP STOP
1-STAINLESS STEEL SERVICE SADDLE
10+/- COPPER TUBING, TYPE "K" (SOFT)
NECESSARY COPPER FITTINGS
- 4 WATER SAMPLING STATION
SEE DETAIL ON SHEET C-24
- 5 STA. 0+00 (WATERLINE STUBOUT)
CONNECT TO RESERVOIR D.I. INFLUENT LINE
(FOR FUTURE WELL PUMP)
1-12" D.I. SLEEVE, W/ MEGALUGS, 12' LONG
1-12" D.I. PIPE NIPPLE, CUT TO FIT
1-12" G.V., M.J. W/ MEGALUGS
1-VALVE BOX
FOR PROFILE, SEE SHEET C-21
- 6 STA. 0+18+/- (WATERLINE STUBOUT)
END WATERLINE STUBOUT
1-CONC. THRUST BEAM W/ REVERSE BELL PIECE
1-4" CLEANOUT AND RISER
1-CONC. BLOCK
- 7 STA. 0+00 (WASHOUT LINE)
CONNECT TO RESERVOIR WASHOUT LINE
1-12" D.I. SLEEVE, 12' LONG
1-12" D.I. PIPE NIPPLE, CUT TO FIT
1-12" BUTTERFLY VALVE, M.J. W/ MEGALUGS
1-VALVE BOX
FOR PROFILE, SEE SHEET C-21
- 8 STA. 0+04.75 (WASHOUT LINE)
STA. 0+7.18 (OVERFLOW LINE)
1-12"x12" WYE, M.J. W/ MEGALUGS
1-CONC. BLOCK
- 9 STA. 0+08± (WASHOUT LINE)
1-TYPE G4 DRAIN INLET
PENETRATE WALL OF DRAIN INLET
1-12" D.I. FLAP VALVE, F.E.
- 10 STA. 0+00 (OVERFLOW LINE)
CONNECT TO RESERVOIR OVERFLOW LINE
1-12" 1/8 D.I. BEND, M.J. W/ MEGALUGS
1-12" D.I. PIPE NIPPLE, CUT TO FIT
1-CONC. BLOCK
FOR PROFILE SEE SHEET C-21
- 11 CONNECTION FOR WATER LEVEL TRANSMITTER
1-3/4" BALL CORP STOP
1-STAINLESS STEEL SERVICE SADDLE
10+/- L.F. 3/4 COPPER TUBING, TYPE "K" (SOFT)
WATER LEVEL TRANSMITTER
FOR DETAIL, SEE SHEET M-3
- 12 STA. 0+00 (6" PERIMETER DRAIN)=
STA. 0+00 (DRAIN LINE "C")
BEGIN 6" PVC SLOTTED PERIMETER DRAIN AND
6" PVC DRAIN LINE "C"
LOW POINT-PIPE INV. ELEV.=442.90'
1-6" 1/4 PVC ELBOW (H)
1-CONC. BLOCK
FOR PROFILES, SEE SHEET C-21
FOR DETAIL SEE SHEET C-15
- 13 STA. 0+80 (6" PERIMETER DRAIN)
PIPE INV. ELEV.=443.20'
PROVIDE 4" OBSERVATION PORT
FOR DETAIL, SEE SHEET C-24
- 14 STA. 1+62.10 (6" PERIMETER DRAIN)
HIGH POINT - PIPE INV. ELEV.=443.50'
- 15 STA. 1+63.78 (6" PERIMETER DRAIN)
PIPE INV. ELEV.=443.49'
PROVIDE 4" OBSERVATION PORT
FOR DETAIL, SEE SHEET C-24
- 16 STA. 2+47.55 (6" PERIMETER DRAIN)
PIPE INV. ELEV.=443.18'
PROVIDE 4" OBSERVATION PORT
FOR DETAIL, SEE SHEET C-24
- 17 STA. 3+24.10 (6" PERIMETER DRAIN)=
0+00 (6" DRAIN LINE "D")
END 6" PVC SLOTTED PERIMETER DRAIN
BEGIN 6" PVC DRAIN LINE "D"
LOW POINT - PIPE INV. ELEV.=442.90'
1-6" 1/4 PVC ELBOW (H)
1-CONC. BLOCK
FOR PROFILE SEE SHEET C-21
- 18 STA. 0+05 (6" DRAIN LINE "C")
1-6" 1/8 PVC ELBOW (H)
1-CONC. BLOCK
- 19 STA. 0+07.75 (6" DRAIN LINE "C")
END 6" DRAIN LINE "C"
PENETRATE WALL OF DRAIN INLET
PIPE INV. ELEV.=442.85'
1-6" 1/8 PVC ELBOW (H)
1-6" PVC PIPE NIPPLE
- 20 STA. 0+03 (6" DRAIN LINE "D")
1-6" 1/8 PVC ELBOW (H)
1-CONC. BLOCK
- 21 STA. 0+09.50 (6" DRAIN LINE "D")
END 6" DRAIN LINE "D"
PENETRATE WALL OF DRAIN INLET
PIPE INV. ELEV.=442.85'
1-6" 1/8 PVC ELBOW (H)
1-6" PVC PIPE NIPPLE

- LEGEND**
- PROPERTY LINE
 - EXISTING UTILITIES
 - X- EXISTING CHAIN-LINK FENCE
 - PROPOSED ELEVATION CONTOUR
 - PROPOSED WATERLINE
 - PROPOSED DRAIN LINE

- NOTES**
1. PIPE JOINT RESTRAINTS FOR MECHANICAL JOINT (MJ) FITTINGS AND MJ VALVES SHALL BE "MEGALUG" SERIES AS MANUFACTURED BY EBAA IRON, INC., OR APPROVED EQUAL (WEDGE TYPE), WHERE EVER CALLED FOR ON THE PLANS AND SPECIFICATIONS
- PHASING OF WORK FOR CIVIL PIPING**
- NOTE: COORDINATE EACH PHASE OF CIVIL PIPING WORK WITH THE WORK SEQUENCES OF THE REMAINING SITE WORK, DEMOLITION OF THE EXISTING TANK, CONSTRUCTION OF THE NEW PERMANENT WATER STORAGE TANK, INSTALLATION OF ELECTRICAL WORK, AND INSTALLATION OF MECHANICAL WORK.
- PHASE 2:**
- THE PHASE 2 CIVIL PIPING IS INTENDED TO PROVIDE THE MEANS TO ISOLATE THE EXISTING 0.10-MG TANK FOR DEMOLITION. ALL CONNECTING PIPING TO THE NEW 1.0-MG TANK IS PART OF THIS PHASE 2 CIVIL PIPING WORK. THE TEMPORARY TANKS WILL CONTINUE TO BE OPERATIONAL UNTIL THE NEW 1.0-MG TANK HAS BEEN APPROVED FOR USE BY THE DEPARTMENT OF WATER.
1. FURNISH & INSTALL 12" INFLUENT/EFFLUENT LINE.
 2. FURNISH & INSTALL 12" WASHOUT LINE AND 12" OVERFLOW LINE.
 3. FURNISH & INSTALL 12" INFLUENT LINE (FOR FUTURE WELL PUMP).
 4. FURNISH & INSTALL 6" PERIMETER DRAIN.
 5. FURNISH & INSTALL 6" DRAIN LINE "B", "C" & "D".
 6. FURNISH & INSTALL TYPE G4 DRAIN INLET. MAKE CONNECTION TO THE EXISTING 12" DRAIN LINE.
 7. FURNISH & INSTALL WATER SAMPLING STATIONS, INCLUDING CONNECTING 3/4" PIPING TO 12" WATERLINE "A".
 8. FURNISH & INSTALL CONNECTING 3/4" PIPING FOR TANK LEVEL TRANSMITTER TO 12" WASHOUT LINE.

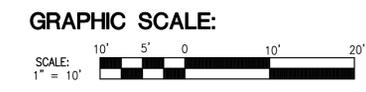
ALIGNMENT DATA				
	PROFILE	LABEL	AZMUTH	DISTANCE
DL-C	2 C-21	C1	39°56'00"	2.75'
		C2	84°56'00"	5.00'
DL-D	3 C-21	D1	136°57'00"	6.50'
		D2	84°57'00"	3.00'
OVERFLOW LINE	4 C-21	E1	130°37'17"	7.18'
WASHOUT LINE	5 C-21	F1	84°56'38"	9.87±
WL-B (INF/EFF)	6 C-21	G1	110°27'00"	7.10'
		G2	86°00'00"	22.50'
WL-STUBOUT (INF)	7 C-21	H1	47°02'08"	18.00'

10' WIDE CONSTRUCTION RIGHT-OF-ENTRY AREA

- 12" D.I. PIPE, CL. 52 (12" WASHOUT LINE)
- 6" PVC PIPE, SCH. 40 (6" DRAIN LINE "C")
- TYPE G4 DRAIN INLET SEE SHEET C-25
- 12" D.I. PIPE, CL. 52 (INFLUENT/EFFLUENT LINE)

TEMPORARY BENCHMARK
MAG NAIL
1,450.46 N
-2,108.29 E
ELEV.=445.88
SEE NOTE 1 ON SHT. C-4

PHASE 2 - FACILITY PIPING PLAN
SCALE: 1"=10'



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CODY A. MPRADO
LICENSED PROFESSIONAL ENGINEER
NO. 19249-C
HAWAII, U.S.A.

**CONSTRUCT KILAUEA
466' TANK, 1.0 MG**

PHASE 2 - FACILITY PIPING PLAN

REVISION	DATE	DESCRIPTION	BY	APPROVED

APPROVED: _____
DATE: 02/02/2026

BY: _____
DATE: 4/30/26

C-18

OKAHARA AND ASSOCIATES, INC.
HILO, HAWAII 96720

DESIGNED BY: CM/MCS
DRAWN BY: JP
DATE: 30 JAN 2026
SHEET 19 OF 65

LEGEND

---	PROPERTY LINE
---	EXISTING UTILITIES
-X-	EXISTING CHAIN-LINK FENCE
---	PROPOSED ELEVATION CONTOUR
---	PROPOSED WATERLINE
---	PROPOSED DRAIN LINE

NOTES

- PIPE JOINT RESTRAINTS FOR MECHANICAL JOINT (MJ) FITTINGS AND MJ VALVES SHALL BE "MEGALUG" SERIES AS MANUFACTURED BY EBAA IRON, INC., OR APPROVED EQUAL (WEDGE TYPE), WHERE EVER CALLED FOR ON THE PLANS AND SPECIFICATIONS

PHASING OF WORK FOR CIVIL PIPING

NOTE: COORDINATE EACH PHASE OF CIVIL PIPING WORK WITH THE WORK SEQUENCES OF ANY REMAINING SITE WORK, DECOMMISSIONING OF THE TEMPORARY STORAGE TANKS, ANY REMAINING WORK ON THE NEW PERMANENT WATER STORAGE TANK, ANY REMAINING ELECTRICAL WORK, AND ANY REMAINING MECHANICAL WORK.

PHASE 3:

THE PHASE 3 CIVIL PIPING IS INTENDED TO PROVIDE PIPING MODIFICATIONS AFTER OPERATION HAS SWITCHED FROM THE TEMPORARY STORAGE TANKS TO THE NEW 1.0-MG TANK.

- FURNISH & INSTALL PIPING MODIFICATION NO. 1
- CUT AND PLUG DRAIN LINE "A" AT MANHOLE.
- DECOMMISSIONING OF TEMPORARY WATER STORAGE TANKS.

NOTES FOR FACILITY PIPING MODIFICATIONS:

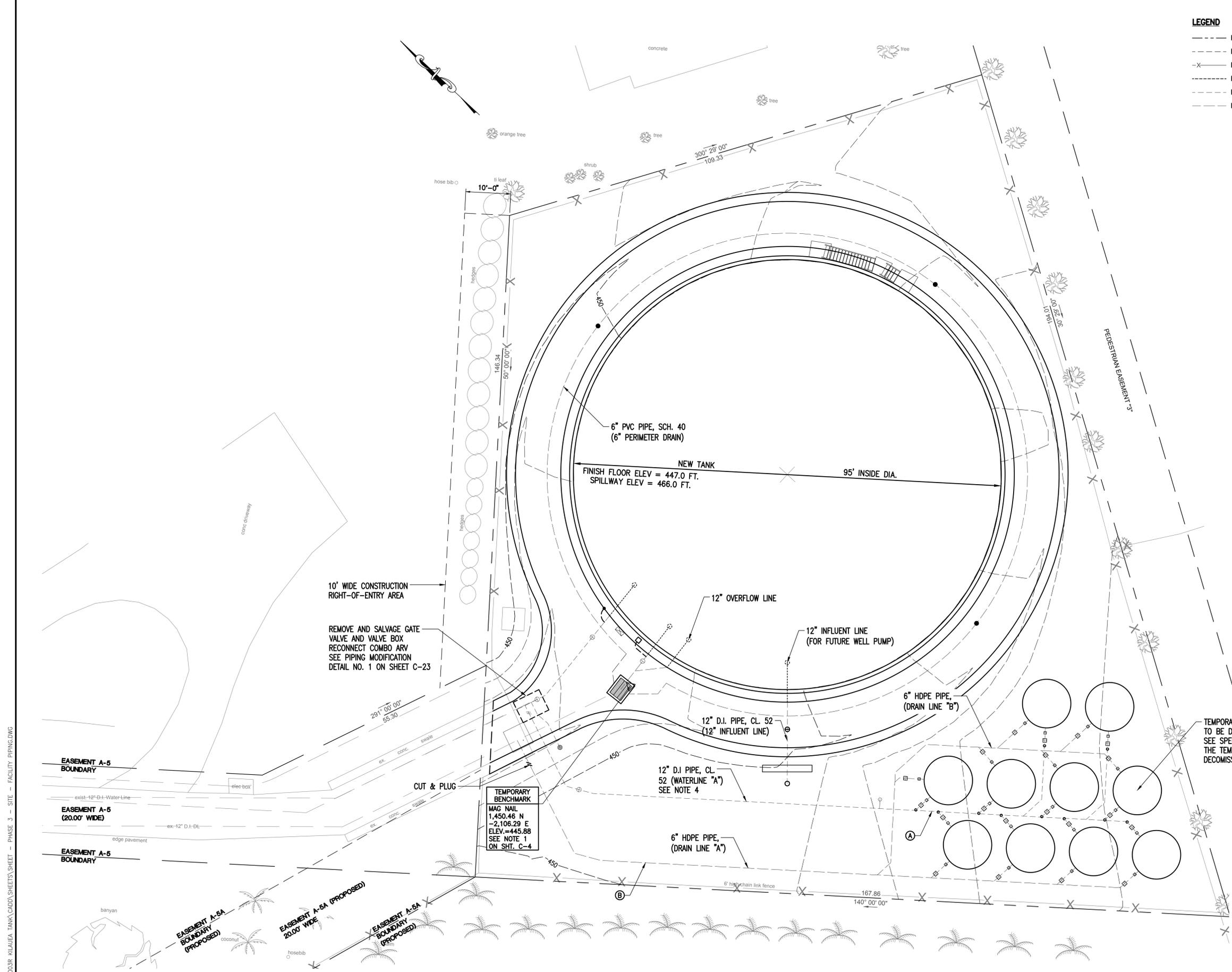
- THE TEMPORARY WATER STORAGE TANKS SHALL REMAIN IN SERVICE UNTIL THE NEW 1.0-MG WATER STORAGE TANK HAS BEEN INSTALLED, TESTED, AND PLACED ON LINE AND IN SATISFACTORY OPERATING CONDITION. THE TEMPORARY WATER STORAGE TANKS SHALL BE TAKEN OUT OF SERVICE ONLY AFTER THE CONTRACTOR HAS RECEIVED WRITTEN APPROVAL TO DO SO FROM THE DEPARTMENT OF WATER.
- PIPING MODIFICATIONS REQUIRING DOWN TIME SHALL BE BETWEEN THE HOURS OF 9PM-5AM. CONTRACTOR SHALL COORDINATE WITH DOW REGARDING AVAILABLE DATES AND TIMES TO SCHEDULE THE DOWN TIME.
- ANY SURFACE THAT IS DISTURBED BY THE CONTRACTOR TO COMPLETE THIS PHASE 3 - FACILITY PIPING MODIFICATIONS WORK SHALL BE RESTORED TO ITS ORIGINAL CONDITION, OR BETTER TO THE SATISFACTION OF THE DEPARTMENT OF WATER.
- UNDERGROUND PIPES TO BE ABANDONED IN PLACE. PIPES TO BE CUT AND CAPPED ON EACH END OF ABANDONED SECTION.

- (A) REMOVE AND SALVAGE ABOVE GROUND INFLUENT/EFFLUENT PIPING. CLEAN AND DELIVER VALVES AND FITTINGS TO PUHI 393' TANK SITE. TYPICAL FOR 10 TANKS.

CUT AND CAP TEMPORARY TANK STUBOUTS. SEE PIPE PIPE CONNECTION DETAIL AT TEMPORARY TANKS ON SHEET C-24.

- (B) REMOVE AND SALVAGE ABOVE GROUND DRAIN PIPING. CLEAN AND DELIVER VALVES AND FITTINGS TO PUHI 393' TANK SITE. TYPICAL FOR 10 TANKS.

SEE PIPING MODIFICATION DETAIL NO. 1 ON SHEET C-23 FOR CUT AND PLUG REQUIREMENTS.



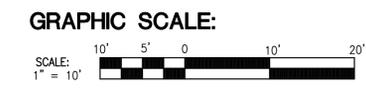
10' WIDE CONSTRUCTION RIGHT-OF-ENTRY AREA

REMOVE AND SALVAGE GATE VALVE AND VALVE BOX RECONNECT COMBO ARV SEE PIPING MODIFICATION DETAIL NO. 1 ON SHEET C-23

TEMPORARY BENCHMARK
MAG NAIL
1,450.46 N
-2,108.29 E
ELEV.=445.88
SEE NOTE 1
ON SHT. C-4

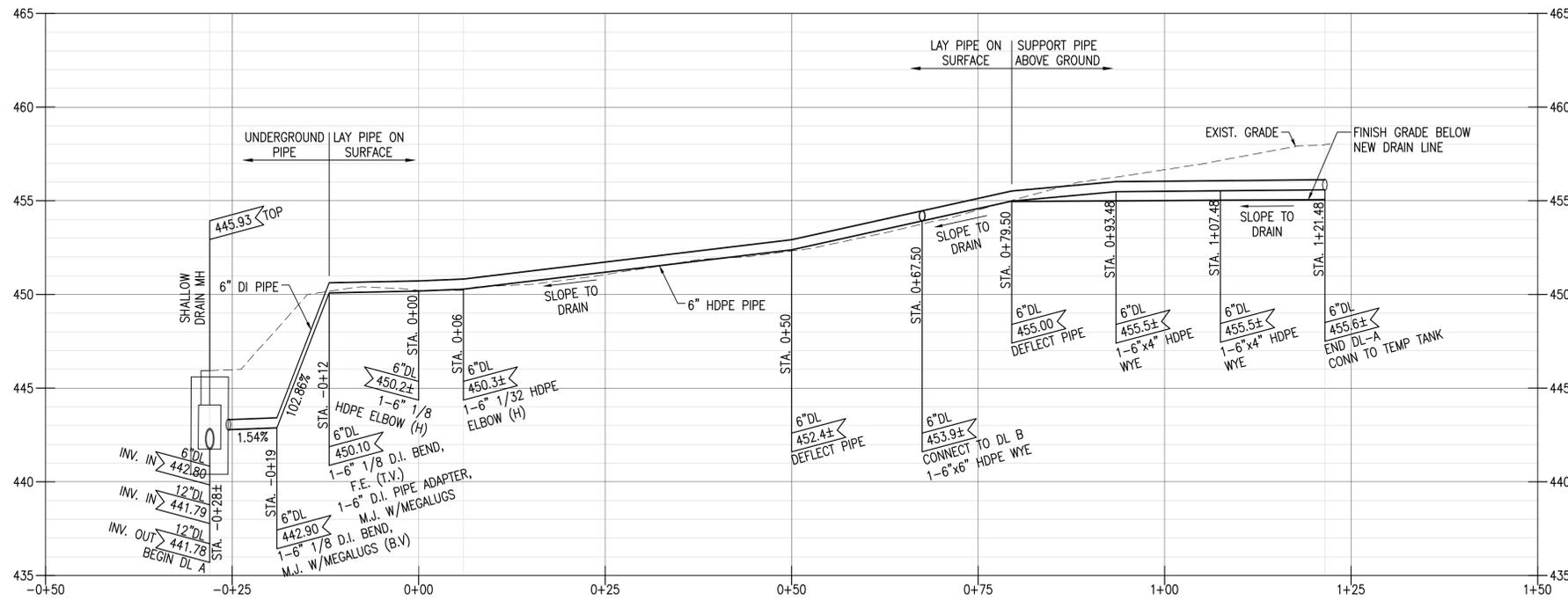
TEMPORARY WATER STORAGE TANKS TO BE DECOMMISSIONED IN-PLACE. SEE SPECIAL PROVISION S-22 FOR THE TEMPORARY TANK DECOMMISSIONING PLAN.

PHASE 3 - FACILITY PIPING PLAN
SCALE: 1"=10'

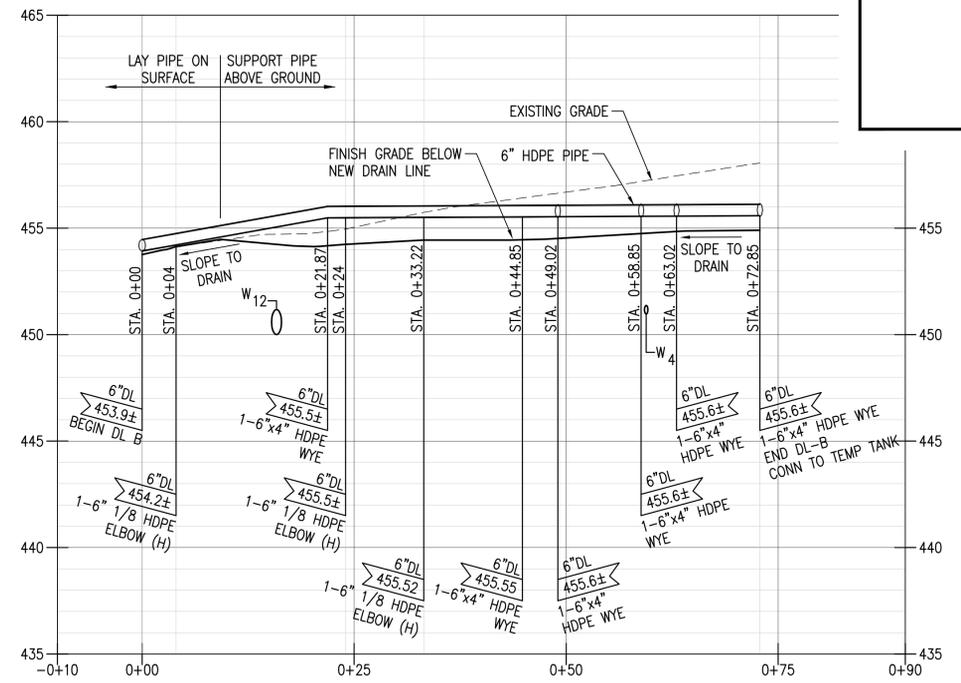


<p>This work was prepared by me or under my supervision and construction to this project will be under my observation.</p> <p><i>Cody Mprado</i> Expiration Date of License 4/30/26</p>	<table border="1"> <tr><th>REVISION</th><th>DATE</th><th>DESCRIPTION</th><th>BY</th><th>APPROVED</th></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>	REVISION	DATE	DESCRIPTION	BY	APPROVED					
	REVISION	DATE	DESCRIPTION	BY	APPROVED						
<p align="center">CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p> <p align="center">PHASE 3 - FACILITY PIPING PLAN</p>	<p>APPROVED: _____ DATE: 02/02/2026</p> <p>BY: _____ DATE: _____ MANAGER & CHIEF ENGINEER DEPT. OF WATER, COUNTY OF KAUAI</p>										
<p align="center">C-19</p> <p align="center">OKAHARA AND ASSOCIATES, INC. HILO, HAWAII 96720</p>	<p>DESIGNED BY: CM/MCS DRAWN BY: JP DATE: 30 JAN 2026 SHEET 20 OF 65</p>										

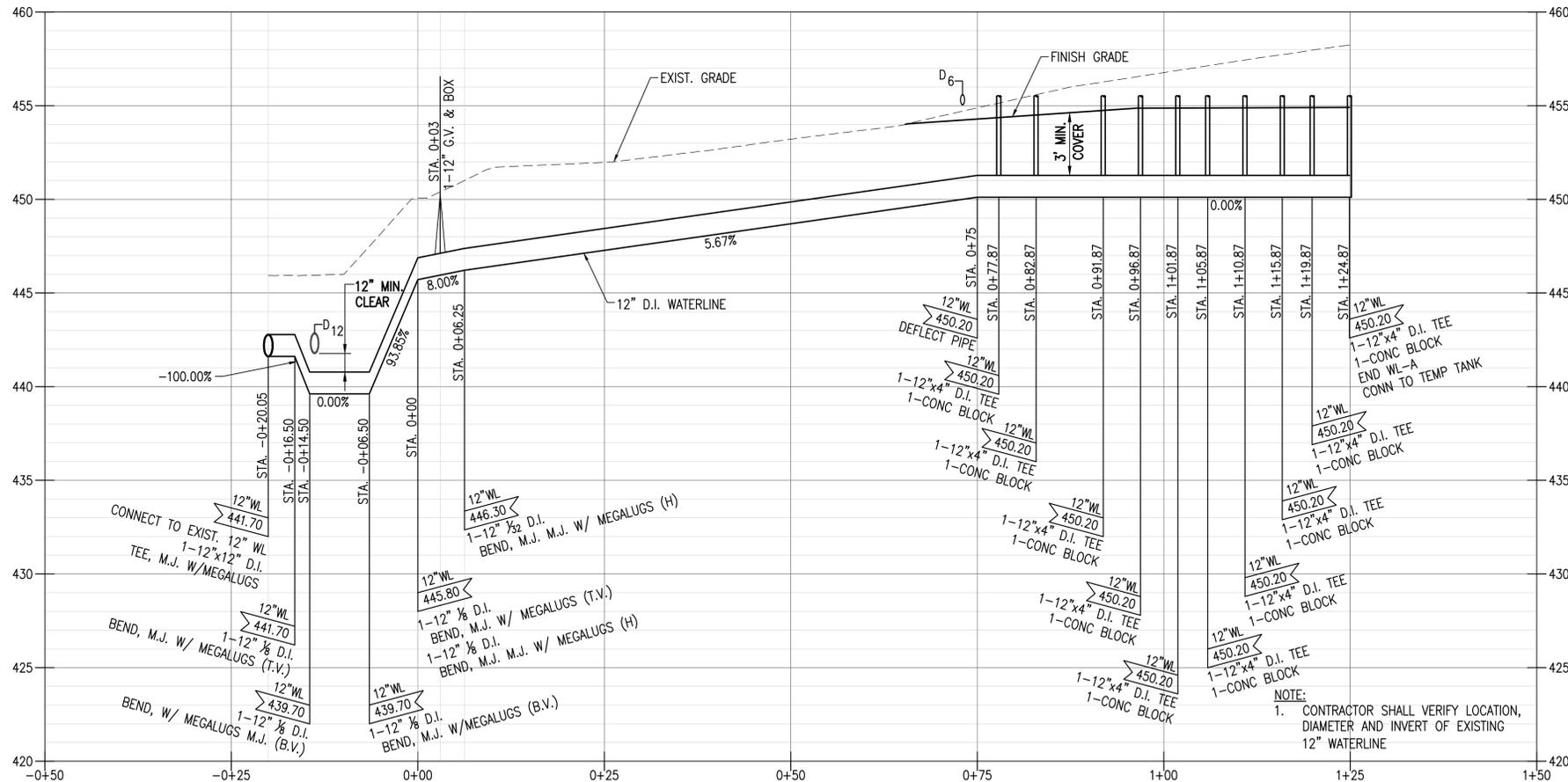
O:\PROJECTS\2021\212-003R_KILAUEA_TANK\CADD\SHEETS\SHEET - PHASE 3 - SITE - FACILITY PIPING.DWG



1 PROFILE - DRAIN LINE "A" (PHASE 1)
 C-20 SCALE: HORIZ.: 1"=10'
 VERT.: 1"=4'



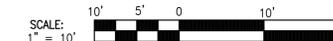
2 PROFILE - DRAIN LINE "B" (PHASE 1)
 C-20 SCALE: HORIZ.: 1"=10'
 VERT.: 1"=4'



3 PROFILE - WATERLINE "A" (PHASE 1)
 C-20 SCALE: HORIZ.: 1"=10'
 VERT.: 1"=4'

NOTES:
 THE TEMPORARY WATER AND DRAIN LINES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR THROUGHOUT THE DURATION OF CONSTRUCTION. THE PLAN AND PROFILES ARE PROVIDED FOR BIDDING PURPOSES AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL APPURTENANCES, SHOWN OR NOT SHOWN ON THE DRAWINGS, FOR THE TEMPORARY WATER AND DRAIN LINES TO PERFORM AS INTENDED. ALL PIPE SEGMENTS, FITTINGS, VALVES, JOINTS, RESTRAINTS, SUPPORT PEDESTALS, REACTION BLOCKS, ETC. REQUIRED SHALL BE INCIDENTAL TO THE COST OF THE TEMPORARY LINE.

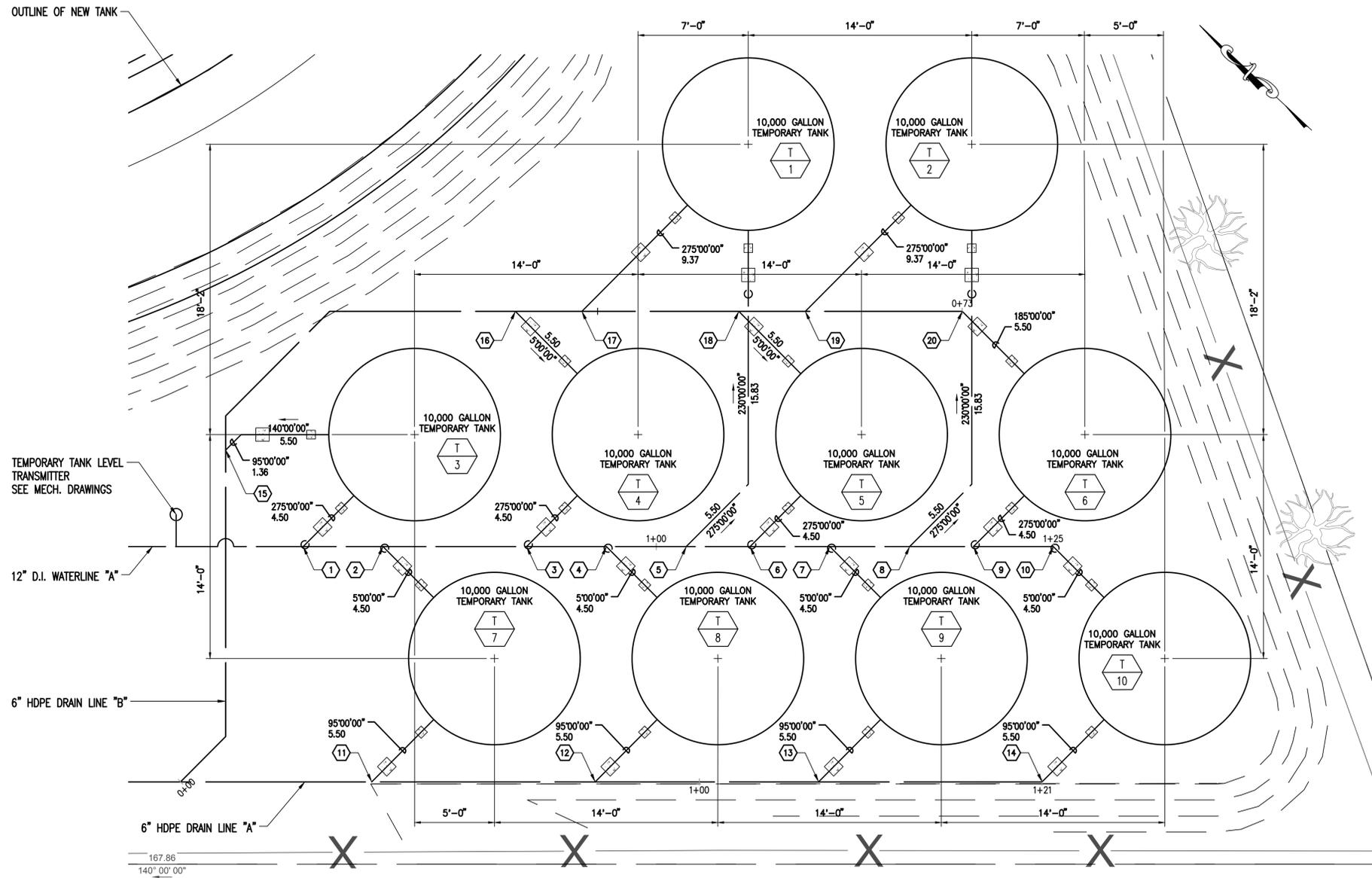
GRAPHIC SCALE:



<p>CODY A. IMPRADO LICENSED PROFESSIONAL ENGINEER NO. 19249-C HAWAII, U.S.A.</p> <p>This work was prepared by me or under my supervision and construction to this project will be under my observation.</p> <p><i>Cody Imprado</i> Expiration Date of License 4/30/26</p>	<table border="1"> <tr> <th>REVISION</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> <th>APPROVED</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	REVISION	DATE	DESCRIPTION	BY	APPROVED					
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<p align="center">CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p> <p align="center">PHASE 1 - PROFILES</p>	<p>APPROVED: _____ DATE: 02/02/2026</p> <p>BY: _____ DATE: _____</p>										
<p align="center">C-20</p>	<p align="center">OKAHARA AND ASSOCIATES, INC. HILO, HAWAII 96720</p>										

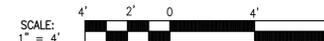
C:\CPROJ\2021\212-003R_KILAUEA_TANK\CADD\SHEETS\SHEET - PHASE 1 - PROFILES.DWG

- ① STA. 0+77.87 (WATERLINE "A")
1-12"x4" D.I. TEE, M.J.
1-CONC. BLOCK
5± L.F. 4" D.I. PIPE
SEE INTERMEDIATE WATERLINE CONNECTION
DETAIL ON SHEET C-24
- ② STA. 0+82.87 (WATERLINE "A")
1-12"x4" D.I. TEE, M.J.
1-CONC. BLOCK
5± L.F. 4" D.I. PIPE
SEE INTERMEDIATE WATERLINE CONNECTION
DETAIL ON SHEET C-24
- ③ STA. 0+91.87 (WATERLINE "A")
1-12"x4" D.I. TEE, M.J.
1-CONC. BLOCK
5± L.F. 4" D.I. PIPE
SEE INTERMEDIATE WATERLINE CONNECTION
DETAIL ON SHEET C-24
- ④ STA. 0+96.87 (WATERLINE "A")
1-12"x4" D.I. TEE, M.J.
1-CONC. BLOCK
5± L.F. 4" D.I. PIPE
SEE INTERMEDIATE WATERLINE CONNECTION
DETAIL ON SHEET C-24
- ⑤ STA. 1+01.87 (WATERLINE "A")
1-12"x4" D.I. WYE, M.J.
1-4" 1/4 D.I. BEND, M.J.
2-CONC. BLOCKS
21± L.F. 4" D.I. PIPE
SEE END OF WATERLINE CONNECTION DETAIL
ON SHEET C-24
- ⑥ STA. 1+05.87 (WATERLINE "A")
1-12"x4" D.I. TEE, M.J.
1-CONC. BLOCK
5± L.F. 4" D.I. PIPE
SEE INTERMEDIATE WATERLINE CONNECTION
DETAIL ON SHEET C-24
- ⑦ STA. 1+10.87 (WATERLINE "A")
1-12"x4" D.I. TEE, M.J.
1-CONC. BLOCK
5± L.F. 4" D.I. PIPE
SEE INTERMEDIATE WATERLINE CONNECTION
DETAIL ON SHEET C-24
- ⑧ STA. 1+15.87 (WATERLINE "A")
1-12"x4" D.I. WYE, M.J.
1-4" 1/4 D.I. BEND, M.J.
2-CONC. BLOCKS
21± L.F. 4" D.I. PIPE
SEE END OF WATER LINE CONNECTION DETAIL
ON SHEET C-24
- ⑨ STA. 1+19.87 (WATERLINE "A")
1-12"x4" D.I. TEE, M.J.
1-CONC. BLOCK
5± L.F. 4" D.I. PIPE
SEE INTERMEDIATE WATERLINE CONNECTION
DETAIL ON SHEET C-24
- ⑩ STA. 1+24.87 (WATERLINE "A")
1-12"x4" D.I. TEE, M.J.
1-CONC. BLOCK
5± L.F. 4" D.I. PIPE
SEE END OF WATERLINE CONNECTION DETAIL ON
SHEET C-24
- ⑪ STA. 0+79.48 (DRAIN LINE "A")
1-6"x4" HDPE WYE
- ⑫ STA. 0+93.48 (DRAIN LINE "A")
1-6"x4" HDPE WYE
- ⑬ STA. 1+07.48 (DRAIN LINE "A")
1-6"x4" HDPE WYE
- ⑭ STA. 1+21.48 (DRAIN LINE "A")
1-4" 1/8 HDPE ELBOW
1-6"x4" HDPE REDUCER
- ⑮ STA. 0+21.87 (DRAIN LINE "B")
1-6"x4" HDPE WYE
1-4" 1/8 HDPE WYE
- ⑯ STA. 0+44.85 (DRAIN LINE "B")
1-6"x4" HDPE WYE
- ⑰ STA. 0+49.02 (DRAIN LINE "B")
1-6"x4" HDPE WYE
- ⑱ STA. 0+58.85 (DRAIN LINE "B")
1-6"x4" HDPE WYE
- ⑲ STA. 0+63.02 (DRAIN LINE "B")
1-6"x4" HDPE WYE
- ⑳ STA. 0+72.85 (DRAIN LINE "B")
1-4" 1/8 HDPE ELBOW
1-6"x4" HDPE REDUCER

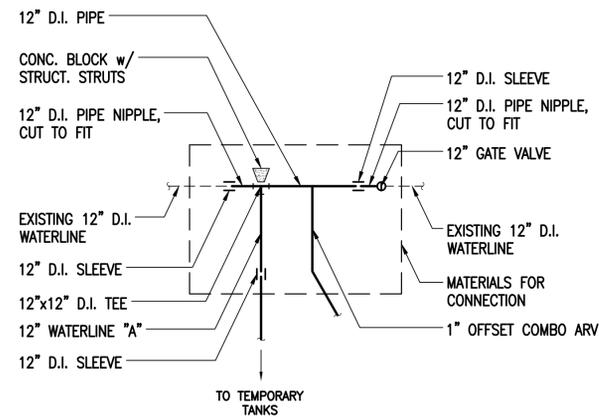


INSET
SCALE: 1" = 4'

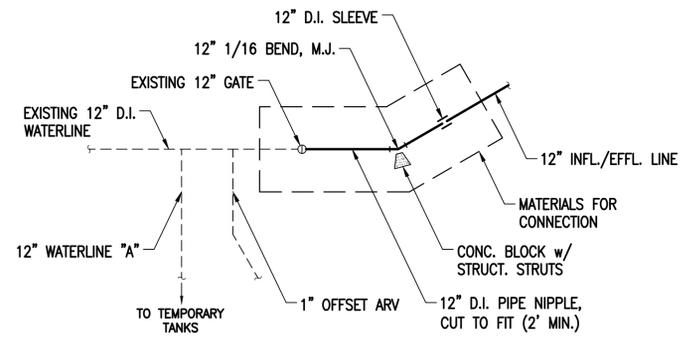
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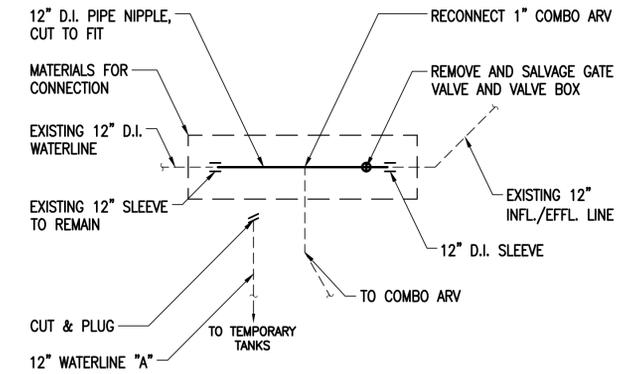
 <p style="font-size: 8px;">This work was prepared by me or under my supervision and construction to this project will be under my observation.</p> <p style="font-size: 8px;"><i>Cody Mprado</i> Expiration Date of License 4/30/26</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISION</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> <th>APPROVED</th> </tr> </thead> <tbody> <tr> <td colspan="5" style="text-align: center;">CONSTRUCT KILAUEA 466' TANK, 1.0 MG</td> </tr> <tr> <td colspan="5" style="text-align: center;">INSET</td> </tr> <tr> <td colspan="2">APPROVED:</td> <td colspan="3">02/02/2026</td> </tr> <tr> <td colspan="2">BY: <i>James C. ...</i></td> <td colspan="3">DATE</td> </tr> <tr> <td colspan="2">TITLES: MANAGER & CHIEF ENGINEER</td> <td colspan="3">DEPT. OF WATER, COUNTY OF KAUAI</td> </tr> <tr> <td colspan="5" style="text-align: center;">C-22</td> </tr> <tr> <td colspan="5" style="text-align: center;">OKAHARA AND ASSOCIATES, INC. HILO, HAWAII 96720</td> </tr> <tr> <td>DESIGNED BY: CMM/CS</td> <td>DRAWN BY: JP</td> <td>DATE: 30 JAN 2026</td> <td colspan="2" style="text-align: right;">SHEET 23 OF 65</td> </tr> </tbody> </table>	REVISION	DATE	DESCRIPTION	BY	APPROVED	CONSTRUCT KILAUEA 466' TANK, 1.0 MG					INSET					APPROVED:		02/02/2026			BY: <i>James C. ...</i>		DATE			TITLES: MANAGER & CHIEF ENGINEER		DEPT. OF WATER, COUNTY OF KAUAI			C-22					OKAHARA AND ASSOCIATES, INC. HILO, HAWAII 96720					DESIGNED BY: CMM/CS	DRAWN BY: JP	DATE: 30 JAN 2026	SHEET 23 OF 65	
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DESIGNED BY: CMM/CS	DRAWN BY: JP	DATE: 30 JAN 2026	SHEET 23 OF 65																																											



PHASE 1 - WATERLINE "A" @ STA. -0+20±
CONNECTION SCHEMATIC DETAIL
 NOT TO SCALE

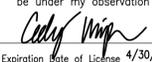


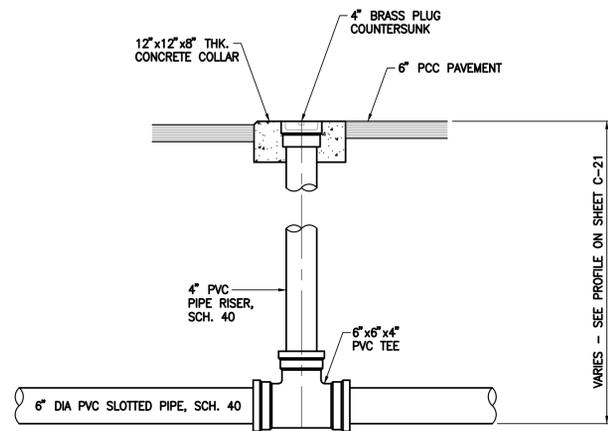
PHASE 2 - INFL./EFFL. LINE @ STA. 0+22.5±
CONNECTION SCHEMATIC DETAIL
 NOT TO SCALE



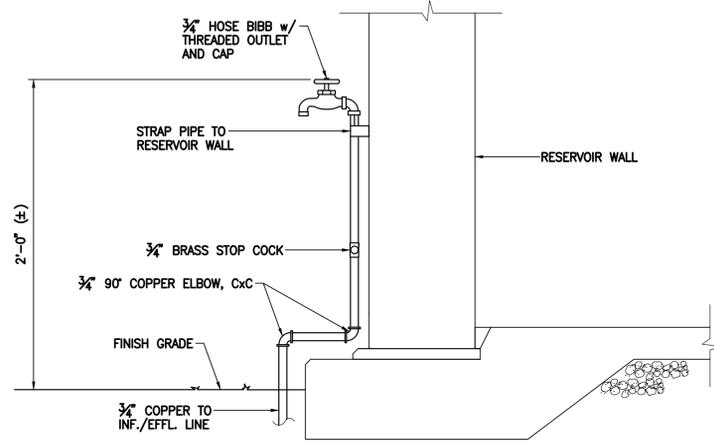
PHASE 3 - PIPING MODIFICATION DETAIL NO. 1
 NOT TO SCALE

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REVISION	DATE	DESCRIPTION	BY	APPROVED
 CONSTRUCT KILAUEA 466' TANK, 1.0 MG SCHEMATIC DETAILS				
APPROVED:		02/02/2026		
 Jason Cogan DEPT. OF WATER, COUNTY OF KAUAI		DATE		
Expiration Date of License 4/30/26			C-23	
OKAHARA AND ASSOCIATES, INC. HILO, HAWAII 96720				
DESIGNED BY: CM/MCS	DRAWN BY: JP	DATE: 30 JAN 2026	SHEET 24 OF 65	

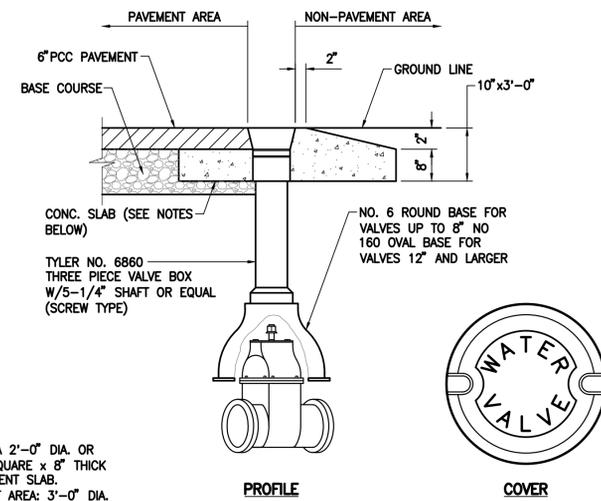


OBSERVATION PORT DETAIL FOR PERIMETER DRAIN
NOT TO SCALE



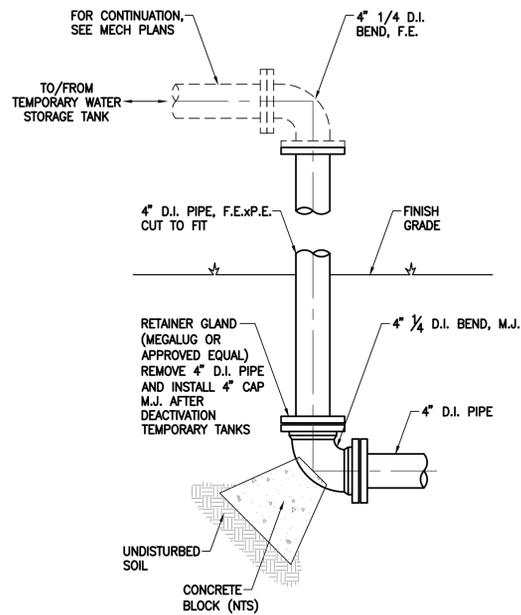
NOTE:
1. STRAPS AND CLAMPS TO SUPPORT PIPING SHALL BE STAINLESS STEEL WITH FELT PAPER BETWEEN PIPE AND STRAP/CLAMP.

WATER SAMPLING STATION DETAIL
NOT TO SCALE

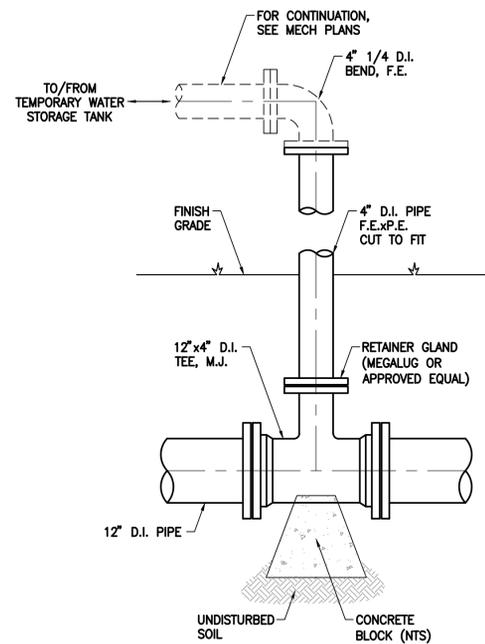


GENERAL NOTES:
1. PAVEMENT AREA 2'-0" DIA. OR 2'-0"x2'-0" SQUARE x 8" THICK CONC. SETTLEMENT SLAB.
2. NON-PAVEMENT AREA: 3'-0" DIA. OR 3'-0"x3'-0" SQUARE x 10" THICK CONC. SETTLEMENT SLAB TAPERED TO 8".
3. COVER TO BE DROP LID COVER.

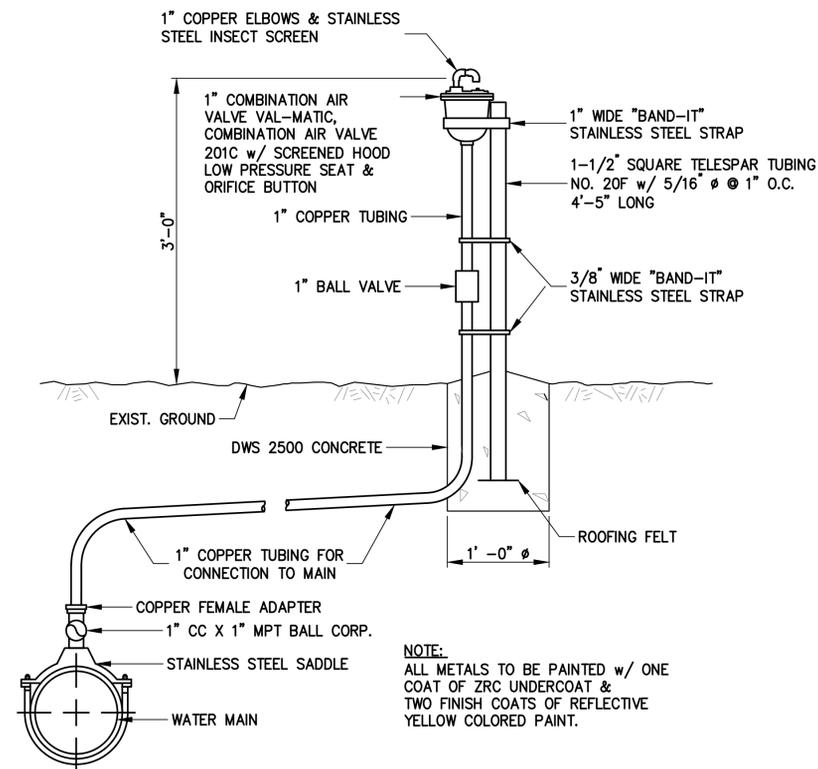
CAST IRON VALVE BOX DETAILS
NOT TO SCALE



END OF WATERLINE PIPE CONNECTION DETAIL @ TEMPORARY TANKS
SCALE: 1"=1'-0"



INTERMEDIATE WATERLINE PIPE CONNECTION DETAIL @ TEMPORARY TANKS
SCALE: 1"=1'-0"

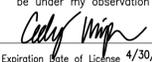


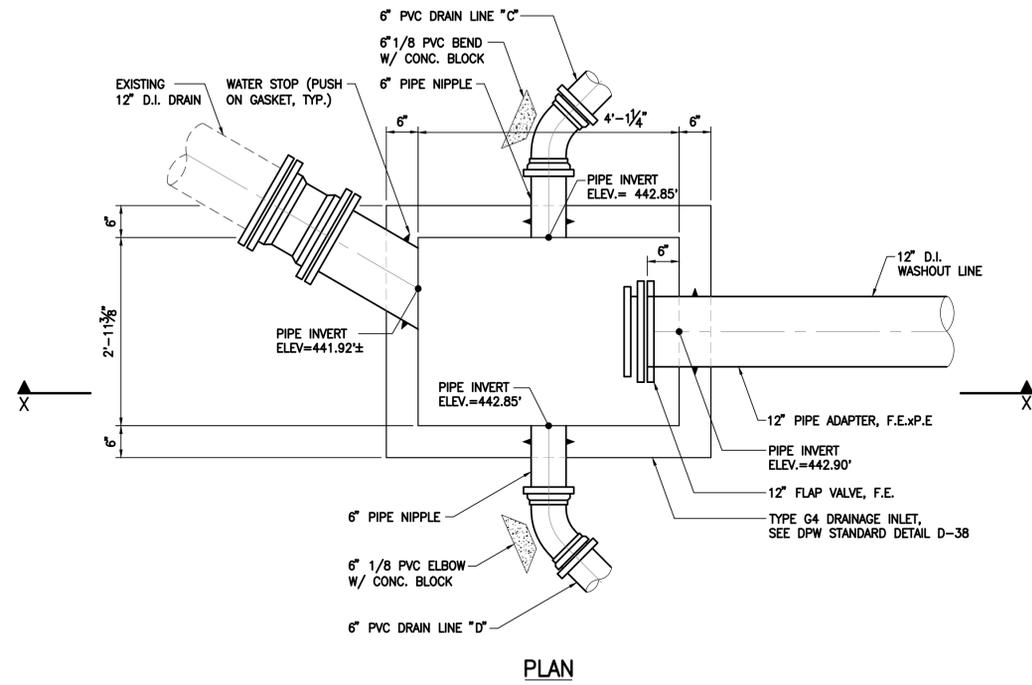
NOTE:
ALL METALS TO BE PAINTED W/ ONE COAT OF ZRC UNDERCOAT & TWO FINISH COATS OF REFLECTIVE YELLOW COLORED PAINT.

