

STATE OF HAWAII  
 DEPARTMENT OF LAND AND NATURAL RESOURCES  
 ENGINEERING DIVISION

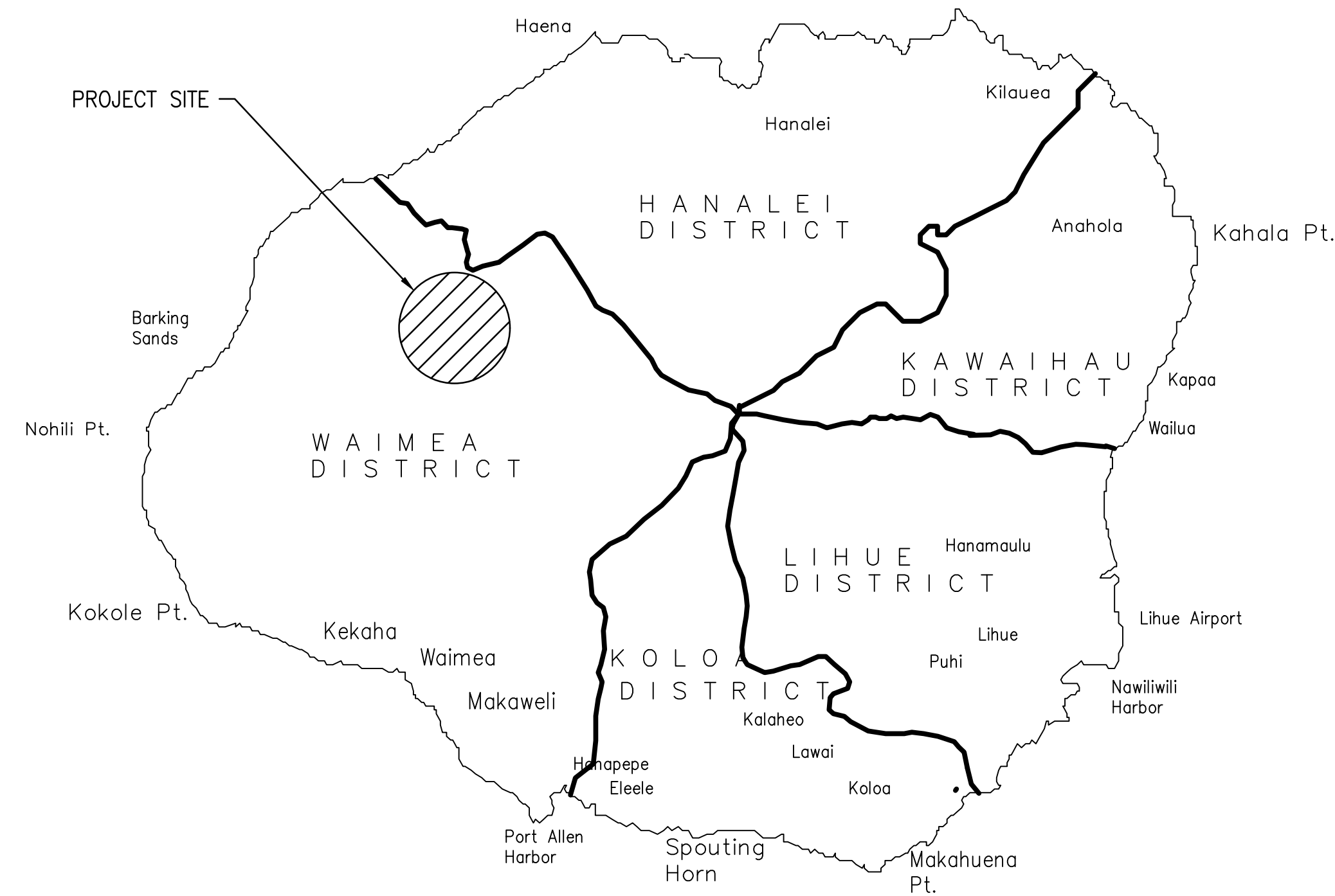
FOR  
 DIVISION OF FORESTRY AND WILDLIFE

JOB NO. D00CK62C

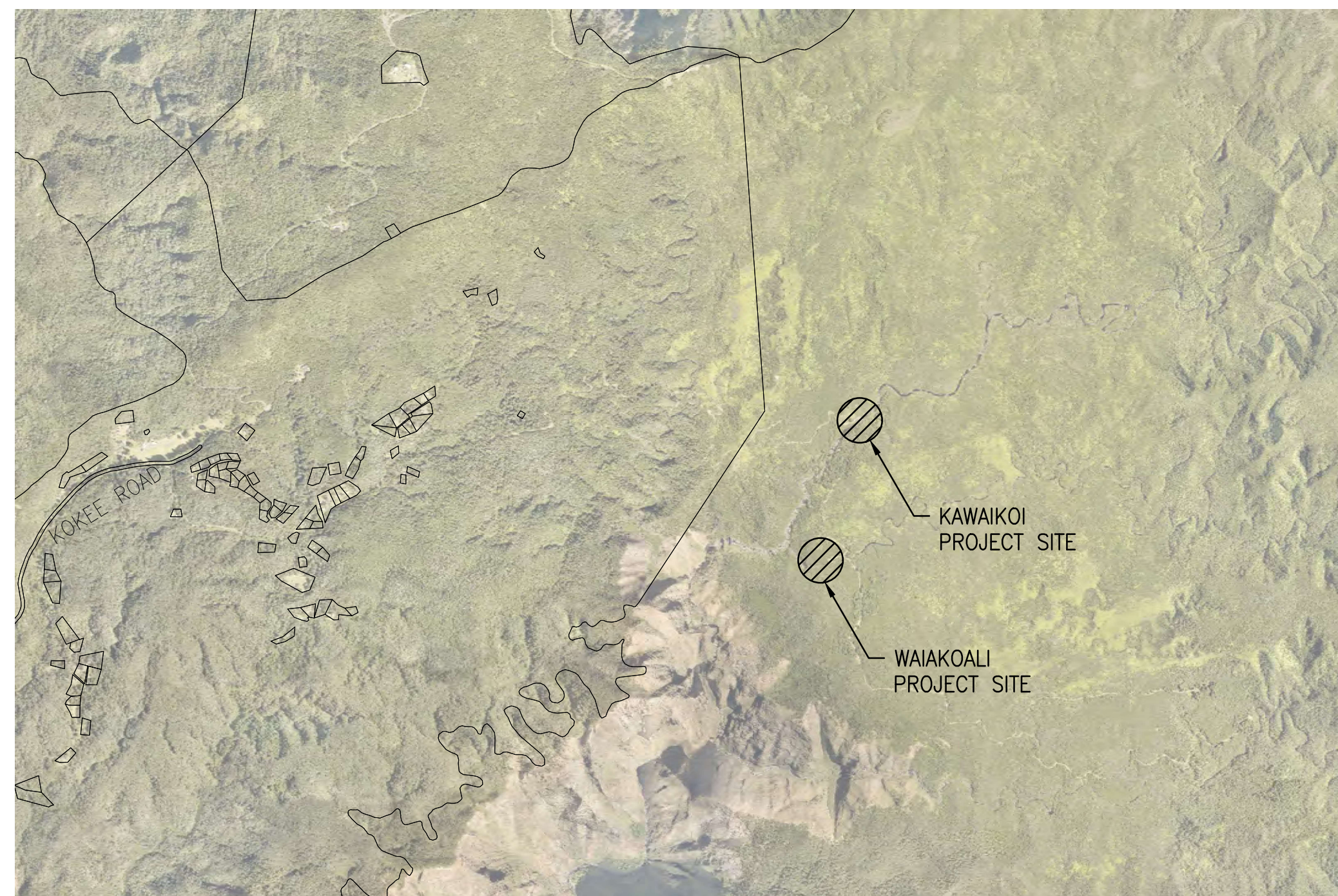
# NA PALI KONA FOREST RESERVE STREAM CROSSINGS

WAIMEA COUNTY, KAUA'I, HAWAII

TMK: 4-1-4-001-003



NORTH  
**VICINITY MAP**  
 NOT TO SCALE



NORTH  
**LOCATION MAP**  
 NOT TO SCALE

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SCOPE OF WORK

THIS PROJECT REMOVES, REPLACES AND REPAIRS BOTH THE KAWAIKOI AND WAIAKOALI STREAM CROSSINGS. THE EXISTING LOW WATER CROSSING AT KAWAIKOI STREAM TO BE DEMOLISHED AND REPLACED WITH A NEW CONCRETE FORM D CROSSING. THE WAIAKOALI STREAM CROSSING TO BE SUPPORTED BY NEW RIP-RAP PROTECTION.

APPROVED: \_\_\_\_\_ DATE: 04/23/2026

DAVID G. SMITH  
 ADMINISTRATOR  
 DIVISION OF FORESTRY AND WILDLIFE  
 DEPARTMENT OF LAND AND NATURAL RESOURCES

APPROVED: \_\_\_\_\_ DATE: 04/23/2026

SHUA U. LAU  
 ACTING CHIEF ENGINEER  
 ENGINEERING DIVISION  
 DEPARTMENT OF LAND AND NATURAL RESOURCES

**GENERAL NOTES**

- ALL APPLICABLE CONSTRUCTION WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST REVISION OF THE STATE OF HAWAII, DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", DATED 2005; THE COUNTY OF KAUAI DEPARTMENT OF PUBLIC WORKS "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION", DATED SEPTEMBER 1986 AND "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION", DATED SEPTEMBER 2000 WHERE APPLICABLE AND THE APPLICABLE STATE BUILDING CODES AS ADOPTED BY THE STATE BUILDING CODE COUNCIL.
- EXISTING TOPOGRAPHIC SURVEY WAS CONDUCTED ON OCTOBER 28, 2025 BY CONTROL POINT SURVEYING, INC. THIS TOPOGRAPHIC SURVEY WAS BASED ON THE BEST AVAILABLE INFORMATION AND ACCURACY MUST BE VERIFIED PRIOR TO STARTING CONSTRUCTION.
- VERIFY AND CHECK ALL DIMENSIONS AND DETAILS SHOWN ON THE DRAWINGS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCY SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER FOR DIRECTION.
- AT ALL TIMES DURING PERFORMANCE OF THIS CONTRACT, ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE SITE SAFETY CONDITIONS FOR ALL PERSONS AND PROPERTY.
- HARD BOULDERS AND MEDIUM HARD TO HARD BASALT ROCK MAY BE ENCOUNTERED NEAR OR AT THE SITE. APPROPRIATE EQUIPMENT FOR EXCAVATING THE MEDIUM HARD TO HARD BASALT ROCK SHALL BE REQUIRED.
- NO BLASTING SHALL BE ALLOWED.
- IN THE EVENT HISTORIC REMAINS, SUCH AS ARTIFACTS, BURIALS, CONCENTRATIONS OF SHELL OR CHARCOAL, BE ENCOUNTERED DURING CONSTRUCTION ACTIVITIES, WORK SHALL IMMEDIATELY CEASE IN THE IMMEDIATE VICINITY OF THE ENCOUNTER. IMMEDIATELY NOTIFY THE STATE HISTORIC PRESERVATION DIVISION AT (808) 692-8015, WHO WILL ASSESS THE ENCOUNTER AND RECOMMEND THE APPROPRIATE MITIGATION MEASURES.
- CONSTRUCT TEMPORARY BARRICADES DURING CONSTRUCTION, FOR SAFETY AND THE PROTECTION OF LIFE AND PROPERTY.
- THE FORD SHALL REMAIN OPEN DURING THE CONSTRUCTION PERIOD. PROVIDE TEMPORARY BARRICADES AND WARNING SIGNS TO SAFETY AND PROTECT THE PUBLIC DURING THE CONSTRUCTION PERIOD. PROVIDE AND MAINTAIN FOR SAFE PEDESTRIAN ACCESS AND VEHICLE ACCESS TO THE FACILITY THROUGHOUT THE CONSTRUCTION PERIOD, AS REQUIRED.
- PROVIDE AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, MARKERS, CONES AND OTHER PROTECTIVE FACILITIES AND TAKE NECESSARY PRECAUTIONS FOR THE PROTECTION, CONVENIENCE AND SAFETY OF THE PUBLIC.
- EXISTING PEDESTRIAN WALKWAYS SHALL BE MAINTAINED IN A PASSABLE CONDITION OR PROVIDE FOR ALTERNATE/TEMPORARY ACCESSIBLE PEDESTRIAN ACCESS ROUTES AND FACILITIES PER THE 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN CHAPTER 2 AND ADAAG 201.3 AND ADAAG 206.1.
- NO PERFORMANCE OF ANY CONSTRUCTION ACTIVITIES THAT CAUSES FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATER COURSES. ALL COSTS INCURRED FOR VIOLATIONS PAID AND SUBSEQUENT REMEDIAL ACTION UNDERTAKEN AT NO ADDITIONAL COST TO THE STATE.
- COORDINATE CONSTRUCTION ACTIVITIES WITH ANY AND ALL ADJACENT OR RELATED CONSTRUCTION ACTIVITIES ON ANOTHER CONSTRUCTION SITE. AVOID DELAY OR HINDERANCE IN THE PERFORMANCE OF THEIR RESPECTIVE CONTRACTS.
- THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXIST BY THE ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA. TAKE ALL RESPONSIBILITY FOR ALL DAMAGES AND REPLACE OR REPAIR IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE AFFECTED UTILITY COMPANY AT NO ADDITIONAL COST TO THE STATE. TAKE ALL RESPONSIBILITY FOR PERSONAL INJURY RESULTING FROM CONTACT WITH EXISTING UTILITIES.
- WHEREVER CONNECTING NEW UTILITIES TO EXISTING UTILITIES ARE REQUIRED, EXPOSE THE EXISTING UTILITY LINES AT THE CONNECTION POINT, SHOWN ON PLANS, TO VERIFY THEIR USES, LOCATIONS AND DEPTHS PRIOR TO CONTINUED EXCAVATION FOR NEW LINES.
- COORDINATE WITH ALL AGENCIES AND UTILITY COMPANIES TO VERIFY THE ACTUAL LOCATION OF ALL SITE UTILITIES IN THE PROJECT AREA PRIOR TO EXCAVATING.
- NOTIFY AND COORINATE ALL SITE WORK WITH "THE ONE CALL CENTER" AT (866) 423-7287 AT LEAST 5 WORKING DAYS PRIOR TO THE START OF EXCAVATION OR TRENCHING.
- IF WATER, SEWAGE OR ELECTRICAL SERVICES ARE PLANNED TO BE INTERRUPTED FORE MORE THAN 1 HOUR, PROVIDE FOR TEMPORARY WATER, SEWAGE AND ELECTRICAL SERVICES DURING THE INTERRUPTION AT NO ADDITIONAL COST TO THE STATE.
- MAKE ARRANGEMENTS FOR TEMPORARY CONSTRUCTION SITE UTILITIES SUCH AS ELECTRICITY, WATER, ETC. AT NO ADDITIONAL COST TO THE STATE.
- ALL EXISTING UTILITIES, SHOWN ON THE PLANS OR ENCOUNTERED, SHALL BE PROTECTED AT ALL TIMES DURING CONSTRUCTION AND ANY DAMAGED UTILITIES, AS RESULT OF CONTRCTOR OPERATIONS, SHALL BE IMMEDIATELY REPAIRED AT NO ADDITIONAL COST TO THE STATE.
- ADJUST MANHOLE AND /OR VALVE BOX FRAMES AND COVERS AS REQUIRED BY THE UTILITY COMPANIES AND AGENCIES.
- CONFORM WITH THE APPLICABLE PROVISIONS OF CHAPTER 54, WATER QUALITY STANDARDS, AND CHAPTER 55, WATER POLLUTION CONTROL, OF TITLE 11, HAWAII ADMINISTRATIVE RULES OF THE STATE DEPARTMENT OF HEALTH.
- PLAN, CONSTRUCT AND UTILIZE ALL BEST MANAGMENT PRACTICES (BMP) AS REQUIRED TO COMPLY WITH THE LAWS, STANDARDS, RULES, AND /OR POLICIES OF THE COUNTY, STATE, OR FEDERAL REGULATORY AGENCIES.
- OBTAIN AND PAY FOR ALL REQUIRED PERMITS FROM THE APPROPRIATE GOVERNMENT AGENCIES.
- RESTORE ALL AREAS DISTURBED AS A RESULT OF ALL CONSTRUCTION ACTIVITIES, TO EQUAL OR BETTER CONDITION(S), INCLUDING BUT NOT LIMITED TO VEGETATION, PAVEMENTS, EMBANKMENTS, CURBS, SIGNS, LANDSCAPING, STRUCTURES, UTILITIES, WALKWAYS, FENCES, ETC. UNLESS SPECIFICALLY OTHERWISE NOTED OTHERWISE.

**GENERAL NOTES CONT'D:**

- IF ONE (1) OR MORE ACRE OF LAND IS DISTURBED, DO NOT START ANY GROUND DISTRUBANCE UNTIL A NPDES PERMIT IS OBTAINED FROM THE DEPARTMENT OF HEALTH, STATE OF HAWAII, AND HAS SATISFIED ALL APPLICABLE REQUIREMENTS OF THE NPDES PERMIT PROGRAM. FOR WORK ON COUNTY PROPERTY, PROVIDE A WRITTEN COPY OF THE NPDES PERMIT TO THE APPROPRIATE COUNTY OR GOVERNMENTAL AGENCY PER THEIR REQUIREMENTS.
- ALL PAVEMENT STRIPING SHALL BE A THERMOPLASTIC TYPE.
- PROVIDE THEFT-RESISTANT FASTENERS FOR ALL MOUNTING ACCESSORIES. ALL FASTENERS SHALL BE STAINLESS STEEL WITH THEFT-RESISTANT TYPE HEADS OR NUTS.
- PROVIDE ALL INCIDENTAL AND NECESSARY MATERIALS AND WORK TO COMPLETE THE PROJECT.
- THE JOB SITE SHALL BE LEFT IN A SAFE AND SECURE CONDITION AT THE END OF EACH CONSTRUCTION WORKDAY. CLEAN UP AND REMOVE ALL RUBBISH. MAINTAIN THE WORK AREA AND PREMISES IN A CLEAN ORDERLY CONDITION AT ALL TIMES.
- UPON COMPLETION OF CONSTRUCTION, THE ENTIRE JOB SITE SHALL BE CLEANED OF ALL RUBBISH AND DEBRIS.
- TEMPORARY FACILITIES: THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ADEQUATE SANITARY FACILITIES IN COMPLIANCE WITH THE REQUIREMENTS OF THE STATE DEPARTMENT OF HEALTH (DOH) DURING CONSTRUCTION.

**DOFAW NOTES:**

- TAKE ALL MEASURES TO MINIMIZE DISTURBING OR DAMAGING EXISING NAVTIVE PLANT SPECIES DURING CONSTRUCTION.
- PRIOR TO ENTERING THE JOB SITE, ALL EQUIPMENT AND FOOTWEAR SHALL BE WASHED WITH POTABLE WATER TO PREVENT EXOTIC PLANTS AND SEEDS FROM BEING INTRODUCED TO THE JOB SITE/AREA.
- HAWAIIAN HOARY BATS OR 'OPEAPE'A (LASIURUS CINEREUS SEMOTUS) IS KNOWN TO RESIDE IN THE VICINITY OF THE PROJECT AREA AND MAY ROOST IN NEARBY TREES. IF ANY SITE CLEARING IS REQUIRED THIS SHOULD BE TIMED TO AVOID DISTURBING THE BAT'S BIRTHING AND PUP REARING SEASON (JUNE 1 THROUGH SEPTEMBER 15). IF THIS CANNOT BE AVOIDED, WOODY PLANTS GREATER THAN 15 FEET (4.6 METERS) IN HEIGHT SHOULD NOT BE DISTURBED, REMOVED, OR TRIMMED WITHOUT CONSULTING DOFAW AND STATE'S CONSTRUCTION REPRESENTATIVE. BARBED WIRE IS NOT ALLOWED BECAUSE BAT MORTALITIES HAVE BEEN DOCUMENTED BY ENSNAREMENT DURING LIGHT.
- NIGHT WORK THAT REQUIRES OUTDOOR LIGHTING SHOULD BE AVOIDED DURING THE SEABIRD FLEDGING SEASON FROM SEPTEMBER 15 THROUGH DECEMBER 15. THIS IS THE PERIOD WHEN YOUNG SEABIRDS TAKE THEIR MAIDEN VOYAGE TO THE OPEN SEA. ARTIFICIAL LIGHTING CAN ADVERSELY IMPACT SEABIRDS BY CAUSING DISORIENTATION. THIS DISORIENTATION CAN RESULT IN COLLISION WITH MANMADE ARTIFACTS OR GROUNDING OF BIRDS. FOR NIGHT LIGHTING THAT MIGHT BE REQUIRED, DOFAW RECOMMENDS THAT ALL LIGHTS BE FULLY SHIELDED TO MINIMIZE IMPACTS.

**PUBLIC HEALTH SAFETY AND CONVENIENCE NOTES**

- CONTRACTOR SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS REQUIRED FOR THE PROTECTION OF PUBLIC HEALTH, SAFETY AND ENVIRONMENTAL QUALITY.
- THE CONTRACTOR AT HIS/HER EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM RUBBISH, DUST, NOISE, EROSION, ETC. THE WORK SHALL BE DONE IN CONFORMANCE WITH THE AIR AND WATER POLLUTION CONTROL STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH.
- NO CONTRACTOR SHALL PERFORM ANY CONSTRUCTION OPERATION SO AS TO CAUSE FALLING ROCKS, SILT OR DEBRIS IN ANY FORM TO FALL SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS AS NECESSARY.
- THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, MARKERS, CONES, AND OTHER PROTECTIVE FACILITIES AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION, CONVENIENCE AND SAFETY OF THE PUBLIC.
- THE CONTRACTOR'S ATTENTION IS DIRECTED TO CHAPTER 46, PUBLIC HEALTH REGULATIONS, DEPARTMENT OF HEALTH, STATE OF HAWAII, "COMMUNITY NOISE CONTROL," IN WHICH MAXIMUM PERMISSIBLE NOISE LEVELS HAVE BEEN SET. IF THE CONSTRUCTION WORK REQUIRES A PERMIT FROM THE DIRECTOR OF HEALTH, THE CONTRACTOR SHALL OBTAIN A COPY OF CHAPTER 46 AND BECOME FAMILIAR WITH THE NOISE LEVEL RESTRICTIONS AND THE PROCEDURES FOR OBTAINING A PERMIT FOR THE CONSTRUCTION ACTIVITIES. APPLICATION AND INFORMATION ON VARIANCES ARE AVAILABLE FROM THE ENVIRONMENTAL PROTECTION AND HEALTH SERVICES DIVISION, 1250 PUNCHBOWL ST., HONOLULU, HI 96813 OR BY TELEPHONE (548-6455).

**WATER POLLUTION AND EROSION CONTROL NOTES:**

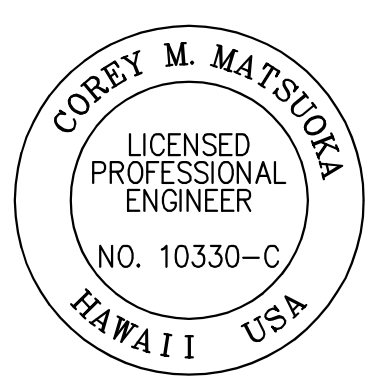
- GENERAL:
  - THE CONTRACTOR IS REMINDED OF THE REQUIREMENTS OF SECTION 209 - WATER POLLUTION AND EROSION CONTROL AND SECTION 620 -DUST CONTROL IN THE "HAWAI'I STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION 2005," AND ITS AMENDMENTS. SECTION 209 DESCRIBES BUT IS NOT LIMITED TO SUBMITTAL REQUIREMENTS; SCHEDULING OF A WATER POLLUTION AND EROSION CONTROL CONFERENCE WITH THE COUNTY; CONSTRUCTION REQUIREMENTS; METHOD OF MEASUREMENT; AND BASIS OF PAYMENT. NO WORK SHALL COMMENCE WITHOUT A BMP PLAN APPROVED BY THE DEPARTMENT OF HEALTH.
  - THE CONTRACTOR SHALL FOLLOW THE GUIDELINES IN THE "INTERIM BEST MANAGEMENT PRACTICES MANUAL FOR CONSTRUCTION SITES FOR THE COUNTY OF KAUAI, APRIL 2004" IN DEVELOPING, INSTALLING AND MAINTAINING THE BEST MANAGEMENT PRACTICES (BMP'S) FOR THE PROJECT. THE CONTRACTOR MAY SUBMIT ALTERNATE METHODS TO THE COUNTY FOR ACCEPTANCE.
  - THE CONTRACTOR SHALL KEEP A COPY OF THE APPROVED BMP PLAN, NOI, ETC. ON THE PROJECT SITE. THE BMP PLAN SHALL BE UPDATED TO REFLECT ANY CHANGES MADE DURING THE COURSE OF CONSTRUCTION FOR THE DURATION OF THE PROJECT.

