KONA COMMUNITY HOSPITAL
WASTEWATER TREATMENT SYSTEM UPGRADE

NORTH KONA, ISLAND OF HAWAII, HAWAII
TMK: (3) 7-9-010 : 081

ENGINEERING PARTNERS

455 E. Lanikaula St.
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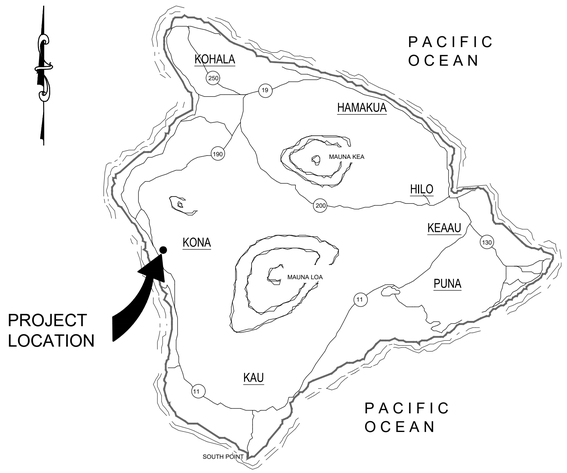
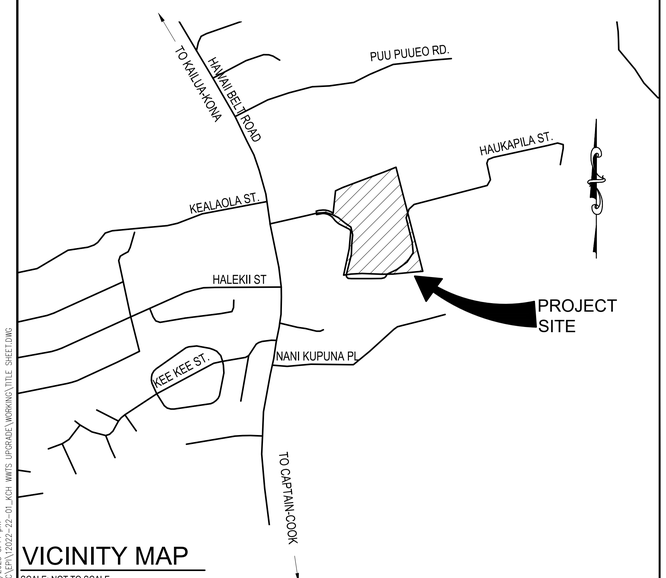


BIG ISLAND MAP (ISLAND OF HAWAI`I)

SCALE: NOT TO SCALE



VICINITY MAP

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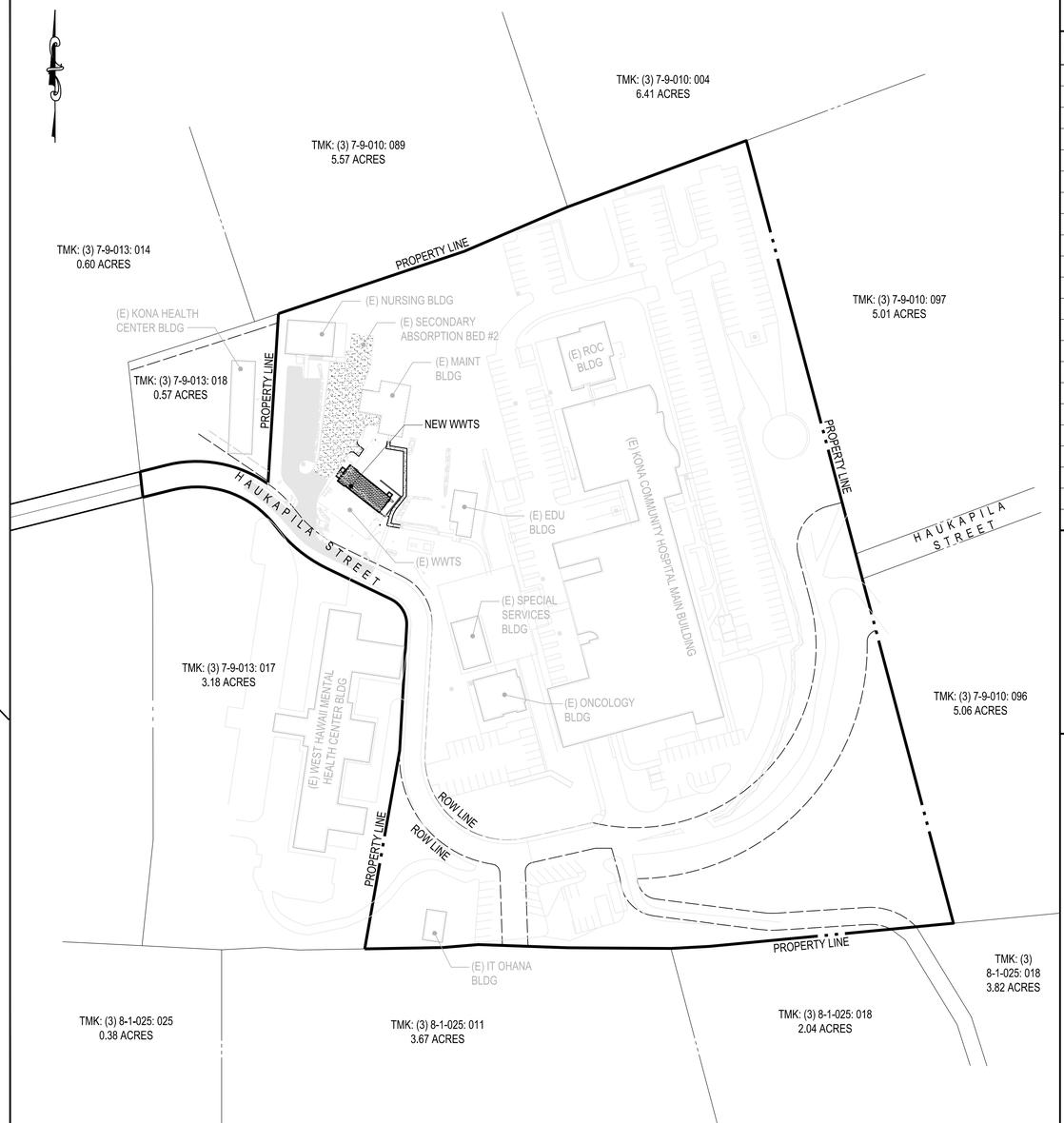

PLOT PLAN

SCALE: 1" = 80'

DRAWING INDEX

PROJECT TEAM:

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HAWAII HEALTH SYSTEMS CORP
3675 KILAUEA AVE, HONOLULU, HI, 96816

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APPROVALS:

CLAYTON MCGHAN, MHA, REGIONAL CHIEF EXECUTIVE DATE

YEN WEN FANG
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/26
No. 9361-C
HAWAII, U.S.A.

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

SIGNATURE

TITLE SHEET

DATE: OCTOBER 2025
REV.
REV.
REV.

KONA COMMUNITY HOSPITAL
WASTEWATER TREATMENT SYSTEM UPGRADE
NORTH KONA, HAWAI`I
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DRAWN BY:	DESIGNED BY:
AEG	MV/RDC
CHECKED BY:	QC'D BY:
TN	YWF

JOB NO.
12022-22-01

DWG. NO.
T-001

SHEET NO. 1 OF 15

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CIVIL GENERAL NOTES

GENERAL CONSTRUCTION NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION", DATED SEPTEMBER 1984, "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION", DATED SEPTEMBER 1986, AS AMENDED, OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII, THE "HAWAII STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION", DEPARTMENT OF TRANSPORTATION, HIGHWAYS DIVISION, 2005, AND AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, 3RD EDITION WITH 2010 INTERIM REVISIONS (AASHTO CONSTRUCTION SPECIFICATIONS), UNLESS INDICATED OTHERWISE IN THE PLANS, THESE NOTES, OR THE SPECIAL PROVISIONS. IN THE EVENT OF CONFLICTING PROVISIONS IN THE AASHTO CONSTRUCTION SPECIFICATIONS AND THE STATE STANDARD SPECIFICATIONS, THE STATE STANDARD SPECIFICATIONS SHALL APPLY.

2. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLAN OR NOT, AND SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF SAME IN THE EVENT OF DAMAGES DUE TO HIS CONSTRUCTION PRACTICES. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE RESPECTIVE UTILITY COMPANIES.

3. THE CONTRACTOR SHALL MAINTAIN VEHICULAR AND PEDESTRIAN ACCESS TO EXISTING FACILITIES AT ALL TIMES AND SHALL SCHEDULE AND EXECUTE HIS WORK IN SUCH A MANNER AS TO AVOID INTERRUPTION OF NORMAL ACTIVITIES AT THE EXISTING FACILITIES. THE CONTRACTOR SHALL PROVIDE EARLY NOTIFICATION OF AND OBTAIN APPROVAL FOR ANY ANTICIPATED INTERRUPTIONS. CONTRACTOR SHALL SUBMIT A CONSTRUCTION PHASING PLAN FOR APPROVAL PRIOR TO BEGINNING CONSTRUCTION. TEMPORARY SAFE PEDESTRIAN PASSAGEWAYS AROUND OR THROUGH A CONSTRUCTION SITE SHALL COMPLY WITH ADAAG SECTIONS 206.1 AND 402.1.

4. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH THE CURRENT VERSION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", AND TO THE SATISFACTION OF THE ENGINEER.

5. EXCEPT DURING ACTUAL WORKING HOURS, ALL SIGNS WHICH DO NOT PERTAIN TO THE CONSTRUCTION ACTIVITY, SUCH AS "MEN WORKING" AND "FLAGMAN AHEAD" SHALL BE COVERED OR LAID DOWN. HOWEVER ALL SIGNS NECESSARY FOR THE SAFETY OF THE PUBLIC SHALL BE MAINTAINED.

6. NO CONSTRUCTION EQUIPMENT SHALL BE PARKED WITHIN THE ROAD RIGHT-OF-WAY IN SUCH A MANNER THAT THE EQUIPMENT WILL OBSTRUCT THE NORMAL MOVEMENT AND SIGHT DISTANCE OF THE DRIVING MOTORIST, EXCEPT DURING ACTUAL WORKING HOURS.

7. ALL EXISTING PAVEMENTS, WALKS, UTILITIES, AND OTHER FACILITIES WHETHER SHOWN ON THE PLANS OR NOT, WHICH ARE DAMAGED BY THE CONTRACTOR SHALL BE RECONSTRUCTED OR REPLACED BY THE CONTRACTOR AT HIS OWN EXPENSE TO THE ORIGINAL UNDAMAGED CONDITION.

8. NO TRENCHING SHALL BE LEFT OPEN FOR MORE THAN FIVE (5) WORKING DAYS. CONTRACTOR SHALL PROPERLY BARRICADE ALL OPEN TRENCHES DURING ALL PHASES OF CONSTRUCTION.

9. EXISTING CONDITIONS ARE SHOWN TO THE BEST OF OUR KNOWLEDGE. DISCREPANCIES SHALL BE PROMPTLY REPORTED TO THE OWNER AND BE RESOLVED BEFORE PROCEEDING WITH THE WORK.

10. PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES, WHICH MAY BE AFFECTED BY HIS WORK. INTERFERENCE WITH THE STRUCTURE SHALL BE PROMPTLY REPORTED TO THE OWNER AND BE RESOLVED BEFORE PROCEEDING WITH THE WORK.

11. SHOULD A DISCREPANCY OCCUR ON THE DRAWINGS BETWEEN ANY PROJECT SPECIAL NOTES/ SPECIAL DETAILS, AND THE TYPICAL SPECS/TYPICAL DETAILS, SAID SPECIAL NOTES/SPECIAL DETAILS SHALL TAKE PRECEDENCE.

GRADING NOTES

1. ALL GRADING WORK SHALL CONFORM TO CHAPTER 10 OF THE HAWAII COUNTY CODE. SHOULD A GRADING PERMIT BE REQUIRED, NO WORK SHALL COMMENCE UNTIL THE DEPARTMENT OF PUBLIC WORKS APPROVES A GRADING PERMIT.

2. THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS RESULTING FROM HIS WORK. THE COSTS INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE OWNER SHALL BE PAYABLE BY THE CONTRACTOR.

3. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AND SURROUNDING AREAS FREE FROM DUST NUISANCES. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL RULES OF THE STATE DEPARTMENT OF HEALTH, HAR 11-60.1. FUGITIVE DUST.

4. ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 55, WATER POLLUTION CONTROL AND CHAPTER 54, WATER QUALITY STANDARDS, AND TO THE EROSION AND SEDIMENTATION CONTROL STANDARDS AND GUIDELINES OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII.

5. THE CONTRACTOR SHALL SOD OR PLANT ALL SLOPES AND EXPOSED AREAS IMMEDIATELY AFTER THE GRADING WORK HAS BEEN COMPLETED.

6. THE CONTRACTOR SHALL INFORM THE DEPARTMENT OF PUBLIC WORKS OF THE LOCATIONS OF THE DISPOSAL AND/OR BORROW SITE(S) REQUIRED FOR THIS PROJECT WHEN AN APPLICATION FOR A GRADING PERMIT IS MADE. THE DISPOSAL AND/OR BORROW SITE(S) MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.

7. NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS AND HOLIDAYS ANYTIME WITHOUT PRIOR APPROVAL FROM THE OWNER. GRADING WORK ON NORMAL WORKING DAYS SHALL BE BETWEEN THE HOURS OF 7:00AM TO 3:30PM.

8. THE CONTRACTOR SHALL VERIFY ALL LINES, LEVELS, ELEVATIONS, AND IMPROVEMENTS INDICATED ON THE DRAWINGS BEFORE ANY CLEARING, EXCAVATION OR CONSTRUCTION BEGINS. ANY DISCREPANCY SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND ANY CHANGE SHALL BE MADE IN ACCORDANCE WITH HIS INSTRUCTION. STARTING OF CLEARING AND GRUBBING OPERATIONS SHALL BE CONSTRUED TO MEAN THAT THE CONTRACTOR AGREES THAT THE EXISTING GRADES AND IMPROVEMENTS ARE ESSENTIALLY CORRECT AS SHOWN. THE CONTRACTOR SHALL NOT BE ENTITLED TO EXTRA PAYMENT IF EXISTING GRADES AND IMPROVEMENTS ARE IN ERROR AFTER HIS VERIFICATION THEREOF, OR IF HE FAILS TO REPORT THE DISCREPANCIES BEFORE PROCEEDING WITH ANY WORK WHETHER WITHIN AREA AFFECTED OR NOT.

9. THE CONTRACTOR SHALL REMOVE ALL VEGETATION, ORGANIC DEBRIS, TRASH, LARGE BOULDERS, MUCK/MUD AND ANY DELETERIOUS MATERIALS BEFORE THE PLACING OF FILLS ON A NATURAL GROUND SURFACE. THE REMOVED MATERIALS SHALL BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH APPLICABLE HAWAII COUNTY REGULATIONS.

10. THE EXPOSED GROUND SURFACES SHALL BE PROOF-ROLLED WITH A HEAVY DOZER (D-8 OR LARGER) AS A GENERAL CHECK FOR NEAR SURFACE VOIDS, LOOSE POCKETS, OR BURIED DEBRIS.

11. UNLESS OTHERWISE APPROVED BY A GEOTECHNICAL ENGINEER LICENSED IN STATE OF HAWAII, PERMANENT CUT SLOPES IN LOOSE CLINKER, BROKEN ROCK OR ROCK SOIL MIX SHALL NOT BE STEEPER THAN 2 HORIZONTAL TO 1 VERTICAL (2H:1V). CUT SLOPES IN ASH SOIL OR LOOSELY COMPACTED SOIL SHALL BE NO STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3H:1V). NEAR VERTICAL CUT SLOPE IN SOLID ROCK SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER.

12. FILL SLOPES SHALL NOT BE BUILT STEEPER THAN 2 HORIZONTAL TO 1 VERTICAL (2H:1V). THE FACE OF ALL FILL SLOPES SHALL BE OVERFILLED AND CUT BACK OR CONTINUOUSLY COMPACTED WITH HEAVY EQUIPMENT AS THE SLOPE PROGRESSES.

13. EXISTING SLOPE (STEEPER THAN 15% GRADE) SHALL BE BENCHED AND KEYED PRIOR TO PLACING FILL MATERIAL. BENCHING SHALL BE LEVEL OR WITH A SLIGHT NEGATIVE GRADE (SLOPING DOWN TOWARD HILLSIDE). OVEREXCAVATE A 5' DEEP BY 5'WIDE MINIMUM CONTINUOUS KEY INTO THE EXISTING GRADE AT THE TOE OF PROPOSED SLOPE CONSTRUCTION (DAYLIGHT ELEVATION). NEW FILL SLOPES SHALL BE OVER-BUILT IN HORIZONTAL COMPACTED LAYERS AND CUT BACK TO THE DESIGN SLOPE.

14. UNLESS OTHERWISE NOTED, STRUCTURAL FILL AND BACKFILL BENEATH BUILDING PAD AND PAVEMENT AREAS AND TRENCH BACKFILL MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF THE MAXIMUM DRY DENSITY PER ASTM D1557.

15. GENERAL FILL IN AREAS OUTSIDE OF STRUCTURAL FILL SHALL BE COMPACTED TO A MINIMUM 85% COMPACTION OF THE MAXIMUM DRY DENSITY.

16. WHEN COMPACTION TESTING IS NOT SPECIFIED, COMPACTION OF FILLS AND BACKFILL SHALL BE OBSERVED AND CERTIFIED BY A GEOTECHNICAL ENGINEER / TECHNICIAN OR SHALL BE DONE BY MAKING A MINIMUM OF EIGHT (8) PASSES PER 8-INCH LIFT WITH A D-8 DOZER OR EQUIVALENT AND UNTIL AN UNYIELDING SURFACE IS ACHIEVED.

17. ESTIMATED EARTHWORK QUANTITIES

    TOTAL RAW CUT = 158.85 C.Y.
    TOTAL RAW FILL = 3.96 C.Y.

    TOTAL AREA TO BE GRADED = 4,426.59 SQFT

    NOTES:

    1. THE QUANTITIES SHOWN ARE FOR GRADING PERMIT PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE THE EXACT QUANTITIES FOR BIDDING PURPOSES.
    2. NO ADJUSTMENT FACTOR IS APPLIED TO THE RAW CUT/FILL QUANTITIES.
    3. EARTHWORK QUANTITIES SHOWN WERE TAKEN FROM ROUGH GRADES AS DESIGNED TO FINISH GRADE.
    4. CONTRACTOR/BIDDER SHALL NOT USE THE EARTHWORK QUANTITIES SHOWN ABOVE FOR BIDDING PURPOSES. REGARDLESS OF THE CUT AND FILL EARTHWORK QUANTITIES SHOWN ABOVE, THE CONTRACTOR IS RESPONSIBLE TO IMPORT OR EXPORT ALL NECESSARY MATERIALS TO COMPLETE THE GRADING WORK AT NO ADDITIONAL COST TO THE OWNER.

SOLID WASTE NOTES

1. ALL WASTES GENERATED BY CONSTRUCTION INCLUDING GRUBBING EXCESS ARE PROHIBITED AT ALL TRANSFER STATIONS ISLAND WIDE. CONSTRUCTION WASTES MAY BE DELIVERED DIRECTLY TO THE SOUTH HILO OR WEST HAWAI'I SANITARY LANDFILLS.

2. HAZARDOUS MATERIALS ARE ONLY ACCEPTED AT THE WEST HAWAI'I SANITARY LANDFILL.

3. THE CONTRACTOR IS RESPONSIBLE TO OBTAIN A "NOTICE OF AUTHORIZATION TO DISPOSE" PRIOR TO THE DISPOSAL OF ANY CONSTRUCTION AND DEMOLITION DEBRIS.

4. IF MORE THAN 50 CUBIC YARDS OF WASTE WILL BE DELIVERED TO THE LANDFILL, THE CONTRACTOR IS RESPONSIBLE TO NOTIFY THE SCALE HOUSE 72 HOURS PRIOR TO ARRIVAL.

5. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL NECESSARY LABOR, EQUIPMENT, MATERIALS AND SUPPLIES TO PROPERLY LANDFILL HIS WASTE.

6. A SOLID WASTE MANAGEMENT PLAN HAS BEEN PREPARED FOR THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE TO REVIEW THIS PLAN AND NOTIFY THE ENGINEER IF ANY REVISIONS ARE NECESSARY.

7. IF DEMOLITION WILL OCCUR, THE CONTRACTOR IS RESPONSIBLE TO PREPARE AND SUBMIT A SOLID WASTE DEMOLITION DIVERSION REPORT TO THE COUNTY OF HAWAI'I DEPARTMENT OF ENVIRONMENTAL MANAGEMENT.

CONCRETE NOTES (FOR SITE CONCRETE ONLY)

1. ALL CONCRETE UNLESS OTHERWISE NOTED SHALL BE REGULAR WEIGHT HARD ROCK TYPE (150 LB/CU. FT.)

2. ALL PHASES OF WORK PERTAINING TO THE CONCRETE CONSTRUCTION SHALL CONFORM TO THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318) WITH MODIFICATION AS NOTED IN THE DRAWINGS OR SPECIFICATIONS.

3. SCHEDULE OF CONCRETE 28-DAY STRENGTH AND TYPES:

LOCATION OF STRUCTURE	STRENGTH
DRIVEWAYS & WWTP CONCRETE PAD	3,000 PSI
SIDEWALK	2,500 PSI
ALL OTHER CONCRETE	2,500 PSI

4. PORTLAND CEMENT SHALL CONFORM TO ASTM C-150 TYPE II.

5. AGGREGATE FOR HARDROCK CONCRETE SHALL CONFORM TO ALL REQUIREMENTS AND TESTS OF ASTM C-33 AND PROJECT SPECIFICATIONS.

6. CONCRETE MIXES SHALL BE DESIGNED BY A QUALIFIED TESTING LABORATORY AND SHALL BE SUBMITTED TO THE ENGINEER FOR HIS REVIEW.

7. CONCRETE MIXING OPERATION, ETC. SHALL CONFORM TO ASTM C-94.

8. PLACEMENT OF CONCRETE SHALL CONFORM TO ACI STANDARD 301 AND PROJECT SPECIFICATIONS.

9. UNLESS OTHERWISE NOTED ON THE PLANS, MINIMUM CLEAR COVERAGE OF NEW CONCRETE OVER OUTER REINFORCING BARS SHALL BE AS FOLLOWS:

    A. CONCRETE POURED DIRECTLY AGAINST EARTH _____ 3" CLEAR TO REINFORCING

    B. WALL FACES:
    EXPOSED TO EARTH WITH FORMED SURFACES OR EXPOSED TO WEATHER _____ 1-1/2" CLEAR FOR #5 BARS AND SMALLER 2" CLEAR FOR #6 BARS AND LARGER

    INTERIOR FACES _____ 3/4" CLEAR

10. ALL REINFORCING BARS, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE.

11. PROJECTING CORNERS OF BEAMS, WALLS, COLUMNS, EQUIPMENT PADS, ETC. SHALL BE FORMED WITH 3/4" CHAMFER, UNLESS OTHERWISE NOTED ON ARCHITECTURAL DRAWINGS.

12. PROVIDE SLEEVES FOR PLUMBING AND ELECTRICAL OPENINGS IN CONCRETE BEFORE PLACING. DO NOT CUT ANY REINFORCING WHICH MAY CONFLICT. CORING IN CONCRETE IS NOT PERMITTED EXCEPT AS SHOWN. NOTIFY THE ENGINEER IN ADVANCE OF CONDITIONS NOT SHOWN ON THE DRAWINGS.

13. CONDUIT OR PIPE SIZE (O.D.) THAT IS BURIED IN ANY CONCRETE SLABS SHALL NOT EXCEED 25 PERCENT OF SLAB THICKNESS AND SHALL BE PLACED BETWEEN THE TOP AND BOTTOM REINFORCING UNLESS SPECIFICALLY DETAILED OTHERWISE. CONCENTRATIONS OF CONDUITS OR PIPES SHALL BE AVOIDED EXCEPT WHERE DETAILED OPENINGS ARE PROVIDED.

14. THE CONCRETE SLAB THICKNESS SHALL BE MAINTAINED AS A MINIMUM UNLESS OTHERWISE SHOWN.

15. PROVIDE TWO-WEEK SCHEDULES SHOWING EXPECTED CONCRETE POUR LOCATIONS AND TIMES. NOTIFY ENGINEER AND SPECIAL INSPECTOR 48 HOURS PRIOR TO ANY CONCRETE POUR IF DIFFERENT THAN ON THE TWO-WEEK SCHEDULE.

REINFORCING STEEL NOTES (FOR SITE CONCRETE ONLY)

1. ALL REINFORCING STEEL SHALL BE DETAILED AND PLACED IN CONFORMANCE WITH THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318), THE CRSI "MANUAL OF STANDARD PRACTICE", AND THE "ACI DETAILING MANUAL - 1994" (SP-66) AS MODIFIED BY THE PROJECT DRAWINGS AND SPECIFICATIONS.

2. REINFORCING BARS SHALL CONFORM TO ASTM A-615 GRADE 60 REQUIREMENTS. #4 AND SMALLER BARS MAY BE GRADE 40 UNLESS OTHERWISE NOTED.

3. ANCHOR BOLTS, DOWELS AND OTHER EMBEDDED ITEMS ARE TO BE SECURELY TIED IN PLACE BEFORE CONCRETE IS POURED.

4. ALL REINFORCING BAR BENDS SHALL BE MADE COLD.

5. REINFORCING SPLICES SHALL BE MADE ONLY WHERE INDICATED ON THE DRAWINGS.

6. DOWELS BETWEEN FOOTING AND WALL OR COLUMNS SHALL BE THE SAME GRADE, SIZE, SPACING, AND NUMBER AS THE VERTICAL REINFORCING RESPECTIVELY, UNLESS OTHERWISE NOTED.

7. WELDING OF REINFORCING STEEL IS NOT PERMITTED UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

8. CONTRACTOR SHALL SUBMIT REINFORCING BAR LAYOUTS AND DETAILS FOR THE ENGINEER'S REVIEW PRIOR TO FABRICATION. FABRICATE FROM REVIEWED DRAWINGS ONLY.

WASTEWATER COLLECTION SYSTEM GENERAL REQUIREMENTS

GENERAL REQUIREMENTS

1. THE GENERAL REQUIREMENTS AND COVENANTS OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAI'I (JULY 1972): THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (APPLICABLE NON-WASTEWATER SECTIONS, SEPTEMBER 1986), THE STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAI'I (APPLICABLE NON-WASTEWATER SECTIONS, SEPTEMBER 1984), WASTEWATER SYSTEM DESIGN STANDARDS, CITY AND COUNTY OF HONOLULU (JULY 2017), WASTEWATER SYSTEM STANDARD DETAILS, CITY AND COUNTY OF HONOLULU (JULY 2017) AND THE COUNTY OF HAWAI'I, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, WASTEWATER DIVISION (WWD) STANDARD DETAILS (WW-1 THRU WW-9, CURRENT VERSIONS) SHALL BE APPLICABLE AND INCORPORATED HEREIN UNLESS OTHERWISE NOTED.

2. SURVEY CONTROL AND LAYOUT, WHEN REQUIRED, SHALL BE PERFORMED BY, OR UNDER THE DIRECT SUPERVISION OF, A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF HAWAI'I.

3. THE CONTRACTOR SHALL PROCURE ALL PERMITS AND LICENSES, PAY ALL ASSOCIATED CHARGES AND FEES AND GIVE ALL NOTICES NECESSARY AND INCIDENTAL TO THE DUE AND LAWFUL PROSECUTION OF THE WORK.