COMBO AUTOMATIC PRESSURE AIR RELIEF VALVE DETAIL
NOT TO SCALE

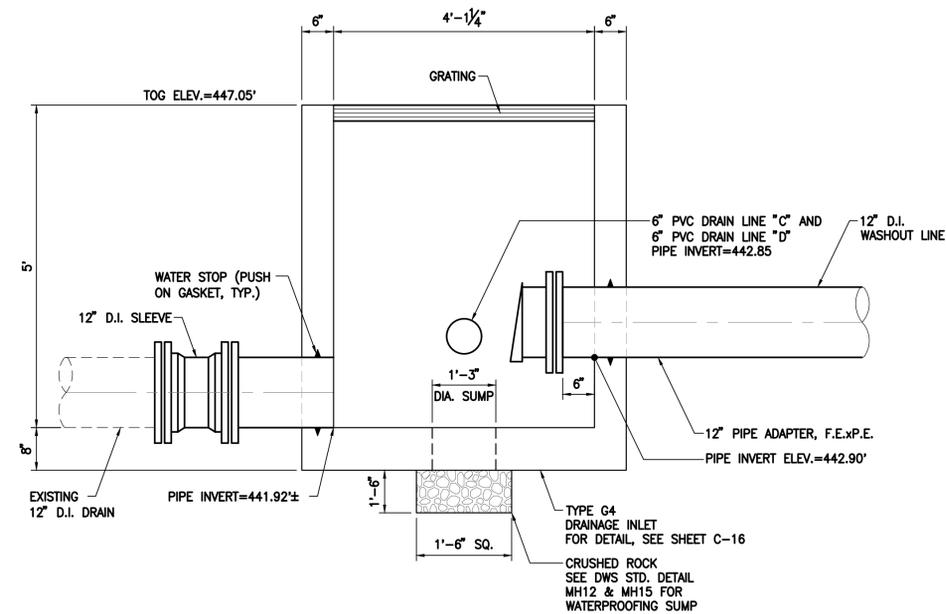
GRAPHIC SCALE:



REVISION	DATE	DESCRIPTION	BY	APPROVED
CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG				
WATER DETAILS				
APPROVED:		02/02/2026	DATE	
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C-24				
OKAHARA AND ASSOCIATES, INC. HILO, HAWAII 96720				
DESIGNED BY: CM/MCS	DRAWN BY: JP	DATE: 30 JAN 2026	SHEET 25 OF 65	

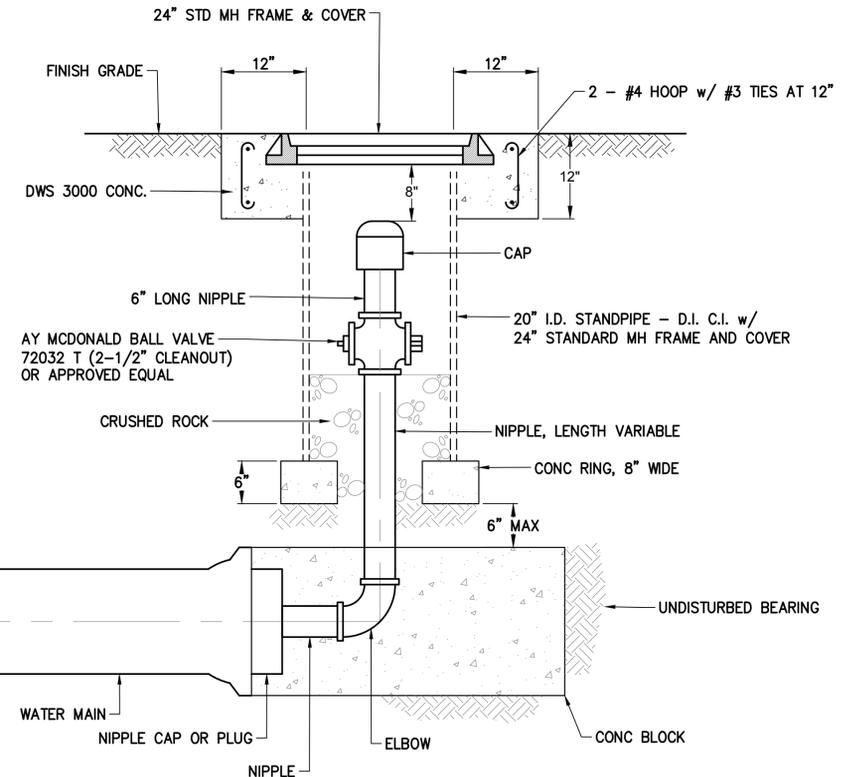


PLAN



SECTION "X-X"

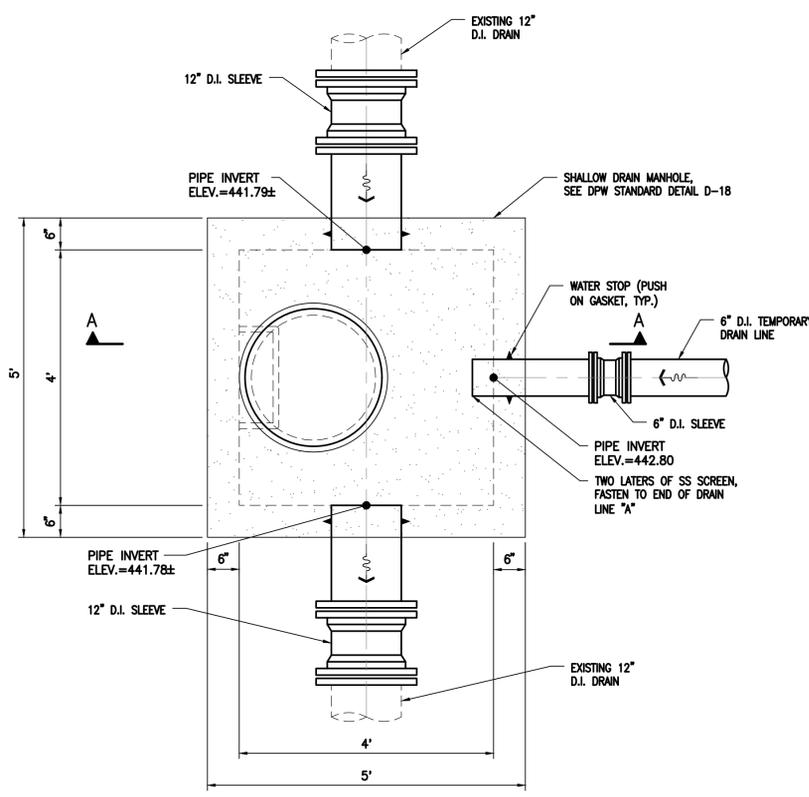
PIPE ARRANGEMENT AT TYPE G4 DRAINAGE INLET
NOT TO SCALE



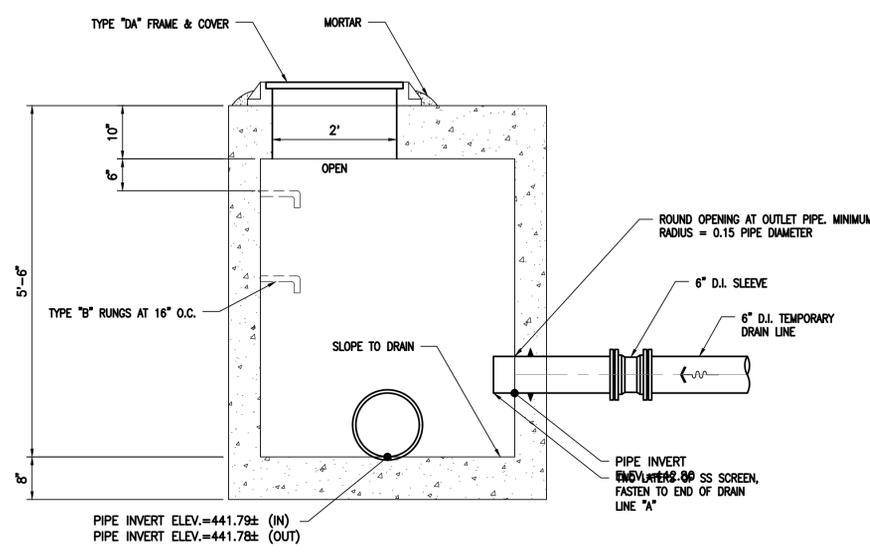
SCHEDULE OF CLEANOUT		
PIPE SIZE	CLEANOUT SIZE	TYPE OF PIPE
8" & SMALLER	2 1/2"	BRASS
12" TO 20"	4"	BRASS OR COPPER

NOTES:
1. CLEANOUT SHALL INCLUDE THE CAP, PLUG, AND APPURTENANCES AS SHOWN.
2. ALL CLEANOUTS INSTALLATION SHALL BE BRASS OR COPPER.

CLEANOUTS AND RISER DETAIL
NOT TO SCALE

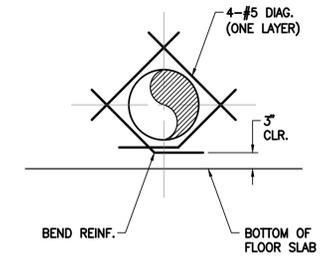


PLAN



SECTION A-A

PIPE ARRANGEMENT AT SHALLOW DRAIN MANHOLE
NOT TO SCALE



TYPICAL PIPE PENETRATION THRU WALL
NOT TO SCALE

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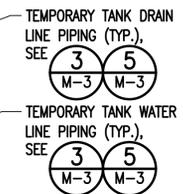
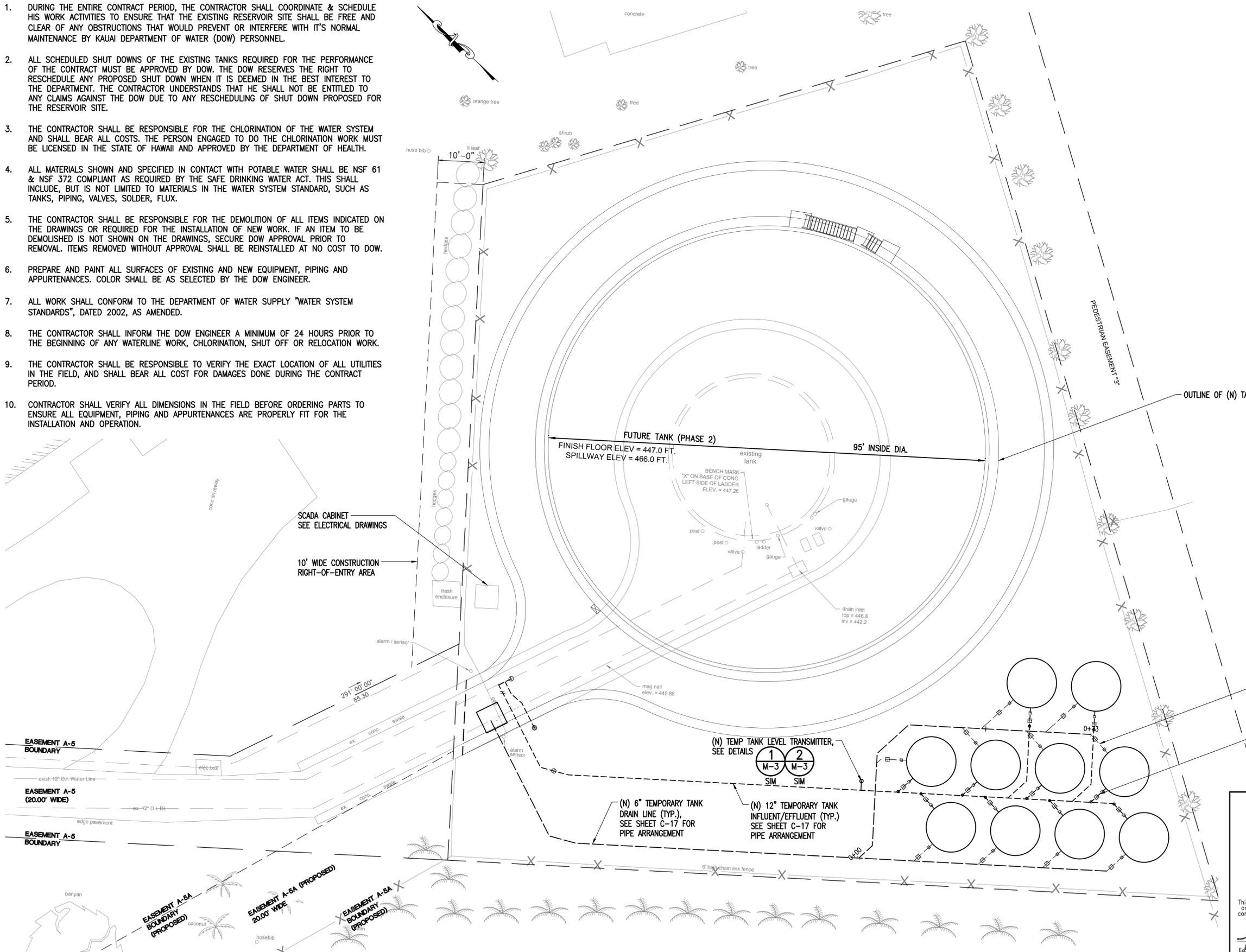
<p>CODY A. MPRADO LICENSED PROFESSIONAL ENGINEER NO. 19249-C HAWAII, U.S.A.</p> <p>This work was prepared by me or under my supervision and construction to this project will be under my observation.</p> <p><i>Cody Mprado</i> APPROVED: 02/02/2026 DATE</p> <p>BY MANAGER & CHIEF ENGINEER DEPT. OF WATER, COUNTY OF KAUAI</p> <p>Expiration Date of License 4/30/26</p>	<p>CONSTRUCT KILAUEA 466' TANK, 1.0 MG</p>		
	<p>WATER DETAILS</p>		
<p>OKAHARA AND ASSOCIATES, INC. HILO, HAWAII 96720</p>		<p>C-25</p>	
DESIGNED BY: CM/MCS	DRAWN BY: JP	DATE: 30 JAN 2026	SHEET 26 OF 65

MECHANICAL CONSTRUCTION NOTES:

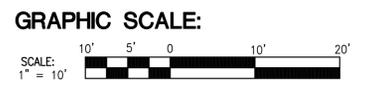
1. DURING THE ENTIRE CONTRACT PERIOD, THE CONTRACTOR SHALL COORDINATE & SCHEDULE HIS WORK ACTIVITIES TO ENSURE THAT THE EXISTING RESERVOIR SITE SHALL BE FREE AND CLEAR OF ANY OBSTRUCTIONS THAT WOULD PREVENT OR INTERFERE WITH IT'S NORMAL MAINTENANCE BY KAUAI DEPARTMENT OF WATER (DOW) PERSONNEL.
2. ALL SCHEDULED SHUT DOWNS OF THE EXISTING TANKS REQUIRED FOR THE PERFORMANCE OF THE CONTRACT MUST BE APPROVED BY DOW. THE DOW RESERVES THE RIGHT TO RESCHEDULE ANY PROPOSED SHUT DOWN WHEN IT IS DEEMED IN THE BEST INTEREST TO THE DEPARTMENT. THE CONTRACTOR UNDERSTANDS THAT HE SHALL NOT BE ENTITLED TO ANY CLAIMS AGAINST THE DOW DUE TO ANY RESCHEDULING OF SHUT DOWN PROPOSED FOR THE RESERVOIR SITE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CHLORINATION OF THE WATER SYSTEM AND SHALL BEAR ALL COSTS. THE PERSON ENGAGED TO DO THE CHLORINATION WORK MUST BE LICENSED IN THE STATE OF HAWAII AND APPROVED BY THE DEPARTMENT OF HEALTH.
4. ALL MATERIALS SHOWN AND SPECIFIED IN CONTACT WITH POTABLE WATER SHALL BE NSF 61 & NSF 372 COMPLIANT AS REQUIRED BY THE SAFE DRINKING WATER ACT. THIS SHALL INCLUDE, BUT IS NOT LIMITED TO MATERIALS IN THE WATER SYSTEM STANDARD, SUCH AS TANKS, PIPING, VALVES, SOLDER, FLUX.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DEMOLITION OF ALL ITEMS INDICATED ON THE DRAWINGS OR REQUIRED FOR THE INSTALLATION OF NEW WORK. IF AN ITEM TO BE DEMOLISHED IS NOT SHOWN ON THE DRAWINGS, SECURE DOW APPROVAL PRIOR TO REMOVAL. ITEMS REMOVED WITHOUT APPROVAL SHALL BE REINSTALLED AT NO COST TO DOW.
6. PREPARE AND PAINT ALL SURFACES OF EXISTING AND NEW EQUIPMENT, PIPING AND APPURTENANCES. COLOR SHALL BE AS SELECTED BY THE DOW ENGINEER.
7. ALL WORK SHALL CONFORM TO THE DEPARTMENT OF WATER SUPPLY "WATER SYSTEM STANDARDS", DATED 2002, AS AMENDED.
8. THE CONTRACTOR SHALL INFORM THE DOW ENGINEER A MINIMUM OF 24 HOURS PRIOR TO THE BEGINNING OF ANY WATERLINE WORK, CHLORINATION, SHUT OFF OR RELOCATION WORK.
9. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXACT LOCATION OF ALL UTILITIES IN THE FIELD, AND SHALL BEAR ALL COST FOR DAMAGES DONE DURING THE CONTRACT PERIOD.
10. CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD BEFORE ORDERING PARTS TO ENSURE ALL EQUIPMENT, PIPING AND APPURTENANCES ARE PROPERLY FIT FOR THE INSTALLATION AND OPERATION.

LEGEND:

- NEW MECHANICAL WATERLINE PIPING AT TEMPORARY TANKS.
- NEW MECHANICAL DRAIN LINE PIPING AT TEMPORARY TANKS.
- (N) NEW WORK OR NEW EQUIPMENT



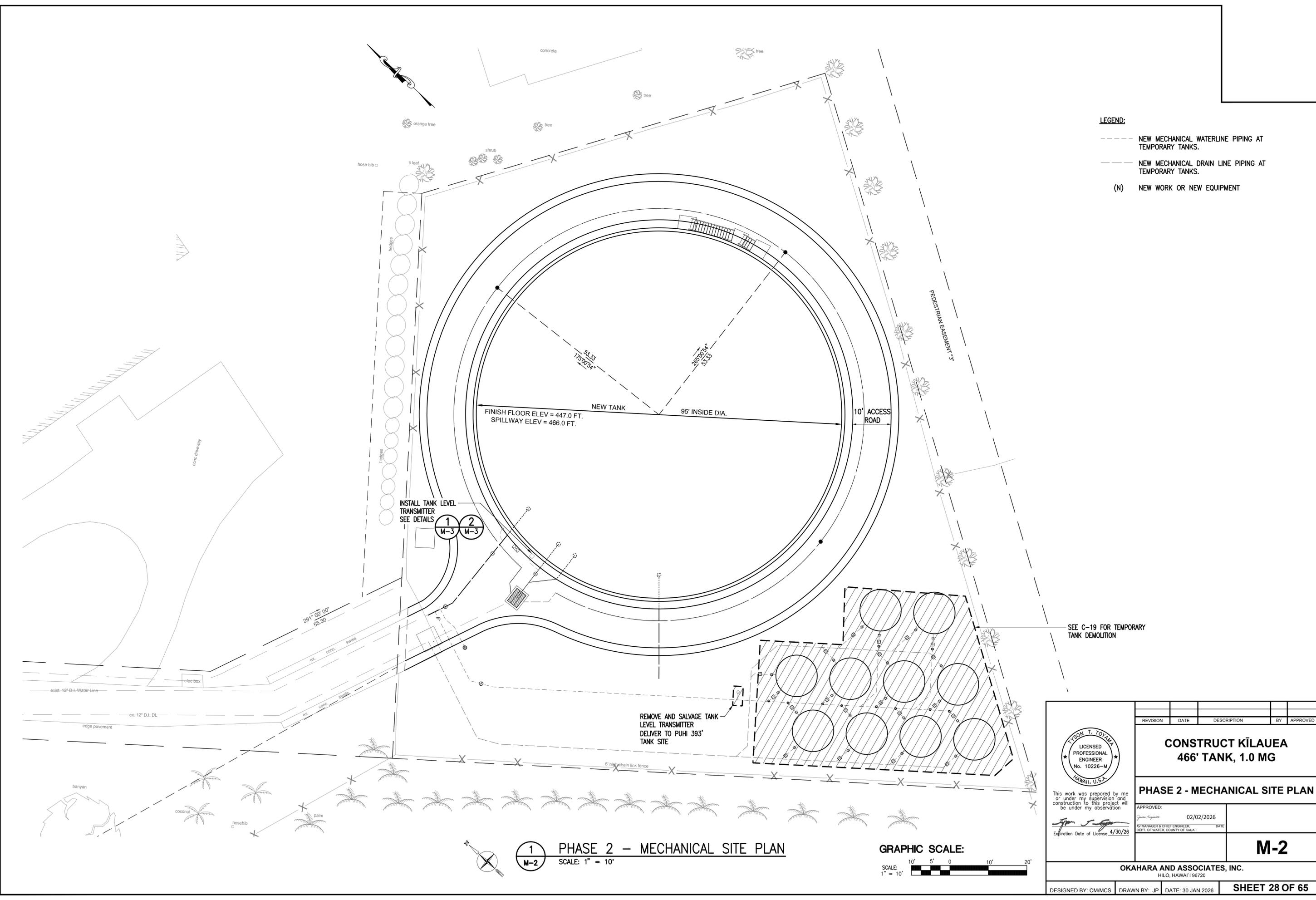
1 PHASE 1 - MECHANICAL SITE PLAN
SCALE: 1" = 10'



<p>TYSON T. TOTAMA LICENSED PROFESSIONAL ENGINEER No. 10226-M HAWAII, U.S.A.</p> <p>This work was prepared by me or under my supervision and construction to this project will be under my observation.</p> <p>Expiration Date of License 4/30/26</p>	REVISION	DATE	DESCRIPTION	BY	APPROVED
	<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p> <p>PHASE 1 - MECHANICAL SITE PLAN</p>				
APPROVED:	02/02/2026				
		DATE			
<p>Jane Caputo MANAGER & CHIEF ENGINEER DEPT. OF WATER, COUNTY OF KAUAI</p>					
<p>M-1</p>					
<p>OKAHARA AND ASSOCIATES, INC. HILO, HAWAII 96720</p>					
DESIGNED BY: CM/MCS	DRAWN BY: JP	DATE: 30 JAN 2026	SHEET 27 OF 65		

O:\CPR001\2012\12-003R_KILAUEA_TANK\CADD\SHEETS\SHEET - MECH PHASE 1 - SITE PLAN.DWG

C:\CPROJ\2012\12-003R_KILAUEA_TANK_CADD\SHEETS\SHEET - MECH PHASE 2 - SITE PLANDWG



- LEGEND:**
- NEW MECHANICAL WATERLINE PIPING AT TEMPORARY TANKS.
 - NEW MECHANICAL DRAIN LINE PIPING AT TEMPORARY TANKS.
 - (N) NEW WORK OR NEW EQUIPMENT

INSTALL TANK LEVEL TRANSMITTER SEE DETAILS

1
M-3

2
M-3

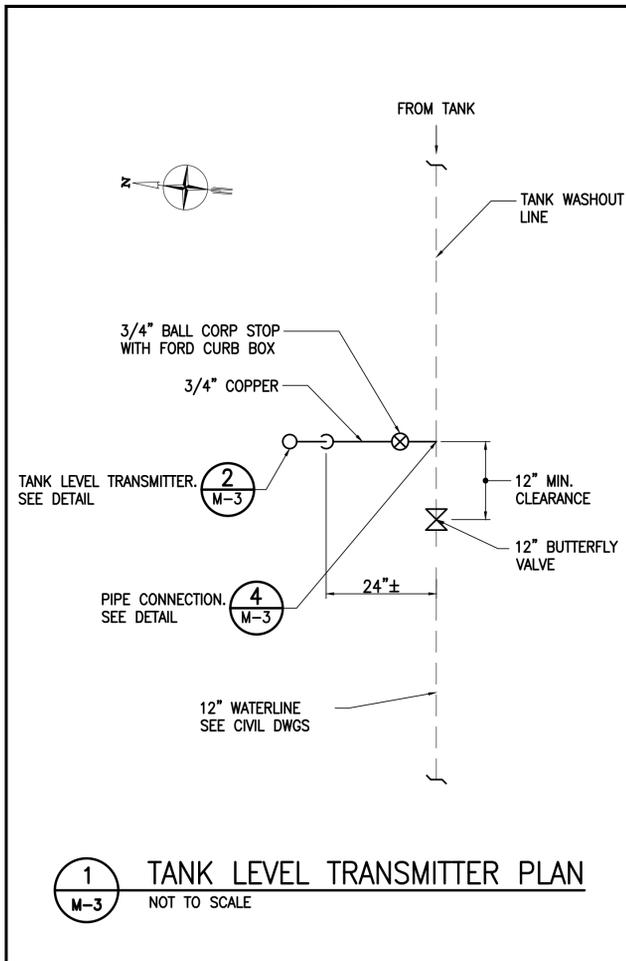
REMOVE AND SALVAGE TANK LEVEL TRANSMITTER DELIVER TO PUHI 393' TANK SITE

SEE C-19 FOR TEMPORARY TANK DEMOLITION

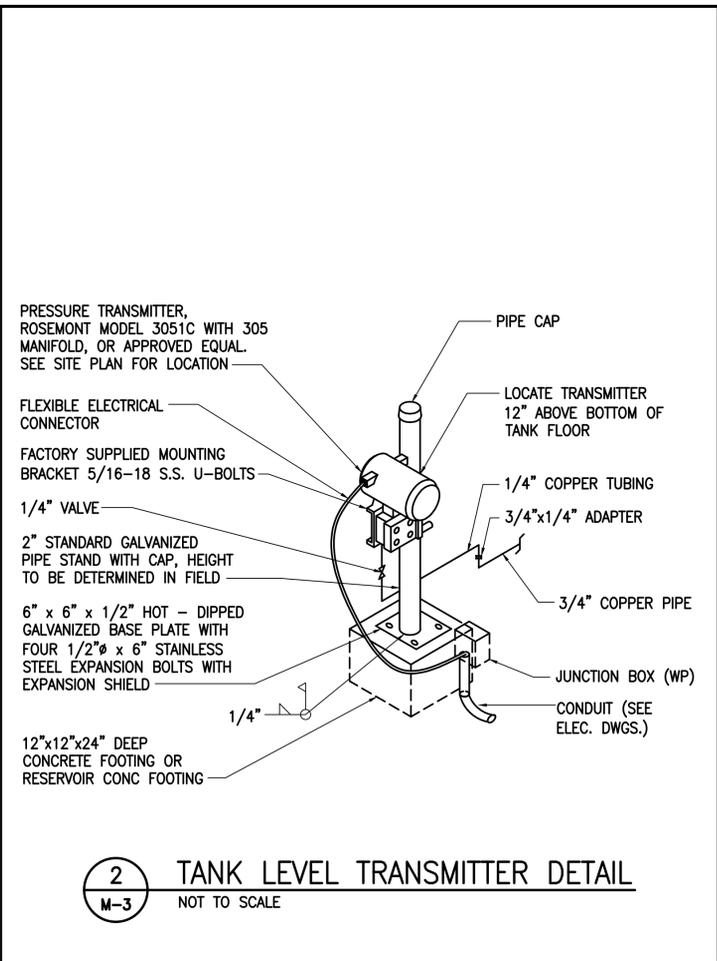
1 PHASE 2 - MECHANICAL SITE PLAN
SCALE: 1" = 10'



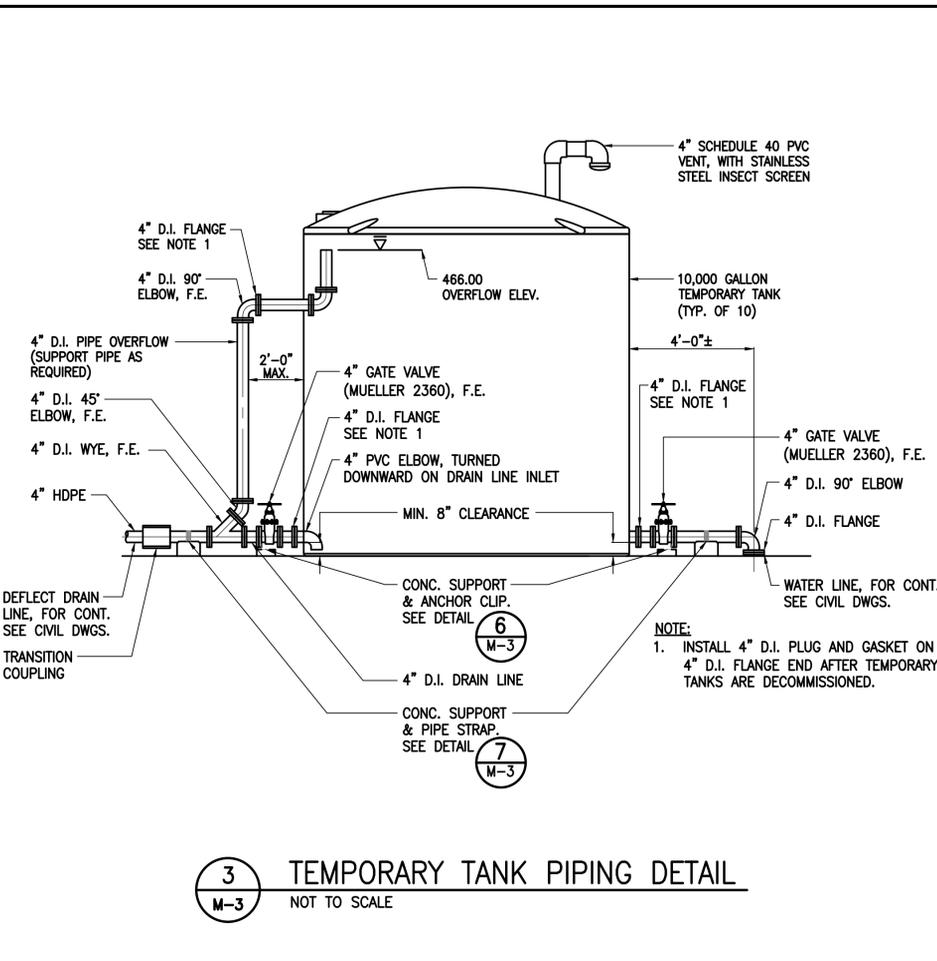
<p>TYSON T. TOYAMA LICENSED PROFESSIONAL ENGINEER No. 10226-M HAWAII, U.S.A.</p> <p>This work was prepared by me or under my supervision and construction to this project will be under my observation.</p> <p><i>John C. ...</i> MANAGER & CHIEF ENGINEER DEPT. OF WATER, COUNTY OF KAUAI Expiration Date of License 4/30/26</p>	REVISION	DATE	DESCRIPTION	BY	APPROVED
	<p>CONSTRUCT KILAUEA 466' TANK, 1.0 MG</p> <p>PHASE 2 - MECHANICAL SITE PLAN</p>				
APPROVED:		02/02/2026			
		DATE	M-2		
<p>OKAHARA AND ASSOCIATES, INC. HILO, HAWAII 96720</p>					
DESIGNED BY: CMMCS	DRAWN BY: JP	DATE: 30 JAN 2026	SHEET 28 OF 65		



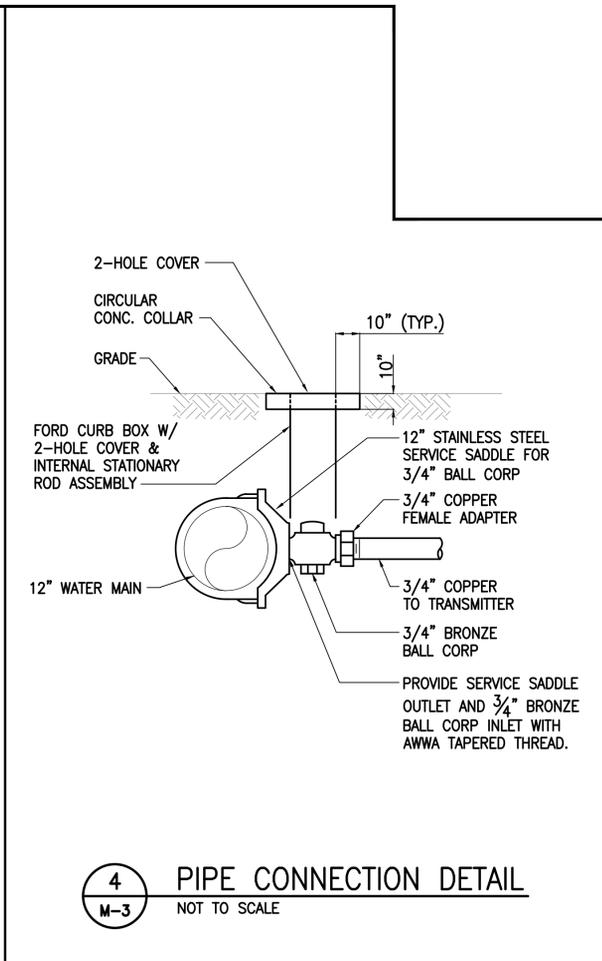
1 TANK LEVEL TRANSMITTER PLAN
M-3 NOT TO SCALE



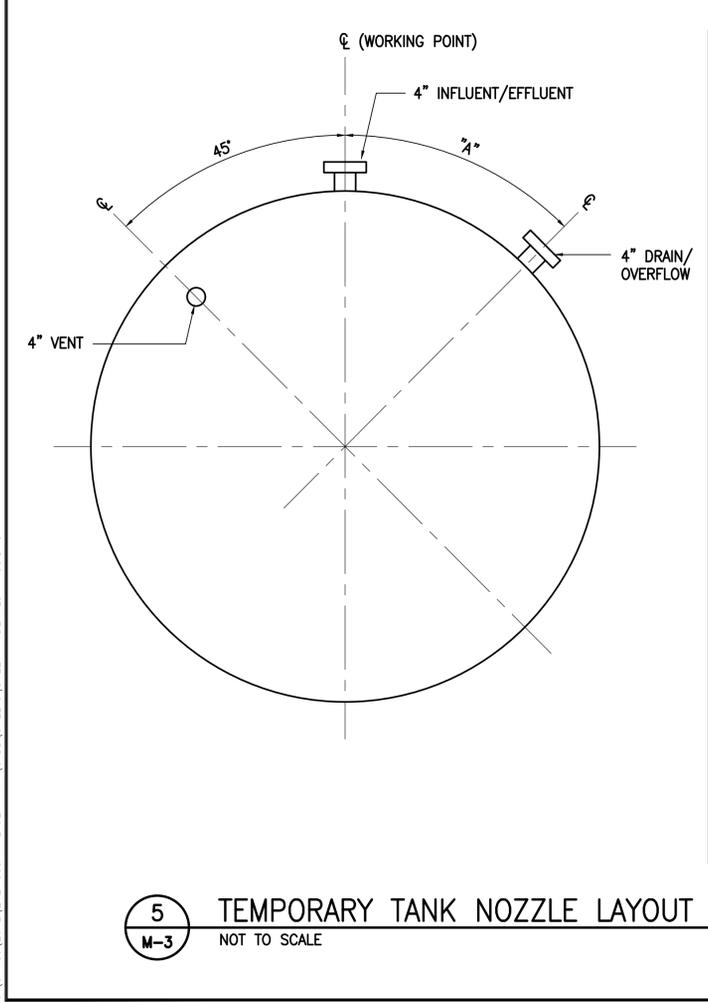
2 TANK LEVEL TRANSMITTER DETAIL
M-3 NOT TO SCALE



3 TEMPORARY TANK PIPING DETAIL
M-3 NOT TO SCALE

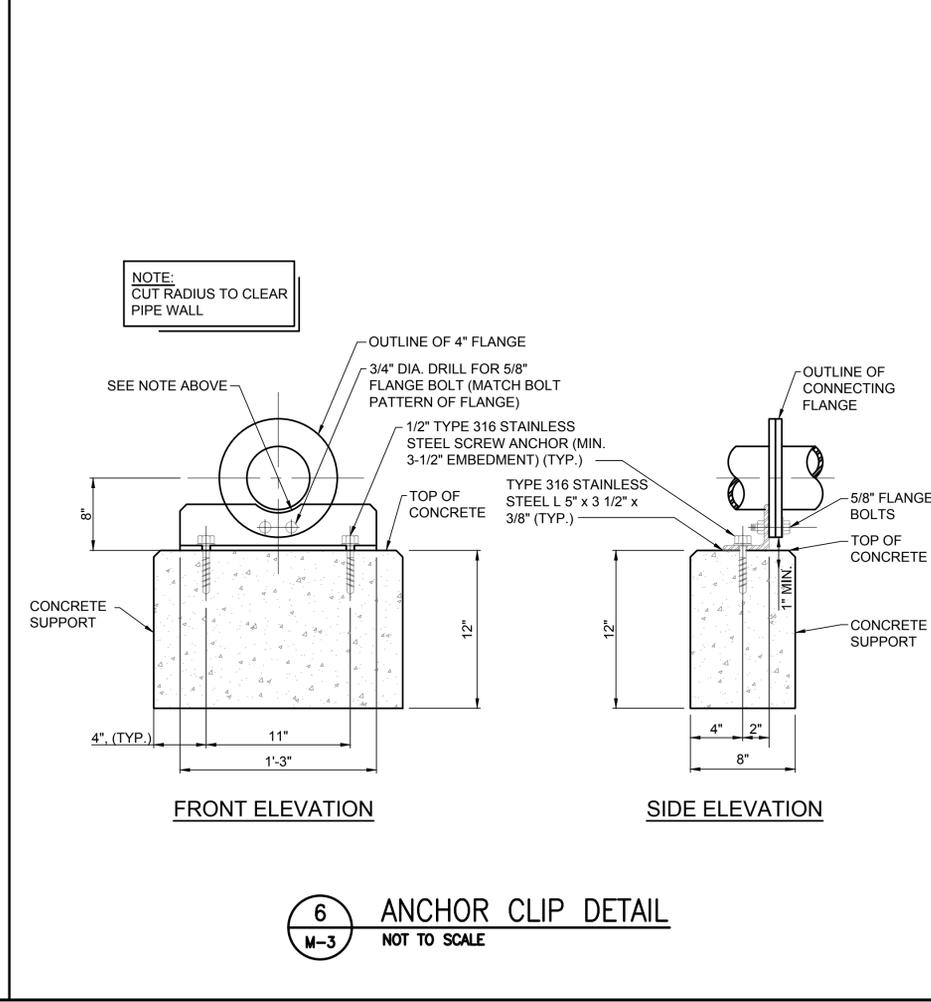


4 PIPE CONNECTION DETAIL
M-3 NOT TO SCALE

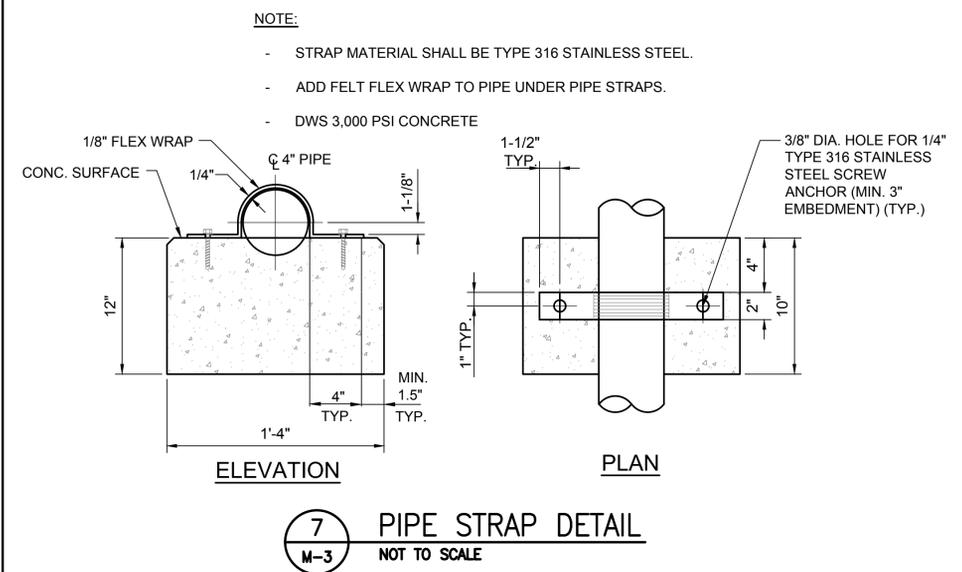


5 TEMPORARY TANK NOZZLE LAYOUT & SCHEDULE
M-3 NOT TO SCALE

TEMPORARY TANK SCHEDULE	
TANK NO.	"A" (DEGREES)
T 1	45
T 2	45
T 3	45
T 4	90
T 5	90
T 6	90
T 7	270
T 8	270
T 9	270
T 10	270



6 ANCHOR CLIP DETAIL
M-3 NOT TO SCALE



7 PIPE STRAP DETAIL
M-3 NOT TO SCALE

<p>TYSON T. TOYAMA LICENSED PROFESSIONAL ENGINEER No. 10226-M HAWAII, U.S.A.</p> <p>This work was prepared by me or under my supervision and construction to this project will be under my observation.</p> <p>APPROVED: <i>[Signature]</i> 02/02/2026 BY MANAGER & CHIEF ENGINEER DEPT. OF WATER, COUNTY OF KAUAI</p> <p>Expiration Date of License 4/30/26</p>	<p>REVISION DATE DESCRIPTION BY APPROVED</p>			
	<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p>			
	<p>MECHANICAL DETAILS</p>			
<p>M-3</p>				
<p>OKAHARA AND ASSOCIATES, INC. HILO, HAWAII 96720</p>				
DESIGNED BY: CM/MCS	DRAWN BY: JP	DATE: 30 JAN 2026	SHEET 29 OF 65	

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DESIGN CRITERIA NOTES:

- DESIGN REFERENCES
 - ACI 350-20 CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES.
 - ACI 350.03-20 SEISMIC DESIGN OF LIQUID-CONTAINING CONCRETE STRUCTURES.
 - AWWA D-110-13 (R2018) WIRE-AND STRAND-WOUND CIRCULAR, PRESTRESSED CONCRETE WATER TANKS.
- DESIGN LIVE LOAD ON ROOF IS 40 PSF.
- SEISMIC DESIGN PARAMETERS
 - SPECTRAL RESPONSE ACCELERATION (5% DAMPENING)
 $S_s = 0.22g$
 $S_1 = 0.064g$
 - SITE CLASS _____ D (ACI)
SOIL PROFILE TYPE _____ S_b (AWWA)
 - DESIGN SPECTRAL RESPONSE ACCELERATION
 $S_{ds} = 0.24g$
 $S_{d1} = 0.11g$
 - IMPORTANCE FACTOR _____ 1.25
 - RESPONSE MODIFICATION FACTOR
 $R_1 = 2.0$ (HINGED-BASE)
 $R_1 = 3.25$ (ANCHORED FLEXIBLE BASE)
- ALLOWABLE SOIL PRESSURE IS 2,500 PSF ON COMPACTED GRANULAR STRUCTURAL FILL.

FOUNDATION:

- FOUNDATION DESIGN IS BASED ON GEOTECHNICAL INVESTIGATION BY HIRATA & ASSOCIATES AND REPORT NO. W.O. 12-5271, DATED MARCH 19, 2012.
- CONTRACTOR SHALL PROVIDE FOR DE-WATERING OF EXCAVATION FROM EITHER SURFACE WATER, GROUND WATER OR SEEPAGE.
- CONTRACTOR SHALL PROVIDE FOR DESIGN AND INSTALLATION OF ALL CRIBBING, SHEETING AND SHORING NECESSARY TO PRESERVE EXCAVATIONS AND EARTH BANKS AND ADJACENT STRUCTURES AND PROPERTY FROM DAMAGE.
- BLASTING WILL NOT BE ALLOWED ON THE PROJECT.
- RESERVOIR FOUNDATIONS SHALL BE FOUNDED ON A MINIMUM 24 INCHES OF IMPORTED GRANULAR STRUCTURAL FILL. THE GRANULAR IMPORTED STRUCTURAL FILL SHALL EXTEND A MINIMUM 12 INCHES BEYOND THE EDGE OF THE FOOTINGS.
- PRIOR TO PLACEMENT OF IMPORTED GRANULAR STRUCTURAL FILL, UNDER THE RESERVOIR FLOOR SLAB OR FOUNDATIONS, THE SUBGRADE SOIL SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 6 INCHES, MOISTURE CONDITIONED TO ABOUT 2 PERCENT ABOVE OPTIMUM MOISTURE CONTENT AND COMPACTED TO BETWEEN 90 AND 95 PERCENT COMPACTION. UNDER THE RESERVOIR FLOOR SLAB THE IMPORTED GRANULAR STRUCTURAL FILL AND AGGREGATE BASE COURSE OVERLAY SHALL BE COMPACTED TO A MINIMUM 95 PERCENT RELATIVE DENSITY, BOTH AS DETERMINED ASTM D 1557.
- PREPARATION OF THE SUBGRADE, GRANULAR IMPORTED STRUCTURAL FILL AND AGGREGATE BASE COURSE OVERLAY COMPACTION PRIOR TO START OF FOUNDATION REINFORCING PLACEMENT SHALL BE APPROVED BY A SOILS ENGINEER FROM HIRATA AND ASSOCIATES. THE SOILS ENGINEER SHALL SUBMIT LETTER OF COMPLIANCE TO DOW ENGINEER.
- IMPORTED GRANULAR STRUCTURAL FILL SHALL BE NON-EXPANSIVE, GRANULAR SOIL WITH A PARTICLE SIZE OF NO GREATER THAN 3 INCHES IN MAXIMUM DIMENSION WITH BETWEEN 8 TO 20 PERCENT OF SOIL BY WEIGHT SHALL PASS THE #200 SIEVE. PLASTICITY INDEX OF THAT PORTION OF THE SOIL PASSING THE #40 SIEVE SHALL NOT BE GREATER THAN 10.
- IMPORTED GRANULAR STRUCTURAL FILL FOR FILL AND BACKFILL SHALL BE PLACED IN UNIFORM LIFTS OF NO MORE THAN 8 INCHES IN LOOSE THICKNESS AND COMPACTED TO AT LEAST 95 PERCENT RELATIVE COMPACTION IN ACCORDANCE WITH ASTM D1557
- THE RESERVOIR FLOOR SLAB SHALL BE UNDERLAIN BY 6 INCHES OF AGGREGATE FOR UNTREATED BASE (UTB). THE UTB SHALL CONFORM TO SECTION 703.06 OF THE 2005 STATE OF HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. THIS LAYER OF UTB SHALL BE CONSIDERED PART OF THE 24 INCHES OF IMPORTED GRANULAR STRUCTURAL.
- THE UPPER 6 INCHES OF THE 24 INCHES THICK IMPORTED GRANULAR FILL SHALL CONSIST OF AGGREGATE BASE COURSE (UTB) WITH THE REMAINDER OF THE REQUIRED THICKNESS CONSIST OF COMPACTED GRANULAR STRUCTURAL FILL. THE 30 MIL PVC MEMBRANE SHALL BE INSTALLED BETWEEN THESE TWO FILL MATERIALS AND A 6 MIL VAPOR BARRIER POLY SHEETING PLACED OVER THE AGGREGATE BASE COURSE DIRECTLY UNDERNEATH THE CONCRETE FLOOR SLAB.
- THE PERIMETER PERFORATED PVC DRAIN PIPE SHALL BE INSTALLED PER DETAIL (1/S-5) SURROUNDED BY DRAIN ROCK AND WRAPPED IN FILTER FABRIC. DRAIN ROCK SHALL BE 3/4" NOMINAL POORLY GRADED (NO FINES) CRUSHED AGGREGATE.
- THE FILTER FABRIC SHALL BE A NON-WOVEN 100% STAPLE FIBER POLYPROPYLENE NEEDLE-PUNCHED FILTER FABRIC DESIGNED FOR DRAINAGE AND FILTRATION.

CONCRETE NOTES:

- CONCRETE - CLASSES
 - RESERVOIR WALL - 4,500 PSI FOR CONVENTIONALLY REINFORCED WALL AND FOR STRAND-WOUND ALTERNATE.
 - COLUMNS AND ROOF SLAB Class DWS 4,000
 - FOOTING, FLOOR SLAB, AND CONCRETE JACKET UNDER FLOOR SLAB Class DWS 4,000
 - SHOTCRETE - 4,500 PSI
- POUR OPENINGS (WINDOWS) SHALL BE PROVIDED IN FORMWORK FOR PLACING CONCRETE IN WALLS.
MINIMUM POUR OPENING SIZE SHALL BE 24" X 24".
HORIZONTAL DISTANCE BETWEEN POUR OPENINGS SHALL NOT EXCEED EIGHT (8) FEET CENTER TO CENTER. MAXIMUM DISTANCE FROM POUR OPENING TO VERTICAL JOINT SHALL BE 36 INCHES.
CONCRETE DROP IN THE FORM SHALL NOT EXCEED FIVE (5) FEET. VERTICAL DISTANCE BETWEEN ROWS OF OPENINGS SHALL NOT EXCEED SIX (6) FEET.
- RESERVOIR FLOOR SLAB SHALL BE CURED WITH 2" MINIMUM WATER POND AT HIGH POINT OF SLAB FROM FINAL SET UNTIL TANK IS TO BE CLEANED AND PLACED IN OPERATION.
- ALL EXTERIOR EXPOSED CONCRETE SURFACES SHALL RECEIVE AN ARCHITECTURAL FINISH AS SPECIFIED IN THE WATER SYSTEM STANDARDS, DIVISION 300, SECTION 303.03S, SURFACE FINISHES, UNLESS OTHERWISE SPECIFIED.
- ALL EXPOSED CORNERS SHALL HAVE 3/4 INCH CHAMFERS.
- USE OF POWDER DRIVEN FASTENERS SHALL NOT BE PERMITTED IN CONCRETE WALLS EXCEPT AS NOTED IN THE SPECIFICATIONS OR AS APPROVED BY THE DEPARTMENT OF WATER.
- ALL ANCHORS AND INSERTS FOR SUSPENDING MECHANICAL AND ARCHITECTURAL WORK SHALL BE CAST-IN-PLACE WHEREVER POSSIBLE. WHEN ADDITIONAL FASTENERS ARE REQUIRED, ONLY THOSE THAT ARE ANCHORED IN DRILLED HOLES WITH THE APPROVAL OF THE DEPARTMENT OF WATER SHALL BE PERMITTED.
- RESERVOIR WALL CONSTRUCTION TOLERANCES:
 - OUT OF ROUND TOLERANCES: 3/4" IN 50', 3/8" IN 10' AND 3/16" IN 2' FROM SPECIFIED CURVATURE.
 - VERTICAL ALIGNMENT: 3/8" + OR - FROM TOP OF WALL TO BOTTOM
 - WALL THICKNESS: 1/8" + OR -
- SIX CYLINDER SAMPLES SHALL BE TAKEN FOR EACH CLASS OF CONCRETE POURED EACH DAY AND FOR EVERY 50 CUBIC YARDS OF EACH CLASS OR FRACTION THEREOF. THREE (3) CYLINDERS SHALL BE TESTED AT AGE OF SEVEN (7) DAYS AND THREE (3) TESTED AT TWENTY-EIGHT (28) DAYS IN ACCORDANCE WITH ASTM C39, "STANDARD METHOD OF TEST FOR COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS". THE LAST SAMPLE SHALL BE HELD IN RESERVE FOR USE TO VERIFY SUSPECT TEST RESULTS OR A SPOILED TEST SAMPLE.

REINFORCING STEEL:

- ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615 GRADE 60.
- CLEAR CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:
 - FOOTING CAST AGAINST EARTH _____ 3"
 - FOOTING FORMED AND EXPOSED TO EARTH OR WEATHER _____ 2"
 - COLUMNS _____ 2 1/2"
 - ROOF SLAB _____ 2" TOP
_____ 2" BOTTOM
 - WALLS _____ 1 1/2"
 - CONCRETE JACKET _____ 4"
- LAPS SHALL BE 48 BAR DIA (24" MIN), UNLESS OTHERWISE NOTED SPLICES OF WALL HORIZONTAL REINFORCEMENT SHALL BE STAGGERED HORIZONTALLY BY MORE THAN TWO LAP LENGTHS ON CENTER AND SHALL NOT COINCIDE VERTICALLY BY MORE THAN EVERY THIRD BAR.
- REINFORCING STEEL SHALL BE SPLICED WHERE INDICATED ON PLANS. PROVIDE LAP SPLICE LENGTH PER TYPICAL DETAILS AND SCHEDULE, UNLESS OTHERWISE NOTED.
- MECHANICAL SPLICE CONNECTORS SHALL DEVELOP IN TENSION 125 PERCENT OF THE SPECIFIED MINIMUM YIELD STRENGTH OF REINFORCING BARS.
- BAR BENDS AND HOOKS SHALL BE "STANDARD HOOKS" IN ACCORDANCE WITH TYPICAL DETAIL ON SHEET S-3.
- REINFORCING STEEL SHALL BE PLACED AND SECURED IN CONFORMANCE WITH CRSI MANUAL OF STANDARD PRACTICE WITH PLACEMENT TOLERANCES PER ACI STANDARD 117.

WATERSTOP NOTES:

- SEE SPECIFICATION FOR MATERIAL REQUIREMENTS.
- WATERSTOPS SHALL BE HELD IN PLACE IN THE FORMS BY THE USE OF A SPLIT FORM OR OTHER APPROVED METHOD.
- HORIZONTAL WATERSTOPS SHALL BE MANUALLY BENT-UP DURING CONCRETE PLACEMENT UNTIL CONCRETE IS PLACED TO LEVEL OF WATERSTOP; ADDITIONAL CONCRETE SHALL THEN BE PLACED, AFTER WHICH THE CONCRETE SHALL BE THOROUGHLY VIBRATED.
- ALL VERTICAL WATERSTOPS SHALL BE SECURED IN CORRECT POSITION USING HOG RINGS OR GROMMETS SPACED AT 12 INCHES ON CENTER ALONG THE LENGTH OF THE WATERSTOP AND WIRE TIE TO ADJACENT REINFORCING STEEL.
- DIRECTION CHANGES AND INTERSECTIONS SHALL BE PREMOLDED FITTINGS. FIELD BUTT SPLICES SHALL BE DONE BY SQUARING ENDS AND USE OF SPECIAL SPLICING TOOL SPECIFIED BY MANUFACTURER. FOLLOW APPROVED MANUFACTURER RECOMMENDATIONS. LAPPING OF WATERSTOP, USE OF ADHESIVES, OR SOLVENTS SHALL NOT BE ALLOWED.