**WATER POLLUTION AND EROSION CONTROL NOTES CONT'D:**

- THE ENGINEER MAY ASSESS LIQUIDATED DAMAGES OF UP TO \$27,500 FOR NON-COMPLIANCE OF EACH BMP REQUIREMENT AND EACH REQUIREMENT STATED IN SECTION 209, FOR EVERY DAY ON NON-COMPLIANCE. THERE IS NO MAXIMUM LIMIT ON THE AMOUNT ASSESSED PER DAY.
- THE ENGINEER WILL DEDUCT THE COST FROM THE PROGRESS PAYMENT FOR ALL CITATIONS RECEIVED BY THE DEPARTMENT FOR NON-COMPLIANCE, OR THE CONTRACTOR/OWNER SHALL REIMBURSE THE STATE AND/OR COUNTY FOR THE FULL AMOUNT OF THE OUTSTANDING COST INCURRED BY THE STATE AND/OR COUNTY.
- WASTE DISPOSAL:
  - WASTE MATERIALS: ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER THAT DOES NOT LEAK. THE DUMPSTER SHALL MEET ALL LOCAL AND STATE SOLID WASTE MANAGEMENT REGULATIONS. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER SHALL BE EMPTIED AT A MINIMUM OF TWICE PER WEEK OR AS OFTEN AS IS DEEMED NECESSARY. NO CONSTRUCTION WASTE MATERIAL SHALL BE BURIED ONSITE. THE CONTRACTOR'S SUPERVISORY PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL. NOTICES STATING THESE PRACTICES SHALL BE POSTED IN THE OFFICE TRAILER AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED.
  - HAZARDOUS WASTE: ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATIONS OR BY THE MANUFACTURER. THE CONTRACTORS SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES AND SHALL BE RESPONSIBLE FOR SEEING THAT THESE PRACTICES ARE FOLLOWED.
  - SANITARY WASTE: ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK, OR AS REQUIRED.
- EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:
  - ALL CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE EACH WEEK AND WITHIN 24 HOURS FOLLOWING ANY RAINFALL EVENT OF 0.5 INCHES OR GREATER.
  - ALL MEASURES SHALL BE MAINTAINED IN GOOD WORKING ORDER. IF REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS AFTER THE INSPECTION.
  - BUILT UP SEDIMENT SHALL BE REMOVED FROM SILT FENCE WHEN IT HAS REACHED ONE-THIRD THE HEIGHT OF THE FENCE.
  - SILT SCREEN OR FENCE SHALL BE INSPECTED FOR DEPTH OF SEDIMENT, TEARS, TO VERIFY THAT THE FABRIC IS SECURELY ATTACHED TO THE FENCE POSTS OR CONCRETE SLAB AND TO VERIFY THAT THE FENCE POSTS ARE FIRMLY IN THE GROUND.
  - TEMPORARY AND PERMANENT SEEDING AND PLANTING SHALL BE INSPECTED FOR BARE SPOTS, WASH OUTS AND HEATHY GROWTH.
  - THE CONTRACTOR SHALL SUBMIT TO THE COUNTY A MAINTENANCE INSPECTION REPORT PROMPTLY AFTER EACH WEEKLY INSPECTION.
  - THE CONTRACTOR SHALL SELECT A MINIMUM OF THREE PERSONNEL WHO SHALL BE RESPONSIBLE FOR INSPECTION, MAINTENANCE AND REPAIR ACTIVITIES AND FILLING OUT THE INSPECTION AND MAINTENANCE REPORT.
  - PERSONNEL SELECTED FOR THE INSPECTION AND MAINTENANCE RESPONSIBILITIES SHALL RECEIVE TRAINING FROM THE CONTRACTOR. THEY SHALL BE TRAINED IN ALL THE INSPECTION AND MAINTENANCE PRACTICES NECESSARY FOR KEEPING THE EROSION AND SEDIMENT CONTROLS USED ONSITE IN GOOD WORKING ORDER.
- ALL SLOPES AND EXPOSED AREAS SHALL HAVE ESTABLISHED VEGETATION AS FINAL GRADES HAVE BEEN ESTABLISHED. GRADING TO FINAL GRADE SHALL BE CONTINUOUS, AND ANY AREA IN WHICH WORK HAS BEEN INTERRUPTED OR DELAYED OR EXPOSED FOR MORE THAN 15 DAYS SHALL BE PLANTED IN ORDER TO PREVENT DUST EMISSION, EROSION AND SILT RUNOFF. AREAS WITH IMPORTED SOILS SHALL BE GRASSED NOT MORE THAN 5 WORKING DAYS AFTER THE FINAL GRADES HAVE BEEN ESTABLISHED.
- TEMPORARY EROSION CONTROL SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN-PLACE AND ESTABLISHED.
- GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES:
  - MATERIALS POLLUTION PREVENTION PLAN:
    - APPLICABLE MATERIALS OR SUBSTANCES LISTED BELOW ARE EXPECTED TO BE PRESENT ONSITE DURING CONSTRUCTION. OTHER MATERIALS AND SUBSTANCES NOT LISTED BELOW SHALL BE ADDED TO THE INVENTORY OF THE CONSTRUCTION CONTRACTOR'S SITE-SPECIFIC BMP PLAN.
 

CONCRETE	FERTILIZERS
DETERGENTS	PETROLEUM BASED PRODUCTS
PAINTS (ENAMEL AND LATEX)	CLEANING SOLVENTS
METAL STUDS	WOOD
TAR	MASONRY BLOCK
    - MATERIAL MANAGEMENT PRACTICES SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORM WATER RUNOFF. AN EFFORT SHALL BE MADE TO STORE ONLY ENOUGH PRODUCTS AS IS REQUIRED TO DO THE JOB.

W:\CIVIL\_3D PROJECTS\2025-054-000 DLNR STREAM CROSSING NA PALI KONA FOREST\01 CE DWG\001 NOTES.DWG 4/21/2026 10:16 AM RARCAND

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
					
<b>STATE OF HAWAII</b> DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
<b>NA PALI KONA FOREST RESERVE</b> <b>STREAM CROSSINGS</b>					
<b>CIVIL NOTES - 1</b>					
DESIGNED: CM			SUBMITTED: <i>[Signature]</i>		
DRAWN: LM			DATE: MARCH 2026		
CHECKED: GG			SCALE: AS SHOWN		
APPROVED: <i>[Signature]</i> Dina Lau E-signed 2026-04-23 10:30AM HST dina.u.lau@hawaii.gov Civil Engineer			DRAWING NO. <b>C-001</b>		

**WATER POLLUTION AND EROSION CONTROL NOTES CONT'D:**

- c. ALL MATERIALS STORED ONSITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE.
- d. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURES LABEL.
- e. SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
- f. A PRODUCT SHALL BE USED UP COMPLETELY BEFORE DISPOSING OF THE CONTAINER.
- g. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED.
- h. THE CONTRACTOR SHALL CONDUCT A DAILY INSPECTION TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ONSITE.

**B. HAZARDOUS MATERIAL POLLUTION PREVENTION PLAN:**

- a. PRODUCTS SHALL BE KEPT IN ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE.
- b. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHEETS (MSDS) SHALL BE RETAINED AND MADE AVAILABLE TO THE COUNTY UPON REQUEST.
- c. SURPLUS PRODUCTS SHALL BE DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR LOCAL AND STATE RECOMMENDED REGULATIONS.

**C. ONSITE AND OFFSITE PRODUCTS SPECIFIC PLANS:**

THE FOLLOWING PRODUCTS SPECIFIC PRACTICES SHALL BE FOLLOWED ONSITE:

- a. PETROLEUM BASED PRODUCTS: ALL ONSITE VEHICLES SHALL BE MONITORED FOR LEAKS AND RECEIVED REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. PETROLEUM PRODUCTS SHALL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT SUBSTANCES USED ONSITE SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATION.
- b. FERTILIZERS: APPLY FERTILIZERS USED ONLY IN THE MINIMUM AMOUNTS RECOMMENDED BY THE MANUFACTURER. ONCE APPLIED, WORK FERTILIZER INTO THE SOIL TO LIMIT EXPOSURE TO STORM WATER. STORAGE SHALL BE KEPT IN A COVERED SHED. TRANSFER THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
- c. PAINTS: SEAL AND STORE ALL CONTAINERS WHEN NOT REQUIRED FOR USE. DO NOT DISCHARGE EXCESS PAINT TO THE ROADWAY DRAINAGE SYSTEM. DISPOSE PROPERLY ACCORDING TO THE MANUFACTURER'S INSTRUCTION OR STATE AND LOCAL REGULATIONS.
- d. CONCRETE TRUCKS: WASH OUT OR DISCHARGE CONCRETE TRUCK DRUM WASH WATER ONLY AT A DESIGNATED SITE. DO NOT DISCHARGE WATER IN THE ROADWAY DRAINAGE SYSTEM OR WATERS OF THE UNITED STATES. CONTACT DRINKING WATER BRANCH, DEPARTMENT OF HEALTH AT (808) 586-4309 TO RECEIVE PERMISSION TO DESIGNATE A DISPOSAL SITE. CLEAN DISPOSAL SITE AS REQUIRED OR AS REPRESENTED BY THE OWNER'S REPRESENTATIVE.

**D. SPILL CONTROL PLAN:**

- a. POST A SPILL PREVENTION PLAN TO INCLUDE MEASURES TO PREVENT AND CLEAN UP EACH SPILL.
- b. THE CONTRACTOR SHALL BE THE PREVENTION AND CLEAN-UP COORDINATOR. DESIGNATE AT LEAST THREE SITE PERSONNEL WHO SHALL RECEIVE SPILL PREVENTION AND CLEANUP TRAINING. THESE INDIVIDUALS SHALL EACH BECOME RESPONSIBLE FOR A PARTICULAR PHASE OF PREVENTION AND CLEANUP. POST THE NAMES OF RESPONSIBLE SPILL PERSONNEL IN THE MATERIAL STORAGE AREA AND IN THE OFFICE TRAILER ONSITE.
- c. CLEARLY POST MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP. MAKE SITE PERSONNEL AWARE OF THE PROCEDURES AND THE LOCATION OF INFORMATION AND CLEANUP SUPPLIES.
- d. KEEP MATERIAL AND EQUIPMENT NECESSARY FOR SPILL CLEANUP IN THE MATERIAL STORAGE AREA ONSITE.
- e. CLEAN UP ALL SPILLS IMMEDIATELY AFTER DISCOVERY.
- f. KEEP THE SPILL AREA WELL VENTILATED. PERSONNEL SHALL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH HAZARDOUS SUBSTANCES.
- g. REPORT SPILLS OF TOXIC HAZARDOUS MATERIAL TO THE APPROPRIATE STATE OR LOCAL GOVERNMENT AGENCY, REGARDLESS OF SIZE.

**E. CONSTRUCTION SITE MANAGEMENT AND HOUSEKEEPING:**

- a. THE CONTRACTOR SHALL KEEP THE CONSTRUCTION SITE AND SURROUNDING AREAS FREE OF TRASH AND DEBRIS AND SHALL MAINTAIN ROADWAYS WITHIN THE WORK AREA IN A CLEAN AND SAFE CONDITION THROUGHOUT THE PROJECTS.

**F. STORM WATER POLLUTION CONTROL AND BMP REQUIREMENTS:**

- a. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATION BEST MANAGEMENT PRACTICES (BMPS). THESE PLANS SHALL BE SUBMITTED A MINIMUM IF 30 DAYS PRIOR TO THE START OF CONSTRUCTION AND ACCEPTED BY THE ENGINEERS BEFORE STARTING WORK. THE SWPPP SHALL COMPLY WITH HAWAII DEPARTMENT OF HEALTH (DOH) CLEAN WATER BRANCH (CWB) REQUIREMENTS AND THE NPDES CONSTRUCTION STORM WATER PERMIT, IF APPLICABLE.

**F. CONSTRUCTION SITE MANAGEMENT AND HOUSEKEEPING:**

- a. THE CONTRACTOR SHALL KEEP THE CONSTRUCTION SITE AND SURROUNDING AREAS FREE OF TRASH AND DEBRIS AND SHALL MAINTAIN ROADWAYS WITHIN THE WORK AREA IN A CLEAN AND SAFE CONDITION THROUGHOUT THE PROJECTS.

**G. STORM WATER POLLUTION CONTROL AND BMP REQUIREMENTS:**

- a. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATION BEST MANAGEMENT PRACTICES (BMPS). THESE PLANS SHALL BE SUBMITTED A MINIMUM IF 30 DAYS PRIOR TO THE START OF CONSTRUCTION AND ACCEPTED BY THE ENGINEERS BEFORE STARTING WORK. THE SWPPP SHALL COMPLY WITH HAWAII DEPARTMENT OF HEALTH (DOH) CLEAN WATER BRANCH (CWB) REQUIREMENTS AND THE NPDES CONSTRUCTION STORM WATER PERMIT, IF APPLICABLE.

**GRADING NOTES:**

**TEMPORARY DUST CONTROL MEASURES FOR GRADING**

1. THE GRADED OR PROJECT SITE THAT IS CLEARED OF VEGETATION SHALL BE KEPT DAMP WITH WATER CONTINUOUSLY FOR SEVEN (7) DAYS A WEEK. AT THE END OF EACH DAY, THE SITE SHALL BE SUFFICIENTLY DAMPENED WITH WATER ON A CONTINUAL BASIS SO THAT THE SITE WILL REMAIN MOISTENED DURING THE NIGHT.
2. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS SO THAT EXCAVATION, EMBANKMENT AND IMPORTED MATERIAL SHALL BE DAMPENED WITH WATER ON A CONTINUAL BASIS TO PREVENT DUST PROBLEMS.

**TEMPORARY EROSION CONTROL MEASURES FOR GRADING**

1. TEMPORARY VEGETATIVE COVER SHALL BE PLANTED WITHIN A PERIOD OF 30 CALENDAR DAYS AFTER THE SITE HAS BEEN GRADED OR BARED OF VEGETATION OR IF THE SITE WILL BE SUSPENDED FOR MORE THAN 30 CALENDAR DAYS.
2. TEMPORARY VEGETATIVE COVER SHALL, CONSIST OF DLNR-DOFW APPROVED, NON INVASIVE, NATIVE HAWAIIAN SPECIES SUITABLE FOR FOREST RESERVE CONDITIONS. THE USE OF INVASIVE OR NON-NATIVE SPECIES, INCLUDING COMMON RYE GRASS, IS PROHIBITED.
3. ALL SEED MIXES, PLANT MATERIALS, AND INSTALLATION METHODS SHALL BE SUBMITTED TO AND APPROVED BY DLNR-DOFW PRIOR TO IMPLEMENTATION, IN ACCORDANCE WITH DLNR FOREST RESERVE MANAGEMENT REQUIREMENTS.
4. INSTALLATION AND MAINTENANCE SHALL GENERALLY CONFORM TO THE HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION), EXCEPT AS MODIFIED HEREIN AND BY DLNR-DOFW REQUIREMENTS.
5. FERTILIZER USE SHALL BE MINIMIZED AND SUBJECT TO DLNR APPROVAL TO AVOID IMPACTS TO NATIVE ECOSYSTEMS.

**PERMANENT EROSION CONTROL MEASURES FOR GRADING**

1. THE CONTRACTOR SHALL PLANT THE ENTIRE PROJECT SITE, EXCEPT PAVED AREAS WITH NATIVE PLANTS AS SPECIFIED IN THESE PLANS AND SHALL BE FERTILIZED, AND MAINTAINED IN ACCORDANCE WITH THE "HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2005" AND ITS AMENDMENTS.
2. THE CONTRACTOR SHALL PLANT ALL EXPOSED AREAS THAT HAVE BEEN CONSTRUCTED TO FINAL GRADES WITHIN A PERIOD OF 30 CALENDAR DAYS.
3. WHEN GRADING WORK IS DONE IN PHASES, THE ENGINEER MUST ACCEPT THE COMPLETED PHASE PRIOR TO START OF WORK ON THE NEXT PHASE. EVEN AFTER A COMPLETED PHASE HAS BEEN ACCEPTED, THE GRASSING OR OTHER MEANS OF STABILIZATION MUST BE MAINTAINED UNTIL PROJECT COMPLETION.

**ENVIRONMENTAL CONTROL NOTES FOR GRADING**

1. IN ACCORDANCE WITH CHAPTER 11-60.1, AIR POLLUTION CONTROL, TITLE 11, HAWAII ADMINISTRATIVE RULES, THE PROPERTY OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR ENSURING THAT EFFECTIVE CONTROL MEASURES ARE PROVIDED TO MINIMIZE OR PREVENT ANY VISIBLE DUST EMISSION CAUSED BY THE CONSTRUCTION WORK FROM IMPACTING THE SURROUNDING AREAS INCLUDING THE OFF-SITE ROADWAYS USED TO ENTER/EXIT THE PROJECT. THESE MEASURES INCLUDE BUT ARE NOT LIMITED TO THE USE OF WATER WAGONS, SPRINKLER SYSTEMS, DUST FENCES, ETC.
2. IN ACCORDANCE WITH CHAPTER 11-55, WATER POLLUTION CONTROL AND CHAPTER 11-54, WATER QUALITY STANDARDS, TITLE 11, HAWAII ADMINISTRATIVE RULES, THE PROPERTY OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR ENSURING THAT THE BEST MANAGEMENT PRACTICE (BMP) TO MINIMIZE OR PREVENT THE DISCHARGE OF SEDIMENTS, DEBRIS AND OTHER WATER POLLUTANT INTO STATE WATERS ARE PROVIDED AT ALL TIMES.
3. IN ACCORDANCE WITH CHAPTER 11-58.1, SOLID WASTE MANAGEMENT CONTROL, TITLE 11, HAWAII ADMINISTRATIVE RULES, THE PROPERTY OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR ENSURING THAT GRUB MATERIAL, DEMOLITION WASTE AND CONSTRUCTION WASTE GENERATED BY THE PROJECT ARE DISPOSED OF IN A MANNER OR AT A SITE APPROVED BY THE STATE DEPARTMENT OF HEALTH. DISPOSAL OF ANY OF THESE WASTES BY BURNING IS PROHIBITED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL APPLICABLE PERMITS FROM THE DEPARTMENT OF HEALTH INCLUDING BUT NOT LIMITED TO NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES), NOTICE OF INTENT AND GENERAL PERMIT FOR STORM WATER, HYDROSTATIC TEST AND DEWATERING DISCHARGES PRIOR TO COMMENCING CONSTRUCTION. NPDES PERMIT SHALL BE REQUIRED PRIOR TO GRADING OR GRUBBING WORK OVER AN AREA OF ONE ACRE OR MORE.

5. AFTER EACH RAINFALL EVENT, THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS RESULTING FROM HIS WORK AND DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS. THE COST INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE COUNTY ENGINEER SHALL BE PAYABLE BY THE CONTRACTOR.
6. BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE EMPLOYED AT ALL TIMES TO THE MAXIMUM EXTENT PRACTICABLE TO PREVENT DAMAGE BY SEDIMENTATION, EROSION OR DUST TO STREAMS, WATERCOURSE, NATURAL AREAS AND THE PROPERTY OF OTHERS.
7. THE CONTRACTOR SHALL OBTAIN AND COMPLY WITH NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEMS (NPDES) PERMIT REQUIREMENTS FOR ALL PROJECTS WHICH WILL DISTURB ONE (1) ACRE OR MORE OF LAND. THE CONTRACTOR SHALL NOT START CONSTRUCTION UNTIL NOTICE OF GENERAL PERMIT COVERAGE (NGPC) IS RECEIVED FROM THE DEPARTMENT OF HEALTH, STATE OF HAWAII AND HAS SATISFIED ANY OTHER APPLICABLE REQUIREMENTS OF THE NPDES PERMIT PROGRAM.
8. IN ACCORDANCE WITH CHAPTER 11-46, COMMUNITY NOISE, HAWAII ADMINISTRATIVE RULES, THE PROPERTY OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR PROVIDING EFFECTIVE CONTROL MEASURES TO MINIMIZE OR PREVENT CONSTRUCTION RELATED NOISE FROM IMPACTING THE RESIDENTS IN THE IMMEDIATE AREA. IF REQUIRED, NOISE REDUCTION MEASURES SHALL BE IMPLEMENTED BY THE CONTRACTOR DURING THE CONSTRUCTION WORK.
9. THE PROPERTY MAY HARBOR RODENTS WHICH WILL BE DISPERSED TO THE SURROUNDING AREAS WHEN THE SITE IS CLEARED. IN ACCORDANCE WITH CHAPTER 11-26, ENTITLED VECTOR CONTROL OF TITLE 11, HAR, THE APPLICANT SHALL ASCERTAIN THE PRESENCE OR ABSENCE OF RODENTS ON THE PROPERTY. SHOULD THE PRESENCE OF RODENTS BE DETERMINED, THE APPLICANT SHALL ERADICATE THE RODENTS PRIOR TO CLEARING THE SITE.

**SEVERE STORM PREPAREDNESS NOTES:**

SECURE THE CONSTRUCTION SITE BY TAKING THE FOLLOWING STEPS:

- a. SECURE OR COVER ANY CONSTRUCTION DEBRIS OR MATERIAL THAT MAY BE LOCATED IN AREAS SUSCEPTIBLE TO HIGH WINDS. SECURE ALL STOCKPILES OF CONSTRUCTION MATERIALS WITH A COVERING.
- b. STORE ANY MATERIAL THAT IS STORED INDOORS OR SECURELY COVERED THAT MIGHT BE SUSCEPTIBLE TO WIND OR RAIN DURING A STORM.
- c. MAKE SURE THAT TRASH CANS AND DUMPSTERS ARE INTACT AND PROPERLY LIDDED TO PREVENT THEM FROM BEING BLOWN AROUND.
- d. CHECK THE SWPPP'S FOR THE CONSTRUCTION PROJECT TO ENSURE THAT BMPS FOR TRASH AND EROSION CONTROL ARE IMPLEMENTED PROPERLY.

IN THE EVENT OF A SEVERE STORM THE CONTRACTOR SHALL IMPLEMENT THE FOLLOWING PROCEDURES:

- a. PROVIDE PROTECTION FOR ALL EQUIPMENT AND MATERIALS BY SECURING AND OR COVERING THEM.
- b. IF TIME ALLOWS, THE CONTRACTOR SHALL REMOVE ANY EXCESS MATERIAL OR EQUIPMENT THAT MAY BE STORED IN THE SITE WITH HIGH RISK OF FLOODING OR OTHER STORM WATER DAMAGE.
- c. PROVIDE PROTECTION FOR ANY EXPOSED SLOPES AS QUICKLY AS POSSIBLE BEFORE THE STORM ARRIVES.

**PERMIT REQUIREMENTS:**

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND COUNTY PERMIT REQUIREMENTS, INCLUDING BUT NOT LIMITED TO THOSE ISSUED BY THE HAWAII DEPARTMENT OF HEALTH (DOH), CLEAN WATER BRANCH (CWB), AND THE DEPARTMENT OF LAND AND NATURAL RESOURCES (DLNR).
2. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND COUNTY PERMIT CONDITIONS AND REQUIREMENTS AS OUTLINES IN THE APPROVED PERMIT DOCUMENTS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMANCE WITH THE REQUIREMENTS OF THE STATE BMP AND WATER POLLUTION CONTROL STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH.
4. THE CONTRACTOR, AT THE CONTRACTOR'S OWN EXPENSE, SHALL KEEP THE CONSTRUCTION SITE AND SURROUNDING AREA FREE OF TRASH AND DEBRIS. THE CONTRACTOR SHALL ALSO MAINTAIN THE ROADWAYS WITHIN THE WORK SITE AREA DURING THE PROJECT.

**TEMPORARY FACILITIES:**

1. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ADEQUATE SANITARY FACILITIES IN COMPLIANCE WITH THE REQUIREMENTS OF THE STATE DEPARTMENT OF HEALTH (DOH) DURING CONSTRUCTION.

W:\CIVIL\_3D PROJECTS\2025-054-000 DLNR STREAM CROSSING NA PALI KONA FOREST\01 CE DWG\002 NOTES.DWG 4/14/2026 4:43 PM RARANO

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
<b>STATE OF HAWAII</b> <b>DEPARTMENT OF LAND AND NATURAL RESOURCES</b> <b>ENGINEERING DIVISION</b>					
<b>NA PALI KONA FOREST RESERVE</b> <b>STREAM CROSSINGS</b>					
<b>CIVIL NOTES - 2</b>					
			DESIGNED: CM DRAWN: LM CHECKED: GG		
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION			SUBMITTED:  DATE: MARCH 2026 SCALE: AS SHOWN		
APPROVED:  CHIEF ENGINEER			Dina Lau E-signed 2026-04-23 10:30AM HST dina.u.lau@hawaii.gov State of Hawaii Civil Engineer		
			DRAWING NO. <b>C-002</b>		

**ADDITIONAL DIVISION OF FORESTRY AND WILDLIFE (DOFAW) NOTES:**

TAKE ALL MEASURES TO MINIMIZE DISTURBANCE OR DAMAGE TO EXISTING PAVEMENT SURFACES BY CONSTRUCTION TRAFFIC, AND CONDUCT NECESSARY CLEAN-UP DURING CONSTRUCTION TO REDUCE DUST AND DEBRIS.

THE CONTRACTOR SHALL PROTECT ANY SIDEWALKS AND FOOTPATHS THAT MAY BE ADJACENT TO THE WORK AREA AND CONSTRUCT A TEMPORARY BARRICADE TO PREVENT DAMAGE TO THE SIDEWALKS AND PEDESTRIANS AND USERS FROM ACCESSING THE CONSTRUCTION SITE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A SAFE, STABLE, AND USABLE SITE FOR THE ENTIRETY OF THE PROJECT PERIOD. THE CONTRACTOR SHALL RESTORE ALL AREAS TO THE ORIGINAL CONDITION UPON COMPLETION OF THE WORK.

NIGHT WORK THAT REQUIRES OUTDOOR LIGHTING MUST BE PERFORMED WITH LIGHTING FIXTURES TO SHIELD DOWN THE SPILL LIGHT TO MINIMIZE LIGHT POLLUTION AND TO HELP SAVE ON ENERGY COSTS.

ANY DEVIATION TO THE PROPOSED SITE PLAN FROM THIS POINT SHALL REQUIRE THE APPROVAL OF THE ENGINEER.

ALL MAJOR CONSTRUCTION ITEMS FOR THE PROJECT SHALL BE INSTALLED AND APPROVED BY THE ENGINEER.

**ADDITIONAL NOTES RELATING TO THE NA PALI KONA FOREST RESERVE:**

THE SITE FOR THIS PROJECT IS WITHIN A STATE FOREST RESERVE AND THEREFORE ARE SUBJECT TO AND EXPECTED TO FOLLOW ALL PERMIT REQUIREMENTS FOR THE STATE FOREST RESERVE.

- a. STATE LANDS UNDER THE JURISDICTION OF DLNR ARE OPEN TO PUBLIC HUNTING THROUGHOUT THE YEAR. PLEASE BE ADVISED THAT THE CONTRACTOR MAY ENCOUNTER WILD PIGS WHILE WORKING IN THIS AREA. THE CONTRACTOR IS ADVISED TO TAKE PRECAUTIONS WITH REGARD TO THE PRESENCE OF PIGS.

ADDITIONAL NOTES RELATING TO HAWAII EXPERIMENTAL TROPICAL FOREST (HELELOS BOROUGH) HEALTH ISSUES (SUCH AS RAPID OHIA DEATH (RAPID OHIA DEATH APPLICABILITY)):

WITH REFERENCE TO THE HELELOS BOROUGH HANDOUT, WHICH IS APPROXIMATELY 8 PAGES, PLEASE TAKE MEASURES TO MINIMIZE THE SPREAD OF RAPID OHIA DEATH TO THIS SITE. TO MINIMIZE THE RISK, THE CONTRACTOR SHALL PERFORM INSPECTIONS OF ALL VEHICLES, PERSONNEL, AND EQUIPMENT FOR CONTAMINATION.