    A. THE CONTRACTOR SHALL PROCURE AND CONFORM TO A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FROM THE STATE OF HAWAI'I, DEPARTMENT OF HEALTH, CLEAN WATER BRANCH FOR ANY PROJECT WHERE CONSTRUCTION ACTIVITIES WILL DISTURB ONE (1) ACRE OR MORE OF TOTAL LAND AREA OR WHERE DEWATERING IS REQUIRED.

    B. ALL STORMWATER POLLUTION PREVENTION MEASURES SHALL BE INSTALLED SO AS TO PREVENT STORMWATER RUNOFF, CONSTRUCTION WATER, FUELS, CHEMICALS, OR OTHER LIQUIDS BEING DIRECTED INTO OR ONTO ANY SANITARY SEWER FACILITIES WITHIN THE PROJECT LIMITS. BEST MANAGEMENT PRACTICES (BMPS) MAY INCLUDE, BUT SHALL NOT BE LIMITED TO, USE OF RAINSTOPPER MANHOLE INSERTS.

6. A MINIMUM HORIZONTAL SEPARATION OF 8 FEET BETWEEN WATER AND SEWER LINES ARE REQUIRED. IF NOT POSSIBLE, SECTION 2.4.12.B OF THE "WASTEWATER SYSTEM DESIGN STANDARDS, CITY AND COUNTY OF HONOLULU, JULY 2017" APPLIES.

7. A MINIMUM OF 18 INCHES OF CLEARANCE AT WATER AND SEWER MAIN CROSSINGS WITH SEWER UNDERNEATH THE WATER IS REQUIRED. IF NOT POSSIBLE, SECTION 2.4.12.B OF THE WASTEWATER SYSTEM DESIGN STANDARDS, CITY AND COUNTY OF HONOLULU, JULY 2017" APPLIES.

8. LOCATIONS AND DESCRIPTIONS OF EXISTING UTILITIES SHOWN ON THE PLANS ARE COMPILED FROM AVAILABLE RECORDS AND/OR FIELD SURVEY. THE ENGINEER AND UTILITY PROVIDERS DO NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF SUCH RECORDS. THE CONTRACTOR SHALL FIELD VERIFY LOCATIONS, SIZES, MATERIALS AND DEPTHS OF ALL EXISTING UTILITIES WHERE PROPOSED FACILITIES CROSS.

9. THE CONTRACTOR SHALL FIELD VERIFY EXISTING SANITARY SEWER LOCATIONS, ELEVATIONS, AND MATERIALS WITHIN THE PROJECT LIMITS PRIOR TO CONSTRUCTION. POT-HOLING MAY BE REQUIRED FOR SUCH VERIFICATION.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXPOSING POTENTIAL UTILITY CONFLICTS FAR ENOUGH AHEAD OF CONSTRUCTION TO MAKE NECESSARY LINE AND GRADE MODIFICATIONS WITHOUT DELAYING THE WORK.

11. ALL EXISTING UTILITIES EXCEPT THOSE SPECIFICALLY DESIGNATED FOR ABANDONMENT OR REMOVAL ON THE APPROVED PLANS, INCLUDING WASTEWATER LINE(S), WHETHER OR NOT SHOWN ON THE PLANS, SHALL BE PROTECTED AND REPAIRED BY THE CONTRACTOR IF DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL LEAVE EXISTING FACILITIES IN AN EQUAL TO OR BETTER THAN ORIGINAL CONDITION. THE CONTRACTOR SHALL PAY ALL ASSOCIATED EXPENSES. IN THE EVENT OF DAMAGE TO EXISTING UTILITY FACILITIES OTHER THAN SANITARY SEWER, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY SERVICE PROVIDER. IN THE EVENT OF DAMAGE TO EXISTING SANITARY SEWER FACILITIES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY BRIAN LAMB AT (808) 325-3260.

12. EXPOSED ENDS OF SEWER LINES THAT ARE ABANDONED OR TO BE ABANDONED IN PLACE SHALL BE CAPPED OR PLUGGED WITH CONCRETE FOR A MINIMUM LENGTH EQUAL TO TWO TIMES THE DIAMETER OF THE ABANDONED PIPE AND INTERFERING PORTIONS REMOVED BY THE CONTRACTOR TO THE EXTENT NECESSARY TO ACCOMPLISH THE WORK, UNLESS OTHERWISE SPECIFIED.

13. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL SANITARY SEWER STRUCTURES AND MANHOLES AT ALL TIMES.

14. BYPASSING OR SPILLING OF SEWAGE TO THE GROUND, DRAINAGE SYSTEM OR STATE WATERS IS PROHIBITED. IN SUCH CASES, THE CONTRACTOR SHALL IMMEDIATELY CALL THE BRIAN LAMB AT (808) 325-3260, TAKE IMMEDIATE ACTION TO CONTAIN THE SEWAGE, AND PAY PENALTIES, INCLUDING LEGAL FEES AND OTHER COSTS RELATED TO THE BYPASS AND/OR SPILL.

15. THE CONTRACTOR SHALL BE OR HAVE IN PERSON ON THE JOB SITE OR BE REPRESENTED BY A RESPONSIBLE AGENT WITH AUTHORITY TO ACT FOR THE CONTRACTOR IN CONNECTION WITH THIS PROJECT AT ALL TIMES.

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YEN WEN FANG
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/26
No. 9361-C
HAWAII, U.S.A.

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

SIGNATURE

CIVIL NOTES

DATE: OCTOBER 2025
REV.
REV.
REV.

KONA COMMUNITY HOSPITAL
WASTEWATER TREATMENT SYSTEM UPGRADE
NORTH KONA, HAWAI`I
TMK: (3) 7-9-010 : 081

DRAWN BY:	DESIGNED BY:
AEG	MV/RDC
CHECKED BY:	QC'D BY:
TN	YWF

JOB NO. 12022-22-01

DWG. NO. C-001

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CIVIL GENERAL NOTES

WASTEWATER COLLECTION SYSTEM GENERAL REQUIREMENTS

GENERAL REQUIREMENTS (CONTINUATION)

16. THE CONTRACTOR SHALL, AT ALL TIMES DURING THE WORK, KEEP THE PREMISES CLEAN AND ORDERLY. PUBLIC STREETS AND RIGHT-OF-WAYS SHALL BE KEPT CLEAN OF MUD, DUST AND DEBRIS. THE CONTRACTOR SHALL ADEQUATELY WATER DISTURBED AREAS ON-SITE FOR DUST ABATEMENT, AS NEEDED. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ALL DAMAGE CAUSED BY THE EQUIPMENT AND LEAVE THE PROJECT FREE OF RUBBISH AND EXCESS MATERIALS OF ANY KIND. DROPPING OR WASHING DEBRIS OR RUBBISH OF ANY KIND INTO THE SANITARY SEWER SYSTEM IS PROHIBITED.

EXISTING CONDITION ASSESSMENT

1. THE CONTRACTOR SHALL KEEP ALL PROJECT ACTIVITIES WITHIN THE PROJECT AREA. IN THE EVENT THAT A PREVIOUSLY UNKNOWN ARCHAEOLOGICAL FEATURE, HISTORIC PROPERTY , OR HUMAN REMAINS (INCLUDING HUMAN SKELETAL REMAINS, CREMATIONS, CEREMONIAL OBJECTS, FUNERARY OBJECTS, BURIAL GOODS, ETC.) ARE EXPOSED BY CONSTRUCTION, THE CONTRACTOR SHALL CEASE WORK IN THE VICINITY IMMEDIATELY AND NOTIFY KCH, STATE OF HAWAI'I HISTORIC PRESERVATION DIVISION (SHPD), THE APPROPRIATE MEDICAL EXAMINER OR CORONER, AND THE APPROPRIATE POLICE DEPARTMENT, OF THE DISCOVERY. THE CONTRACTOR SHALL PROTECT THE AREA OF THE REMAINS WITH AN APPROPRIATE MATERIAL. THE CONTRACTOR SHALL COOPERATE WITH THE POLICE OR DEPARTMENT OF LAND AND NATURAL RESOURCES IN THE INVESTIGATION, RECORDING, PRESERVATION, AND SALVAGE.

GENERAL REQUIREMENTS

1. SEWER MAIN PIPE AND FITTINGS:

GRAVITY MAIN

A. ALL SANITARY SEWER PIPE AND FITTINGS SHALL BE PVC SDR-26 BELL AND SPIGOT IN CONFORMANCE WITH THE LATEST VERSION OF ASTM D3034, UNLESS OTHERWISE NOTED ON THE APPROVED PLANS.

B. LAYING OF PIPE SHALL COMMENCE AT THE LOWEST POINT, THE BELL END FACING UPSTREAM, REGARDLESS OF THE STATIONING SHOWN ON THE PLANS. PIPE SHALL BE FITTED TOGETHER AND MATCHED WITH GASKETS PROPERLY SEATED SO THAT WHEN LAID IT WILL FORM A UNIFORM AND SMOOTH INVERT.

C. REFER TO THE DRAWINGS FOR DETAILED REQUIREMENTS FOR ALL CONNECTIONS TO EXISTING SANITARY SEWER PIPE. DETAILS SHALL BE PROVIDED TO AND APPROVED BY WWD.

D. THE INTERIOR OF THE SEWER PIPE SHALL BE CLEARED OF ALL DEBRIS AND FOREIGN MATERIALS AS THE WORK PROGRESSES. BEFORE LEAVING THE WORKPLACE FOR THE NIGHT, EXPOSED ENDS OF SEWER PIPE SHALL BE CLOSED WITH TEMPORARY COVERS TO PREVENT EARTH AND DEBRIS FROM ENTERING THE PIPE.

E. BECAUSE OF THE NATURE OF PLASTIC PIPE AND FITTINGS, THE CONTRACTOR IS CAUTIONED TO EXERCISE CARE IN HANDLING, LOADING, UNLOADING, AND STORING TO AVOID DAMAGE.

I. KEEP PIPE AND GASKETS CLEAN, AND AWAY FROM OIL, GREASE, EXCESSIVE HEAT AND ELECTRIC MOTORS, WHICH PRODUCE OZONE, AND PROTECTED FROM DIRECT SUNLIGHT AND TEMPERATURE CHANGES IN PROLONGED EXPOSURE TO AVOID CRACKING.

II. HEAVY IMPACT MAY CAUSE A SLIGHT LONGITUDINAL INDENTATION ON THE OUTSIDE OF THE PIPE AND A CRACK ON THE INSIDE. THIS WILL RESULT IN A SPLIT AS SOON AS THE PIPE IS PLACED UNDER LOADING. ANY PIPE THAT HAS BEEN IMPACTED SHALL BE EXAMINE CLOSELY FOR THIS TYPE OF DAMAGE.

FORCE MAIN

A. FORCE MAIN PIPING SHALL BE POLYVINYL CHLORIDE (PVC), CENTRIFUGALLY CAST FIBERGLASS REINFORCED POLYMER MORTAR (CCFRPM) OR HIGH DENSITY POLYETHYLENE (HDPE), UNLESS OTHERWISE APPROVED.

B. HDPE PIPE SHALL UTILIZE BUTT-FUSED JOINTS. APPROVED MECHANICAL JOINTS MAY BE USED FOR CONNECTION OF HDPE PIPING TO EXISTING DISSIMILAR PIPING (DUCTILE IRON, CAST IRON, AND REINFORCED CONCRETE PRESSURE PIPE). ELECTRO-FUSION JOINTS MAY BE UTILIZED WHEN AUTHORIZED BY THE WASTEWATER DIVISION. PLASTIC WELDING OF JOINTS SHALL NOT BE ALLOWED.

C. HDPE FORCE MAINS FOR SANITARY SEWER SERVICE SHALL BE DARK GREEN IN COLOR.

D. THRUST BLOCKS OR OTHER JOINT RESTRAINING SYSTEMS APPROVED BY WWD, SHALL BE PROVIDED FOR ALL FITTINGS SUCH AS TEES, PLUGS, CAPS, BENDS, OFFSETS, REDUCERS, AND VALVES AS WELL AS ALL OTHER PIPELINE APPURTENANCES THAT ARE SUBJECT TO UNBALANCED THRUSTS. DESIGN OF THRUST BLOCKS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE WATER SYSTEM STANDARDS, DEPARTMENT OF WATER SUPPLY, COUNTY OF HAWAI'I, STATE OF HAWAI'I.

E. FORCE MAINS SHALL BE DESIGNED WITH A CONTINUOUS UPWARD SLOPE TO ELIMINATE HIGH OR LOW POINTS IN THE PIPING AND THE NEED FOR INSTALLATION OF GAS RELIEF VALVES OR BLOW OFFS. DESIGNS INCORPORATING HIGH OR LOW POINTS IN THE FORCE MAIN SHALL NOT BE ALLOWED UNLESS SPECIFICALLY AUTHORIZED IN WRITING BY WPS.

F. IN THE EVENT THAT HIGH POINTS IN THE FORCE MAIN ARE AUTHORIZED BY WPS, COMBINED AIR AND VACUUM RELIEF VALVES SHALL BE INSTALLED ON THE HIGH POINTS. SUCH VALVES SHALL BE INSTALLED IN REINFORCED CONCRETE VAULTS. VAULTS SHALL BE VENTED AND DRAINED TO AN ADJACENT SEWER SYSTEM WITH DRAINAGE OF THE VAULT TO THE SEWER SYSTEM TO THE MAXIMUM EXTENT POSSIBLE. IN THE VENT THAT THE LOW POINTS IN THE FORCE MAIN ARE APPROVED BY WPS, BLOW OFFS MAY BE REQUIRED. BLOW OFFS SHALL CONSIST OF A VALVE CONNECTION ON THE FORCE MAIN AND PIPING TO A GRAVITY SEWER MANHOLE OR A MANHOLE WHERE A PUMP CAN BE USED TO DRAIN THE FORCE MAIN DESIGNED BY THE ENGINEER FOR THE SPECIFIC APPLICATION AND APPROVED BY WPS.

G. DESIGN VELOCITY SHALL RANGE BETWEEN 3 AND 6 FEET PER SECOND UNLESS OTHERWISE APPROVED BY WPS. MAXIMUM FORCE MAIN VELOCITY AT PEAK CONDITION SHALL NOT EXCEED 8 FEET PER SECOND IN ANY CASE.

H. ALL COMBINED AIR AND VACUUM RELIEF VALVES SHALL BE 316 STAINLESS STEEL VENT-O-MAT SERIES RGX PROVIDED WITH ISOLATION VALVES TO ALLOW MAINTENANCE AND REPAIR OF AIR RELIEF VALVE DURING PERIODS WHEN THE FORCE MAIN IS ACTIVE.

I. METALLIC TRACER TAPE SHALL BE INSTALLED ABOVE ALL BURIED PIPING. TRACER TAPE SHALL BE ACID AND ALKALI-RESISTANT, GREEN OR YELLOW, 6-INCES (MINIMUM) WIDTH, 9-MIL (MINIMUM) THICKNESS AND BE REINFORCED FOR INCREASED BREAKING STRENGTH. METALLIC TRACER TAPE SHALL BE THORTEC DETECTABLE WARNING TAPE OR APPROVED EQUAL AND SHALL HAVE WORDING SIMILAR TO "CAUTION - SEWER LINE BURIED BELOW." TRACER TAPE SHALL BE INSTALLED AT A DEPTH OF APPROXIMATELY 12-INCES FROM GRADE (MINIMUM COVERAGE OF 6-INCHES REQUIRED). TAPE SHALL BE PLACED ON COMPACTED BACKFILL AND SHALL BE LAID IN CONTINUOUS LENGTHS WITH WORDING FACING UPWARDS.

J. PRIOR TO EXCAVATION WITHIN 6 FEET OF ACTIVE FORCE MAINS, THE CONTRACTOR SHALL PURCHASE AND HAVE ON-SITE THE FOLLOWING REPAIR ITEMS TO BE USED IN THE EVENT OF DAMAGE TO THE EXISTING LINES DURING EXCAVATION WORK:

I. TWO (2) EACH STAINLESS STEEL PIPE REPAIR CLAMPS OF APPROPRIATE SIZE AND PRESSURE RATING FOR EACH TYPE OF EXISTING FORCE MAIN WHERE THE EXCAVATION IS TAKING PLACE.

II. TWO (2) EACH "DRESSER" TYPE COUPLINGS OF THE APPROPRIATE SIZE AND PRESSURE RATING FOR EACH TYPE OF EXISTING FORCE MAIN WHERE THE EXCAVATION IS TAKING PLACE.

III. ONE (1) EACH PIPE LENGTH OF THE APPROPRIATE SIZE AND PRESSURE RATING FOR EACH TYPE OF EXISTING FORCE MAIN WHERE THE EXCAVATION IS TAKING PLACE. AS AN ALTERNATIVE, THE CONTRACTOR MAY PROVIDE PIPING OF DIFFERENT MATERIAL (PVC, HDPE, CAST IRON, OR DUCTILE IRON) PROVIDED THAT SUFFICIENT WPS APPROVED ADAPTERS ALSO AVAILABLE AT SITE.

2. TRENCH, PIPE BEDDING, AND BACKFILL:

A. CONTRACTOR SHALL HAVE APPROPRIATE EQUIPMENT ON-SITE TO PRODUCE A DRY, FIRM, SMOOTH, UNDISTURBED SUBGRADE AT THE TRENCH BOTTOM THAT IS TRUE TO LINE AND GRADE. THE TRENCH BOTTOM SHALL BE FREE OF LOOSE MATERIALS OR TOOTH GROOVES FOR THE ENTIRE TRENCH WIDTH PRIOR TO PLACING PIPE BEDDING MATERIAL.

B. THE CONTRACTOR SHALL FURNISH AND INSTALL SUFFICIENT TRENCH BOXES, SHORING, SHEETING, OR BRACING TO ENSURE THE SAFETY OF WORKMEN AND THE PUBLIC, PROTECT THE WORK, AND PROTECT EXISTING FACILITIES.

I. SHORING, SHEETING, AND BRACING SHALL COMPLY WITH OSHA RULES, ORDERS AND REGULATIONS.

II. WHERE REQUIRED BY OSHA, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE DRAWINGS AND/OR CALCULATIONS FOR SPECIALLY DESIGN BRACING AND SHORING, PREPARED AND STAMPED BY A HAWAI'I REGISTERED PROFESSIONAL ENGINEER, TO THE WPS A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO THE ADEQUACY OF ALL SHEETING, SHORING AND BRACING AND COMPLIANCE WITH THE LAW. FAILURE OF THE INSPECTOR TO SUSPEND THE WORK OR NOTIFY THE CONTRACTOR OF ANY INADEQUACY OF SHEETING, SHORING, BRACING OR NONCOMPLIANCE WITH THE LAW SHALL NOT RELIEVE THE CONTRACTOR OF THIS RESPONSIBILITY.

III. THE CONTRACTOR SHALL FURNISH AND MAINTAIN SHORING, SHEETING AND BRACING UNTIL AFTER THE PIPELINE AND APPURTENANCES HAVE BEEN INSTALLED AND THE INSPECTOR HAS APPROVED THE PLACEMENTS OF SUFFICIENT BACKFILL. THE CONTRACTOR SHALL PROVIDE ADEQUATE SAFETY MEASURE TO ALLOW FOR ACCESS BY THE INSPECTOR OR TESTING PERSONNEL TO PERFORM COMPACTION TESTING AND INSPECTION OF THE LIFTS OF BACKFILL IN PLACE.

C. NO TRENCHES IN ROADS OR DRIVEWAYS SHALL BE LEFT OPEN OVERNIGHT. ALL SUCH TRENCHES SHALL BE PLATED OR CLOSED AND NORMAL TRAFFIC FLOW RESTORED BEFORE THE END OF EACH WORK DAY.

I. THE STEEL TRENCH PLATES SHALL BE CAPABLE OF SUPPORTING HS-20 LOADING.

II. THE PLATES MUST EXTEND BEYOND THE EDGE OF THE TRENCH WALL FAR ENOUGH TO ADEQUATELY SUPPORT HS-20 TRAFFIC LOADS. IN NO CASE SHALL THE PLATES EXTEND LESS THAN TWELVE (12) INCHES BEYOND THE TRENCH WALL.

III. EACH PLATE MUST BE FULLY SUPPORTED AROUND ITS' PERIMETER TO PREVENT WOBBLING OR ROCKING.

IV. THE PLATES SHALL BE SECURED TO PREVENT ANY MOVEMENT.

V. TRENCHES AND EXCAVATIONS BENEATH THE PLATES SHALL BE ADEQUATELY SHORED AND BRACED TO WITHSTAND HS-20 TRAFFIC LOADS.

VI. TEMPORARY PAVING OR COLD-MIX ASPHALTIC CONCRETE (CUTBACK) SHALL BE PLACED AND CONTINUOUSLY MAINTAINED AROUND ALL OUTSIDE EDGES OF THE TRENCH PLATES UNTIL THEY ARE REMOVED.

D. TRENCHES SHALL BE PROPERLY BACKFILLED AND COMPACTED AS SHOWN ON THE APPROVED PLANS.

E. PIPE BEDDING SHALL BE CLASS B 3/4" AGGREGATE BASE COURSE PLACED WITHIN THE DRY TRENCH NOT LESS THAN 4 INCHES BUT NOT MORE THAN 5 INCHES IN COMPACTED THICKNESS. BEDDING SHALL BE COMPACTED TO 95 PERCENT MAXIMUM DRY DENSITY, UNLESS OTHERWISE NOTED ON PLANS, TO AVOID STRESS CONCENTRATIONS AND ASSOCIATED IRREGULAR PIPE DEFORMATIONS. RECESSES CONSTRUCTED IN THE BEDDING, FOLLOWED BY HAND COMPACTION OF BACKFILL AROUND THE BELLS, WILL PROVIDE CONTINUOUS LONGITUDINAL SUPPORT AND UNIFORM BEARING BELOW THE PIPE JOINTS.

F. THE REMAINDER OF THE PIPE EMBEDMENT SHALL ALSO BE CLASS B COURSE, PROPERLY PLACED, IN LIFTS NOT TO EXCEED 6", AROUND THE PIPE HAUNCHES AND EXTENDING TO A MINIMUM OF 12" COMPACTED THICKNESS OVER THE TOP OF THE PIPE. PIPE ZONE EMBEDMENT SHALL BE COMPACTED TO 95 PERCENT MAXIMUM DRY DENSITY, UNLESS OTHERWISE NOTED ON PLANS, TO PROVIDE ADEQUATE SIDE SUPPORT AND ENSURE THE PIPE'S FULL STRENGTH IS ACHIEVED WHILE AVOIDING PIPE DEFLECTION, VERTICAL AND LATERAL DISPLACEMENT.

G. CONTROLLED LOW-STRENGTH MATERIAL (CLSM) SHALL BE USED AS THE FINAL TRENCH BACKFILL UNLESS OTHERWISE NOTED ON THE PLAN OR APPROVED BY WPS ENGINEER.

H. COMPACTION TESTING FOR BASE COURSE MATERIAL SHALL BE PERFORMED BY AN INDEPENDENT TESTING AND QUALITY CONTROL LABORATORY. COMPACTION TESTING SHALL BE A MINIMUM OF ONE (1) TEST PER 150 LINEAL FEE OR A FRACTION THEREOF ON ALTERNATING SIDES OF THE PIPE OR STRUCTURE. THE ENGINEER RESERVES THE RIGHT TO INCREASE OR DECREASE THE FREQUENCY OF COMPACTION TESTING TO MATCH FIELD CONDITIONS. TEST RESULTS SHALL BE SUBMITTED TO WPS ENGINEER FOR AS PART OF THE FINAL ACCEPTANCE.

3. SEWER MANHOLES AND APPURTENANCES:

A. ALL PRECAST CONCRETE SEWER MANHOLES SHALL CONFORM TO THE LATEST VERSION OF ASTM C478.

B. ALL SEWER MANHOLE BASE, SECTION, CONE, FLAT TOP, BENCHES, AND CHANNELS SHALL INCLUDE A CONCRETE WATERPROOFING, PROTECTION, AND IMPROVEMENT ADMIXTURE. ADMIXTURE SHALL BE XYPEX ADMIX C-1000 OR APPROVED EQUAL PRODUCT. DOSAGE SHALL BE PER MANUFACTURER'S INSTRUCTIONS AND SHALL NOT BE LESS THAN 3% OF WEIGHT OF THE PORTLAND CEMENT FRACTION OF THE MIX.

C. ALL DROP SEWER MANHOLES, TRANSITIONAL SEWER MANHOLE (RECEIVING MANHOLE AND THE NEXT TWO MANHOLES DOWNSTREAM FROM THE DISCHARGE OF A FORCE MAIN), AND SEWER MANHOLES WITH CONNECTING PIPES GREATER THAN OR EQUAL TO 12 INCHES NOMINAL DIAMETER SHALL ALSO BE LINED WITH A PVC LINER, DURA-PLATE OR AN APPROVED EQUAL PRODUCT.

D. ALL CONSTRUCTED (CAST-IN-PLACE) SEWER MANHOLE BENCHES AND CHANNELS SHALL BE COATED USING XYPEX MEGAMIX I OR AN APPROVED EQUAL PRODUCT.

E. SEWER MANHOLE CHANNELS, INCLUDING THOSE AT CONNECTIONS TO EXISTING MANHOLES, SHALL PROVIDE SMOOTH TRANSITION BETWEEN INLET AND OUTLET SEWERS. THE ANGLE BETWEEN THE INLET AND OUTLET SHALL BE A MINIMUM OF 90 DEGREES.

F. UNLESS OTHERWISE APPROVED OR NOTED, ALL MANHOLES FOR CONNECTING SEWER LINES LESS THAN OR EQUAL TO 12-INCH NOMINAL DIAMETER SHALL BE PROVIDED WITH "ECCENTRIC" CONE SECTIONS WITH TYPE SA FRAMES AND COVERS (STD. DETAIL S-22).

G. UNLESS OTHERWISE APPROVED OR NOTED, ALL MANHOLES WITH CONNECTING SEWER LINES GREATER THAN 12-INCH NOMINAL DIAMETER OR LESS THAN 5' DEEP SHALL BE PROVIDED WITH A FRAME AND COVER WITH A MINIMUM 48" CLEAR OPENING. THE 52-INCH COVER SHALL HAVE A SIMILAR 25-5/16-INCH COVER INSTALLED FOR ROUTINE MAINTENANCE AND INSPECTION. THE SMALLER COVER SHALL BE PROVIDED WITH RECESSED STAINLESS STEEL BOLTS TO ALLOW SECURING. PERMANENT ALIGNMENT MARKS (MATCH MARKS) SHALL BE PROVIDED FOR THE BOLTS TO FACILITATE REINSTALLATION OF THE COVER. THE FRAME AND COVER SHALL BE AN ECCENTRIC CONFIGURATION, D&L FOUNDRY & SUPPLY, MODEL A-1428 OR APPROVED EQUAL.

H. A FLEXIBLE PIPE TO MANHOLE CONNECTOR SHALL BE USED WHENEVER A PIPE PENETRATES INTO A PRECAST CONCRETE MANHOLE OR STRUCTURE. CONNECTIONS SHALL BE WATER-TIGHT AND SHALL PROVIDE FOR SMOOTH FLOW INTO AND THROUGH THE MANHOLE WITH NO PONDING.

I. NEW SEWER PIPE CONNECTIONS TO NEW MANHOLES SHALL BE WITH AN APPROVED CAST-IN-PLACE MANHOLE PIPE ADAPTER (A-LOK, ECONOSCEAL OR APPROVED EQUAL PRODUCT).

J. EXISTING SEWER PIPE CONNECTIONS TO NEW MANHOLES SHALL BE WITH AN APPROVED MANHOLE PIPE ADAPTER(A-LOK FIELD SLEEVE OR APPROVED EQUAL PRODUCT).