STRUCTURAL OBSERVATION:

- STRUCTURAL OBSERVATION SHALL BE THE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM BY THE ENGINEER OF RECORD OR HIS REPRESENTATIVE FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS AT SIGNIFICANT CONSTRUCTION STAGES AND AT COMPLETION OF THE STRUCTURAL SYSTEM. SEE NOTE 4 BELOW FOR STAGE INFORMATION.
- STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR SPECIAL INSPECTION.
- AT THE CONCLUSION OF THE PROJECT'S CONSTRUCTION THE STRUCTURAL OBSERVER SHALL SUBMIT TO THE BUILDING OFFICIAL A WRITTEN STATEMENT THAT THE REQUIRED SITE VISITS HAVE BEEN MADE AND STATE ANY REPORTED DEFICIENCIES THAT, TO THE BEST OF THE STRUCTURAL OBSERVER'S KNOWLEDGE, HAVE NOT BEEN RESOLVED.
- THE ENGINEER SHALL BE NOTIFIED AT LEAST THREE DAY PRIOR TO EACH OF THE FOLLOWING STAGES OF THE RESERVOIR CONSTRUCTION. EACH STAGE SHALL BE OBSERVED ON THE LAST DAY BEFORE THE WORK IS COMPLETE PRIOR TO PLACING CONCRETE SO THAT CORRECTIVE ACTION CAN BE MADE DURING THE OBSERVATION PERIOD:
 - FLOOR AND WALL FOOTING REINFORCING.
 - FIRST AND SECOND WALL REINFORCING.
 - ROOF SLAB REINFORCING IN THE FIRST ROOF SLAB SECTION TO BE CONSTRUCTED.
- THE REPORT PREPARED BY THE STRUCTURAL OBSERVER SHALL BE PREPARED FOR EACH SITE VISIT LISTING ANY DEFICIENCIES OBSERVED THAT WERE NOT CORRECTED PRIOR TO LEAVING THE SITE. THE REPORT SHALL BE SUBMITTED TO THE DEPARTMENT OF WATER, COUNTY OF KAUAI WITHIN TWO DAYS OF THE SITE VISIT.

SPECIAL INSPECTION

- SPECIAL INSPECTIONS ARE REQUIRED FOR THIS PROJECT AND SHALL BE PERFORMED IN ACCORDANCE WITH IBC CHAPTER 17. SPECIAL INSPECTIONS SHALL BE PERFORMED BY DOW INSPECTORS IN THESE CATEGORIES. CONTRACTOR SHALL BE RESPONSIBLE FOR HIRING SPECIAL INSPECTORS WHO'S QUALIFICATIONS SHALL BE SUBMITTED TO DOW FOR REVIEW AND APPROVAL PRIOR TO HIRING BY CONTRACTOR. INSPECTORS SHALL WORK TO REPRESENT THE COUNTY'S BEST INTEREST, NOT THE CONTRACTOR'S.

CONCRETE PLACEMENT (EXCEPT CURBS, DRAINAGE SWALE, SITE CONCRETE) - STRUCTURAL WELDING - CONCRETE ANCHOR INSTALLATION - REINFORCING STEEL PLACEMENT - GRADING, EXCAVATION, BACKFILLING - PRESTRESSING

NOTE:

THE FOLLOWING NOTES ONLY APPLY FOR THE PRESTRESSED BID ALTERNATIVE RESERVOIR CONSTRUCTION.

STRAND-WOUND WALL NOTES

- CIRCUMFERENTIAL PRESTRESSING NOTES:
 - THE MAXIMUM STRESS TOLERANCE IN ANY STRAND AT ANY POINT AT ANY ELEVATION ON THE TANK WALL AT ANY TIME DURING WRAPPING OPERATIONS SHALL BE WITHIN ± 320 POUNDS FROM THE AVERAGE FORCE SETTING OF 14,950 POUNDS.
 - THE CONTRACTOR SHALL PROVIDE A CONTINUOUSLY ELECTRONICALLY RECORDED FORCE APPLICATION GRAPH FOR THE FULL LENGTH OF ALL WRAPPED STRAND AS PERMANENT DOCUMENTED EVIDENCE THAT THE FORCE APPLICATION REQUIREMENTS HAVE BEEN MET. ALL SUCH FORCE READINGS MUST BE BASED ON CONTINUOUS SENSING OF THE STRAND BETWEEN THE TENSIONING DRUM AND THE WALL AS THE STRAND IS BEING LAID ON THE WALL.
 - MANUAL, INDIVIDUAL, OR INTERMITTENT FORCE READINGS TAKEN WHEN THE STRAND IS IN FULL BODILY CONTACT WITH THE WALL WILL NOT BE ACCEPTED.
 - FORCE READINGS BASED ON ANYTHING OTHER THAN INSTANTANEOUS MONITORING AS THE STRAND IS BEING TENSIONED WILL NOT BE ACCEPTED.
 - INTERNAL TENDONS PLACED CIRCUMFERENTIALLY INSIDE THE COREWALL WILL NOT BE ACCEPTED FOR THIS METHOD.
 - THE STRAND SHALL BE 3/8-INCH DIAMETER BEFORE GALVANIZING WITH A MINIMUM GALVANIZING OF 0.85 OUNCES PER SQUARE FOOT AND A MINIMUM BREAKING STRENGTH OF 21,400 POUNDS AFTER GALVANIZING.
 - IF MULTIPLE LAYERS OF STRAND ARE REQUIRED, PROVIDE 3/8-INCH MINIMUM THICKNESS THICKNESS OF SHOTCRETE COVERAGE BETWEEN LAYERS.
 - PROVIDE 1 1/2 INCH MINIMUM OF SHOTCRETE COVERAGE OVER THE OUTER LAYER OF STRAND.
 - ALL SHOTCRETE SHALL BE APPLIED WITH AN AUTOMATED PROCESS KEEPING THE NOZZLE AT A CONSTANT DISTANCE AND ANGLE AS IT TRAVELS AT A UNIFORM BI-DIRECTIONAL SPEED. SEE SPECIFICATIONS FOR SHOTCRETE FINISHING REQUIREMENTS.
- VERTICAL PRESTRESSING NOTES:
 - PRESTRESSING STEEL SHALL BE 1 1/4-INCH DIAMETER THREADBARS MEETING THE TENSILE, PHYSICAL, AND DEFORMATION REQUIREMENTS OF ASTM A722, TYPE II BARS.
 - THREADBARS WITH QUENCHED OR TEMPERED STEEL WILL NOT BE ALLOWED.
 - THREADBARS SHALL BE COATED WITH UNOCAL SOLUBLE OIL 10 RUSTBAN OR EQUAL PRIOR TO INSTALLATION INTO THE PVC DUCT PIPE.
 - THREADBARS SHALL HAVE A MAXIMUM CARBON CONTENT OF 0.55%.
 - DEFORMATIONS SHALL BE UNIFORM AND SUCH THAT THE BAR MAY BE CUT AT ANY POINT AND INTERNAL THREADS OF THE PROPER NUT CAN BE FREELY THREADED ONTO THE BAR.
 - MINIMUM ULTIMATE STRENGTH OF THE NUT MUST EQUAL AT LEAST 95% OF THE MINIMUM ULTIMATE STRENGTH OF THE BAR.
 - DURING EACH WALL POUR, FLUSH THE VERTICAL THREADBAR PVC DUCTS WITH CLEAN WATER FROM A HOSE PLACED IN THE THE SQUARE TUBING AT THE TOP OF THE WALL.
 - EACH VERTICAL TENDON SHALL BE STRESSED TO PROVIDE AN AVERAGE OF 200 PSI FOR THE ENTIRE WALL SECTION AFTER ACCOUNTING FOR LONG-TERM LOSSES.

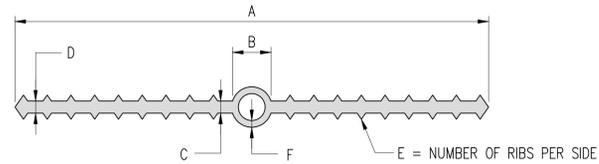
- GROUT PUMP EACH VERTICAL THREADBAR PVC DUCT FROM THE BOTTOM GROUT CONNECTION WITH A 2-PART WATER INSENSITIVE EPOXY UNTIL THE ENTIRE NUT AT THE TOP ANCHOR CONNECTION HAS BEEN COVERED. DRYPACK THE REMAINDER OF THE TUBING WITH A 1-PART CEMENT TO 2-PARTS SAND MIX IMMEDIATELY AFTER THE INSIDE OF THE TUBING HAS BEEN COATED WITH EPOXY GROUT. IN LIEU OF DRYPACKING, THE TUBING MAY BE FILLED WITH PEA GRAVEL PRIOR TO PUMPING THE GROUT, AND THE ENTIRE TUBE MAY BE PUMPED FULL OF GROUT.
- BUCKLING CRITERIA OF WALL DESIGN:
THE INTEGRITY OF THE WALL SHOWN ON THESE DRAWINGS IS STRICTLY PREDICATED ON THE FOLLOWING CONDITIONS:
 - THE STRICT CONFORMANCE TO THE CLOSE STRESS-TOLERANCE AND OTHER REQUIREMENTS OF THE CIRCUMFERENTIAL PRESTRESSING INSTALLATION INDICATED IN THE CIRCUMFERENTIAL PRESTRESSING NOTES ABOVE AND ON OTHER PARTS OF THESE DRAWINGS AND IN THE TECHNICAL SPECIFICATIONS.
 - SEE SPECIFICATIONS FOR OUT-OF-ROUND TOLERANCE LIMITS.
 - THERE SHALL BE NO BLOCK-OUTS OR OTHER TYPES OF WALL OPENINGS OTHER THAN THOSE SHOWN ON THESE DRAWINGS.
- APPURTENANCE INSTALLATION NOTES:
 - WHERE EXTERIOR APPURTENANCES REQUIRE ANCHORS TO BE PLACED IN THE WALL EXTERIOR, DRILL AND PLACE AFTER WRAPPING AND BEFORE SHOTCRETING. TAKE EXTREME CARE TO AVOID DAMAGING THE PRESTRESSING STRAND. PLACE A STEEL PIPE AROUND THE DRILL BIT TO KEEP THE BIT FROM COMING IN CONTACT WITH THE PRESTRESSING STRAND. INSTALL INSERTS BEFORE SHOTCRETE TO MARK HOLE LOCATIONS. FOR ALL TYPE OF ANCHORING SYSTEMS, INCLUDING DROP-IN AND EXPANSION WEDGE ANCHORS, FILL HOLE IN SHOTCRETE AND WALL WITH EPOXY BEFORE FINAL INSTALLATION OF ANCHORS TO ASSURE COMPLETE COVERAGE AND PROTECTION OF THE STRAND.
 - ADHESIVE ANCHORS WITH 1 INCH MAXIMUM EMBEDMENT INTO THE SHOTCRETE MAY ONLY BE USED IN NON-STRUCTURAL APPLICATIONS AND WHEN APPROVED BY THE ENGINEER OF RECORD. WHEN DRILLING HOLES IN SHOTCRETE, THE DRILL SHALL BE EQUIPPED EQUIPPED WITH A POSITIVE STOP TO PREVENT DRILLING MORE THAN 1 INCH IN DEPTH. USE EPOXY TO INSURE COMPLETE COVERAGE AND PROTECTION OF THE PRESTRESSING STRAND. DO NOT USE EXPANSION OR DROP-IN ANCHORS.
 - USE STAINLESS STEEL BOLTS AND ANCHOR ASSEMBLIES UNLESS NOTED OTHERWISE. WHERE STAINLESS STEEL BOLTS OR ANCHORS ARE IN CONTACT WITH DISSIMILAR METALS, USE INSULATING SLEEVES AND PHENOLIC WASHERS TO ELECTRONICALLY ISOLATE THE BOLT.

 <p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION</p> <p><i>Jerry S. Fujita</i> EMP. 4/26 Signature</p>		REVISION	DATE	DESCRIPTION	BY	APPROVED
		CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG				
RESERVOIR GENERAL NOTES						
APPROVED:		02/02/2026		DATE		
BY-MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI						
S-1						
KODANI & ASSOCIATES ENGINEERS, LLC <small>1814 E. KAUAI, HAWAII 96766</small>						
DESIGNED BY: JF	DRAWN BY: CAD	DATE: 26 April 2024	SHEET 30 OF 65			

ABBREVIATIONS:

A.C.	ASPHALT CONCRETE		
ALUM	ALUMINUM	MAX MIN.	MAXIMUM MINIMUM
BLDG.	BUILDING		
BLK.	BLOCK	O.C.	ON CENTER
BOT	BOTTOM	OD	OUTSIDE DIAMETER
C.B.	CATCH BASIN	PCC	PORTLAND CEMENT CONCRETE
C.I.	CAST IRON	PSF	POUNDS PER SQUARE FOOT
C.J.	CONSTRUCTION JOINT	PSI	POUNDS PER SQUARE INCH
CLR.	CLEAR	PVC	POLYVINYL CHLORIDE
CONC.	CONCRETE		
CONN	CONNECTION	R	RADIUS
CONT.	CONTINUOUS	RAD	RADIUS
		RCP	REINFORCED CONCRETE PIPE
		REINF	REINFORCEMENT
DFT	DRY FILM THICKNESS		
DI	DUCTILE IRON		
DIA.	DIAMETER	SCH	SCHEDULE
DIAG.	DIAGONAL	SECT	SECTION
DWGS	DRAWINGS	SF	SQUARE FOOT
		SHTS	SHEETS
ELEC	ELECTRIC OR ELECTRICAL	SIM	SIMILAR
ELEV	ELEVATION	SPEC	SPECIFICATION
EMBED	EMBEDMENT	SQ.	SQUARE
EQ.	EQUAL	S.S.	STAINLESS STEEL
ETC	EXCETERA	STD.	STANDARD
EW	EACH WAY	STL	STEEL
EXIST., (E)	EXISTING	SYMM	SYMMETRICAL
EXP	EXPANSION	THK.	THICK
		TYP.	TYPICAL
FB	FLAT BAR FIN		
FLR	FINISH FLOOR		
FT	FOOT	UNO	UNLESS NOTED OTHERWISE
FTG.	FOOTING		
		VERT	VERTICAL
GA.	GAUGE		
GAL	GALLON	W	WIDE FLANGE
GALV.	GALVANIZED	W/	WITH
HDG	HOT-DIPPED GALVANIZED	&	AND
HORIZ	HORIZONTAL		
HT	HEIGHT	#	NUMBER, POUND
I.D.	INSIDE DIAMETER	CL	CENTER LINE
I.E.	INSIDE EST (THAT IS)		
INV.	INVERT	Ø	DIAMETER
L	LENGTH	≥	GREATER OR EQUAL TO
LBS.	POUNDS		
LLH	LONG LEG HORIZONTAL	%	PERCENT
LLV	LONG LEG VERTICAL	PL	PLATE

 <p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION</p> <p><i>Jerry S. Fujita</i> Signature</p>	REVISION	DATE	DESCRIPTION	BY	APPROVED
	<p align="center">CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p> <p align="center">STRUCTURAL ABBREVIATIONS</p>				
	APPROVED:	02/02/2026			
	BY: MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI	DATE			
S-2					
KODANI & ASSOCIATES ENGINEERS, LLC <small>LĪHU E, KAUAI, HAWAII 96766</small>					
DESIGNED BY: JF	DRAWN BY: CADD	DATE: 26 April 2024	SHEET 31 OF 65		



TYPE	LOCATION	A	B	C	D	E	F	VINYLEX	GREENSTREAK
I	WALL TO WALL FOOTING	9"	1"	3/8"	3/8"	8	1/2"	RB938H	735
II	HORIZ WALL, VERT WALL FLOOR AND ROOF SLAB JOINTS*	6"	-	3/8"	7/16" OR 3/8"	7	-	R638	679
III	FLOOR TO PIPE BLOCKS	6"	1" OR 7/8"	3/8"	3/8"	7 OR 8	1/4" OR 3/32"	RB638H	732
IV	PIPE AT FLOOR PENETRATION**	-	-	-	-	-	-	KK590	SS-0320

* SEE NOTE 1 BELOW, ** HYDROPHILIC STRAP WATERSTOP

NOTES:

- NO CENTER BULB ALLOWED IN THE WATER STOP FOR VERTICAL AND HORIZONTAL JOINTS, AND FLOOR AND ROOF JOINTS.
- SEE SPECIFICATIONS FOR MATERIAL REQUIREMENTS.
- ALL SPLICES SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

1 PVC WATER STOP SCHEDULE

S-3 NOT TO SCALE

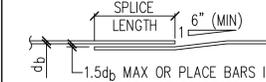
WATERSTOP NOTES:

- SEE SPECIFICATION FOR MATERIAL REQUIREMENTS.
- WATERSTOPS SHALL BE HELD IN PLACE IN THE FORMS BY THE USE OF A SPLIT FORM OR OTHER APPROVED METHOD.
- HORIZONTAL WATERSTOPS SHALL BE MANUALLY BENT-UP DURING CONCRETE PLACEMENT UNTIL CONCRETE IS PLACED TO LEVEL OF WATERSTOP; ADDITIONAL CONCRETE SHALL THEN BE PLACED, AFTER WHICH THE CONCRETE SHALL BE THOROUGHLY VIBRATED.
- ALL VERTICAL WATERSTOPS SHALL BE SECURED IN CORRECT POSITION USING HOG RINGS OR GROMMETS SPACED AT 12 INCHES ON CENTER ALONG THE LENGTH OF THE WATERSTOP AND WIRE TIE TO ADJACENT REINFORCING STEEL.
- DIRECTION CHANGES AND INTERSECTIONS SHALL BE PREMOULDED FITTINGS. FIELD BUTT SPLICES SHALL BE DONE BY SQUARING ENDS AND USE OF SPECIAL SPLICING TOOL SPECIFIED BY MANUFACTURER. FOLLOW APPROVED MANUFACTURER RECOMMENDATIONS. LAPPING OF WATERSTOP, USE OF ADHESIVES, OR SOLVENTS SHALL NOT BE ALLOWED.

BAR SIZE	CONCRETE STRENGTH = 4,500 PSI						CONCRETE STRENGTH = 4,000 PSI					
	LAP SPLICE			EMBEDMENT			LAP SPLICE			EMBEDMENT		
	BOT. BAR OR WALL BAR	TOP BAR	W/ STD HOOK	BOT. BAR OR WALL BAR	TOP BAR	W/ STD HOOK	BOT. BAR OR WALL BAR	TOP BAR	W/ STD HOOK	BOT. BAR OR WALL BAR	TOP BAR	W/ STD HOOK
#3, #4	24"	32"	8"	18"	24"	8"	25"	33"	19"	25"	8"	
#5	32"	42"	9"	24"	32"	9"	32"	42"	24"	32"	10"	
#6	36"	47"	11"	27"	36"	11"	38"	50"	29"	38"	12"	
#7	52"	68"	13"	40"	52"	13"	55"	72"	42"	55"	14"	
#8	59"	77"	15"	45"	59"	15"	63"	82"	48"	63"	16"	
#9	67"	88"	17"	51"	67"	17"	71"	93"	54"	71"	18"	
#10	73"	95"	18"	56"	73"	18"	78"	102"	60"	78"	19"	
#11	81"	106"	20"	62"	81"	20"	86"	112"	66"	86"	21"	

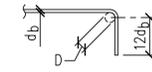
NOTES:

- LENGTHS ARE FOR CONCRETE WITH REBAR SPACED 6 BAR DIAMETERS MINIMUM. INCREASE 25% FOR BARS SPACED LESS THAN 6 BAR DIAMETERS.
- "TOP BARS" ARE HORIZONTAL BARS WITH 12" OR MORE OF CONCRETE CAST BELOW.

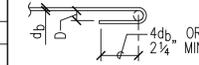


BAR LAP

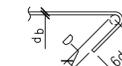
D = 6d_b FOR #8 AND SMALLER
D = 8d_b FOR #9 TO #11



90° BEND



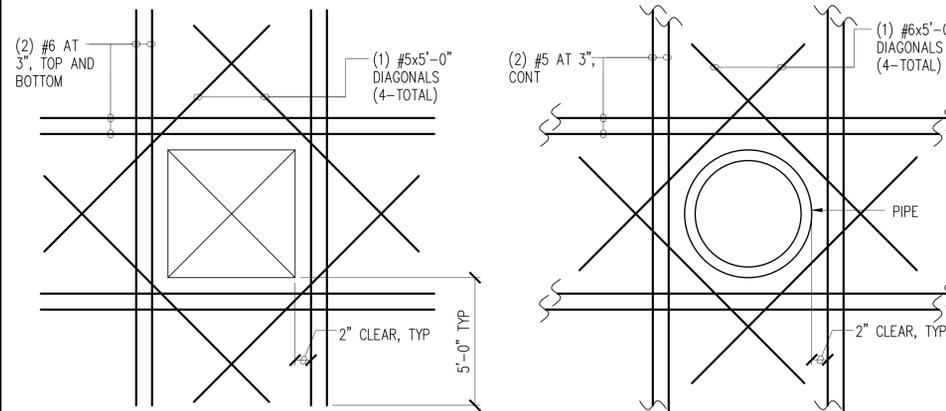
180° BEND



135° BEND

2 TYPICAL REBAR SPLICE AND EMBEDMENT LENGTH SCHEDULE

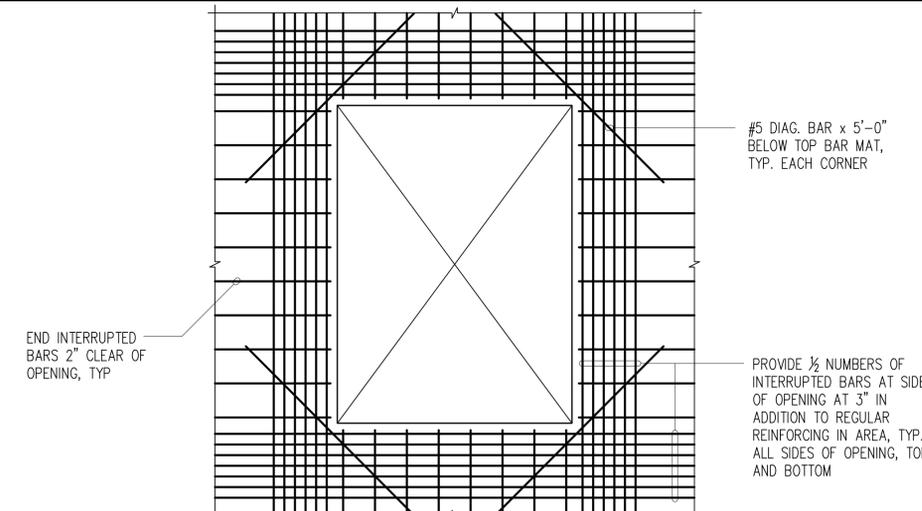
S-3 NOT TO SCALE



3 TYPICAL ADDED REINFORCING AT FLOOR AND ROOF OPENINGS

S-3 NOT TO SCALE

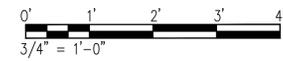
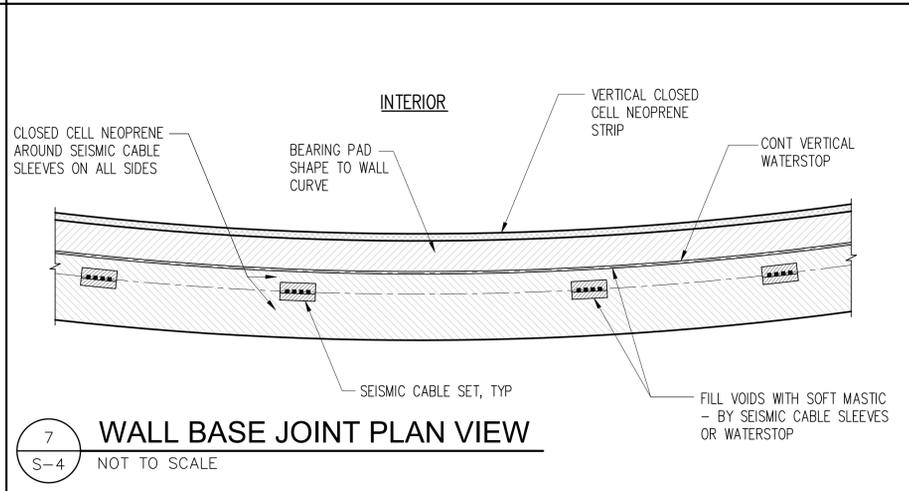
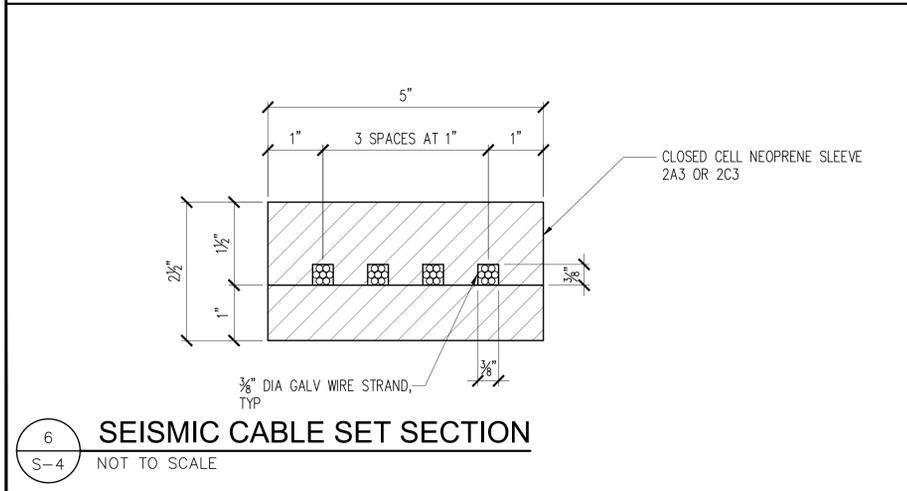
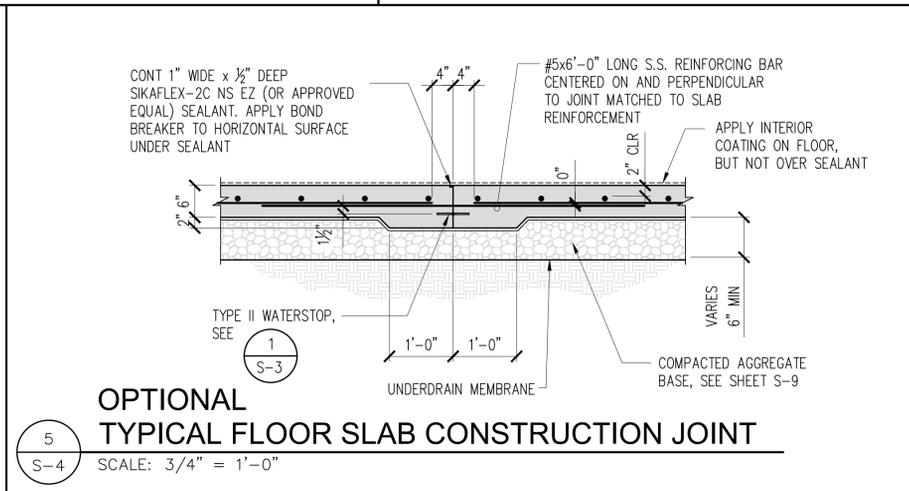
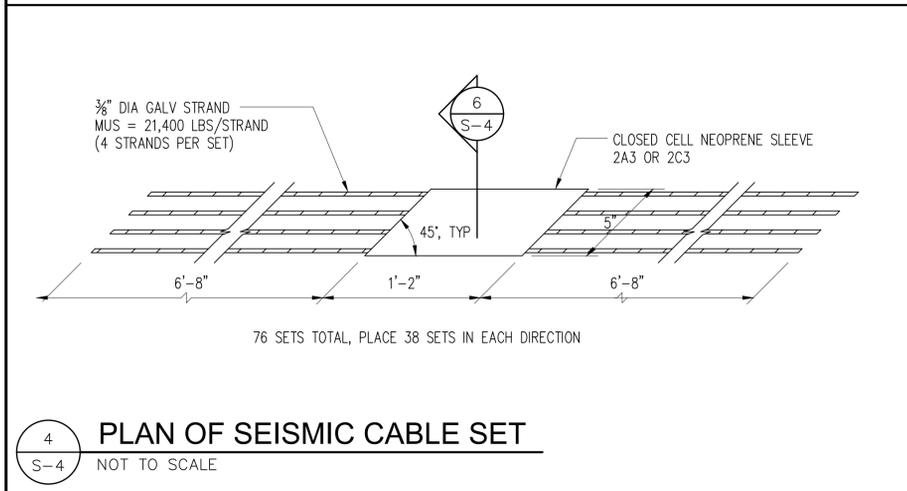
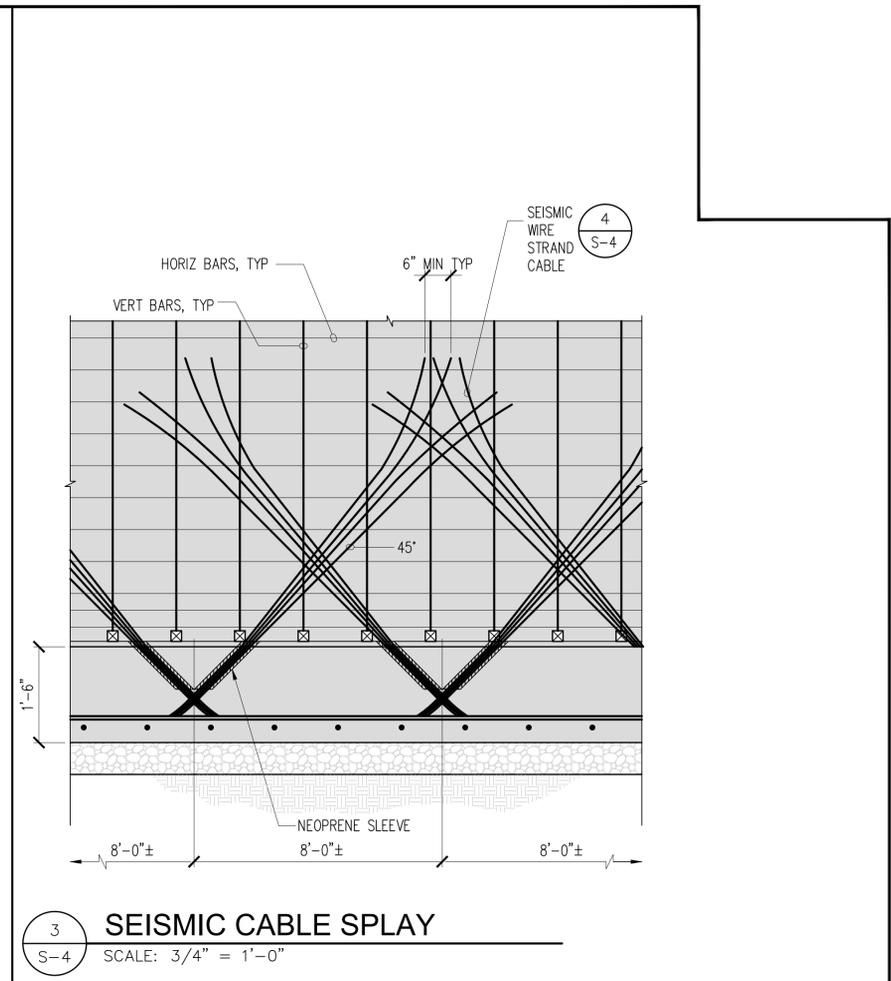
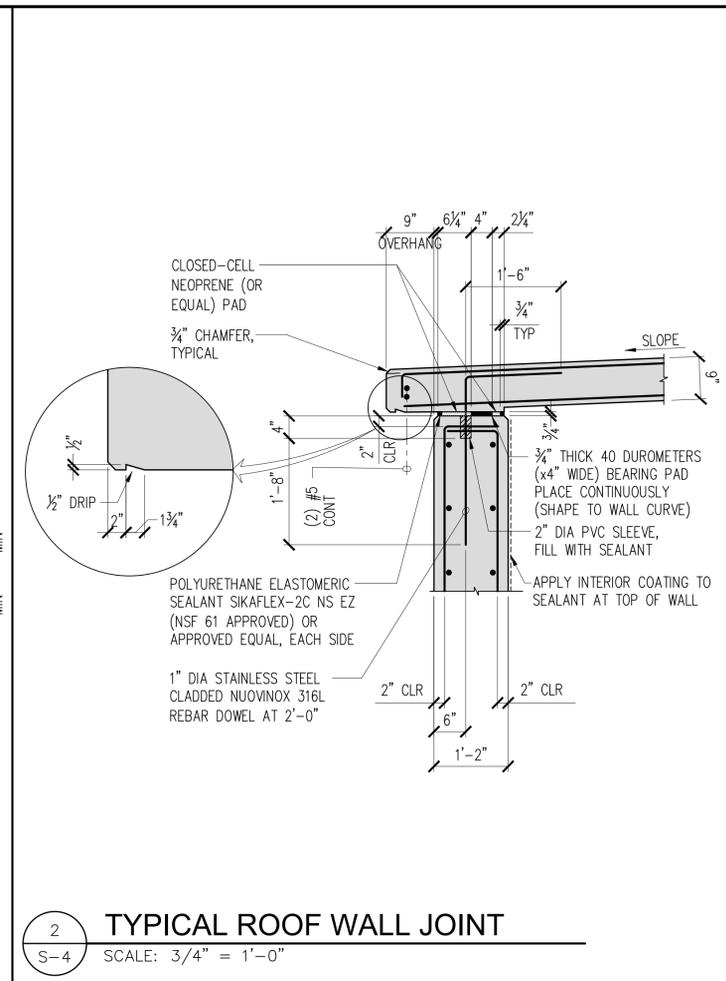
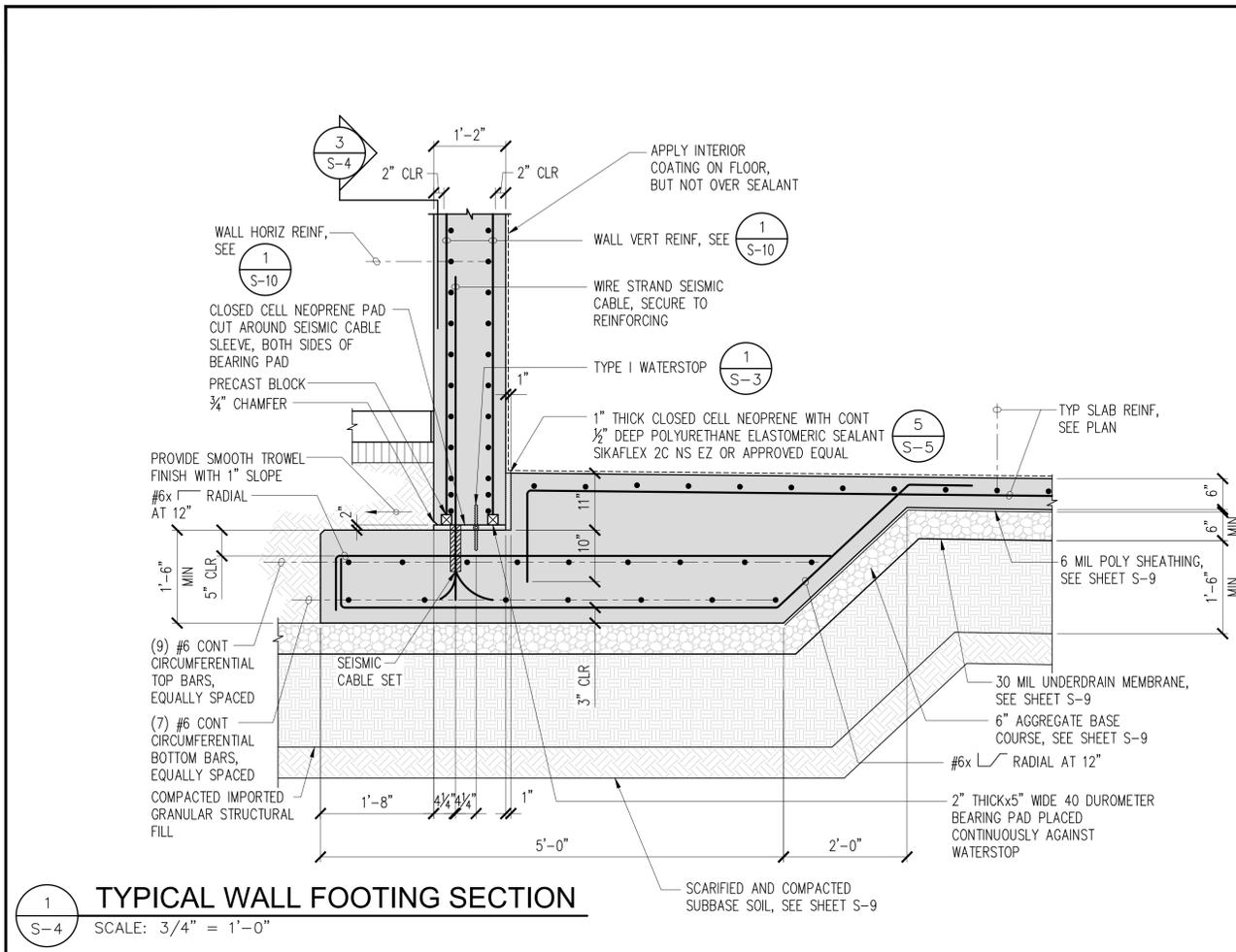
NOTES:
BEND REINFORCEMENT WHERE REQUIRED.



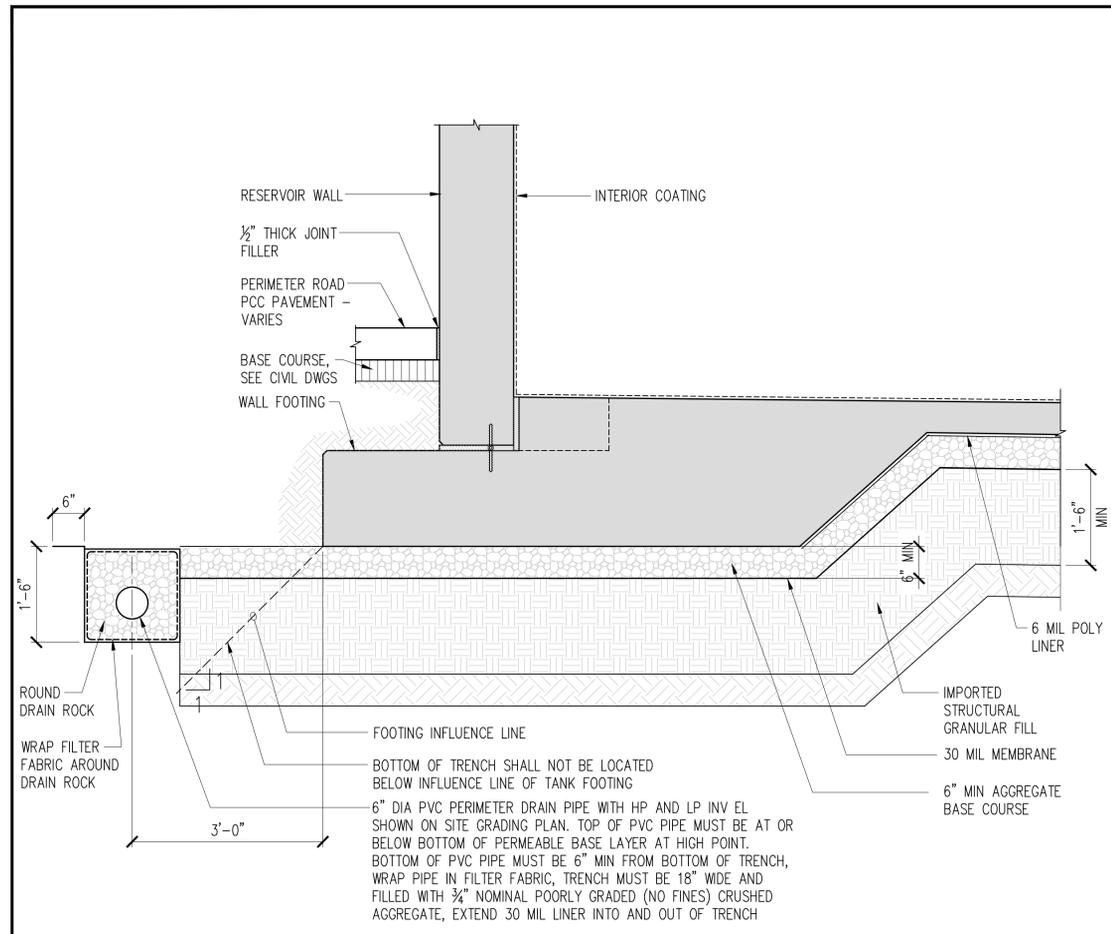
4 TYPICAL REINFORCING AT LARGE SLAB OPENING

S-3 NOT TO SCALE

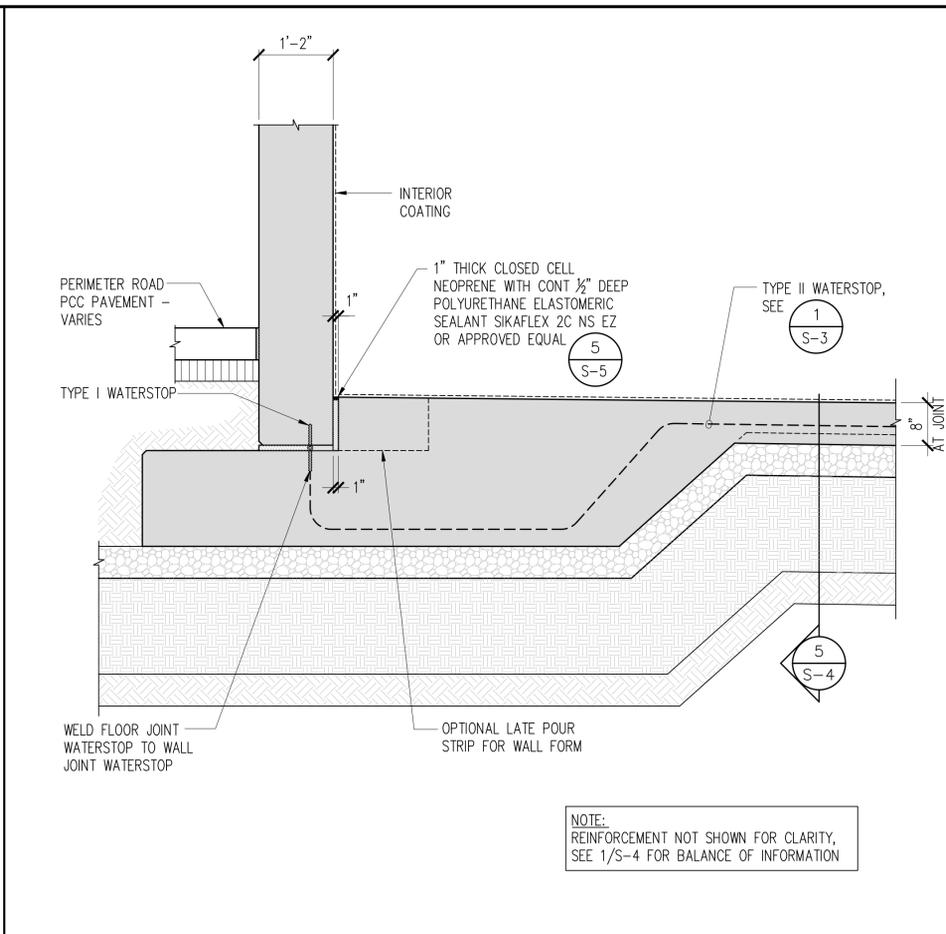
		CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG	
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION 		RESERVOIR TYPICAL DETAILS	
APPROVED: DATE: 02/02/2026		APPROVED: _____ DATE: _____	
DESIGNED BY: JF		S-3	
KODANI & ASSOCIATES ENGINEERS, LLC <small>LĪHU E, KĀLAUĀ, HAWAII 96766</small>			
DRAWN BY: CAD		SHEET 32 OF 65	



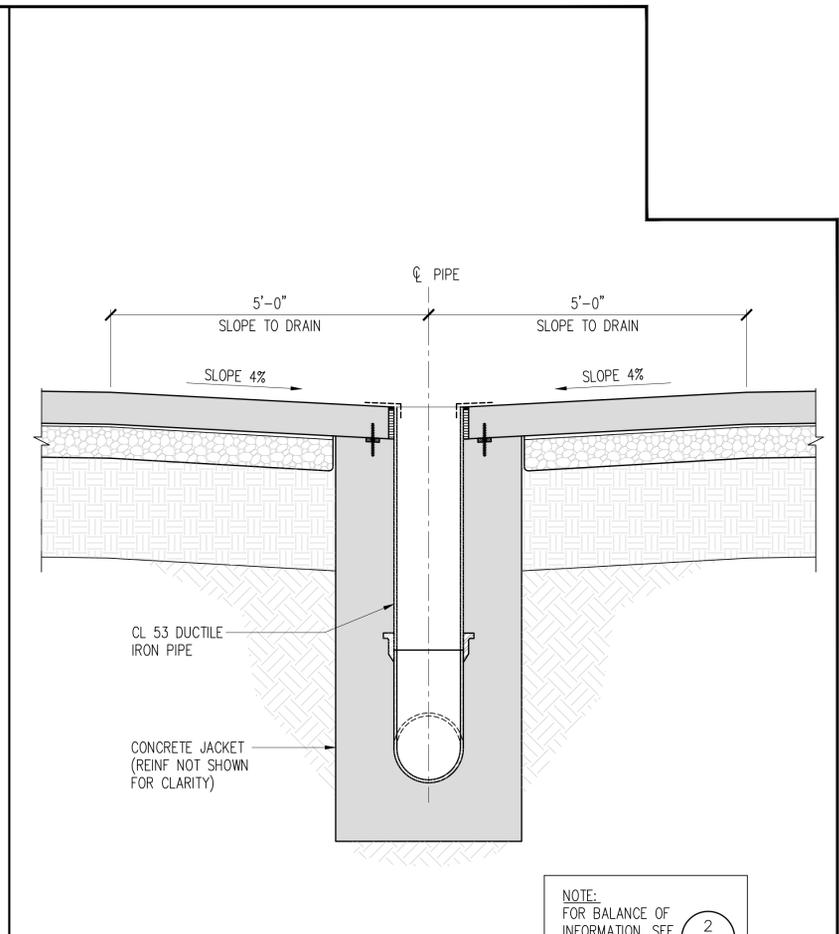
		CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG	
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION 		REINFORCED CONCRETE RESERVOIR FOUNDATION SECTION AND DETAILS	
APPROVED:		DATE: 02/02/2026	
DESIGNED BY: JF		DRAWN BY: CAD	
DATE: 26 April 2024		S-4	
KODANI & ASSOCIATES ENGINEERS, LLC <small>LĪHU E, KĀLAUĀ, HAWAII 96766</small>			
SHEET 33 OF 65			



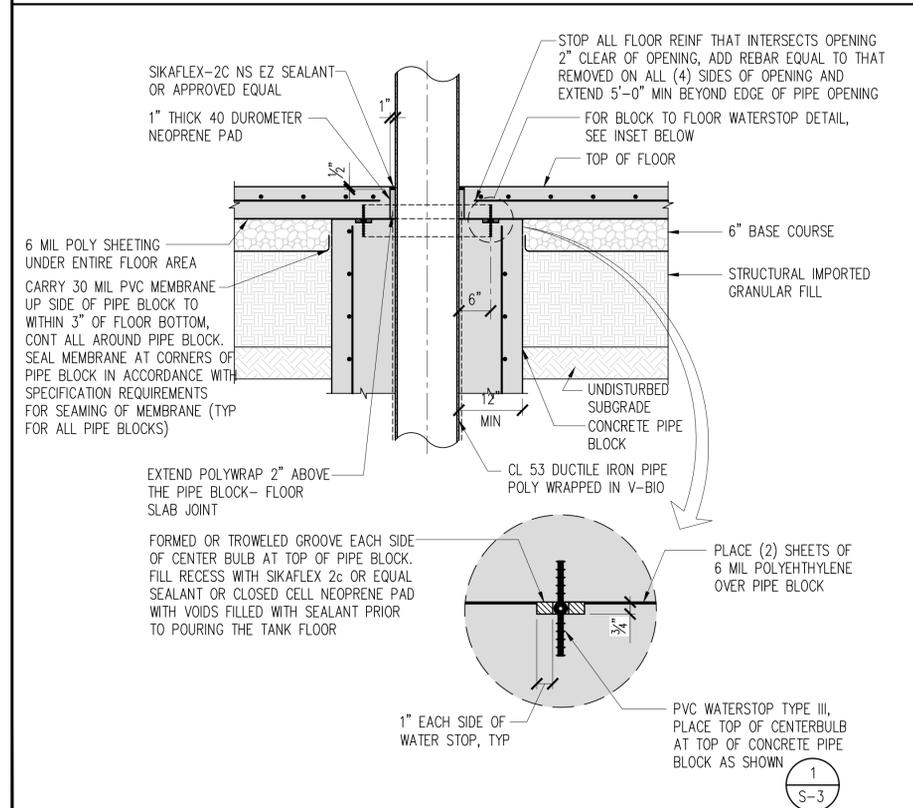
1 PERIMETER DRAIN DETAIL
S-5 SCALE: 3/4" = 1'-0"



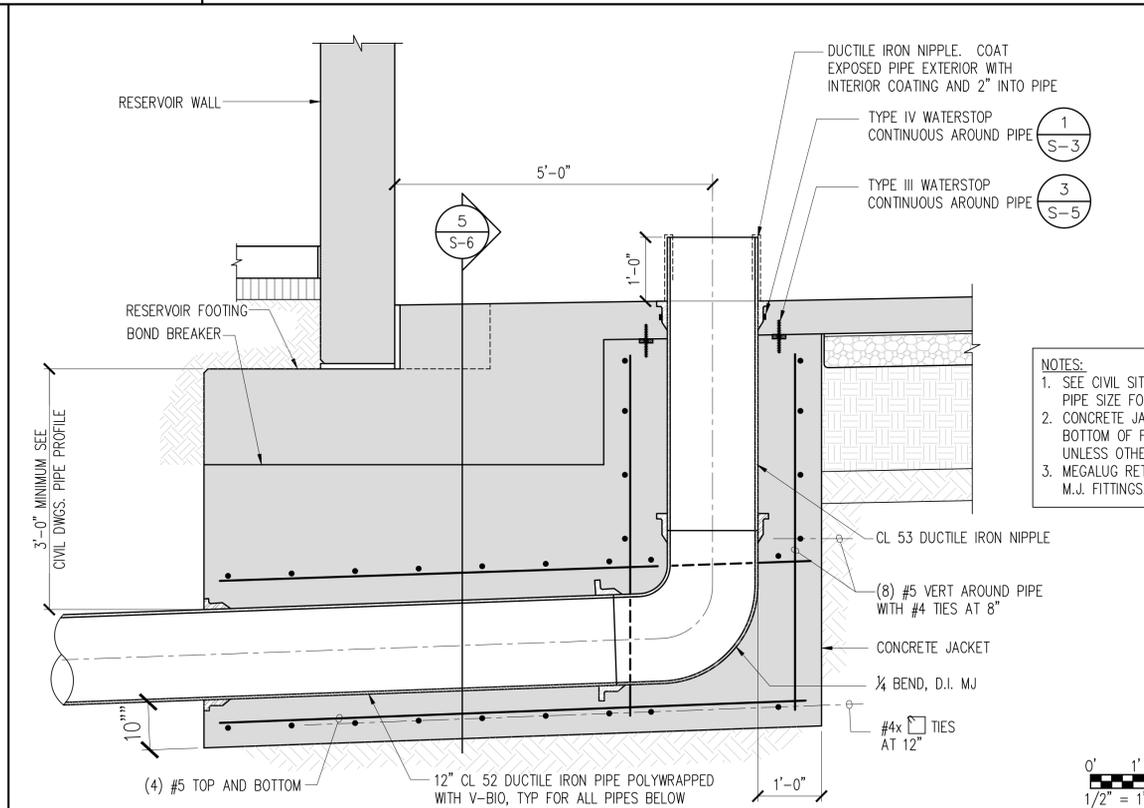
2 TYPICAL SECTION-FLOOR CONSTRUCTION JOINT AND WATERSTOP AT WALL
S-5 SCALE: 3/4" = 1'-0"



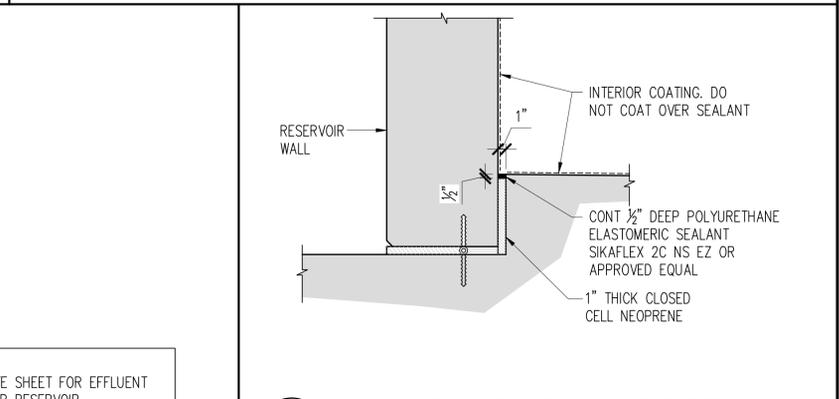
3 WASHOUT LINE SECTION
S-5 SCALE: 3/4" = 1'-0"