INSPECT AND CLEAN ALL EQUIPMENT, GEAR, AND VEHICLES (PERSONAL AND PROJECT) THAT ENTER AND EXIT THE JOB SITE.

1. ENSURE THAT ALL GEAR EQUIPMENT AND VEHICLES ARE FREE OF ANY PLANT, ANIMAL OR EARTHEN MATERIALS. ALL EQUIPMENT, GEAR, AND VEHICLES SHALL BE INSPECTED, CLEANED AND SANITIZED AT THE LAST INSPECTION OR LOG BLOCK STATION BEFORE ENTERING THE JOB SITE, AND BEFORE LEAVING ANY WEED INFECTED/CONTAMINATED AREA TO PREVENT TRACKING IN HARMFUL ORGANISMS (E.G., WEEDS, INSECT PESTS) AND PREVENT SPREAD TO PRISTINE AND HEALTHY FOREST AREAS. EQUIPMENT TO INSPECT AND CLEAN INCLUDE BUT IS NOT LIMITED TO:
  - a. GINGER OR ATTACHED TO FOOTWEAR (TREADS, LACES, BOOT TONGUES, SOCKS, PANT LEGS, POCKETS, JACKETS, RAIN GEAR (POCKETS AND CUFFS)).
  - b. EQUIPMENT & SUPPLIES—TOOLS, TOOL BAGS, BACKPACKS & BAGS (TOOLS, POCKETS, VELCRO), WOOD AND BUILDING MATERIALS, FENCING MATERIAL, BOTTOMS OF PLASTIC BUCKETS, CARDBOARD BOXES (ROACHES & ANTS), OPEN FOOD AND WATER CONTAINERS, TENTS, HAMMOCKS, TARPS, HELICOPTER SLINGS, CHAINSAW BLADES.
  - c. VEHICLES—THE INSIDE OF THE VEHICLES SHOULD BE VACUUMED AND THE TRUCK BEDS SWEEPED OUT REGULARLY, ESPECIALLY IF USED OFF-ROAD. CLEAN PLACES SUCH AS THE INSIDE LIP OF BUMPERS, SEATS, FLOORS, DASHBOARDS, DOOR JAMS, TIRES (ESPECIALLY TIRE TREADS), AND THE UNDERCARRIAGE.
  - d. HEAVY EQUIPMENT, TRUCKS, ALL TYPES OF EARTHMOVING CONSTRUCTION EQUIPMENT AND GENERAL CONSTRUCTION EQUIPMENT AND SUPPLIES.
  - e. OTHER—ENSURE SOIL AND STERILE AND FREE OF INSECTS, WEEDS, AND PATHOGENS. ANYTHING SUSPICIOUS SHOULD NOT BE TAKEN ONTO THE JOB SITE.
2. ON A DAILY BASIS, PACK AND REMOVE ALL TRASH, INCLUDING ANY DISCARDED FOOD, FROM THE JOB SITE TO PREVENT NEGATIVELY AFFECTING THE FLORA AND FAUNA AT THE FIELD SITE. DISCARDED FOOD MAY CONTAIN UNSEEN INSECTS, FUNGI, BACTERIA, AND PARASITES; AND IS AN ATTRACTANT FOR INVASIVE INSECTS.
3. FOLLOW METHODS OF CLEANING SPECIFIED IN H.I.E.F.T. BIOSECURITY HANDBOOK. SPECIFIED METHODS OF CLEANING INCLUDE:
  - a. WATER & HOSE, BRUSH, TWEEZERS, CLEAN RAG, KNIFE EDGE, BLEACH RINSE AND/OR INSECTICIDE.
  - b. CLEANING SHALL BE PERFORMED AWAY FROM THE FOREST WITH A NEARBY RECEPTACLE FOR DISPOSAL.
  - c. LAUNDERING OF WASHABLE ITEMS SHALL BE PERFORMED AFTER EACH TRIP.
  - d. IF ITEMS CANNOT BE CLEANED, THEY CANNOT BE BROUGHT INTO THE FOREST.
4. CONTAMINATED SUPPLIES ARE DISCOVERED, THEY MUST BE IMMEDIATELY REMOVED AND PROPERLY DISPOSED, AWAY FROM THE H.I.E.F.T.
5. CLEAN AND INSPECT EQUIPMENT PRIOR TO MOBILIZATION TO THE JOB SITE.
6. IN THE EVENT THAT INFECTED OHIA TREES ARE FOUND AT THE FIELD SITE, THE CONTRACTOR SHALL BE INFORMED AND AT THE DIRECTION OF DLNR SHALL TAKE ACTION TO PREVENT THE SPREAD OF THE CERATOCYSTIS FUNGUS:
  - a. FOLLOW THE RECOMMENDATIONS AND METHODS TO CONTAIN THE FUNGUS IN THE HELELOS BOROUGH, (HELELOS BOROUGH BIOSECURITY PROTOCOLS) AND FOLLOW THE CLEANING GUIDELINES TO PREVENT THE SPREAD OF THE FUNGUS TO OTHER PARTS OF THE ISLAND.

7. CONTACTING MAPUNA O'SULLIVAN (808-346-2338 OR SHERI MANN (808-723-6744) REGARDING THE LOCATION OF INFECTED TREES AND/OR INFECTED AREAS AND THEIR LOCATIONS WITHIN THE PROJECT SITE. THIS INFORMATION SHALL BE REPORTED TO THE PROJECT ENGINEER AND ACTIONS WILL BE TAKEN TO ENSURE THAT THE WORK DOES NOT DISTURB INFECTED TREES AND PLACES ON THE WOOD WITH VISIBLE SIGNS OF FUNGAL GROWTH.
8. DO NOT TRANSPORT ANY OTHER INFECTED MATERIALS.

**ENVIRONMENTAL PROTECTION (STREAM WORK)**

1. ALL IN-STREAM WORK SHALL COMPLY WITH APPLICABLE REQUIREMENTS OF DLNR-DOFAW, HAWAII DEPARTMENT OF HEALTH (DOH), AND CLEAN WATER ACT SECTION 401/404 PERMIT CONDITIONS, IF APPLICABLE.
2. THE CONTRACTOR SHALL IMPLEMENT TURBIDITY CONTROL MEASURES TO PREVENT DOWNSTREAM DEGRADATION OF WATER QUALITY. ACCEPTABLE MEASURES INCLUDE, BUT ARE NOT LIMITED TO:
  - A. TURBIDITY CURTAINS OR BARRIERS (WHERE FEASIBLE),
  - B. ISOLATION OF THE WORK AREA USING COFFERDAMS, SANDBAGS, OR SIMILAR METHODS,
  - C. STAGED CONSTRUCTION TO MINIMIZE EXPOSED STREAMBED.
3. NO VISIBLE INCREASE IN TURBIDITY OUTSIDE THE DEFINED WORK AREA SHALL BE PERMITTED. WORK SHALL CEASE IMMEDIATELY IF TURBIDITY CONTROLS ARE INEFFECTIVE AND SHALL NOT RESUME UNTIL CORRECTIVE MEASURES ARE IMPLEMENTED.
4. SPILL PREVENTION AND RESPONSE MEASURES SHALL BE IN PLACE AT ALL TIMES. AT A MINIMUM:
  - A. MAINTAIN SPILL KITS ON-SITE WITH SUFFICIENT CAPACITY FOR FUEL AND HYDRAULIC FLUID CONTAINMENT,
  - B. PROHIBIT FUELING AND EQUIPMENT MAINTENANCE WITHIN OR IMMEDIATELY ADJACENT TO THE STREAM,
  - C. STORE HAZARDOUS MATERIALS IN DESIGNATED UPLAND AREAS WITH SECONDARY CONTAINMENT.
5. DISTURBED AREAS SHALL BE STABILIZED IMMEDIATELY UPON COMPLETION OF WORK USING NATIVE OR APPROVED VEGETATION, EROSION CONTROL BLANKETS, OR OTHER BMPS ACCEPTABLE TO DLNR-DOFAW.

**CONSTRUCTION ACCESS (FOREST RESERVE)**

1. CONSTRUCTION ACCESS WITHIN THE NA PALI KONA FOREST RESERVE SHALL BE LIMITED TO EXISTING ROADS, TRAILS, AND PREVIOUSLY DISTURBED AREAS.
2. NO NEW ACCESS ROUTES, CLEARING, OR GRADING SHALL BE PERMITTED UNLESS SPECIFICALLY APPROVED IN WRITING BY DLNR-DOFAW.
3. THE CONTRACTOR SHALL PROTECT ALL ADJACENT VEGETATION AND NATURAL RESOURCES. DAMAGE BEYOND APPROVED LIMITS OF DISTURBANCE SHALL BE RESTORED AT THE CONTRACTOR'S EXPENSE.
4. EQUIPMENT STAGING, MATERIAL STORAGE, AND PARKING SHALL OCCUR ONLY IN DESIGNATED AREAS APPROVED BY DLNR-DOFAW.
5. UPON COMPLETION OF CONSTRUCTION, ALL ACCESS ROUTES USED SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITION OR BETTER, AS DETERMINED BY DLNR-DOFAW.

**TEMPORARY STREAM DIVERSION**

1. THE CONTRACTOR SHALL MAINTAIN CONTINUOUS STREAM FLOW DURING CONSTRUCTION USING AN APPROVED TEMPORARY DIVERSION METHOD.
2. ACCEPTABLE DIVERSION METHODS INCLUDE:
  - A. TEMPORARY DIVERSION CHANNEL CONSTRUCTED AROUND THE WORK AREA, OR
  - B. PUMP BYPASS SYSTEM DESIGNED TO CONVEY ANTICIPATED BASE FLOW AND STORM FLOW CONDITIONS.
3. THE SELECTED DIVERSION METHOD SHALL:
  - C. BE SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO IMPLEMENTATION,
  - D. PREVENT SEDIMENT-LADEN WATER FROM RE-ENTERING THE ACTIVE STREAM CHANNEL,
  - E. INCLUDE BACKUP SYSTEMS (E.G., STANDBY PUMPS) TO PREVENT FAILURE.
4. INTAKE STRUCTURES FOR PUMP SYSTEMS SHALL BE SCREENED TO PREVENT ENTRAINMENT OF AQUATIC ORGANISMS.
5. DIVERSION STRUCTURES SHALL BE REMOVED UPON COMPLETION OF WORK, AND THE STREAM CHANNEL SHALL BE RESTORED TO ITS ORIGINAL ALIGNMENT AND CONDITION UNLESS OTHERWISE DIRECTED.

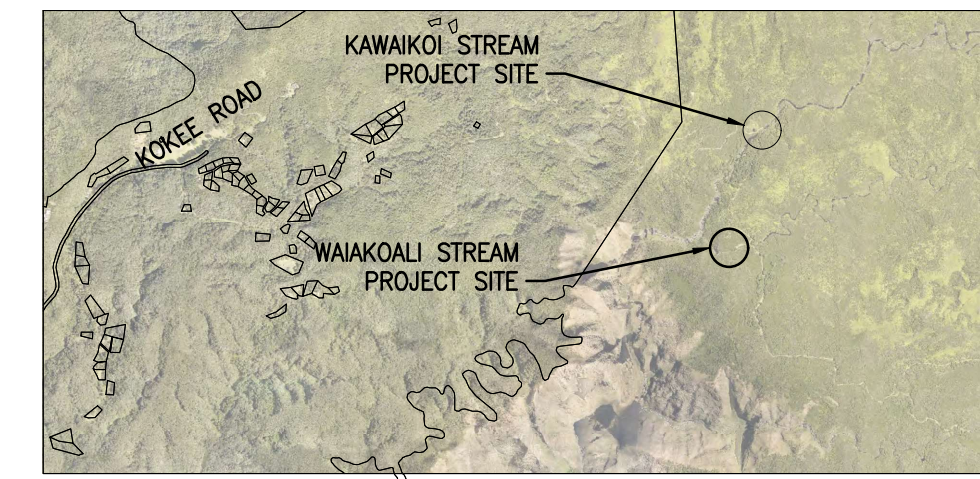
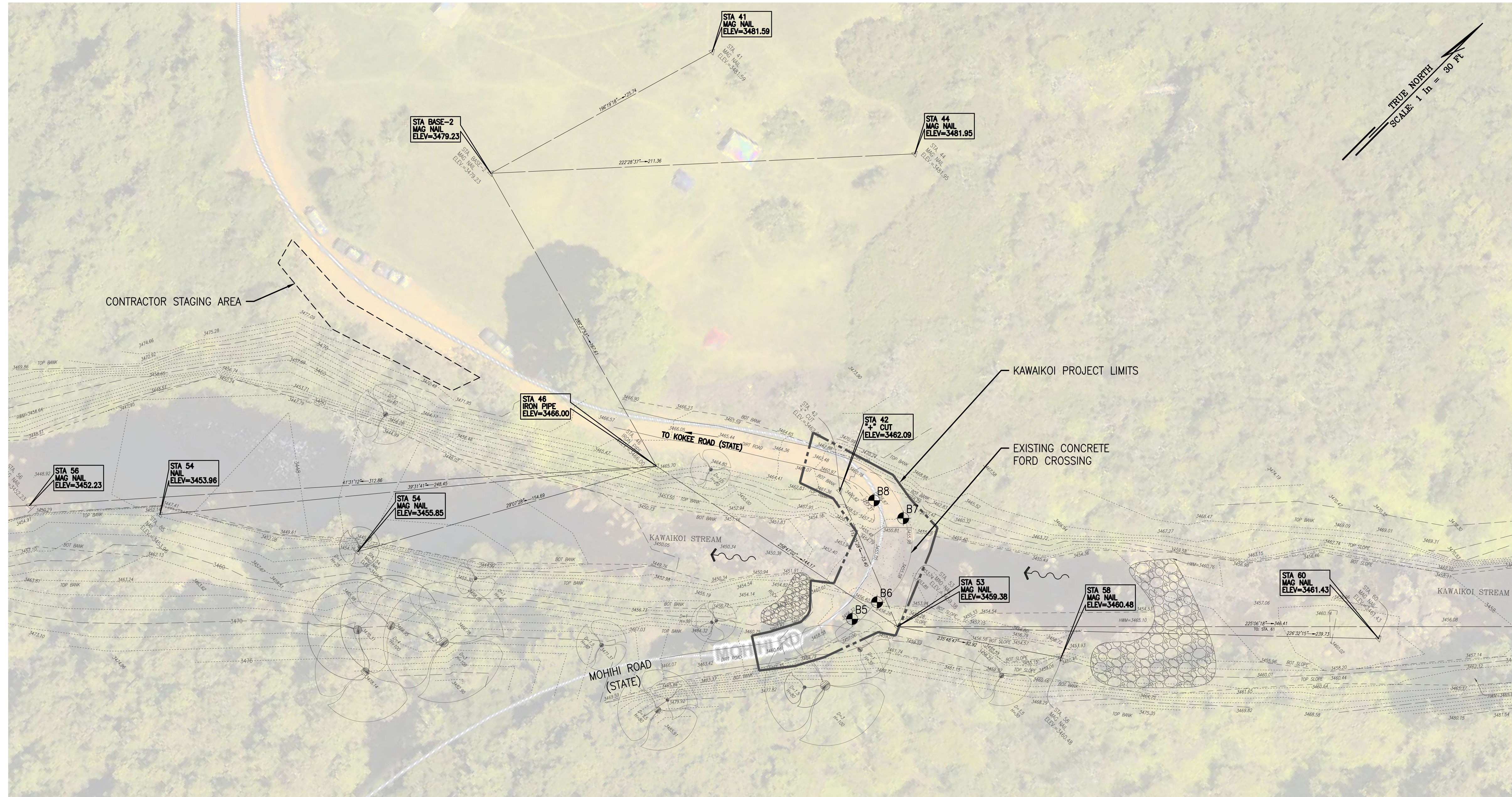
**GENERAL COMPLIANCE**

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS GOVERNING WORK WITHIN STREAMS AND FOREST RESERVES.
2. ALL WORK SHALL BE COORDINATED WITH DLNR-DOFAW REPRESENTATIVES. THE CONTRACTOR SHALL PROVIDE ADVANCE NOTICE PRIOR TO INITIATING IN-STREAM ACTIVITIES.

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REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
NA PALI KONA FOREST RESERVE STREAM CROSSINGS					
CIVIL NOTES - 3					
DESIGNED: CM			SUBMITTED: <i>CM</i>		
DRAWN: LM			DATE: MARCH 2026		
CHECKED: GG			SCALE: AS SHOWN		
APPROVED: <i>Corey M. Matsuka</i>			DRAWING NO. C-003		
CHIEF ENGINEER			Dina Lau E-signed 2026-04-23 10:30AM HST dina.u.lau@hawaii.gov State of Hawaii Civil Engineer		

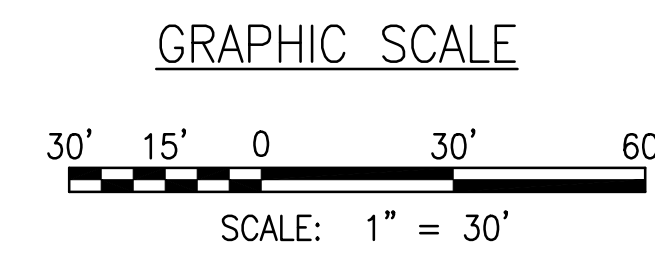
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NORTH  
KEY MAP  
NOT TO SCALE

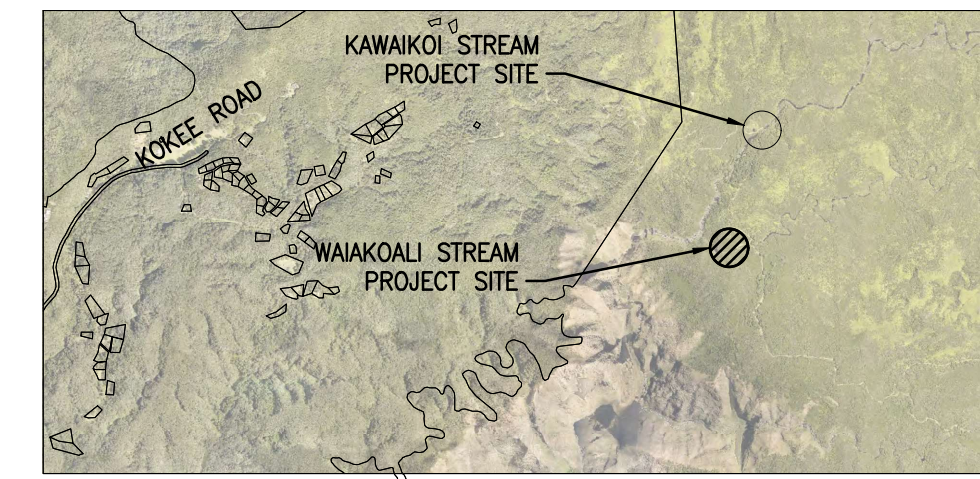
- LEGEND:**
- HORIZONTAL CONTROL
  - ▲ EXISTING SURVEY MON/BENCHMARK
  - LIMITS OF PROJECT
  - CONTRACTOR STAGING AREA
  - ← DIRECTION OF FLOW
  - ⊙ BORING LOCATION, FOR BORING LOG SEE 1 CS502

**1 EXISTING CONDITIONS PLAN - KAWAIKOI**  
1" = 30'



REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
NA PALI KONA FOREST RESERVE STREAM CROSSINGS					
EXISTING CONDITIONS PLAN - KAWAIKOI					
DESIGNED: CM	SUBMITTED: <i>[Signature]</i>				
DRAWN: LM	DATE: MARCH 2026				
CHECKED: GG	SCALE: AS SHOWN				
APPROVED: <i>[Signature]</i> Dina Lau E-signed 2026-04-23 10:30AM HST dina.u.lau@hawaii.gov State of Hawaii Civil Engineer	DRAWING NO. <b>C-101</b>				
JOB NO. D00CK62C SHEET NO. 5 OF 18 SHEETS					

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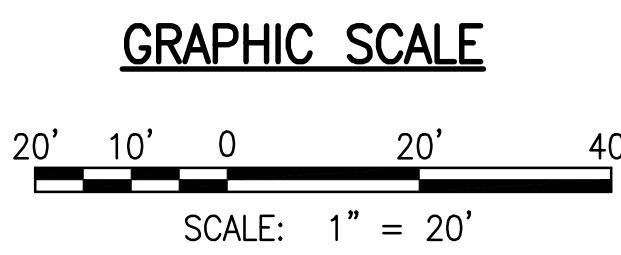


NORTH  
KEY MAP  
NOT TO SCALE

- LEGEND:**
- HORIZONTAL CONTROL
  - ▲ EXISTING SURVEY MON/BENCHMARK
  - LIMITS OF PROJECT
  - CONTRACTOR STAGING AREA
  - ← DIRECTION OF FLOW
  - ⊕ BORING LOCATION, FOR BORING LOG SEE **1** CS502

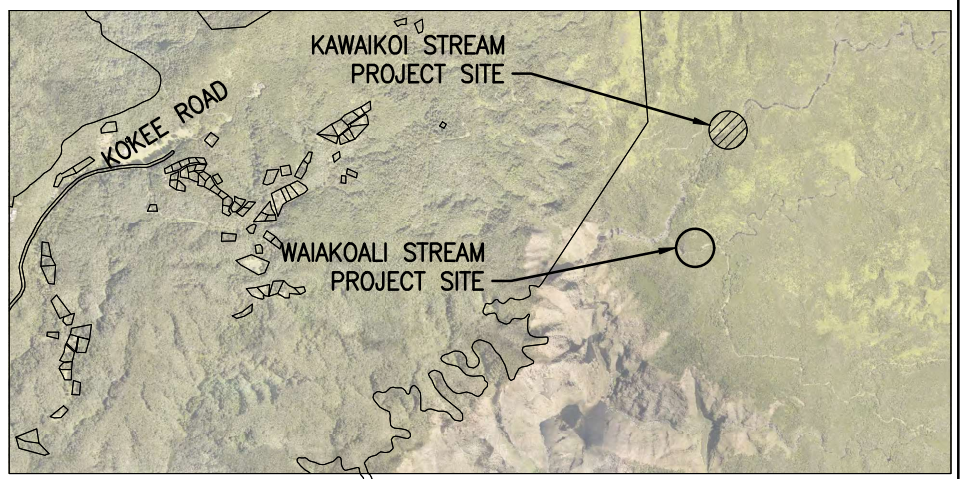
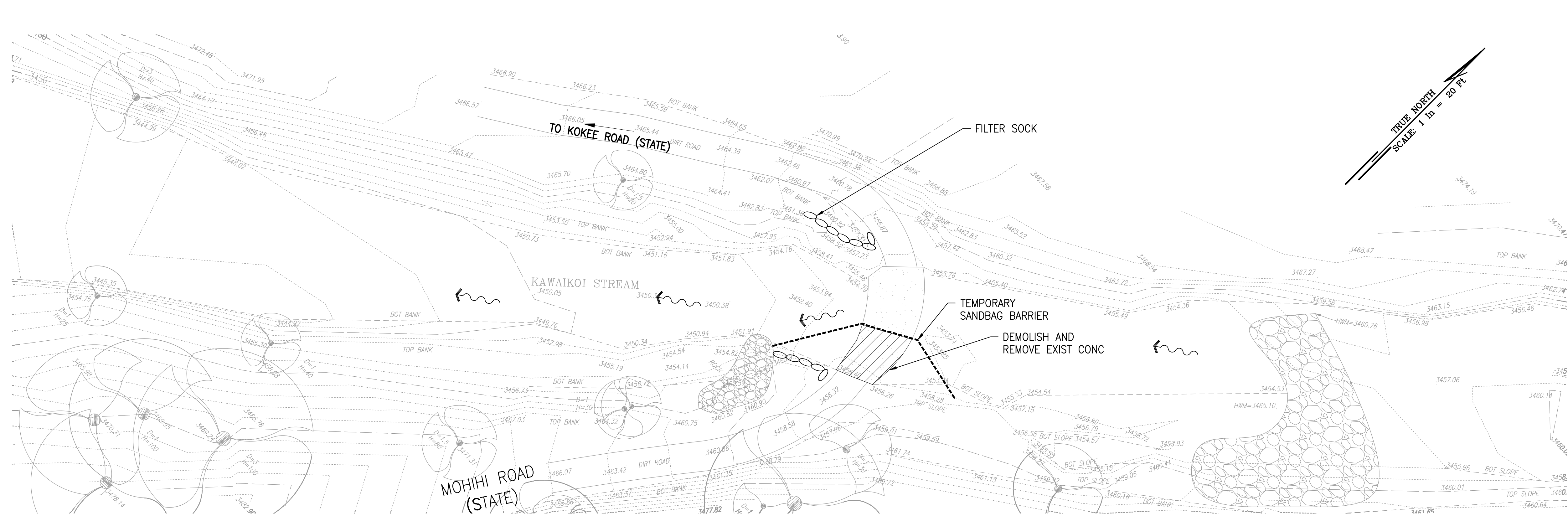
TRUE NORTH  
SCALE: 1" = 20' FT

**2 EXISTING CONDITIONS PLAN - WAIAKOALI**  
1" = 20'



REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
NA PALI KONA FOREST RESERVE STREAM CROSSINGS					
EXISTING CONDITIONS PLAN - WAIAKOALI					
DESIGNED: CM	SUBMITTED: <i>[Signature]</i>				
DRAWN: LM	DATE: MARCH 2026				
CHECKED: GG	SCALE: AS SHOWN				
APPROVED: <i>[Signature]</i>	Dina Lau E-signed 2026-04-23 10:30AM HST dina.u.lau@hawaii.gov	DRAWING NO.			
CHIEF ENGINEER	State of Hawaii Civil Engineer	<b>C-102</b>			

W:\\_CIVIL\_3D\_PROJECTS\2025\_054.000\_DLNR\_STREAM\_CROSSING\_NA\_PALI\_KONA\_FOREST\01\_CE\_DWG\CD101 DEMO EC PLANDWG 4/13/2026 7:45 PM RARCANO

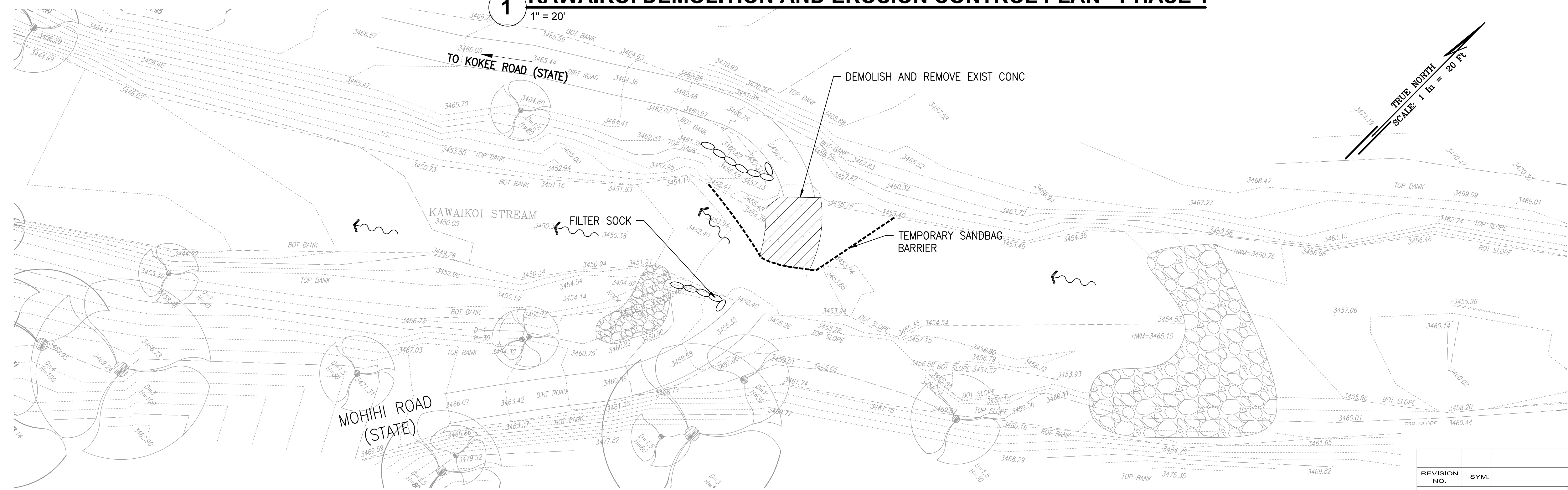


**KEY MAP**  
NOT TO SCALE

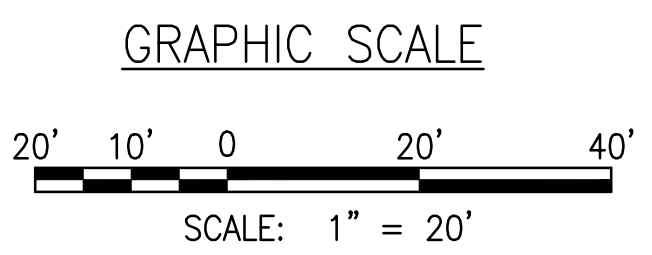
- LEGEND:**
- DEMOLISH EXIST CONC PAVEMENT
  - SANDBAGS
  - FILTER SOCK, SEE DET. 1 CD501
  - DIRECTION OF FLOW

**NOTE:**  
STREAM DEWATERING PLAN IS CONCEPTUAL. CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR THE MEANS AND METHODS FOR DEMOLITION AND CONSTRUCTING THE NEW FORD.