K. SEWER PIPE CONNECTIONS TO EXISTING MANHOLES SHALL BE WITH AN APPROVED MANHOLE PIPE ADAPTER (A-LOK FIELD SLEEVE OR APPROVED EQUAL PRODUCT). OPENINGS FOR NEW CONNECTIONS TO EXISTING MANHOLES SHALL BE CORE-DRILLED AND SURFACE ROUGHENED. SMALL CHIPPING HAMMERS OR SIMILAR LIGHT TOOLS MAY BE USED TO ENLARGE EXISTING OPENINGS OR SHAPE CHANNELS IN EXISTING MANHOLES. USE OF PNEUMATIC JACKHAMMERS OR OTHER HEAVY TOOLS WHICH COULD DAMAGE OR CRACK THE MANHOLE BASE IS PROHIBITED.

L. ONE HAND GRAB RUNG AT THE TOP OF THE MANHOLE SHALL BE STAINLESS STEEL TYPE "SA" PER DPW STANDARD DETAIL S-42. SEWER MANHOLE RUNGS SHALL BE TYPE "SP" COPOLYMER POLYPROPYLENE PLASTIC, BOWCO INDUSTRIES INC./MEADOW BURKE PART NO. 93810R IN ACCORDANCE WITH WASTEWATER STANDARD DETAIL WW-7.

M. RUNGS AND ECCENTRIC CONES OR COVERS SHALL NOT BE ALIGNED ABOVE FLOW LINES. THEY SHALL BE PLACED ON THE SIDE OF THE MANHOLE WITH THE LARGEST SHELF.

N. SEWER MANHOLES LOCATED IN UNPAVED AREAS SHALL BE PROVIDED A REINFORCED 3000 PSI CLASS "A" CONCRETE COLLAR. THE REINFORCED CONCRETE COLLAR SHALL BE A MINIMUM OF 12" THICK, AND EXTEND A MINIMUM 12" BEYOND THE FRAME AND COVER. REINFORCEMENT SHALL CONSIST OF AT LEAST ONE (1) #4 BAR PLACED AT LEAST 3" CLEAR FROM THE EDGE OF CONCRETE AND WRAPPED AROUND THE MANHOLE TOP SECTION (WITH AT LEAST 15" LAP), CENTERED VERTICALLY IN THE COLLAR.

O. ALL MANHOLE SECTIONS SHALL BE JOINED USING RAM-NEK RN103 OR APPROVED EQUAL.

4. SEWER LINE ACCEPTANCE TESTS:

A. THE CONTRACTOR SHALL PROVIDE AND PAY FOR ALL MATERIALS, EQUIPMENT, AND FACILITIES NECESSARY FOR ALL TESTING ALL UTILITY BACKFILL, PIPE AND STRUCTURES IN ACCORDANCE WITH THESE PLANS AND COUNTY STANDARD SPECIFICATIONS AND REQUIREMENTS.

B. ALL NEWLY INSTALLED SEWER MAINS AND LATERALS ARE SUBJECT TO LEAKAGE TESTING AND CCTV INSPECTION PRIOR TO FINAL ACCEPTANCE AS DIRECTED BY THE WPS.

C. LEAKAGE TESTING SHALL BE ACCOMPLISHED WITH SECTION 21.3 D OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986. ALL COSTS FOR TESTING SHALL BE BORNE BY THE CONTRACTOR.

D. DEFLECTION TESTING WHEN REQUIRED BY WPS, SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SECTION 21.3 E OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986. ALL COSTS FOR SUCH TESTING SHALL BE BORNE BY THE CONTRACTOR.

E. AN INITIAL CCTV INSPECTION WILL BE PERFORMED BY THE COUNTY AT NO COST TO THE CONTRACTOR SUBJECT TO THE CONDITIONS BELOW.

I. THE CONTRACTOR SHALL OBTAIN A COP OF THE SEWER LINE ACCEPTANCE TEST CRITERIA FROM WPS PRIOR TO REQUESTING OR SCHEDULING A CCTV INSPECTION.

II. THE CONTRACTOR SHALL ASSIST THE COUNTY IN THE PERFORMANCE OF THE CCTV INSPECTION, SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL REQUIREMENTS DURING CCTV INSPECTION, AND SHALL BE RESPONSIBLE FOR CLEANING AND REMOVING ALL DIRT, GRIT, ROCK, DEBRIS, AND FOREIGN MATERIALS FROM THE PIPES AND MANHOLES PRIOR TO CCTV INSPECTION. IN THE EVENT THAT PIPES ARE FOUND TO HAVE BEEN INADEQUATELY CLEANED, THE COUNTY WILL TERMINATE THE CCTV INSPECTION. THE COST OF SUBSEQUENT CCTV INSPECTION(S) WILL BE CHARGED TO THE CONTRACTOR.

III. THE CONTRACTOR SHALL HAVE A SUPERVISORY REPRESENTATIVE PRESENT DURING PERFORMANCE OF THE CCTV INSPECTION.

IV. IF THE CCTV INSPECTION REVEALS CONDITIONS SUCH AS DENTS, OUT-OF-ROUND, AND ETC. THE WORK SHALL BE CONSIDERED DEFECTS AND SUBJECT TO REPAIR.

V. IF THE CCTV INSPECTION REVEALS PIPE SAGS EXCEEDING THE SEWER LINE ACCEPTANCE TEST CRITERIA BELOW THEY SHALL BE CONSIDERED DEFECTS SUBJECT TO CORRECTION OR A DEDUCTIVE PAYMENT FOR THE ENTIRE RUN OF THE PIPING FROM STRUCTURE-TO-STRUCTURE ACCORDING TO THE FOLLOWING TABLE:

SAG TOLERANCES

PIPE SLOPE	NOM. PIPE SIZE	COMPLIES W/SPECIFICATIONS	50% PAYMENT OF BID AMOUNT	RECONSTRUCTION REQUIRED
<0.4%	6"	<1/2"	1/2" - 1"	>1"
	8"	<1/2"	1/2" - 1"	>1"
	10"	<1"	1" - 1-1/2"	>1-1/2"
	12"	<1"	1" - 1-1/2"	>1-1/2"
	>12"	<1"	1" - 1-1/2"	>1-1/2"
0.4% to 0.7%	6"	<1/2"	1/2" - 1-1/2"	>1-1/2"
	8"	<1/2"	1/2" - 1-1/2"	>1-1/2"
	10"	<1"	1" - 2"	2"
	12"	<1"	1" - 2"	2"
	>12"	<1"	1" - 2"	2"
>0.7%	6"	<1"	1" - 1-1/2"	>1-1/2"
	8"	<1"	1" - 2"	2"
	10"	<1-1/2"	1-1/2" - 2"	2"
	12"	<1-1/2"	1-1/2" - 2-1/2"	>2-1/2"
	>12"	<1-1/2"	1-1/2" - 3"	3"

VI. CCTV INSPECTIONS WILL BE RECORDED. IN THE EVENT THAT THE CONTRACTOR REQUESTS A COPY OF THE CCTV INSPECTION, THE CONTRACTOR WILL BE CHARGED FOR THE COPY AT A RATE OF $25.00.

5. FINAL PROJECT SUBMITTALS:

A. "AS-BUILT" PLANS AND CERTIFIED EASEMENTS RECORDED WITH THE BUREAU OF CONVEYANCES, IF APPLICABLE ARE REQUIRED FOR FINAL CONTRACT ACCEPTANCE OF SEWER CONSTRUCTION BY WWD. UPON FINAL PROJECT INSPECTION AND DECLARATION OF SATISFACTORY COMPLETION BY THE WASTEWATER DIVISION CHIEF, SUBMIT TO WWD ONE (1) SET OF FIELD RECORD DRAWINGS AND ONE (1) SET OF "AS-BUILT" PLANS ONE (1) ELECTRONIC SET IN AUTOCAD 2009 OR NEWER VERSION AND ONE (1) ELECTRONIC SET IN ADOBE PDF FORMAT.

B. IT IS MANDATORY THAT THE "AS-BUILT" PLANS SHOW CORRECTLY IDENTIFIED PROPERTY TMK NUMBERS, LOCATION OF SEWER MANHOLES, LATERALS, CLEANOUTS AND ALL OTHER MAJOR COMPONENTS OF THE WASTEWATER COLLECTION SYSTEM INCLUDING RIM AND INVERT ELEVATIONS AT ALL SEWER MANHOLES, LATERAL CONNECTIONS AT THE MAIN, AND LATERAL ELEVATIONS AT THE CLEANOUT. SUBMITTED DOCUMENTATION SHALL BE CERTIFIED BY A HAWAI'I LICENSED PROFESSIONAL LAND SURVEYOR ATTESTING TO THE ACCURACY OF LOCATIONS AND ELEVATIONS OF ALL MAJOR COMPONENTS OF THE WASTEWATER COLLECTION SYSTEM AS SHOWN ON THE AS-BUILT PLANS.

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YEN WEN FANG
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/26
No. 9361-C
HAWAII, U.S.A.

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

SIGNATURE

CIVIL NOTES

DATE: OCTOBER 2025
REV.
REV.
REV.

KONA COMMUNITY HOSPITAL
WASTEWATER TREATMENT SYSTEM UPGRADE
NORTH KONA, HAWAI`I
TMK: (3) 7-9-010 : 081

DRAWN BY:	DESIGNED BY:
AEG	MV/RDC
CHECKED BY:	QC'D BY:
TN	YWF

JOB NO. 12022-22-01

DWG. NO. C-002

SHEET NO. 3 OF 15

10/27/2025 3:20 pm
D:\KCH\CIVIL\12022-22-01 KCH WWTS UPGRADE\WORKING\C-001 CIVIL NOTES.DWG

NORTH

DEMOLITION NOTES

(50) DEMOLISH AND REMOVE EXIST. CHAINLINK FENCE AND APPURTENANCES.

(51) DEMOLISH AND REMOVE PORTION OF EXIST. CONC. DRIVEWAY

(52) DEMOLISH AND REMOVE EXIST. CONC. WALKWAY

(53) DEMOLISH AND REMOVE EXIST. 1 1/4" HDPE FORCEMAIN

(54) DEMOLISH AND REMOVE EXIST. TREE

(55) DEMOLISH AND REMOVE EXIST. SIGN

LEGEND

NEW AC PAVEMENT

NEW CONCRETE PAVEMENT

EXISTING CMU WALL

UTILITY LINES TO BE REMOVED

1595 EXISTING CONTOURS

EASEMENT

RIGHT OF WAY

SANITARY SEWER MANHOLE

COTG

POWER POLE WITH ANCHOR

TMK: (3) 7-9-010: 089

PROPERTY LINE

251° 28' 00" — 230.14'

(E) WATERLINE EASEMENT

PROPERTY LINE

(E) NURSING BLDG.

(E) SECONDARY ABSORPTION BED #2

(E) SMH (TYP.)

(E) 6" SEWERLINE

(E) CRM WALL

(E) KONA HEALTH CENTER BLDG.

TMK: (3) 7-9-013: 018

148° 30' 00" — 200.37'

(E) A.C. PARKING LOT FOR NURSING BLDG.

(E) CONCRETE PARKING LOT

(E) PRIMARY ABSORPTION BED #1

(E) MAINTENANCE BLDG.

(E) WATERLINE EASEMENT

31.77'
255° 55' 00"

30.28'
173° 47' 00"

280° 27' 29" — 121.46'

35.92'
255° 55' 00"

(E) DRAINAGE INLET

(E) CESSPOOL ABANDONED IN PLACE

(E) SUMP PUMP

(E) 1 1/4" HDPE FORCEMAIN

CONC. SIDEWALK

BAMBOO

(E) RIGHT OF WAY LINE

HAUKAPILA STREET

R=165.00'

(E) 50,000 GPD WASTEWATER TREATMENT SYSTEM TOP OF TANK GRATE = 1604.5'

(E) GRINDER

(E) CRM WALL

(E) EDU COTTAGE

ABOVEGROUND FORCEMAIN BY OTHERS

128.42'
109° 27' 30"

R=146.21'

R=116.21'

(E) CONC. WALKWAY

(E) COOLING SYSTEM

TO EXIST. UIC BACKUP

FROM EXIST. 8" INFLUENT

77.74'
129° 22' 30"

LOT 2
TMK: (3) 7-9-013: 017

(E) POWER POLE AND ANCHOR

83.57'
115° 45' 00"

36.67'
169° 30' 00"

(E) WEST HAWAII MENTAL HEALTH CENTER BLDG

(E) SPECIAL SERVICES BLDG

A EXISTING AND DEMOLITION PLAN
SCALE: 1" = 20'
0 20' 40'

10/22/2025, 5:15 pm
D:\PROJECTS\12022-22-01 KCH - WWTS - UPGRADES_WORKING\C-101 EXISTING & DEMOLITION PLAN.DWG

ENGINEERING PARTNERS
455 E. Lanikaula St.
Hilo Hawai`i 96720
Main (808) 933-7900 www.epinc.pro
Hawai`i | Las Vegas

YEN WEN FANG
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/26
No. 9361-C
HAWAII, U.S.A.

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

SIGNATURE

EXISTING AND DEMOLITION PLAN AND DETAILS

DATE: OCTOBER 2025
REV.
REV.
REV.
REV.

KONA COMMUNITY HOSPITAL
WASTEWATER TREATMENT SYSTEM UPGRADE
NORTH KONA, HAWAI`I
TMK: (3) 7-9-010 : 081

DRAWN BY:	DESIGNED BY:
AEG	MV/RDC
CHECKED BY:	QC'D BY:
TN	YWF

JOB NO.
12022-22-01

DWG. NO.
C-101

SHEET NO. 4 OF 15

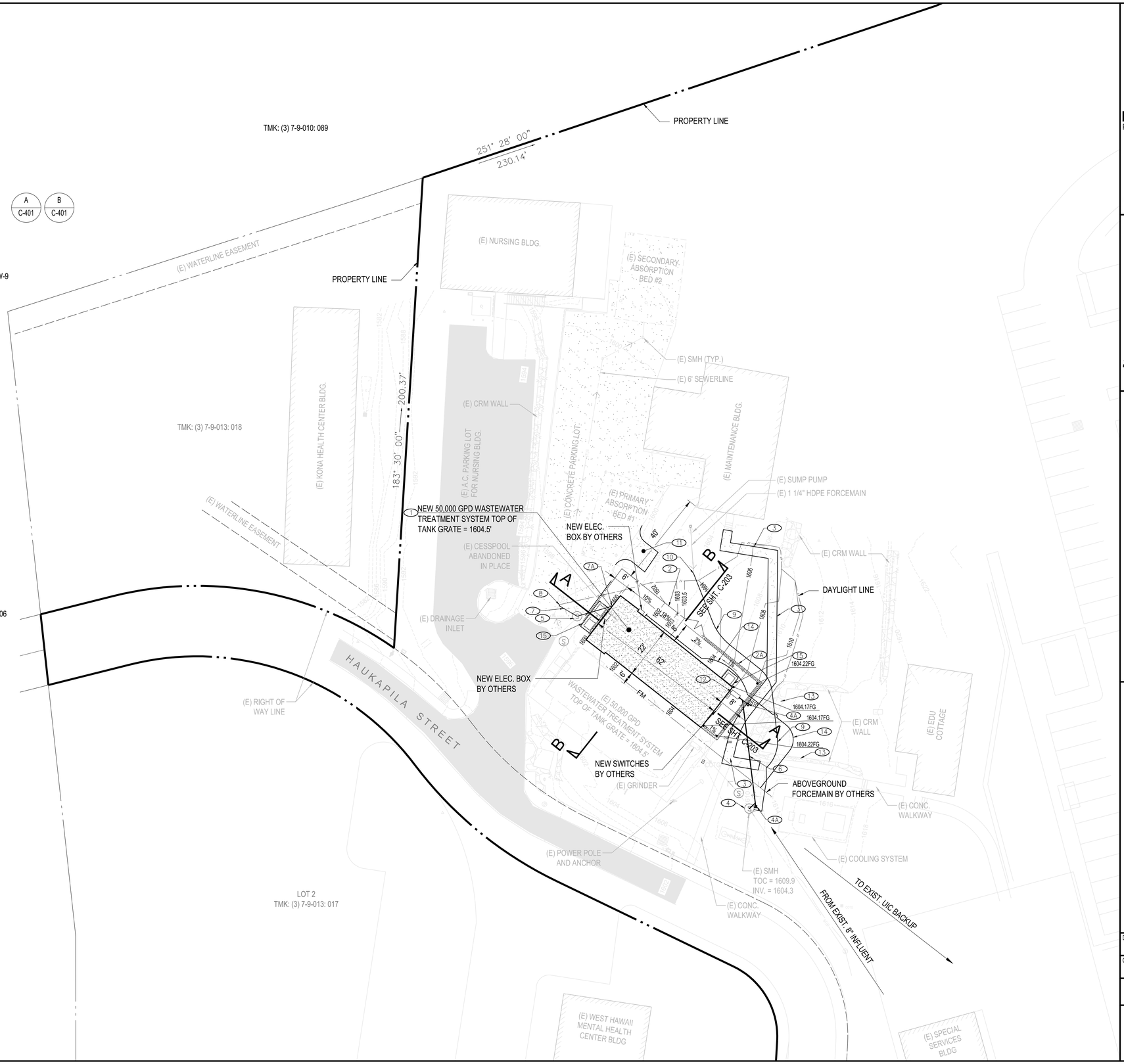
NORTH

CONSTRUCTION NOTES

1. CONSTRUCT 50,000 GPD WASTEWATER TREATMENT SYSTEM PER MANUFACTURER'S SPECIFICATIONS
2. CONSTRUCT CHAINLINK FENCE AND DOUBLE SWING GATE TO MATCH EXISTING. REFER TO DETAIL A/C-401 B/C-401
2A. CONSTRUCT CMU RETAINING WALL AND CHAINLINK. REFER TO PLAN & PROFILE ON SHEET C-205
3. CONSTRUCT CONCRETE WALKWAY. REFER TO PLAN & PROFILE ON SHEET C-204
4. CONSTRUCT SEWER MANHOLE OVER EXISTING 8" LINE PER DPW STD. DET. S-13 AND WWD STD. DET. WW-9 TO CHANNELIZE TO SPLIT FLOW W/ STOP GATE. COORDINATE W/ KONA HOSPITAL MAINTENTENANCE DEPARTMENT BEFORE COMMENCEMENT OF WORK.
4A. INSTALL 6" PVC CLEANOUT TO GRADE. REFER TO DETAIL C/C-401
5. CONSTRUCT SEWER MANHOLE PER DPW STD. DET. S-13
6. CONSTRUCT 8" PVC SDR26 SEWERLINE. REFER TO DETAIL D/C-401
7. CONSTRUCT 6" PVC SDR26 SEWERLINE. REFER TO DETAIL D/C-401
7A. CONSTRUCT 6" D.I. SEWERLINE
8. INSTALL WYE 6X6 PVC WYE FITTING TO CONNECT TO EXIST. 6" PVC SEWERLINE. COORDINATE W/ KONA HOSPITAL MAINTENTENANCE DEPARTMENT BEFORE COMMENCEMENT OF WORK.
9. CONSTRUCT 1 1/4" HDPE FORCEMAIN
10. CONNECT TO EXISTING FORCEMAIN. COORDINATE W/ KONA HOSPITAL MAINTENTENANCE DEPARTMENT BEFORE COMMENCEMENT OF WORK.
11. CONSTRUCT 10' WIDE CONC. DRVWY. PER DETAIL A/C-402
12. INSTALL GRINDER TO MATCH EXISTING. REFER TO PLAN & PROFILE AND GRINDER DETAIL ON SHEET C-206
13. RECONSTRUCT EXISTING ROCKWALL TO MATCH EXISTING OR BETTER
14. ABOVEGROUND FORCEMAIN BY OTHERS
15. CONSTRUCT CONCRETE EQUIPMENT PAD PER DETAIL E/C-402
    LENGTH AND WIDTH OF CONCRETE PAD SHALL BE PROVIDED BY EQUIPMENT MANUFACTURER

LEGEND

- NEW AC PAVEMENT
- NEW CONCRETE PAVEMENT
- 1590 — NEW FINISH GRADE CONTOURS
- 1590 — EXISTING CONTOURS
- DAYLIGHT LINE/LIMIT OF GRADING



A SITE AND GRADING PLAN
SCALE: 1" = 20'
0 20' 40'

10/22/2025, 5:16 pm
G:\DOCS\EPV\12022-22-01_KCH WWTS UPGRADE\WORKING\C-201 SITE & GRADING PLAN.DWG

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SIGNATURE

SITE AND GRADING PLAN AND DETAILS

DATE: OCTOBER 2025
REV. REV. REV. REV.

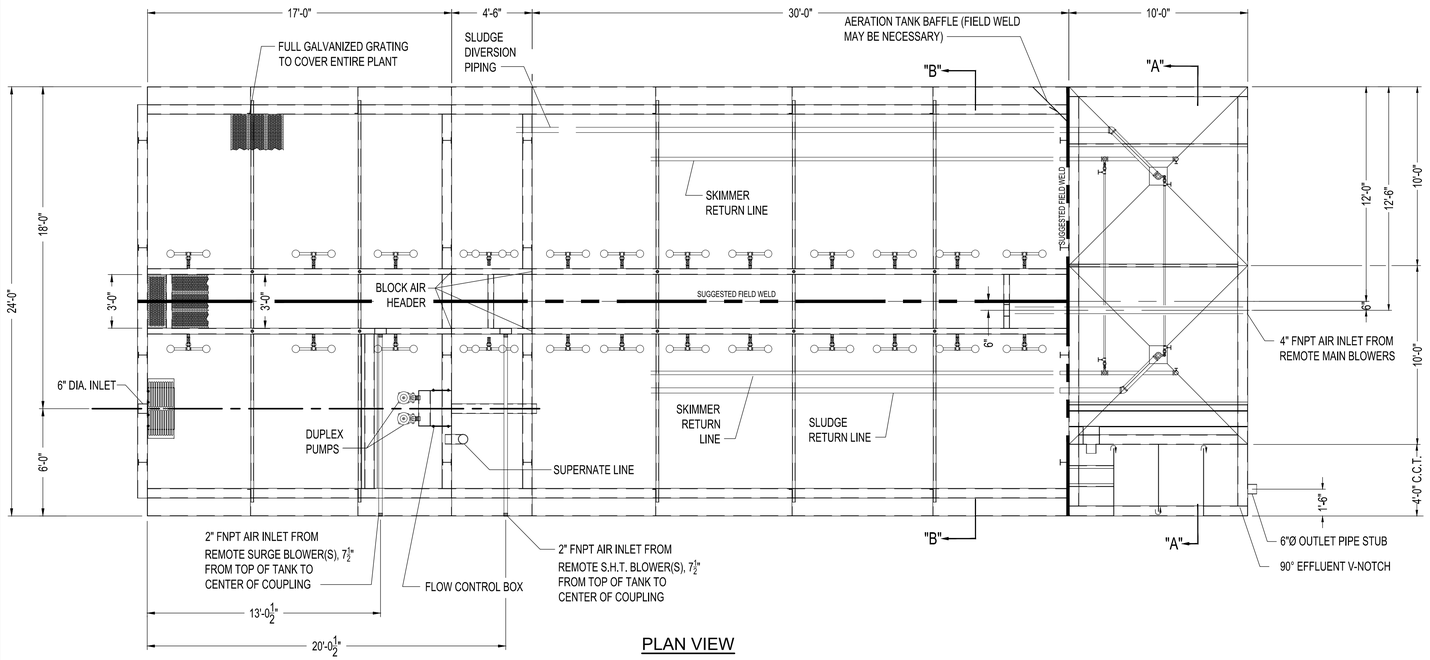
KONA COMMUNITY HOSPITAL
WASTEWATER TREATMENT SYSTEM UPGRADE
NORTH KONA, HAWAI`I
TMK: (3) 7-9-010 : 081

DRAWN BY:	DESIGNED BY:
AEG	MV/RDC
CHECKED BY:	QC'D BY:
TN	YWF

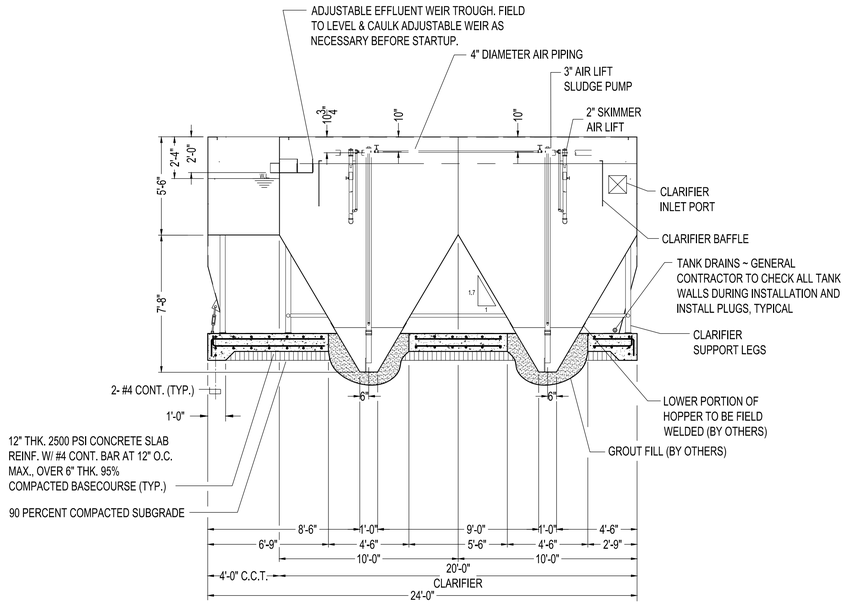
JOB NO. 12022-22-01

DWG. NO. C-201

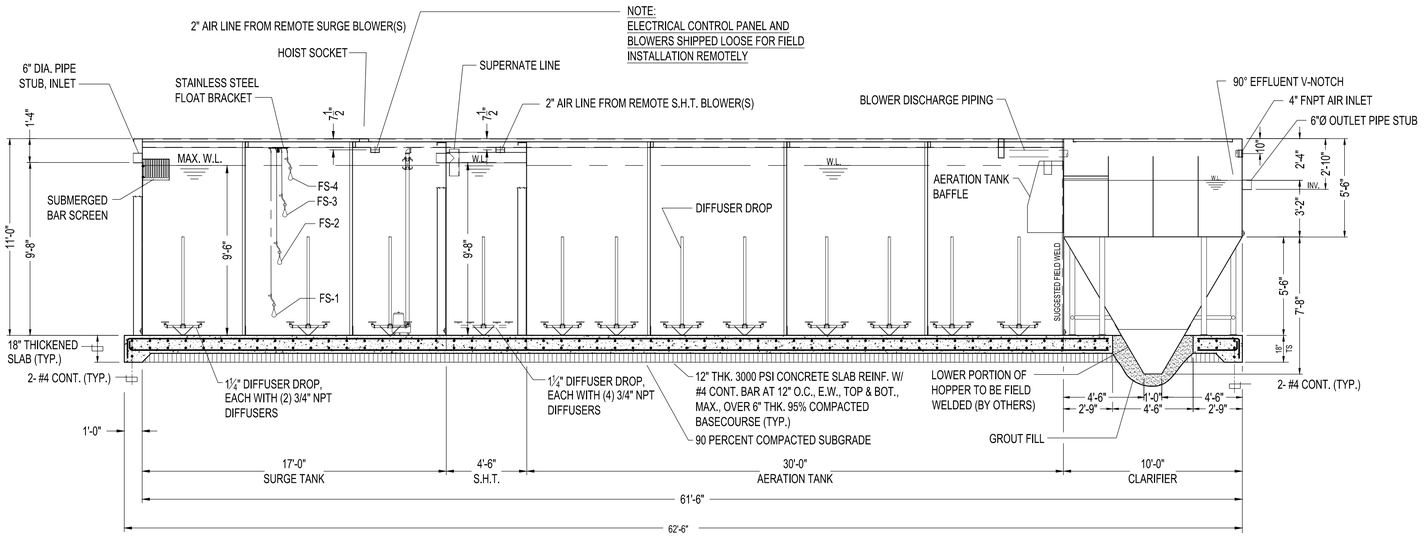
SHEET NO. 5 OF 15



PLAN VIEW



SECTION "A-A"



SECTION THRU TANK

FLOAT SWITCH SCHEDULE

FS-1	PUMPS OFF
FS-2	PUMP #1 ON
FS-3	DUPLEX PUMPS ON
FS-4	HIGH WATER ALARM

PROTECTION AGAINST CORROSION

AFTER COMPLETE WELDING AND FABRICATION OF THE TANK, THE FOLLOWING WILL OCCUR:

SURFACE PREPARATION:
ALL SURFACES SHALL RECEIVE A SSPC-10 NEAR WHITE METAL FINISH OBTAINING A 1.5 TO 3.0 MIL SURFACE PROFILE.