4 TYPICAL PIPE ENTRANCE THROUGH FLOOR DETAILS
S-5 SCALE: 3/4" = 1'-0"



5 INFLUENT/EFFLUENT LINE
S-5 SCALE: 1/2" = 1'-0"



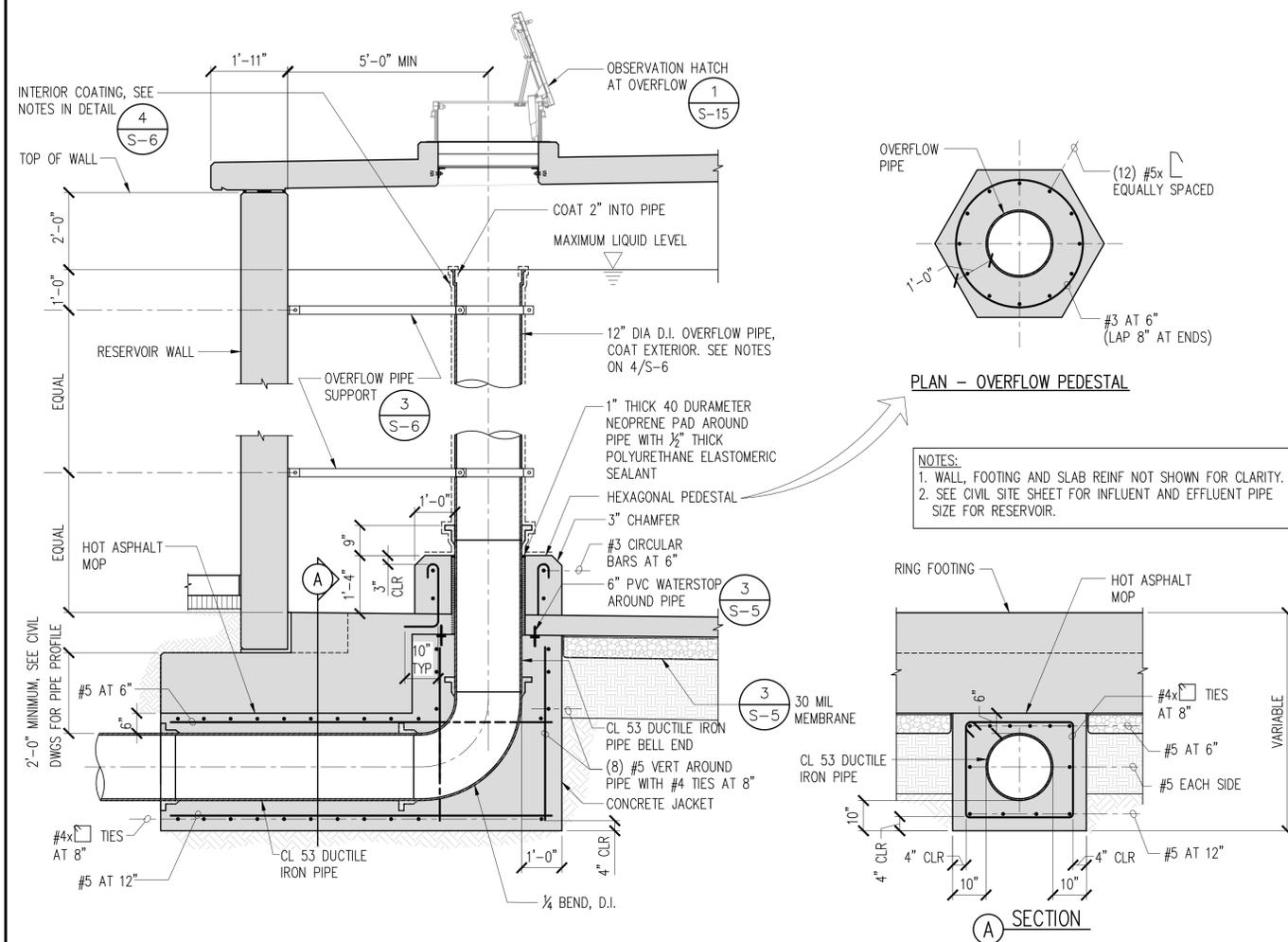
6 WALL BASE SEALANT DETAIL
S-5 NOT TO SCALE



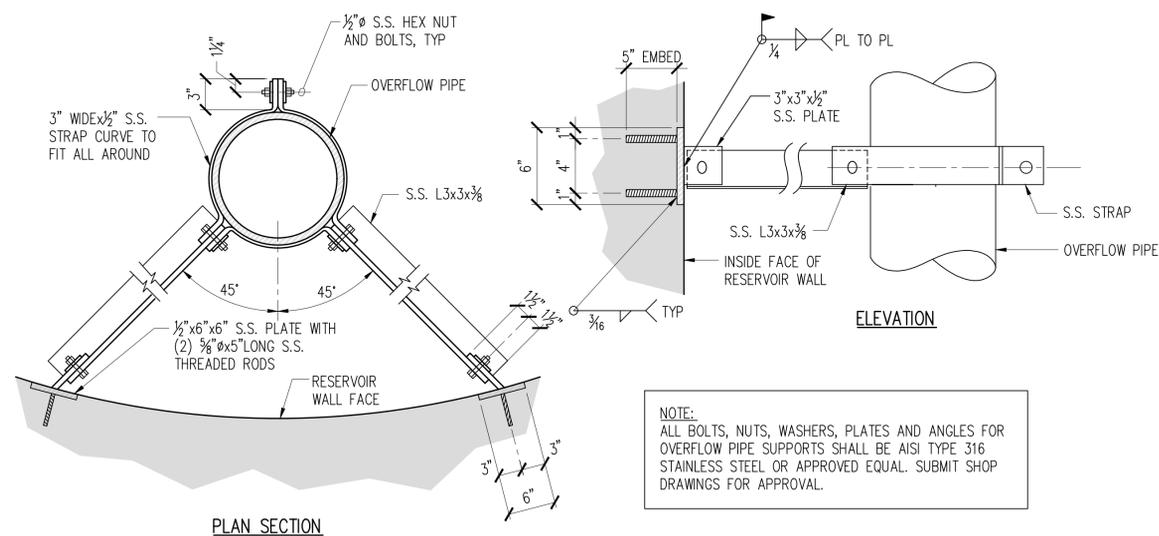
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Jerry S. Fujita
Signature EXP. 4/26

REVISION	DATE	DESCRIPTION	BY	APPROVED
CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG				
RESERVOIR FOUNDATION DETAILS				
APPROVED:	02/02/2026	DATE		
S-5				

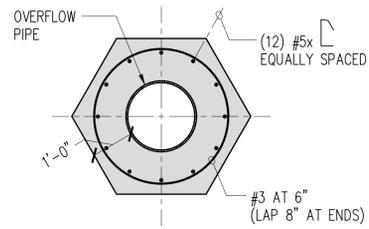
KODANI & ASSOCIATES ENGINEERS, LLC
1414 E. KALUA I, HAWAII 96766



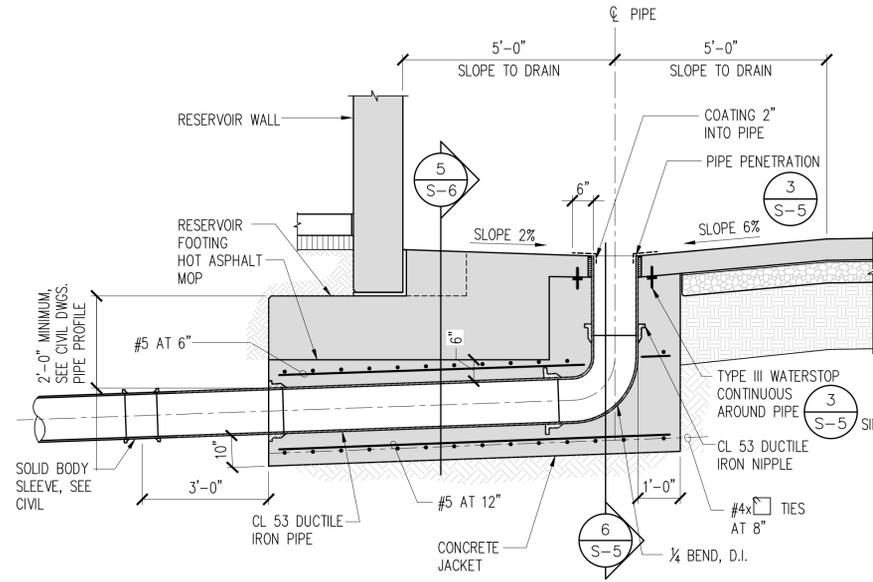
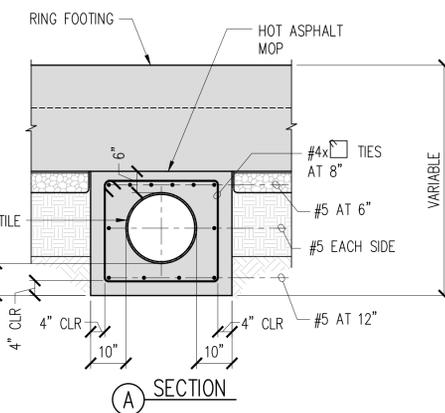
1 **DETAIL OF OVERFLOW PIPE**
SCALE: 1/2" = 1'-0"



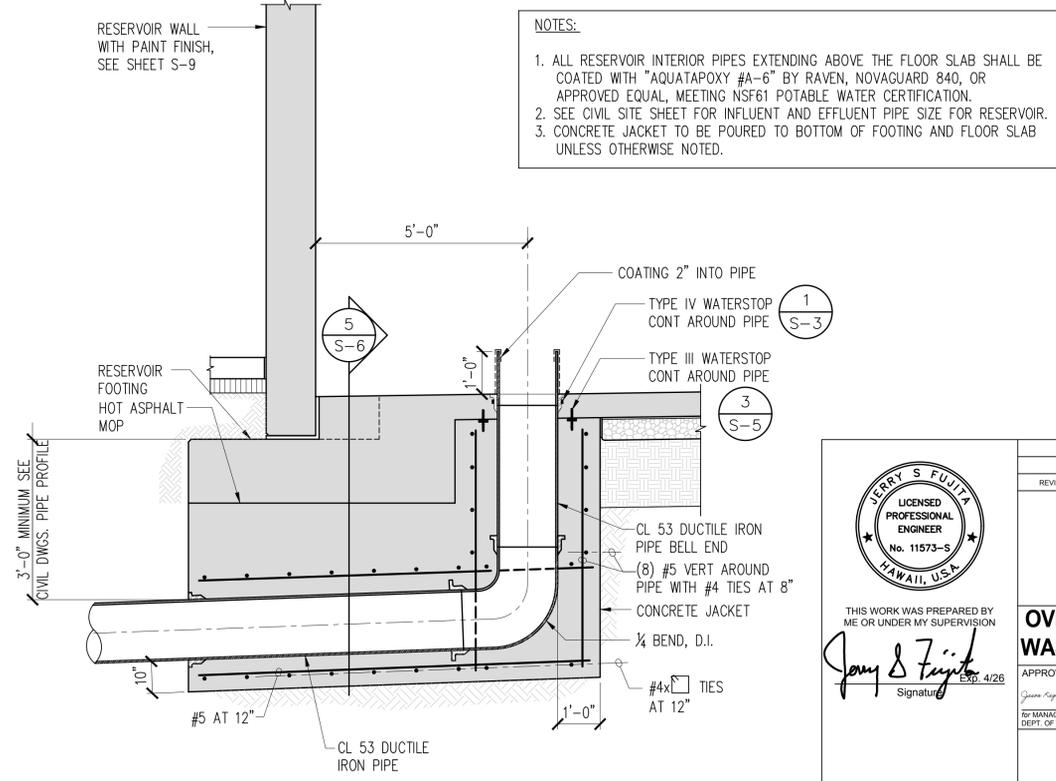
3 **OVERFLOW PIPE SUPPORT DETAILS**
NOT TO SCALE



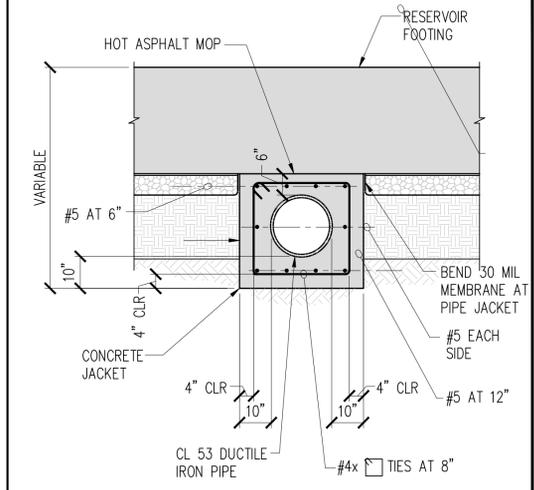
NOTES:
1. WALL, FOOTING AND SLAB REINF NOT SHOWN FOR CLARITY.
2. SEE CIVIL SITE SHEET FOR INFLUENT AND EFFLUENT PIPE SIZE FOR RESERVOIR.



2 **WASHOUT LINE**
SCALE: 1/2" = 1'-0"



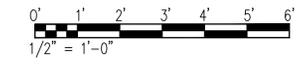
NOTE:
CONCRETE JACKET TO BE POURED TO BOTTOM OF FOOTING AND FLOOR SLAB UNLESS OTHERWISE NOTED.



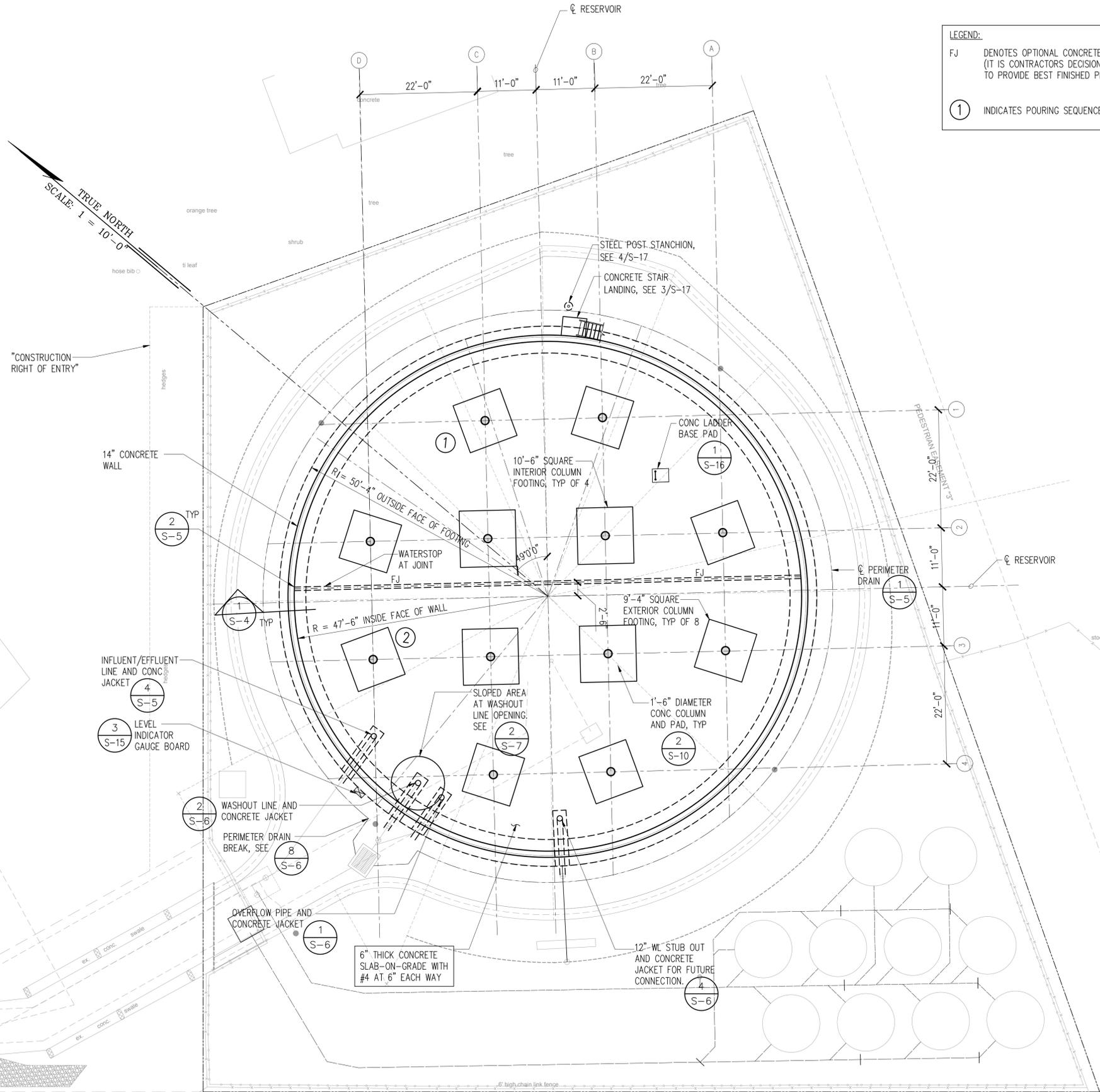
5 **PIPE JACKET SECTION**
SCALE: 1/2" = 1'-0"

NOTES:
1. ALL RESERVOIR INTERIOR PIPES EXTENDING ABOVE THE FLOOR SLAB SHALL BE COATED WITH "AQUATOPOXY #A-6" BY RAVEN, NOVAGUARD 840, OR APPROVED EQUAL, MEETING NSF61 POTABLE WATER CERTIFICATION.
2. SEE CIVIL SITE SHEET FOR INFLUENT AND EFFLUENT PIPE SIZE FOR RESERVOIR.
3. CONCRETE JACKET TO BE POURED TO BOTTOM OF FOOTING AND FLOOR SLAB UNLESS OTHERWISE NOTED.

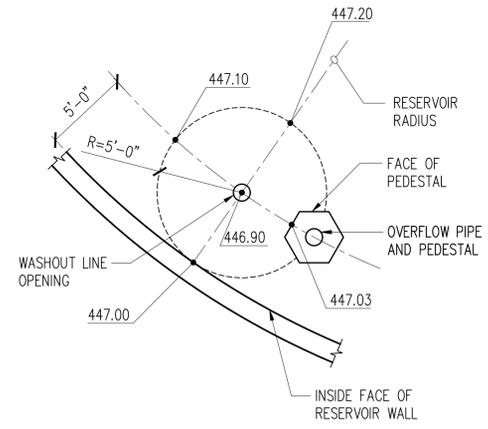
4 **INFLUENT LINE**
SCALE: 1/2" = 1'-0"



<p>JERRY S. FUJITA LICENSED PROFESSIONAL ENGINEER No. 11573-S HAWAII, U.S.A.</p> <p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION</p> <p><i>Jerry S. Fujita</i> Signature EMP. 4/26</p>	REVISION	DATE	DESCRIPTION	BY	APPROVED	
	<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p> <p>OVERFLOW, INFLUENT/EFFLUENT AND WASHOUT LINE SECTION AND DETAILS</p>					
	APPROVED:			DATE: 02/02/2026		
<p>S-6</p> <p>KODANI & ASSOCIATES ENGINEERS, LLC 1414 E. KALIA I, HAWAII 96766</p>						
DESIGNED BY: JF		DRAWN BY: CAD		DATE: 26 April 2024		
<p>SHEET 35 OF 65</p>						



LEGEND:
 FJ DENOTES OPTIONAL CONCRETE FLOOR CONSTRUCTION JOINT, SEE DETAIL $\frac{5}{S-4}$ (IT IS CONTRACTORS DECISION WHETHER OR NOT TO INSTALL IN ORDER TO PROVIDE BEST FINISHED PRODUCT)
 ① INDICATES POURING SEQUENCE



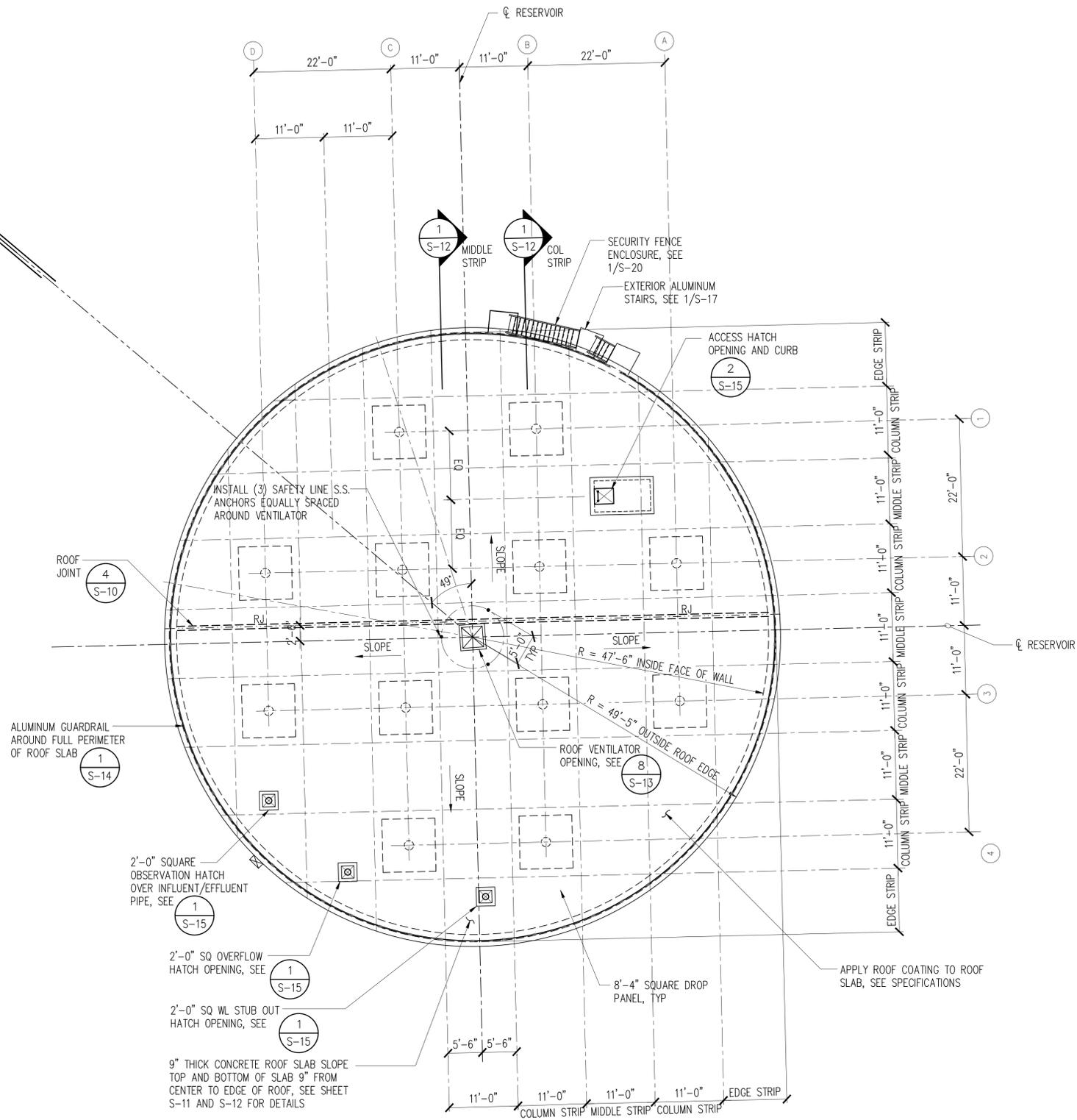
2
 S-7
SLOPED AREA AT WASHOUT LINE
 SCALE: 1" = 5'-0"

1
 S-7
RESERVOIR FOUNDATION PLAN
 SCALE: 1" = 10'-0"



<p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION</p> <p><i>Jerry S. Fujita</i> Signature EMP. 4/28</p>	<table border="1"> <thead> <tr> <th>REVISION</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> <th>APPROVED</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISION	DATE	DESCRIPTION	BY	APPROVED					
	REVISION	DATE	DESCRIPTION	BY	APPROVED						
	<p align="center">CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p>										
<p align="center">REINFORCED CONCRETE RESERVOIR FOUNDATION PLAN</p>											
<p>APPROVED: _____ DATE: 02/02/2026</p> <p>BY: _____ <small>MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI</small></p>											
<p align="center">S-7</p>											
<p align="center">KODANI & ASSOCIATES ENGINEERS, LLC <small>LĪHU E, KAUAI, HAWAII 96766</small></p>											
<p>DESIGNED BY: JF</p>	<p>DRAWN BY: CADDD</p>										
<p>DATE: 26 April 2024</p>	<p align="right">SHEET 36 OF 65</p>										

TRUE NORTH
SCALE: 1" = 10'-0"

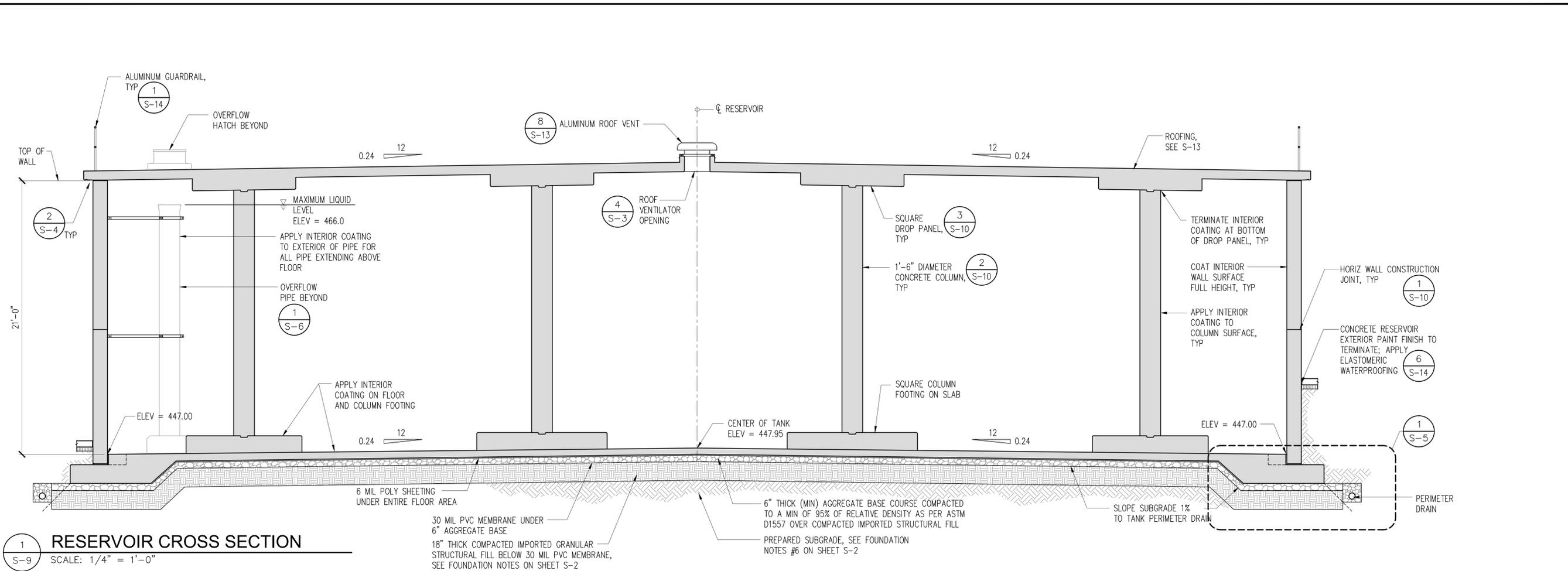


NOTE:
REINFORCING FOR ROOF SLAB IS SYMMETRICAL ABOUT BOTH DIRECTIONS, SEE SHEET S-11 AND S-12 FOR ADDITIONAL INFORMATION.

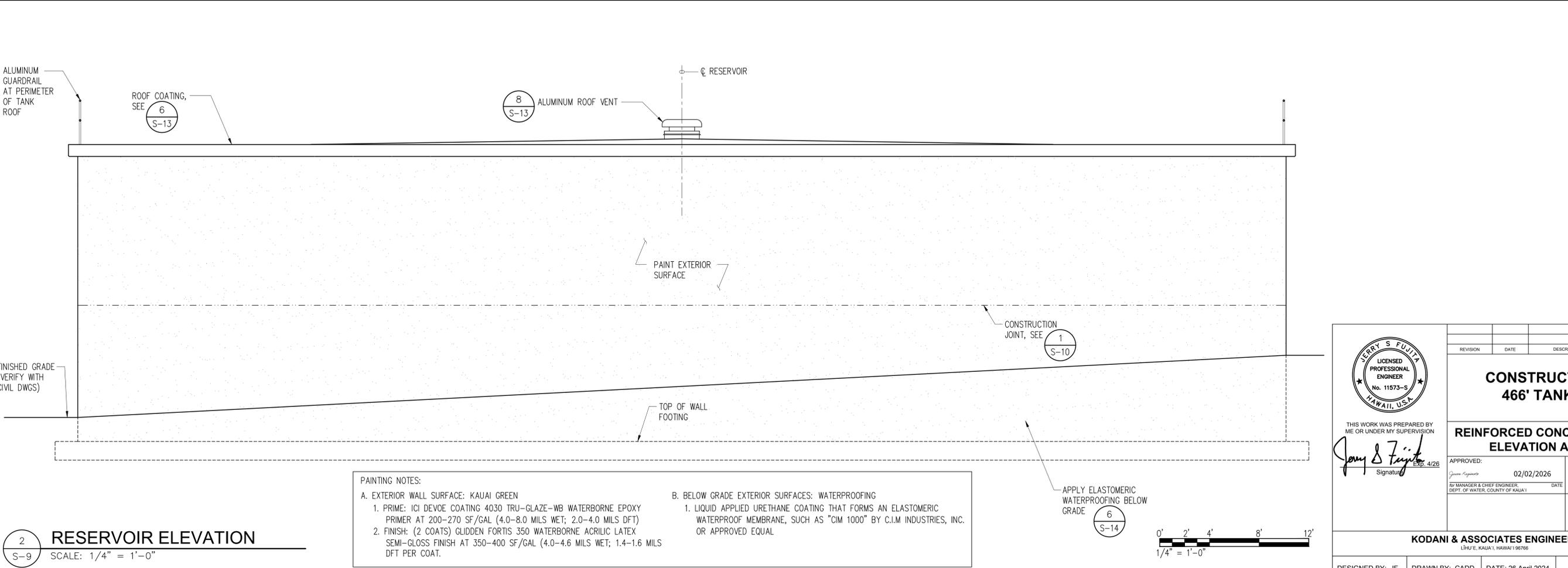
LEGEND:
RJ DENOTES ROOF CONSTRUCTION JOINT, SEE DETAIL (S-10)

1 RESERVOIR ROOF SLAB PLAN
S-8 SCALE: 1" = 10'-0"

		CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG	
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION 		REINFORCED CONCRETE RESERVOIR ROOF SLAB PLAN	
APPROVED: DATE: 02/02/2026 <small>MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI</small>		S-8	
KODANI & ASSOCIATES ENGINEERS, LLC <small>LĪHU E, KAUAI I, HAWAII 96766</small>			
DESIGNED BY: JF	DRAWN BY: CAOD	DATE: 26 April 2024	SHEET 37 OF 65



1 RESERVOIR CROSS SECTION
 SCALE: 1/4" = 1'-0"



2 RESERVOIR ELEVATION
 SCALE: 1/4" = 1'-0"

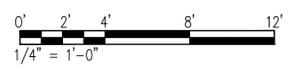
PAINTING NOTES:

A. EXTERIOR WALL SURFACE: KAUAI GREEN

- PRIME: 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)
- FINISH: (2 COATS) GLIDDEN FORTIS 350 WATERBORNE ACRYLIC LATEX SEMI-GLOSS FINISH AT 350-400 SF/GAL (4.0-4.6 MILS WET; 1.4-1.6 MILS DFT PER COAT.

B. BELOW GRADE EXTERIOR SURFACES: WATERPROOFING

- LIQUID APPLIED URETHANE COATING THAT FORMS AN ELASTOMERIC WATERPROOF MEMBRANE, SUCH AS "CIM 1000" BY C.I.M INDUSTRIES, INC. OR APPROVED EQUAL



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Jerry S. Fujita
 Signature
 Exp. 4/28

REVISION	DATE	DESCRIPTION	BY	APPROVED

**CONSTRUCT KĪLAUEA
 466' TANK, 1.0 MG**

**REINFORCED CONCRETE RESERVOIR
 ELEVATION AND SECTION**

APPROVED: *Jerry S. Fujita*

BY: MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI

DATE: 02/02/2026

S-9

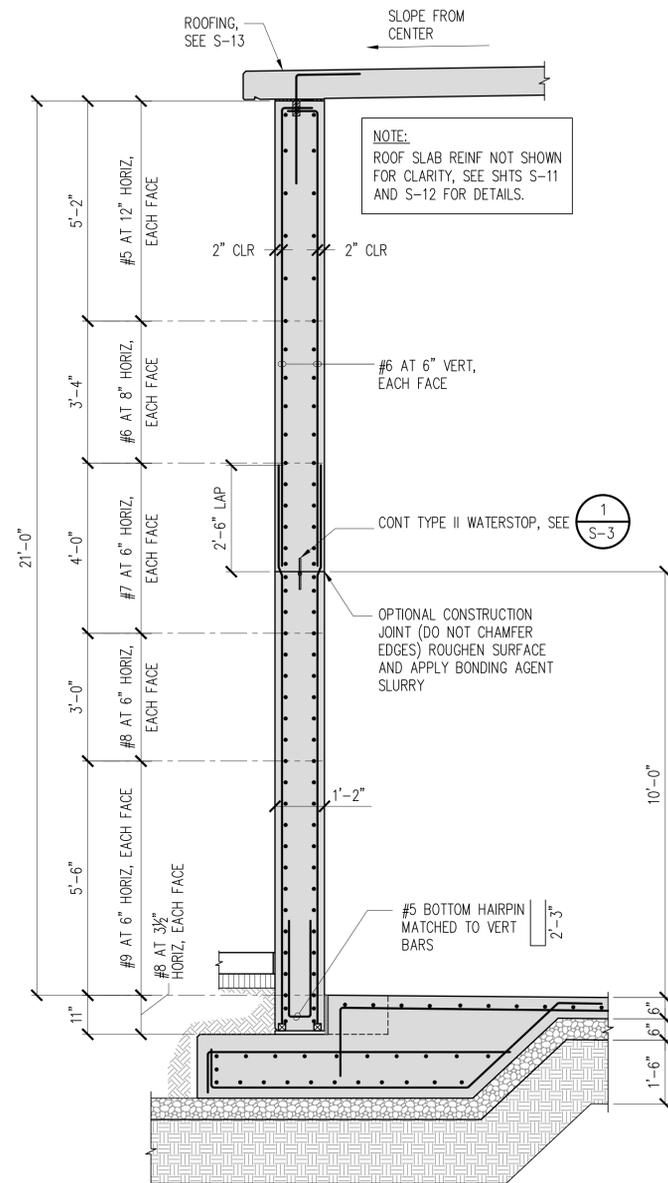
KODANI & ASSOCIATES ENGINEERS, LLC
LĪHU E, KAUAI, HAWAII 96766

DESIGNED BY: JF

DRAWN BY: CADD

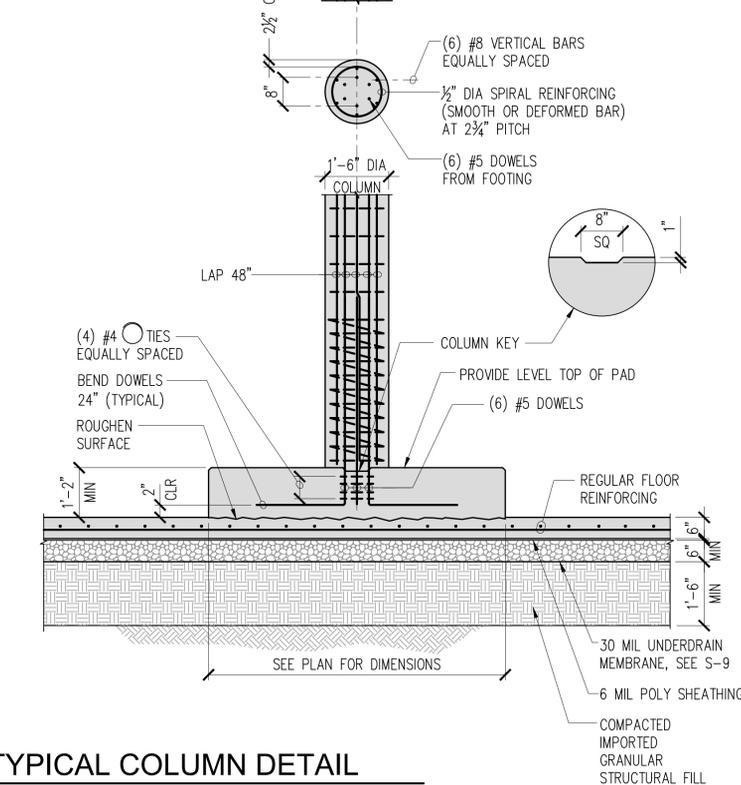
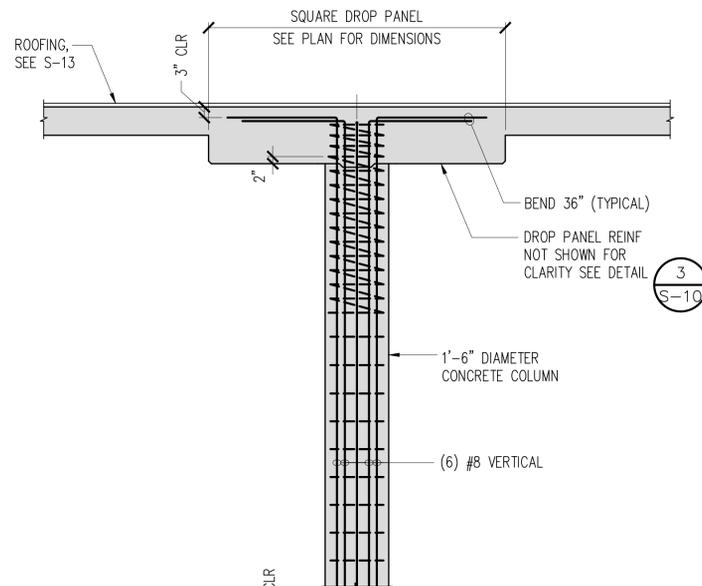
DATE: 26 April 2024

SHEET 38 OF 65



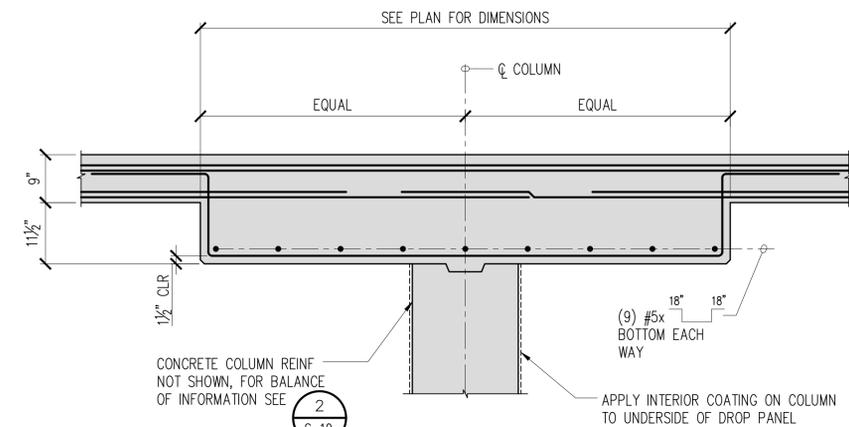
REINFORCED CONCRETE RESERVOIR - TYPICAL WALL SECTION

1
S-10 SCALE: 1/2" = 1'-0"



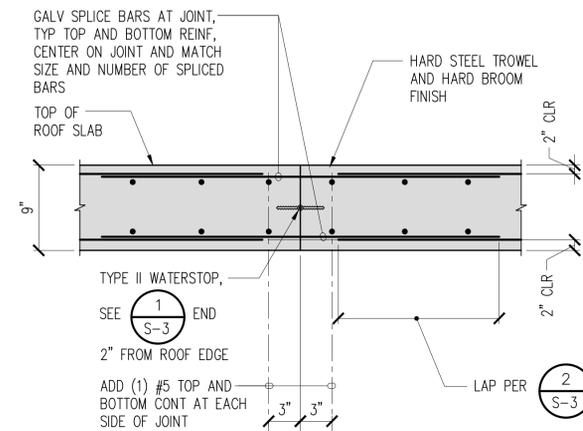
TYPICAL COLUMN DETAIL

2
S-10 NOT TO SCALE



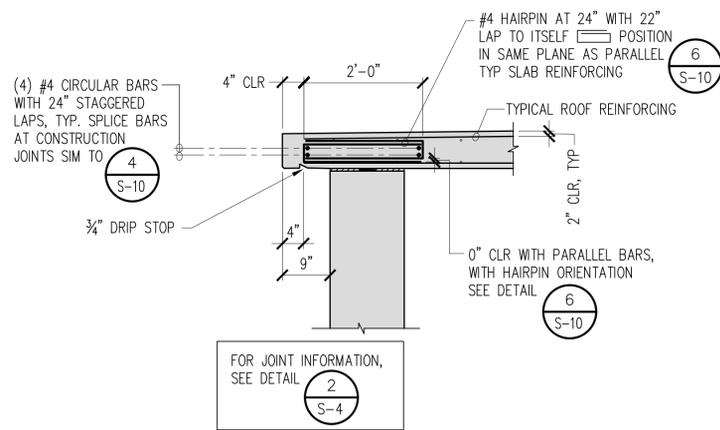
TYPICAL DROP PANEL DETAIL

3
S-10 SCALE: 3/4" = 1'-0"



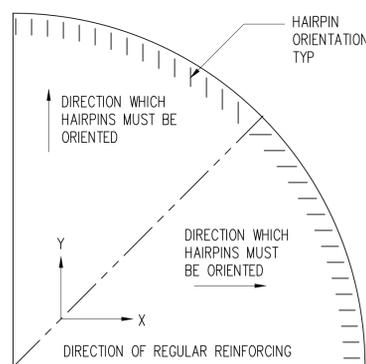
TYPICAL ROOF SLAB CONSTRUCTION JOINT DETAIL

4
S-10 NOT TO SCALE



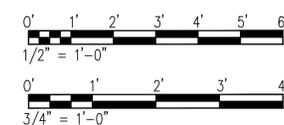
ROOF EDGE REINFORCING

5
S-10 SCALE: 3/4" = 1'-0"

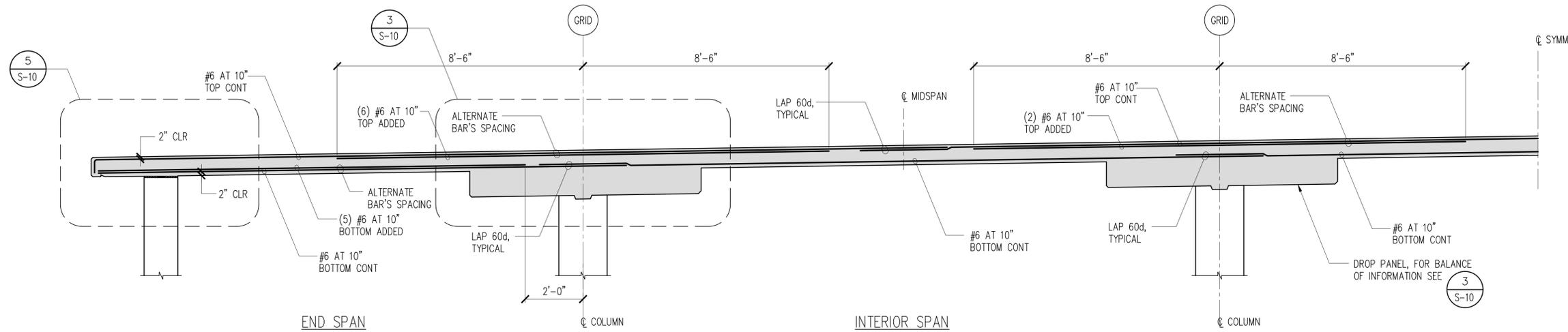


PLAN OF HAIRPIN ORIENTATION

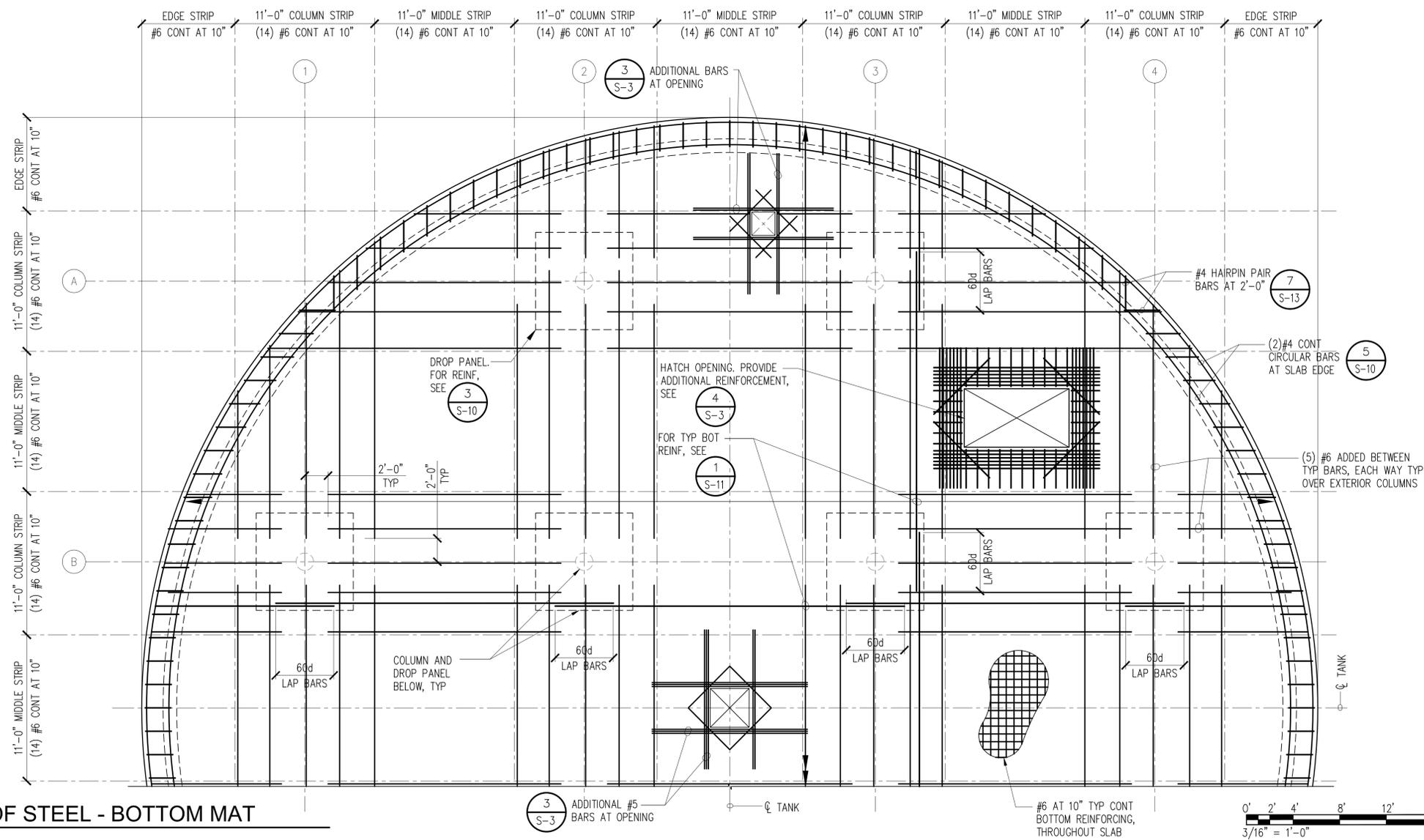
6
S-10 NOT TO SCALE



<p>JERRY S. FUJITA LICENSED PROFESSIONAL ENGINEER No. 11573-S HAWAII, U.S.A.</p> <p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION</p> <p><i>Jerry S. Fujita</i> Signature Exp. 4/28</p>	<table border="1"> <thead> <tr> <th>REVISION</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> <th>APPROVED</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISION	DATE	DESCRIPTION	BY	APPROVED					
	REVISION	DATE	DESCRIPTION	BY	APPROVED						
<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p> <p>RESERVOIR SECTION AND DETAILS</p> <p>APPROVED: <i>Jerry S. Fujita</i> 02/02/2026 DATE</p> <p>MANAGER & CHIEF ENGINEER DEPT. OF WATER, COUNTY OF KAUAI</p>	<p>S-10</p>										
<p>KODANI & ASSOCIATES ENGINEERS, LLC 1414 E. KALANĪ, HAWAII 96766</p>											
<p>DESIGNED BY: JF DRAWN BY: CAD DATE: 26 April 2024 SHEET 39 OF 65</p>											

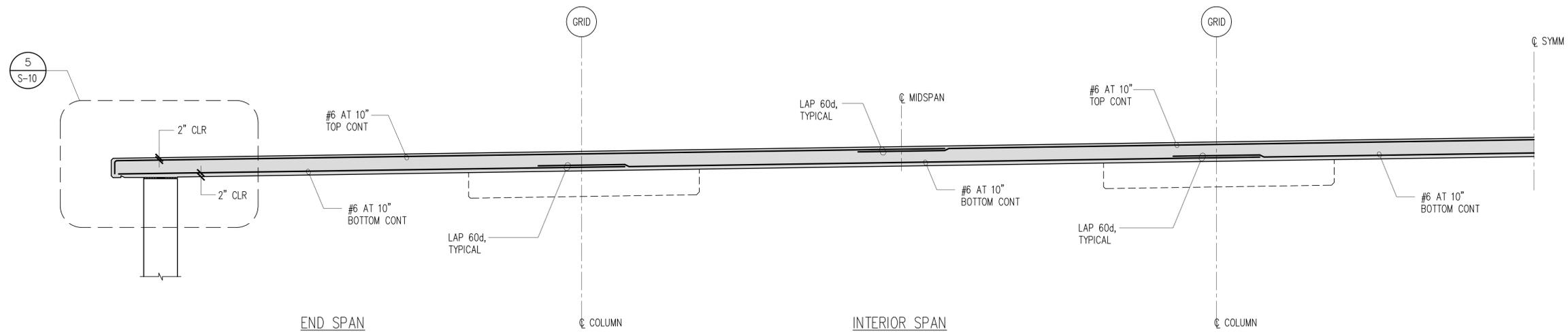


1 TYPICAL COLUMN STRIP REINFORCING
S-11 NOT TO SCALE

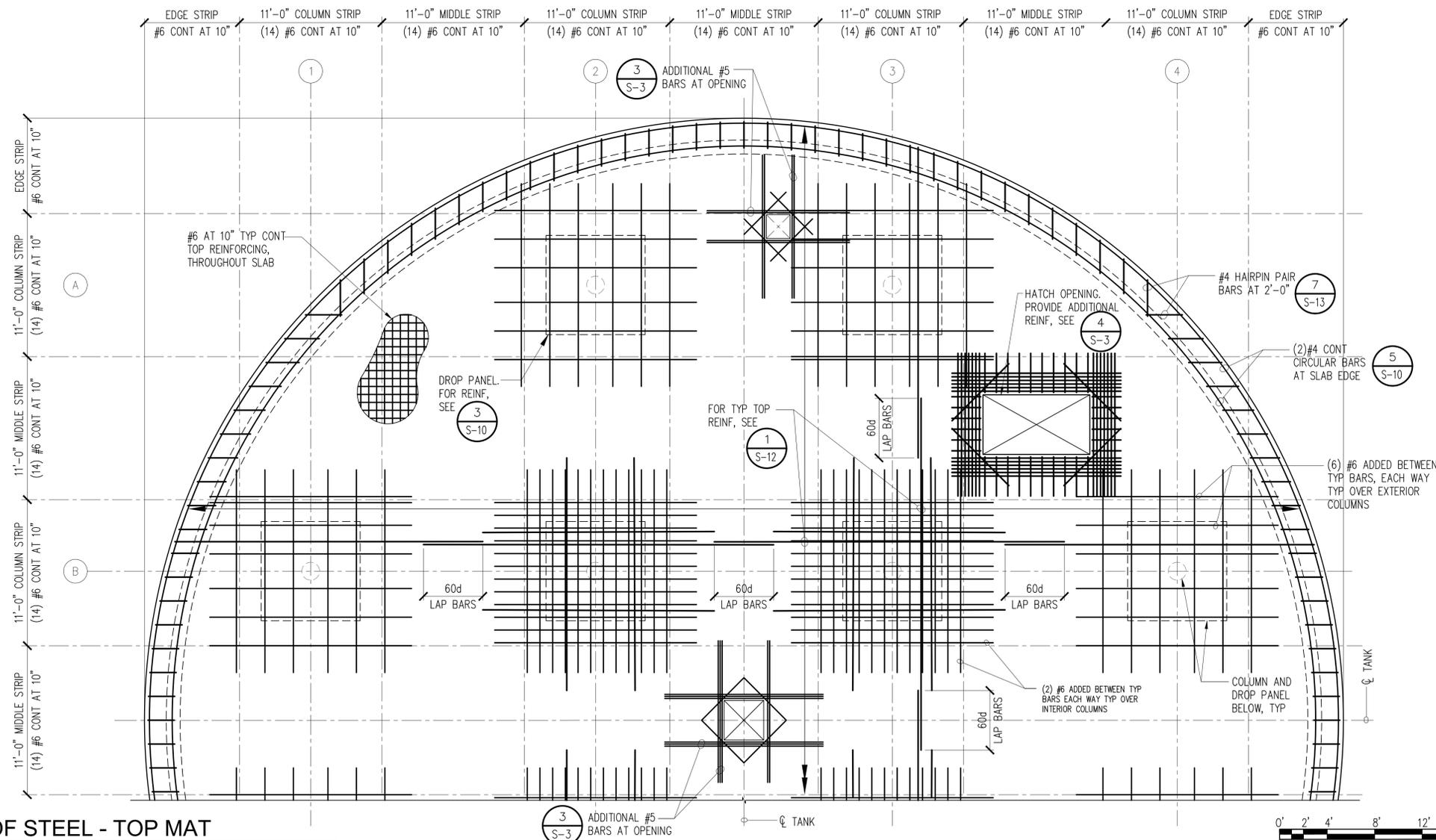


2 1/2 PLAN ROOF STEEL - BOTTOM MAT
S-11 SCALE: 3/16" = 1'-0"