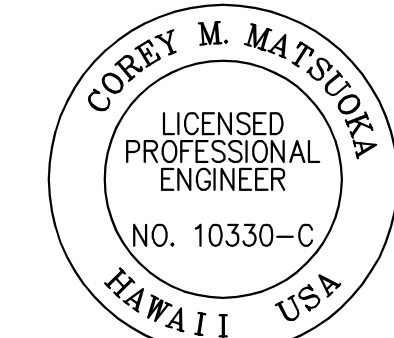
**1 KAWAIKOI DEMOLITION AND EROSION CONTROL PLAN - PHASE 1**  
1" = 20'



**2 KAWAIKOI DEMOLITION AND EROSION CONTROL PLAN - PHASE 2**  
1" = 20'



REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
NA PALI KONA FOREST RESERVE STREAM CROSSINGS					
KAWAIKOI DEMOLITION AND EROSION CONTROL PLAN					
DESIGNED: CM		SUBMITTED:			
DRAWN: LM		DATE: MARCH 2026			
CHECKED: GG		SCALE: AS SHOWN			
APPROVED:	Dina Lau	DRAWING NO.			
	E-signed 2026-04-23 10:30AM HST				
CHIEF ENGINEER	dina.u.lau@hawaii.gov				
	State of Hawaii				
	Civil Engineer				

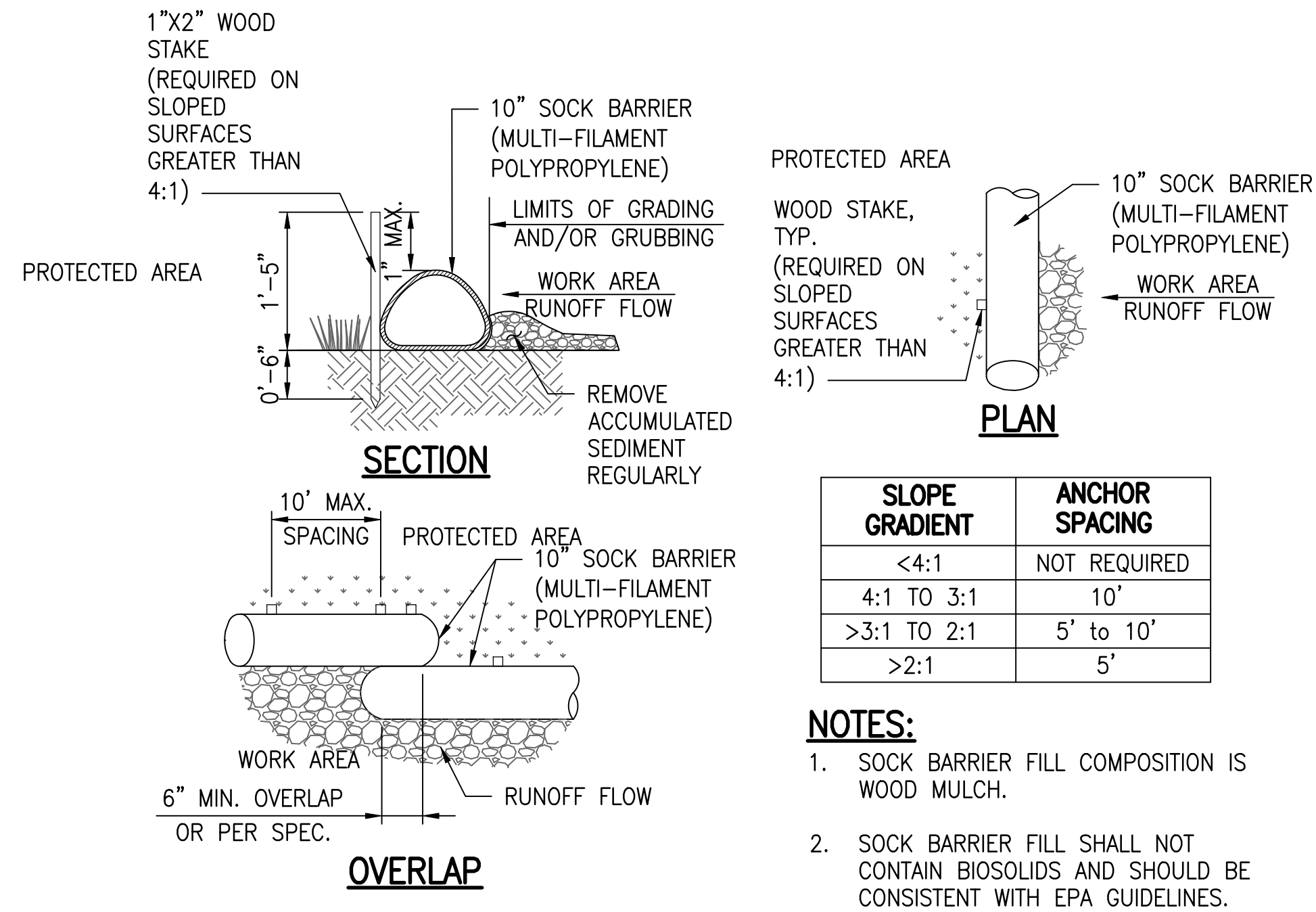


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION

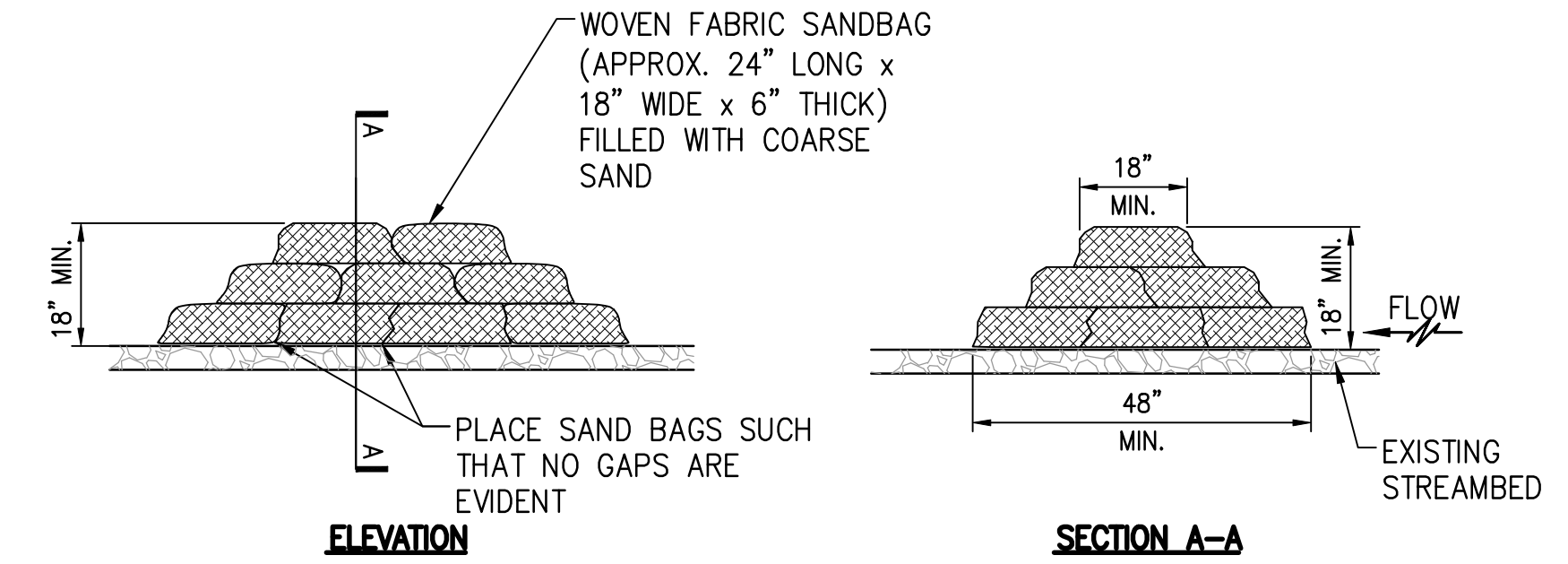
*Corey Matsuka*  
No. Date: 4/30/2026

**CD101**

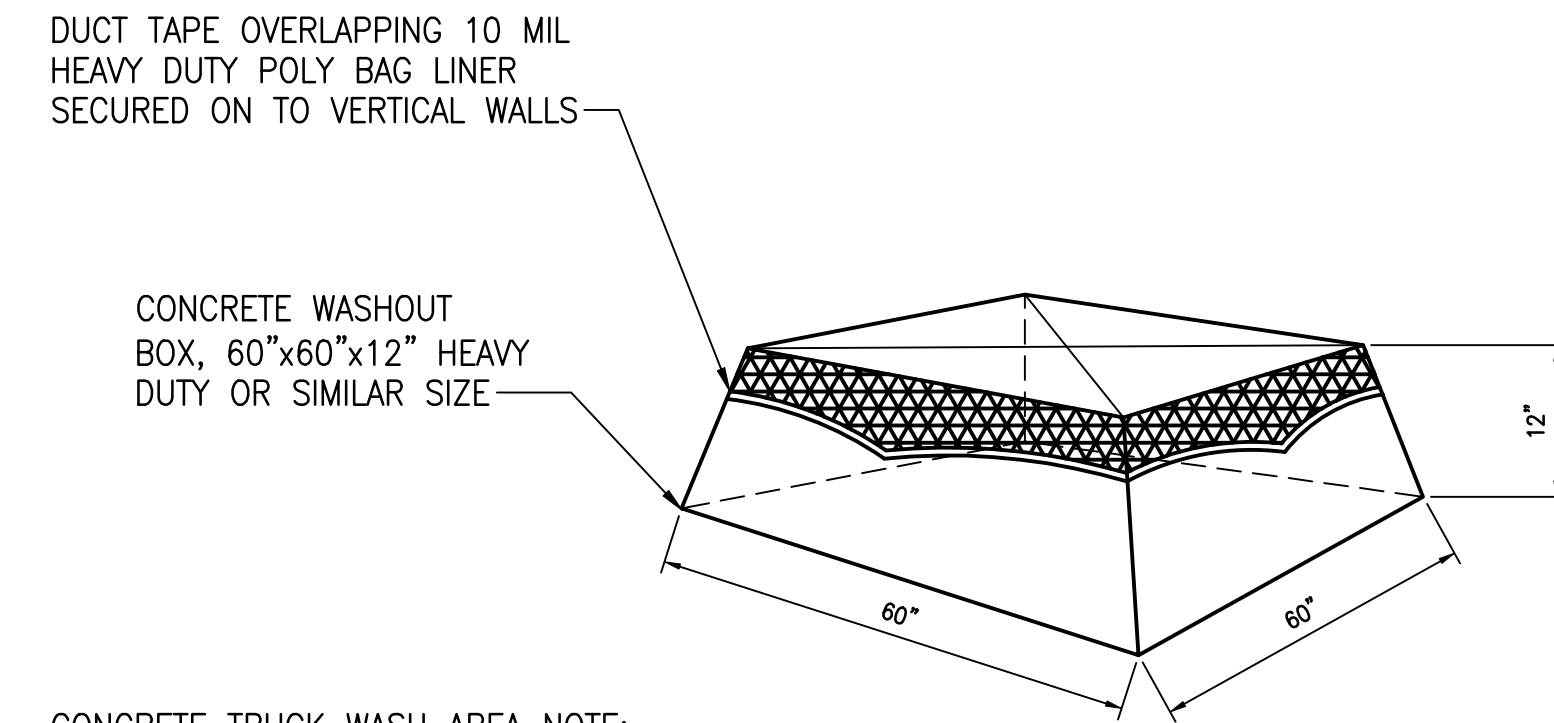
W:\CIVIL\_3D PROJECTS\2025\_054.000 DLNR STREAM CROSSING NA PALI KONA FOREST\01 CE DWG\CD501 DETAILS.DWG 4/14/2026 5:06 PM RARCANO



**1 FILTER SOCK DETAIL**  
CD501 NOT TO SCALE



**2 SANDBAG BARRIER DETAIL**  
CD501 NOT TO SCALE

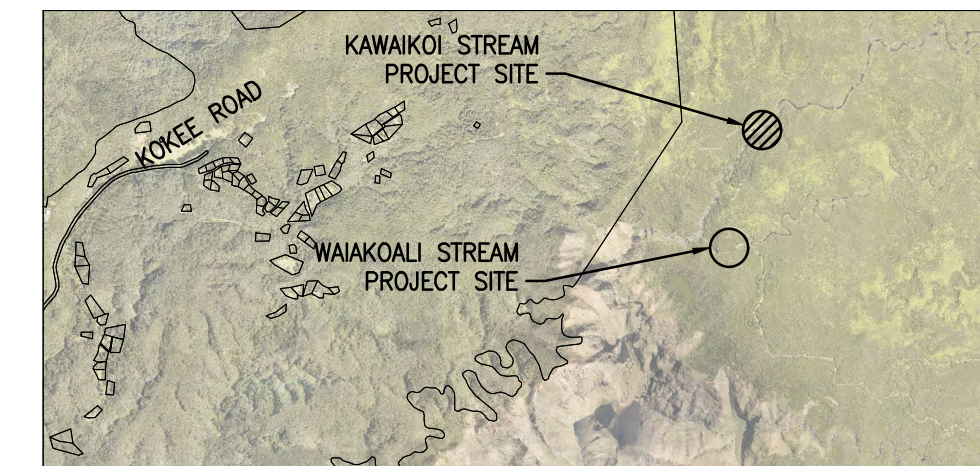
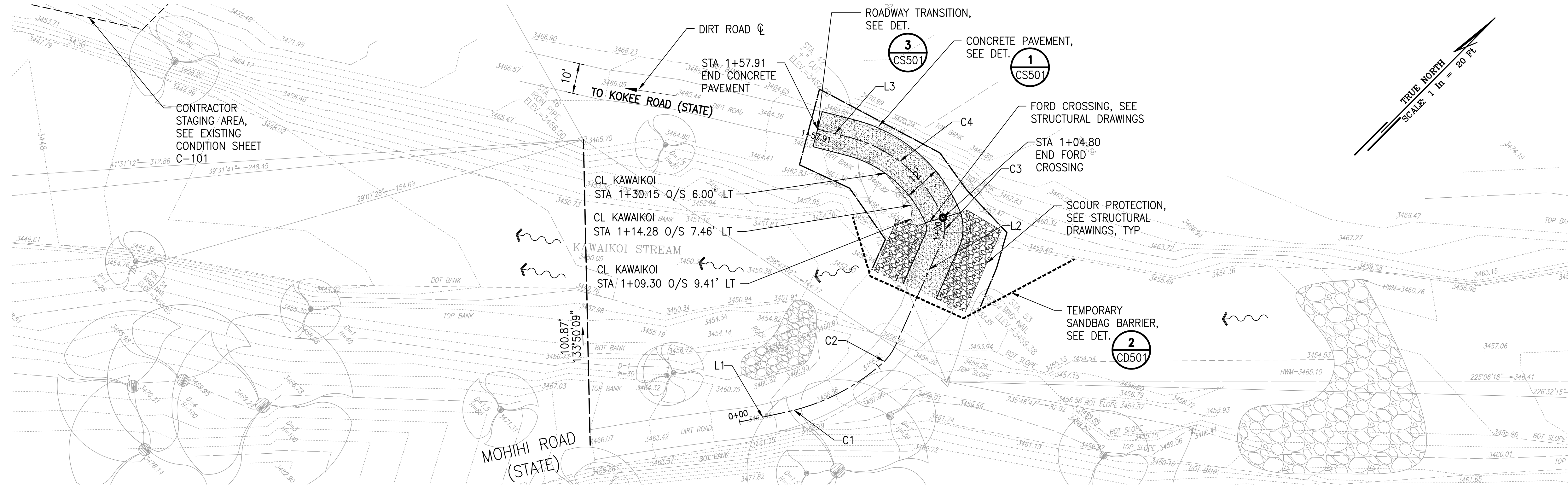


**CONCRETE TRUCK WASH AREA NOTE:**  
THE CONCRETE WASH WATER WILL NOT BE ALLOWED TO OVERFLOW, AND WILL EITHER BE DISPOSED OF INTO AN APPROVED FACILITY IMMEDIATELY AFTER WASHING OPERATIONS, OR ALLOWED TO EVAPORATE AND THE REMAINDER REMOVED REGULARLY AND DISPOSED INTO AN APPROVED FACILITY TO AVOID BUILDUP OF CONCRETE MATERIAL WITHIN THE WASH AREA.

**3 CONCRETE WASH DETAIL**  
CD501 NOT TO SCALE

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
NA PALI KONA FOREST RESERVE STREAM CROSSINGS					
DEMOLITION AND EROSION CONTROL DETAILS					
DESIGNED: CM			SUBMITTED: <i>[Signature]</i>		
DRAWN: LM			DATE: MARCH 2026		
CHECKED: GG			SCALE: AS SHOWN		
APPROVED: <i>[Signature]</i> Civil Engineer			Dina Lau E-signed 2026-04-23 10:30AM HST dina.u.lau@hawaii.gov State of Hawaii		
CHIEF ENGINEER			DRAWING NO. <b>CD501</b>		

W:\\_CIVIL\_3D\_PROJECTS\2025\_054.000\_DLNR\_STREAM\_CROSSING\_NA\_PALI\_KONA\_FOREST\01\_CE\_DWG\CS101 SITE PLAN.DWG 4/15/2026 5:41 PM RARCANO

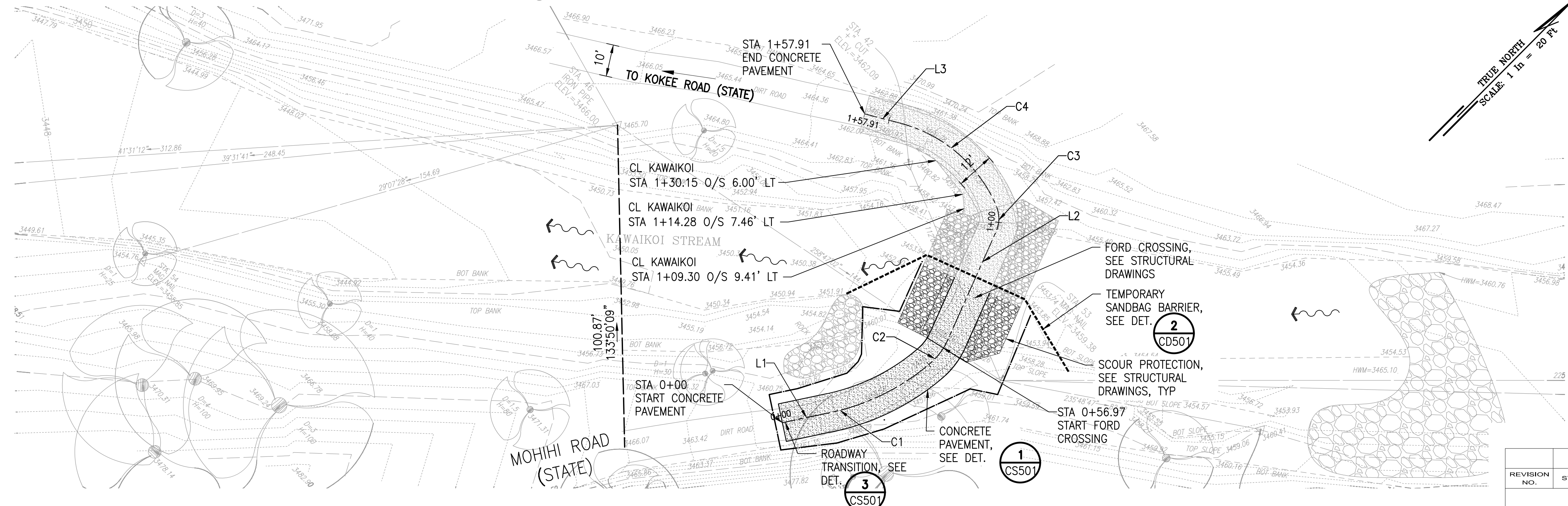


**KEY MAP**  
NOT TO SCALE

- LEGEND:**
- CONCRETE PAVEMENT
  - SCOUR PROTECTION
  - ROADWAY CENTERLINE
  - SANDBAGS
  - DIRECTION OF FLOW

- NOTES:**
1. DEWATERING AND TEMPORARY DIVERSION OF THE STREAM WILL BE REQUIRED FOR CONSTRUCTION OF CONCRETE FORD IN A DRY ENVIRONMENT. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN, IMPLEMENTATION, MONITORING, AND REMOVAL OF THE CONSTRUCTION DEWATERING.
  2. THE CONSTRUCTION PHASING SHOWN IS FOR INFORMATIONAL PURPOSES ONLY. THE ACTUAL CONSTRUCTION SEQUENCE AND PHASING IS AT THE DISCRETION OF THE CONTRACTOR

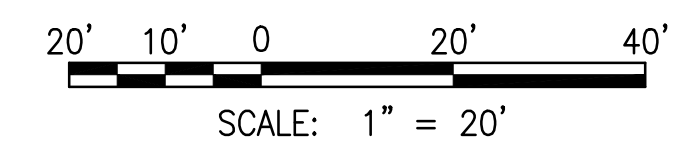
**1 KAWAIKOI SITE PLAN - PHASE 1**  
1" = 20'



**2 KAWAIKOI SITE PLAN - PHASE 2**  
1" = 20'

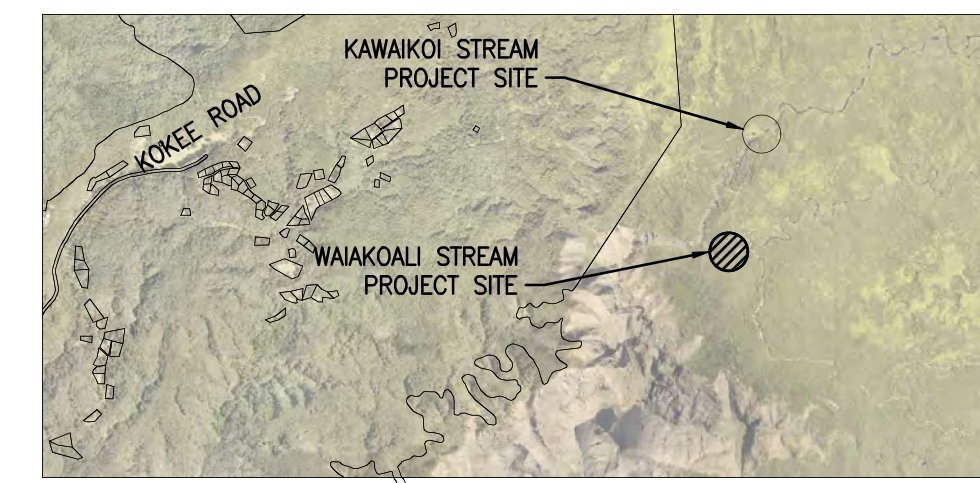
CL KAWAIKOI						
LINE#/CURVE#	LENGTH	AZIMUTH	RADIUS	DELTA	TANGENT	CHORD LENGTH
L1	15.50	213° 10'				
L2	37.30	159° 10'				
L3	11.50	059° 40'				
C1	35.43	029.0	70.00	029°00'	18	35.4
C2	8.73	025.0	20.00	025°00'	4	8.7
C3	8.20	047.0	10.00	047°00'	4	8.2
C4	41.23	052.5	45.00	052°30'	22	41.2