PAINT:
INTERIOR AND EXTERIOR APPLICATION THICKNESS SHALL BE 8 TO 10 MILS D.F.T. OF TNEMEC 46H-413 COAL TAR EPOXY OR EQUAL.

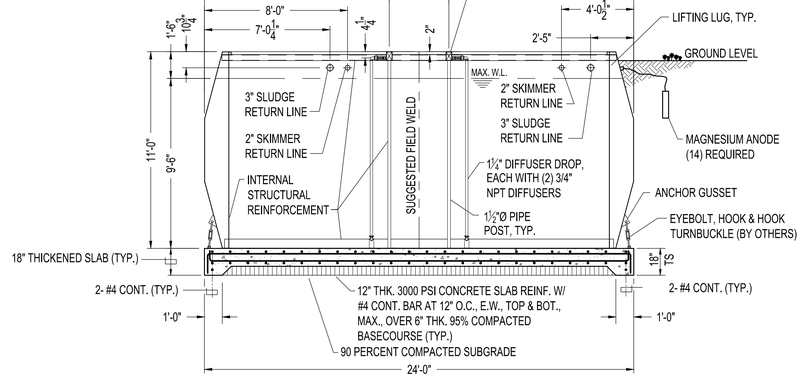
COLOR: BLACKFINISH: SATIN

MODEL NUMBER	DISIGN FLOW VOLUME GALLON	AERATION TANK VOLUME GALLON	CLARIFIER VOLUME GALLON	SLUDGE TANK VOLUME GALLON	SURGE TANK VOLUME GALLON	C.C.T. VOLUME GALLON	MAIN BLOWERS		SURGE/S.H.T./SPARE BLOWERS	
							CFM	H.P.	CFM	H.P.
PT-50	50,000	50,000	8,333	7,596	25,500	1,042	250	10	66	3

NOTES:
1. PLANT TO BE SHIPPED WITH BLOWER MOTOR UNITS, CONTROL PANEL, HANDRAIL, CHLORINATOR, GRATING AND MAGNESIUM ANODES LOOSE FOR FIELD INSTALLATION BY OTHERS.

2. FLOAT SWITCH ELEVATION SHALL BE DETERMINED BY OTHERS. LS-2 (WIDE ANGLE FLOAT) MUST BE A MIN. OF 15" ABOVE LS-1 (OFF SWITCH)

NOTE:
THIS TANK STRUCTURE IS REINFORCED TO WITHSTAND NORMAL PRESSURES FROM THE SOIL AND FROM THE INTERIOR HYDROSTATIC LOAD ON ABOVE GRADE INSTALLATIONS. IF THERE IS A GROUND WATER PROBLEM, NOTIFY YOUR ENGINEER AND PURESTREAM IMMEDIATELY. PURESTREAM WILL NOT BE RESPONSIBLE FOR DAMAGE TO THE TANK STRUCTURE OR EQUIPMENT DUE TO GROUND WATER.



SECTION "B-B"

TANK TO BE SHIPPED IN SEVERAL SECTIONS

FABRICATOR TO DETERMINE FIELD WELD LOCATION

NOTE: ALL FIELD WELDED AREAS TO BE PREPARED AS PER SSPC-2SP2 AND COATED WITH TWO COATS OF TNEMEC 46H-413 COAL TAR EPOXY PAINT OR EQUAL FOR A TOTAL FILM THICKNESS OF 10-12 MILS PRIOR TO BACKFILLING.

A WASTEWATER TREATMENT PLANT
NO SCALE

ENGINEERING PARTNERS
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YEN WEN FANG
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/26
No. 9361-C
HAWAII, U.S.A.

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SIGNATURE

WASTEWATER TREATMENT PLANT

DATE: OCTOBER 2025
REV. REV. REV.
REV. REV. REV.

KONA COMMUNITY HOSPITAL
WASTEWATER TREATMENT SYSTEM UPGRADE
NORTH KONA, HAWAI`I
TMK: (3) 7-9-010 : 081

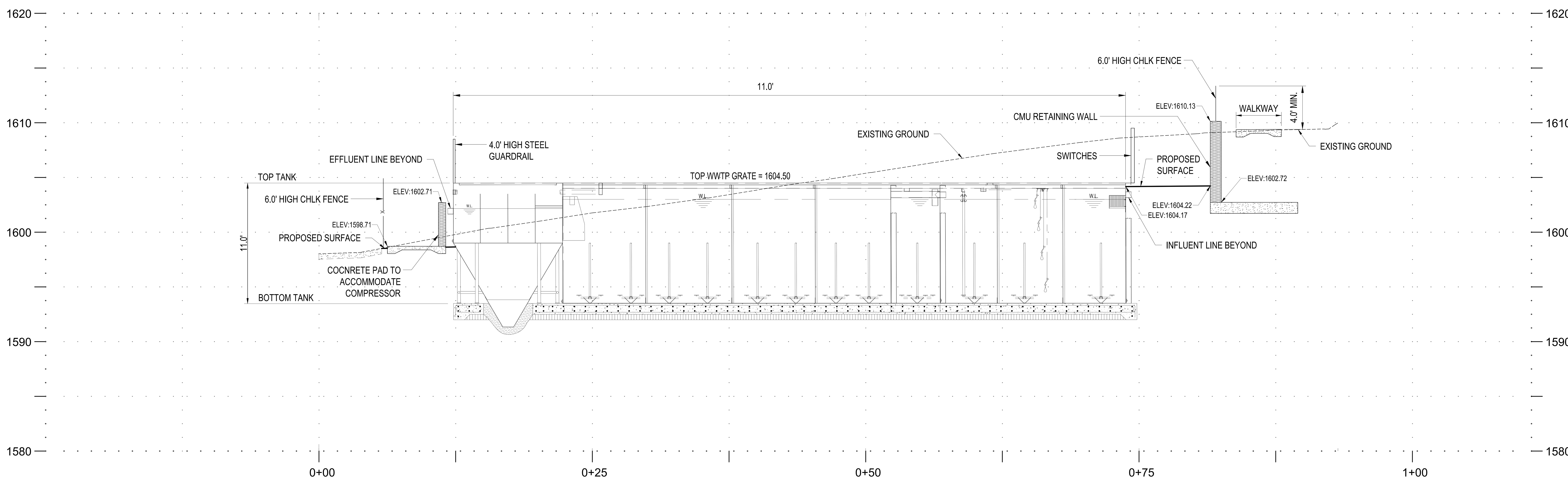
DRAWN BY:	DESIGNED BY:
AEG	MV/RDC
CHECKED BY:	QC'D BY:
TN	YWF

JOB NO. 12022-22-01

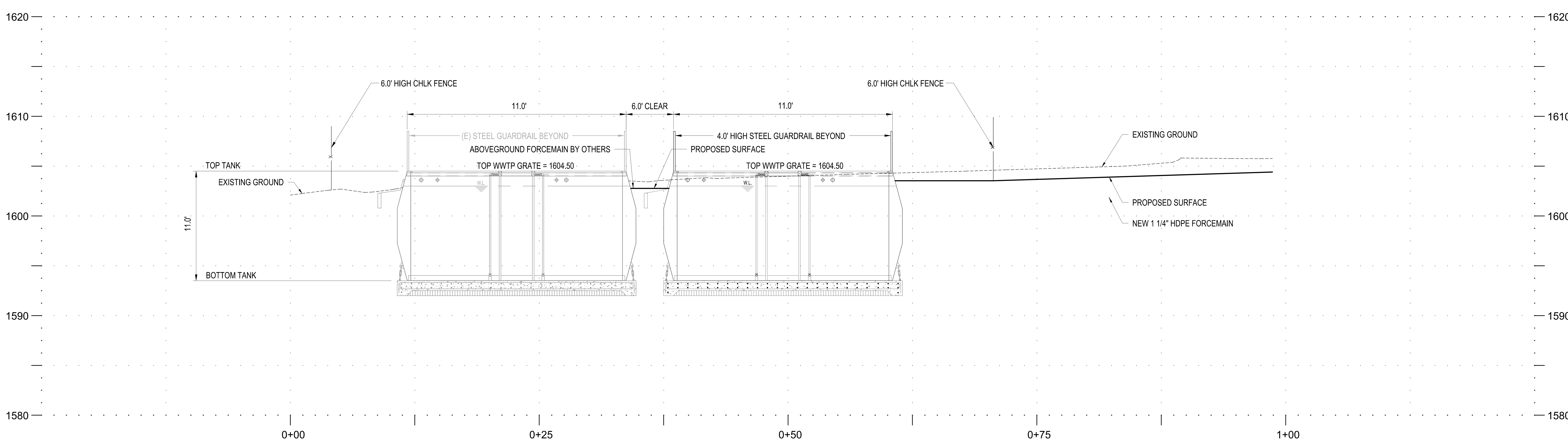
DWG. NO. C-202

SHEET NO. 6 OF 15

10/22/2025, 5:17 pm
D:\RDC\EPI\12022-22-01 KCH WWTS UPGRADE\ WORKING\C-201 SITE & GRADING PLAN.DWG



A SECTION A-A
SCALE: 1" = 5'



B SECTION B-B
SCALE: 1" = 5'

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SIGNATURE

SECTION A-A
SECTION B-B

DATE: OCTOBER 2025
REV.
REV.
REV.
REV.
REV.

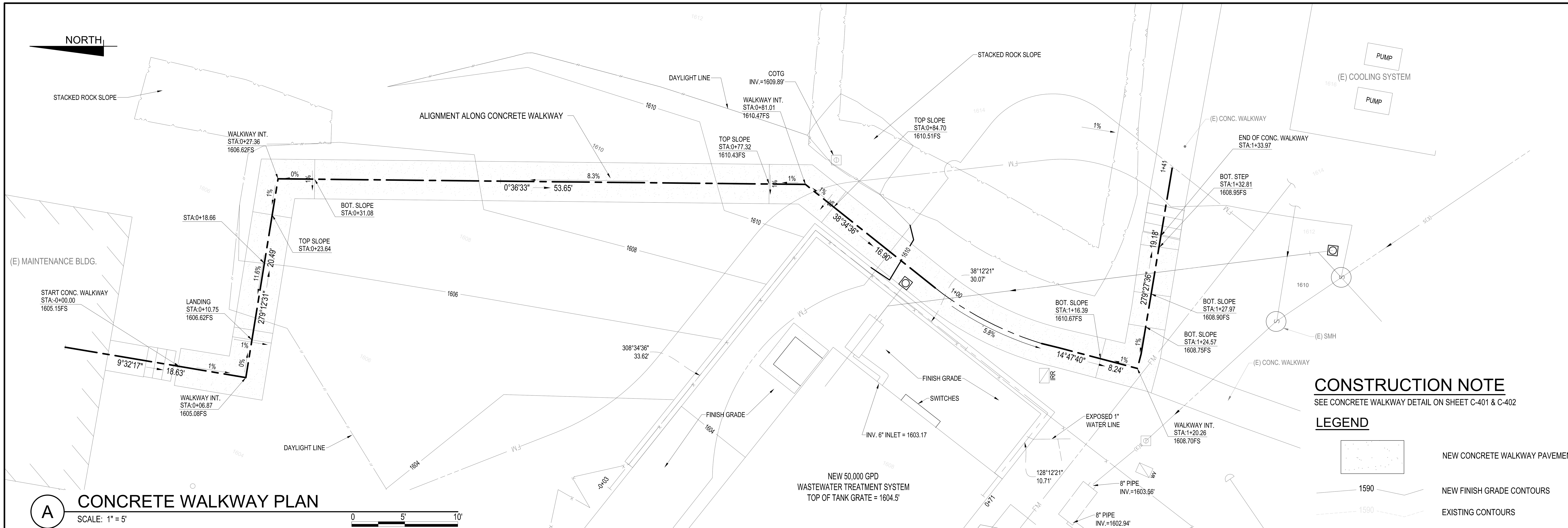
KONA COMMUNITY HOSPITAL WASTEWATER TREATMENT SYSTEM UPGRADE
NORTH KONA, HAWAI'I
TMK: (3) 7-9-010 : 081

DRAWN BY: AEG	DESIGNED BY: MV/RDC
CHECKED BY: TN	QC'D BY: YWF

JOB NO. 12022-22-01

DWG. NO. C-203

SHEET NO. 7 OF 15



A CONCRETE WALKWAY PLAN
SCALE: 1" = 5'
0 5' 10'

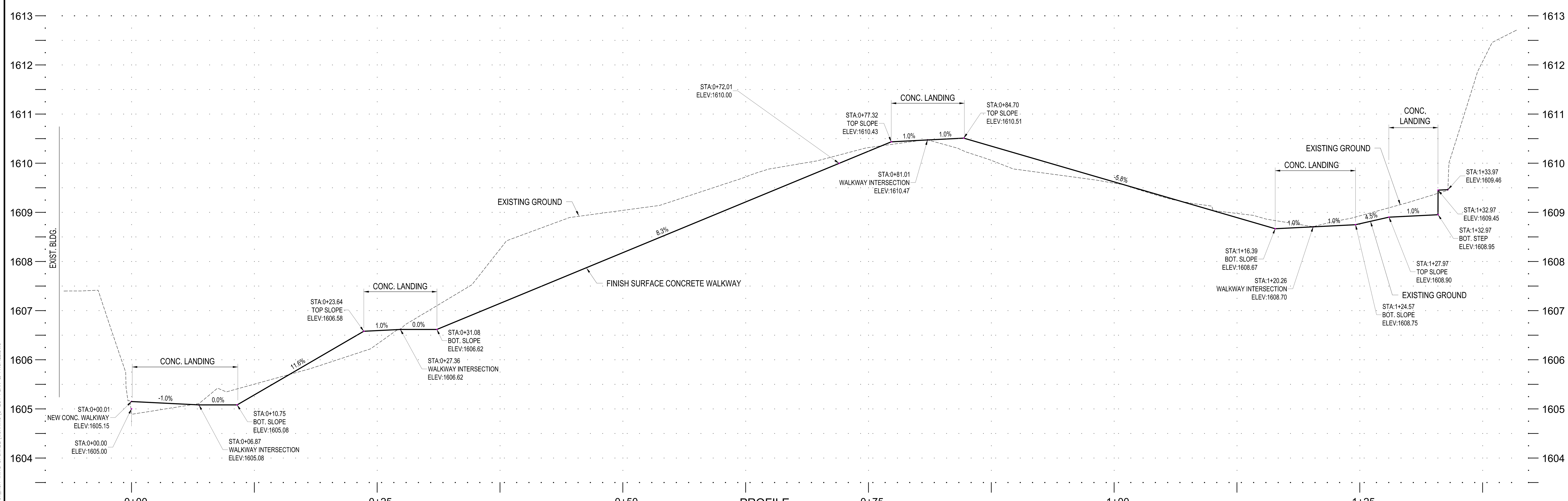
PLAN

CONSTRUCTION NOTE

SEE CONCRETE WALKWAY DETAIL ON SHEET C-401 & C-402

LEGEND

- NEW CONCRETE WALKWAY PAVEMENT
- 1590 NEW FINISH GRADE CONTOURS
- 1590 EXISTING CONTOURS
- // DAYLIGHT LINE/LIMIT OF GRADING



PROFILE

B CONCRETE WALKWAY PROFILE
SCALE: 1" = 5'
0 5' 10'

10/22/2025 3:26 pm

ENGINEERING PARTNERS
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HAWAII, U.S.A.

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SIGNATURE

CONCRETE WALKWAY PLAN & PROFILE

DATE: OCTOBER 2025
REV.
REV.
REV.
REV.
REV.

KONA COMMUNITY HOSPITAL WASTEWATER TREATMENT SYSTEM UPGRADE

NORTH KONA, HAWAI'I
TMK: (3) 7-9-010 : 081

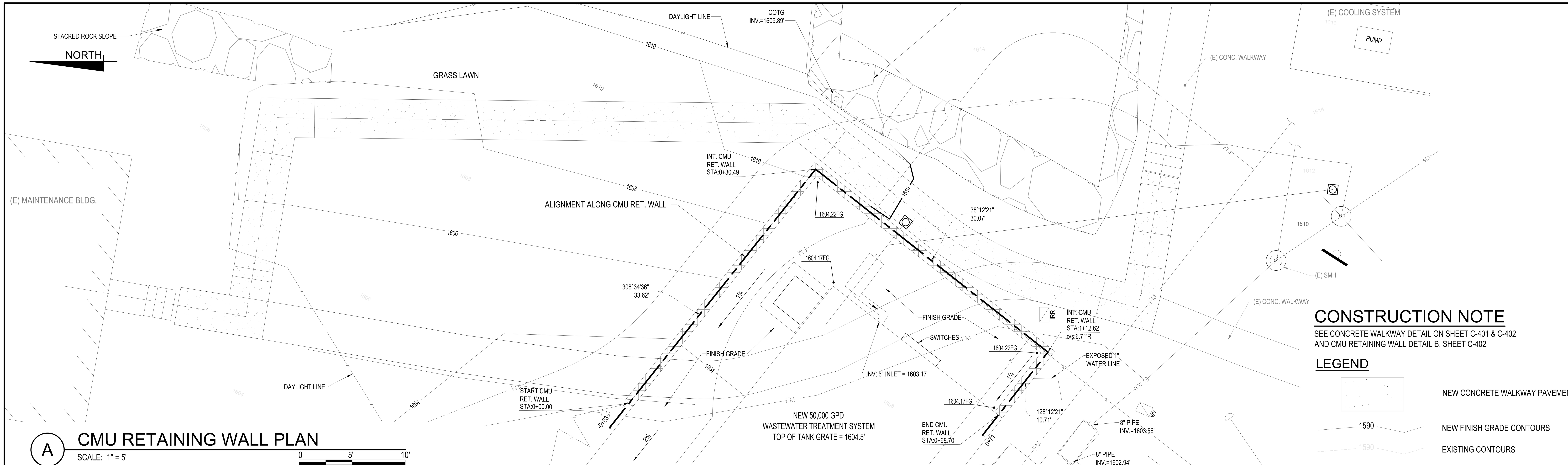
DRAWN BY:	DESIGNED BY:
AEG	MV/RDC
CHECKED BY:	QC'D BY:
TN	YWF

JOB NO.
12022-22-01

DWG. NO.
C-204

SHEET NO. 8 OF 15

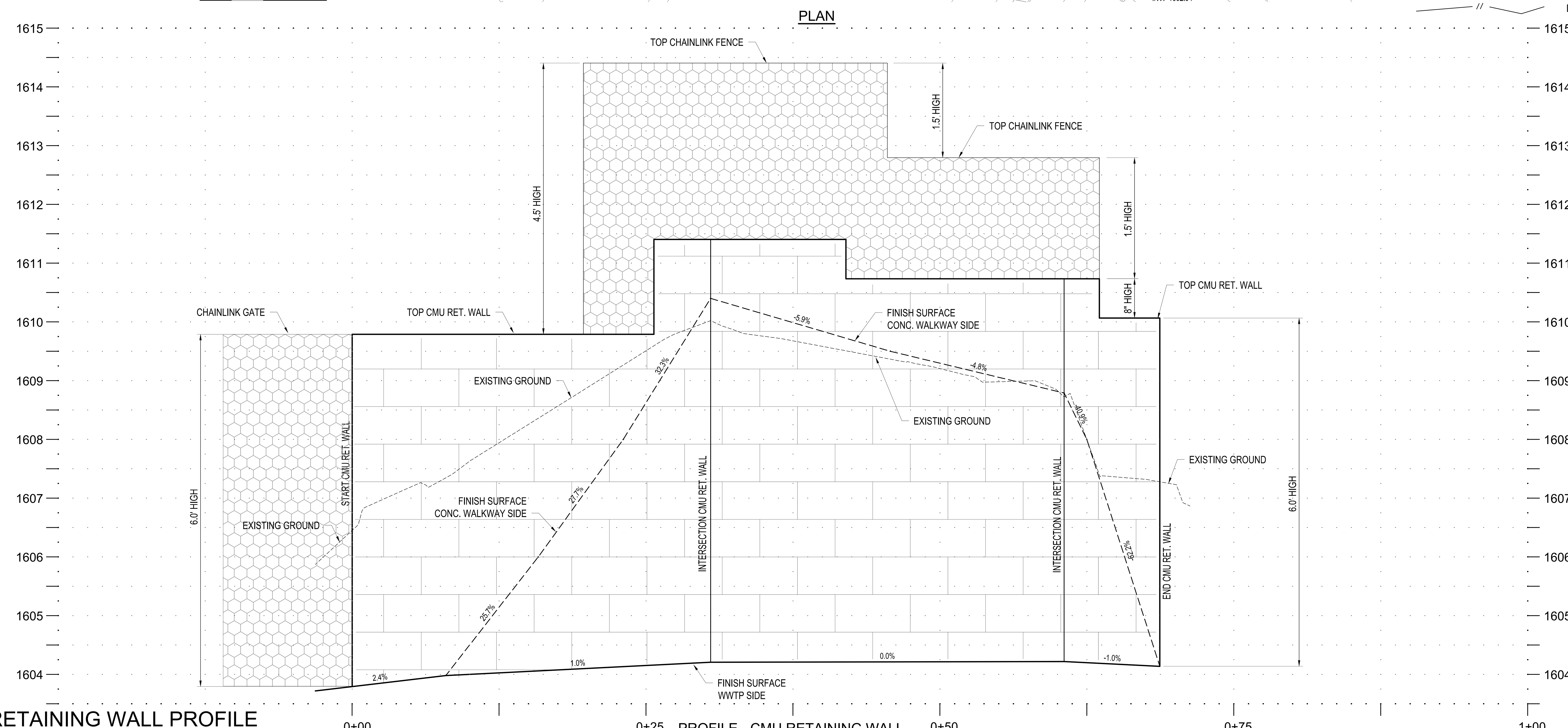
A CMU RETAINING WALL PLAN
SCALE: 1" = 5'



CONSTRUCTION NOTE
SEE CONCRETE WALKWAY DETAIL ON SHEET C-401 & C-402
AND CMU RETAINING WALL DETAIL B, SHEET C-402

LEGEND
NEW CONCRETE WALKWAY PAVEMENT
1590 NEW FINISH GRADE CONTOURS
1590 EXISTING CONTOURS
// DAYLIGHT LINE/LIMIT OF GRADING

B CMU RETAINING WALL PROFILE
SCALE: 1" = 5'



ENGINEERING PARTNERS

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CMU RETAINING WALL PLAN & PROFILE

DATE: OCTOBER 2025
REV.
REV.
REV.
REV.
REV.

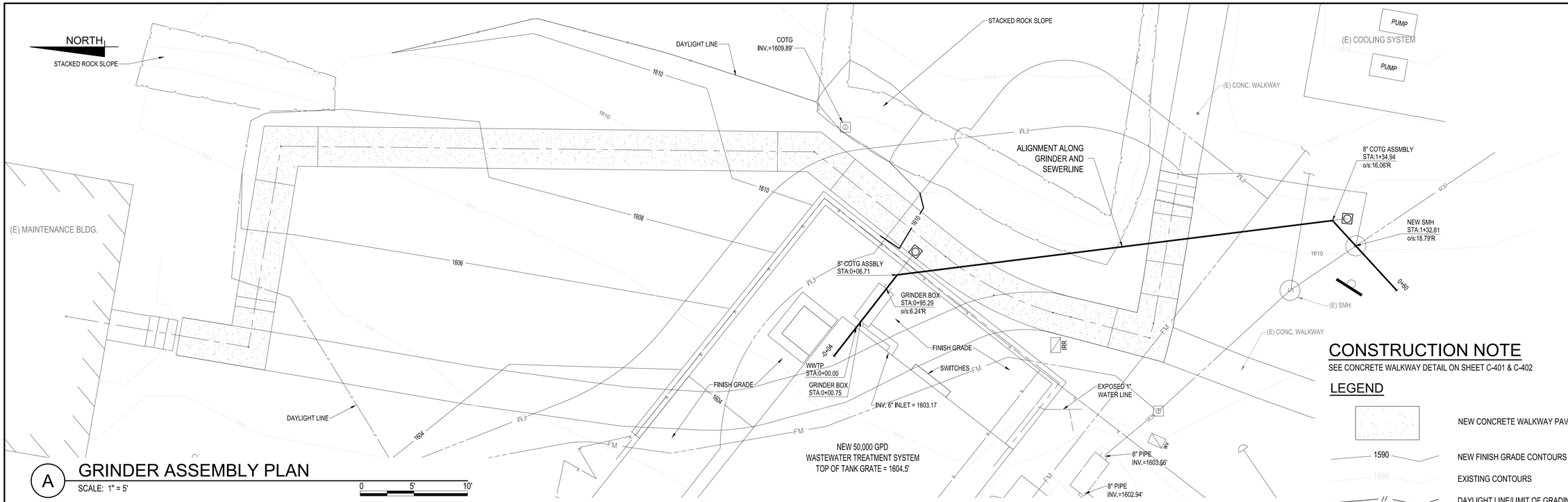
KONA COMMUNITY HOSPITAL WASTEWATER TREATMENT SYSTEM UPGRADE
NORTH KONA, HAWAI'I
TMK: (3) 7-9-010 : 081

DRAWN BY: AEG	DESIGNED BY: MV/RDC
CHECKED BY: TN	QC'D BY: YWF

JOB NO. 12022-22-01

DWG. NO. C-205

SHEET NO. 9 OF 15

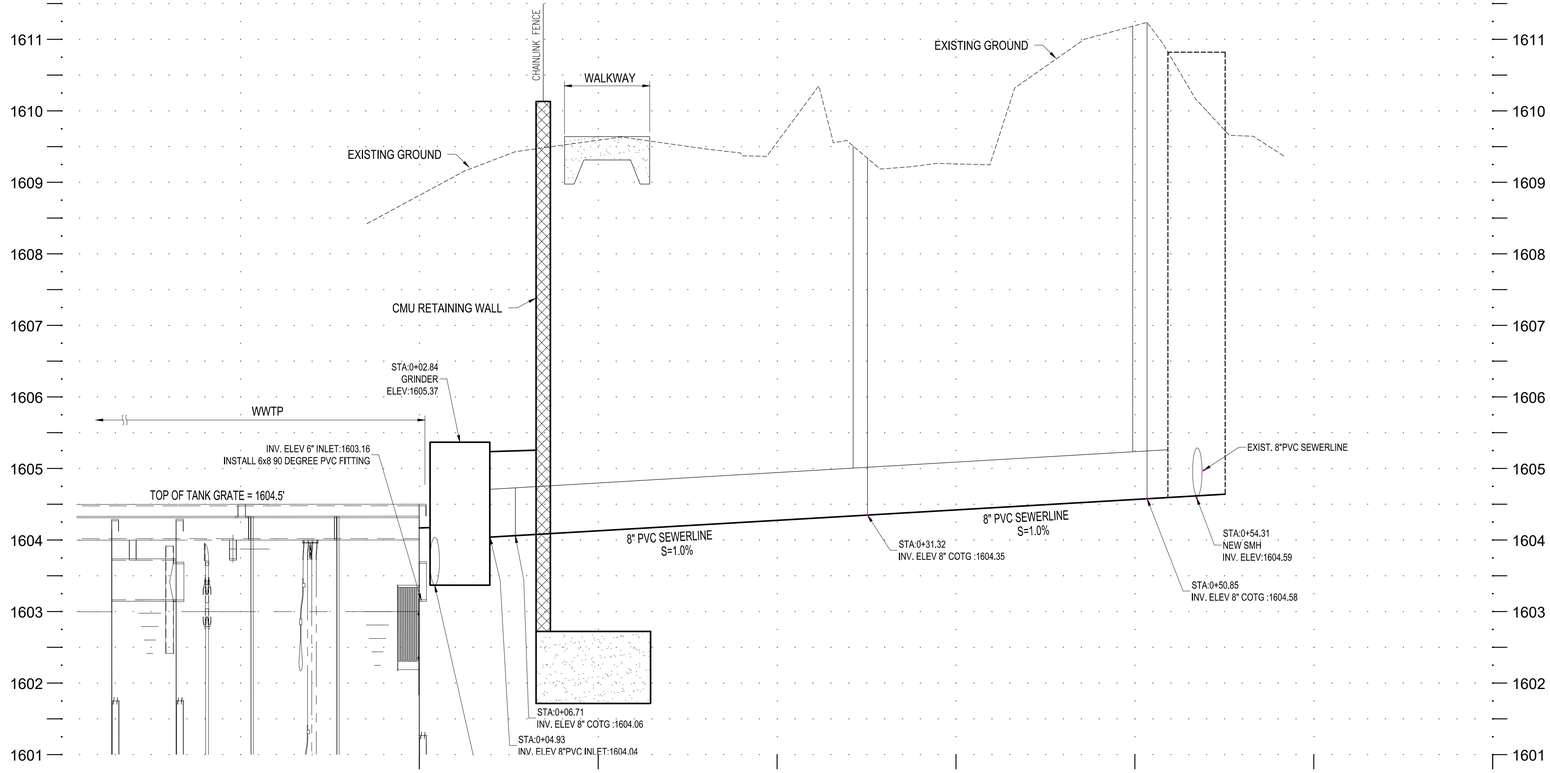


A GRINDER ASSEMBLY PLAN

SCALE: 1" = 5'

0 5' 10'

PLAN



B GRINDER ASSEMBLY PROFILE

SCALE: 1" = 5'

0 5' 10'

PROFILE - GRINDER ASSEMBLY

CONSTRUCTION NOTE

SEE CONCRETE WALKWAY DETAIL ON SHEET C-401 & C-402

LEGEND

NEW CONCRETE WALKWAY PAVEMENT

1590 NEW FINISH GRADE CONTOURS

1590 EXISTING CONTOURS

DAYLIGHT LINE/LIMIT OF GRADING

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SIGNATURE

GRINDER ASSEMBLY PLAN & PROFILE

DATE: OCTOBER 2025

REV. REV. REV.