		REVISION DATE DESCRIPTION BY APPROVED	
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION 		CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG	
APPROVED:		RESERVOIR ROOF SLAB BOTTOM MAT 1/2 PLAN AND COLUMN STRIP SECTION	
02/MANAGER & CHIEF ENGINEER DEPT. OF WATER, COUNTY OF KAUAI		02/02/2026 DATE	
S-11		KODANI & ASSOCIATES ENGINEERS, LLC <small>LĪHU E, KAUAI, HAWAII 96766</small>	
DESIGNED BY: JF		SHEET 40 OF 65	

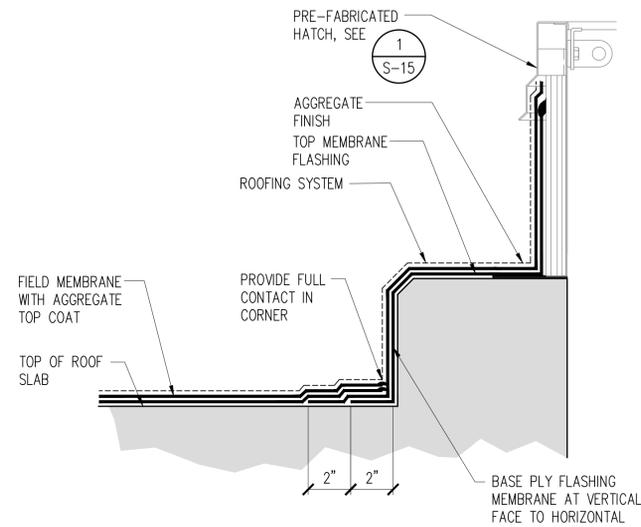


1 **TYPICAL MIDDLE STRIP REINFORCING**
S-12 NOT TO SCALE

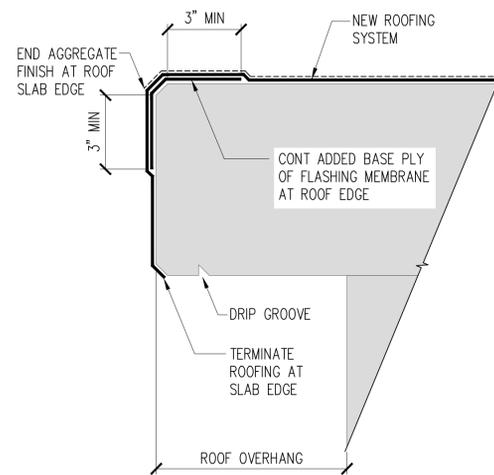


2 **1/2 PLAN ROOF STEEL - TOP MAT**
S-12 SCALE: 3/16" = 1'-0"

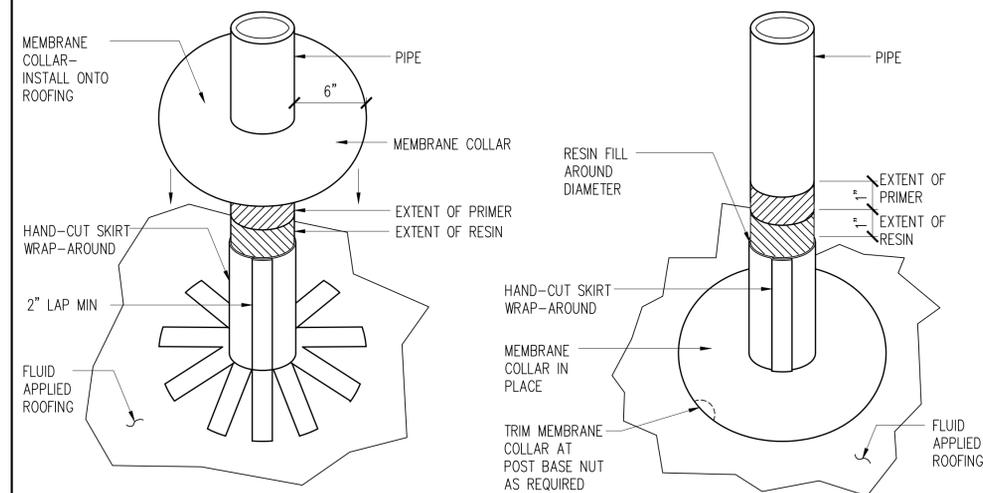
<p>JERRY S. FUJITA LICENSED PROFESSIONAL ENGINEER No. 11573-S HAWAII, U.S.A.</p> <p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION</p> <p><i>Jerry S. Fujita</i> Signature Exp. 4/28</p>	<table border="1"> <tr> <th>REVISION</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> <th>APPROVED</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	REVISION	DATE	DESCRIPTION	BY	APPROVED					
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<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p> <p>RESERVOIR ROOF SLAB TOP MAT 1/2 PLAN AND MIDDLE STRIP SECTION</p> <p>APPROVED: _____ DATE: 02/02/2026</p> <p><small>BY: MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI</small></p>	<p>S-12</p> <p>KODANI & ASSOCIATES ENGINEERS, LLC <small>LĪHU E. KĀLAU I, HAWAII 96766</small></p> <p>DESIGNED BY: JF DRAWN BY: CADD DATE: 26 April 2024 SHEET 41 OF 65</p>										



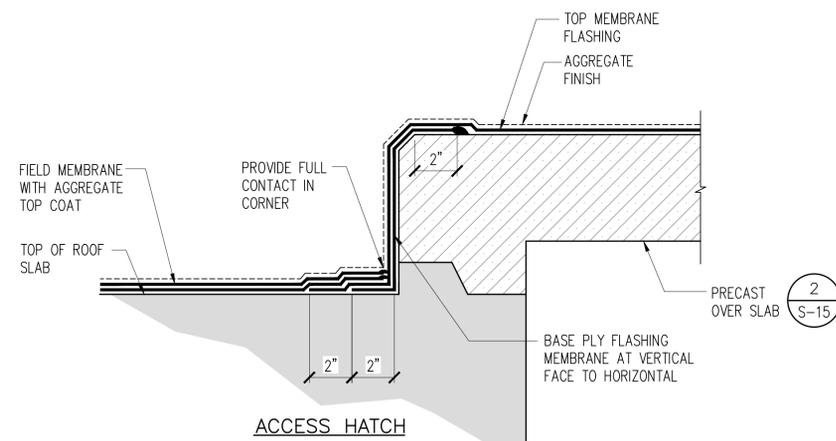
1 TYPICAL ROOFING AT HATCH CURB
S-13 SCALE: 3" = 1'-0"



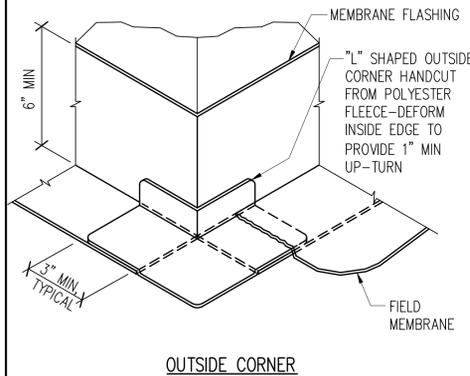
2 ROOFING AT ROOF EDGE
S-13 SCALE: 3" = 1'-0"



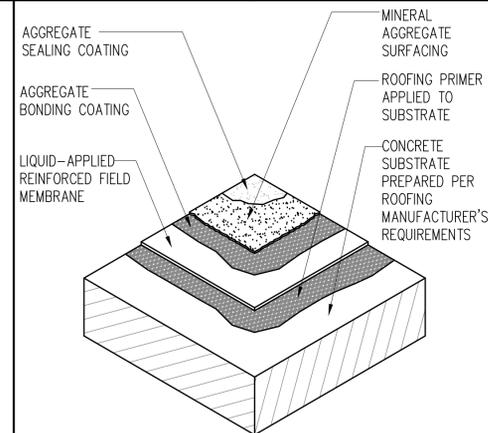
3 TYPICAL PIPE SEALING DETAIL
S-13 NOT TO SCALE



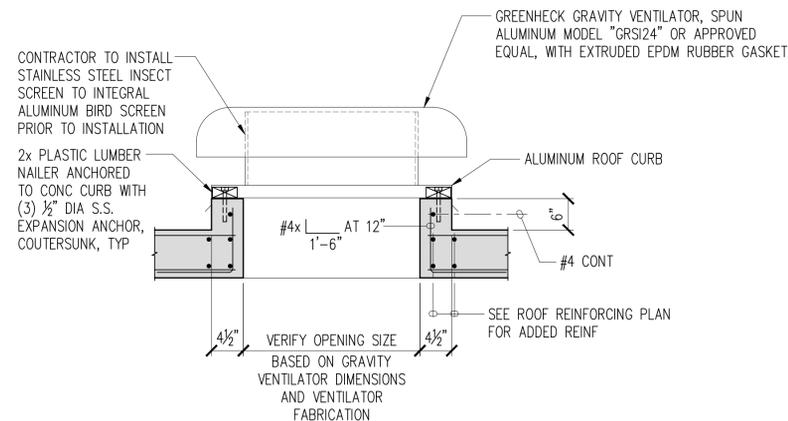
4 TYPICAL ROOF FLASHING DETAIL
S-13 SCALE: 3" = 1'-0"



5 ROOF FLASHING AT CORNER
S-13 NOT TO SCALE



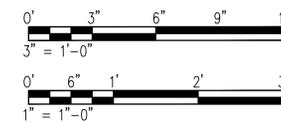
6 TYPICAL FLUID-APPLIED ROOFING ASSEMBLY DETAIL
S-13 NOT TO SCALE



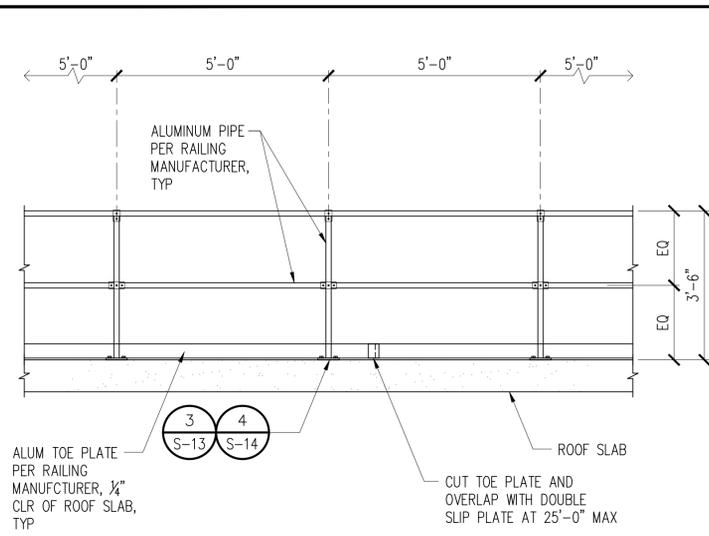
GRAVITY VENTILATOR NOTES:

1. VENTILATOR SHALL BE PROVIDED AS A STANDARD PRODUCT FROM THE MANUFACTURER'S CATALOG.
2. DESIGN OF VENTILATOR AND CONNECTIONS SHALL INCLUDE WIND LOADS AS SPECIFIED IN THE 2006 EDITION OF THE INTERNATIONAL BUILDING CODE.
3. ALL COMPONENTS FOR THE FRAME, CURB, BIRD SCREEN, SHALL BE ALUMINUM WITH STAINLESS STEEL FASTENERS.
4. INSECT SCREEN SHALL BE INSTALLED BY THE CONTRACTOR WITH STAINLESS STEEL WIRE TIES TO BIRD SCREEN.

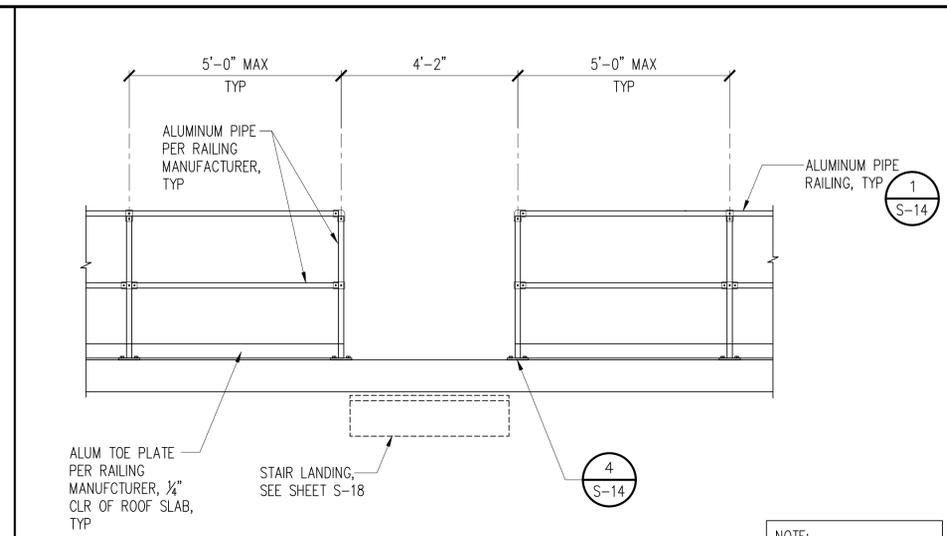
8 ROOF VENTILATOR DETAIL
S-13 SCALE: 1" = 1'-0"



<p>JERRY S. FUJITA LICENSED PROFESSIONAL ENGINEER No. 11573-S HAWAII, U.S.A.</p> <p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION</p> <p><i>Jerry S. Fujita</i> Signature Exp. 4/26</p>	<table border="1"> <tr> <th>REVISION</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> <th>APPROVED</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table> <p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p> <p>RESERVOIR ROOFING SECTIONS AND DETAILS</p> <p>APPROVED: _____ DATE: 02/02/2026</p> <p>BY: JERRY S. FUJITA DEPT. OF WATER, COUNTY OF KAUAI</p>	REVISION	DATE	DESCRIPTION	BY	APPROVED					
REVISION	DATE	DESCRIPTION	BY	APPROVED							
<p>S-13</p> <p>KODANI & ASSOCIATES ENGINEERS, LLC 1410 E. KALIA I, HAWAII 96766</p>											
<p>DESIGNED BY: JF DRAWN BY: CAD DATE: 26 April 2024 SHEET 42 OF 65</p>											

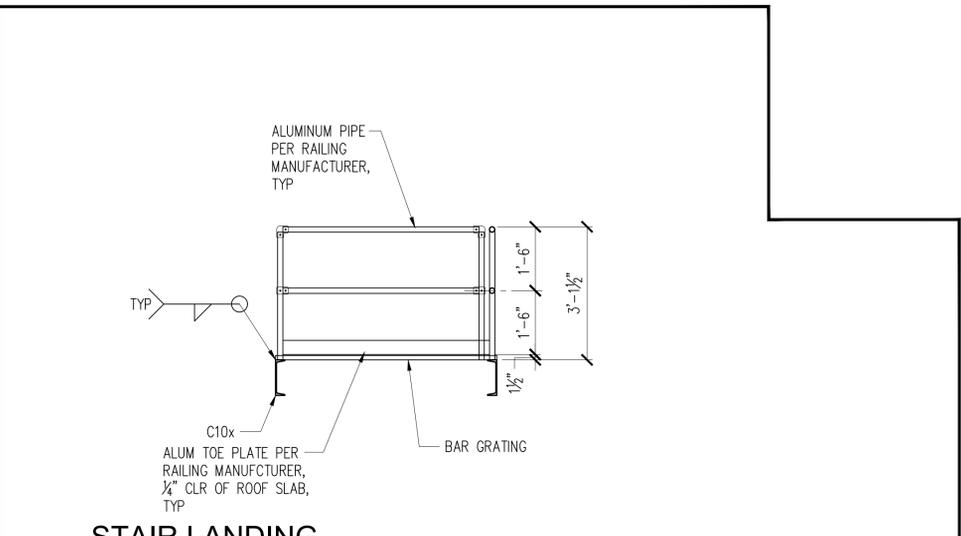


1 TYPICAL GUARDRAIL ELEVATION
S-14 SCALE: 1/2" = 1'-0"

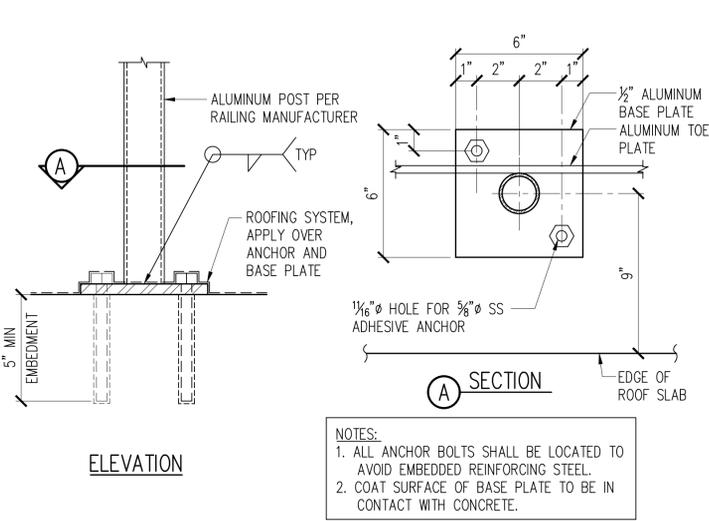


2 GUARDRAILS AT STAIR LANDING
S-14 SCALE: 1/2" = 1'-0"

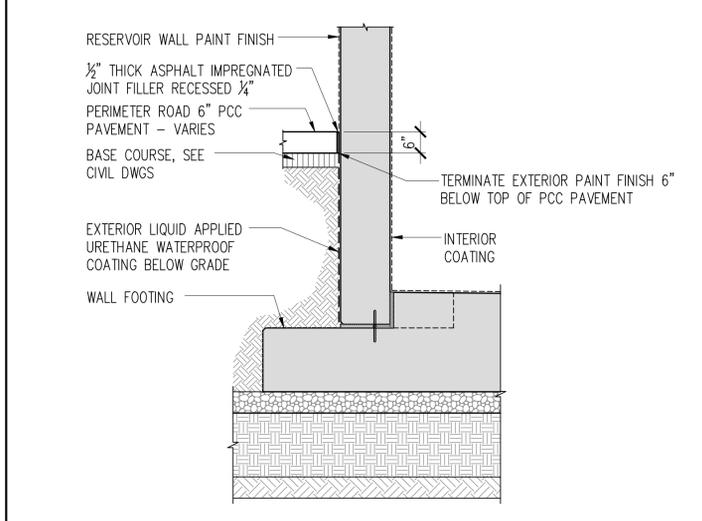
NOTE:
LANDING RAILING NOT SHOWN FOR CLARITY



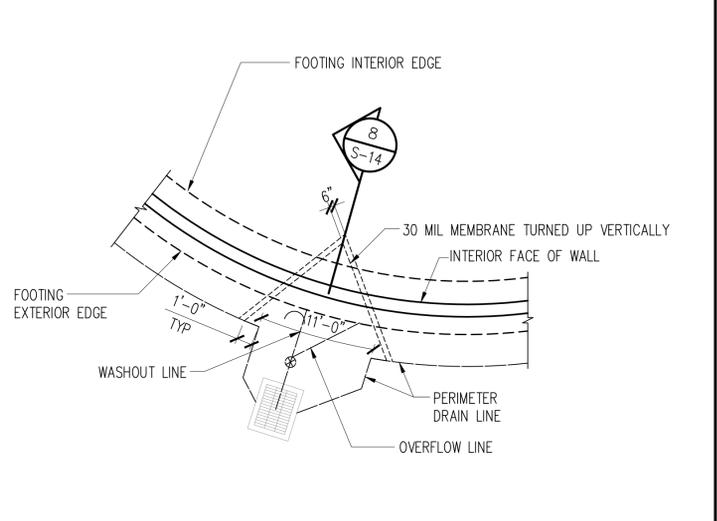
3 STAIR LANDING GUARDRAILING
S-14 SCALE: 1/2" = 1'-0"



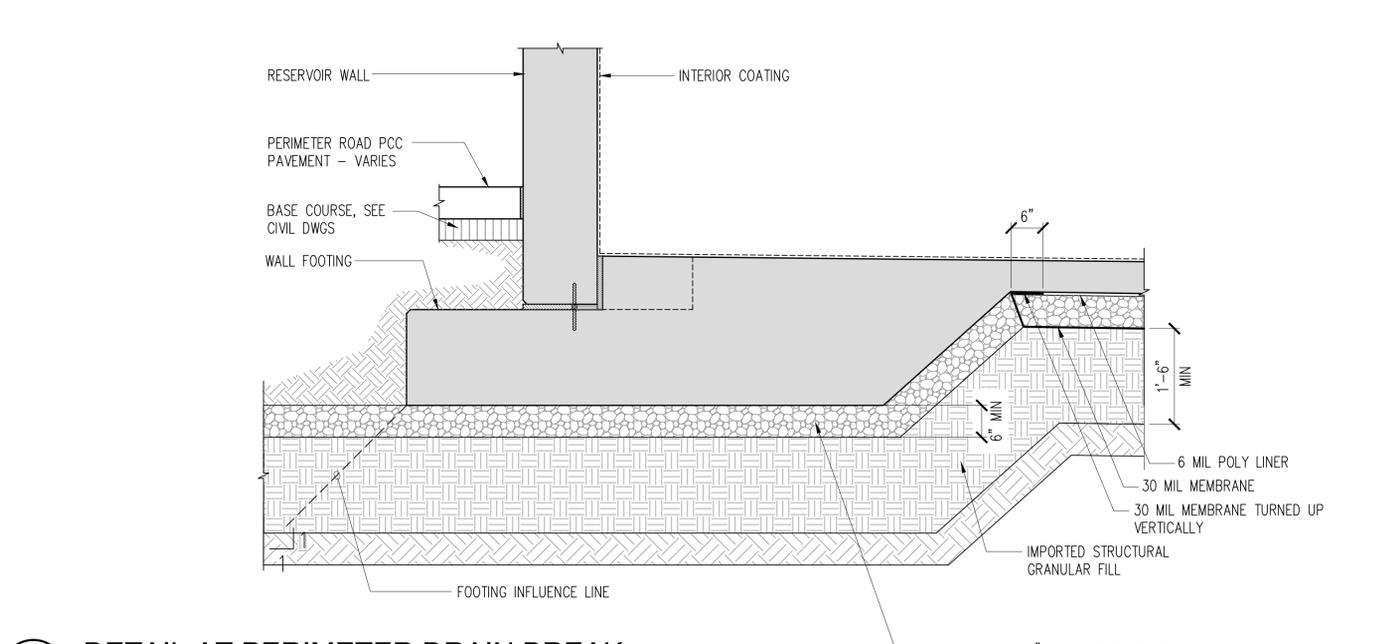
4 GUARDRAIL POST DETAIL
S-14 SCALE: 1" = 1'-0"



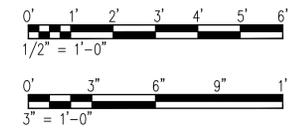
6 EXTERIOR COATING TRANSITION DETAIL
S-14 SCALE: 1/2" = 1'-0"



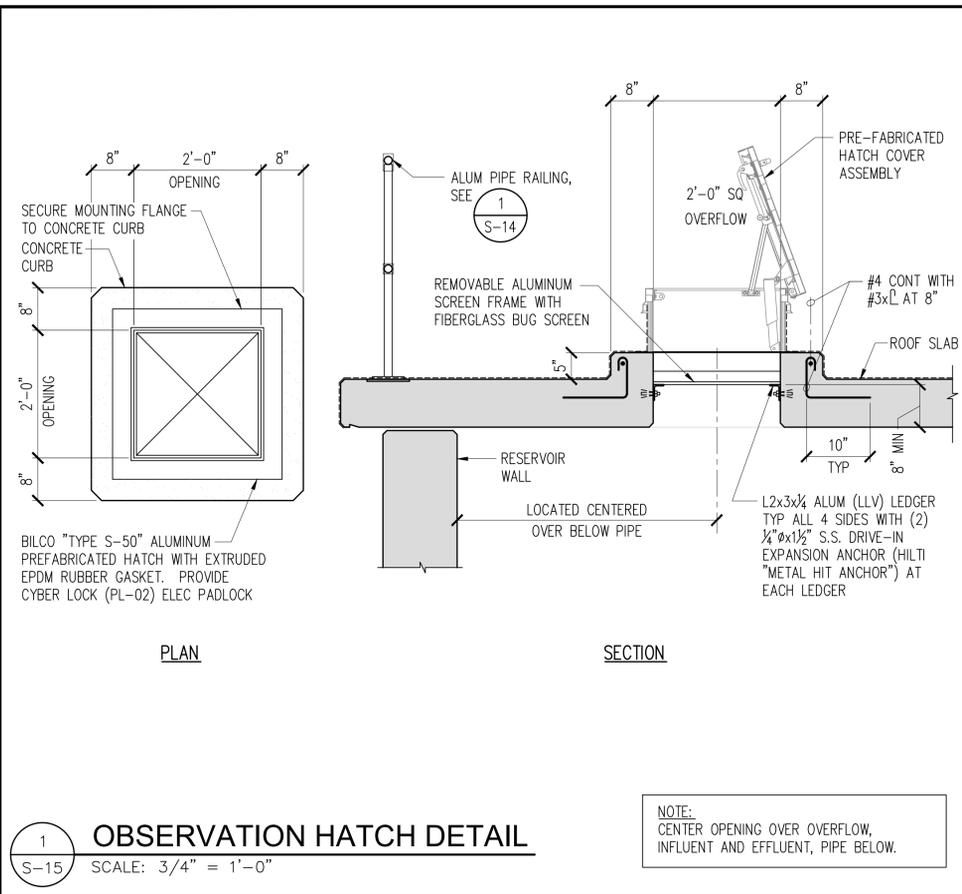
7 PERIMETER DRAIN BREAK PLAN
S-14 SCALE: 1/8" = 1'-0"



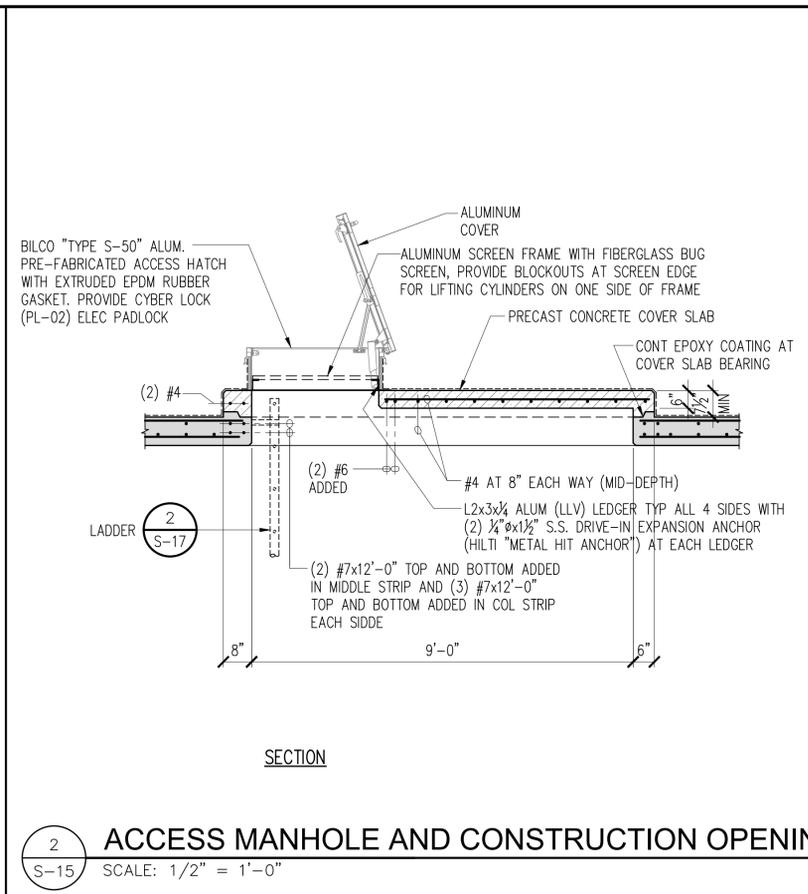
8 DETAIL AT PERIMETER DRAIN BREAK
S-14 SCALE: 3/4" = 1'-0"



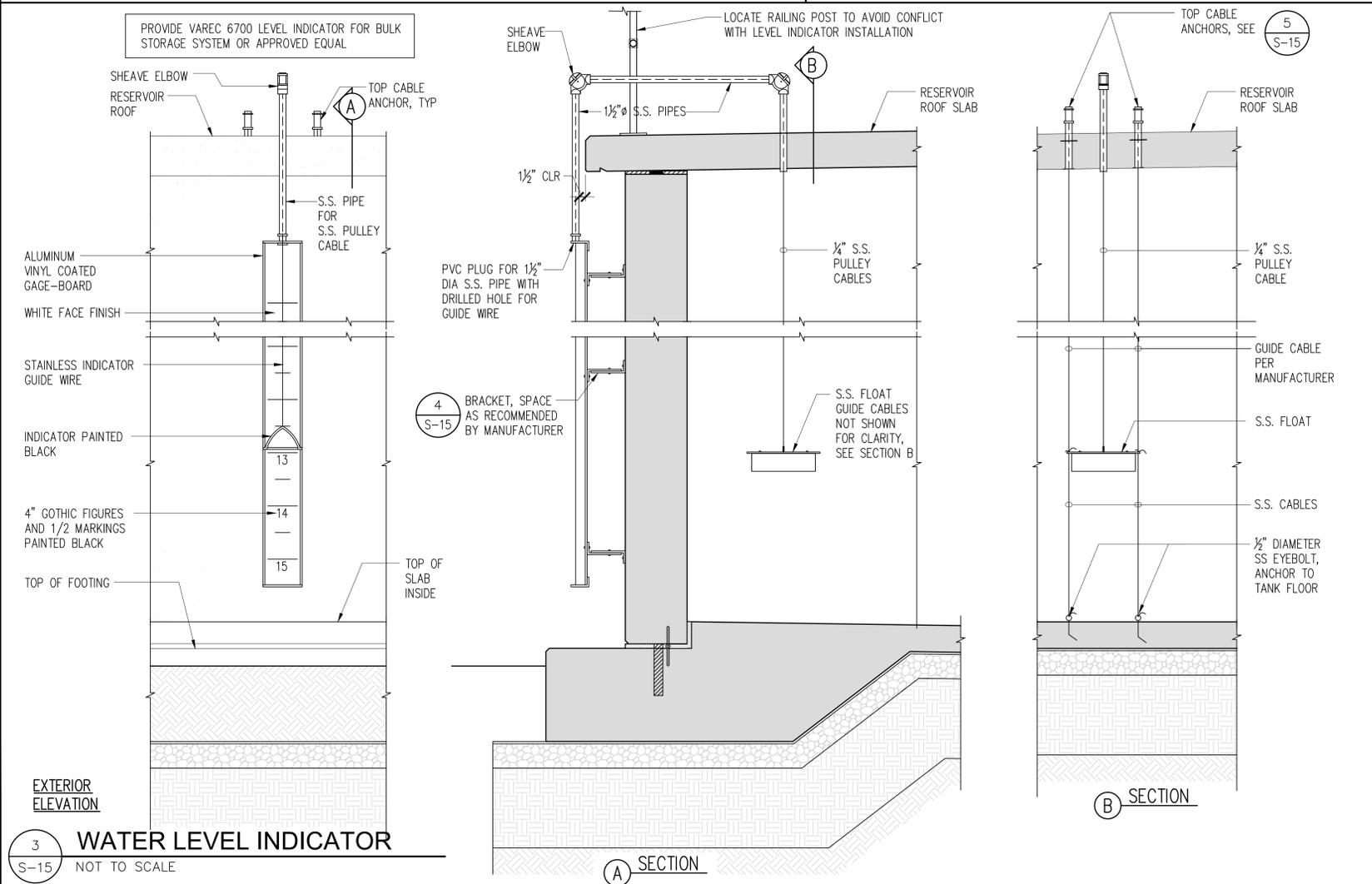
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<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p> <p>RESERVOIR STRUCTURAL TYPICAL DETAILS</p>											
<p>APPROVED: <i>Jerry S. Fujita</i> DATE: 02/02/2026</p> <p>MANAGER & CHIEF ENGINEER DEPT. OF WATER, COUNTY OF KAUAI</p>											
<p>S-14</p> <p>KODANI & ASSOCIATES ENGINEERS, LLC 1410 E. KALIA I, HAWAII 96766</p>											
<p>DESIGNED BY: JF DRAWN BY: CADD DATE: 26 April 2024 SHEET 43 OF 65</p>											



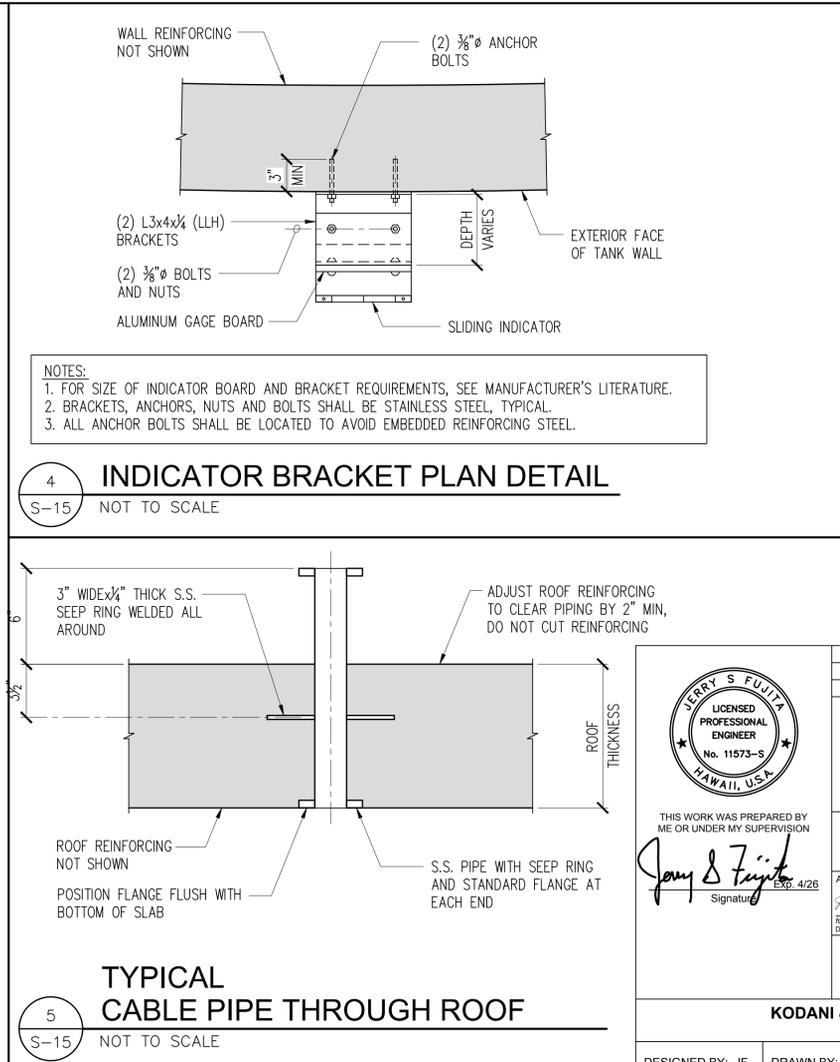
1 OBSERVATION HATCH DETAIL
S-15 SCALE: 3/4" = 1'-0"



2 ACCESS MANHOLE AND CONSTRUCTION OPENING
S-15 SCALE: 1/2" = 1'-0"



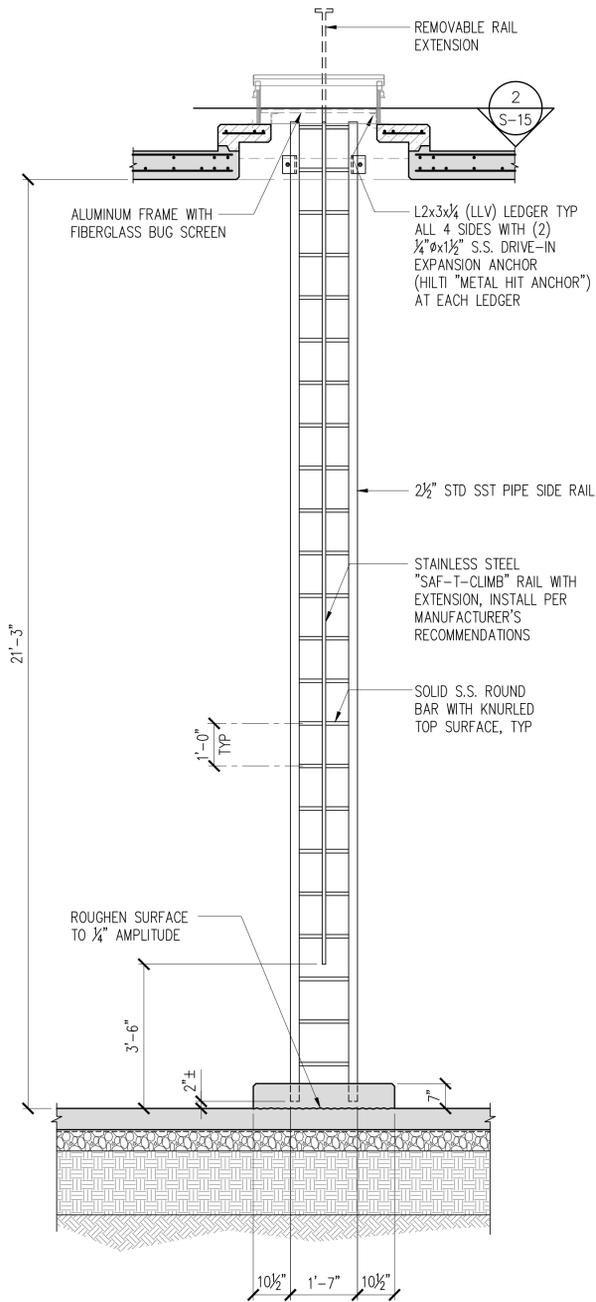
3 WATER LEVEL INDICATOR
S-15 NOT TO SCALE



4 INDICATOR BRACKET PLAN DETAIL
S-15 NOT TO SCALE

5 TYPICAL CABLE PIPE THROUGH ROOF
S-15 NOT TO SCALE

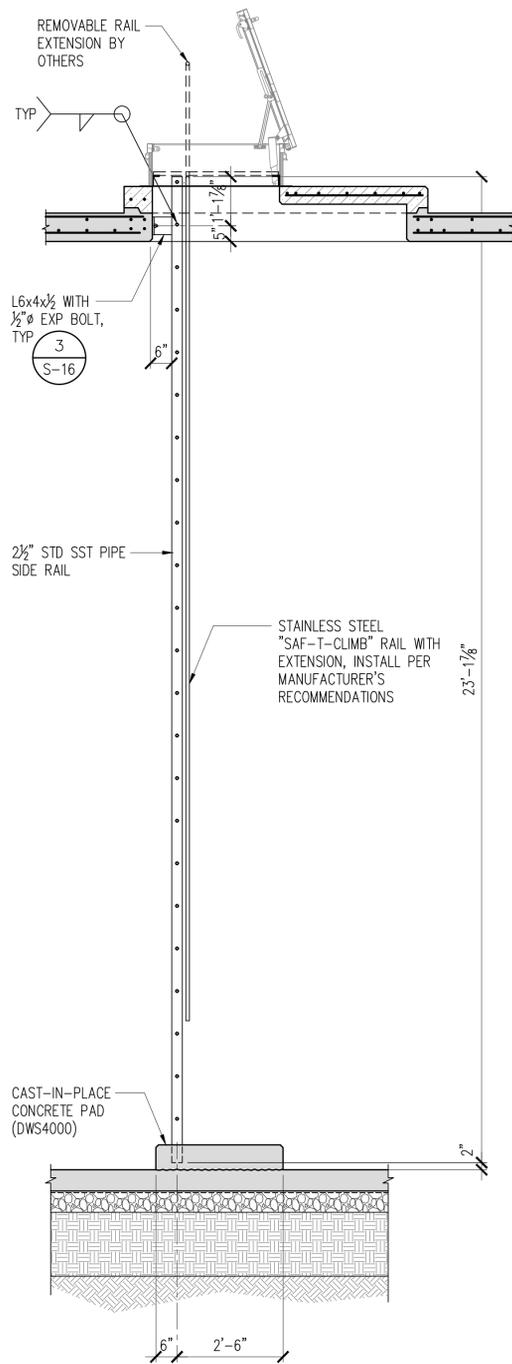
REVISION	DATE	DESCRIPTION	BY	APPROVED
<p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION</p> <p><i>Jerry S. Fujita</i> Exp. 4/26 Signature</p>				
<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p> <p>RESERVOIR HATCH AND LEVEL INDICATOR DETAILS</p>				
APPROVED:		DATE: 02/02/2026		
DESIGNED BY: JF		DRAWN BY: CAD		
DATE: 26 April 2024		<p>S-15</p> <p>KODANI & ASSOCIATES ENGINEERS, LLC 1410 E. KALIA I, HAWAII 96866</p>		
<p>SHEET 44 OF 65</p>				



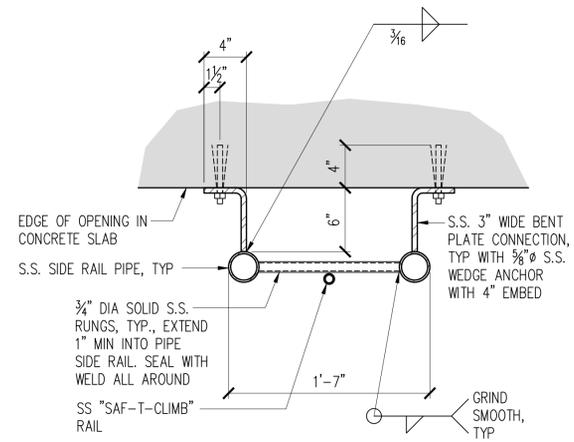
INTERIOR LADDER NOTES:

1. ALL MATERIALS FOR INTERIOR LADDERS PIPE, SIDE RAILS, RUNGS, BRACKETS AND "SAF-T-CLIMB" TO BE SST 316L.
2. LADDER RUNGS TO BE SOLID BARS.
3. ALL WELDS TO BE 1/4" MINIMUM.
4. ROOF HATCH TO BE PRE-FABRICATED OF ALUMINUM PRODUCT (BILCO "TYPE S-50") WITH EXTERIOR HANDLE AND LOCK HASP THAT ACCEPTS 2" LONG x 3/8" DIAMETER SHACKLE. CYBERLOCK PL-02 PROVIDED BY CONTRACTOR.
5. ALL ALUMINUM IN CONTACT WITH CONCRETE MUST BE COATED WITH EPOXY PAINT (NSF61 CERTIFIED).
6. ALL BOLTS SST 316L UNLESS NOTED OTHERWISE.
7. WHERE SST BOLTS ARE IN CONTACT WITH DISSIMILAR METALS, USE INSULATING SLEEVES AND PHENOLIC WASHERS TO ELECTRICALLY ISOLATE THE BOLTS.

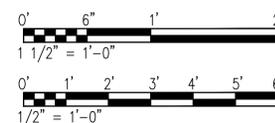
1
S-16 **INTERIOR LADDER AND ROOF HATCH**
SCALE: 1/2" = 1'-0"



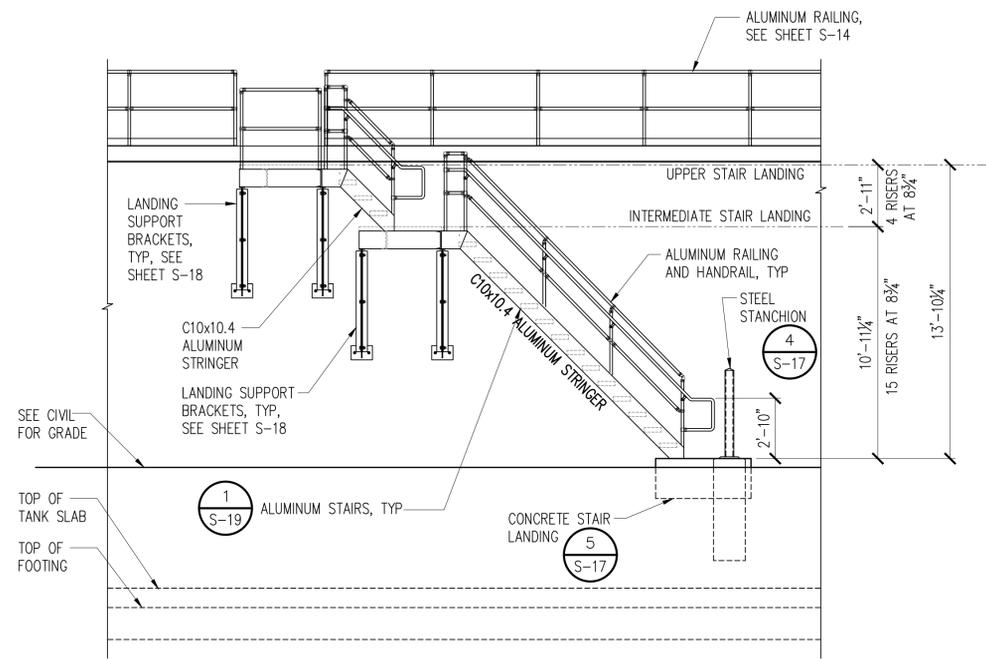
2
S-16 **ELEVATION OF INTERIOR LADDER**
SCALE: 1/2" = 1'-0"



3
S-16 **INTERIOR LADDER SUPPORT**
SCALE: 1 1/2" = 1'-0"

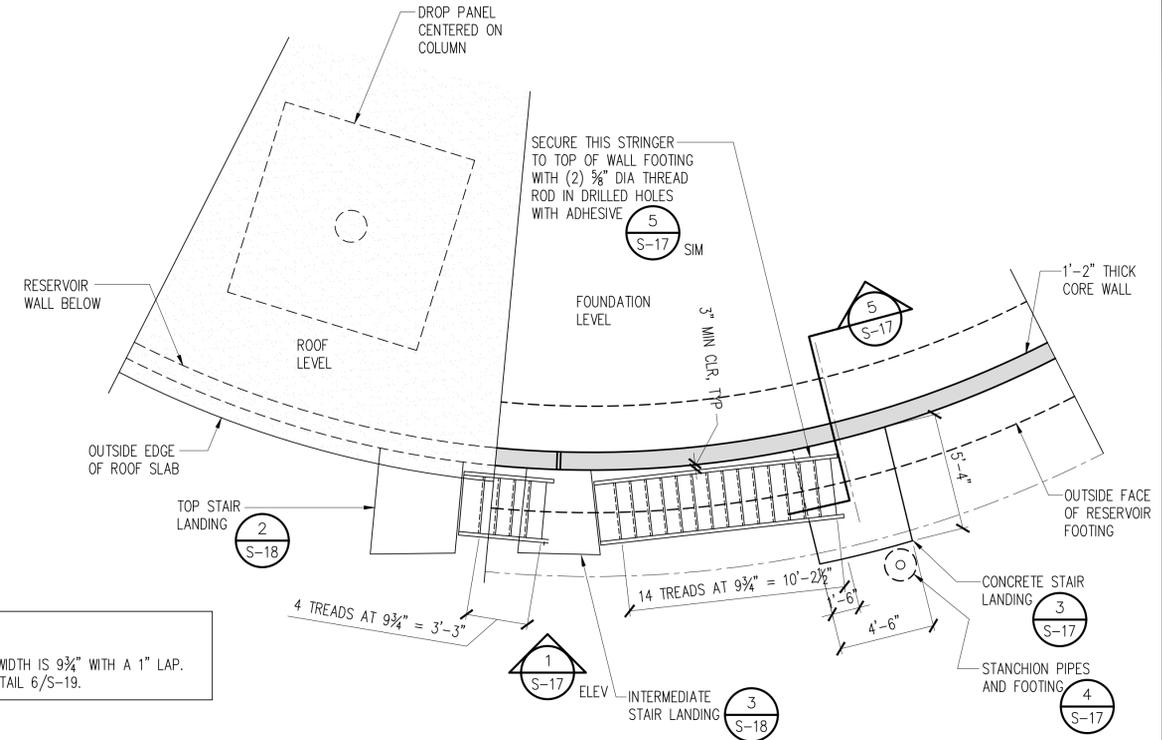


<p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION</p> <p><i>Jerry S. Fujita</i> Signature Exp. 4/26</p>	<table border="1"> <thead> <tr> <th>REVISION</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> <th>APPROVED</th> </tr> </thead> <tbody> <tr> <td colspan="5" style="text-align: center;"> CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG </td> </tr> <tr> <td colspan="5" style="text-align: center;"> RESERVOIR INTERIOR LADDER DETAILS </td> </tr> <tr> <td colspan="2">APPROVED:</td> <td colspan="3">DATE: 02/02/2026</td> </tr> <tr> <td colspan="5"> <small>DESIGNED BY: JF DRAWN BY: CADD DATE: 26 April 2024</small> </td> </tr> </tbody> </table>	REVISION	DATE	DESCRIPTION	BY	APPROVED	CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG					RESERVOIR INTERIOR LADDER DETAILS					APPROVED:		DATE: 02/02/2026			<small>DESIGNED BY: JF DRAWN BY: CADD DATE: 26 April 2024</small>				
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<small>DESIGNED BY: JF DRAWN BY: CADD DATE: 26 April 2024</small>																										
S-16		KODANI & ASSOCIATES ENGINEERS, LLC <small>LĪHU E, KĀLAUĀ, HAWAII 196766</small>																								



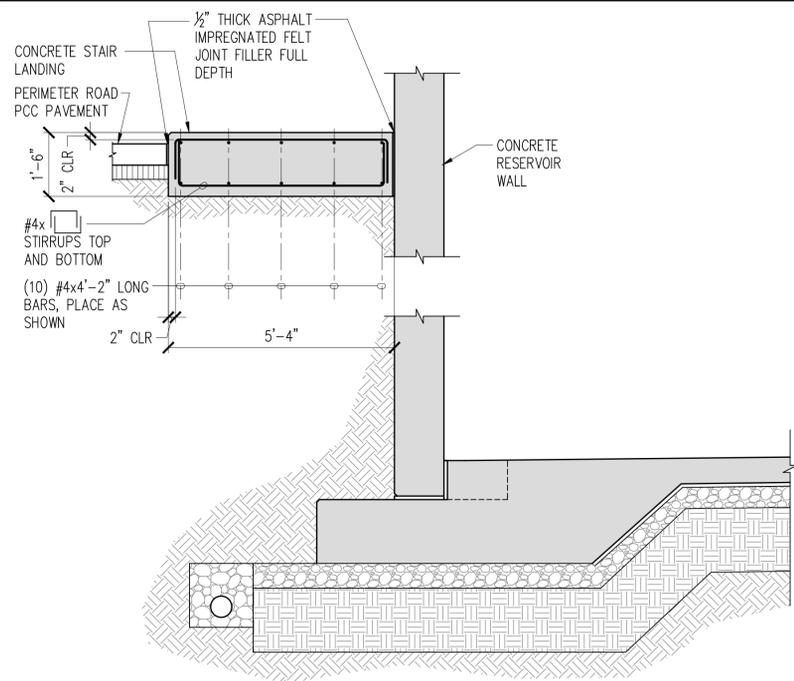
NOTES:
1. EXPANDED METAL SECURITY FENCE NOT SHOWN FOR CLARITY, SEE SHEET S-21.

1 EXTERIOR STAIR ELEVATION
S-17 SCALE: 1/4" = 1'-0"

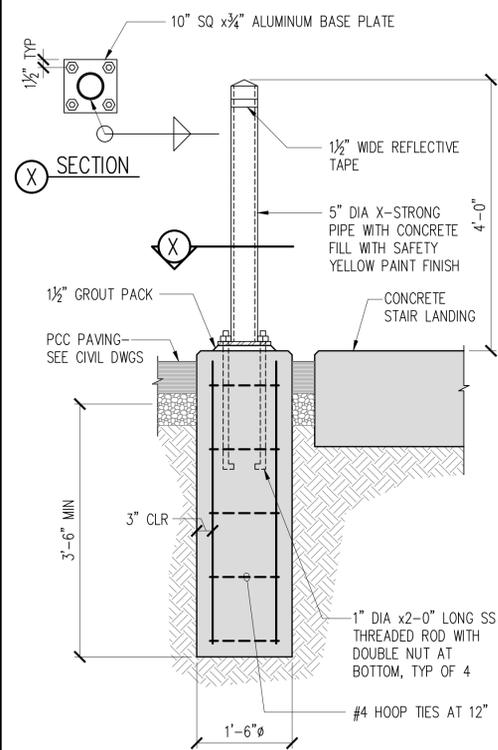


NOTES:
1. TREAD WIDTH IS 9 3/4" WITH A 1" LAP. SEE DETAIL 6/S-19.