**GRAPHIC SCALE**

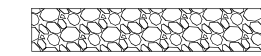
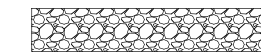


REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
NA PALI KONA FOREST RESERVE STREAM CROSSINGS					
KAWAIKOI SITE PLAN					
DESIGNED: CM	SUBMITTED:				
DRAWN: LM	DATE: MARCH 2026				
CHECKED: GG	SCALE: AS SHOWN				
APPROVED:	Dina Lau E-signed 2026-04-23 10:30AM HST dina.u.lau@hawaii.gov	DRAWING NO.			
CHIEF ENGINEER	State of Hawaii Civil Engineer		<b>CS101</b>		

W:\CIVIL\_3D PROJECTS\2025\_054.000 DLNR STREAM CROSSING NA PALI KONA FOREST\01 CE DWG\CS102 SITE PLAN.DWG 4/15/2026 5:12 PM RARCANO

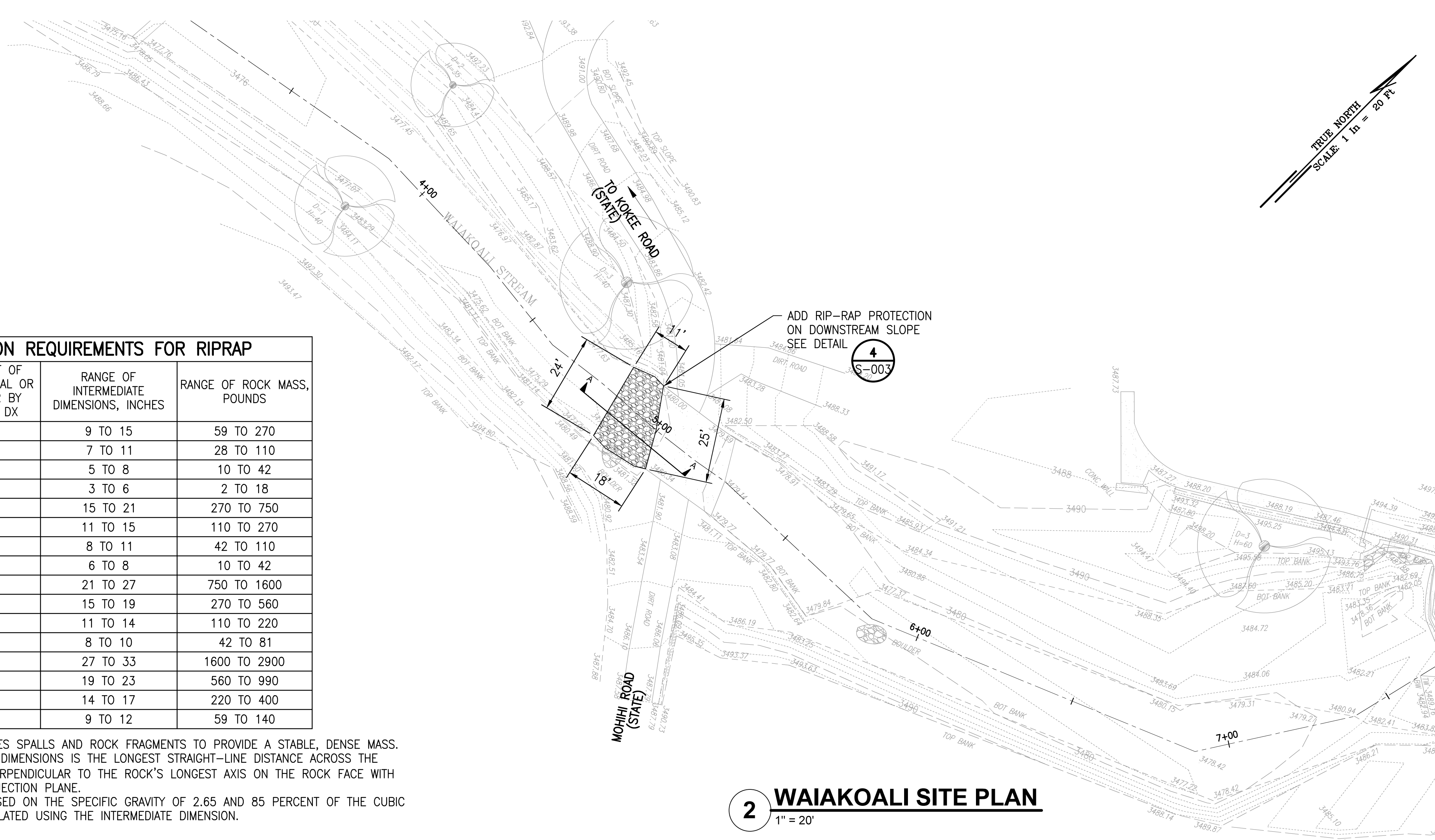


NORTH  
KEY MAP  
NOT TO SCALE

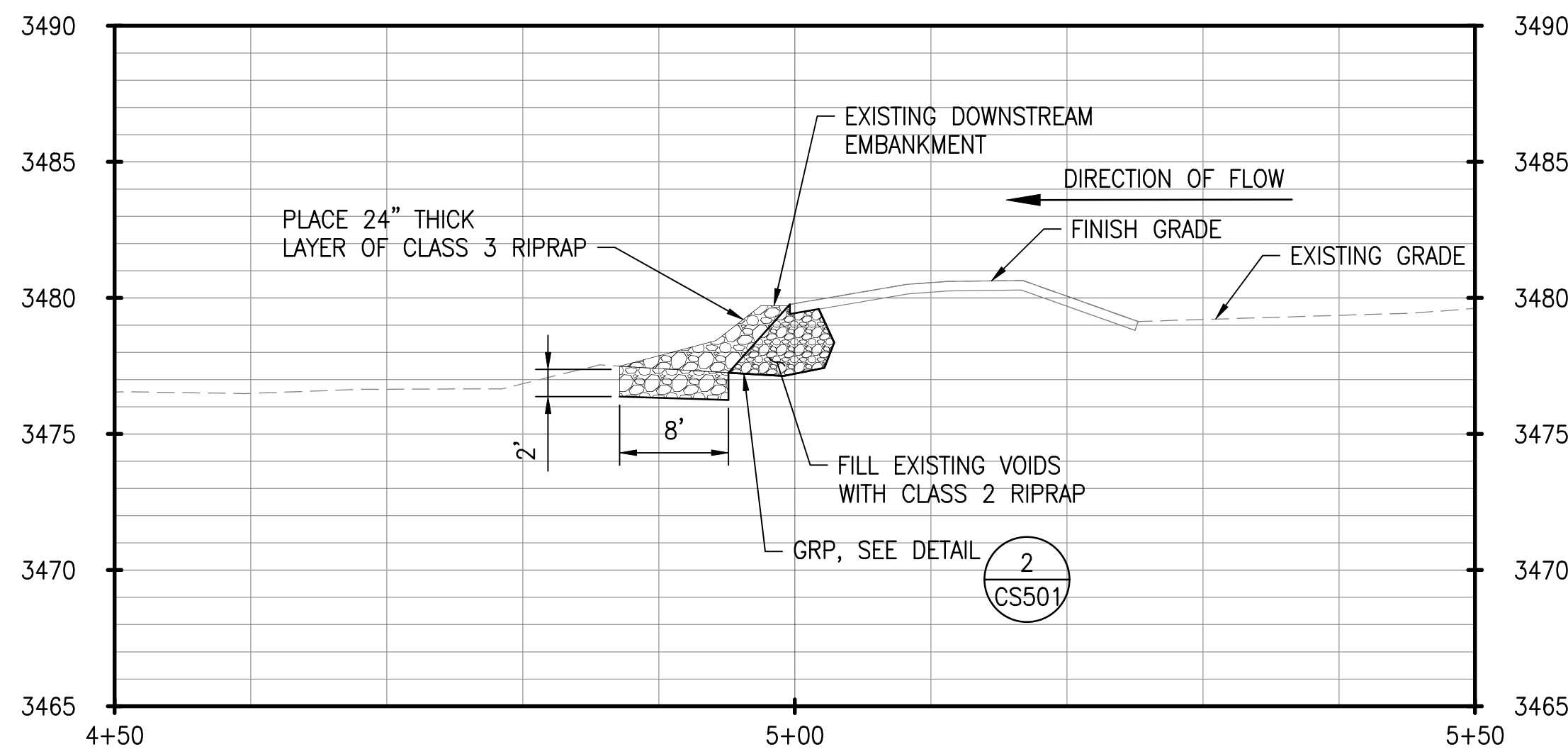
LEGEND:  
 CLASS 3 RIPRAP  
 CLASS 2 RIPRAP

GRADATION REQUIREMENTS FOR RIPRAP			
CLASS	PERCENT OF ROCK EQUAL OR SMALLER BY COUNT, DX	RANGE OF INTERMEDIATE DIMENSIONS, INCHES	RANGE OF ROCK MASS, POUNDS
1	100	9 TO 15	59 TO 270
	85	7 TO 11	28 TO 110
	50	5 TO 8	10 TO 42
	15	3 TO 6	2 TO 18
2	100	15 TO 21	270 TO 750
	85	11 TO 15	110 TO 270
	50	8 TO 11	42 TO 110
	15	6 TO 8	10 TO 42
3	100	21 TO 27	750 TO 1600
	85	15 TO 19	270 TO 560
	50	11 TO 14	110 TO 220
	15	8 TO 10	42 TO 81
4	100	27 TO 33	1600 TO 2900
	85	19 TO 23	560 TO 990
	50	14 TO 17	220 TO 400
	15	9 TO 12	59 TO 140

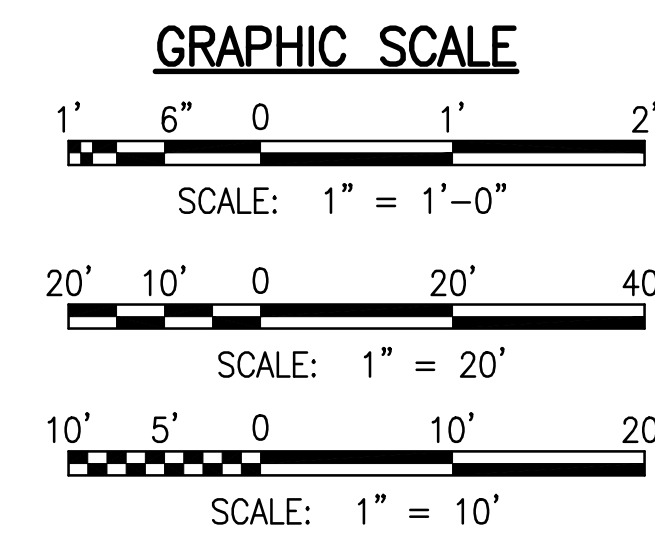
1. GRADATION INCLUDES SPALLS AND ROCK FRAGMENTS TO PROVIDE A STABLE, DENSE MASS.
2. THE INTERMEDIATE DIMENSIONS IS THE LONGEST STRAIGHT-LINE DISTANCE ACROSS THE ROCK THAT IS PERPENDICULAR TO THE ROCK'S LONGEST AXIS ON THE ROCK FACE WITH THE LARGEST PROJECTION PLANE.
3. ROCK MASS IS BASED ON THE SPECIFIC GRAVITY OF 2.65 AND 85 PERCENT OF THE CUBIC VOLUME AS CALCULATED USING THE INTERMEDIATE DIMENSION.

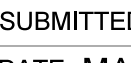
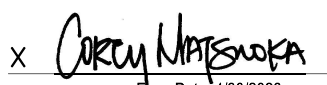


**2 WAIKOALI SITE PLAN**  
1" = 20'

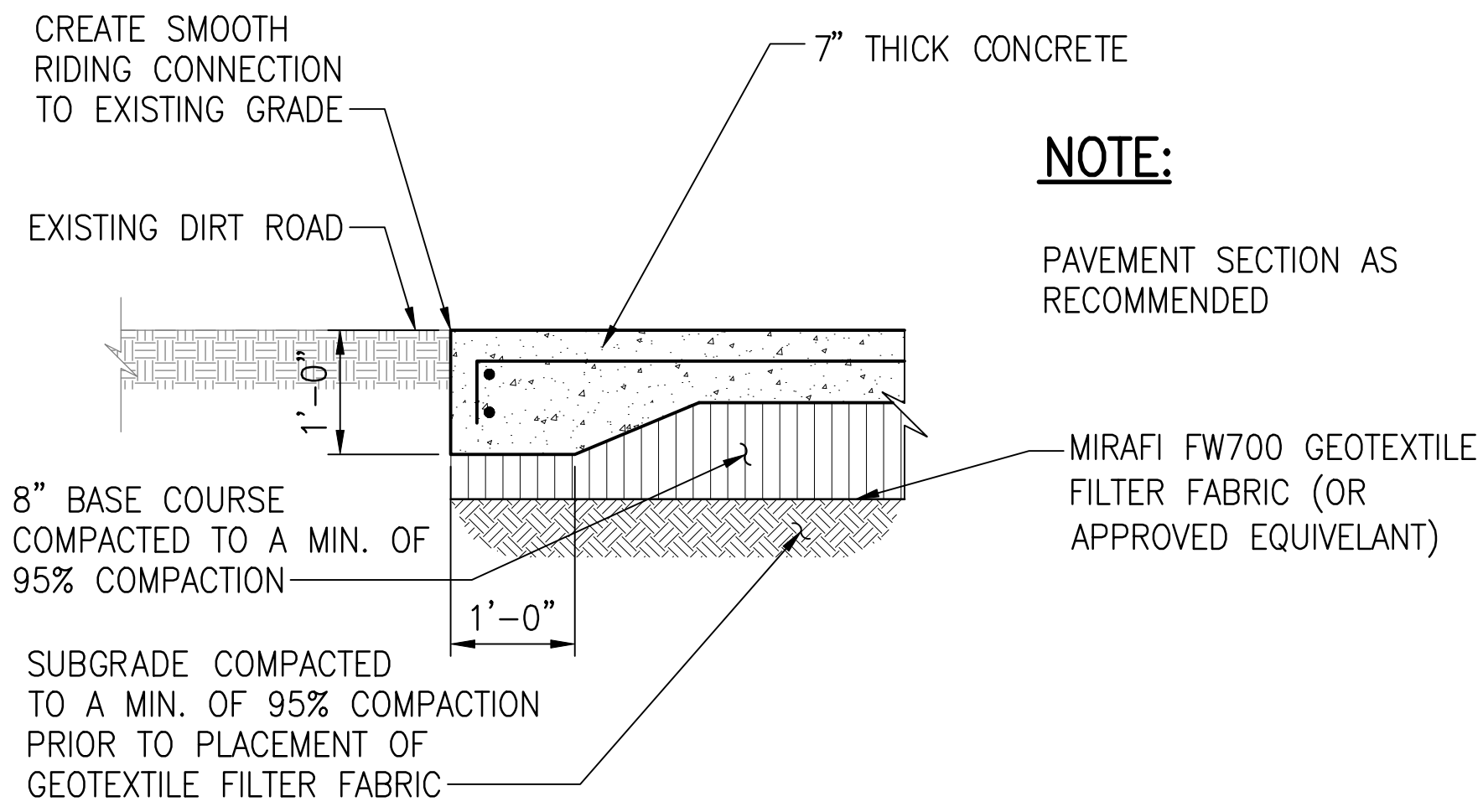


SECTION A-A  
SCALE: 1" = 10'  
SCALE: 1" = 1'-0"

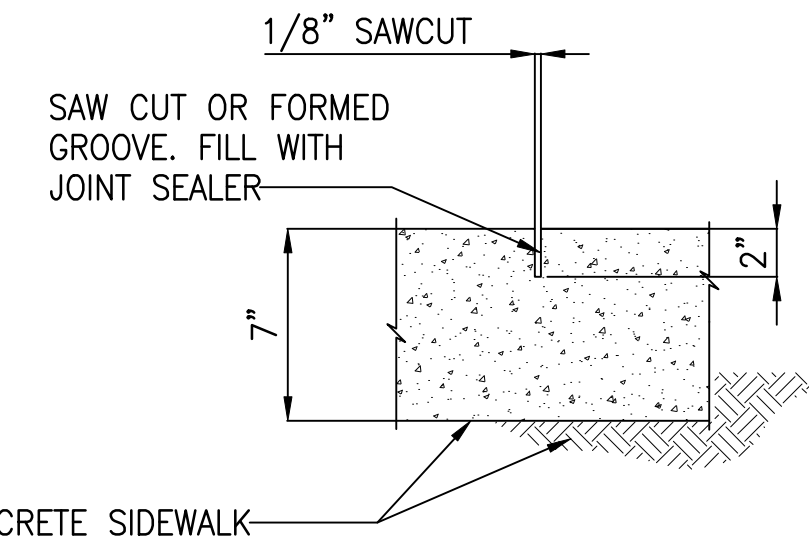


REVISION NO.	SYM.	DESCRIPTION	SHT. OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
NA PALI KONA FOREST RESERVE STREAM CROSSINGS					
WAIKOALI SITE PLAN					
DESIGNED: CM	SUBMITTED: 				
DRAWN: LM	DATE: MARCH 2026				
CHECKED: GG	SCALE: AS SHOWN				
APPROVED: 	Dina Lau E-signed 2026-04-23 10:30AM HST dina.u.lau@hawaii.gov	DRAWING NO.		CS102	
CHIEF ENGINEER	State of Hawaii	SHEET NO.		10 OF 18 SHEETS	

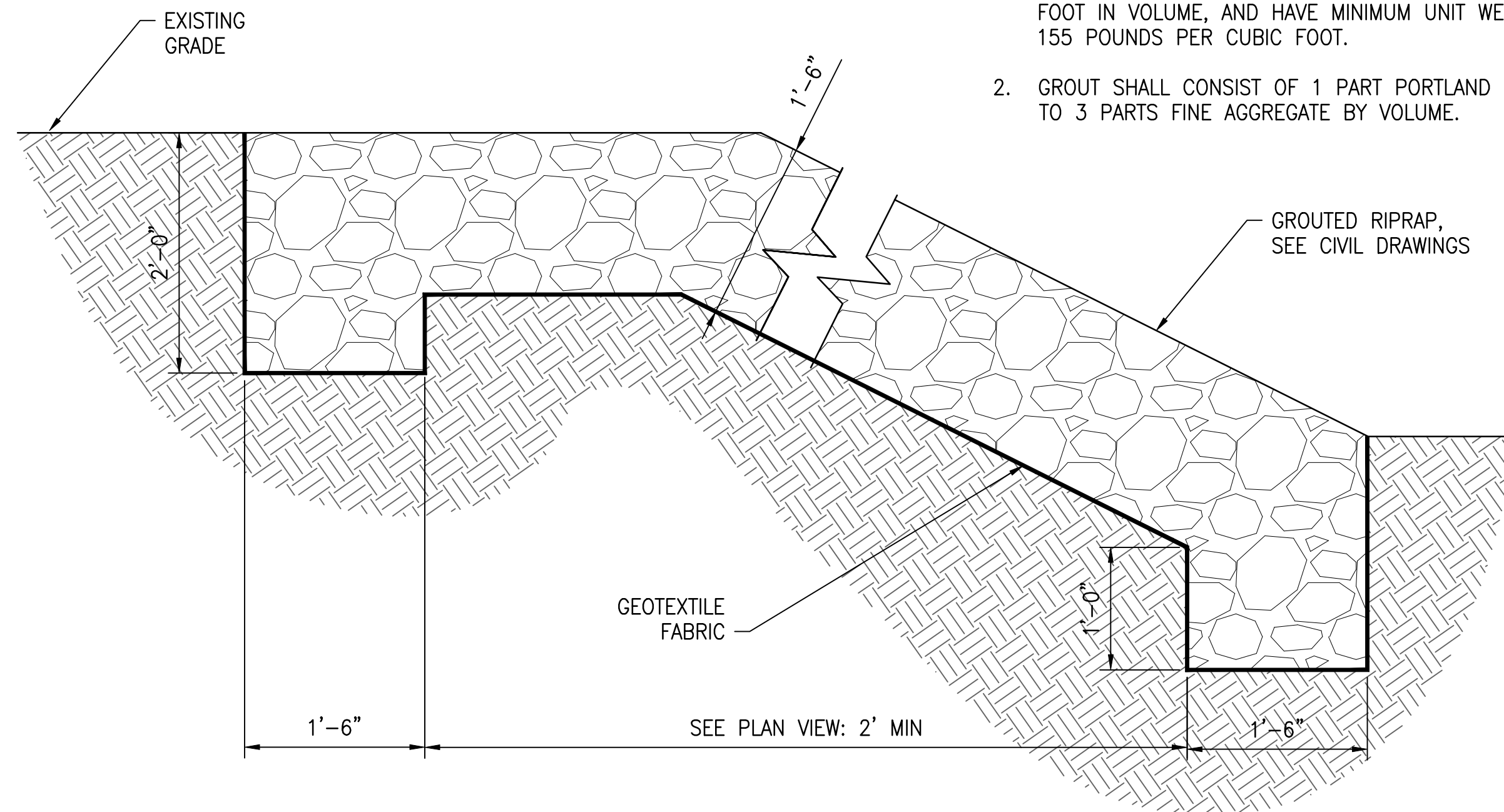
W:\CIVIL\_3D PROJECTS\2025\_054-000 DLNR STREAM CROSSING NA PALI KONA FOREST\01 CE DWG\CS501 DETAILS.DWG 4/14/2026 6:55 PM RARCANO



**3 CONCRETE ROADWAY TRANSITION DETAIL**  
CS501 NOT TO SCALE

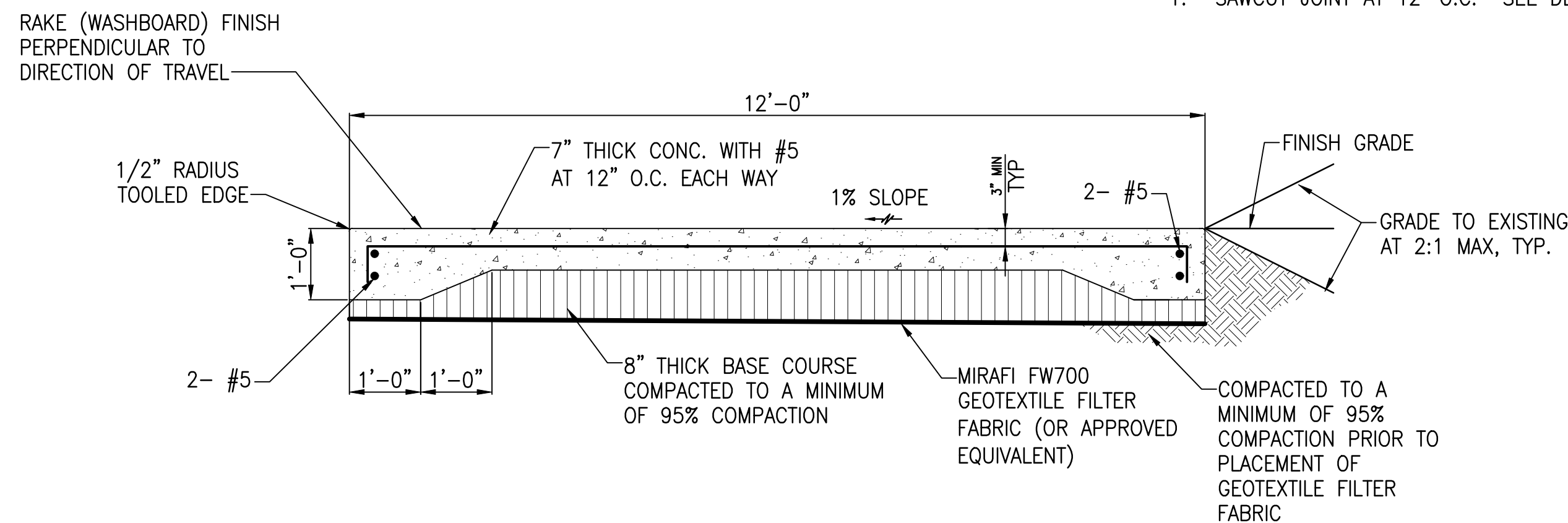


**5 SAW CUT JOINT DETAIL**  
CS501 NOT TO SCALE



- NOTES:**
1. STONES SHALL BE CLEAN, SOUND, DURABLE, FREE FROM ORGANIC MATERIAL AND SHALL BE AT LEAST 1/8 CUBIC FOOT IN VOLUME, AND HAVE MINIMUM UNIT WEIGHT OF 155 POUNDS PER CUBIC FOOT.
  2. GROUT SHALL CONSIST OF 1 PART PORTLAND CEMENT TO 3 PARTS FINE AGGREGATE BY VOLUME.

**2 GRP DETAIL**  
CS501 NOT TO SCALE

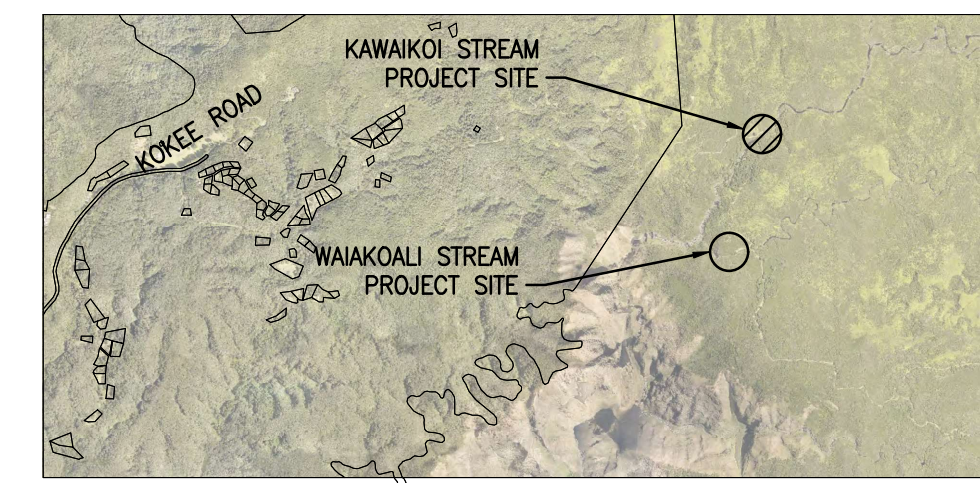


- NOTES:**
1. SAWCUT JOINT AT 12' O.C. SEE DET.