REV. REV. REV.

KONA COMMUNITY HOSPITAL
WASTEWATER TREATMENT
SYSTEM UPGRADE
NORTH KONA, HAWAI`I
TMK: (3) 7-9-010 : 081

DRAWN BY:	DESIGNED BY:
AEG	MV/RDC
CHECKED BY:	QC'D BY:
TN	YWF

JOB NO.
12022-22-01

DWG. NO.
C-206

SHEET NO. 10 OF 15

KEY TO PHOTOS

PHOTO 1

PHOTO 2

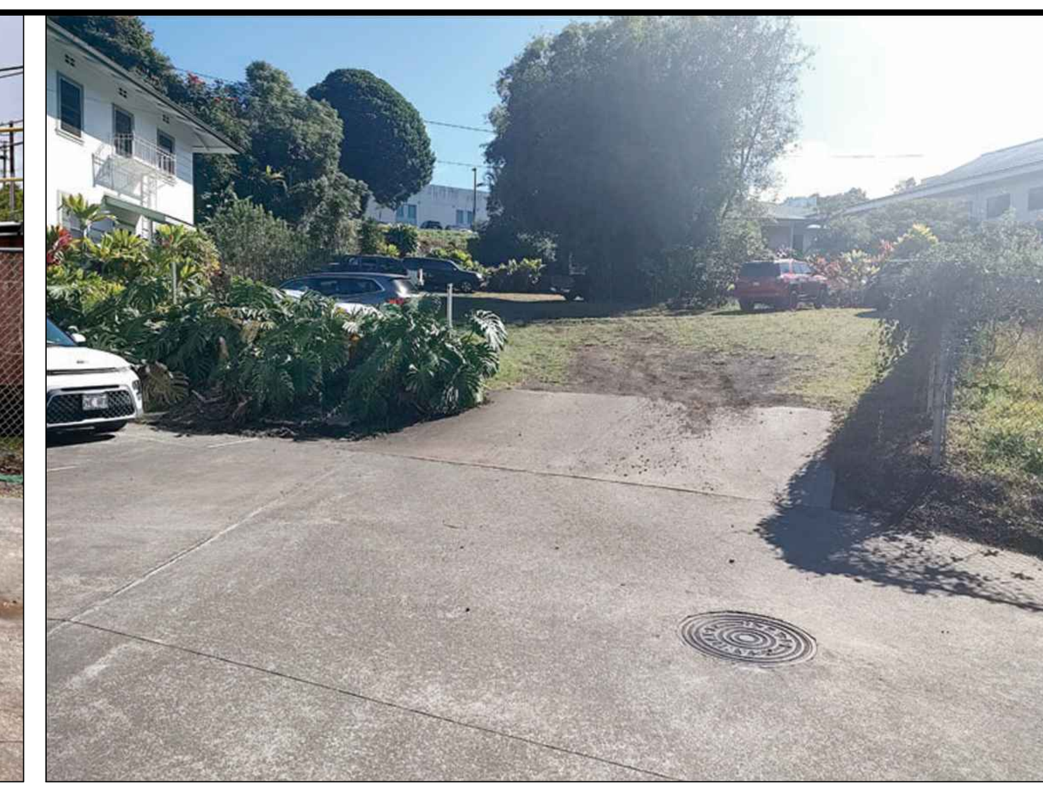


PHOTO 3

PHOTO 4

PHOTO 5

PHOTO 6

PHOTO 7

PHOTO 8

PHOTO 9

PHOTO 10

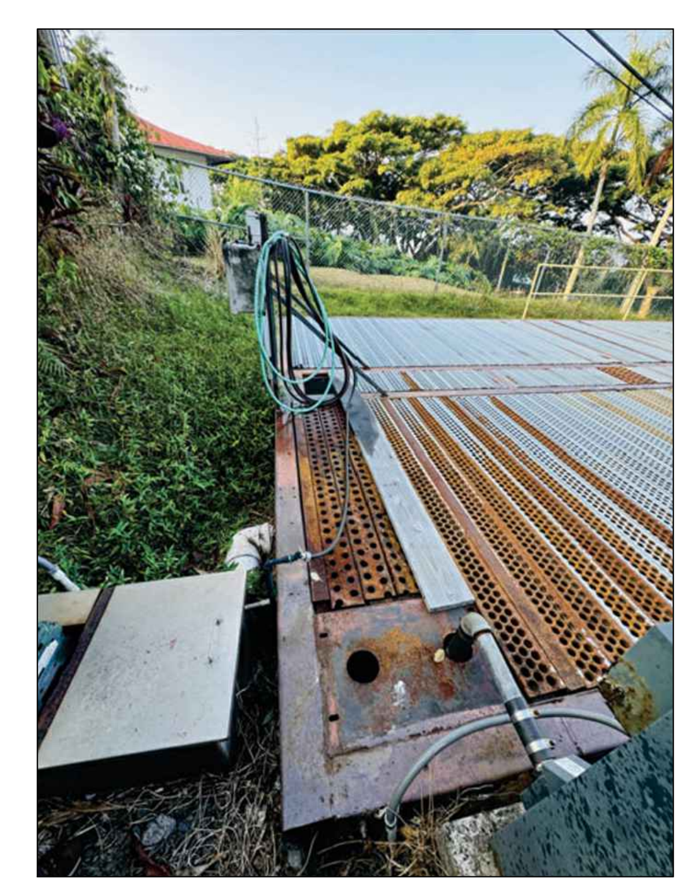
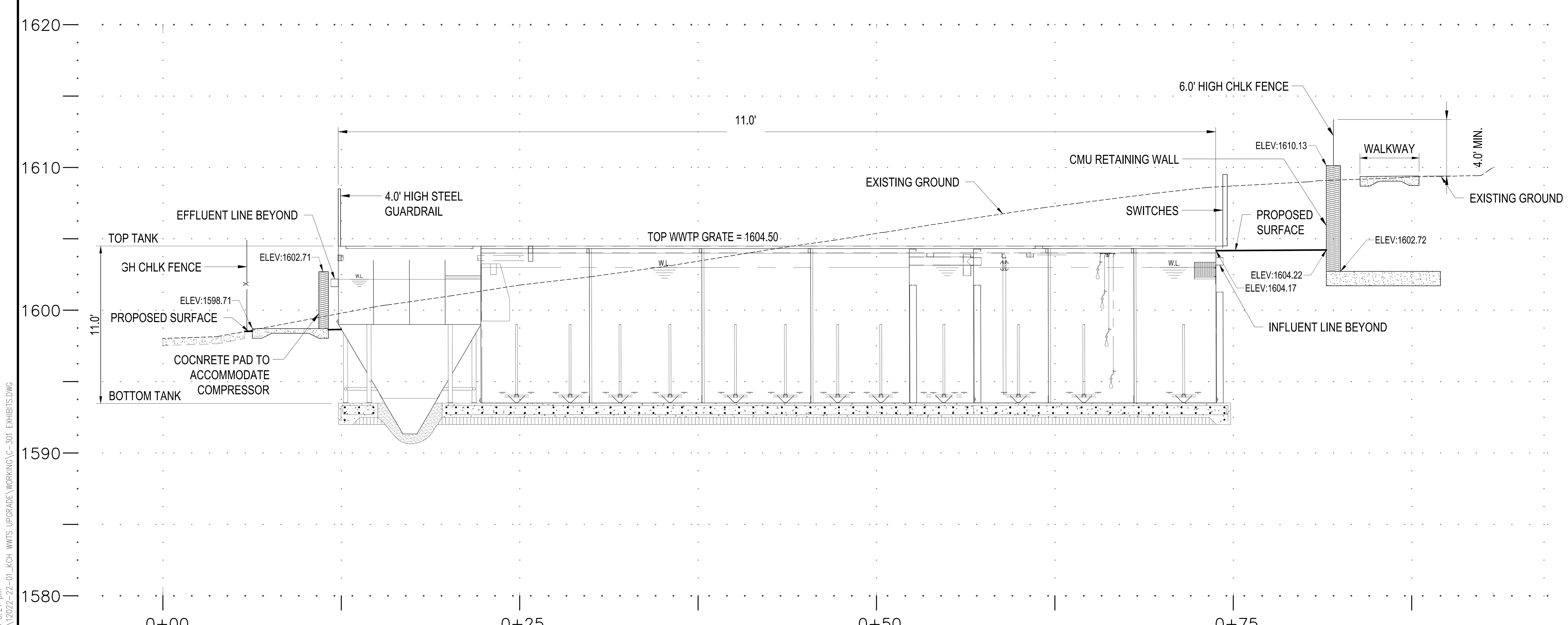


PHOTO 11

PHOTO 12



PROFILE - EXISTING WWTP

ENGINEERING
PARTNERS

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SIGNATURE

EXHIBITS

DATE: OCTOBER 2025
REV.
REV.
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REV.

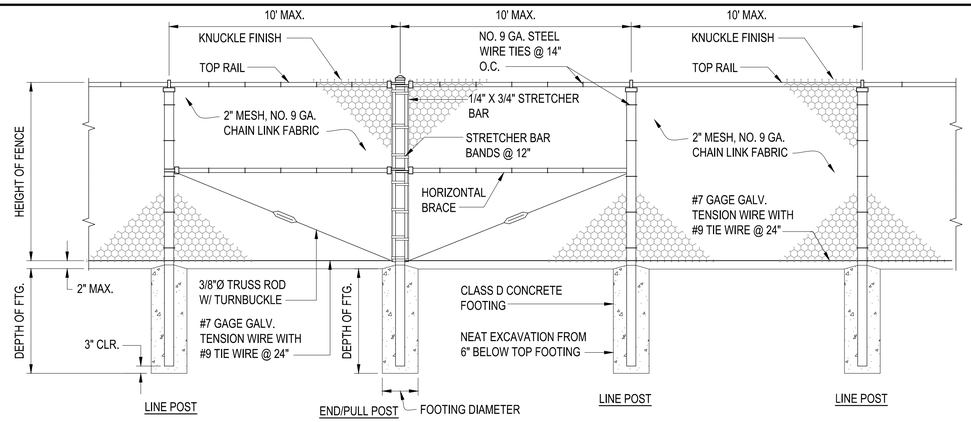
KONA COMMUNITY HOSPITAL
WASTEWATER TREATMENT
SYSTEM UPGRADE
NORTH KONA, HAWAI'I
TMK: (3) 7-9-010 : 081

DRAWN BY:	DESIGNED BY:
AEG	MV/RDC
CHECKED BY:	QC'D BY:
TN	YWF

JOB NO.
12022-22-01

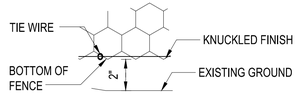
DWG. NO.
C-301

SHEET NO. 11 OF 15



CHAIN LINK FENCE

FENCES (3 FEET TO 6 FEET HEIGHT)								
HEIGHT OF FENCE	LINE POST		END, CORNER, & PULL POST		BRACE		TOP RAIL	
	OD INCH	Wt lbs/ft	OD INCH	Wt lbs/ft	OD INCH	Wt lbs/ft	OD INCH	Wt lbs/ft
3'-0"	1-7/8"	2.72	1-7/8"	2.72	1-5/8"	2.57	1-3/8"	1.68
4'-0"	1-7/8"	2.72	1-7/8"	2.72	1-5/8"	2.57	1-3/8"	1.68
5'-0"	1-7/8"	2.72	1-7/8"	2.72	1-5/8"	2.57	1-5/8"	2.27
6'-0"	2-3/8"	3.65	2-3/8"	3.65	1-5/8"	2.57	1-5/8"	2.27



BOTTOM OF FENCE DETAIL

NOTES

1. CHAIN LINK FABRIC, FITTINGS, AND HARDWARE SHALL CONFORM TO AASHTO M181
2. TENSION WIRE SHALL HAVE A MINIMUM OF TWO ONCES OF ZINC COATING PER SQUARE FEET
3. ZINC COARTING SHALL CONFORM TO AASHTO M111 OR AASHTO M232 (ASTM A123 OR ASTM A153)

FENCES (3 FEET TO 6 FEET HEIGHT)								
HEIGHT OF FENCE	SOIL TYPE: SAND & GRAVEL MINIMUM DEPTH OF FOOTING		SOIL TYPE: STIFF CLAY MINIMUM DEPTH OF FOOTING		SOIL TYPE: ROCK MINIMUM DEPTH OF FOOTING		MINIMUM FOOTING DIAMETER	
	LINE POST	CORNER, PULL, END, AND GATE POST	LINE POST	CORNER, PULL, END, AND GATE POST	LINE POST	CORNER, PULL, END, AND GATE POST	LINE POST	CORNER, PULL, END, AND GATE POST
3'-0"	3'-6"	3'-6"	2'-6"	2'-6"	1'-0"	1'-0"	0'-8"	0'-8"
4'-0"	3'-6"	3'-6"	2'-6"	2'-6"	1'-0"	1'-0"	0'-8"	0'-8"
5'-0"	4'-0"	4'-0"	3'-0"	3'-0"	1'-6"	1'-6"	0'-8"	0'-8"
6'-0"	4'-0"	4'-0"	3'-0"	3'-0"	1'-6"	1'-6"	0'-8"	0'-8"

B CHAIN LINK FENCE DETAIL

NO SCALE

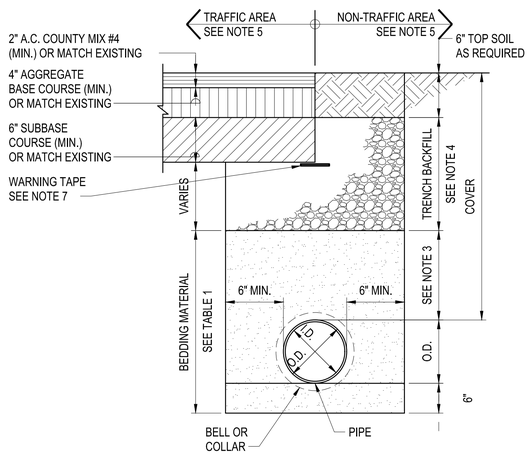
NOTES:

1. THIS TRENCH SECTION APPLIES TO FLEXIBLE PIPES INCLUDING SEWER, STORM DRAIN, AND WATER PIPES. FLEXIBLE PIPE MATERIAL INCLUDES COPPER, CMP, PVC, ABS, AND HDPE.
2. THIS TRENCH SECTION APPLIES TO PIPING WITHIN PRIVATE PROPERTIES ONLY.
3. BEDDING MATERIAL ABOVE PIPE SHALL BE 12" HIGH FOR GRANULAR MATERIAL AND 6" HIGH FOR CONCRETE, NO. 10 OR NO. 67 GRANULAR BEDDING SHALL BE COMPACTED BY MAKING TWO PASSES PER LIFT WITH A VIBRATORY PLATE COMPACTOR. BEDDING MATERIAL FOR PIPES 2'Ø OR LARGER SHALL BE 3/4" BASE COURSE COMPACTED TO 95% MAX. DRY DENSITY.
4. TRENCH BACKFILL SHALL BE 3" MINUS GRANULAR BACKFILL OR SUITABLE NATIVE MATERIAL NO LARGER THAN 6". TRENCH BACKFILL SHALL BE COMPACTED TO 95% MAX. DRY DENSITY.
5. TRAFFIC AREA SHALL INCLUDE BUT NOT BE LIMITED TO PAVED OR UNPAVED ROADWAY, SHOULDER, DRIVEWAY, CARTPATH, PARKING, LOADING ZONE, STORAGE AREA AND AREAS NOT PROTECTED FROM TRAFFIC LOAD. NON-TRAFFIC AREA SHALL BE PROTECTED FROM TRAFFIC LOAD BY MEANS OF CONCRETE CURBS, GUARDRAILS, BARRICADE, AND AREAS INACCESSIBLE BY VEHICLES.
6. BEDDING MATERIAL FOR COPPER PIPE SHALL BE #4 SAND OR CONCRETE ONLY.
7. MIN. 6" WIDE WARNING TAPE IDENTIFYING THE BURIED UTILITY SHALL BE PLACED CONTINUOUSLY ALONG THE LENGTH OF THE PIPE JUST BELOW THE SUBBASE OR 12" BELOW THE SURFACE FOR UNPAVED AREAS. FOR METALLIC PIPE, TAPE SHALL BE NON-METALLIC. FOR NON-METALLIC PIPE, TAPE SHALL BE DETECTABLE BY STANDARD, NON-DESTRUCTIVE PIPE DETECTION METHODS.

TABLE 1: BEDDING MATERIAL

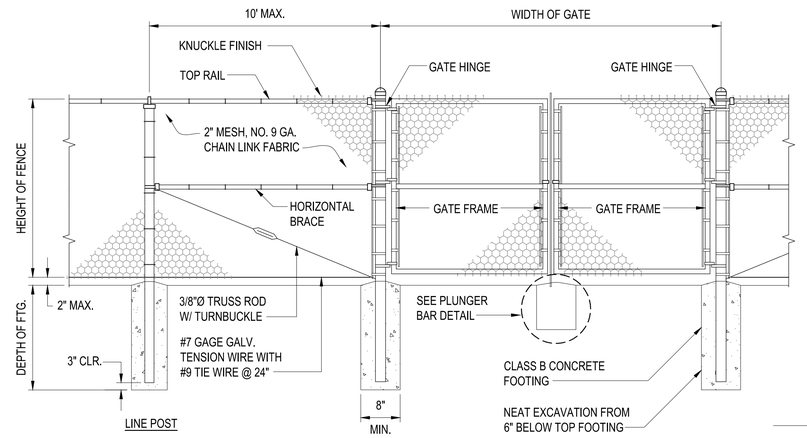
DEPTH OF COVER IN FT.	TRAFFIC AREA	NON-TRAFFIC AREA
6" < COVER < 12"	NOT ALLOWED	ALLOWED FOR 6"Ø PIPE OR SMALLER ONLY WITH NO. 10 CRUSHED ROCK (SEE NOTE 3)
12" < COVER < 18"	ALLOWED FOR 6"Ø PIPE OR SMALLER ONLY WITH CLASS "C" CONCRETE	NO. 10 CRUSHED ROCK (#4 SAND) (SEE NOTE 3)
18" < COVER < 24"	CLASS "C" CONCRETE	NO. 10 OR NO. 67 CRUSHED ROCK (SEE NOTE 3)
COVER > 24"	NO. 10 OR NO. 67 CRUSHED ROCK	NO. 10 OR NO. 67 CRUSHED ROCK (SEE NOTE 3)

(FOR PRIVATE UTILITY PIPING ONLY)



D FLEXIBLE PIPE TRENCH SECTION

SCALE: NOT TO SCALE



DOUBLE SWING CHAIN LINK GATE

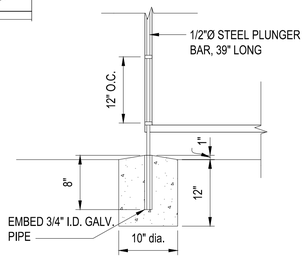
GATES (3 FEET TO 6 FEET HEIGHT)				
GRATE FRAMES		GATE OPENING	GATE POSTS	
OD INCH	Wt lbs/ft		OD INCH	Wt lbs/ft
1-7/8	2.72	SINGLE TO 6' OR DOUBLE TO 12'	3	5.79
1-7/8	2.72	SINGLE OVER 6' TO 13' OR DOUBLE OVER 12' TO 26' INCLUSIVE	4	9.11
1-7/8	2.72	SINGLE OVER 13' TO 18' OR DOUBLE OVER 26' TO 36' INCLUSIVE	6-5/8	18.97
1-7/8	2.72	SINGLE OVER 18' OR DOUBLE OVER 36'	8-5/8	24.70

NOTES

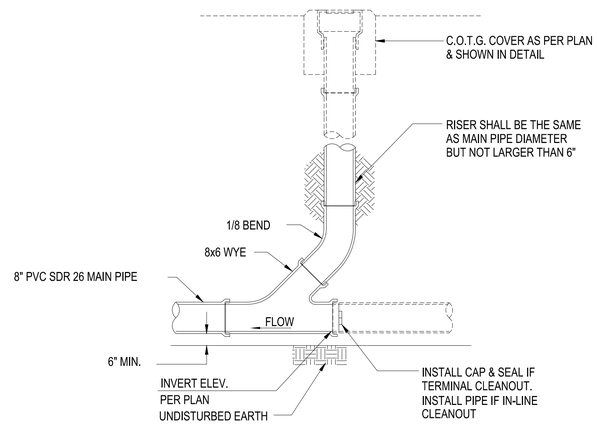
1. CHAIN LINK FABRIC, FITTINGS, AND HARDWARE SHALL CONFORM TO AASHTO M181
2. TENSION WIRE SHALL HAVE A MINIMUM OF TWO ONCES OF ZINC COATING PER SQUARE FEET
3. GATE FRAMES SHALL BE MITERED AND WELDED AT CORNERS
4. GATE FORK LATCH AND LOCK, SHALL BE CONSIDERED AS INCIDENTAL TO CHAIN LINK FENCE GATE.
5. ZINC COARTING SHALL CONFORM TO AASHTO M111 OR AASHTO M232 (ASTM A123 OR ASTM A153)

A CHAIN LINK FENCE GATE DETAIL

NO SCALE



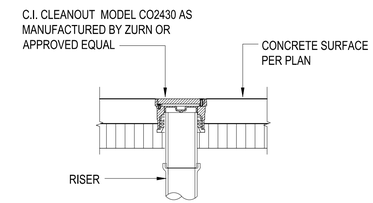
PLUNGER BAR DETAIL



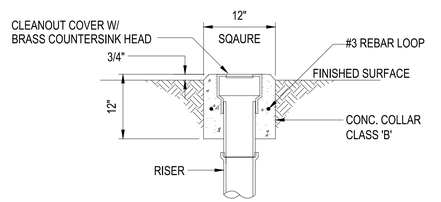
TYPICAL C.O.T.G. CONSTRUCTION

C CLEANOUT TO GRADE (C.O.T.G.)

SCALE: NOT TO SCALE



NON-TRAFFIC RATED C.O.T.G. COVER IN CONC. WALKWAYS



NON-TRAFFIC RATED C.O.T.G. COVER IN LAWN AREAS

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Hawai`i | Las Vegas

YEN WEN FANG
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/26
No. 9361-C
HAWAII, U.S.A.

CIVIL DETAILS

DATE: OCTOBER 2025
REV. REV. REV.