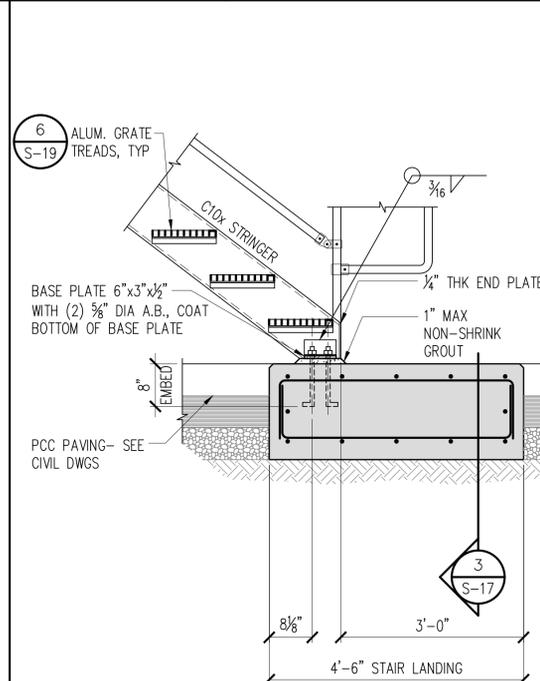
2 EXTERIOR STAIR LANDING PLAN
S-17 SCALE: 1/4" = 1'-0"



3 WALL FOOTING EXTENSION DETAIL
S-17 SCALE: 1/2" = 1'-0"

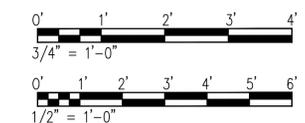


4 STANCHION DETAIL
S-17 SCALE: 3/4" = 1'-0"



5 STRINGER/FOOTING CONNECTION
S-17 NOT TO SCALE

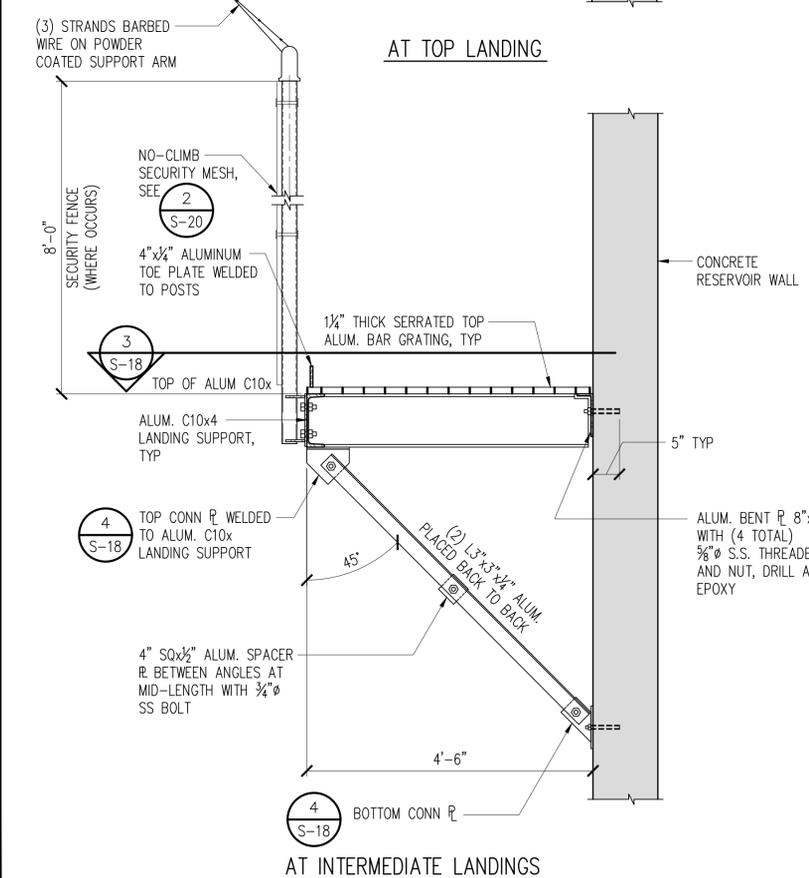
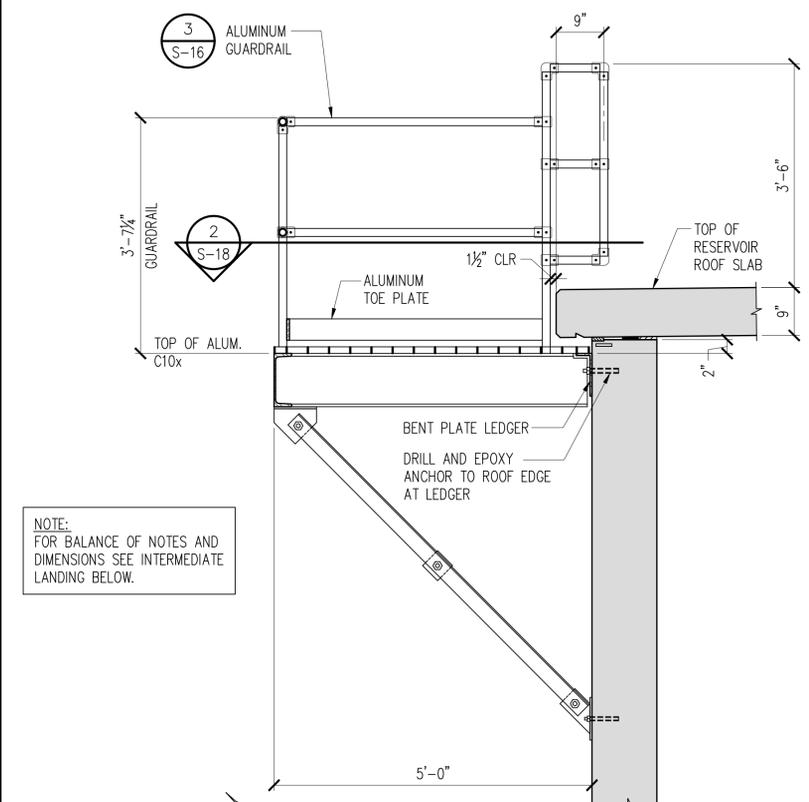
- STRUCTURAL ALUMINUM STAIR AND GUARDRAIL NOTES:
1. FABRICATION AND ERECTION OF STRUCTURAL ALUMINUM SHALL CONFORM TO THE ALUMINUM DESIGN MANUAL, 2020 EDITION.
 2. STRUCTURAL ALUMINUM ALLOY AND TEMPER FOR EXTRUSIONS, BARS, SHAPES, AND PLATES SHALL CONFORM TO TYPE 6061-T6.
 3. STAIR STRINGER SHALL BE ALUMINUM CHANNEL.
 4. WELDS AND WELDING PROCEDURES SHALL CONFORM TO THE STRUCTURAL WELDING CODE AWS D1.2 OF THE AMERICAN WELDING SOCIETY.
 5. WELDING SHALL BE PERFORMED BY WELDERS QUALIFIED FOR WELDING PROCEDURES TO BE USED.
 6. WELDING ELECTRODES SHALL BE 5356.
 7. ALL WELDS TO BE 1/2" MINIMUM.
 8. ALUMINUM BASE PLATES AND LOCATIONS WHERE ALUMINUM WILL BE IN CONTACT WITH CONCRETE MUST BE COATED WITH ONE COAT OF A ZINC EPOXY RICH PAINT, SUCH AS ZINC MOLYBDATE PRIMER.
 9. ALUMINUM EXTRUSIONS, SHAPES, ETC. TO BE IN CONTACT WITH STEEL AND OTHER DISSIMILAR METAL COMPONENTS SHALL BE SEPARATED BY A CORROSION BARRIER TAPE OR POLYMERIC COATING. CLEAN ALUMINUM COMPONENT REMOVING OIL, GREASE, AND DIRT. APPLY BARRIER AND ALLOW TO CURE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
 10. USE SST 316 FOR ALL BOLTS UNLESS NOTED OTHERWISE.
 11. WHERE SST BOLTS ARE IN CONTACT WITH DISSIMILAR METALS, USE INSULATING SLEEVES AND PHENOLIC WASHERS TO ELECTRICALLY ISOLATE THE BOLTS.
 12. POST-INSTALLED CONCRETE ANCHORS SHALL CONSIST OF 5/8" Ø TYPE 316 STAINLESS STEEL THREADED ROD WITH HILTI HIT HY 200-A ADHESIVE WITH EMBED AS NOTED ON DETAILS. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
 13. BAR GRATING TO BE 19-4 ALUMINUM SWAGED, SEE PLAN FOR DEPTH.
 14. STAIR TREADS TO BE WITH ALUMINUM BAR GRATING TO MATCH LANDING GRATING.



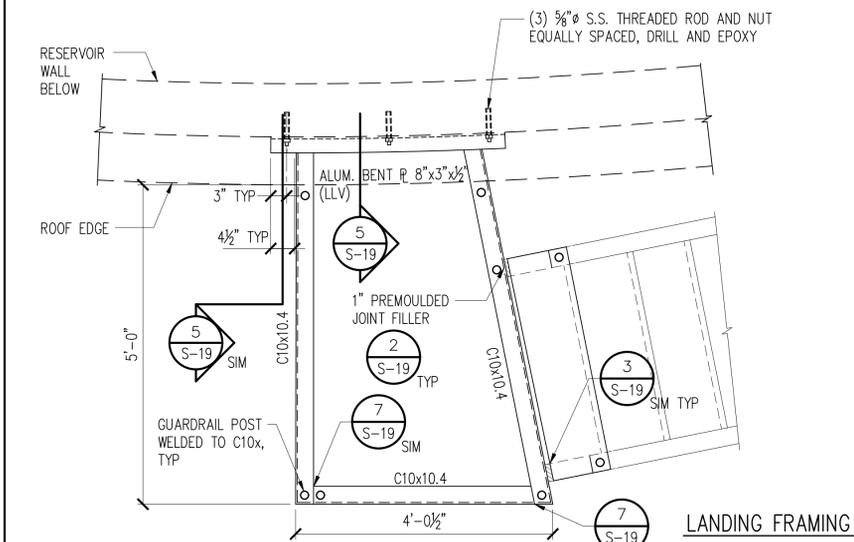
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Jerry S. Fujita
Signature
Exp. 4/26

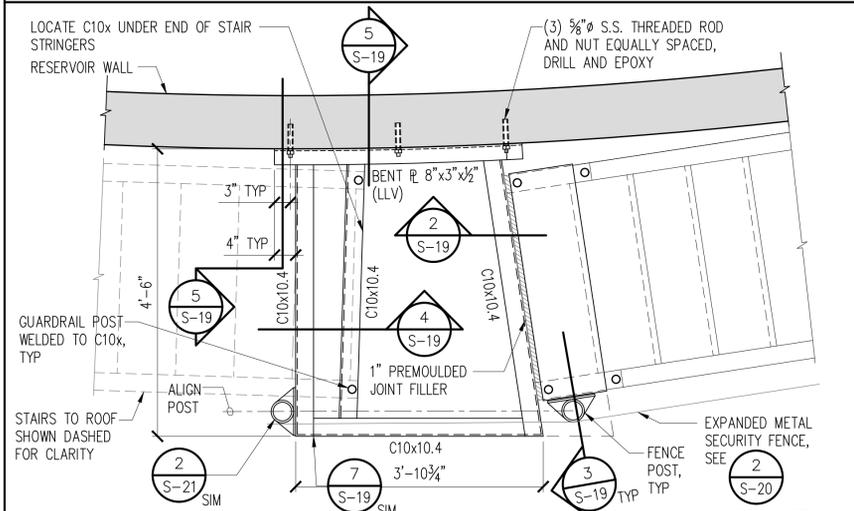
REVISION	DATE	DESCRIPTION	BY	APPROVED
CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG				
EXTERIOR STAIRCASE DETAILS				
APPROVED:		DATE: 02/02/2026		
<small>DESIGNED BY: JF DRAWN BY: CAD DATE: 26 April 2024</small>				
S-17				
KODANI & ASSOCIATES ENGINEERS, LLC				
<small>LĪHU E. KĀLA I, HAWAII 96766</small>				
SHEET 46 OF 65				



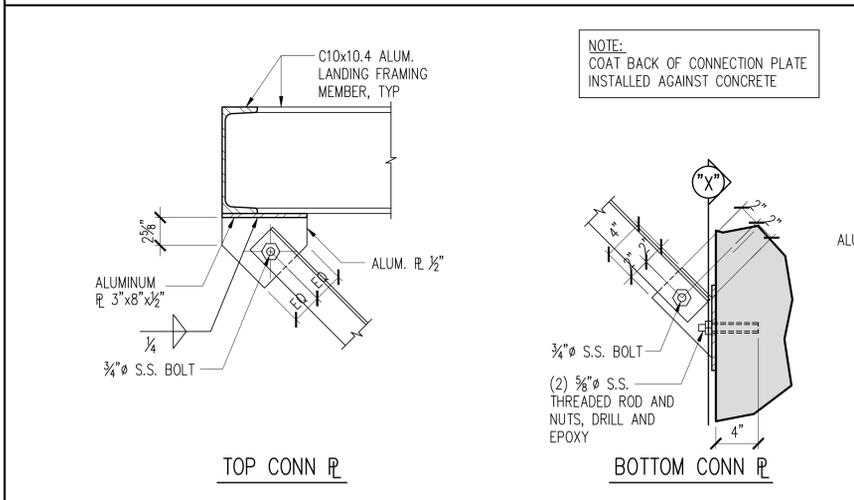
1 EXTERIOR STAIR LANDING SUPPORT SECTIONS
S-18 NOT TO SCALE



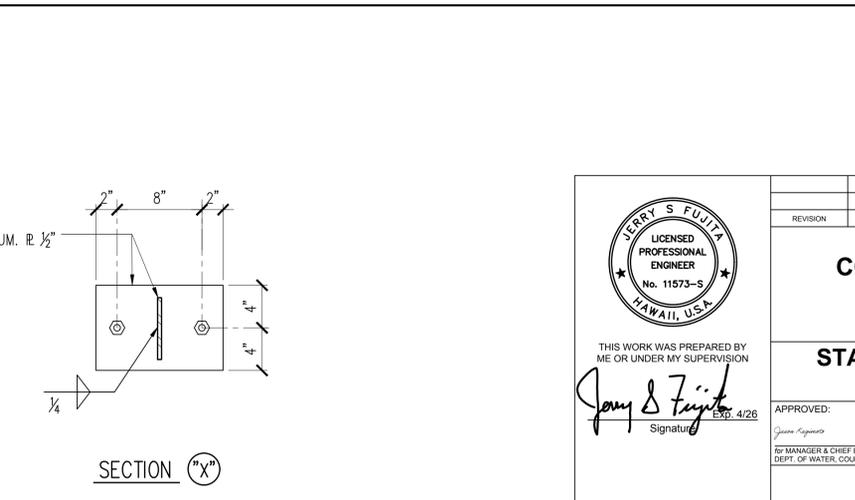
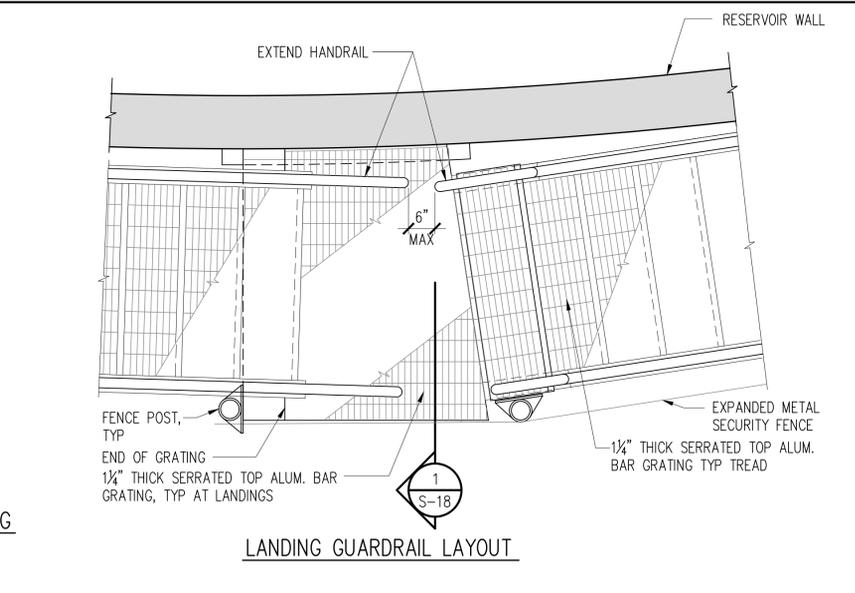
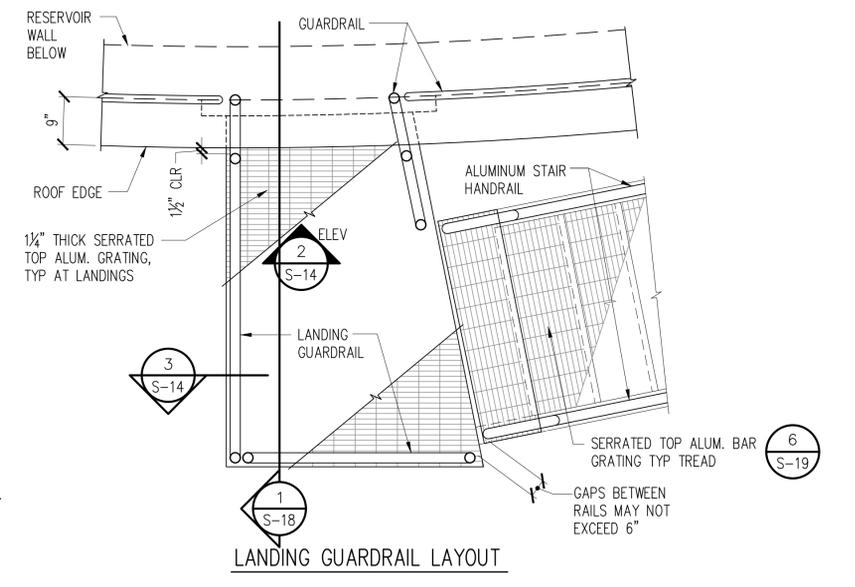
2 TOP STAIR LANDING PLAN DETAILS
S-18 NOT TO SCALE



3 INTERMEDIATE LANDING PLAN DETAILS
S-18 NOT TO SCALE

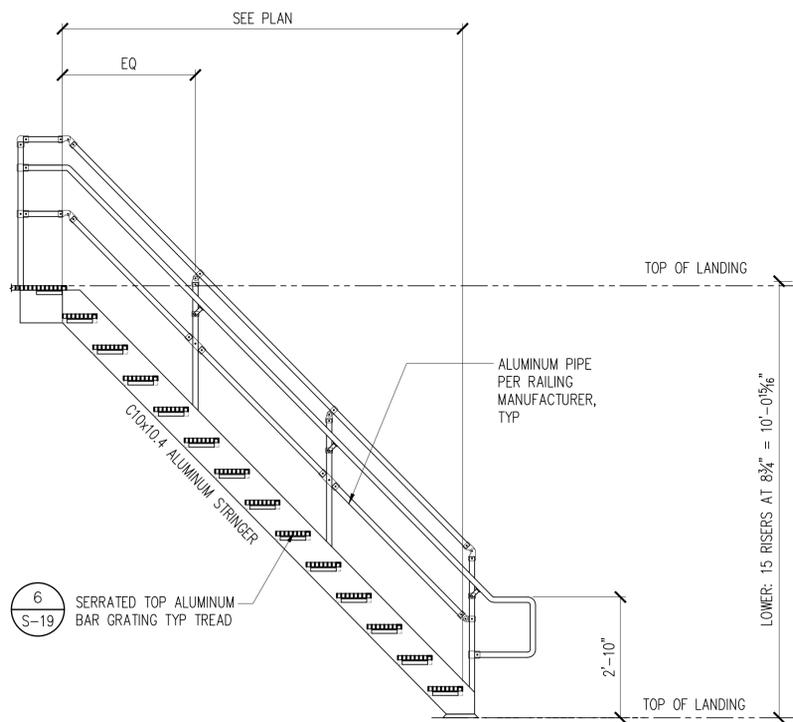


4 LANDING SUPPORT CONNECTION DETAILS
S-18 NOT TO SCALE

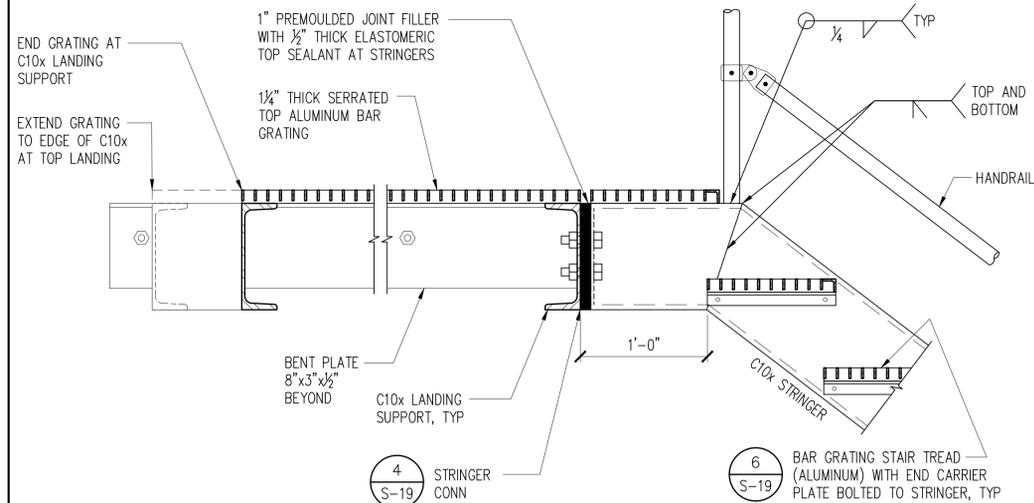


SECTION X-X

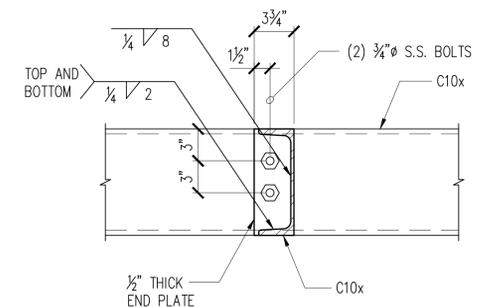
		CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG	
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION 		STAIRCASE FRAMING AND DETAILS	
APPROVED: 	DATE: 02/02/2026	S-18	
KODANI & ASSOCIATES ENGINEERS, LLC <small>LĪHU E. KĀLAU I, HAWAII 196786</small>			
DESIGNED BY: JF	DRAWN BY: CAD	DATE: 26 April 2024	SHEET 47 OF 65



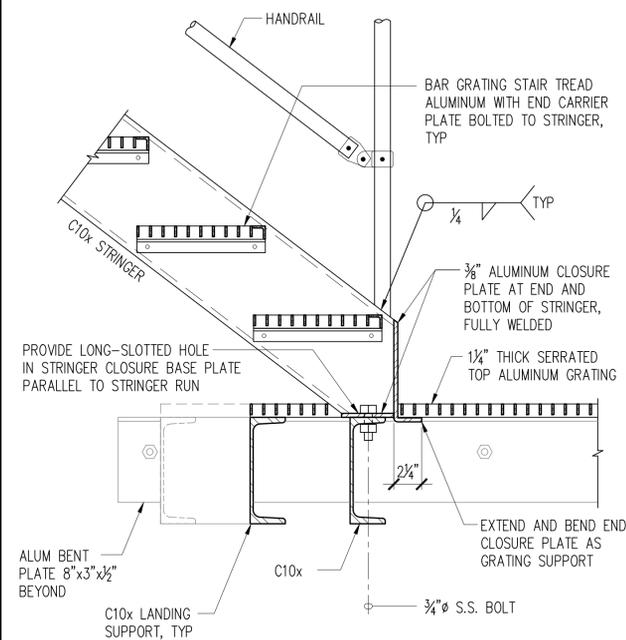
1 LOWER STAIR HANDRAIL AND STRINGER ELEVATION
S-19 SCALE: 1/2" = 1'-0"



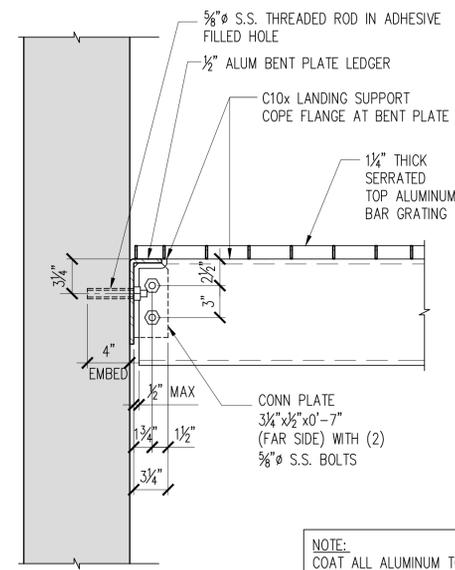
2 TOP OF STRINGER AT LANDING
S-19 SCALE: 1 1/2" = 1'-0"



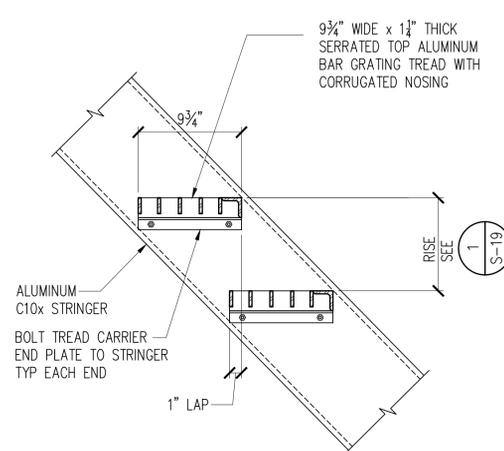
3 STAIR STRINGER TOP CONNECTION
S-19 SCALE: 1 1/2" = 1'-0"



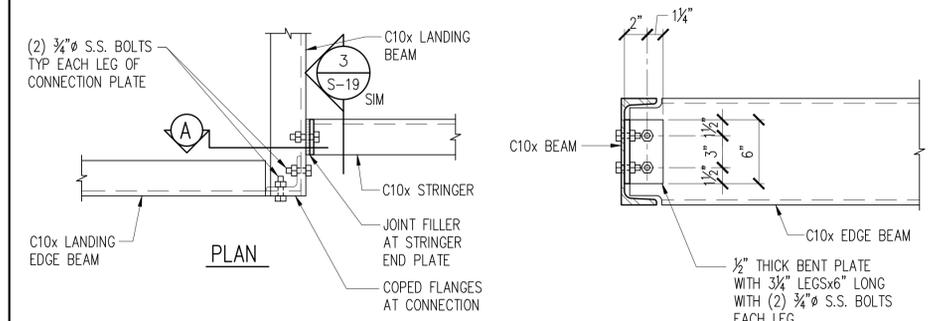
4 BOTTOM OF STRINGER AT LANDING
S-19 SCALE: 1 1/2" = 1'-0"



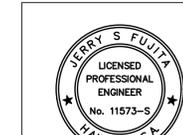
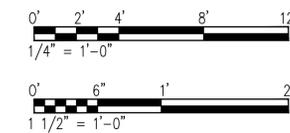
5 C10x LANDING SUPPORT TO LEDGER
S-19 SCALE: 1 1/2" = 1'-0"



6 STAIR TREAD DETAIL
S-19 NTS



7 CHANNEL TO CHANNEL
S-19 SCALE: 1 1/2" = 1'-0"

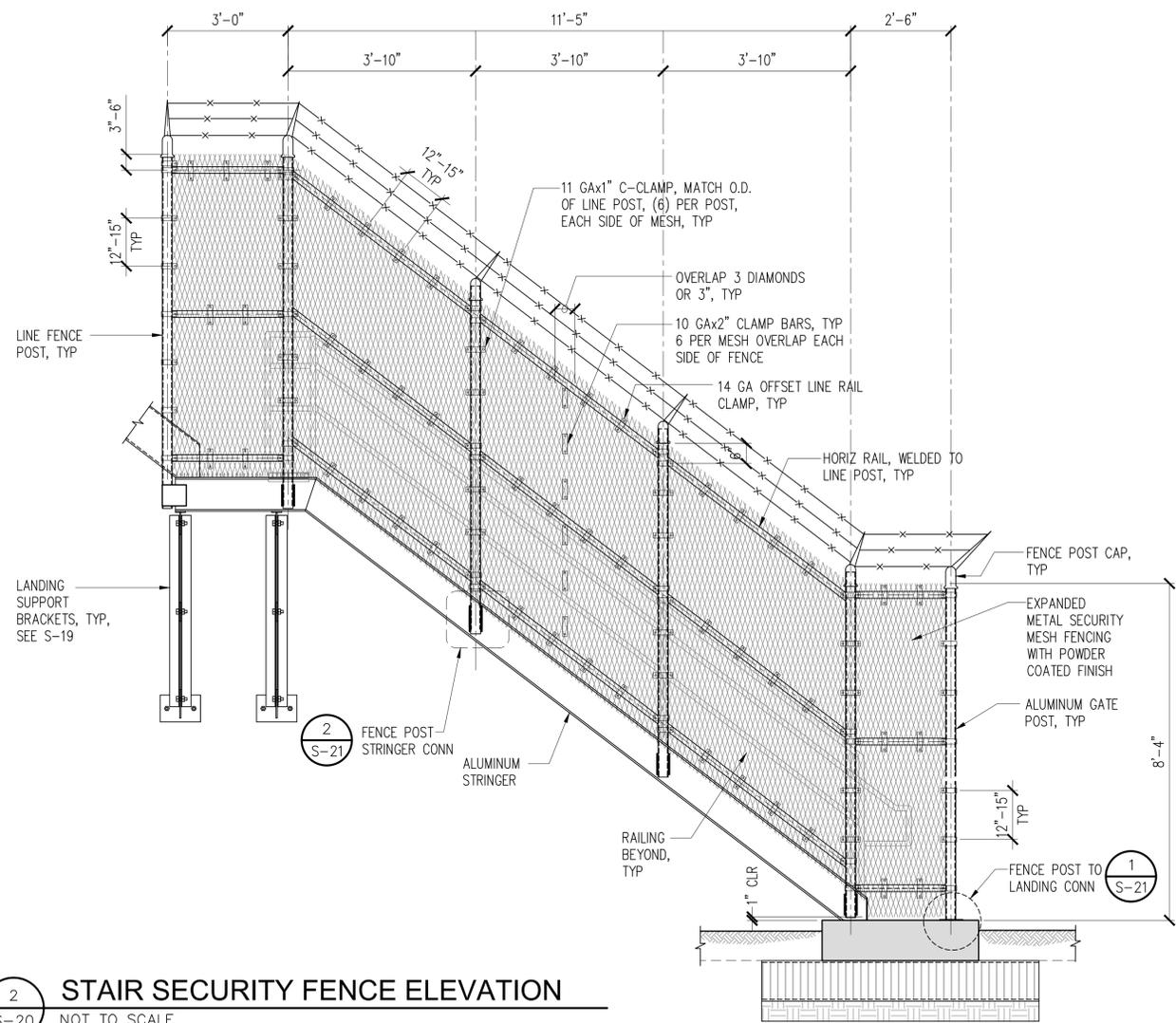


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Jerry S. Fujita
Signature Exp. 4/28

REVISION	DATE	DESCRIPTION	BY	APPROVED
CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG				
EXTERIOR STAIRCASE FRAMING AND DETAILS				
APPROVED:		DATE: 02/02/2026		
DEPT. MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI				

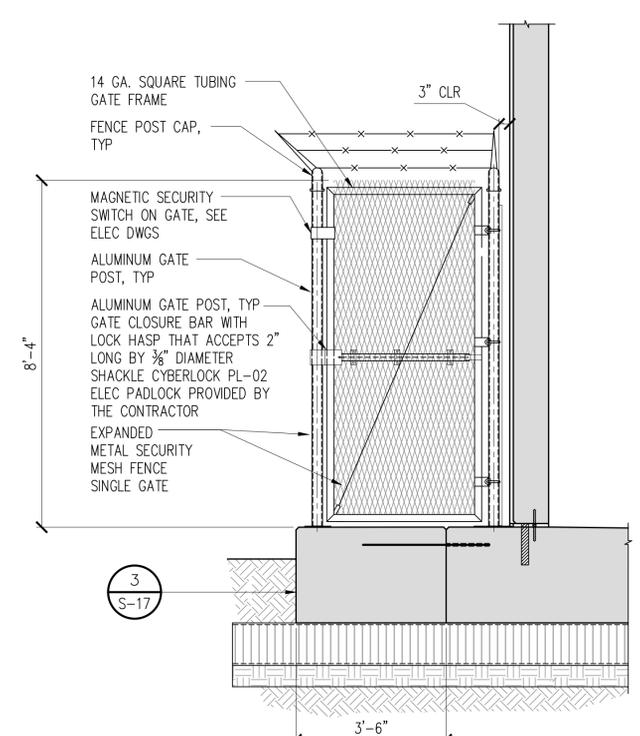
S-19

KODANI & ASSOCIATES ENGINEERS, LLC
1410 E. KALUA I, HAWAII 96766



2 STAIR SECURITY FENCE ELEVATION
S-20 NOT TO SCALE

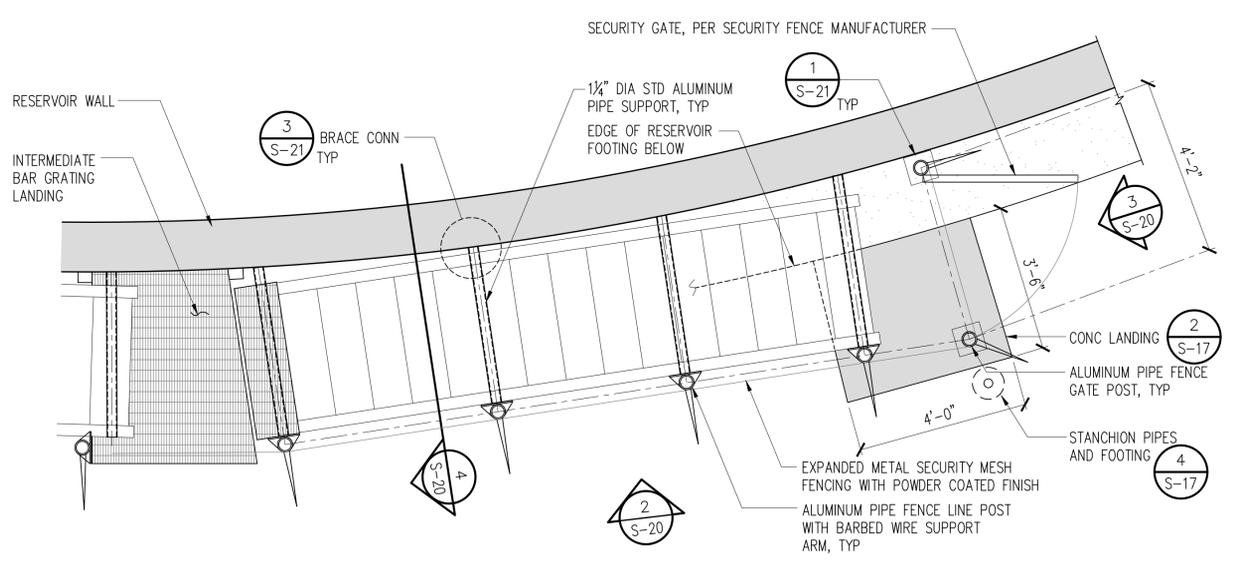
NOTES:
1. GATE DESIGNED AND PROVIDED BY FENCE MANUFACTURER. PROVIDE GATE LATCH AND BARBED WIRE.



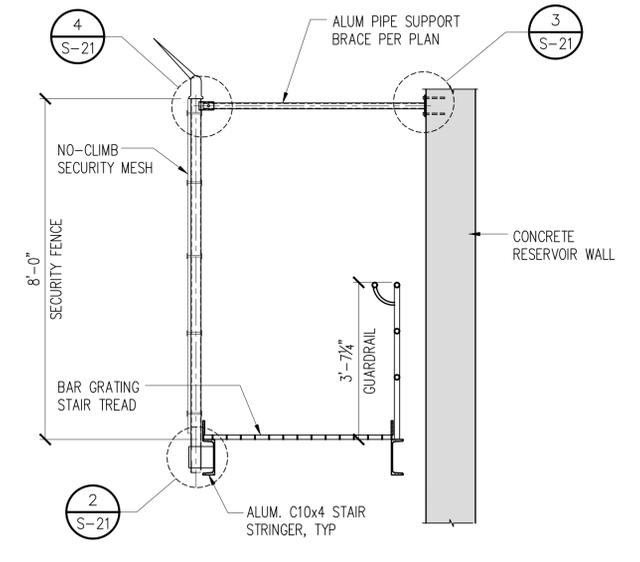
3 STAIR SECURITY FENCE GATE ELEVATION
S-20 SCALE: 1/2" = 1'-0"

STAIR SECURITY FENCING NOTES:

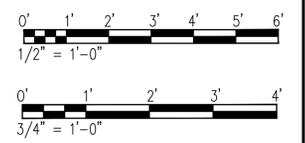
1. THE HIGH SECURITY FENCE SHALL BE A SECUREX FENCE EXPANDED METAL FENCE SYSTEM AS MANUFACTURED BY: NILES FENCE AND SECURITY PRODUCTS OR APPROVED EQUAL.
2. FENCING SYSTEM SHALL BE 8 FEET HIGH USING 3 HORIZONTAL RAILS (TOP, MID-HEIGHT AND BOTTOM) BETWEEN POSTS WITH A NO-CLIMB 9 GAUGE EXPANDED METAL MESH WITH A 3/4-INCH HOLE. SIZE ENTIRE FENCING SYSTEM AND GATE SHALL BE FINISHED WITH A POLYESTER POWDER COATING FOR ENHANCED CORROSION PROTECTION.
3. FENCE FRAMEWORKS SHALL CONSIST OF THE FOLLOWING:
A. LINE POSTS 2 1/2" DIA SCH 40 6061-T6
B. GATE POSTS 3 1/2" DIA SCH 40 6061-T6
C. HORIZONTAL RAILS 1 1/4" DIA SCH 40 6061-T6
4. ALL FENCE FITTINGS AND HARDWARE SHALL BE POLYESTER POWDER COATING TO MATCH FENCING.
5. FASTENERS SHALL BE SS 316 CARRIAGE BOLTS WITH BREAKAWAY NUTS OR OTHER APPROVED TAMPER-PROOF SECURITY FASTENER, UNLESS NOTED OTHERWISE. BOLT SIZE IS CONTINGENT ON MESH AND FITTINGS PER SECURITY FENCE MANUFACTURER.
6. USE INSULATING SLEEVES AND PHENOLIC WASHERS TO ELECTRICALLY ISOLATE THE BOLTS.
7. WHERE DISSIMILAR METALS ARE JOINED, (E.G. GALVANIZED STEEL FENCE POST CAPS ON ALUMINUM POSTS), PROVIDE EPOXY PAINT COATING OR SEPARATE WITH ISOLATION TAPE TO ELECTRONICALLY ISOLATE MATERIALS FROM DISSIMILAR METALS.
8. THE FENCING ALIGNMENT SHALL BE LOCATED RELATIVE TO THE EXTERIOR STAIR STRINGER AS INDICATED ON THIS SHEET. NEW POSTS SHALL BE PROVIDED FOR FENCING.
9. ATTACH AND SECURE MESH TO POSTS AND HORIZONTAL RAILS AND POSTS WITH FASTENERS AND IN MANNER SPECIFIED BY MANUFACTURER. PROVIDE SPECIAL SIZED POSTS, END TENSIONER ASSEMBLIES AT CORNERS AND TERMINATION (GATE) POSTS AS RECOMMENDED BY MANUFACTURER.
10. MESH CONNECTION HARDWARE INDICATED IN DETAILS IS FOR GENERAL CONCEPT/REQUIREMENTS ONLY. THE ACTUAL TYPE, NUMBER, CONFIGURATION AND/OR LOCATION WILL VARY DEPENDING ON MANUFACTURER.
11. INSTALL 3 STRANDS BARBED WIRE ABOVE TOP OF FENCE. BARBED WIRE SUPPORT ARMS TO HAVE POLYESTER POWDER COATING TO MATCH FENCE SYSTEM.
12. CONTRACTOR TO PROVIDE GATE LOCK THAT IS COMPATIBLE WITH CYBERLOCK PL-02 ELEC PADLOCK.
13. ALL STEEL SHALL BE HOT DIPPED GALVANIZED. POLYESTER POWDER COATING MAY BE APPLIED OVER THE GALVANIZED METAL.



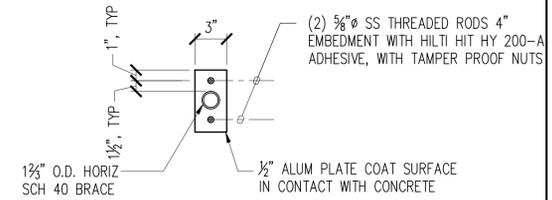
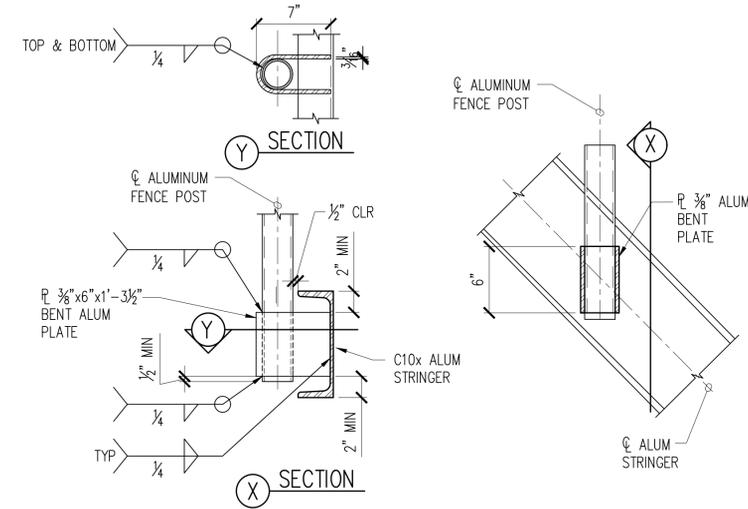
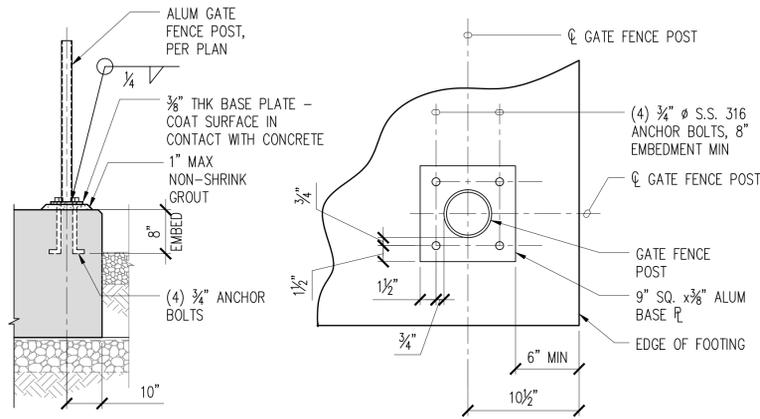
1 PARTIAL STAIR SECURITY FENCE PLAN
S-20 SCALE: 1/2" = 1'-0"



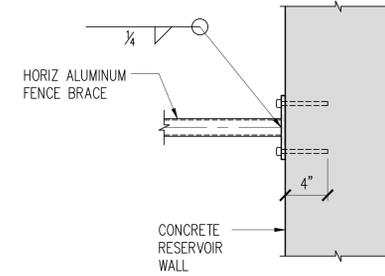
4 STAIR SECURITY FENCE SECTION
S-20 SCALE: 3/4" = 1'-0"



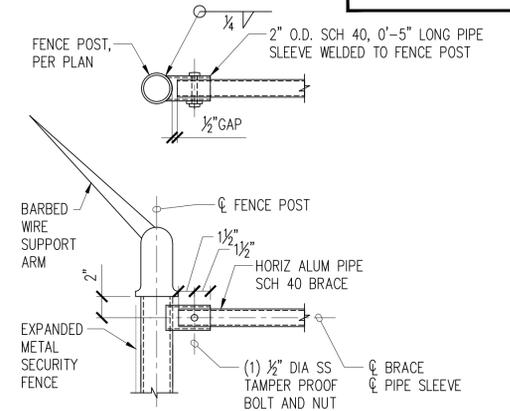
<p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION</p> <p><i>Jerry S. Fujita</i> Signature EXP. 4/26</p>	REVISION	DATE	DESCRIPTION	BY	APPROVED	
	<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p> <p>RESERVOIR STRUCTURAL TYPICAL DETAILS</p>					
	APPROVED:		02/02/2026		DATE	
	<p>S-20</p>					
<p>KODANI & ASSOCIATES ENGINEERS, LLC 1410 E. KĀLAU I, HAWAII 96766</p>						
DESIGNED BY: JF		DRAWN BY: CADD		DATE: 26 April 2024		
<p>SHEET 49 OF 65</p>						



CONNECTION PLATE



FENCE BRACE TO WALL CONNECTION



FENCE BRACE TO FENCE POST CONNECTION

1 FENCE GATE POST CONNECTION

S-21 SCALE: 1 1/2" = 1'-0"

2 FENCE POST STRINGER CONNECTION

S-21 SCALE: 1 1/2" = 1'-0"

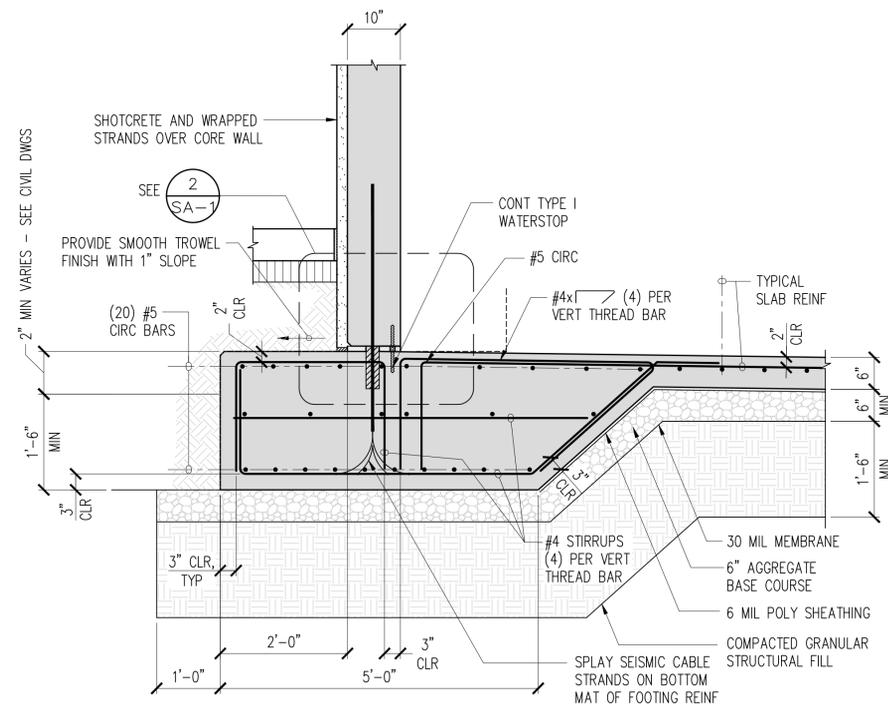
3 FENCE BRACE TO WALL CONNECTION

S-21 SCALE: 1 1/2" = 1'-0"

4 FENCE BRACE TO FENCE POST CONNECTION

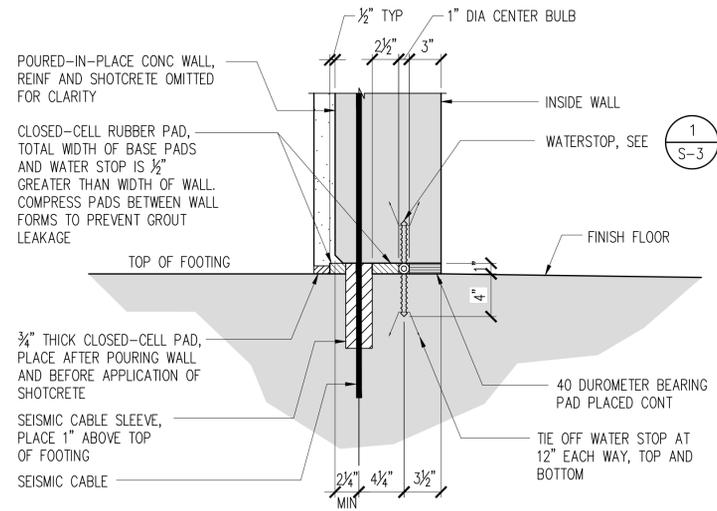
S-21 SCALE: 1 1/2" = 1'-0"

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	<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p> <p>EXTERIOR STAIRCASE SECURITY FENCING DETAILS</p>			
<p>APPROVED:</p> <p><i>Jerry S. Fujita</i> Signature</p>	<p>02/02/2026</p> <p>DATE</p>	<p>S-21</p>		
<p>KODANI & ASSOCIATES ENGINEERS, LLC LĪHU E, KĀLAUĀ, HAWAII 96766</p>				
DESIGNED BY: JF	DRAWN BY: CADD	DATE: 26 April 2024	SHEET 50 OF 65	

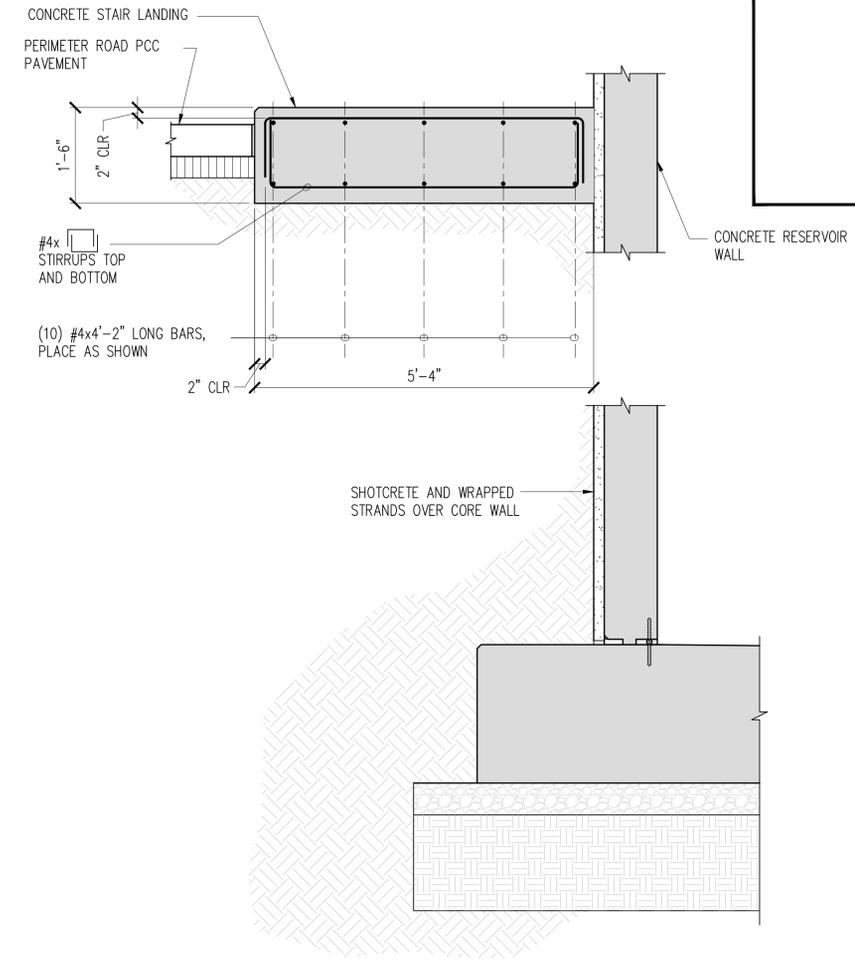


1 RADIAL SECTION OF WALL AND WALL FOOTING
SA-1 SCALE: 3/4" = 1'-0"

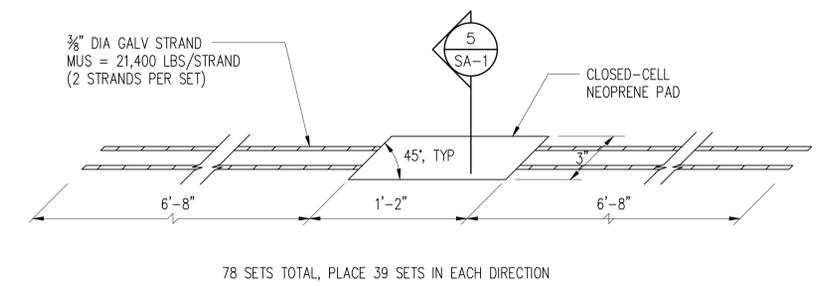
WALL BASE JOINT NOTES:
 1. GLUE ALL PADS TO TOP OF WALL FOOTING.
 2. FILL ALL VOIDS BETWEEN BASE PADS, SEISMIC CABLE SLEEVE AND WATER STOP WITH A SOFT MASTIC.