**1 CONCRETE ROADWAY DETAIL**  
CS501 NOT TO SCALE

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
NA PALI KONA FOREST RESERVE STREAM CROSSINGS					
CIVIL SITE DETAILS					
DESIGNED: CM			SUBMITTED: <i>[Signature]</i>		
DRAWN: LM			DATE: MARCH 2026		
CHECKED: GG			SCALE: AS SHOWN		
APPROVED: <i>[Signature]</i> Dina Lau E-signed 2026-04-23 10:30AM HST dina.u.lau@hawaii.gov State of Hawaii Civil Engineer			DRAWING NO. <b>CS501</b>		

W:\CIVIL\_3D PROJECTS\2025\_054.000 DLNR STREAM CROSSING NA PALI KONA FOREST\01 CE DWG\CG101 GRADING PLAN.DWG 4/15/2026 5:28 PM RARCANO



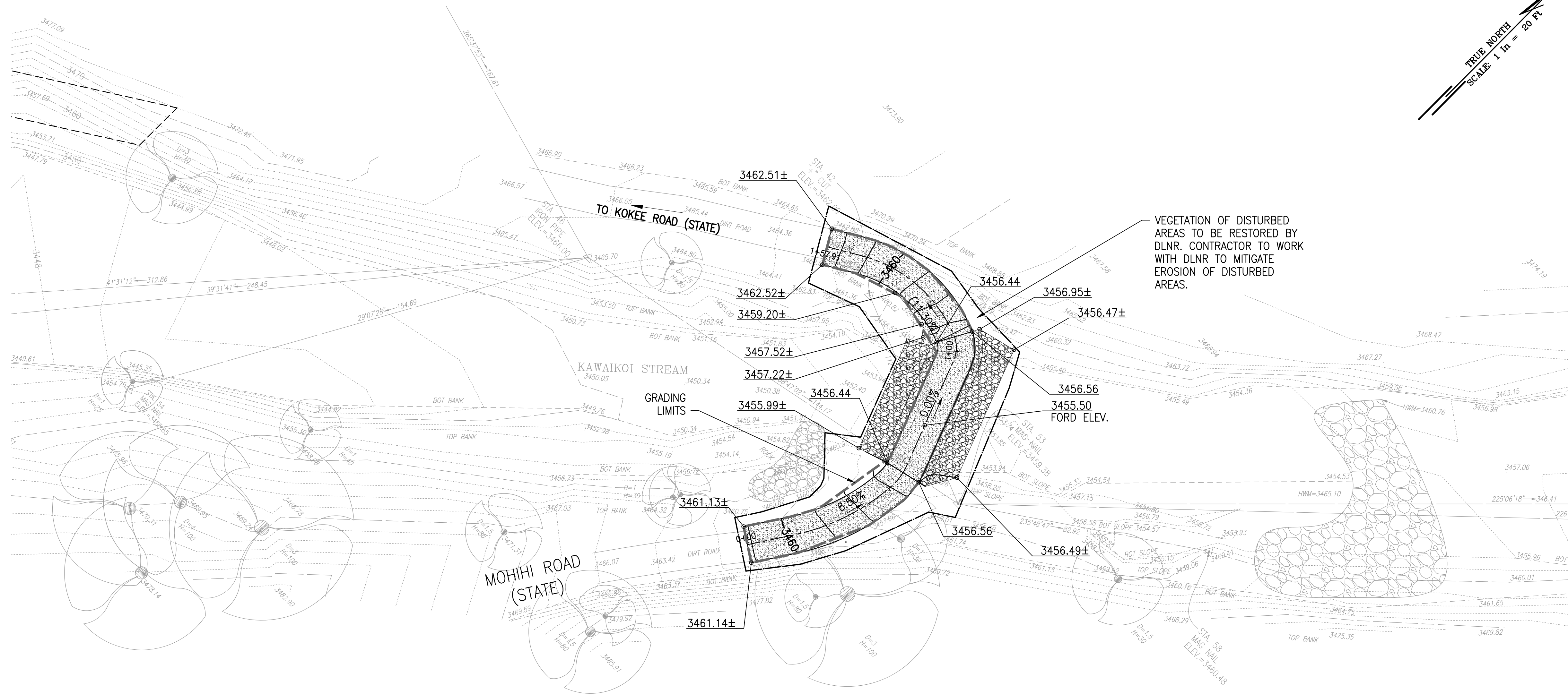
NORTH  
KEY MAP  
NOT TO SCALE

**LEGEND:**

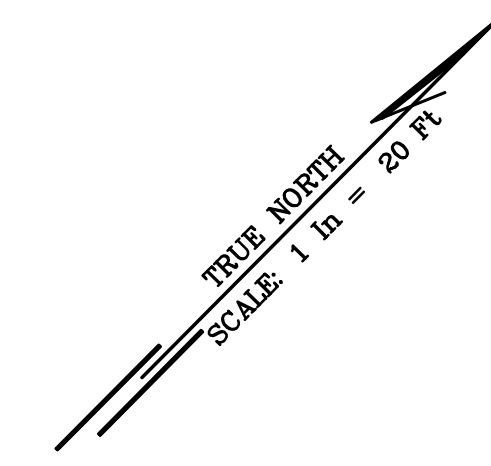
- GRADING LIMITS
- CONSTRUCTION LIMITS
- CONCRETE PAVEMENT
- GRP
- XXXX.XX± EXISTING GRADE
- XXXX.XX FINISHED GRADE

**EARTHWORK SUMMARY:**

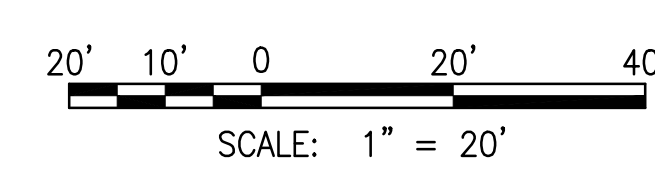
AREA TO BE GRADED: 1952.12 SQ FT  
 AREA TO BE DISTURBED: 5590.17 SQ FT  
 EXCAVATION: 3.5 CY  
 EMBANKMENT: 29.52 CY  
 NET: 25.94 CY



VEGETATION OF DISTURBED AREAS TO BE RESTORED BY DLNR. CONTRACTOR TO WORK WITH DLNR TO MITIGATE EROSION OF DISTURBED AREAS.



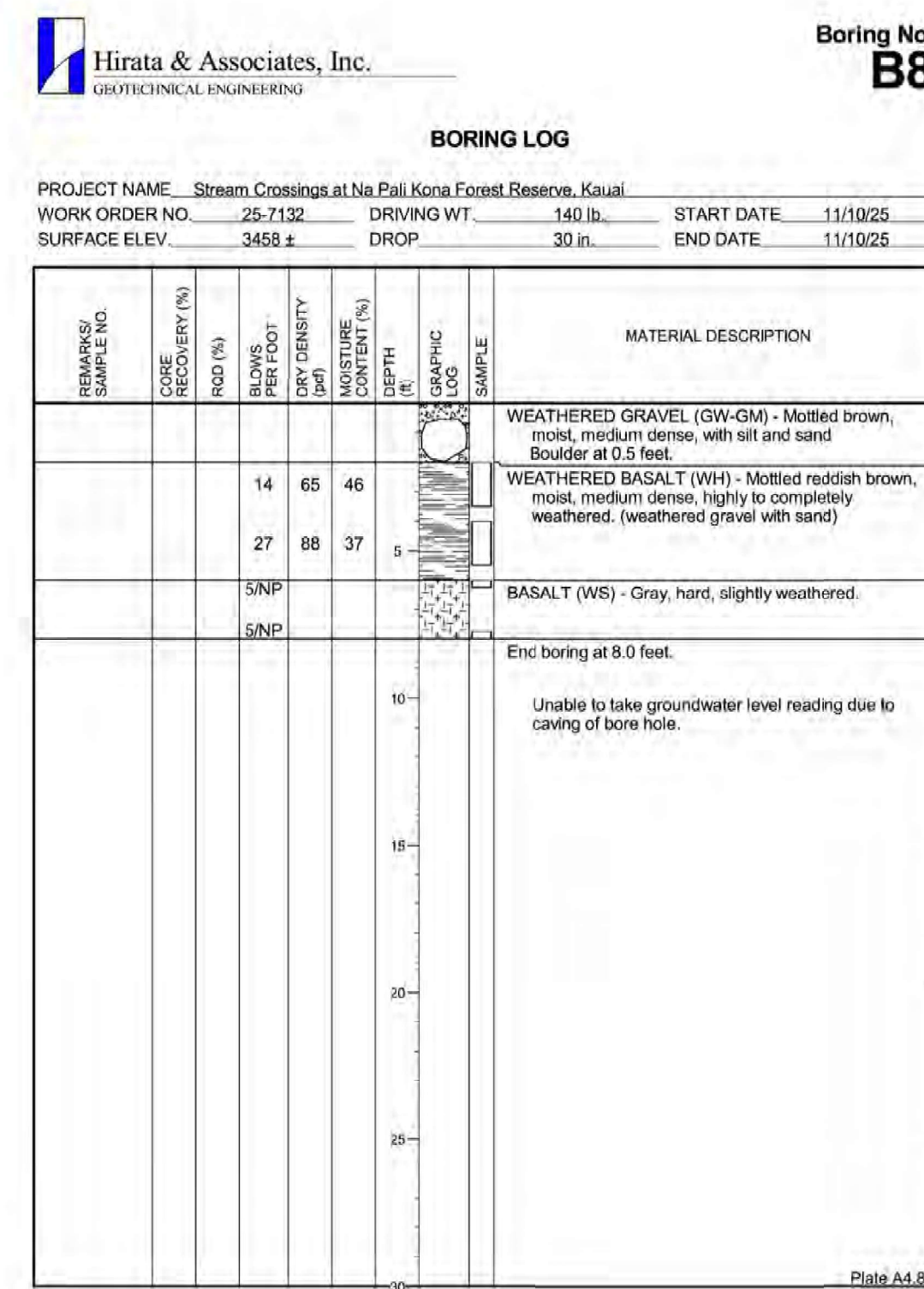
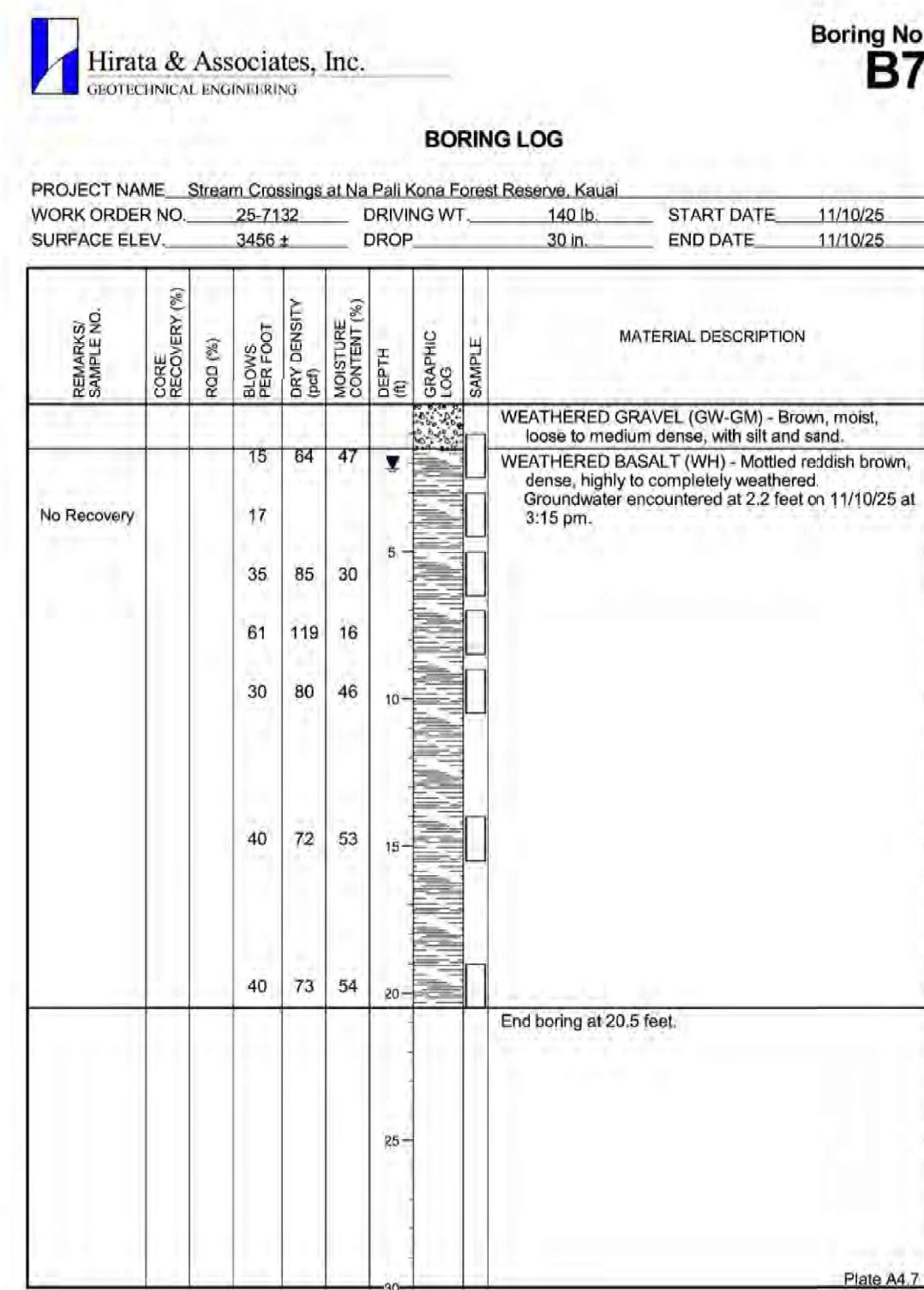
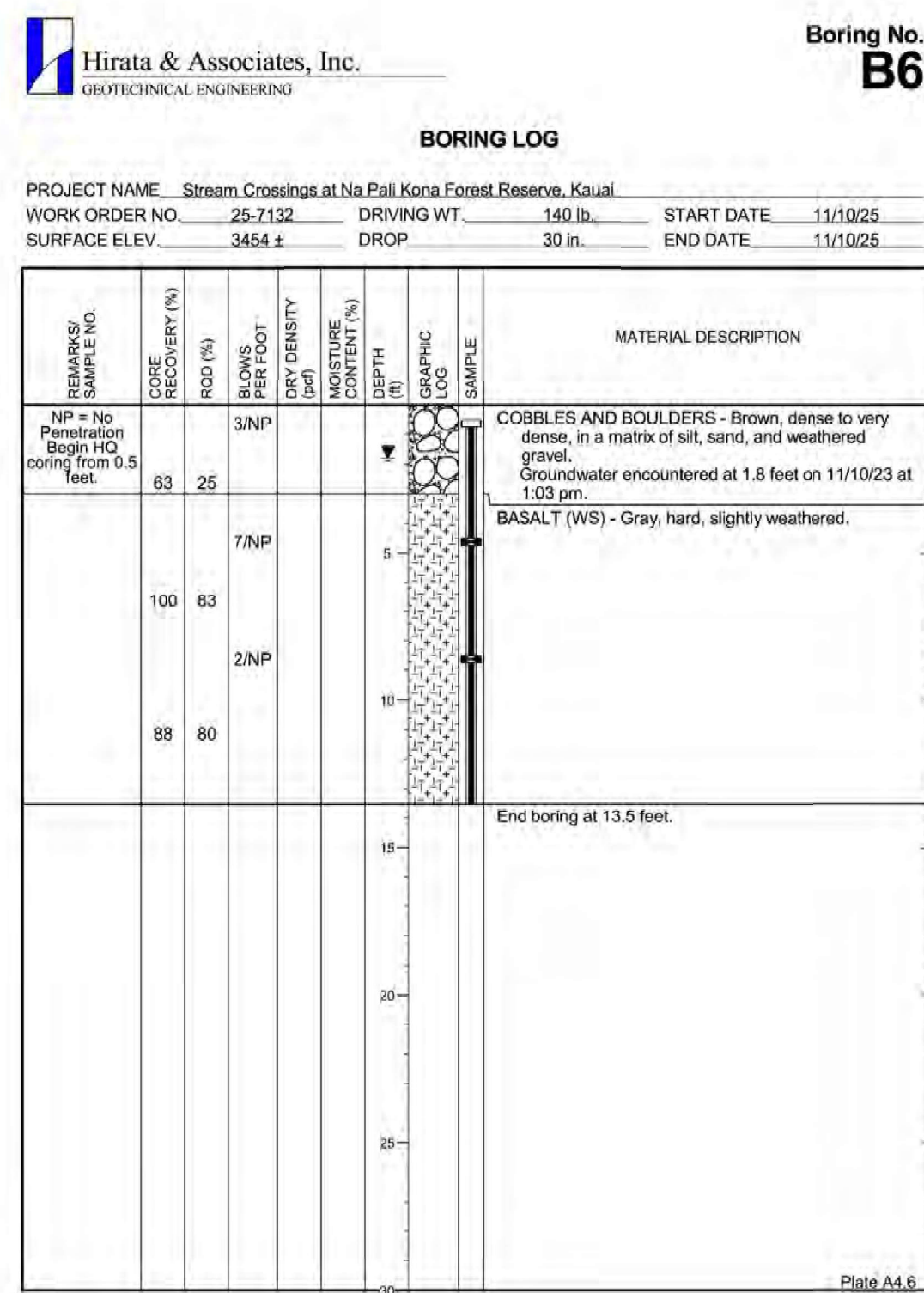
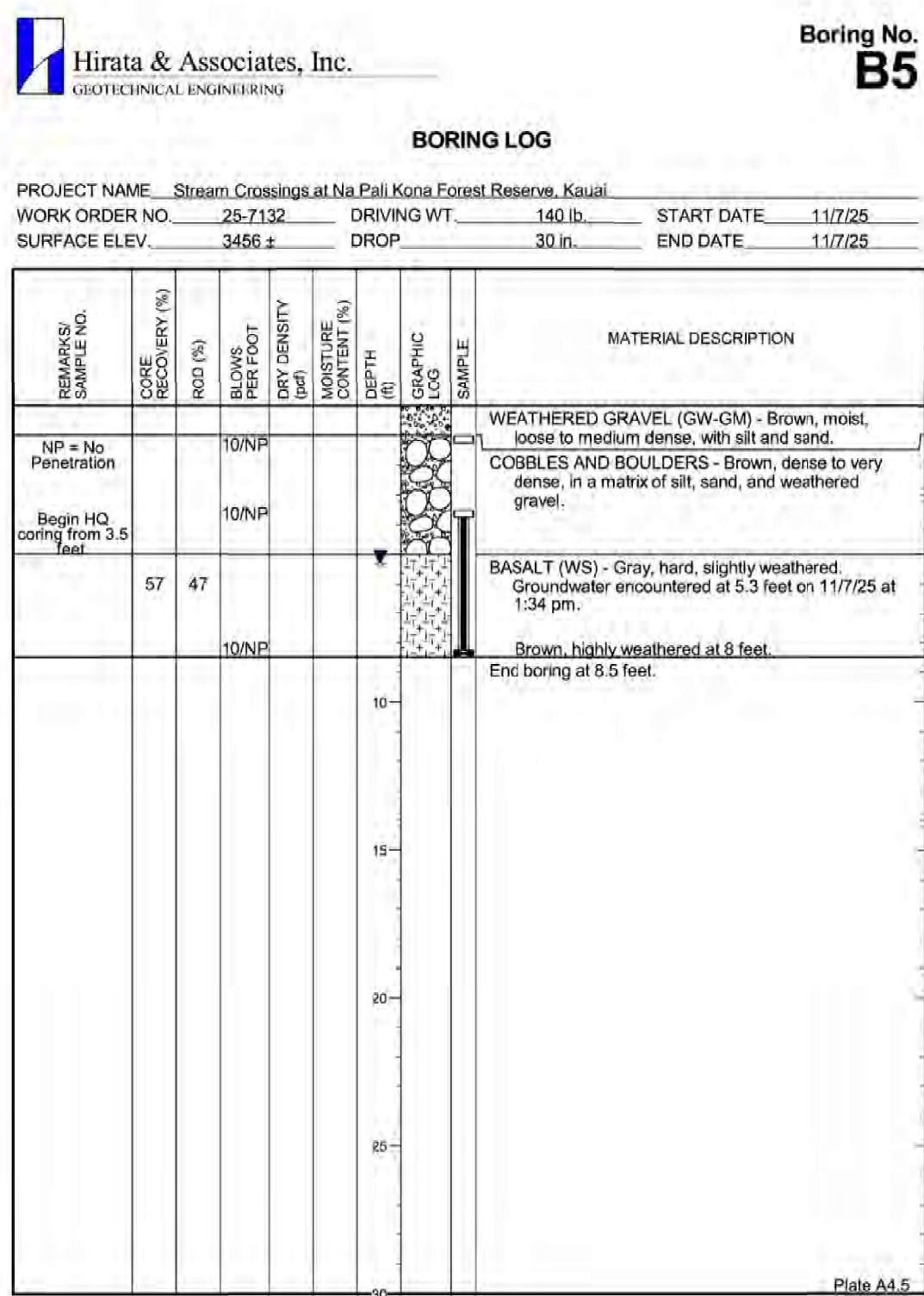
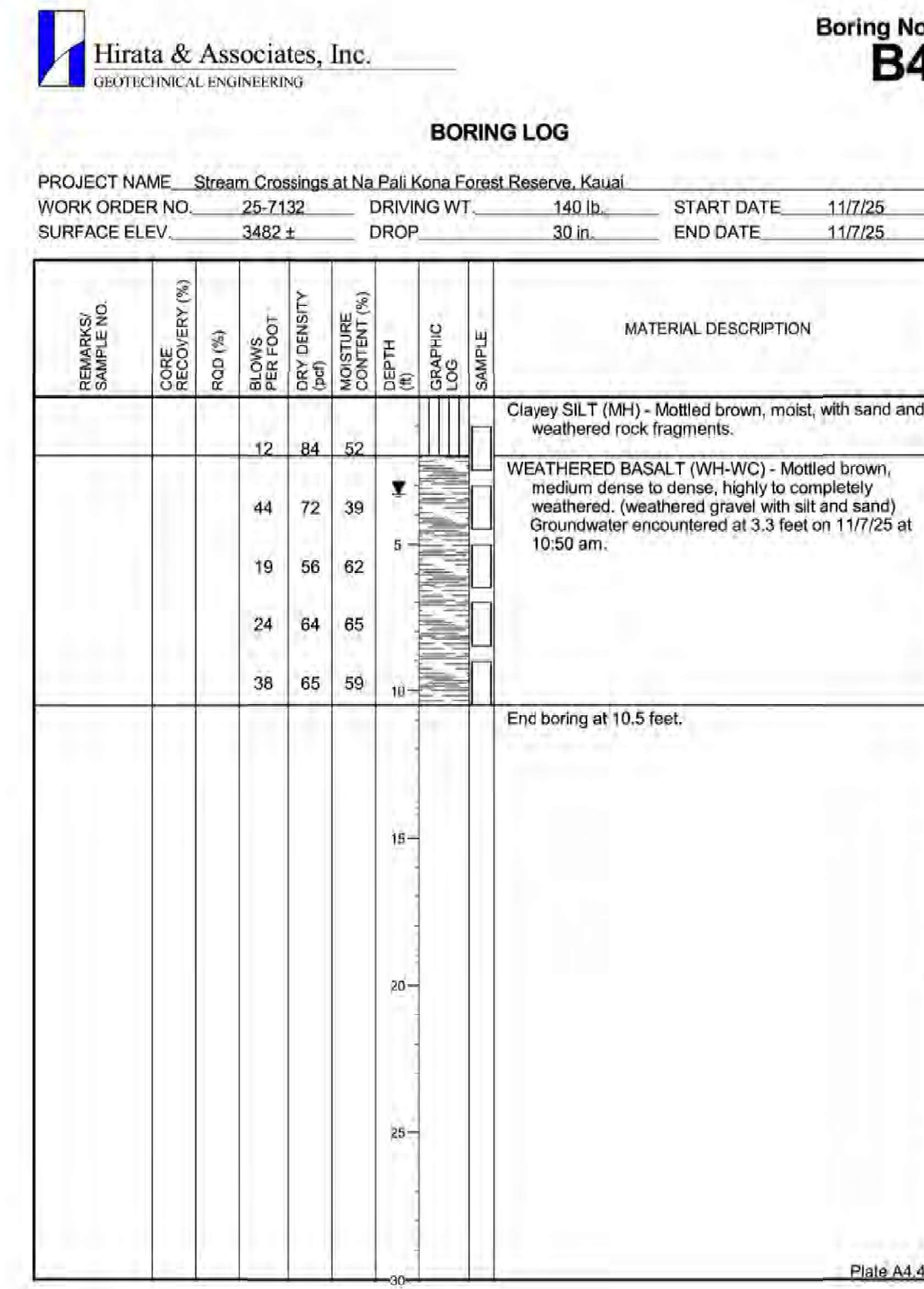
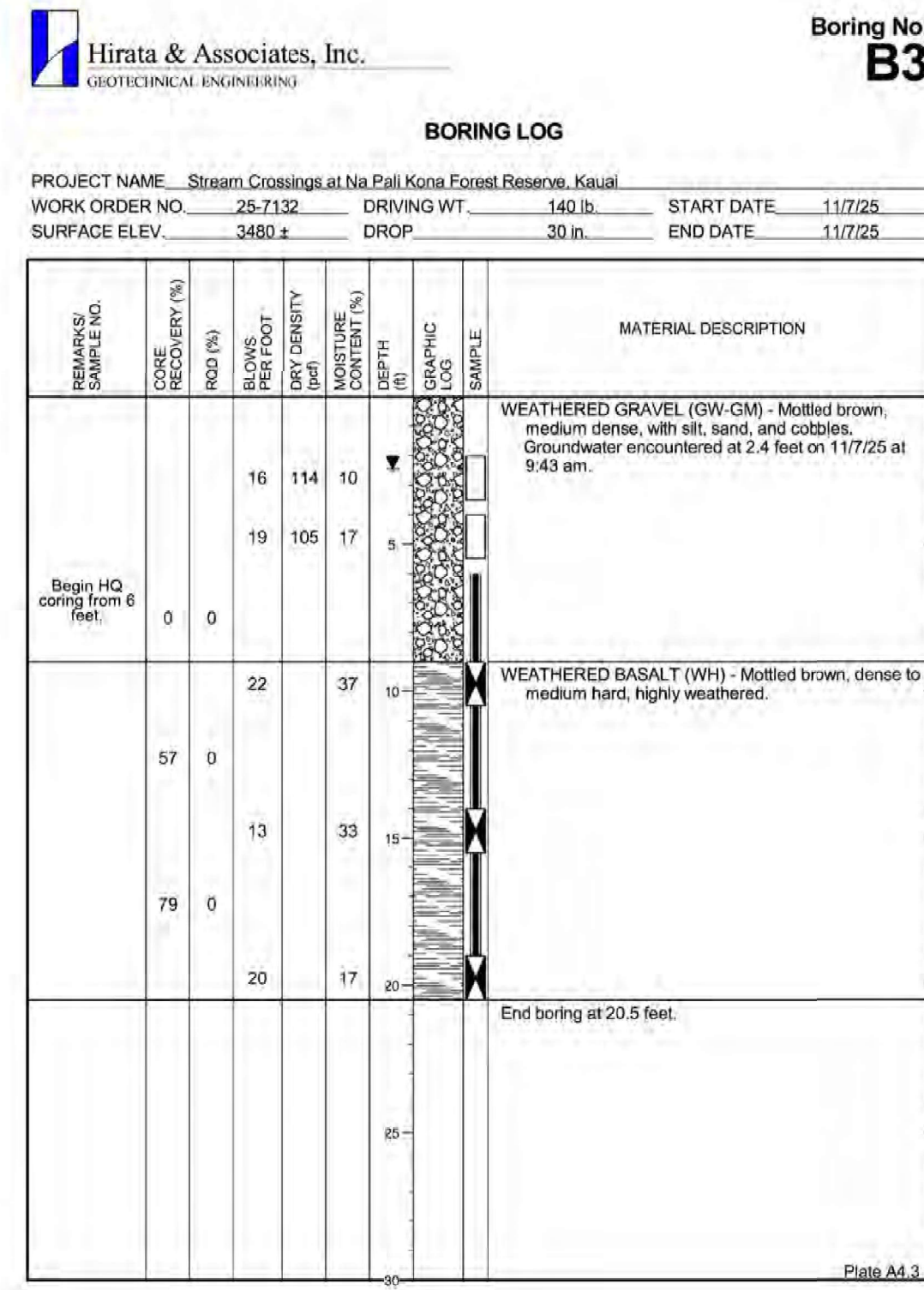
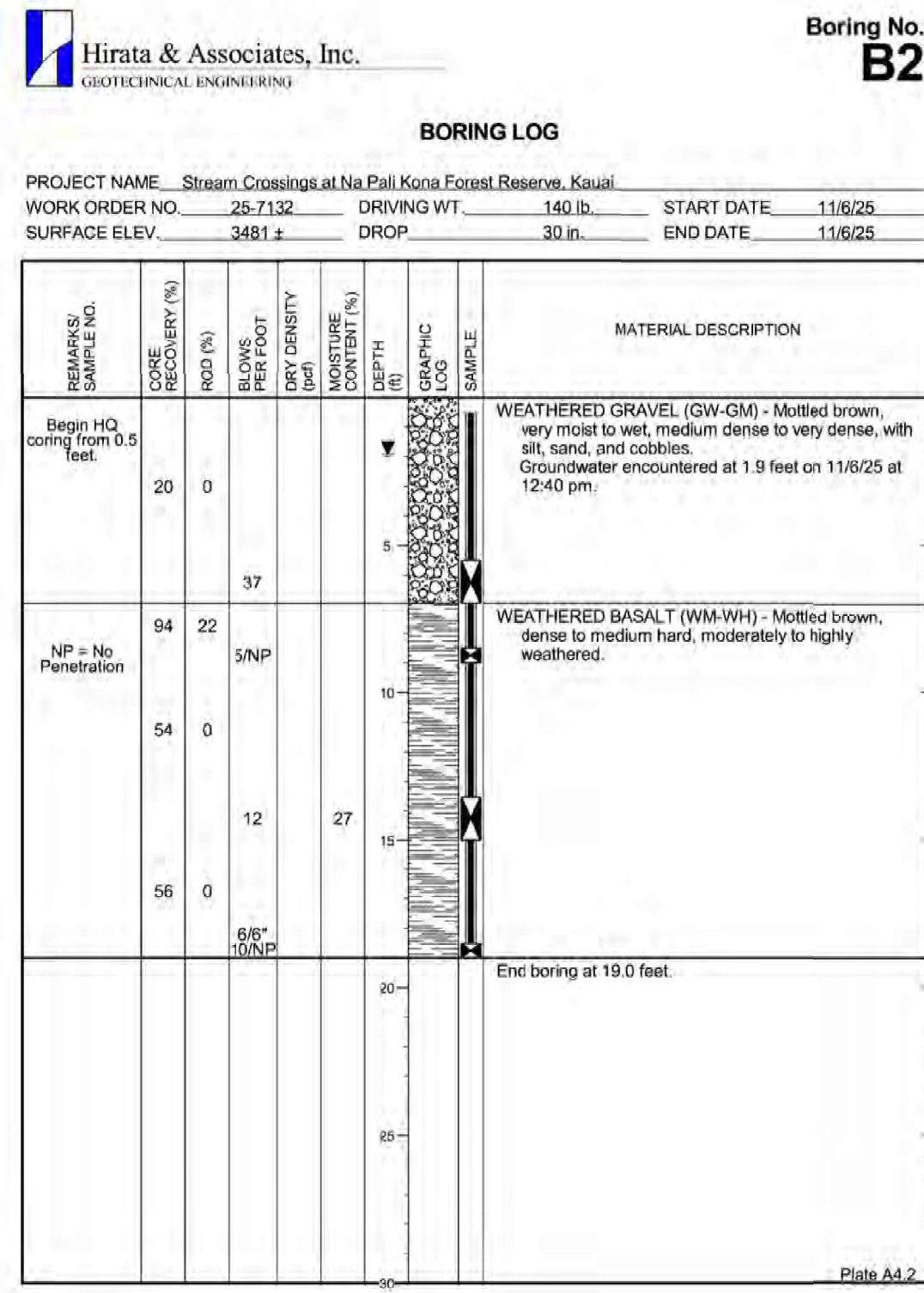
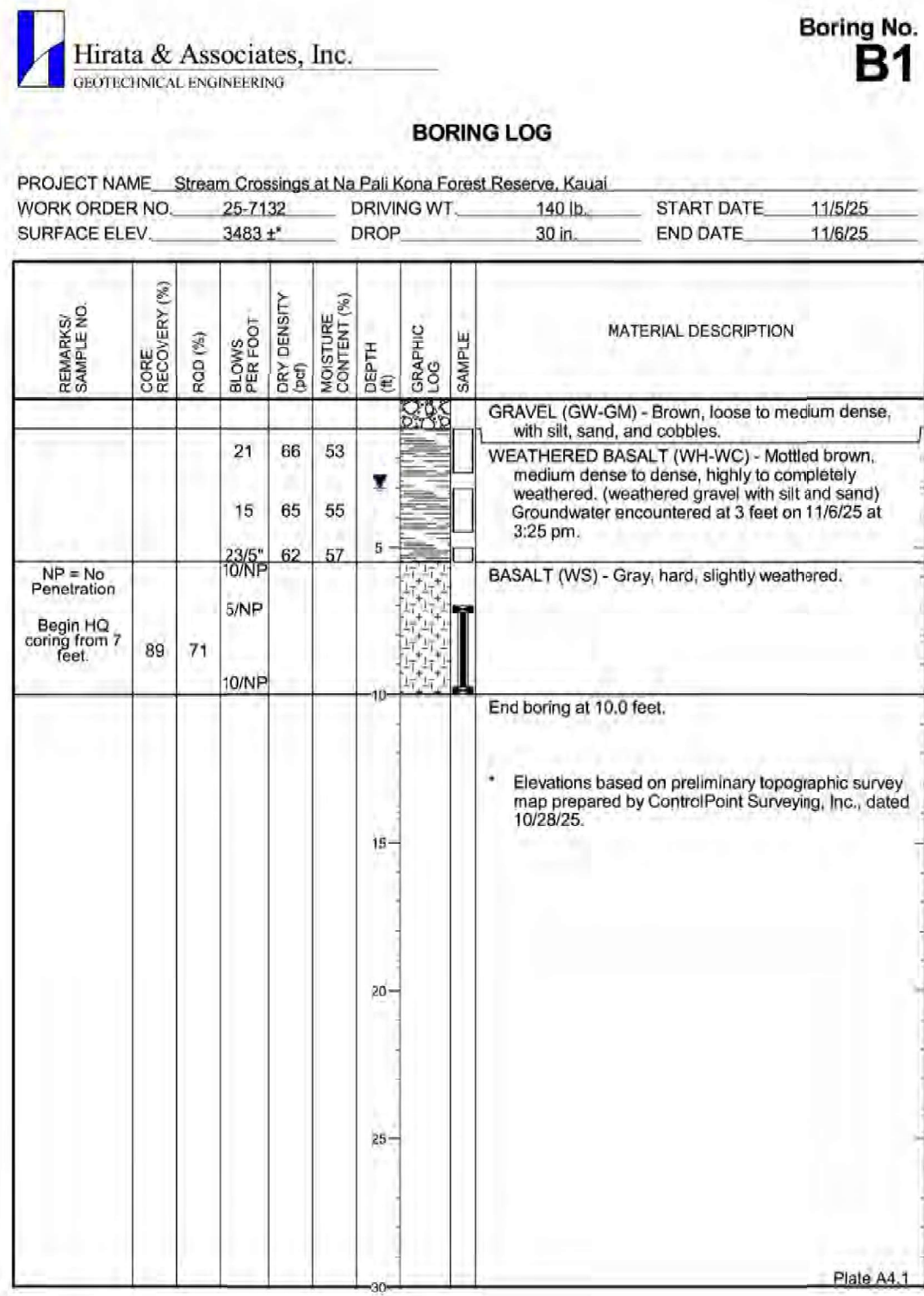
**GRAPHIC SCALE**