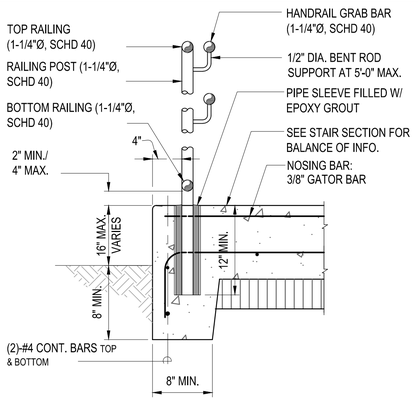
KONA COMMUNITY HOSPITAL
WASTEWATER TREATMENT SYSTEM UPGRADE
NORTH KONA, HAWAI`I
TMK: (3) 7-9-010 : 081

DRAWN BY:	DESIGNED BY:
AEG	MV/RDC
CHECKED BY:	QC'D BY:
TN	YWF

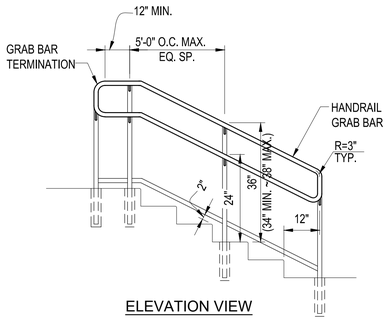
JOB NO. 12022-22-01

DWG. NO. C-401

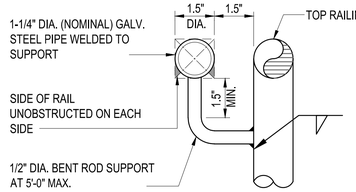
SHEET NO. 12 OF 15



RAILING POST EMBEDMENT

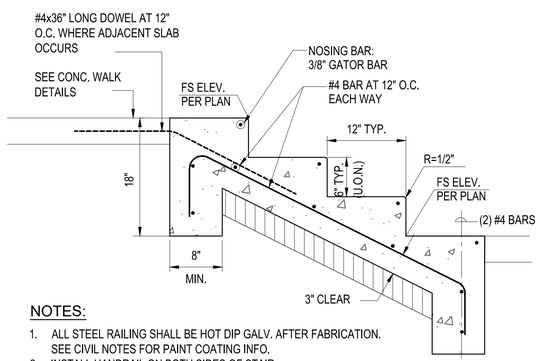


ELEVATION VIEW



1. ALL STEEL RAILING SHALL BE HOT DIP GALV. AFTER FABRICATION. SEE CIVIL NOTES FOR PAINT COATING INFO.
2. INSTALL HANDRAIL ON BOTH SIDES OF STAIR
3. POST, TOP RAILING, & BOTTOM RAILING, MAY BE SUBSTITUTED WITH 1-1/2" x 1-1/2" SQUARE HSS

PIPE GRAB BAR



NOTES:

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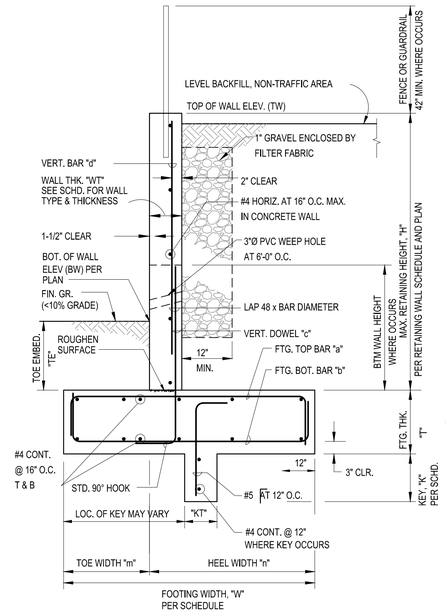
2. INSTALL HANDRAIL ON BOTH SIDES OF STAIR
3. POST, TOP RAILING, & BOTTOM RAILING, MAY BE SUBSTITUTED WITH 1-1/2" x 1-1/2" SQUARE HSS

STAIR'S SECTION

F CONCRETE STAIRS

SCALE: NOT TO SCALE

RETAINING WALL SCHEDULE												
MAXIMUM RETAINING HEIGHT "H"	FOOTING								WALL			REMARKS
	WIDTH "W"	TOE WIDTH "m"	HEEL WIDTH "n"	FTG. THK. "T"	KEY THK. "KT"	KEY DEPTH "K"	TOP BAR "a"	BTM. BAR "b"	WALL THK. "WT"	VERT. DOWEL "c"	VERT. BAR "d"	
10'-0"	8'-0"	2'-0"	6'-0"	16"	12"	24"	#5 AT 8"O.C.	#6 AT 8"O.C.	10" CONC.	#6@6"	#5@12"	BTM RC WALL UP TO 4'-0" HIGH
8'-0"	5'-6"	1'-0"	4'-6"	12"	12"	16"	#5 AT 8"O.C.	#5 AT 8"O.C.	8" CMU/ 10"CONC.	#5@8"	#5@16"	BTM RC WALL UP TO 4'-0" HIGH
6'-0"	4'-3"	1'-0"	3'-3"	16"	12"	12"	#6 AT 8"O.C.	#5 AT 8"O.C.	8"/12" CMU	#6@24"	#4@24"	12" CMU UPTO 3'-4" HIGH
4'-0" OR LOWER	3'-4"	1'-0"	2'-4"	14"	6"	6"	#4 AT 6"O.C.	#4 AT 6"O.C.	8" CMU.	#5@24"	#5@24"	

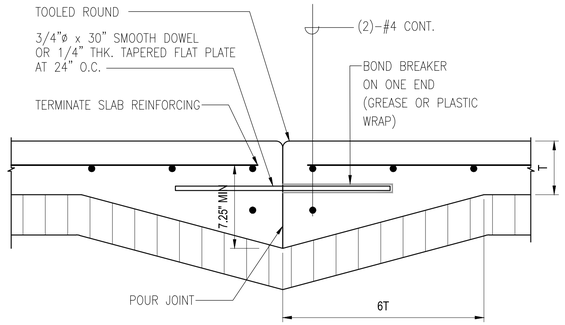


DESIGN ASSUMPTIONS

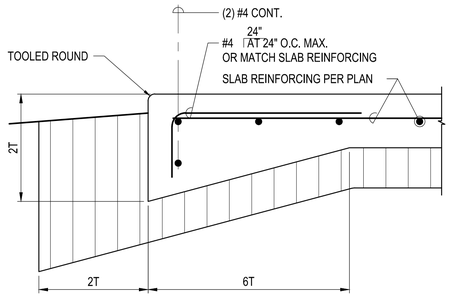
1. The Retaining Wall design was based on the following assumed soil design parameters as stated below, in the absence of a soils investigation report.
   - Allowable Soil Bearing Pressure = 2000 PSF
   - Allowable Passive Earth Resistance = 250 PCF
   - Frictional Resistance = 0.40X Dead Load
   - Equivalent Active Soil Pressure = 45 PCF
2. Additional Lateral Loads are also considered in the design:
   - Traffic Surcharge Load at Heel = 0 PSF
   - Seismic Kh = 0.2
   - Water Saturation behind wall = 0 feet high
3. Special Inspection is required for all CMU and Concrete Retaining Walls.
4. Minimum Steel Yield Strength, Fy = 60 KSI for #5 and larger, Fy = 40 KSI for #4 and smaller.
5. Minimum Masonry Compressive Strength, Fm = 1500 PSI.
6. Grout Strength, f'c = 2000 PSI
   All CMU walls are fully grouted.
7. Minimum Concrete Compressive Strength, f'c = 3000 PSI
8. Footing shall be poured against weathered basaltic rock or compacted subgrade.

B SITE RETAINING WALL - LEVEL BACK, NON-TRAFFIC AREA

SCALE: NOT TO SCALE



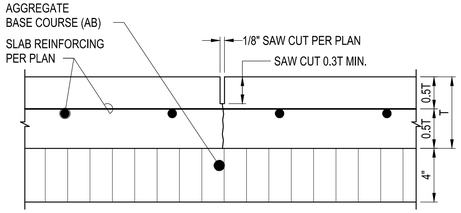
CONC. PAV'T CONST. JOINT (CJ)



CONCRETE PAVEMENT EDGE

A CONCRETE DRIVEWAY

SCALE: NOT TO SCALE



NOTES:

UNLESS OTHERWISE NOTED, MINIMUM THICKNESS OF CONCRETE PAVEMENT, T, SHALL BE 6 INCHES.

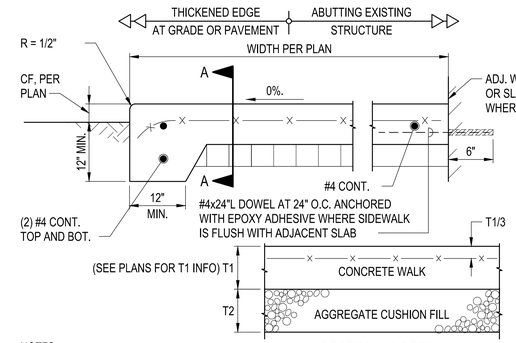
U.O.N. MINIMUM CONCRETE COMPRESSIVE STRENGTH, F'c, SHALL BE 3,000 PSI.

U.O.N. MINIMUM CONCRETE PAVEMENT REINFORCING SHALL BE #4 BARS AT 24" O.C., MIN. fy = 40 KSI.

COMPACTION OF THE SUBGRADE, SUBBASE, AND A.B. MUST BE OBSERVED AND CERTIFIED BY THE GEOTECHNICAL ENGINEER. WHERE THERE IS NO GEOTECHNICAL ENGINEER AVAILABLE, COMPACTION MAY BE DONE BY MAKING A MINIMUM OF EIGHT (8) PASSES WITH A D-9 DOZER OR EQUIVALENT.

CCJ SHALL BE CUT IN A SQUARE PATTERN WITH MAXIMUM SPACING AS FOLLOWS: (T = 4", 8' O.C.), (T = 5:, 10' O.C.), (T = 6", 12' O.C.)

CRACK CONTROL JOINT (CCJ)



SECTION A-A DETAIL

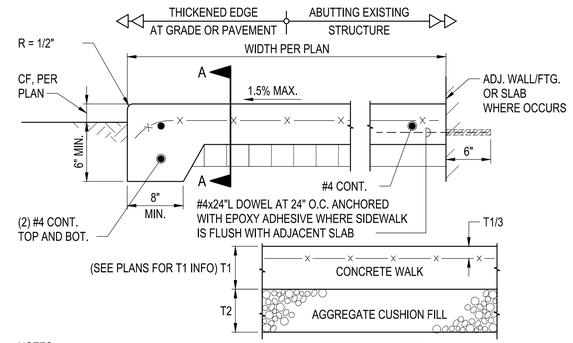
NOTES:

U.O.N. MINIMUM REQUIREMENTS SHALL BE:

1. CONCRETE SHALL BE CLASS "B". T1 = 5"
2. AGGREGATE CUSHION FILL SHALL BE ASTM C33 NO. 67. T2 = 4"
3. REINFORCING SHALL BE GALVANIZED 6"x6" 10/10 (6"x6" W1.4xW1.4) WWM.
4. #4 BARS MAY BE SUBSTITUTED WITH 3/8" GATORBAR

E TYPICAL CONCRETE EQUIPMENT PAD

SCALE: NOT TO SCALE



SECTION A-A DETAIL

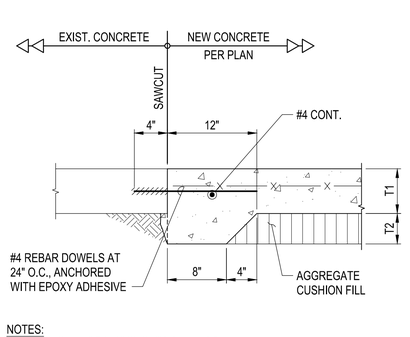
NOTES:

U.O.N. MINIMUM REQUIREMENTS SHALL BE:

1. CONCRETE SHALL BE CLASS "B". T1 = 4"
2. AGGREGATE CUSHION FILL SHALL BE ASTM C33 NO. 67. T2 = 4"
3. REINFORCING SHALL BE GALVANIZED 6"x6" 10/10 (6"x6" W1.4xW1.4) WWM.
4. #4 BARS MAY BE SUBSTITUTED WITH 3/8" GATORBAR

D TYPICAL CONCRETE WALK DETAIL

SCALE: NOT TO SCALE



NOTES:

U.O.N. MINIMUM REQUIREMENTS SHALL BE:

1. CONCRETE SHALL BE CLASS "B", T1 => 4"
2. AGGREGATE CUSHION FILL SHALL BE ASTM C33 NO. 67. T2 => 4"
3. REINFORCING SHALL BE GALVANIZED 6"x6" 10/10 (6"x6" W1.4xW1.4) WWM.
4. EPOXY ADHESIVE SHALL BE SIMPSON SET-XP OR APPROVED EQUAL

C NEW CONCRETE TO EXIST. CONCRETE

SCALE: NOT TO SCALE

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Exp. 04/30/26
No. 9361-C
HAWAII, U.S.A.

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

SIGNATURE

CIVIL DETAILS

DATE: OCTOBER 2025
REV.
REV.
REV.

KONA COMMUNITY HOSPITAL
WASTEWATER TREATMENT
SYSTEM UPGRADE
NORTH KONA, HAWAI`I
TMK: (3) 7-9-010 : 081

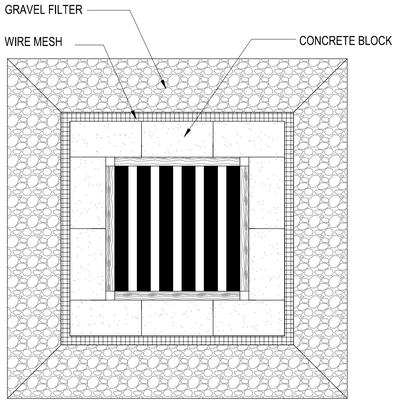
DRAWN BY:	DESIGNED BY:
AEG	MV/RDC
CHECKED BY:	QC'D BY:
TN	YWF

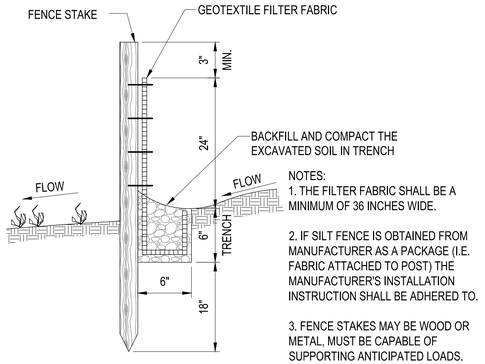
JOB NO. 12022-22-01

DWG. NO. C-402

SHEET NO. 13 OF 15

10/22/2025, 3:28 pm
D:\RDC\EPI\12022-22-01_KCH_WWTS UPGRADE\WORKING\C-401_CIVIL DETAILS.DWG



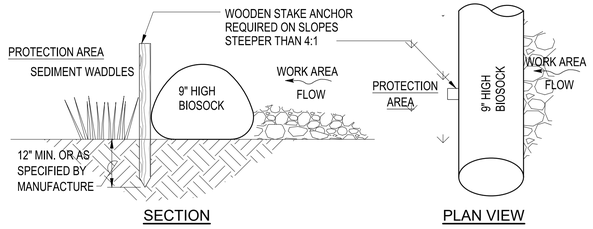


NOTES:
1. THE FILTER FABRIC SHALL BE A MINIMUM OF 36 INCHES WIDE.

2. IF SILT FENCE IS OBTAINED FROM MANUFACTURER AS A PACKAGE (I.E. FABRIC ATTACHED TO POST) THE MANUFACTURER'S INSTALLATION INSTRUCTION SHALL BE ADHERED TO.

3. FENCE STAKES MAY BE WOOD OR METAL, MUST BE CAPABLE OF SUPPORTING ANTICIPATED LOADS.

4 SILT FENCE DETAIL
SCALE: NOT TO SCALE



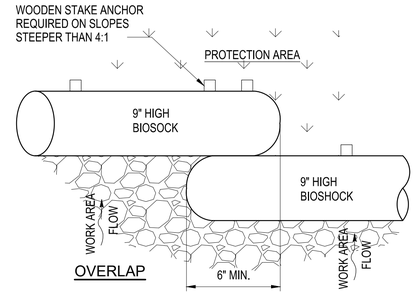
SECTION

PLAN VIEW

*WOOD ANCHOR STAKES SHALL HAVE A NOMINAL CLASSIFICATION OF 3/4" BY 3/4" AND MINIMUM LENGTH OR 24 INCHES. DO NOT USE REBAR OR OTHER METAL RODS

NOTE
PRODUCT SHOWN IS A PRODUCT OF HAWAII BIOSOCKS. PRODUCT MAY BE A PRODUCT OF HAWAII BIOSOCKS OR APPROVED EQUAL

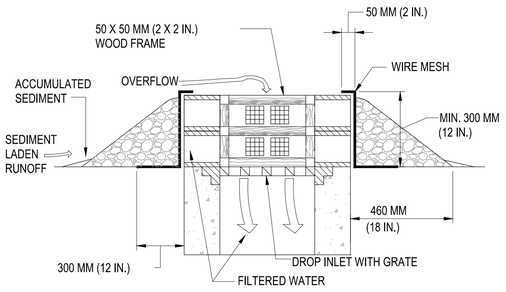
1 TYPICAL BIOSOCK INSTALLATION
SCALE: NOT TO SCALE



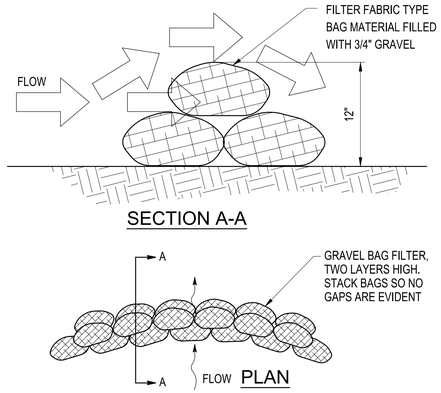
OVERLAP

WOODEN STAKE ANCHOR SPACING

SLOPE GRADIENT	ANCHOR SPACING
<4:1	NOT REQUIRED
4:1 TO 3:1	10' ON CENTER
>3:1 TO 2:1	5' T0 10' ON CENTER
>2:1	5' ON CENTER



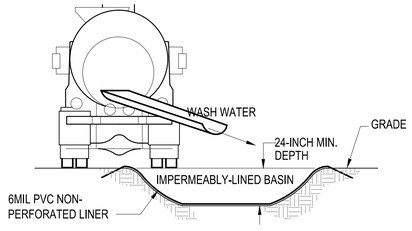
7 DRYWELL AND GRATED INLET PROTECTION
SCALE: NOT TO SCALE



SECTION A-A

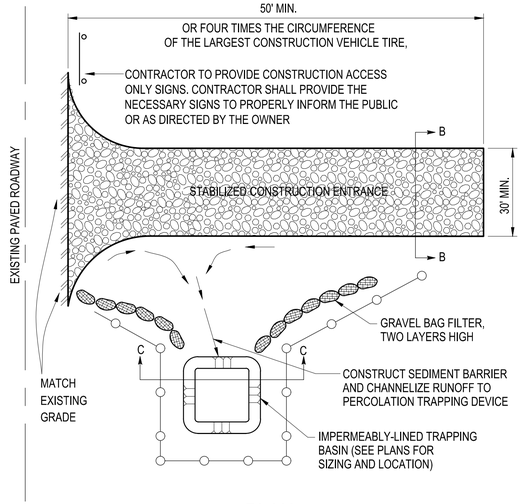
PLAN

5 GRAVEL BAG FILTER
SCALE: NOT TO SCALE



SECTION A-A
NTS

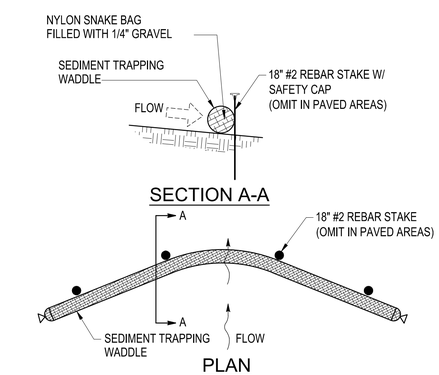
3 CONCRETE TRUCK DRUM/CHUTE WASH WATER SEDIMENT BASIN
SCALE: NOT TO SCALE



PLAN
NTS

DRY SWEEP VEHICLES TO PREVENT TRACKING DEBRIS ONTO PAVEMENT

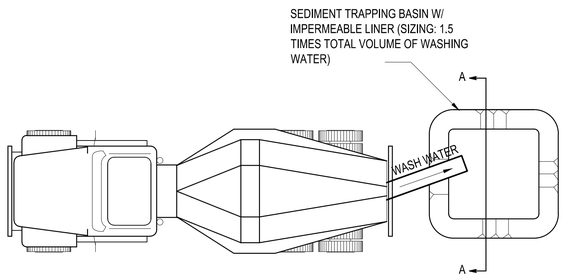
2 STABILIZED CONST. ENTRANCE
SCALE: NOT TO SCALE



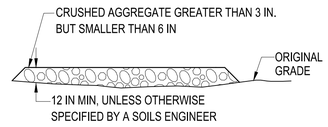
SECTION A-A

PLAN

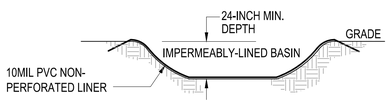
6 STAKED SEDIMENT WADDLE
SCALE: NOT TO SCALE



PLAN
NTS



SECTION B-B
NTS



SECTION C-C
NTS

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Hilo Hawai`i 96720
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YEN WEN FANG
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TMK: (3) 7-9-010 : 081

DRAWN BY:	DESIGNED BY:
AEG	RDC
CHECKED BY:	QC'D BY:
OH	YWF

JOB NO. 12022-22-01

DWG. NO. C-501

SHEET NO. 14 OF 15

SITE SPECIFIC CONSTRUCTION BMP CONTROL MEASURES

CONSTRUCTION ACTIVITIES

SITE IMPROVEMENT FOR THE CONSTRUCTION OF CONEN'S FREIGHT TRANSPORT. INFRASTRUCTURE TO SUPPORT THE PROPOSED IMPROVEMENTS INCLUDES AC PAVING, UTILITY CONSTRUCTION, AND SITE GRADING.

ALL CONSTRUCTION ACTIVITY WILL INCORPORATE THESE BMPS WITHOUT MODIFICATION. CONSTRUCTION SITE MANAGER WILL CONDUCT A SITE INSPECTION DAILY FOR ANY POTENTIAL POLLUTION SOURCES. ALL EQUIPMENT STORED ONSITE SHALL BE IN GOOD WORKING ORDER WITH NO FUEL, OIL, TRANSMISSION FLUID, OR HYDRAULIC LEAKS. ANY EQUIPMENT FOUND TO BE FAULTY SHALL BE REPAIRED IMMEDIATELY WITH NECESSARY BMP PRECAUTIONS TAKEN TO PREVENT AND CONTAIN STORM WATER CONTAMINATION. EQUIPMENT WHICH CANNOT BE REPAIRED WITHIN THE SAME WORKING DAY, SHALL BE REMOVED FROM THE SITE TO AN APPROPRIATE REPAIR FACILITY.

CONSTRUCTION EQUIPMENT INCLUDES; DOZER, EXCAVATOR, LOADER, DUMP TRUCKS, CONCRETE TRUCKS, DRUM ROLLER/COMPACTOR, ETC.

QUALITY OF DISCHARGE

THE EXISTING SOIL IS OPIHAKAO-URBAN LAND COMPLEX. THE SITE IS MOSTLY PAVED THAT HAS POOR VEGETAL COVER. THERE ARE STORM WATER MANAGEMENT FACILITIES EXIST ON THE SITE. DISCHARGE DURING CONSTRUCTION WILL BE CONTROLLED BY BIOSOCKS, AND GRAVEL BAG FILTERS.

CONTROL FOR LAND DISTURBANCES

THE GENERAL CONTRACTOR SHALL COMPLY WITH THE SPECIAL CONDITIONS FOR LAND DISTURBANCES (FROM HAR, CHAPTER 11-55, APPENDIX C). REFER TO THE "NOTES ON CONTROLS FOR LAND DISTURBANCES" ON THIS SHEET.

EROSION AND SEDIMENT CONTROL REQUIREMENTS

THE CONTRACTOR SHALL HAVE THE COUNTY APPROVED GRADING PERMIT AVAILABLE FOR INSPECTION 30 DAYS BEFORE THE START OF CONSTRUCTION ACTIVITIES.

POTENTIAL POLLUTANTS

REMOVED VEGETATION AND OTHER DEBRIS WILL BE DISPOSED OF AT THE EAST HAWAII SANITARY LANDFILL. DEBRIS WILL BE TEMPORARILY STORED IN THE STOCKPILE AND STORAGE AREA AS SHOWN ON THE PLANS. THE STOCKPILE AND EQUIPMENT/VEHICLE STORAGE AREA IS PROTECTED BY STACKED GRAVEL BAG FILTERS.

NO FUEL, OIL, OR HYDRAULIC FLUID SHALL BE STORED ONSITE. FUELING OR FIELD MAINTENANCE OF EQUIPMENT SHALL BE PERFORMED WITHIN VEHICLE STORAGE AREA. THE VEHICLE STORAGE AREA IS PROTECTED WITH A GRAVEL BAG CONTAINMENT BERM. DRIP PANS WILL BE PLACED UNDER VEHICLES ONSITE WHILE NOT IN USE. IN THE EVENT OF A SPILL OR LEAK FROM EQUIPMENT, THE FLOW OF FUEL WILL BE STOPPED AND ALL SOURCES OF IGNITION WILL BE REMOVED. THE SPILL WILL BE CONTAINED BY PLACING SAND BAGS AROUND THE SPILL AREA. THE CONTAMINATED EARTH WILL BE PLACED IN CONTAINERS. IN THE CASE OF PONDING FUEL, A HAZARDOUS MATERIALS VACUUM TRUCK WILL REMOVE THE FUEL.

DISTURBED AREAS WILL BE PROTECTED WITH BIOSOCKS, AND GRAVEL BAG FILTERS.

PRODUCT SPECIFICATIONS FOR BMPS

FILTER FABRIC SHALL BE: 8.0 OZ./SQ. YD. GEOTEXTILE
GRAVEL FILTER SHALL BE: 3/4" FOR GRAVEL FILTER BAGS

CONSTRUCTION SCHEDULE

CONTRACTOR SELECTION DATE:	TBD
CONSTRUCTION WILL BEGIN:	TBD
CONSTRUCTION WILL END:	TBD

BMPS WILL BE IMPLEMENTED FROM THE FIRST DAY OF CONSTRUCTION AND WILL BE REMOVED WHEN ALL CIVIL WORK ITEMS ARE COMPLETE AND VEGETATION COVER IS REESTABLISHED.

ALL MAJOR CONSTRUCTION ACTIVITIES WILL PROCEED IN A LOGICAL SEQUENCE. MAJOR CONSTRUCTION ACTIVITIES WILL BE CONCURRENT WHEN APPROPRIATE.

CONSTRUCTION TIMETABLE

SITE GRADING	2 MONTHS
UTILITY INSTALLATION	2 MONTHS
A.C. PAVEMENT	3 MONTHS

THE FOLLOWING BMPS WILL BE IMPLEMENTED THE FIRST DAY OF CONSTRUCTION

STABILIZED CONSTRUCTION ENTRANCE

VEHICLE/EQUIPMENT WASH W/ SEDIMENT BASIN W/ IMPERMEABLE LINER

VEHICLE/EQUIPMENT STORAGE AREA

GRAVEL BAG FILTERS OR BIOSOCK

NOTES ON CONTROLS FOR LAND DISTURBANCES

HAR CHAPTER 11-55 APPENDIX C REQUIREMENTS

THE FOLLOWING SPECIAL CONDITIONS APPLY TO ALL LAND DISTURBANCE WORK CONDUCTED UNDER THIS GENERAL PERMIT:

(A) CONSTRUCTION MANAGEMENT TECHNIQUES

(1) CLEARING AND GRUBBING SHALL BE HELD TO THE MINIMUM NECESSARY FOR GRADING AND EQUIPMENT OPERATION.

(2) CONSTRUCTION SHALL BE SEQUENCED TO MINIMIZE THE EXPOSURE TIME OF THE CLEARED SURFACE AREA.

(3) CONSTRUCTION SHALL BE STAGED OR PHASED FOR LARGE PROJECTS. AREAS OF ONE PHASE SHALL BE STABILIZED BEFORE ANOTHER PHASE IS INITIATED. STABILIZATION SHALL BE ACCOMPLISHED BY TEMPORARILY OR PERMANENTLY PROTECTING THE DISTURBED SOIL SURFACE FROM RAINFALL IMPACTS AND RUNOFF.

(4) EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE AND FUNCTIONAL BEFORE EARTH MOVING OPERATIONS BEGIN. THESE MEASURES SHALL BE PROPERLY CONSTRUCTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.

(5) ALL CONTROL MEASURES SHALL BE CHECKED AND REPAIRED AS NECESSARY, FOR EXAMPLE, WEEKLY IN DRY PERIODS AND WITHIN 24 HOURS AFTER ANY RAINFALL OF 0.5 INCHES OR GREATER WITHIN A 24-HOUR PERIOD. DURING PROLONGED RAINFALL, DAILY CHECKING IS NECESSARY. THE PERMITTEE SHALL MAINTAIN RECORDS OF CHECKS AND REPAIRS.

(6) THE PERMITTEE SHALL MAINTAIN RECORDS OF THE DURATION AND ESTIMATED VOLUME OF STORM WATER DISCHARGE(S).

(7) A SPECIFIC INDIVIDUAL SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS ON EACH PROJECT SITE.

(B) VEGETATION CONTROLS

(1) PRE-CONSTRUCTION VEGETATIVE GROUND COVER SHALL NOT BE DESTROYED, REMOVED OR DISTURBED MORE THAN TWENTY CALENDAR DAYS PRIOR TO LAND DISTURBANCE.

(2) TEMPORARY SOIL STABILIZATION WITH APPROPRIATE VEGETATION SHALL BE APPLIED ON AREAS THAT WILL REMAIN UNFINISHED FOR MORE THAN THIRTY CALENDAR DAYS.

(3) PERMANENT SOIL STABILIZATION WITH PERENNIAL VEGETATION OR PAVEMENT SHALL BE APPLIED AS SOON AS PRACTICAL AFTER FINAL GRADING. IRRIGATION AND MAINTENANCE OF THE PERENNIAL VEGETATION SHALL BE PROVIDED FOR UNTIL THE VEGETATION TAKES ROOT.