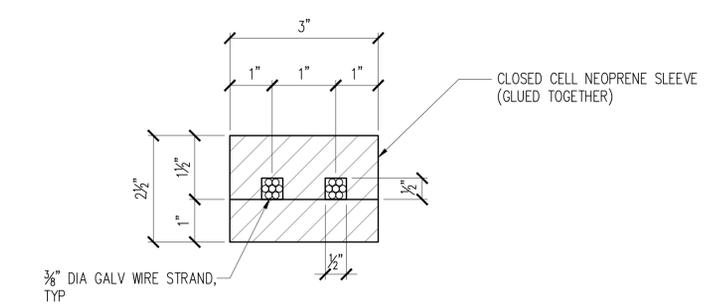
2 WALL BASE JOINT DETAIL
SA-1 NOT TO SCALE



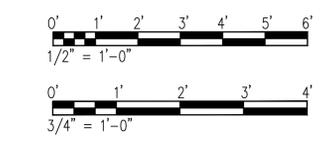
3 WALL FOOTING EXTENSION DETAIL
SA-1 SCALE: 3/4" = 1'-0"



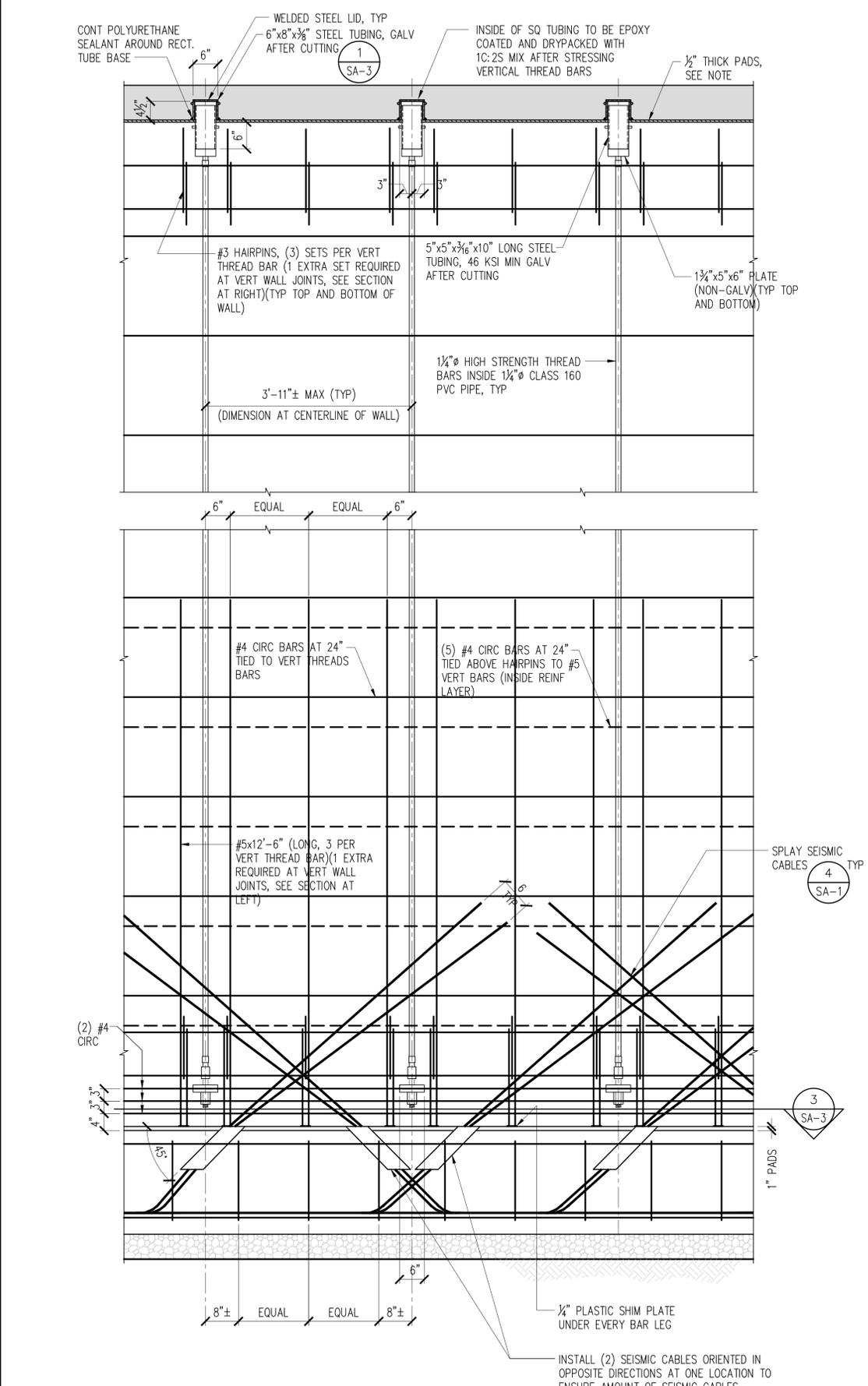
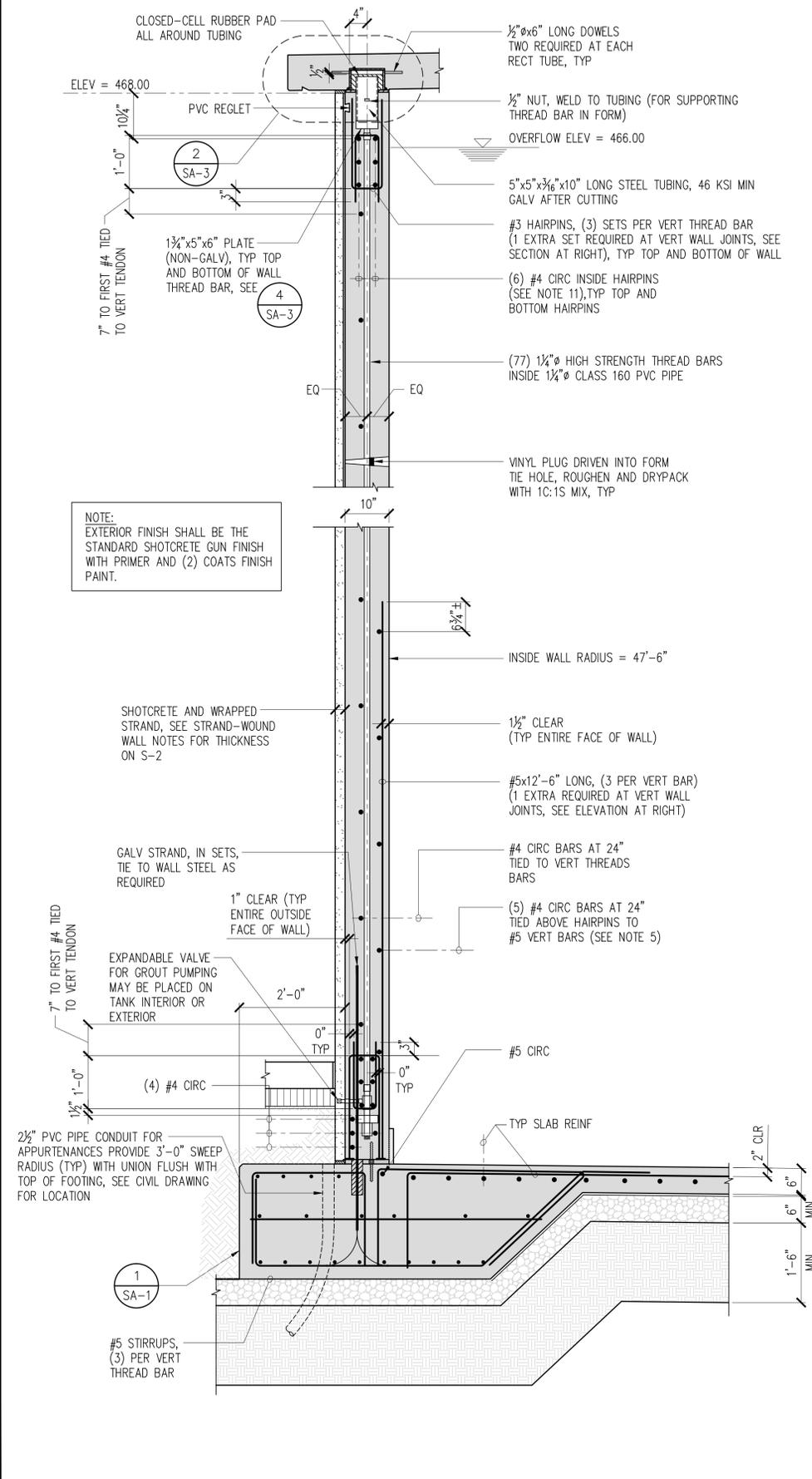
4 PLAN OF SEISMIC CABLE SET
SA-1 NOT TO SCALE



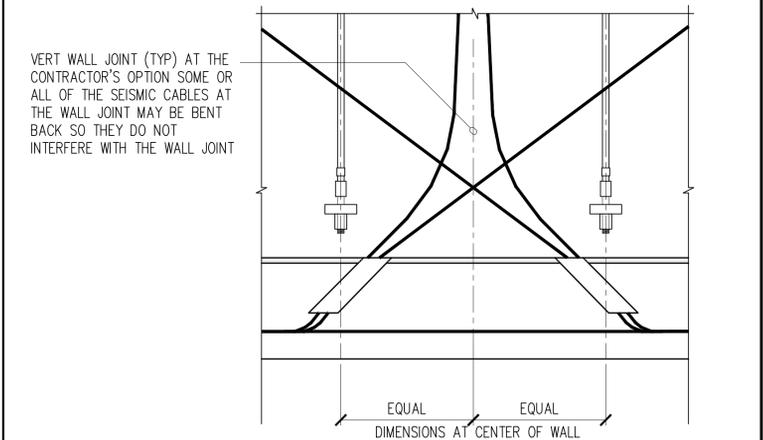
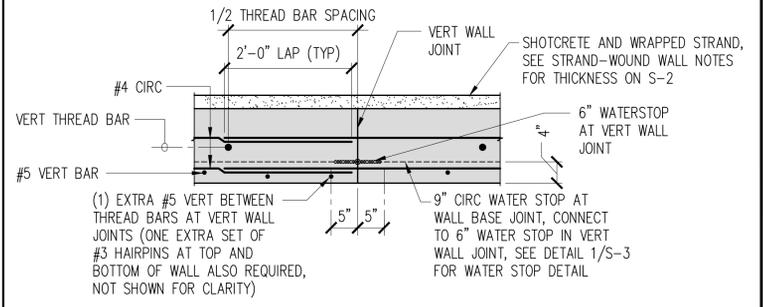
5 SEISMIC CABLE SET SECTION
SA-1 NOT TO SCALE



		REVISION DATE DESCRIPTION BY APPROVED	
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION 		CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG	
APPROVED: EMP. 4/28 <small>MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI</small>		DATE: 02/02/2026	
KODANI & ASSOCIATES ENGINEERS, LLC <small>LĪHU E, KAUAI, HAWAII 96766</small>		SA-1	
DESIGNED BY: JF	DRAWN BY: CADD	DATE: 26 April 2024	SHEET 51 OF 65

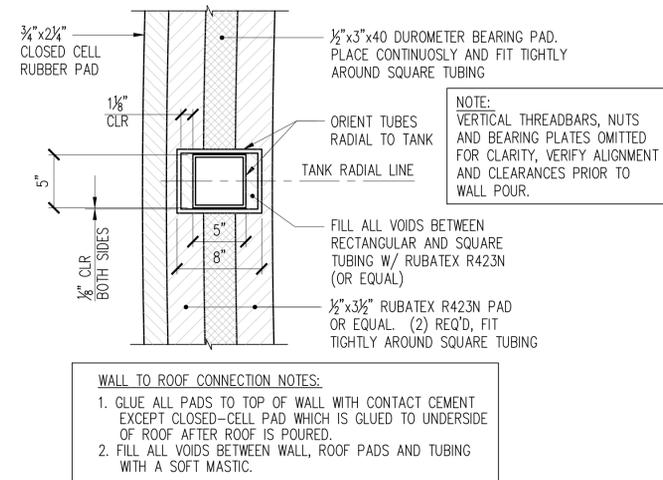


- NOTES:**
1. TIE OFF ALL WATER STOPS AT 12" ON BOTH SIDES AND IN BOTH DIRECTIONS.
 2. THE TOP OF THE WALL FOOTING AND FLOOR SHALL RECEIVE A SMOOTH AND HARD STEEL-TROWELLED FINISH.
 3. MAINTAIN CLEARANCE BETWEEN THE INDIVIDUAL STRANDS IN THE SEISMIC CABLE SETS (DO NOT BUNDLE).
 4. SEISMIC CABLES MAY BE BENT PRIOR TO INSTALLATION.
 5. ALL CIRCUMFERENTIAL REINFORCING MUST EXTEND 2'-6" (±) PAST BOTH ENDS OF THE FIRST WALL SECTIONS AND ONE END OF ALL INTERMEDIATE WALL SECTIONS IN ORDER TO PROVIDE 2'-0" LAPS. CIRCUMFERENTIAL REINFORCING MAY NOT EXTEND PAST EITHER END OF THE LAST WALL SECTION.

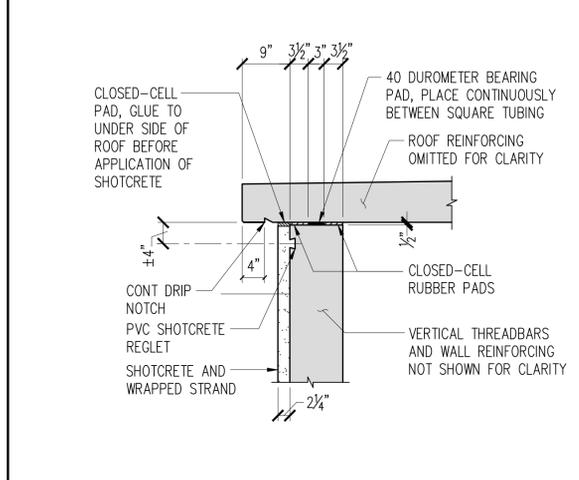


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Signature Exp. 4/26

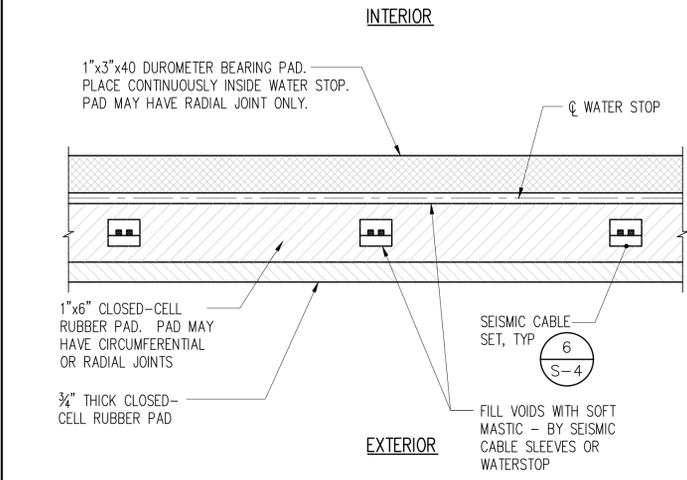
REVISION	DATE	DESCRIPTION	BY	APPROVED
CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG				
WOUND RESERVOIR WALL SECTION AND DETAILS				
APPROVED:	02/02/2026			
BY: <i>Jerry S. Fujita</i>	DATE			
SA-2				



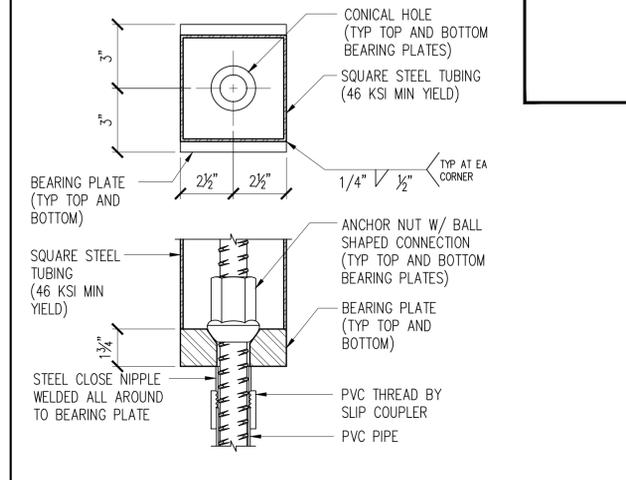
1 PLAN - WALL TO ROOF CONNECTION
SA-3 NOT TO SCALE



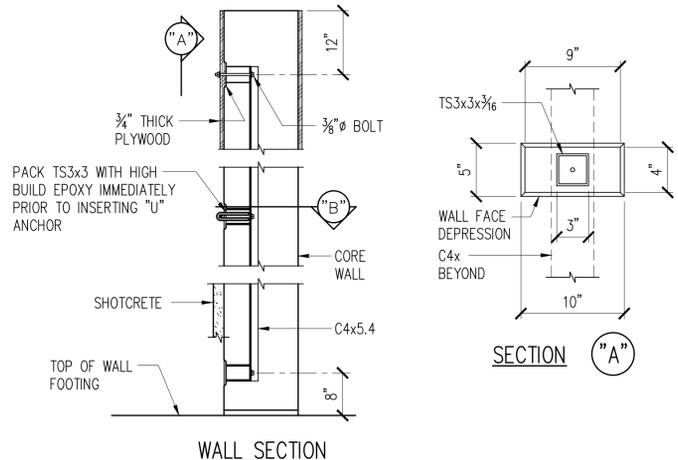
2 WALL TO ROOF JOINT DETAIL
SA-3 SCALE: 3/4" = 1'-0"



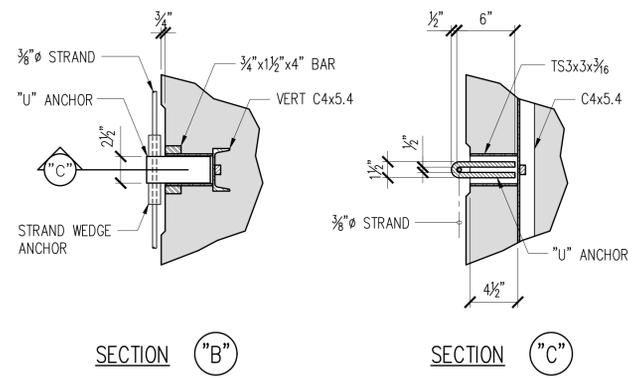
3 PLAN - PADS AT WALL BASE JOINT
SA-3 NOT TO SCALE



4 THREADBAR, NUT AND BEARING PLATE DETAIL
SA-3 NOT TO SCALE



5 STRAND ANCHOR DETAILS
SA-3 NOT TO SCALE

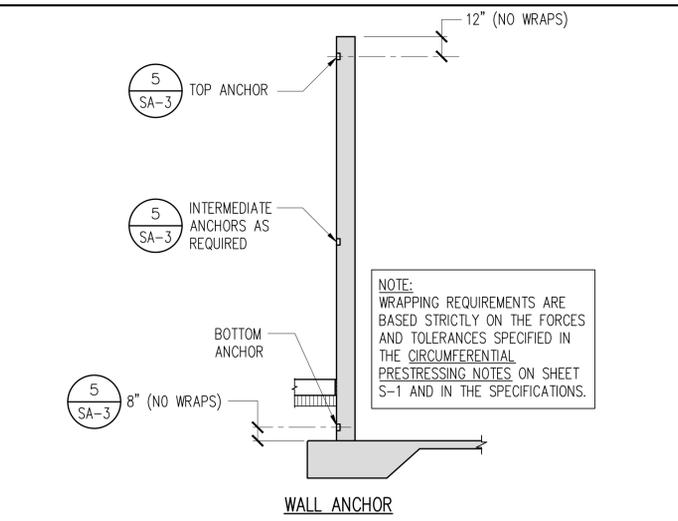


SECTION "A" SECTION "B" SECTION "C"

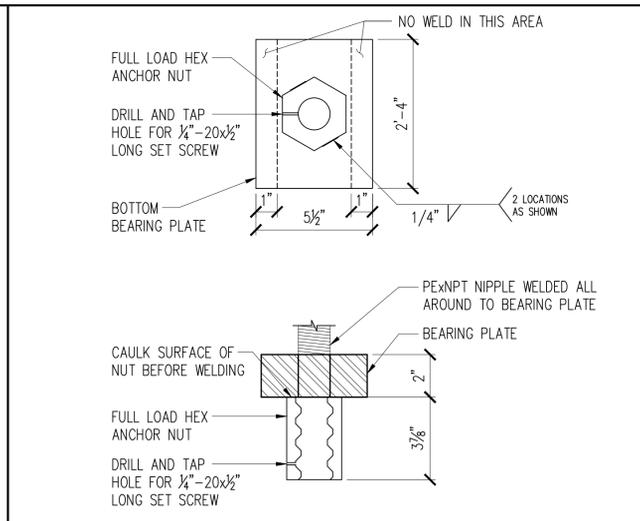
WRAPPING SCHEDULE				
HEIGHT ABOVE TOP OF FOOTING	FORCE (KIPS)	NUMBER OF LAYERS		
		FIRST LAYER	SECOND LAYER	
20'-0"	21'-0"	0	0	
18'-0"	20'-0"	54	6	
16'-0"	18'-0"	66	6	
14'-0"	16'-0"	78	8	
12'-0"	14'-0"	90	8	
10'-0"	12'-0"	101	8	
8'-0"	10'-0"	113	10	
6'-0"	8'-0"	125	10	
4'-0"	6'-0"	137	12	
2'-0"	4'-0"	149	12	
0'-8"	2'-0"	161	14	
TOP OF FTG	0'-8"	0	0	

NOTES:
 1. SEE DETAIL 6 ON THIS SHEET FOR WRAPPING LIMITS.
 2. STRAND WRAPS ARE BASED ON A FINAL PRESTRESSING FORCE OF 12,720 LBS PER STRAND.
 3. BASED ON A MAXIMUM STRAND SPACING OF 3/4".

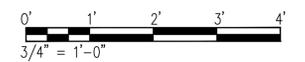
8 WRAPPING SCHEDULE
SA-3 NOT TO SCALE



6 WRAPPING LIMITS
SA-3 NOT TO SCALE



7 BOTTOM BEARING PLATE FOR THREADBAR
SA-3 NOT TO SCALE



JERRY S. FUJITA
LICENSED PROFESSIONAL ENGINEER
No. 11573-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Jerry S. Fujita
Signature Exp. 4/28

REVISION	DATE	DESCRIPTION	BY	APPROVED

CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG

WOUND RESERVOIR WALL DETAILS

APPROVED: *Jerry S. Fujita* 02/02/2026
MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI

SA-3

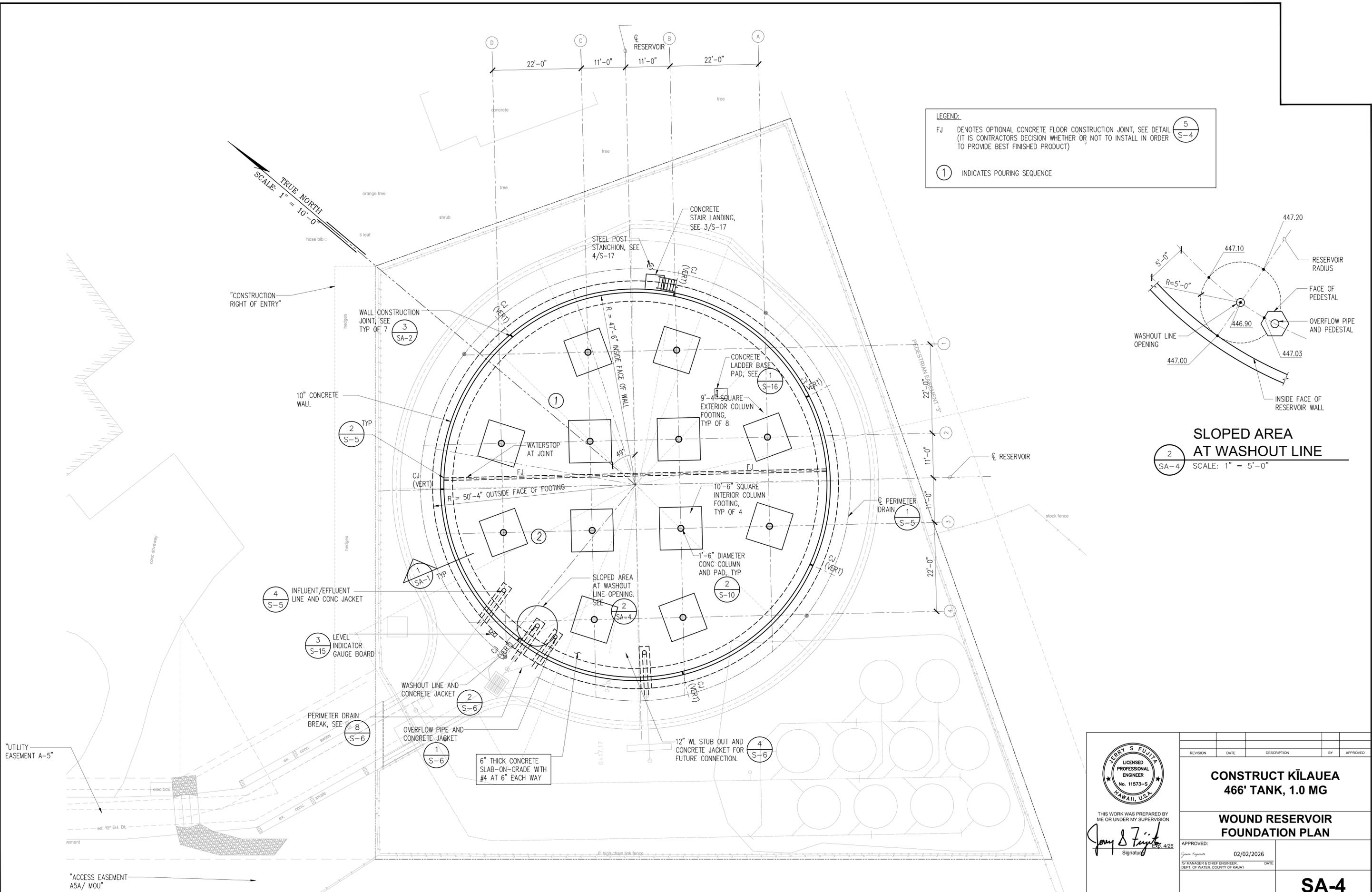
KODANI & ASSOCIATES ENGINEERS, LLC
LĪHU E, KAUAI I, HAWAII 96766

DESIGNED BY: JF

DRAWN BY: CADD

DATE: 26 April 2024

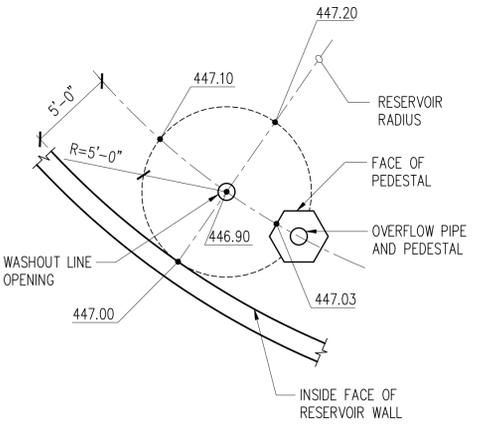
SHEET 53 OF 65



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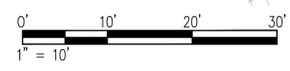
FJ DENOTES OPTIONAL CONCRETE FLOOR CONSTRUCTION JOINT, SEE DETAIL (IT IS CONTRACTORS DECISION WHETHER OR NOT TO INSTALL IN ORDER TO PROVIDE BEST FINISHED PRODUCT)

① INDICATES POURING SEQUENCE



SLOPED AREA AT WASHOUT LINE
 SCALE: 1" = 5'-0"

1 RESERVOIR FOUNDATION PLAN
 SA-4 SCALE: 1" = 10'-0"



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Jerry S. Fujita
 Signature EMP. 4/28

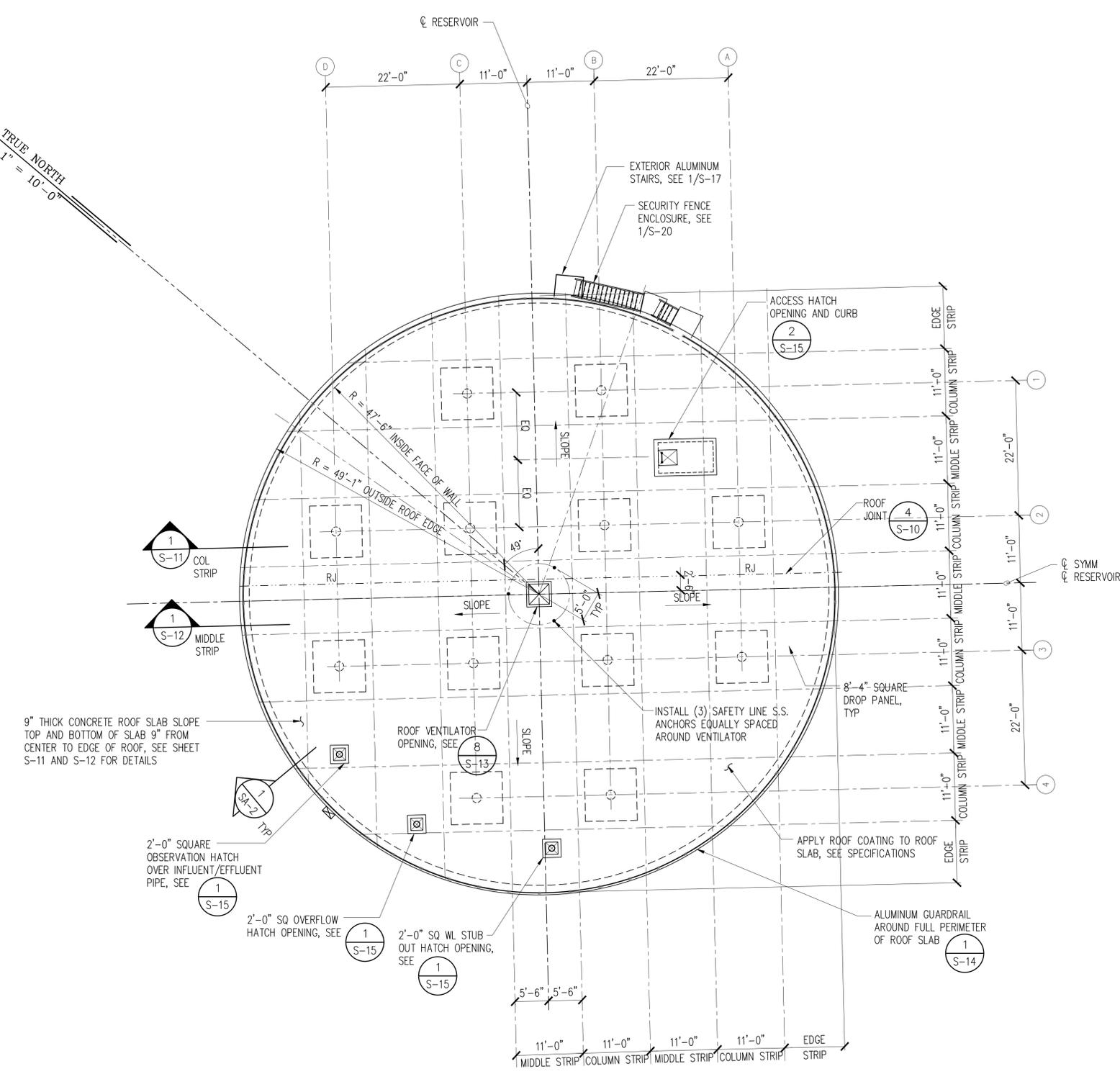
REVISION	DATE	DESCRIPTION	BY	APPROVED
CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG				
WOUND RESERVOIR FOUNDATION PLAN				
APPROVED:		DATE: 02/02/2026		
<small>DESIGNED BY: JF DRAWN BY: CADD DATE: 26 April 2024</small>				

SA-4

KODANI & ASSOCIATES ENGINEERS, LLC
LĪHU E, KĀLAUĀ, HAWAII 196786

SHEET 54 OF 65

TRUE NORTH
SCALE: 1" = 10'-0"



9" THICK CONCRETE ROOF SLAB SLOPE TOP AND BOTTOM OF SLAB 9" FROM CENTER TO EDGE OF ROOF, SEE SHEET S-11 AND S-12 FOR DETAILS

2'-0" SQUARE OBSERVATION HATCH OVER INFLUENT/EFFLUENT PIPE, SEE

2'-0" SQ OVERFLOW HATCH OPENING, SEE

2'-0" SQ WL STUB OUT HATCH OPENING, SEE

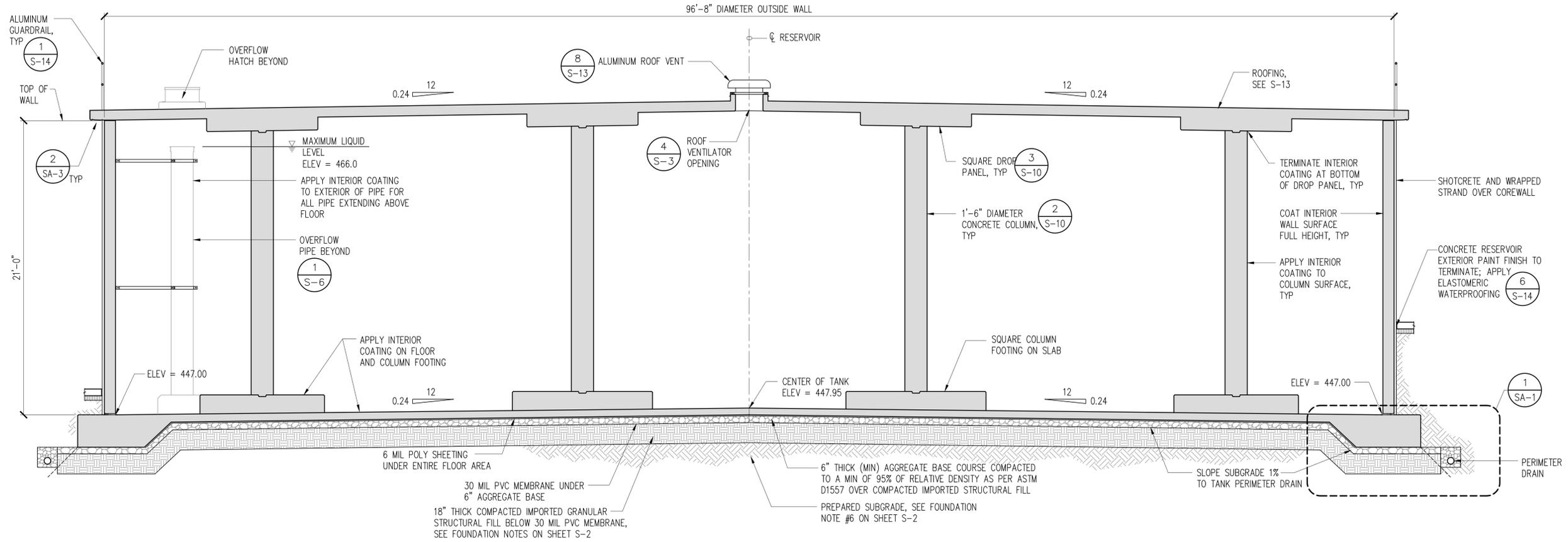
2'-0" SQ WL STUB OUT HATCH OPENING, SEE

NOTE:
REINFORCING FOR ROOF SLAB IS SYMMETRICAL ABOUT BOTH DIRECTIONS, SEE SHEET S-11 AND S-12 FOR ADDITIONAL INFORMATION.

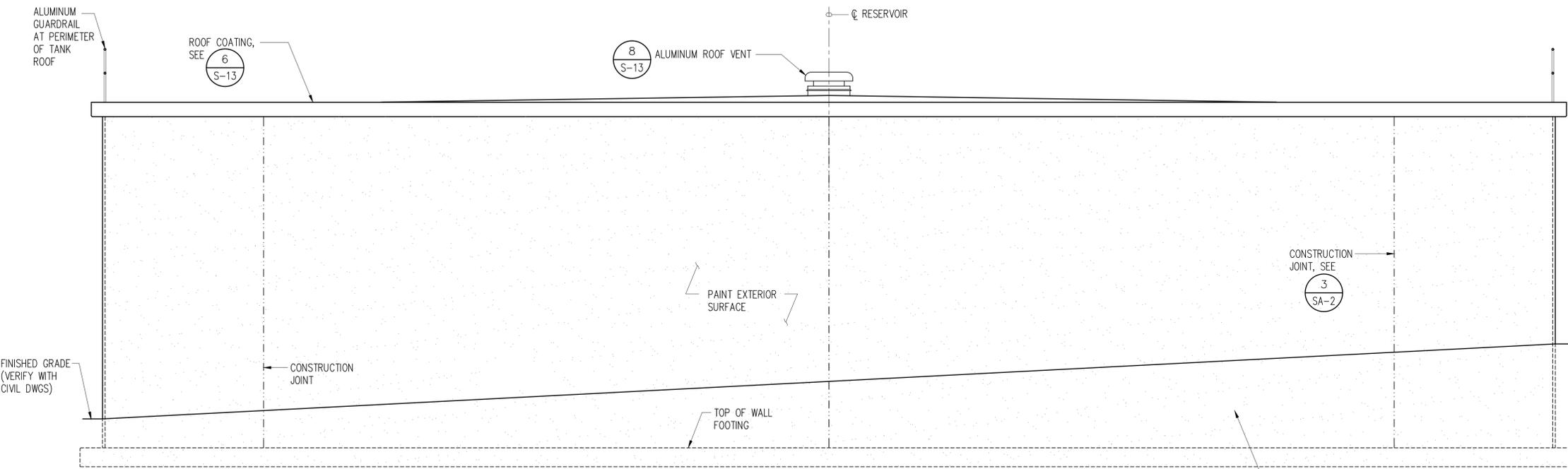
LEGEND:
RJ DENOTES ROOF CONSTRUCTION JOINT, SEE DETAIL



<p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION</p> <p><i>Jerry S. Fujita</i> Signature Exp. 4/26</p>	<table border="1"> <tr> <th>REVISION</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> <th>APPROVED</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	REVISION	DATE	DESCRIPTION	BY	APPROVED					
	REVISION	DATE	DESCRIPTION	BY	APPROVED						
	<p>CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p>										
<p>WOUND RESERVOIR ROOF SLAB PLAN</p>											
<p>APPROVED: <i>Jerry S. Fujita</i> DATE: 02/02/2026</p>		<p>DEPT. MANAGER & CHIEF ENGINEER DEPT. OF WATER, COUNTY OF KAUAI</p>									
<p>SA-5</p>											
<p>KODANI & ASSOCIATES ENGINEERS, LLC LĪHU E, KAUAI I, HAWAII 96766</p>											
DESIGNED BY: JF	DRAWN BY: CADD	DATE: 26 April 2024	SHEET 55 OF 65								



1 RESERVOIR CROSS SECTION
 SA-6 SCALE: 1/4" = 1'-0"



2 RESERVOIR ELEVATION
 SA-6 SCALE: 1/4" = 1'-0"

PAINTING NOTES:

A. EXTERIOR WALL SURFACE: KAUAI GREEN

- PRIME: ICI DEVCO 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)
- FINISH: (2 COATS) GLIDDEN FORTIS 350 WATERBORNE ACRYLIC LATEX SEMI-GLOSS FINISH AT 350-400 SF/GAL (4.0-4.6 MILS WET; 1.4-1.6 MILS DFT PER COAT.

B. BELOW GRADE EXTERIOR SURFACES: WATERPROOFING

- LIQUID APPLIED URETHANE COATING THAT FORMS AN ELASTOMERIC WATERPROOF MEMBRANE, SUCH AS "CIM 1000" BY C.I.M INDUSTRIES, INC. OR APPROVED EQUAL



<p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION</p> <p><i>Jerry S. Fujita</i> Signature EMP. 4/26</p>	<table border="1"> <thead> <tr> <th>REVISION</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> <th>APPROVED</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISION	DATE	DESCRIPTION	BY	APPROVED					
	REVISION	DATE	DESCRIPTION	BY	APPROVED						
	<p align="center">CONSTRUCT KĪLAUEA 466' TANK, 1.0 MG</p>										
<p align="center">WOUND RESERVOIR ELEVATION AND SECTION</p>											
<p>APPROVED: <i>Jerry S. Fujita</i> 02/02/2026 <small>MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI</small></p>											
<p align="center">SA-6</p>											
<p align="center">KODANI & ASSOCIATES ENGINEERS, LLC <small>1875 E. KĀLAU I, HAWAII 96766</small></p>											
<p>DESIGNED BY: JF</p>	<p>DRAWN BY: CADD</p>										
<p>DATE: 26 April 2024</p>	<p align="right">SHEET 56 OF 65</p>										

GENERAL CONSTRUCTION NOTES

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

WATER NOTES

- THE CONTRACTOR SHALL VERIFY IN THE FIELD THE LOCATION OF THE EXISTING WATER FACILITIES PRIOR TO TRENCHING. EXCAVATION AROUND EXISTING WATER FACILITIES SHALL BE DONE BY HAND.
- MATERIAL USED FOR BACKFILLING AT THE WATER FACILITIES CROSSINGS SHALL NOT CONTAIN ANY STONES, ROCKS OR OTHER SIMILAR MATERIAL AND SHALL NOT CONTAIN VEGETABLE MATTER OR DEBRIS OF ANY KIND. NO "ADOBE" OR SIMILAR MATERIAL SHALL BE USED.
- PROVIDE CONCRETE ENCASEMENT FOR THE CONDUITS AT ALL WATERLINE, SERVICE LATERAL AND HYDRANT CROSSINGS. CONCRETE JACKET THE DUCT SECTION A MINIMUM OF 3 LINEAR FEET ON BOTH SIDES OF THE WATERLINECROSSING(S). THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF WATER AT LEAST 24 HOURS PRIOR TO SCHEDULING BACKFILLING OPERATIONS AT THE WATER FACILITIES CROSSINGS.
- CLEARANCE BETWEEN WATERLINE AND OTHER UTILITIES SHALL CONFORM TO TABLE 100-1 - WATERLINE CLEARANCES OF THE WATER SYSTEM STANDARDS 2002, AS AMENDED.

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.
- CONTRACTOR SHALL CONTACT KAUAI ISLAND UTILITY COOPERATIVE'S ("KIUC") CONSTRUCTION COORDINATOR/INSPECTOR PRIOR TO START OF WORK ON KIUC FACILITIES AND FOR SCHEDULING SITE INSPECTIONS. [WESTSIDE: 246-2323, EASTSIDE: 246-4343]
- CONTRACTOR SHALL CONTACT KIUC'S DISTRIBUTION PLANNING COORDINATOR @ 246-2373 FOR DESIGN APPROVALS, STANDARD DETAIL DRAWINGS, AND ANY ITEMS NOT ADDRESSED IN THESE NOTES OR DRAWINGS.
- ALL CONTRACTORS ENTERING KIUC FACILITIES MUST BE APPROVED BY KIUC AND MUST HAVE PROPER LICENSING AND INSURANCE COVERAGE. CONTACT KIUC LEGAL COORDINATOR (TEL: 246-4369) FOR DETAILS.
- 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.
- THE CONTRACTOR SHALL PROVIDE A POLY-LINE 200 LB. TEST LINE OR EQUIVALENT AS A PULLING WIRE IN ALL 1", 2", 3" AND 4" KIUC CONDUITS. IN ALL 5" AND 6" CONDUITS, THE CONTRACTOR SHALL INSTALL NEPTCO WP1800 MULETAPE AS A PULLING LINE.
- ALL CONDUITS, PULLBOXES, HANDHOLES, AND 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.)
- FOR ALL CONDUITS OTHER THAN FOR SERVICES, REFER TO CONDUIT SCHEDULE ON DRAWINGS.
- FOR ALL ELECTRIC SERVICES WHERE THE CONDUCTOR IS 1/0 OR LESS, THE DISTANCE FROM KIUC 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 REQUIRED KIUC WRITTEN APPROVAL.
- PRIMARY, SECONDARY AND SERVICE 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 3-INCH CONCRETE JACKET EXTENDED 12" OUTSIDE THE EDGE OF PAVEMENT.
- SCHEDULE 80 PVC CONDUIT 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.
- 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 THE EDGE OF PAVEMENT.
- ELECTRIC SUPPLY DUCTS, WHEN INSTALLED NEAR COMMUNICATIONS 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.
- CHAIRS SHALL BE INSTALLED AND SPACED AT A MAXIMUM OF 5 FEET SEPARATION WHEN CONCRETE

- ENCASING CONDUITS.
- ALL CONDUITS SHALL ENTER BOXES AT A 90 DEGREE ANGLE, PERPENDICULAR AND FLUSH TO THE WALL WITH BELL ENDS TO PREVENT CABLE DAMAGE.
 - 90-DEGREE CONDUIT BENDS SHALL BE FACTORY MADE WITH A MINIMUM RADIUS OF THREE FEET IN TRENCH RUNS.
 - CONDUIT BENDS EXCEEDING 90-DEGREES WILL NOT BE ACCEPTED.
 - A 36 INCH MINIMUM HORIZONTAL CLEARANCE SHALL BE MAINTAINED WHEN RUNNING KIUC CONDUITS PARALLEL TO DRAINAGE, GAS AND SEWER LINES. A MINIMUM 8 FOOT HORIZONTAL CLEARANCE SHALL BE MAINTAINED TO WATER LINES. THE CONTRACTOR SHALL MAINTAIN AN 18" MINIMUM VERTICAL SEPARATION BETWEEN THE TOP OF DIRECT BURIED KIUC CONDUITS, AND WATER LINES. WHEN KIUC CONDUITS ARE CONCRETE ENCASED AT INTERSECTION OF WATER LINES AND UTILITY CONDUITS, AN 18" MINIMUM SEPARATION BETWEEN WATER LINES AND OUTER EDGE OF CONCRETE ENCASEMENT THE UTILITY CONDUITS SHALL BE MAINTAINED. CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF WATER 24 HOURS PRIOR TO SCHEDULED ELECTRICAL/WATER TRENCH BACKFILLING OPERATIONS.
 - NO FOREIGN PULLBOXES, HANDHOLES, MANHOLES, CONCRETE SLAB/BOXES, STRUCTURES, ETC. ARE TO BE INSTALLED OVER KIUC FACILITIES WITH THE EXCEPTION OF HTCO, CATV OR WATERLINE CONDUIT CROSSINGS. SUCH CROSSINGS MUST BE APPROVED BY KIUC SERVICE ASSURANCE DEPARTMENT AND THE KIUC CONDUIT SHALL BE CONCRETE ENCASED. CONCRETE ENCASEMENT MUST BE MINIMUM OF 3-INCH ENCASEMENT AND EXTEND A MINIMUM OF 1 FOOT BEYOND CROSSING CONDUIT OR PIPE.
 - 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.)
 - UNLESS OTHERWISE NOTED, THE TOP OF ALL CONDUITS SHALL BE AT A DEPTH OF 24-INCHES.
 - 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.
 - 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)
 - 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.
 - 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 MATERIAL SHALL NOT BE PLACED INSIDE HANDHOLES AND PULLBOXES.

ELECTRICAL SYMBOLS	
SYMBOL	DESCRIPTION
	FLEXIBLE CONDUIT, LIQUIDTIGHT CONDUIT OR DUCTLINE BELOW REF. FL. OR GROUND
	JUNCTION BOX, WALL MTD., 4-11/16" NOM.
	JUNCTION BOX, CEIL. MTD., 4-11/16" NOM.
	JUNCTION BOX, WALL MTD., SIZE AS NOTED, ENCLOSURE TYPE AND RATING AS NOTED
	JUNCTION BOX, CEIL. MTD., SIZE AS NOTED, ENCLOSURE TYPE AND RATING AS NOTED
	TANK LEVEL TRANSMITTER CONNECTION
	GATE SECURITY SWITCH CONNECTION, SEE DETAIL 4/E-9
	TANK HATCH SECURITY SWITCH CONNECTION, SEE DETAIL 2/E-9
	EQUIPMENT CONNECTION
	DUPLEX RECEPTACLE, NEMA 5-15R, 120V, MTD. +18" OR AS NOTED
	JUNCTION BOX MTD. ON CHANNEL SUPPORT, SEE DETAIL 1/E-9
	WP DENOTES "WEATHERPROOF"
	SS DENOTES "TYPE 316 STAINLESS STEEL"
	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 WITH 1-2" T DUCT; E=ELECTRIC, T=TELEPHONE, A=ANTENNA CABLE C=CONTROLS, I=INSTRUMENTATION); SEE SHEET E-2 FOR DUCT SECTION DETAILS
NOTE: NO HASH MARKS ON CONDUITS INDICATE 2 WIRES; INDICATES 3 WIRES; INDICATES 4 WIRES, ETC.	

REVISION	DATE	DESCRIPTION	BY	APPROVED
CONSTRUCT KILAUEA 466' TANK, 1.0MG				
ELECTRICAL SYMBOLS, GENERAL NOTES				
		APPROVED: COUNTY ENGINEER: DEPT. PUBLIC WORKS, COUNTY OF KAUAI DATE: 02/02/2026 APPROVED: MANAGER & CHIEF ENGINEER: DEPT. OF WATER, COUNTY OF KAUAI DATE:		
This work was prepared by me or under my supervision and construction to this project will be under my observation. 2026.01.27 Expire Date of License: 04-30-26		E-1		
KODANI AND ASSOCIATES ENGINEERS, LLC LIHU'E, KAUAI, HAWAII, 96766				
DESIGNED BY: BD	DRAWN BY: CAD	DATE: 30-JAN-2026	SHEET 57 OF 65 SHEETS	

DUCT SECTION BACKFILL NOTES:

-  TYPE "A" BACKFILL – EARTH & GRAVEL. ROCK SIZE TO BE 1" MAX. & THE MIXTURE TO CONTAIN NOT MORE THAN 50% BY VOLUME OF ROCK PARTICLES. 95% COMPACTION.
-  TYPE "B" BACKFILL – EARTH & GRAVEL. MIXTURE MUST PASS A 1/2" MESH SCREEN & CONTAIN NOT MORE THAN 20% BY VOLUME OF ROCK PARTICLES. 95% COMPACTION.
-  NOTE – IF NORMAL MATERIAL AT BOTTOM OF TRENCH IS NOT TYPE "B", AN ADDITIONAL 3" SHALL BE EXCAVATED & TYPE "B" BACKFILL PROVIDED.
-  CONCRETE – 3" ENCASEMENT, 2500 PSI COMPRESSIVE STRENGTH @ 28 DAYS.

DESIGNATION DESCRIPTIONS

- ELEC = UTILITY CO. PRIMARY OR SECONDARY ELECTRIC
- TEL = UTILITY CO. TELEPHONE
- PWR = PRIMARY OR SECONDARY ELECTRIC
- CTL = CONTROL
- SIG = INSTRUMENTATION OR ANTENNA CABLE

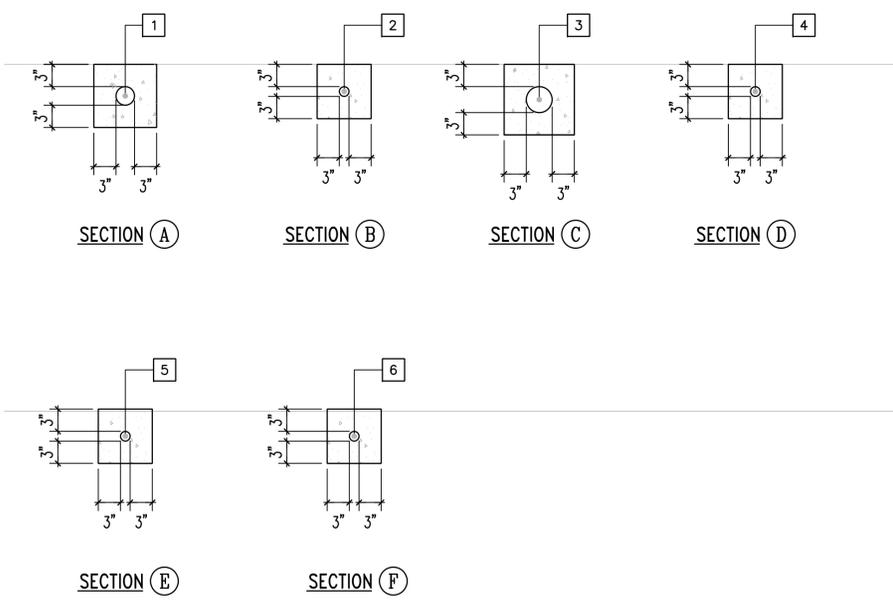
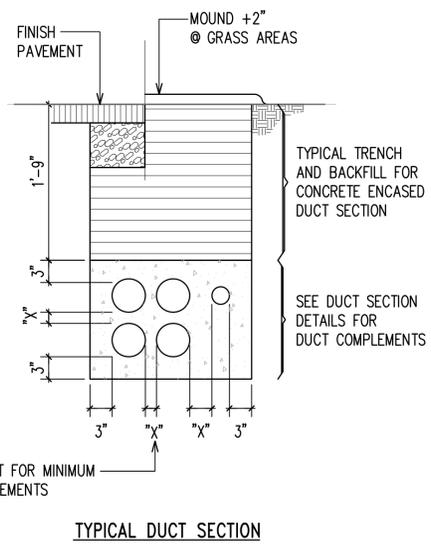
MINIMUM "X" DIMENSION DUCT SEPARATION REQUIREMENTS

- ELEC - ELEC = 1 1/2"
- ELEC - TEL = 3"
- TEL - TEL = 1 1/2"
- ELEC - CTL/SIG = 3"
- TEL - CTL/SIG = 1 1/2"
- PWR - CTL/SIG = 3"
- ELEC - PWR = 1 1/2"
- TEL - PWR = 3"
- PWR - PWR = 1 1/2"
- CTL/SIG - CTL/SIG = 1 1/2"

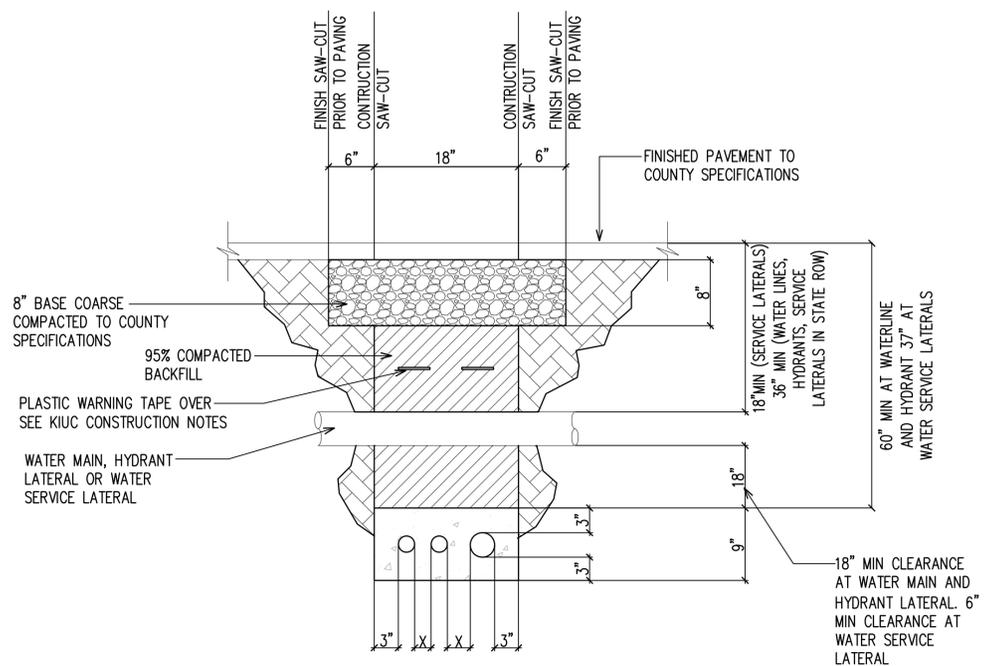
MINIMUM OF 3" CONCRETE ENCASEMENT AROUND DUCTBANK

WHERE DUCTLINE CROSSES UNDER WATER LINE, PROVIDE THE FOLLOWING:

1. 18" MINIMUM SEPARATION BETWEEN DUCTLINES AND WATER LINE.
2. PROVIDE CONCRETE JACKET AROUND DUCTLINES.