**1 GRADING PLAN - KAWAIKOI**  
1" = 20'

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
NA PALI KONA FOREST RESERVE STREAM CROSSINGS					
KAWAIKOI GRADING PLAN					
DESIGNED: CM	SUBMITTED: <i>[Signature]</i>				
DRAWN: LM	DATE: MARCH 2026				
CHECKED: GG	SCALE: AS SHOWN				
APPROVED: <i>[Signature]</i>	Dina Lau	DRAWING NO.			
CHIEF ENGINEER	E-signed 2026-04-23 10:30AM HST	CG101			
	dina.u.lau@hawaii.gov				
	State of Hawaii				
	Civil Engineer				

W:\CIVIL\_3D PROJECTS\2025\_054.000 DLNR STREAM CROSSING NA PALI KONA FOREST\01 CE DWG\CS502 BORING LOGS.DWG 3/16/2026 7:43 PM LMCMASTER



1 BORING LOGS  
CS502 NOT TO SCALE

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION  <b>NA PALI KONA FOREST RESERVE                  STREAM CROSSINGS</b>  BORING LOGS					
DESIGNED: CM		SUBMITTED: <i>[Signature]</i>			
DRAWN: LM		DATE: MARCH 2026			
CHECKED: GG		SCALE: AS SHOWN			
APPROVED: <i>[Signature]</i>		Dina Lau E-signed 2026-04-23 10:30AM HST dina.u.lau@hawaii.gov State of Hawaii		DRAWING NO. <b>CS502</b>	
CHIEF ENGINEER		Civil Engineer		SHEET NO. 13 OF 18 SHEETS	

JOB NO. D00CK62C

GENERAL:

- A. WORK AND MATERIALS SHALL CONFORM TO THE AASHTO LRFD BRIDGE DESIGN SPECIFICATION, 10TH EDITION (INCLUDING MOST RECENT INTERIMS), AND HDOT DESIGN CRITERIA FOR BRIDGES AND STRUCTURES, AUGUST 8, 2014 AND THE HAWAII STANDARD SPECIFICATIONS FOR BRIDGE AND ROAD CONSTRUCTION, 2005 AS MODIFIED BY THE STATE OF HAWAII DEPARTMENT OF TRANSPORTATION.
- B. THE CONTRACTOR SHALL COMPARE THE STRUCTURAL DRAWINGS WITH CIVIL DRAWINGS AND REPORT IN WRITING TO THE ENGINEER, INCONSISTENCIES OR OMISSIONS.
- C. THE CONTRACTOR SHALL TAKE FIELD MEASUREMENTS AND VERIFY FIELD CONDITIONS AND SHALL COMPARE SUCH FIELD MEASUREMENTS AND CONDITIONS WITH THE DRAWINGS BEFORE COMMENCING THE WORK. REPORT IN WRITING TO THE ENGINEER ALL INCONSISTENCIES OR OMISSIONS.
- D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR METHODS OF CONSTRUCTION, WORK AND JOB SAFETY. THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORING AND BRACING AS REQUIRED FOR STABILITY OF STRUCTURAL MEMBERS AND SYSTEMS.
- E. DETAILS NOTED AS TYPICAL ON STRUCTURAL DRAWINGS SHALL APPLY IN ALL CONDITIONS UNLESS SPECIFICALLY SHOWN OR NOTED OTHERWISE.
- F. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES.
- G. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF THE ADJACENT PROPERTIES, STRUCTURES, STREETS, AND UTILITIES DURING THE CONSTRUCTION PERIOD. ANY DAMAGE OR DETERIORATED PROPERTY SHALL BE RESTORED TO THE CONDITION PRIOR TO THE BEGINNING OF WORK OR BETTER AT NO COST TO THE STATE.
- H. CONSTRUCTION LOADING SHALL NOT EXCEED DESIGN LIVE LOAD UNLESS SPECIAL SHORING IS PROVIDED. ALLOWABLE LOADS SHALL BE REDUCED IN AREAS WHERE THE STRUCTURE HAS NOT ATTAINED FULL DESIGN STRENGTH.
- I. NO CONTRACTOR SHALL PERFORM ANY CONSTRUCTION OPERATION SO AS TO CAUSE FALLING CONCRETE, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW INTO EXISTING COUNTY DRAINAGE SYSTEMS OR ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY VIOLATION FINES.

FOUNDATION

- A. FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL INVESTIGATION REPORT BY HIRATA & ASSOCIATES, DATED JANUARY 5, 2026.
- B. CONTRACTOR SHALL PROVIDE FOR DE-WATERING OF EXCAVATION FROM SURFACE WATER, GROUND WATER OR SEEPAGE.
- C. EXCAVATIONS FOR ANY PURPOSE SHALL NOT REMOVE LATERAL SUPPORT FROM ANY FOOTING OR FOUNDATION WITHOUT FIRST UNDERPINNING OR PROTECTING THE FOOTING OR FOUNDATION AGAINST SETTLEMENT OR LATERAL TRANSLATION.
- D. THE AGGREGATE BASE SHALL BE COMPACTED TO MINIMUM 95% RELATIVE DENSITY AS MEASURED BY ASTM D1557. THE SUBGRADE, WHERE PRACTICAL, SHOULD BE COMPACTED TO A MINIMUM 95 PERCENT COMPACTION PRIOR TO PLACEMENT OF THE GEOTEXTILE FILTER FABRIC.
- E. CUTOFF WALLS AT THE UPSTREAM AND DOWNSTREAM EDGES OF THE CONCRETE SLAB SHOULD BE PROVIDED TO PROTECT AGAINST UNDERCUTTING BY SCOUR.
- F. ENGINEERED FILL AND STRUCTURAL BACKFILL SHALL BE IN ACCORDANCE WITH SECTION 703.20 OF THE HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2005 EDITION.
- G. FILL SHOULD BE MOISTURE CONDITIONED TO WITHIN TWO PERCENT OF THE OPTIMUM MOISTURE CONTENT AND PLACED IN HORIZONTAL LIFTS NOT TO EXCEED SIX INCHES. FILL SHALL BE COMPACTED TO MINIMUM 95% RELATIVE DENSITY AS MEASURED BY ASTM D1557, METHOD A OR D. OVERCOMPACTION OF THE BACKFILL MATERIAL SHALL BE AVOIDED.
- H. CONTRACTOR SHALL BRACE OR PROTECT ALL WALLS BELOW GRADE FROM LATERAL LOADS UNTIL THEY HAVE ATTAINED THEIR FULL DESIGN STRENGTH.

REINFORCING STEEL:

- A. REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60, EXCEPT NOTED OTHERWISE.
- B. WELDED REINFORCING STEEL SHALL BE LOW ALLOY DEFORMED BARS CONFORMING TO ASTM A706.
- C. PLAIN WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185, GALVANIZED; DEFORMED WELDED WIRE FABRIC SHALL CONFORM TO A497, GALVANIZED. ONLY FLAT SHEETS OF WELDED WIRE FABRIC SHALL BE USED. NO ROLLED WELDED WIRE FABRIC REINFORCEMENT WILL BE ALLOWED.
- D. EPOXY COATED REINFORCEMENT SHALL CONFORM TO AASHTO M 284 (ASTM 775)
- E. CLEAR CONCRETE COVERAGE FOR REINFORCING BARS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:
  - 1. FOOTING, WALL, ETC. CAST AGAINST EARTH ----- 3"
  - 2. ALL OTHERS ----- 2"
- F. SPLICES:
  - 1. REINFORCING STEEL SHALL BE SPLICED ONLY WHERE INDICATED ON PLANS. PROVIDE LAP SPLICE LENGTH PER TYPICAL DETAILS AND SCHEDULE, UNLESS OTHERWISE NOTED.
  - 2. PLAIN WELDED WIRE FABRIC SHALL BE LAPPED 8 INCHES OR ONE FULL MESH PLUS 2 INCHES, WHICHEVER IS GREATER.
  - 3. DEFORMED WELDED WIRE FABRIC SHALL BE LAPPED 12 INCHES OR ONE FULL MESH PLUS 2 INCHES, WHICHEVER IS GREATER. THE OVERLAP MEASURED BETWEEN THE OUTMOST CROSS WIRES OF EACH FABRIC SHEET SHALL NOT BE LESS THAN 2.0 INCHES.
  - 4. OFFSET LAPS OF ADJOINING WELDED WIRE FABRIC SHEET WIDTHS TO PREVENT CONTINUOUS LAPS IN EITHER DIRECTION.
- F. BAR BENDS AND HOOK SHALL BE "STANDARD HOOKS" IN ACCORDANCE WITH AASHTO 5.11.2.

CONCRETE:

- A. CONCRETE CONSTRUCTION SHALL CONFORM TO AASHTO LRFD.
- B. CONCRETE SHALL BE FIBER REINFORCED CONCRETE AND SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTHS OF 4,000 PSI, WITH A MAXIMUM W/C RATIO OF 0.45. USE STRUX 90/40 SYNTHETIC MACROFIBER OR APPROVED EQUAL. THE REQUIRED DOSAGE SHALL BE 3 POUNDS PER CUBIC YARD OF CONCRETE OR AS RECOMMENDED BY THE MANUFACTURER.
- C. TETRAGUARD AS20 SHRINKAGE REDUCING ADMIXTURE, ECLIPSE PLUS SHRINKAGE REDUCING ADMIXTURE, OR AN APPROVED EQUAL, SHALL BE INCLUDED IN THE CONCRETE MIX. THE REQUIRED DOSAGE SHALL BE 128 OUNCES PER CUBIC YARD OF CONCRETE OR AS RECOMMENDED BY THE MANUFACTURER. ADDITION OF SHRINKAGE REDUCING ADMIXTURE SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
- D. ALL INSERTS, ANCHOR BOLTS, PLATES, ETC. EMBEDDED IN CONCRETE SHALL BE H.D. GALVANIZED UNLESS OTHERWISE NOTED.
- E. CONDUITS, PIPES, AND SLEEVES PASSING THROUGH CONCRETE AREA NOT CONFORMING TO TYPICAL DETAILS SHALL BE LOCATED AND SUBMITTED TO THE ENGINEER FOR APPROVAL.
- F. CONSTRUCTION JOINTS MAY BE LOCATED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL. CONSTRUCTION JOINTS SHALL BE MADE AND LOCATED AS NOT TO IMPAIR THE STRENGTH OF THE STRUCTURE AND TO MINIMIZE SHRINKAGE STRESSES. ALL CONSTRUCTION JOINTS SHALL BE CLEANED, LAITANCE REMOVED AND WETTED. SEE TYPICAL DETAILS FOR SPECIFIC REQUIREMENTS.
- G. NON-SHRINK GROUTS SHALL BE PREMIXED COMPOUND CONSISTING OF NON-METALLIC AGGREGATE AND NON-STRAINING TYPES, CEMENT, WATER REDUCING AND PLASTICIZING AGENTS CAPABLE OF DEVELOPING MINIMUM COMPRESSIVE

- H. JOINT FILLER SHALL BE ASTM D1751 OR ASTM D994; ASPHALT IMPREGNATED FIBERBOARD OR FELT 1/2 INCH THICK.
- I. UNLESS OTHERWISE NOTED, CHAMFER ALL CONCRETE EDGES 3/4".
- J. CONCRETE DELIVERY TICKETS SHALL RECORD ALL FREE WATER IN THE MIX: AT BATCHING BY PLANT, FOR CONSISTENCY BY DRIVER, AND ANY ADDITIONAL REQUEST BY CONTRACTOR IF PERMITTED BY THE MIX DESIGN.
- K. REINFORCING BARS, ANCHOR BOLTS, INSERTS AND OTHER ITEMS TO BE CAST IN THE CONCRETE SHALL BE SECURED IN POSITION PRIOR TO PLACEMENT OF CONCRETE.
- L. A CORROSION INHIBITING ADMIXTURE SHALL BE INCLUDED IN THE CONCRETE MIX FOR ALL CONCRETE. THE ADMIXTURE SHALL BE RHEOCRETE CNI CORROSION INHIBITOR FROM BASF, DCI S CORROSION INHIBITOR FROM GRACE CONSTRUCTION PRODUCTS OR AN APPROVED EQUAL. ADDITION OF CORROSION INHIBITING ADMIXTURE SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
- M. CONTROLLED LOW-STRENGTH MATERIAL (CLSM) SHALL BE IN ACCORDANCE WITH ENTIRE SECTION 314 OF THE HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2005 EDITION. THE CLSM SHALL BE PLACED AS SHOWN IN THE DRAWINGS OR AS APPROVED BY THE ENGINEER IN WRITING. PROVIDE MAXIMUM POUR LIFT OF 2 FEET. THE 28-DAY COMPRESSIVE STRENGTH SHALL BE AT LEAST 150 PSI.
- N. ALL DRILLED HOLES FOR ANCHORS SHALL BE BRUSHED TO REMOVE LOOSE MATERIAL THEN CLEANED WITH COMPRESSED AIR, PRIOR TO INJECTING THE EPOXY.
- O. ANCHORING ADHESIVE SHALL BE A TWO-COMPONENT 100% SOLIDS EPOXY BASED SYSTEM SUPPLIED IN MANUFACTURER'S STANDARD SIDE-BY-SIDE CARTRIDGE AND DISPENSED THROUGH A STATIC-MIXING NOZZLE SUPPLIED BY THE MANUFACTURER. EPOXY SHALL MEET THE MINIMUM REQUIREMENTS OF ASTM C-881 SPECIFICATION FOR TYPE IV, GRADE 3, CLASS C AND MUST DEVELOP A MINIMUM OF 12,650 PSI COMPRESSIVE YIELD STRENGTH AFTER 7 DAY CURE. EPOXY MUST HAVE A HEAT DEFLECTION TEMPERATURE OF A MINIMUM 136°F (58°C). EPOXY SHALL BE FORMULATED FOR OPTIMUM PERFORMANCE IN BOTH CRACKED AND UNCRACKED CONCRETE (SIMPSON SET-3G OR APPROVED EQUAL).


NOTES TO CONTRACTOR

- A. THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY ALL EXISTING SITE CONDITION PRIOR TO BIDDING AND AS CONSTRUCTION PROCEEDS. NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES.
- B. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS (PRIOR TO BID) TO DETERMINE THE EXTENT OF ALL REQUIRED DEMOLITION WORK. THE REMOVAL OR DEMOLITION OF MATERIALS, ACCESSORIES, FIXTURES, ETC., SHALL BE COMPLETE AND INCLUDE ALL RELATED ITEMS TO THE EXTENT THAT FUTURE CONSTRUCTION CAN BE PERFORMED AND COMPLETED WITHOUT ADDITIONAL COST TO THE STATE.
- C. THE CONTRACTOR SHALL INCLUDE MATERIAL SUPPLIERS AND EXPERIENCED PERSONNEL IN THE CONSIDERATION OF THE REPAIR WORK AND CONFIRM ALL CONCLUSIONS PRIOR TO SUBMISSION OF BID. ON-SITE OBSERVATIONS BY THE CONTRACTOR AND MATERIAL MANUFACTURER'S REPRESENTATIVE SHALL ALSO BE INCLUDED IN THE BID PRICE SO WARRANTIES PER THE CONTRACT CAN BE GIVEN WITHOUT RESERVATION. ANY RECOMMENDATIONS TO IMPROVE REPAIR MATERIALS OR METHODS SHALL BE SUBMITTED IN WRITING AND APPROVED BY THE ENGINEER AT NO ADDITIONAL COST.
- D. BE THOROUGHLY FAMILIAR WITH THE CONDITIONS ON THE EXISTING CROSSING AND AT THE SITE AND HAS INCLUDED ALL COSTS ASSOCIATED WITH THE REPAIR AND TRAFFIC CONTROL IN THE BID PRICE. NO ADDITIONAL COSTS WILL BE AWARDED AFTER THE BID BASED UPON THE CONTRACTOR'S FAILURE TO OBSERVE OR FIND AN EXISTING, PRE-BID DEFECT OR CONDITION THAT IS NOT TOTALLY CONCEALED FROM VIEW. SUBMISSION OF BID ASSUMES THE CONTRACTOR IS THOROUGHLY FAMILIAR WITH AND IS COMFORTABLE WORKING AT EXISTING BRIDGE SITE.
- E. MAKE ARRANGEMENTS FOR LADDERS, SCAFFOLDS OR OTHER DEVICES EMPLOYED TO GAIN A BETTER EVALUATION OF THE EXISTING CONDITIONS BEFORE BIDDING.