(C) STRUCTURAL CONTROLS

(1) STORM WATER FLOWING TOWARD THE CONSTRUCTION AREA SHALL BE DIVERTED BY USING APPROPRIATE CONTROL MEASURES, AS PRACTICAL.

(2) EROSION CONTROL MEASURES SHALL BE DESIGNED ACCORDING TO THE SIZE OF DISTURBED OR DRAINAGE AREAS TO DETAIN RUNOFF AND TRAP SEDIMENT.

(3) WATER MUST BE DISCHARGED IN A MANNER THAT THE DISCHARGE SHALL NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE BASIC WATER QUALITY CRITERIA AS SPECIFIED IN SECTION 11-54-04.

BMP CONSTRUCTION NOTES

(ORDER OF PRECEDENCE FOR INSTALLATION)

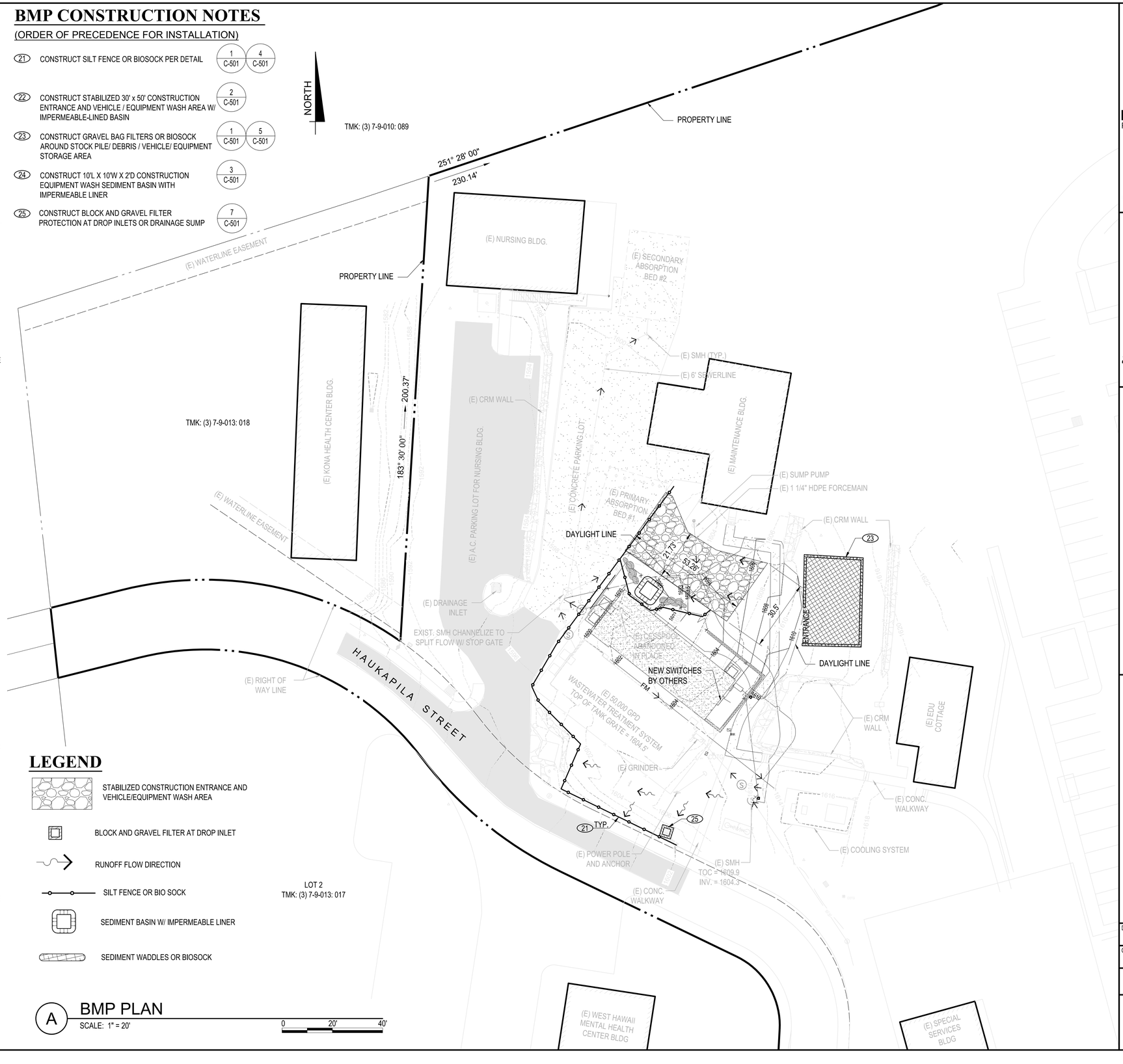
21 CONSTRUCT SILT FENCE OR BIOSOCK PER DETAIL — 1/C-501, 4/C-501

22 CONSTRUCT STABILIZED 30' x 50' CONSTRUCTION ENTRANCE AND VEHICLE / EQUIPMENT WASH AREA W/ IMPERMEABLE-LINED BASIN — 2/C-501

23 CONSTRUCT GRAVEL BAG FILTERS OR BIOSOCK AROUND STOCK PILE/ DEBRIS / VEHICLE/ EQUIPMENT STORAGE AREA — 1/C-501, 5/C-501

24 CONSTRUCT 10'L X 10'W X 2'D CONSTRUCTION EQUIPMENT WASH SEDIMENT BASIN WITH IMPERMEABLE LINER — 3/C-501

25 CONSTRUCT BLOCK AND GRAVEL FILTER PROTECTION AT DROP INLETS OR DRAINAGE SUMP — 7/C-501



LEGEND

- STABILIZED CONSTRUCTION ENTRANCE AND VEHICLE/EQUIPMENT WASH AREA
- BLOCK AND GRAVEL FILTER AT DROP INLET
- RUNOFF FLOW DIRECTION
- SILT FENCE OR BIO SOCK
- SEDIMENT BASIN W/ IMPERMEABLE LINER
- SEDIMENT WADDLES OR BIOSOCK

A BMP PLAN
SCALE: 1" = 20'
0 20' 40'

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YEN WEN FANG
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No. 9361-C
HAWAII, U.S.A.

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

SIGNATURE

BMP PLAN

DATE: OCTOBER 2025
REV. REV. REV.
REV. REV. REV.

KONA COMMUNITY HOSPITAL
WASTEWATER TREATMENT SYSTEM UPGRADE
NORTH KONA, HAWAI`I
TMK: (3) 7-9-010 : 081

DRAWN BY:	DESIGNED BY:
AEG	RDC
CHECKED BY:	QC'D BY:
OH	YWF

JOB NO. 12022-22-01

DWG. NO. C-502

SHEET NO. 15 OF 15

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GENERAL ELECTRICAL SPECIFICATIONS

1. CONTRACTOR SHALL COMPLY WITH VERSION OF NFPA 70 CURRENTLY ADOPTED AND ENFORCED BY THE AUTHORITY HAVING JURISDICTION.
2. DO NOT SCALE DRAWINGS. VERIFY DIMENSIONS IN FIELD PRIOR TO BID.
3. THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE. ROUTE CONDUITS AND LOCATE EQUIPMENT BASED ON THE INTENT IDENTIFIED ON DRAWINGS, MODIFY TO SUITE FIELD CONDITIONS. PROVIDE ALL CONDUITS, FITTINGS, BOXES, WIRING, CONDUIT SEALS, ETC., AS REQUIRED FOR COMPLETION OF THE RACEWAY SYSTEM IN COMPLIANCE WITH THE NEC AND THE CONTRACT DOCUMENTS.
4. FINAL CONNECTIONS & ROUGH-IN REQUIREMENTS TO EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
5. CONTRACTOR SHALL REVIEW DRAWINGS AND SPECIFICATIONS BY ALL OTHER DIVISIONS. ELECTRICAL WORK NOTED OR OTHERWISE REQUIRED UNDER OTHER DIVISIONS SHALL BE REVIEWED AND INCLUDED UNDER THE ELECTRICAL CONTRACTOR'S SCOPE.
6. CONTRACTOR SHALL VISIT SITE AND VERIFY EXISTING CONDITIONS PRIOR TO BID. ALL COSTS REQUIRED TO ACCOMMODATE EXISTING CONDITIONS SHALL BE INCLUDED IN THE CONTRACTOR'S BID. NO ADDITIONAL ALLOWANCE AFTER BID WILL BE CONSIDERED DUE TO LACK OF SUCH DUE DILIGENCE OR FIELD EXAMINATION.
7. WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.
8. WORK, MATERIALS AND EQUIPMENT SHALL CONFORM TO THE LATEST EDITIONS OF LOCAL, STATE AND NATIONAL CODES AND ORDINANCES, OR THOSE CURRENTLY ADOPTED BY THE LOCAL JURISDICTION.
9. ALL ELECTRICAL SYSTEMS COMPONENTS SHALL BE LISTED OR LABELED BY U.L. OR OTHER RECOGNIZED TESTING FACILITY.
10. PROVIDE PERMITS AND INSPECTIONS REQUIRED.
11. PREPARE SUBMITTALS FOR ALL PRODUCTS TO BE FURNISHED BY THE CONTRACTOR, INCLUDING BUT NOT LIMITED TO EQUIPMENT, RACEWAYS AND BOXES, WIRING, LIGHT FIXTURES, AND SIMILAR ITEMS. SHOULD CONTRACTOR PROCEED WITH ORDERING OR INSTALLING PRODUCTS PRIOR TO SUBMITTAL REVIEW, ALL COSTS REQUIRED TO MODIFY OR REPLACE SUCH PRODUCTS SHALL BE BORNE BY THE CONTRACTOR. THE PROPOSED USE OF ITEMS SPECIFIED ON THESE DRAWINGS DOES NOT ALLEVIATE THE CONTRACTOR FROM ITS RESPONSIBILITY TO PREPARE SUBMITTALS.
17. SYSTEMS SHALL BE COMPLETE, OPERABLE AND READY FOR CONTINUOUS OPERATION. GUARANTEE THE INSTALLATION AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR. START OF GUARANTEE PERIOD SHALL COMMENCE AFTER 30 DAYS OF TROUBLE FREE OPERATION AFTER AFTER PROJECT ACCEPTANCE. DEFECTS SHALL BE PROMPTLY REMEDIED WITHOUT ADDITIONAL COST.
18. PROVIDE RECORD DRAWINGS AND ALL OTHER CLOSEOUT MATERIALS REQUIRED AS A PART OF THIS CONTRACT. RECORD DRAWINGS SHALL INCLUDE ALL ADDENDUM ITEMS, CHANGE ORDERS, ALTERATIONS, REROUTINGS, ETC.
19. VERIFY EXACT LOCATION AND ELECTRICAL CHARACTERISTICS OF EQUIPMENT TO BE FURNISHED BY OTHER DISCIPLINES PRIOR TO ROUGH-IN.
20. SYSTEMS SHALL BE TESTED FOR PROPER OPERATION. IF TESTS SHOW THAT WORK IS DEFECTIVE, CONTRACTOR SHALL MAKE CORRECTIONS NECESSARY AT NO ADDITIONAL COST.
21. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING EQUIPMENT WHICH IS DAMAGED DUE TO INCORRECT FIELD WIRING PROVIDED UNDER THIS SECTION OR FACTORY WIRING IN EQUIPMENT PROVIDED UNDER THIS SECTION.
22. CONTRACTOR'S FAILURE TO ORDER OR RELEASE ORDER FOR MATERIALS AND/OR EQUIPMENT WILL NOT BE ACCEPTED AS A REASON TO SUBSTITUTE ALTERNATE MATERIALS OR EQUIPMENT.
23. PENETRATIONS OF FIRE RATED WALLS OR FLOORS BY PIPE SHALL BE SEALED BY A FIRESTOPPING SYSTEM UL LISTED FOR THE APPLICATION. INSTALL PENETRATION SEAL MATERIALS IN ACCORDANCE WITH PRINTED INSTRUCTIONS OF THE UL FIRE RESISTANCE DIRECTORY AND MANUFACTURERS INSTRUCTIONS. FIRESTOPPING SYSTEM SHALL BE EQUAL TO 3M FIRE BARRIER. FIRESTOPPING MATERIAL SHALL BE CAULK OR PUTTY TYPE. FIRESTOP ALL PENETRATIONS THROUGH FIRE RATED WALLS AS REQUIRED TO PRESERVE THE FIRE RATING OF THE STRUCTURE.
24. PROTRUDING OBJECTS SHALL COMPLY WITH ADAAG 307. WALL MOUNTED FIXTURES OR SIMILAR WALL MOUNTED DEVICES SHALL NOT PROTRUDE MORE THAN 4" HORIZONTALLY INTO THE CIRCULATION PATH, OR OTHERWISE SHALL BE INSTALLED 80" MINIMUM TO THE BOTTOM OF THE FIXTURE.
25. WHERE PROJECT WORK INVOLVES COORDINATION WITH THE LOCAL UTILITY, IMMEDIATELY UPON AWARD OF CONTRACT CONTRACTOR SHALL CONTACT UTILITY TO ENSURE ALL UTILITY AGREEMENTS, PROPOSAL, AND UTILITY DRAWINGS ARE COMPLETE AND APPROVED. PROVIDE PROPOSED DATE OF ENERGIZING SERVICE IN ORDER TO FACILITATE PROPER SCHEDULING WITH THE UTILITY SERVICE.

ELECTRICAL ABBREVIATIONS

+18"	INDICATES MOUNTING HEIGHTS ARE TO CENTERLINE OF DEVICE AFF OR AFG	GND	GROUND
		HELCO	ELECTRICAL UTILITY COMPANY
AF	AMP FUSE (FOR FUSES), AMP FRAME (FOR CIRCUIT BREAKERS)	IWP	IN-USE WEATHER-PROOF (NEMA 3R)
		LO	LUGS ONLY (SEE ALSO MLO)
AFF	ABOVE FINISHED FLOOR	MCB	MAIN CIRCUIT BREAKER
AFG	ABOVE FINISHED GRADE	MLO	MAIN LUGS ONLY
AHJ	LOCAL AUTHORITY HAVING JURISDICTION	NEC	NATIONAL ELECTRICAL CODE, AS ADOPTED BY THE AHJ
AT	AMP TRIP	P	POLE
ATS	AUTOMATIC TRANSFER SWITCH	PFFB	PROVISION FOR FUTURE BREAKER
MTS	MANUAL TRANSFER SWITCH	PH	PHASE
C	CONDUIT	PNL	INDICATES PANEL
CONT	CONTINUATION	TYP	TYPICAL
CU	COPPER	UPS	UNINTERRUPTIBLE POWER SYSTEM
CW	COLD WATER PIPE	WP	WEATHER-PROOF (NEMA 3R)
FACP	FIRE ALARM CONTROL PANEL	XFMR	TRANSFORMER
AFCI	INDICATES ARC FAULT CIRCUIT INTERRUPTER WITH DEDICATED NEUTRAL	UNO	UNLESS NOTED OTHERWISE
		(D)	DEMOLITION
GFCI	GROUND FAULT CIRCUIT INTERRUPTER WITH DEDICATED NEUTRAL	(E)	EXISTING
		(N)	NEW
GFP	GROUND FAULT PROTECTION	(R)	RELOCATE/RELOCATED

ELECTRICAL SYMBOLS

(D) or — ELECTRICAL DEMOLITION. REMOVE EQUIPMENT AND APPURTENANCES IN THEIR ENTIRETY U.N.O. COORDINATE WORK RESTRICTIONS PRIOR TO DEMOLITION.

HOMERUN CONDUIT - STROKES INDICATE QUANTITY OF CONDUCTORS

CONDUIT/WIRE CONCEALED IN WALL OR ABOVE CEILING EXCEPT IN EXPOSED STRUCTURE AREAS 1/2"-2 #12 & 1 #12 GND THWN U.N.O.

CONDUIT AND/OR WIRE BELOW FLOOR OR GRADE 3/4"-2 #12 & 1 #12 GND THWN UNLESS NOTED

EXISTING CONDUIT AND/OR CONDUCTORS TO REMAIN (SHOWN LIGHT)

OVERHEAD POWER LINES

CONDUIT RISER UP/DOWN

CONDUIT STUB OUT

S^a_b — SINGLE POLE SWITCH @ +48" TO TOP UNLESS NOTED
a = DEVICE SWITCH IDENTIFICATION (LOWERCASE)

IF b:
F = 3 SPEED SWITCH; D = DIMMER SWITCH
2 = 2 POLE SWITCH; M = VACANCY SENSOR SWITCH
3 = 3-WAY SWITCH; T = THERMAL OVERLOAD SWITCH

SINGLE RECEPTACLE @ +18" TO CENTER UNLESS NOTED

WALL MOUNTED DUPLEX RECEPTACLE @ +18" TO CENTER U.N.O.
= RECEPTACLE PROTECTED BY GFCI BREAKER, OR GFCI TYPE RECEPTACLE INSTALLED PER NEC 210.8.
= DOUBLE DUPLEX RECEPTACLE
= 1/2 SWITCHED (BOTTOM HALF) DUPLEX RECEPTACLE

$\ominus^a_b$
IF a:
AV = AV RECEPTACLE
C = RECEPTACLE INSTALLED ABOVE COUNTER
H = RECEPTACLE INSTALLED HORIZONTALLY
T = TIMECLOCK RECEPTACLE
IG = ISOLATED GROUND TYPE (ORANGE) RECEPTACLE
IF b:
MOUNTING HEIGHT IN INCHES TO TOP OF RECEPTACLE

FLOOR MOUNT RECEPTACLE

CEILING MOUNT RECEPTACLE

SPECIAL RECEPTACLE @ +18" TO CENTER UNLESS NOTED

CEILING MOUNTED VACANCY SENSOR

IF a:
R = RELAY; CB = CIRCUIT BREAKER
C = CONTACTOR; TS = TIMESWITCH
P = POWER SUPPLY; PB = PUSH BUTTON TYPE CONTROL STATION

SURFACE MOUNTED PANELBOARD

FLUSH MOUNTED PANELBOARD

MAIN SWITCHBOARD, MOTOR CONTROL CENTER OR DISTRIBUTION BOARD

CONCRETE PULLBOX WITH HEAVY DUTY STEEL TRAFFIC COVER

UTILITY PULLBOX

TRANSFORMER (SIZE AND CLEARANCES BASED ON KVA RATING)

METER

NON-FUSED DISCONNECT SWITCH

FUSED DISCONNECT SWITCH

J^a — JUNCTION BOX, IF a:
FS = FIRE/SMOKE DAMPER CONNECTION
V = VARIABLE AIR VOLUME BOX CONNECTION
CF = CEILING FAN
S = SIGNAGE
WH = WATER HEATER

COMBINATION METER/MAIN

FUSIBLE SWITCH

SINGLE METER WITH CT,

CIRCUIT BREAKER

TRANSFORMER

MOTOR LOAD

AUTOMATIC TRANSFER SWITCH

GROUND BUS & GROUND ELECTRODES

GROUNDING BUSBAR

TV — TELEVISION OUTLET
(1) SERIES 6 COAX CABLE FROM TV TAP TO TV OUTLET

TV^x — TELEPHONE/DATA OUTLET
(X) 4-PAIR CAT-6 CABLES (TYPE 'H')
PROVIDE CORRESPONDING FACEPLATE WITH QTY OF PORTS AS REQUIRED, WHERE "X" INDICATED NUMBER OF PORTS.

HAWAII COUNTY ENERGY CODE 2021 IECC, HAWAII REVISED STATUTES HRS 107-24 TO 28
COMMERCIAL BUILDING ENERGY EFFICIENCY STANDARDS

I CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE, THIS PROJECTS DESIGN SUBSTANTIALLY CONFORMS TO THE BUILDING ENERGY EFFICIENCY STANDARDS PERTAINING TO THE COMMERCIAL PROVISIONS FOR ELECTRICAL & LIGHTING SYSTEMS (C405, & C408) OF THE 2021 IECC
STATE AMENDMENTS: UNAMENDED
COUNTY AMENDMENTS: PENDING
ELECTIVE USE OF 2021 CODES TO BEGIN 01/29/2025

COMPLIANCE METHOD			
X	2021 IECC AS AMENDED. MANDATORY AND PRESCRIPTIVE		
	2021 IECC AS AMENDED. MANDATORY AND TOTAL BUILDING PERFORMANCE		
	ASHRAE STANDARD 90.1-2019. MANDATORY AND PRESCRIPTIVE		
	ASHRAE STANDARD 90.1-2019. MANDATORY AND ENERGY COST BUDGET		
INFORMATION IN CONSTRUCTION DOCUMENTS		YES	N/A
INTERIOR LIGHTING			
OCCUPANT SENSOR CONTROLS	C405.2.1		X
TIME SWITCH CONTROLS	C405.2.2		X
LIGHT-REDUCTION CONTROLS	C405.2.3		X
DAYLIGHT RESPONSIVE CONTROLS	C405.2.4		X
DAYLIGHT ZONES ON PLANS	C405.2.4.2 & C405.2.4.3		X
GUEST ROOM CONTROLS	C405.2.5		X
INTERIOR LIGHTING FIXTURE SCHEDULE			X
INTERIOR LIGHTING POWER ALLOWANCES	C405.3.2		X
INTERIOR LIGHTING FIXTURE LOCATIONS			X
LIGHTING CONTROL FUNCTIONAL PERFORMANCE TESTING REQUIREMENT	C408.3		X
EXTERIOR LIGHTING			
EXTERIOR LIGHTING CONTROLS	C405.2.7		X
EXTERIOR LIGHTING FIXTURE SCHEDULE			X
EXTERIOR LIGHTING POWER ALLOWANCES	C405.5.2		X
EXTERIOR LIGHTING FIXTURE LOCATIONS			X
ELECTRICAL			
ELECTRICAL TRANSFORMER EFFICIENCY	C405.7		X
ELECTRICAL MOTOR EFFICIENCY	C405.8		X
VOLTAGE DROP LESS THAN 5%	C405.10	X	

NOTES:

SIGNATURE:
DATE: 10/06/2025
NAME: ELI B. WALTZ
TITLE: ELECTRICAL ENGINEER
LICENSE NO.: 18572-E

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ELI B. WALTZ — LICENSED PROFESSIONAL ENGINEER — Exp. 04/30/26 — No. 18572-E — HAWAII, U.S.A.

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

SIGNATURE

ELECTRICAL SYMBOLS, IECC & ABBREVIATIONS

DATE: SEPTEMBER 2025
REV.
REV.
REV.

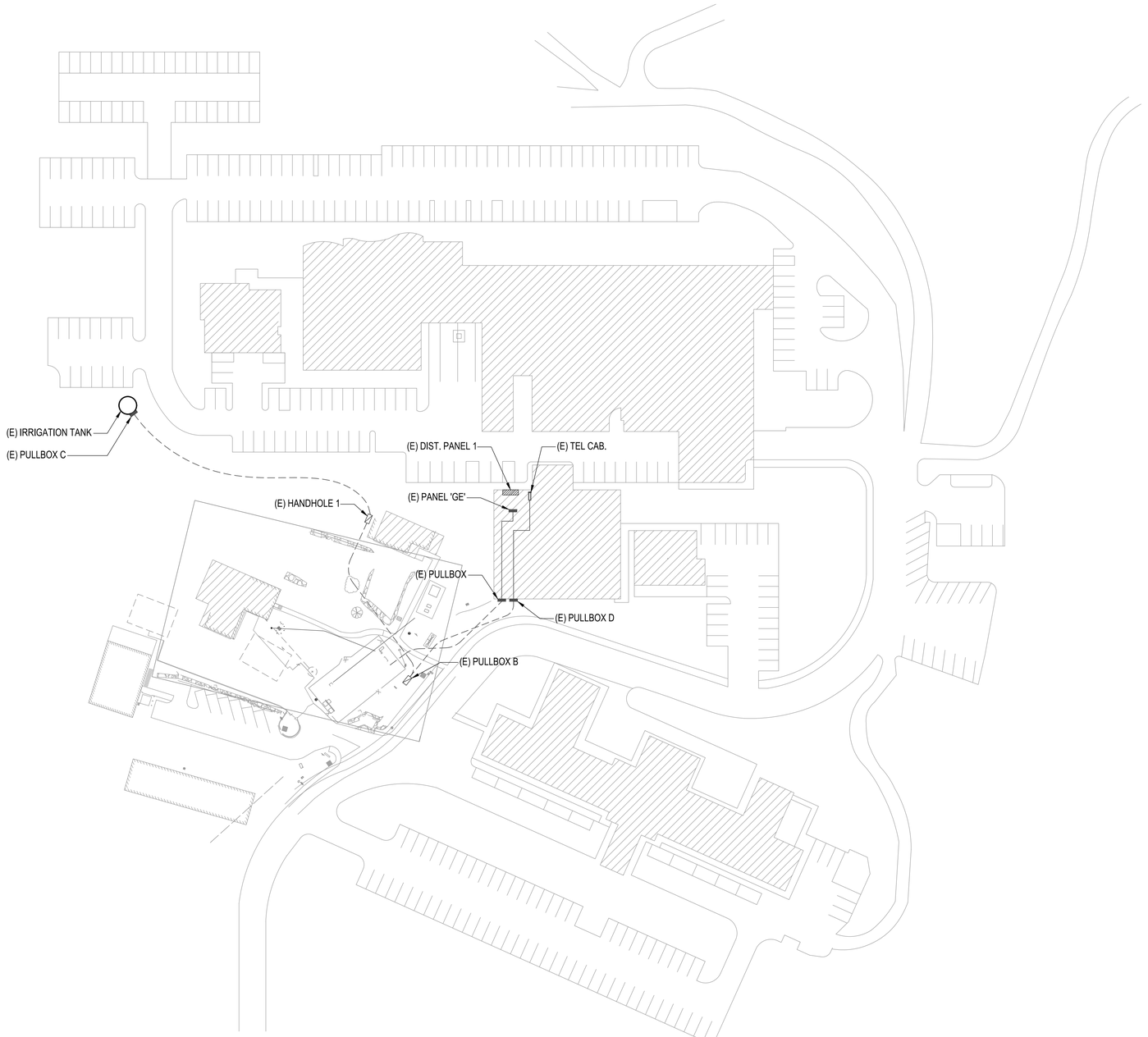
KONA COMMUNITY HOSPITAL
WASTEWATER TREATMENT SYSTEM UPGRADE
NORTH KONA, HAWAI'I
TMK: (3) 7-9-010 : 081

DRAWN BY:	DESIGNED BY:
CF	CF
CHECKED BY:	QC'D BY:
CF	EW

JOB NO. 12022-22-01

DWG. NO. E-001

SHEET NO. OF 7



A OVERALL ELECTRICAL SITE PLAN
SCALE: 1" = 40'
0 40' 80'
N

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SIGNATURE

OVERALL ELECTRICAL SITE PLAN

DATE: SEPTEMBER 2025
REV. REV. REV.
REV. REV.