DUCT SECTION DETAILS AND REQUIREMENTS
NOT TO SCALE



TYPICAL DUCT SECTION AT WATER FACILITIES CROSSING

WATER NOTES:

1. THE CONTRACTOR SHALL VERIFY IN THE FIELD THE LOCATION OF THE EXISTING WATER FACILITIES PRIOR TO TRENCHING. EXCAVATION AROUND EXISTING WATER FACILITIES SHALL BE DONE BY HAND.
2. MATERIAL USED FOR BACK FILLING AT THE WATER FACILITIES CROSSINGS SHALL NOT CONTAIN VEGETABLE MATTER OR DEBRIS OF ANY KIND. NO "ADOBE" OR SIMILAR MATERIAL SHALL BE USED.
3. PROVIDE CONCRETE ENCASEMENT FOR THE CONDUITS AT ALL WATERLINE, SERVICE LATERAL AND HYDRANT CROSSING. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF WATER AT LEAST 24-HOURS PRIOR TO SCHEDULING BACK FILLING OPERATION AT THE WATER FACILITIES CROSSINGS.

DUCT AND WIRE SCHEDULE

NO.	DUCT SIZE	WIRE SIZE	DESTINATION OR USE
1	2"	SEE ONE-LINE DIAGRAM	SECONDARY POWER FROM KIUC HANDHOLE TO SECONDARY SERVICE PEDESTAL
2	1"	1-2/C#14 TWISTED, SHIELDED CABLES W/GNDS	INSTRUMENTATION CIRCUIT FROM INSTRUMENTATION TRANSMITTER TO RTU ANALOG INPUT
3	3"	ANTENNA CABLE	ANTENNA CABLE FROM SCADA CABINET TO POLE MOUNTED ANTENNA
4	1"	2#12 CONTROLS	TANK HATCH SECURITY SWITCH CONTROLS TRANSMITTER TO RTU ANALOG INPUT
5	1"	2#12 CONTROLS	GATE SECURITY SWITCH CONTROLS TO SCADA
6	1"	2#12 1#12 GND	POWER TO TEMPORARY TANK LEVEL TRANSMITTER
7			
8			
9			
10			
11			
12			
13			

- NOTES:**
1. ALL CONCRETE ENCASED DUCTS SHALL BE SCHEDULE 40 PVC.
 2. ALL DIRECT BURIED DUCTS SHALL BE SCHEDULE 80 PVC.
 3. PC INDICATES PROVIDE PULLCORD.

REVISION	DATE	DESCRIPTION	BY	APPROVED

CONSTRUCT KILAUEA 466' TANK, 1.0MG

DUCT SECTION DETAILS & REQUIREMENTS



BILLY J. ORNELLAS
LICENSED PROFESSIONAL ENGINEER
No. 11658-E
HAWAII, U.S.A.

APPROVED:

COUNTY ENGINEER:
DEPT. PUBLIC WORKS, COUNTY OF KAUAI
DATE: 02/02/2026

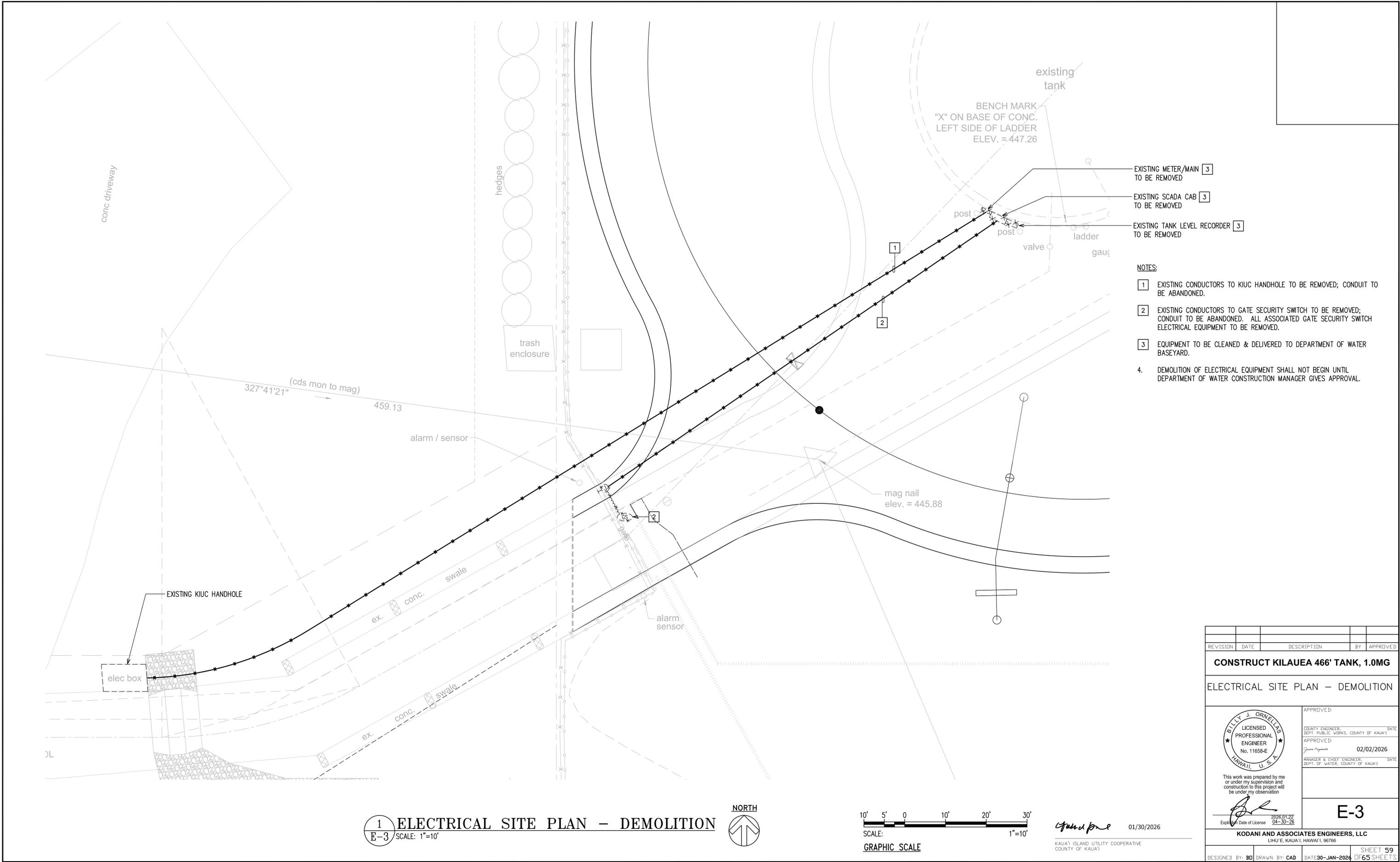
MANAGER & CHIEF ENGINEER:
DEPT. OF WATER, COUNTY OF KAUAI
DATE:

E-2

This work was prepared by me or under my supervision and construction to this project will be under my observation.

Expire Date of License: 2026.01.27 04-30-26

FILE PATH: Z:\acod\projects\212011\602-212011-duct sections.dwg CAD USER: Ahu PLOT DATE: 2026.01.22 XREFS: | _212011-duct sections | BAO-STAMP |



- EXISTING METER/MAIN [3] TO BE REMOVED
- EXISTING SCADA CAB [3] TO BE REMOVED
- EXISTING TANK LEVEL RECORDER [3] TO BE REMOVED

- NOTES:**
- [1] EXISTING CONDUCTORS TO KIUC HANDHOLE TO BE REMOVED; CONDUIT TO BE ABANDONED.
 - [2] EXISTING CONDUCTORS TO GATE SECURITY SWITCH TO BE REMOVED; CONDUIT TO BE ABANDONED. ALL ASSOCIATED GATE SECURITY SWITCH ELECTRICAL EQUIPMENT TO BE REMOVED.
 - [3] EQUIPMENT TO BE CLEANED & DELIVERED TO DEPARTMENT OF WATER BASEYARD.
 4. DEMOLITION OF ELECTRICAL EQUIPMENT SHALL NOT BEGIN UNTIL DEPARTMENT OF WATER CONSTRUCTION MANAGER GIVES APPROVAL.

REVISION	DATE	DESCRIPTION	BY	APPROVED
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CONSTRUCT KILAUEA 466' TANK, 1.0MG
ELECTRICAL SITE PLAN – DEMOLITION

	APPROVED:
	<small>COUNTY ENGINEER, DEPT. PUBLIC WORKS, COUNTY OF KAUAI</small> <small>DATE</small> <small>APPROVED:</small> 02/02/2026 <small>MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI</small> <small>DATE</small>
<p align="center">This work was prepared by me or under my supervision and construction to this project will be under my observation.</p>	
<p align="center">E-3</p>	

1 ELECTRICAL SITE PLAN – DEMOLITION
E-3 SCALE: 1"=10'

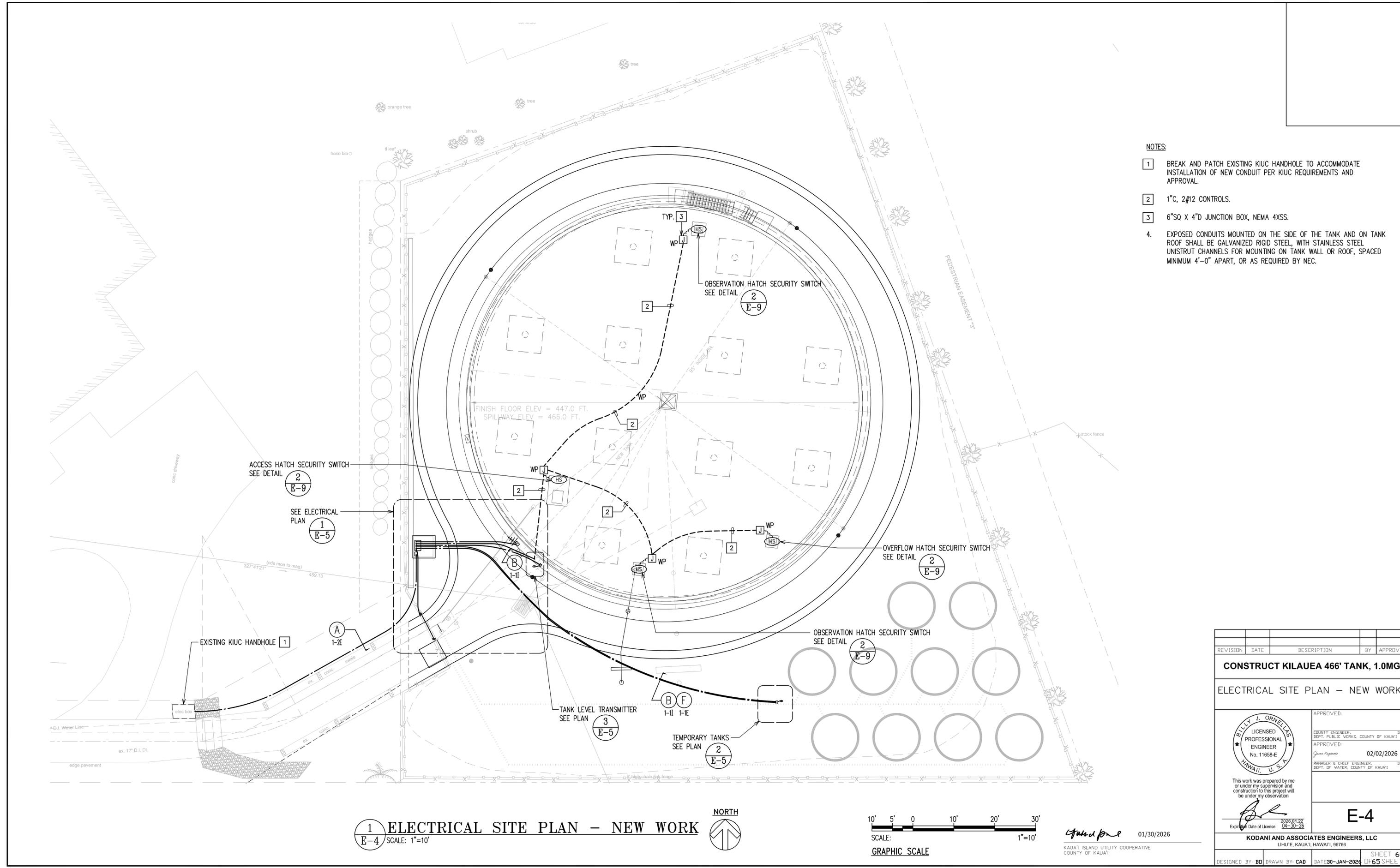


Guadalupe 01/30/2026
KAUAI ISLAND UTILITY COOPERATIVE
 COUNTY OF KAUAI

DESIGNED BY: BD	DRAWN BY: CAD	DATE: 30-JAN-2026	SHEET 59 OF 65 SHEETS
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NOTES:

- 1 BREAK AND PATCH EXISTING KIUC HANDHOLE TO ACCOMMODATE INSTALLATION OF NEW CONDUIT PER KIUC REQUIREMENTS AND APPROVAL.
- 2 1" C, 2#12 CONTROLS.
- 3 6" SQ X 4" D JUNCTION BOX, NEMA 4XSS.
- 4 EXPOSED CONDUITS MOUNTED ON THE SIDE OF THE TANK AND ON TANK ROOF SHALL BE GALVANIZED RIGID STEEL, WITH STAINLESS STEEL UNISTRUT CHANNELS FOR MOUNTING ON TANK WALL OR ROOF, SPACED MINIMUM 4'-0" APART, OR AS REQUIRED BY NEC.



1
E-4 **ELECTRICAL SITE PLAN - NEW WORK**
SCALE: 1"=10'



Guadalupe 01/30/2026
KAUAI ISLAND UTILITY COOPERATIVE
COUNTY OF KAUAI

REVISION	DATE	DESCRIPTION	BY	APPROVED

CONSTRUCT KILAUEA 466' TANK, 1.0MG
ELECTRICAL SITE PLAN - NEW WORK

	APPROVED:
	COUNTY ENGINEER: DEPT. PUBLIC WORKS, COUNTY OF KAUAI APPROVED: <i>Guadalupe</i> 02/02/2026 MANAGER & CHIEF ENGINEER: DEPT. OF WATER, COUNTY OF KAUAI
This work was prepared by me or under my supervision and construction to this project will be under my observation.	E-4
KODANI AND ASSOCIATES ENGINEERS, LLC LIHU'E, KAUAI, HAWAII, 96766	SHEET 60 OF 65 SHEETS

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sure

SCADA CABINET
SEE DETAIL 1
E-6

C D B
1-3A 1-1C 1-1I

SCADA ANTENNA
SEE DETAIL 3
E-9

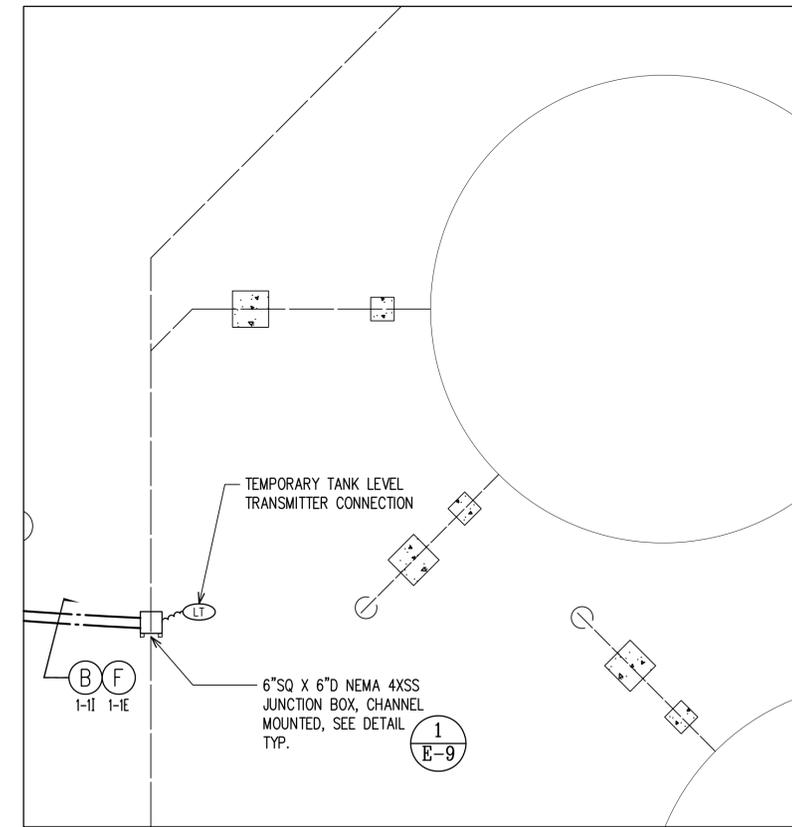
B F
1-1I 1-1E

ELECTRICAL SECONDARY
SERVICE PEDESTAL
SEE DETAIL 1
E-6

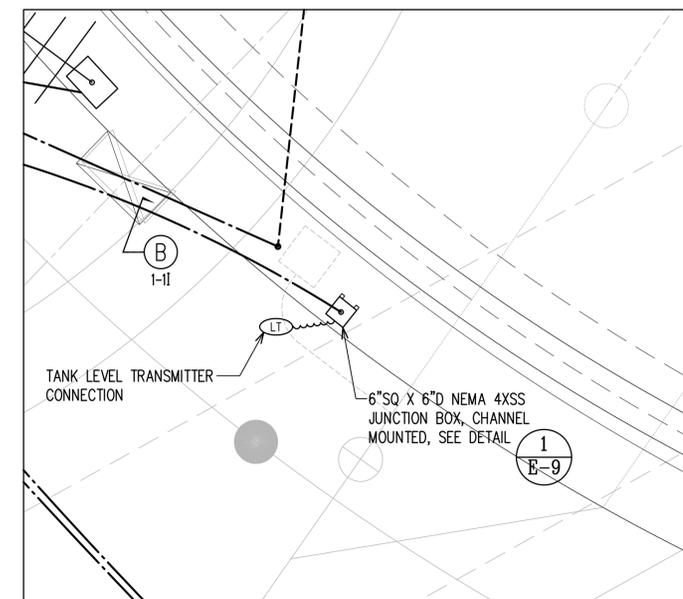
A E
1-2E 1-1C

GATE SECURITY ALARM SWITCH
SEE DETAIL 4
E-9

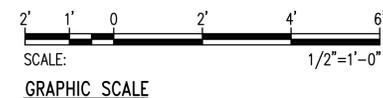
1 ELECTRICAL POWER PLAN
E-5 SCALE: 1/2"=1'-0"



2 TEMPORARY TANK POWER PLAN
E-5 SCALE: 1/2"=1'-0"

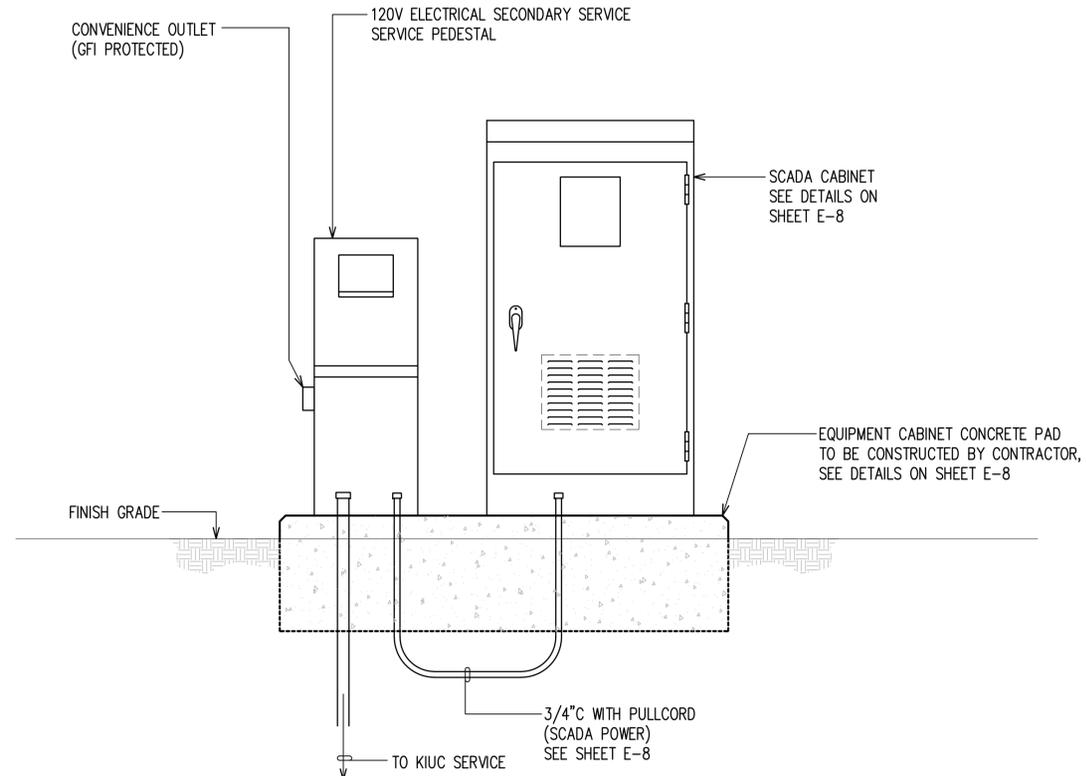
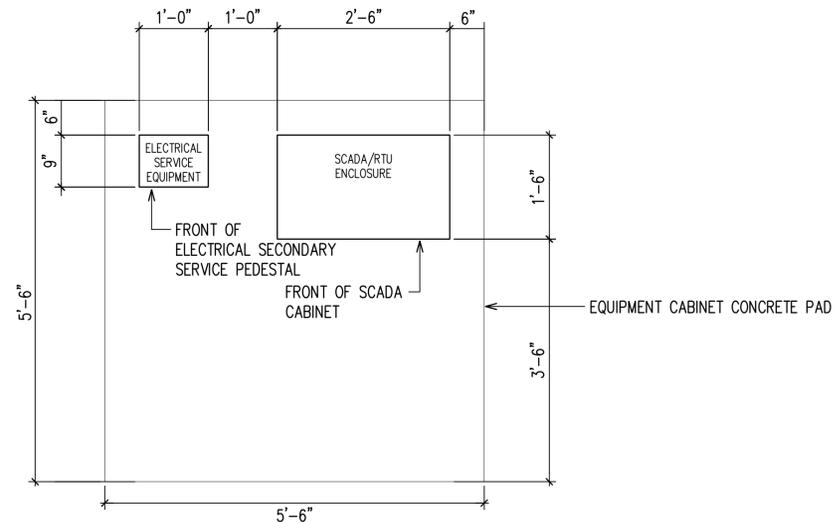


3 TANK LEVEL TRANSMITTER
POWER PLAN
E-5 SCALE: 1/2"=1'-0"



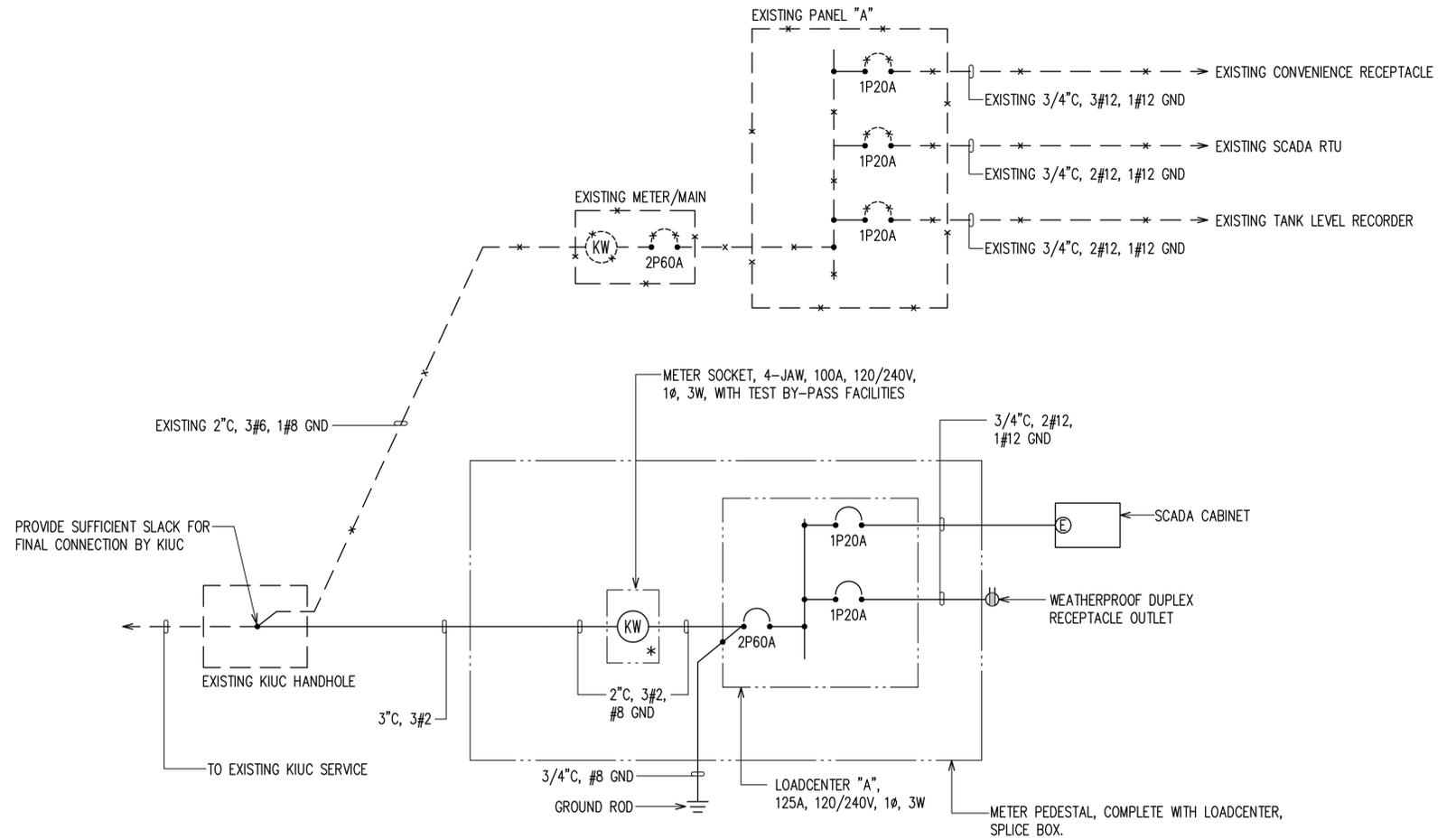
Handwritten signature 01/30/2026
KAUAI ISLAND UTILITY COOPERATIVE
COUNTY OF KAUAI

REVISION	DATE	DESCRIPTION	BY	APPROVED
CONSTRUCT KILAUEA 466' TANK, 1.0MG				
ELECTRICAL POWER PLANS				
		APPROVED:		
		<small>COUNTY ENGINEER, DEPT. PUBLIC WORKS, COUNTY OF KAUAI</small> <small>DATE</small> <small>APPROVED:</small> 02/02/2026 <small>MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI</small> <small>DATE</small>		
		E-5		
		<small>This work was prepared by me or under my supervision and construction to this project will be under my observation.</small> <small>Expire Date of License</small> 2026.01.22 / 04-30-26 KODANI AND ASSOCIATES ENGINEERS, LLC <small>LIHU'E, KAUAI, HAWAII, 96766</small>		
DESIGNED BY: BD		DRAWN BY: CAD		SHEET 61 OF 65 SHEETS



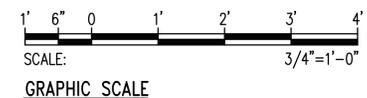
- NOTES:**
- FOR CLARITY, NOT ALL CONDUITS SHOWN; SEE PLANS FOR ALL UNDERGROUND CONDUIT REQUIREMENTS.
 - ALL EQUIPMENT ENCLOSURES AND EQUIPMENT CABINETS SHALL BE PROVIDED BY THE CONTRACTOR, UNLESS OTHERWISE NOTED.
 - CONTRACTOR SHALL VERIFY FURNISHED EQUIPMENT ENCLOSURE SIZES TO INSURE ALL EQUIPMENT BEING FURNISHED WILL FIT ONTO THE CONCRETE PAD.

1 ELECTRICAL EQUIPMENT LAYOUT DETAILS
E-6 SCALE: 3/4"=1'-0"



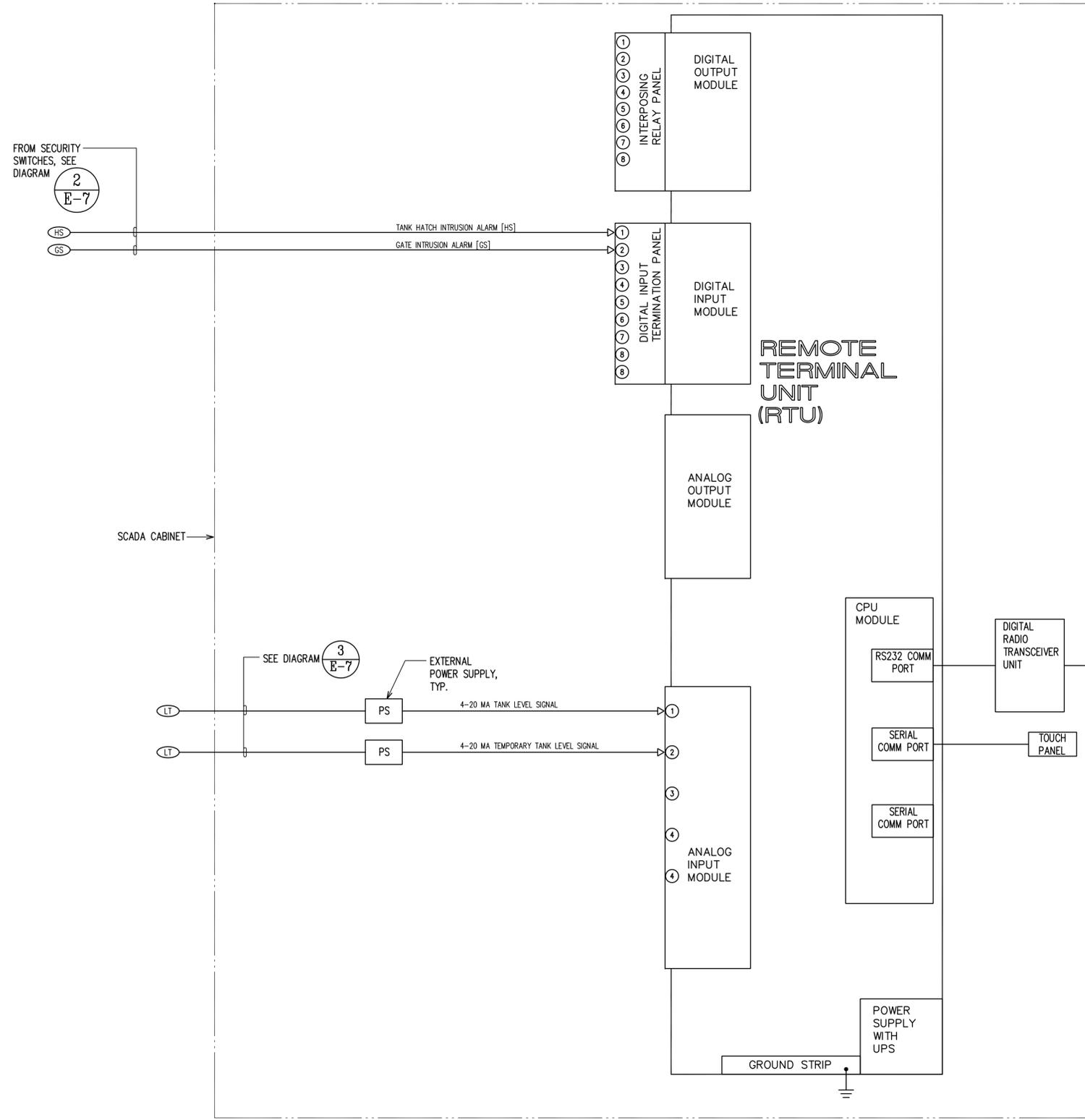
- NOTES:**
- "X" DENOTES "REMOVE EXISTING ITEM".
 - * INDICATES PROVISIONS FOR KIUC SEAL.
 - NEW ELECTRICAL EQUIPMENT SHALL BE INSTALLED AND OPERATIONAL BEFORE EXISTING EQUIPMENT IS TO BE REMOVED.

2 ONE-LINE DIAGRAM
E-6

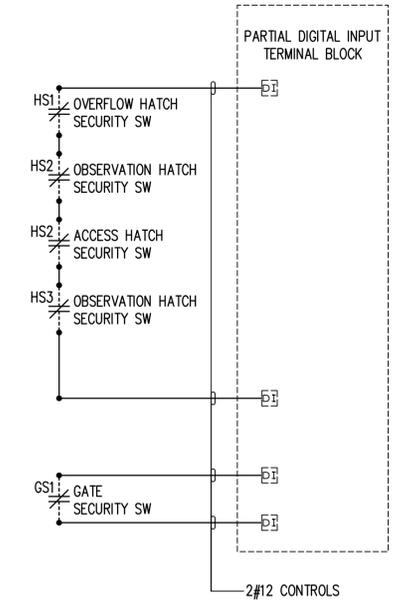


Signature 01/30/2026
KODANI AND ASSOCIATES ENGINEERS, LLC
LIHU'E, KAUAI, HAWAII, 96766

REVISION	DATE	DESCRIPTION	BY	APPROVED
CONSTRUCT KILAUEA 466' TANK, 1.0MG				
ELECTRICAL EQUIPMENT DETAILS & ONE-LINE DIAGRAM				
		APPROVED: _____ COUNTY ENGINEER, DEPT. PUBLIC WORKS, COUNTY OF KAUAI DATE: 02/02/2026 APPROVED: <i>Signature</i> MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI DATE: _____		
This work was prepared by me or under my supervision and construction to this project will be under my observation. <i>Signature</i> Date of License: 2026.01.22 - 24-30-26		E-6		
KODANI AND ASSOCIATES ENGINEERS, LLC LIHU'E, KAUAI, HAWAII, 96766				
DESIGNED BY: BD	DRAWN BY: CAD	DATE: 30-JAN-2026	SHEET 62 OF 65 SHEETS	



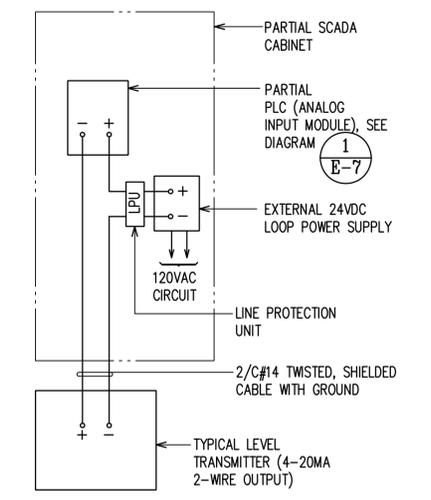
1
E-7 SCADA SYSTEM SCHEMATIC DIAGRAM



2
E-7 SECURITY SYSTEM CONNECTION DIAGRAM

SCADA CONSTRUCTION NOTES:

1. CONTRACTOR SHALL COORDINATE WITH THE KDOV AND THEIR SCADA INTEGRATOR TO OBTAIN EXACT TERMINATION POINTS FOR THE DIGITAL AND ANALOG INPUT POINTS FOR THIS PROJECT.
2. CONTRACTOR SHALL TERMINATE THE DIGITAL AND ANALOG INPUT CIRCUITS ONTO THE RESPECTIVE TERMINAL BLOCKS PER THE KDOV AND THEIR SCADA INTEGRATOR'S REQUIREMENTS AND APPROVAL.
3. NEW RADIO COMMUNICATIONS SHALL CONNECT TO EXISTING REMOTE SITE.
4. CONTRACTOR SHALL ENSURE CONTINUOUS OPERATION THROUGHOUT THE CONSTRUCTION PROJECT. SHUT-DOWN TIME TO SWITCH SCADA CONTROLS SHALL BE MINIMIZED.



3
E-7 TYPICAL INSTRUMENTATION DIAGRAM

REVISION	DATE	DESCRIPTION	BY	APPROVED
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CONSTRUCT KILAUEA 466' TANK, 1.0MG

TANK SYSTEM SCADA SCHEMATIC DIAGRAM

APPROVED:

COUNTY ENGINEER:
DEPT. PUBLIC WORKS, COUNTY OF KAUAI
DATE

APPROVED: *James Reynolds* 02/02/2026
MANAGER & CHIEF ENGINEER:
DEPT. OF WATER, COUNTY OF KAUAI
DATE

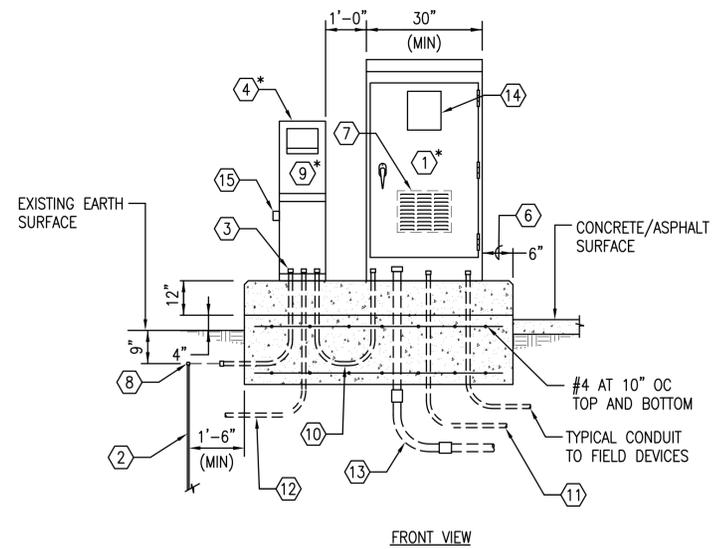
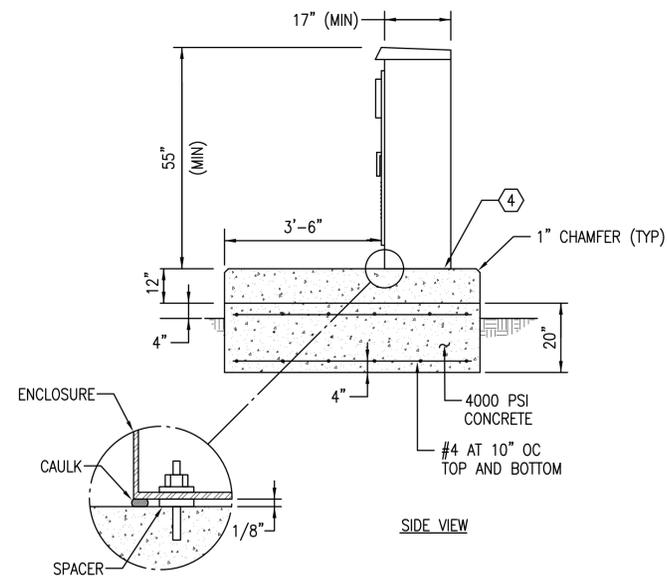
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2026.01.22
Expire Date of License 04-30-26

E-7

KODANI AND ASSOCIATES ENGINEERS, LLC
LIHU'E, KAUAI, HAWAII, 96766

DESIGNED BY: **BD** DRAWN BY: **CAD** DATE: **30-JAN-2026** SHEET **63** OF **65** SHEETS



KEYED NOTES

- 1 RTU ENCLOSURE. MINIMUM RTU DIMENSIONS SHOWN. INCREASE DIMENSIONS IF NECESSARY TO ACCOMMODATE INSTALLED COMPONENTS.*
 - 2 GROUND ROD.
 - 3 3/4" PVC CONDUIT, 1#2G.
 - 4 SECURE ENCLOSURE TO CONCRETE WITH (4) 1/2" DIAMETER, STUD/WEDGE-TYPE EXPANSION ANCHORS, MINIMUM 3-1/2" EMBEDMENT.*
 - 5 3/4"C, TYPICAL FOR THE FOLLOWING: (1) FOR POWER, AND (1) FOR GROUNDING (PVC).
 - 6 SIZE PAD TO EXTEND 6" FROM RTU ENCLOSURE AND SERVICE ENTRANCE PEDESTAL, UNLESS SHOWN OTHERWISE.
 - 7 ENCLOSURE VENT WITH INSECT SCREEN AND DOOR MOUNTED FILTER (INTERIOR OF ENCLOSURE).
 - 8 EXOTHERMIC GROUND CONNECTION.
 - 9 120V ELECTRICAL SECONDARY SERVICE PEDESTAL.
 - 10 3/4"C, 2#12, 1#12G.
 - 11 STUB-OUT AND CAP FOUR 3/4"C WITH PULLWIRE 5'-0" BEYOND EDGE OF SLAB.
 - 12 INCOMING POWER. REFER TO "KAUAI ELECTRIC UNDERGROUND CONSTRUCTION NOTES AND REQUIREMENTS".
 - 13 3" CONDUIT TO ANTENNA ON THE TANK.
 - 14 OPERATOR ACCESS DOOR WITH LOCAL VALVE CONTROLLER.*
 - 15 CONVENIENCE OUTLET (GFI PROTECTED). SUPPLIED BY SCADA INTEGRATOR.*
- *ENCLOSURE (WITH EQUIPMENT) SUPPLIED BY THE SCADA INTEGRATOR, HOWEVER INSTALLED BY THE ELECTRICAL CONTRACTOR.

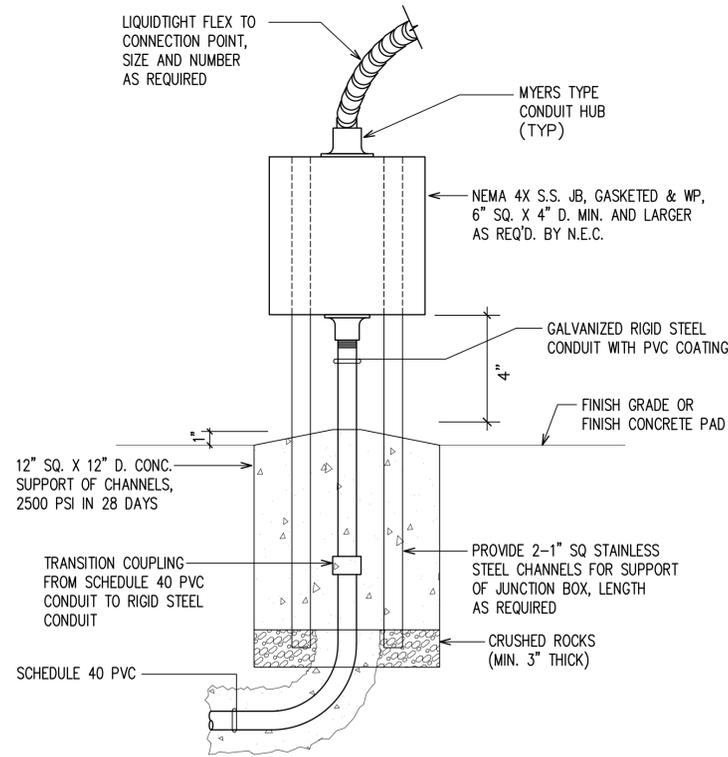
Sketch #4
Typical Exterior RTU Enclosure



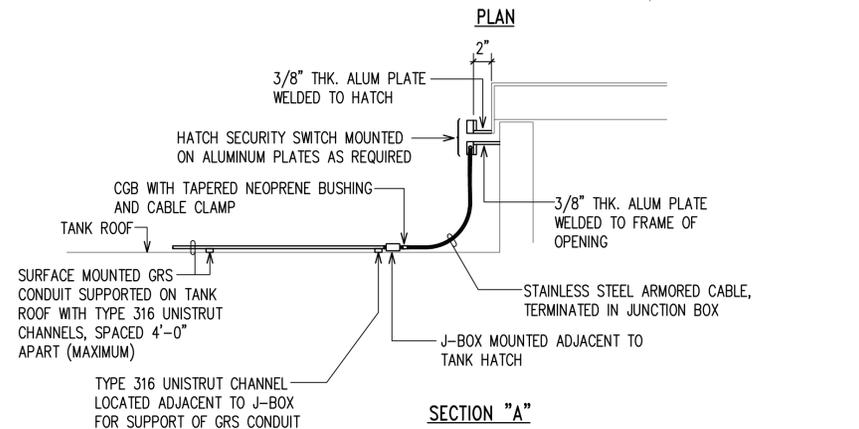
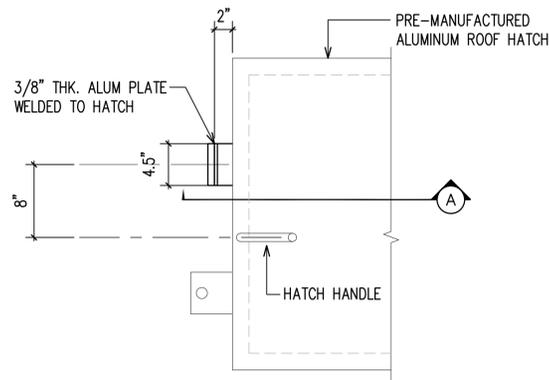
December 09, 2004

KDOW EQUIPMENT ENCLOSURE ELEVATION STANDARD DRAWING WITH MODIFICATIONS
NOT TO SCALE

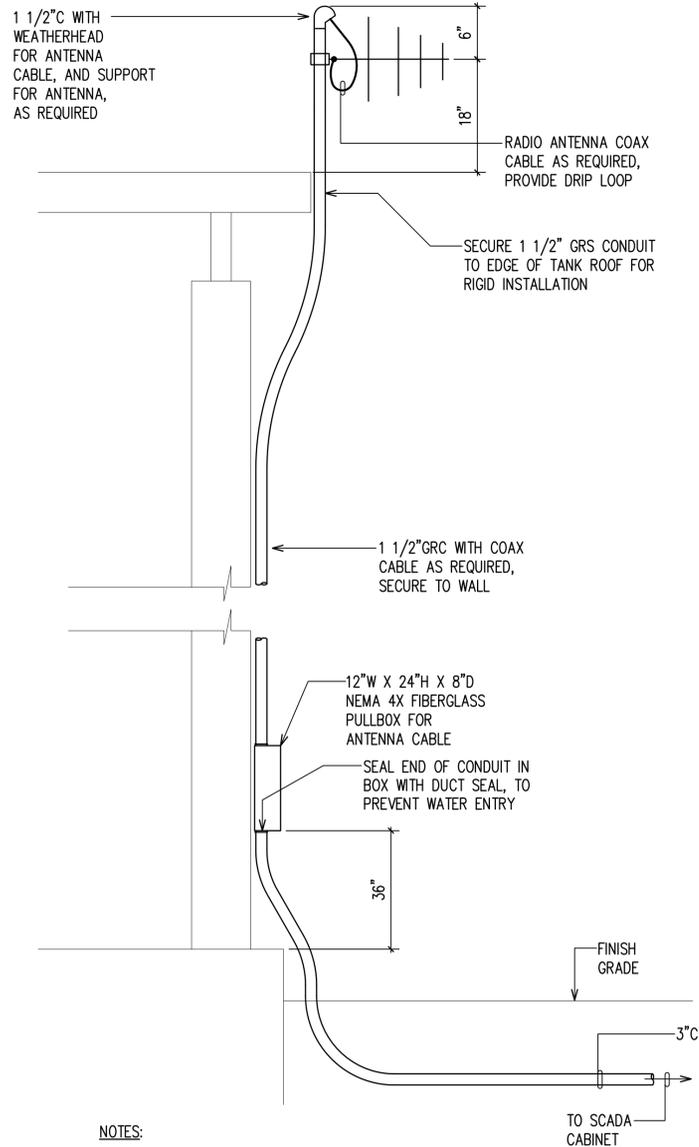
REVISION	DATE	DESCRIPTION	BY	APPROVED
CONSTRUCT KILAUEA 466' TANK, 1.0MG				
KDOW STANDARD DRAWING WITH MODIFICATIONS				
		APPROVED:		
		<small>COUNTY ENGINEER: _____ DATE _____</small> <small>DEPT. PUBLIC WORKS, COUNTY OF KAUAI</small> <small>APPROVED: _____ DATE 02/02/2026</small> <small>MANAGER & CHIEF ENGINEER: _____ DATE _____</small> <small>DEPT. OF WATER, COUNTY OF KAUAI</small>		
<small>This work was prepared by me or under my supervision and construction to this project will be under my observation.</small>  <small>2026-01-22</small> <small>Expiration Date of License 04-30-26</small>		E-8		
		<small>KODANI AND ASSOCIATES ENGINEERS, LLC</small> <small>LIHU'E, KAUAI, HAWAII, 96766</small>		
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1 CHANNEL SUPPORTED JUNCTION BOX DETAIL
E-9 NOT TO SCALE

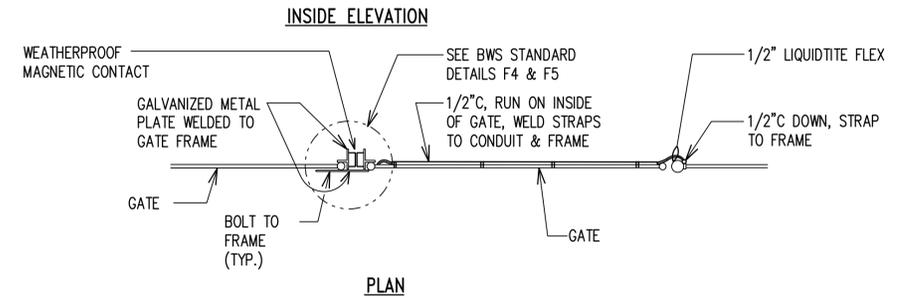
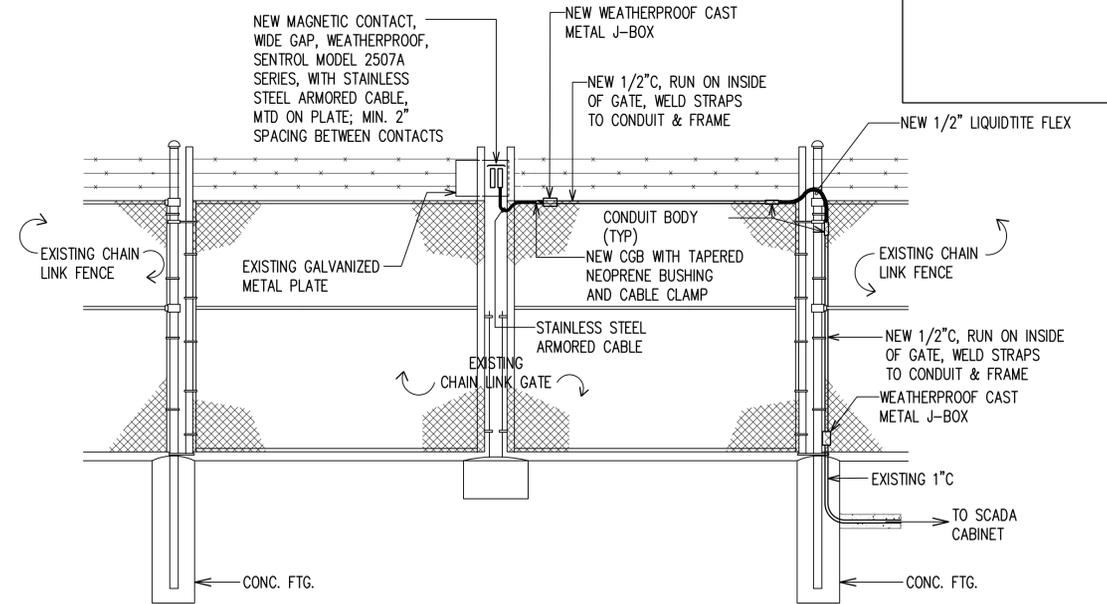


2 TANK HATCH SECURITY SWITCH DETAIL
E-9 NOT TO SCALE



- NOTES:**
1. PROVIDE GROUNDING OF ANTENNA MAST AND COAXIAL ANTENNA CABLE PER RADIO MANUFACTURER'S RECOMMENDATIONS.
 2. ALL MOUNTING HARDWARE SHALL BE TYPE 316 STAINLESS STEEL.
 3. RADIO ANTENNA AND COAX CABLE TO BE FURNISHED BY SCADA CONTRACTOR AND INSTALLED BY ELECTRICAL CONTRACTOR.
 4. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUIT AND JUNCTION BOX SYSTEM FOR ANTENNA COAX CABLE AND ANTENNA AS NECESSARY.

3 SCADA RADIO ANTENNA MOUNTING DETAIL ON WATER RESERVOIR
E-9 NOT TO SCALE



- NOTES:**
1. REFER TO WATER SYSTEM STANDARD DETAILS F1, F4, & F5 FOR ADDITIONAL ELECTRICAL REQUIREMENTS FOR INSTALLATION OF GATE MAGNETIC SWITCH.
 2. ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL.

4 GATE SECURITY ALARM SWITCH DETAIL
E-9 NOT TO SCALE

REVISION	DATE	DESCRIPTION	BY	APPROVED
CONSTRUCT KILAUEA 466' TANK, 1.0MG				
MISCELLANEOUS DETAILS				
		APPROVED: _____		
		<small>COUNTY ENGINEER, DEPT. PUBLIC WORKS, COUNTY OF KAUAI</small> <small>DATE: 02/02/2026</small> <small>APPROVED: _____</small> <small>MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI</small> <small>DATE: _____</small>		
E-9				
KODANI AND ASSOCIATES ENGINEERS, LLC <small>LIHU'E, KAUAI, HAWAII, 96766</small>				
DESIGNED BY: BD	DRAWN BY: CAD	DATE: 30-JAN-2026	SHEET 65 OF 65 SHEETS	

Construct Kilauea 466 Tank plans (2026-01-30)

Final Audit Report

2026-02-02

Created:	2026-02-02
By:	Tineal Puaoi (tineal@kodani.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAAIcl59ZPa_Fmk721fl2ZQNYypUwUGda0C

"Construct Kilauea 466 Tank plans (2026-01-30)" History

-  Document created by Tineal Puaoi (tineal@kodani.com)
2026-02-02 - 6:35:13 PM GMT
-  Document emailed to Jason Kagimoto (jkagimoto@kauaiwater.org) for signature
2026-02-02 - 6:49:03 PM GMT
-  Email viewed by Jason Kagimoto (jkagimoto@kauaiwater.org)
2026-02-02 - 8:57:08 PM GMT
-  Document e-signed by Jason Kagimoto (jkagimoto@kauaiwater.org)
Signature Date: 2026-02-02 - 9:12:46 PM GMT - Time Source: server
-  Agreement completed.
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