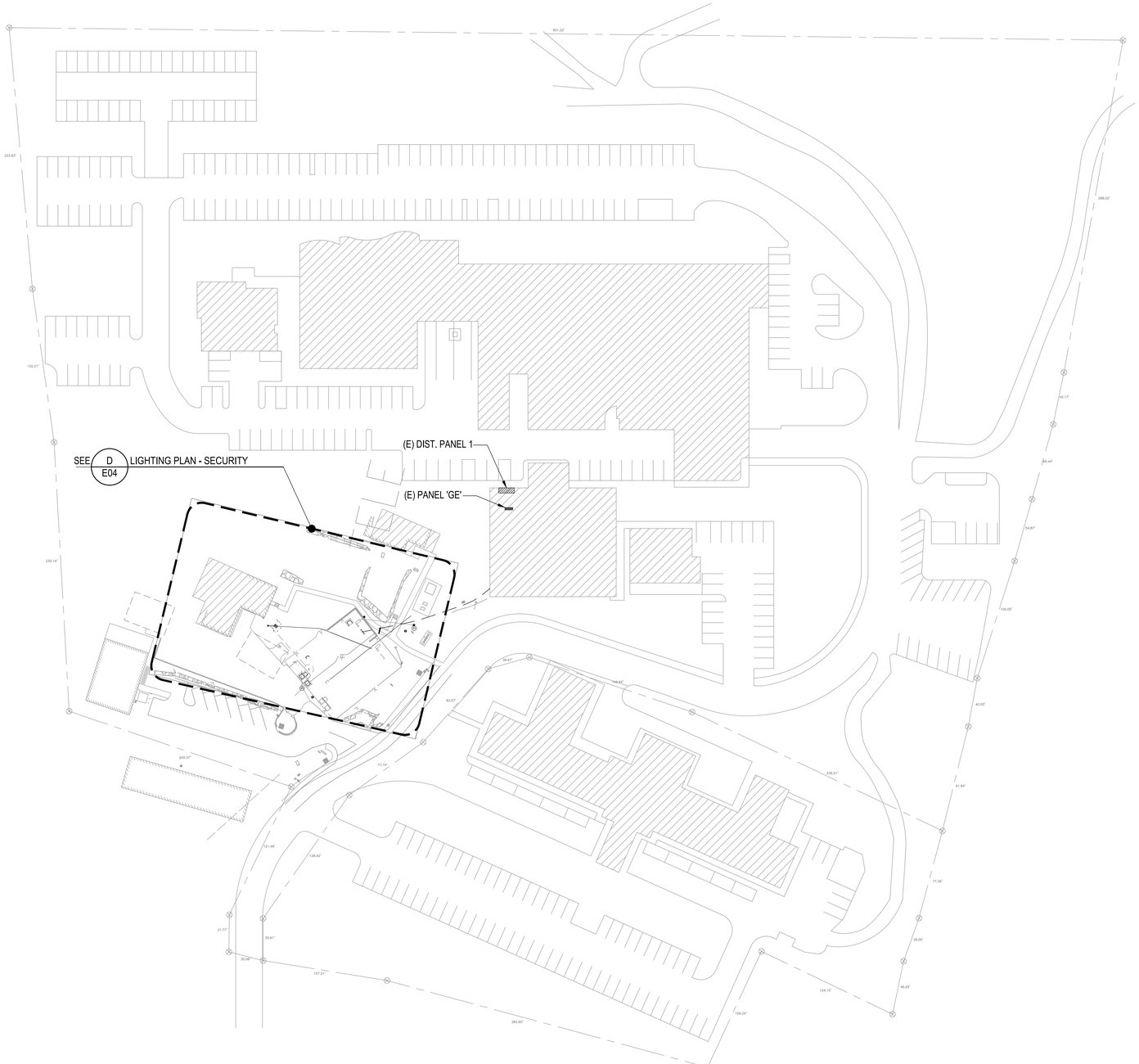
KONA COMMUNITY HOSPITAL
WASTEWATER TREATMENT
SYSTEM UPGRADE
NORTH KONA, HAWAI'I
TMK: (3) 7-9-010 : 081

DRAWN BY:	DESIGNED BY:
CF	CF
CHECKED BY:	QC'D BY:
CF	EW

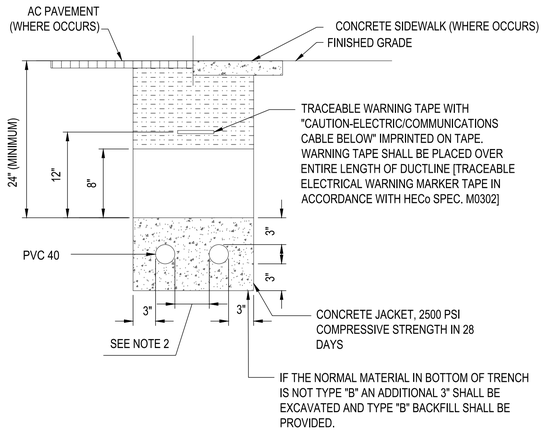
JOB NO.
12022-22-01

DWG. NO.
E-101

SHEET NO. OF 7



A OVERALL ELECTRICAL SITE PLAN
SCALE: 1" = 40'
0 40' 80'
N



BACKFILL:

TYPE "A" — NON-CONTAMINATED NATIVE SOIL MATERIAL WHICH DOES NOT CONTAIN MORE THAN 50% GRAVEL, AND ALSO, DOES NOT CONTAIN HARD LUMPS OF EARTH 3 INCHES IN GREATEST DIMENSION, ROCKS LARGER THAN 3 INCHES IN LARGEST DIMENSION, HIGHLY PLASTIC CLAY, POORLY-GRADED SAND AND GRAVEL (CLASSIFIED AS SP AND GP USING THE UNITED SOIL CLASSIFICATION SYSTEM), ORGANICS, DEBRIS, OR OTHER UNSUITABLE OR DELETERIOUS MATERIALS.

TYPE "B" — SELECT GRANULAR MATERIAL PASSING A ONE (1) INCH SIEVE SUCH AS THREE-QUARTERS (3/4) INCH AGGREGATE BASE COURSE GRAVEL, S4C OR MATERIAL THAT IS FREE OF ORGANICS DEBRIS OR HIGHLY-PLASTIC CLAY AND MEETS THE FOLLOWING GRADATION:

SIEVE SIZE	PERCENT PASSING BY WEIGHT
1"	100
3/4"	90-100
NO. 4	35-100
NO. 40	10-30
NO. 200	3-15

NOTES:

1. ELECTRICAL AND TELEPHONE DUCTS SIMILAR.
2. PROVIDE 1-1/2" SEPARATION BETWEEN DUCTS OF SAME SYSTEM AND 3" BETWEEN DUCTS OF DIFFERENT SYSTEMS
3. WHERE TRENCH ENCOUNTERS EXISITING CONCRETE OR ASPHALT CONCRETE, SURFACE SHALL BE SAWCUT. BACKFILL, COMPACT AND PATCH SURFACE TO MATCH ADJACENT AREA. SEE TRENCH RESTORATION DETAIL
4. SEE DUCT SECTION DETAILS FOR CONDUIT ARRANGEMENT

1 TYPICAL DUCT SECTION CONCRETE ENCASED
NO SCALE

ENGINEERING PARTNERS
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Hilo Hawai'i 96720
Main (808) 933-7900
www.epinc.pro
Hawai'i | Las Vegas

ELI B. WALTZ
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/26
No. 18572-E
HAWAII, U.S.A.

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

SIGNATURE

OVERALL ELECTRICAL SITE PLAN

DATE: SEPTEMBER 2025
REV. REV. REV.
REV. REV. REV.

KONA COMMUNITY HOSPITAL
WASTEWATER TREATMENT SYSTEM UPGRADE
NORTH KONA, HAWAI'I
TMK: (3) 7-9-010 : 081

DRAWN BY:	DESIGNED BY:
CF	CF
CHECKED BY:	QC'D BY:
CF	EW

JOB NO. 12022-22-01

DWG. NO. E-102

SHEET NO. OF 7

NOTICES

1. ALL FINAL LOCATIONS OF BLOWERS, FANS, FLOW METERS AND ELECTRICAL CONTROL PANELS SHALL BE DETERMINED IN FIELD AND CONFIRMED WITH WWTP MANUFACTURER.

NOTES

(1) PANEL IS NEMA 4X RATED AND PROVIDED UNDER WASTE WATER TREATMENT PACKAGE. PANEL IS PLC BASED.

(2) DISCONNECT SHALL BE 60A/3P, NEMA 4X.

(3) DISCONNECT SHALL BE 30A/3P, NEMA 4X.

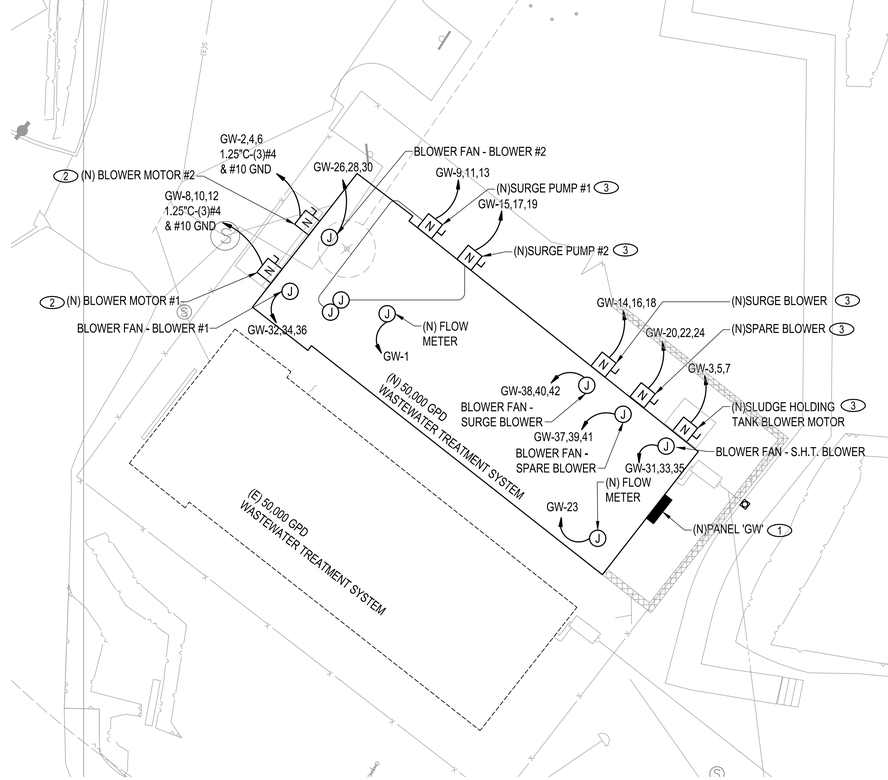
NOTICE OF HAZARDOUS LOCATIONS

ALL WORK WITHIN HAZARDOUS LOCATIONS SHALL COMPLY WITH APPLICABLE SECTIONS OF NFPA 820 AND NFPA 70 ARTICLE 500. THE FINAL REQUIREMENTS AND LOCATIONS FOR HAZARDOUS LOCATION SHALL BE BASED ON THE FINAL LOCATIONS OF PENETRATIONS DETERMINED IN FIELD. CONTRACTOR SHALL INCLUDE IN ITS BID ALL COSTS FOR MATERIALS AND INSTALLATION OF ELECTRICAL WORK WITHIN HAZARDOUS LOCATIONS.

FOR BID PURPOSES, THE FOLLOWING HAZARDOUS LOCATIONS ARE IDENTIFIED AS KEYED ON THIS DRAWING.

(1) ALL ELECTRICAL WORK WITHIN THE WET WELL, EXTENDING TO A POINT 3FT AROUND VENTS, SHALL BE CLASS I, GROUP D, DIVISION 1. ALL ELECTRICAL WORK UP TO 5FT BEYOND VENT PLUS ENVELOPE 18" EXTENDING 3FT AROUND OPENING (HATCHES, DOORS) SHALL BE CLASS I, GROUP D, DIVISION 2.

A EXISTING/ NEW ENLARGED ELECTRICAL PLAN
SCALE: 1" = 20'
0 20' 40'
N



B EXISTING/ NEW ENLARGED ELECTRICAL PLAN
SCALE: 1" = 10'
0 10' 20'
N

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EXISTING/NEW ENLARGED ELECTRICAL PLAN

DATE: SEPTEMBER 2025 REV. REV. REV. REV.

KONA COMMUNITY HOSPITAL
WASTEWATER TREATMENT SYSTEM UPGRADE
NORTH KONA, HAWAI'I
TMK: (3) 7-9-010 : 081

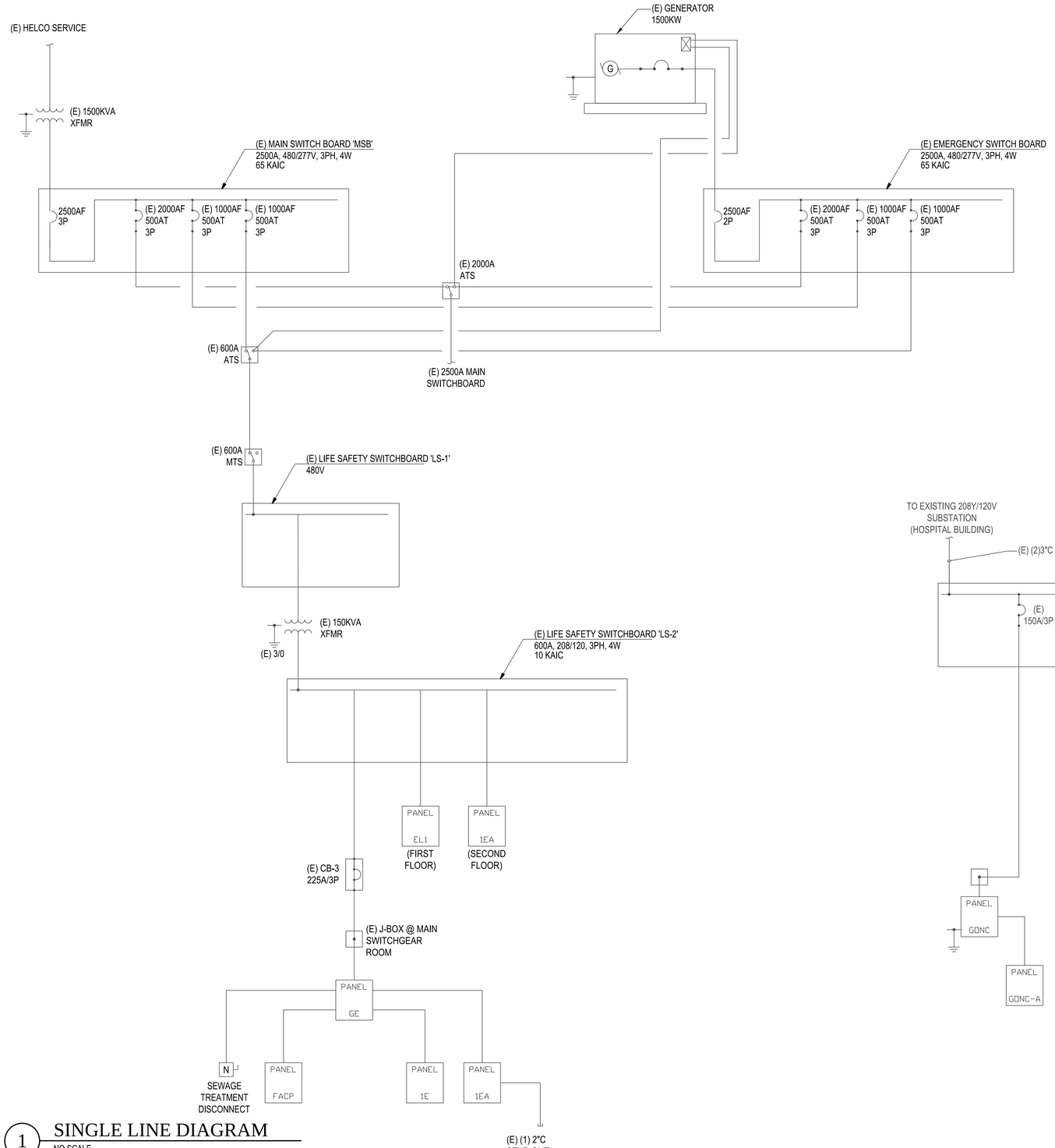
DRAWN BY:	DESIGNED BY:
CF	CF
CHECKED BY:	QC'D BY:
CF	EW

JOB NO. 12022-22-01

DWG. NO. E-103

SHEET NO. OF 7

10/06/2025 4:21 pm
W:\EP PROJECTS\2022 PROJECTS\12022-22-01 KCH WWTS UPGRADE\4-DWG\ELECTRICAL\E-X.DWG



NOTES

1. BOND TO ALL AVAILABLE GROUNDING ELECTRODES PER NEC 250.32.

1 SINGLE LINE DIAGRAM
NO SCALE

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SINGLE LINE DIAGRAM

DATE: SEPTEMBER 2025
REV. REV. REV.

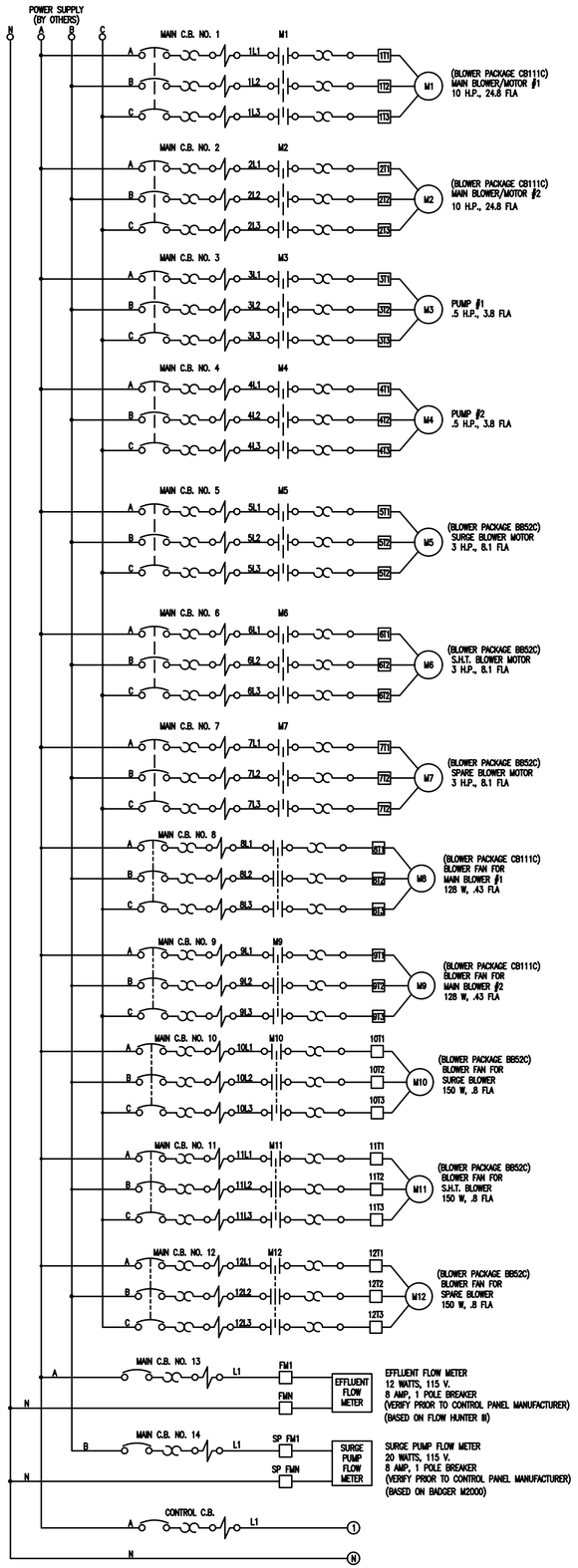
KONA COMMUNITY HOSPITAL
WASTEWATER TREATMENT SYSTEM UPGRADE
NORTH KONA, HAWAI'I
TMK: (3) 7-9-010 : 081

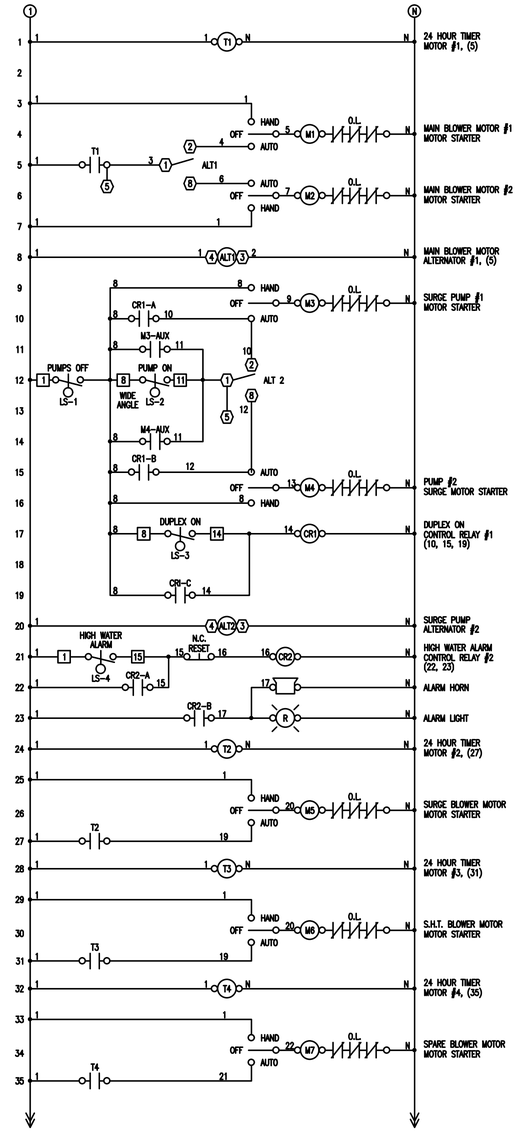
DRAWN BY:	DESIGNED BY:
CF	CF
CHECKED BY:	QC'D BY:
CF	EW

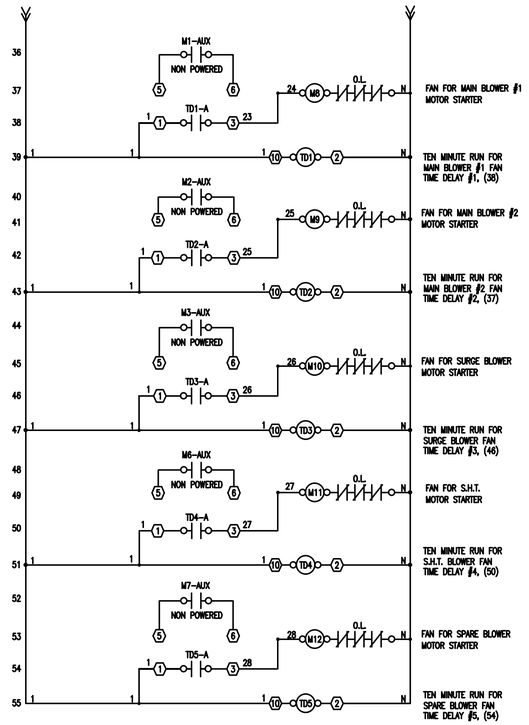
JOB NO. 12022-22-01

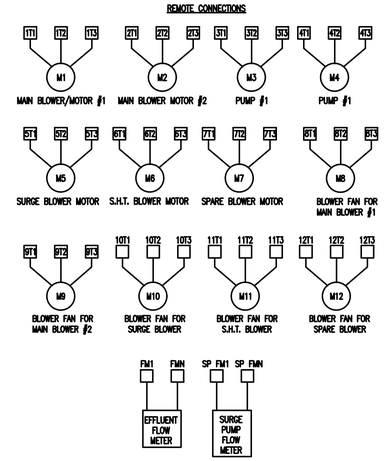
DWG. NO. E-201

SHEET NO. OF 7



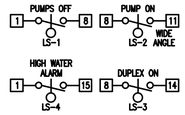






REMOTE CONNECTIONS

NOTE: LS-2 (WIDE ANGLE) FLOAT SWITCH MUST BE LOCATED A MINIMUM OF 15" ABOVE LS-1 (THE "OFF" FLOAT SWITCH).



1 ELECTRICAL WASTEWATER TREATMENT SYSTEM WIRING

NO SCALE

NEW

PANEL: GW

VOLTAGE: 208 / 120 3Ø 4W CIRCUIT CODE: blank or
BUS: 225A
MAINS: M.L.O. LOCATION: EXTERIOR
AIC RATING: 10,000 MOUNTING: SURFACE
DATE: 10/6/25 4:18 PM
JOB: 12022-22-01
N: NON-CONTINUOUS
L: LONG-CONTINUOUS
R: DEMANDABLE RECEPTACLES
K: KITCHEN NO. OF EQUIPMENT: 0

CKT NO	CODE	TRIP	POLE	LOAD DESIGNATION DESCRIPTION	(NOTE)	M	R	L	CONNECTED VA ØA	ØB	ØC	A	B	C	ØA	ØB	ØC	L	R	M	LOAD DESIGNATION (NOTE)	DESCRIPTION	TRIP	POLE	CODE	CKT NO
1	N	20	1	FLOW METER-EFFLUENT	1				12			•			2978						1		BLOWER MOTOR #1	60	1	N	2
3	N			SURGE HOLDING TANK BLOWER	1					973			•			2978						1		--			N	4
5	N			--	1						973			•			2978				1		--		3	N	6
7	N		3	--	1				973			•			2978						1		BLOWER MOTOR #2	60		N	8
9	N	20		SURGE PUMP #1	1					456			•			2978					1		--			N	10
11	N			--	1						456			•			2978				1		--		3	N	12
13	N		3	--	1				456			•			973						1		SURGE BLOWER MOTOR	20		N	14
15	N	20		SURGE PUMP #2	1					456			•			973					1		--			N	16
17	N			--	1						456			•			973				1		--		3	N	18
19	N		3	--	1				456			•			973						1		SPARE BLOWER MOTOR	20		N	20
21	N	20	1	CONTROLS	1					100			•			973					1		--			N	22
23	N	20	1	FLOW METER-SURGE PUMP	1						20			•			973				1		--		3	N	24
25				PFFB	1				-			•			43						1		BLOWER FAN FOR BLOWER 1	20		N	26
27				PFFB	1					-			•			43					1		--			N	28
29				PFFB	1						-			•			43				1		--		3	N	30
31	N	20		BLOWER FAN FOR S.H.T.	1				50			•			43						1		BLOWER FAN FOR BLOWER 2	20		N	32
33	N			--	1					50			•			43					1		--			N	34
35	N		3	--	1						50			•			43				1		--		3	N	36
37	N	20		BLOWER FAN FOR SPARE	1				50			•			50						1		BLOWER FAN FOR SURGE	20		N	38
39	N			--	1					50			•			50					1		--			N	40
41	N		3	--	1						50			•			50				1		--		3	N	42
PANEL NOTES:					PHASE TOTALS				ØA: 10035			ØB: 10123					ØC: 10043				TOTAL CONNECTED VA					30201
																					CONNECTED VA (CODE N)					30201
																					CONNECTED VA (CODE L)					0
																					CONNECTED VA (CODE R)					0
																					CONNECTED VA (CODE K)					0
																					PANEL CONNECTED KVA					30.2
																					PANEL DEMAND KVA					30.2
																					PANEL DEMAND AMPS					83.8
																					HIGH Ø AMPS w/ DEMAND					84.3

1. BREAKER SIZES AND LOADS TO BE CONFIRMED BY WWTP MANUFACTURER.

PANEL PROVIDED AS WASTERWATER TREATMENT SYSTEM PACKAGE. PRE-WIRED PLC BASED.

REVISIONS
R1, REVISED AS REQUESTED, PAT, 1-27-25

JOB NO: Q1918
JOB NAME: KONA HOSPITAL EXPANSION
LOCATION: HAWAII
DRAWN BY: PAT DATE: 11-23-24

PUREstream INC.

DESCRIPTION: ELECTRICAL CONTROL PANEL, 208 VOLT, 3 PHASE, 60 HZ, 4 WIRE, DUAL BLOWERS, DUPLEX PUMPS, SURGE BLOWER

SCALE: 2 | DRG. SIZE C | PART& DRG.NO. Q1918E1-R1

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SIGNATURE

ELECTRICAL WASTEWATER TREATMENT SYSTEM WIRING

DATE: SEPTEMBER 2025
REV.
REV.
REV.

KONA COMMUNITY HOSPITAL WASTEWATER TREATMENT SYSTEM UPGRADE
NORTH KONA, HAWAI'I
TMK: (3) 7-9-010 : 081

DRAWN BY: CF | DESIGNED BY: CF
CHECKED BY: CF | QC'D BY: EW

JOB NO. 12022-22-01

DWG. NO. E-202

SHEET NO. OF 7