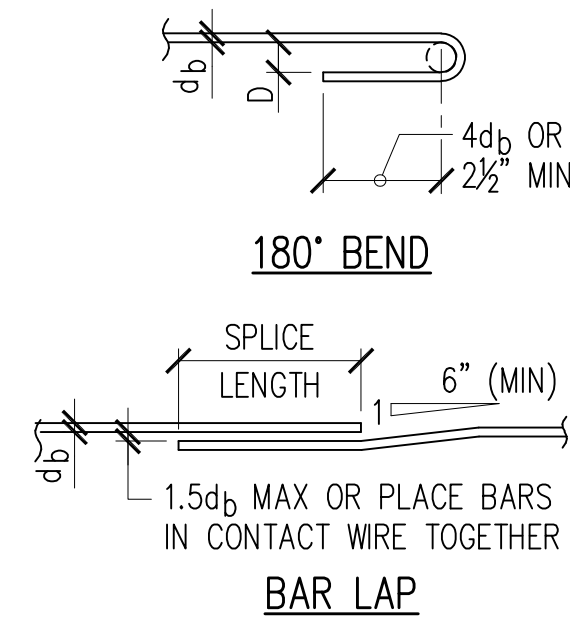
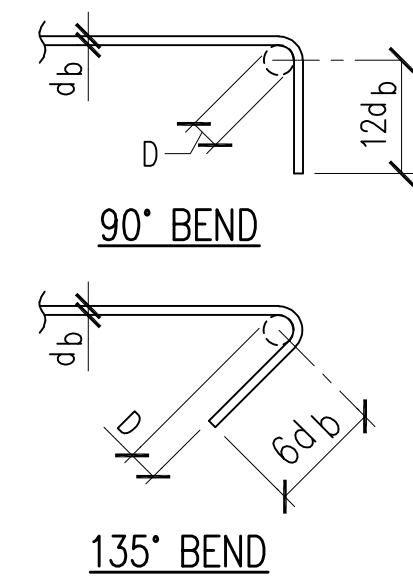
STRUCTURAL SPECIAL INSPECTIONS

- A. ALL SPECIAL INSPECTIONS SHALL BE DONE PER SPECIAL INSPECTIONS PROVISIONS OF SECTION 1704 AND SECTION 1705 OF THE 2012 INTERNATIONAL BUILDING CODE GOVERNING PORTIONS OF STRUCTURAL DRAWINGS. REFER TO SPECIAL PROVISIONS SECTION 105.11 INSPECTION OF THE WORK AND MATERIALS.
- B. SPECIAL INSPECTION DOES NOT RELIEVE THE GENERAL CONTRACTOR OF HIS QUALITY CONTROL RESPONSIBILITIES TO COMPLETE THE PROJECT IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AND TO PROVIDE SAFETY ON THE JOB SITE.
- C. CONTRACTOR SHALL HIRE AND PAY FOR THIRD-PARTY INSPECTION AND TESTING DURING CONSTRUCTION OF THE FOLLOWING STRUCTURAL WORK. CONTRACTOR SHALL SUBMIT THIRD-PARTY INSPECTOR'S CERTIFICATIONS TO THE ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION.
  - REQUIRED: REINFORCEMENT PLACEMENT; CONCRETE PLACEMENT; STRUCTURAL WELDING; CONCRETE ANCHORS; GRADING, EXCAVATION AND BACKFILLING.
- D. CONTRACTOR SHALL NOTIFY SPECIAL INSPECTOR AT LEAST 7 DAYS IN ADVANCE FOR WORK THAT REQUIRES SPECIAL INSPECTION.
- E. ALL SPECIAL INSPECTION REPORTS AND TESTING REPORTS SHALL BE SUBMITTED TO THE ENGINEER NO LATER THAN 2 WORKING DAYS AFTER EACH INSPECTION.

ABBREVIATIONS			
BOT	BOTTOM	GALV	GALVANIZED
BTWN	BETWEEN	HORIZ	HORIZONTAL
BW	BOTTOM OF WALL	L.S.	LAP SPLICE
CL	CENTERLINE	MAX	MAXIMUM
CLR	CLEAR	MIN	MINIMUM
CONC	CONCRETE	MISC	MISCELLANEOUS
CONT	CONTINUOUS	NO. OR #	NUMBER
DIA	DIAMETER	N.T.S.	NOT TO SCALE
DWG	DRAWING	O.C.	ON CENTER
EA	EACH	O.D.	OUTSIDE DIAMETER
E.F.	EACH FACE	OPNG	OPENING
EL.	ELEVATION	OPP	OPPOSITE
EQ	EQUAL	PL OR RL	PROPERTY LINE
E.W.	EACH WAY	REINF	REINFORCED OR REINFORCING
EXIST OR (E)	EXISTING	SP	SPACES OR SPACING
EXT	EXTERIOR	STA.	STATION
FIN	FINISH	TYP	TYPICAL
FT	FOOT OR FEET		

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
NA PALI KONA FOREST RESERVE STREAM CROSSINGS					
STRUCTURAL NOTES AND ABBREVIATIONS					
DESIGNED: JC			SUBMITTED: JCL		
DRAWN: CAD			DATE: APRIL 2026		
CHECKED: BL			SCALE: AS SHOWN		
APPROVED: 			Dina Lau E-signed 2026-04-23 10:30AM HST dina.u.lau@hawaii.gov		
CHIEF ENGINEER			DRAWING NO. S-001		
EXPIRATION DATE OF THE LICENSE 4/30/2028 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION					

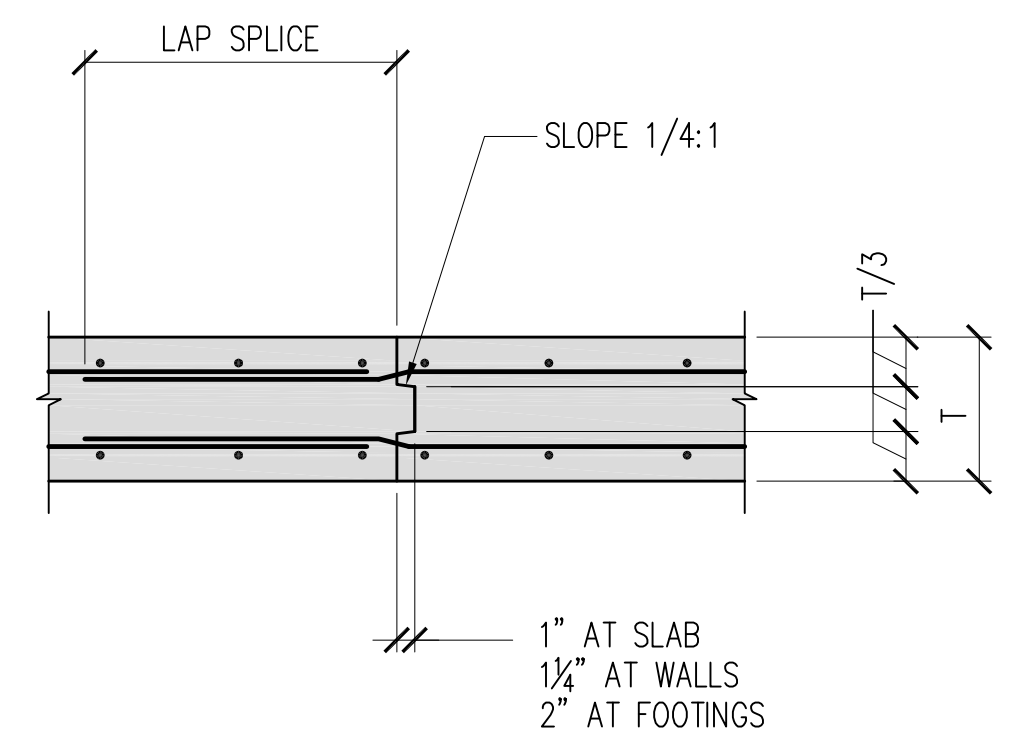
MINIMUM SPLICE AND DEVELOPMENT LENGTHS					
BAR SIZE	CONCRETE STRENGTH = 4,000 PSI				
	LAP SPLICE		DEVELOPMENT		
	TOP BARS	OTHER BARS	STRAIGHT TOP BARS	STRAIGHT OTHER BARS	WITH STANDARD HOOK
#4	34"	26"	26"	20"	10"
#5	42"	32"	32"	24"	12"
#6	50"	38"	38"	30"	16"
#7	72"	54"	54"	42"	18"
#8	82"	62"	62"	48"	20"
#9	92"	70"	70"	54"	22"



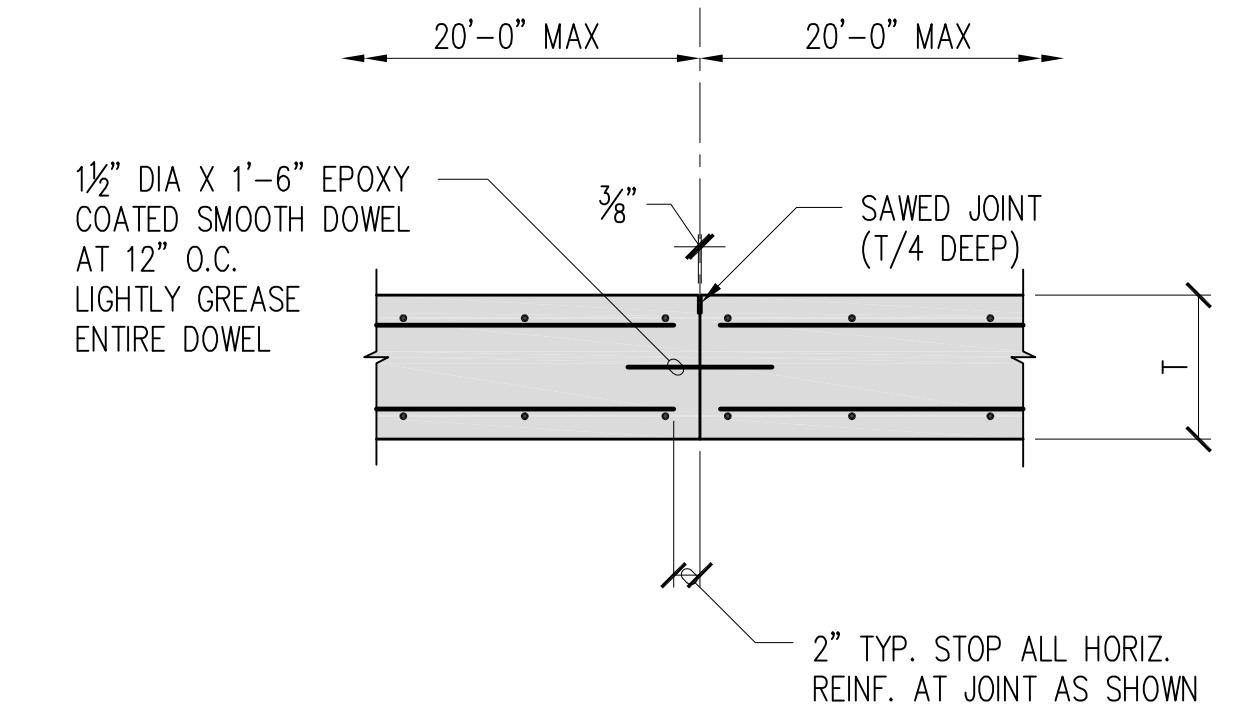
**NOTES:**  
 1. LENGTHS ARE FOR CONCRETE WITH REBAR SPACED AT 6 BAR DIAMETERS MINIMUM. INCREASE LENGTHS BY 25% FOR BARS SPACED LESS THAN 6 BAR DIAMETERS.  
 2. "TOP BARS" ARE HORIZONTAL BARS WITH 12" OR MORE OF CONCRETE CAST BELOW.  
 3. D = 6db

**TYPICAL REBAR SPLICE AND DEVELOPMENT LENGTH SCHEDULE**

1  
S-002 NOT TO SCALE



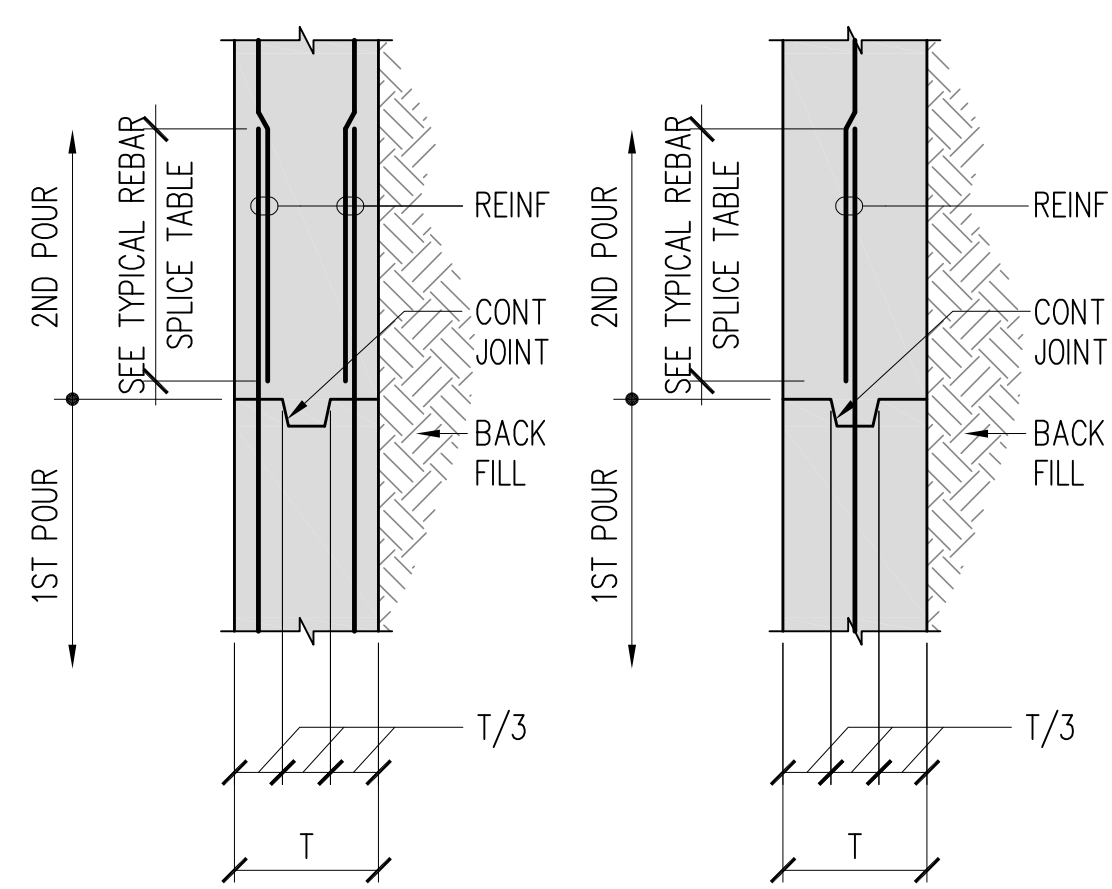
AT CONSTRUCTION JOINT



TRANSVERSE CONTRACTION JOINT

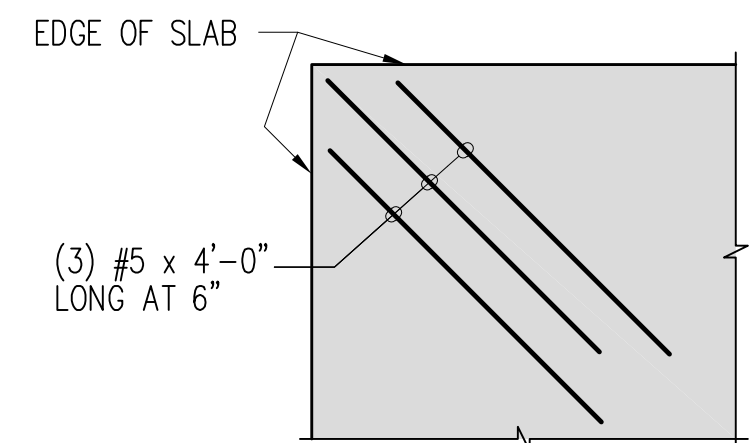
**TYPICAL JOINT DETAILS**

2  
S-002 NOT TO SCALE



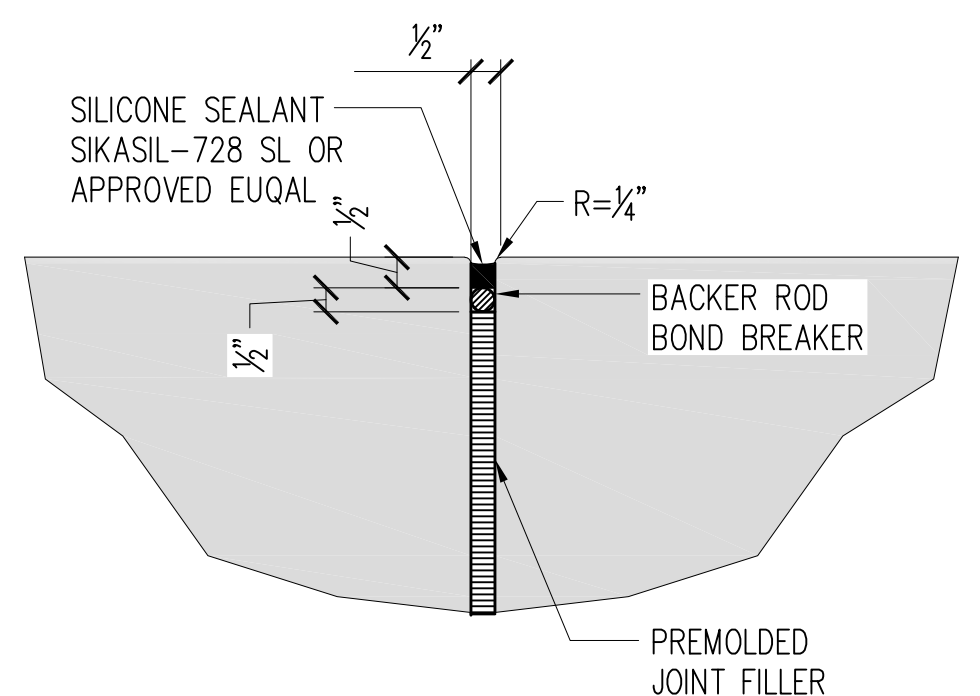
**TYPICAL REBAR LAP DETAILS AT JOINT**

3  
S-002 NOT TO SCALE



**TYPICAL SLAB CORNER REINF. DETAIL**

4  
S-002 NOT TO SCALE

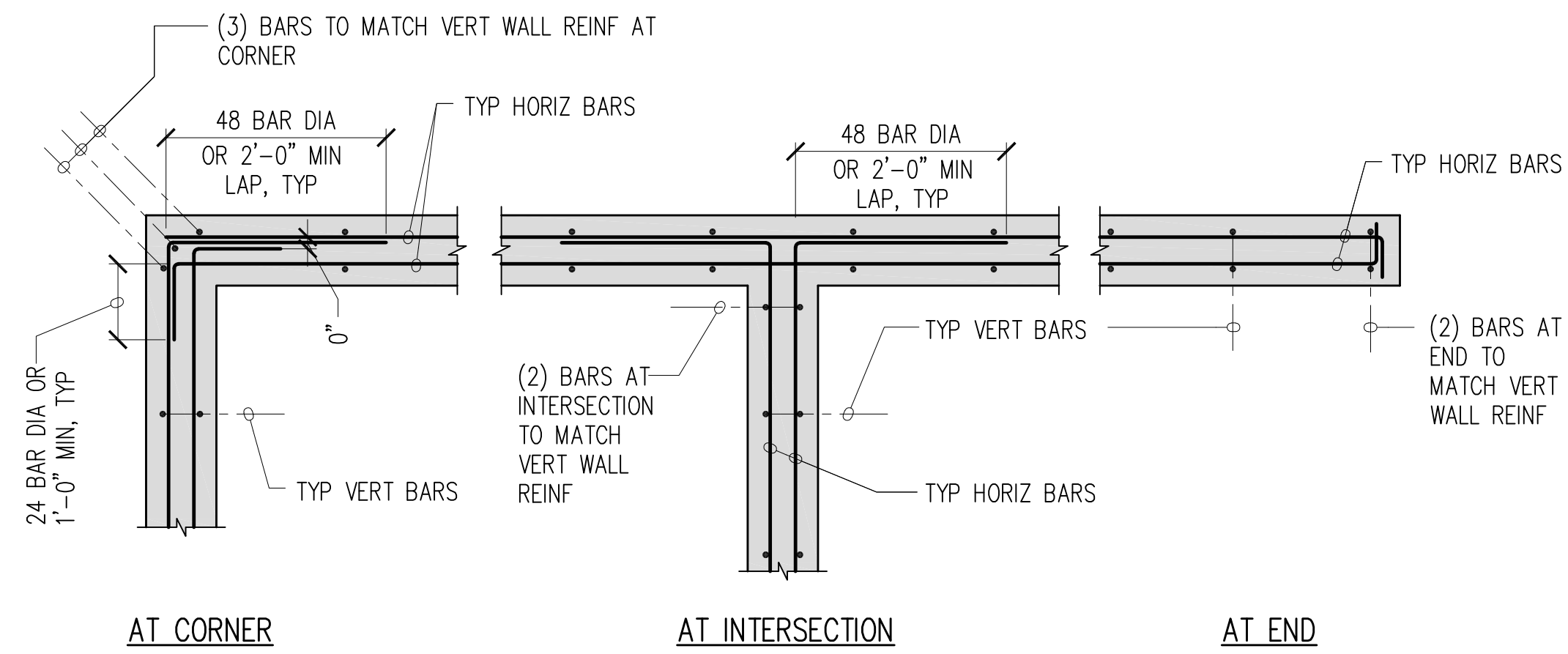


**EXPANSION JOINT DETAIL**

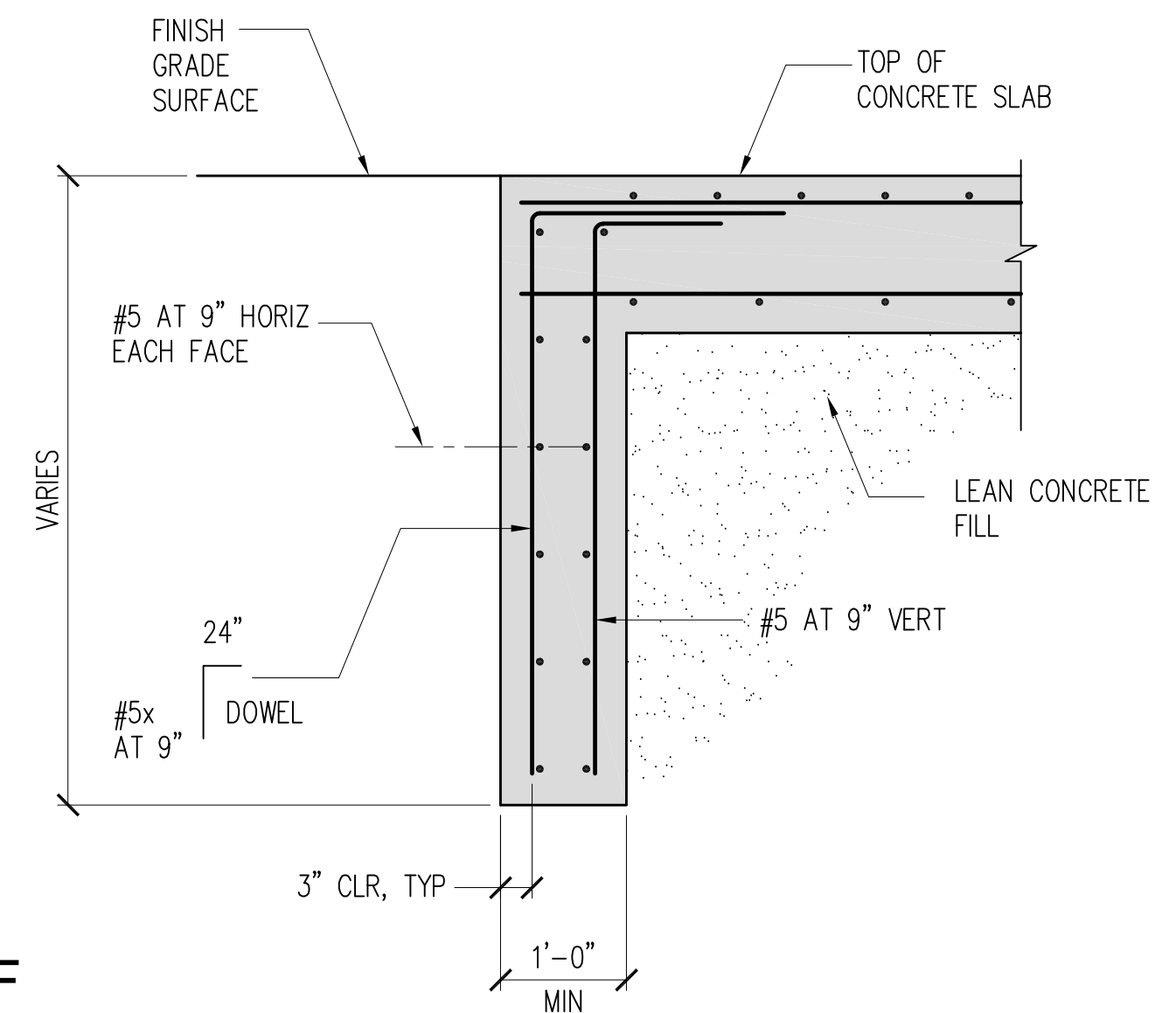
5  
S-002 NOT TO SCALE

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
NA PALI KONA FOREST RESERVE STREAM CROSSINGS					
STRUCTURAL TYPICAL DETAILS - 1					
DESIGNED:	JC	SUBMITTED:	JC	DATE:	APRIL 2026
DRAWN:	CAD	CHECKED:	BL	SCALE:	AS SHOWN
APPROVED:	Dina Lau E-signed 2026-04-23 10:30AM HST dina.u.lau@hawaii.gov	CHIEF ENGINEER:	State of Hawaii	DRAWING NO.:	S-002

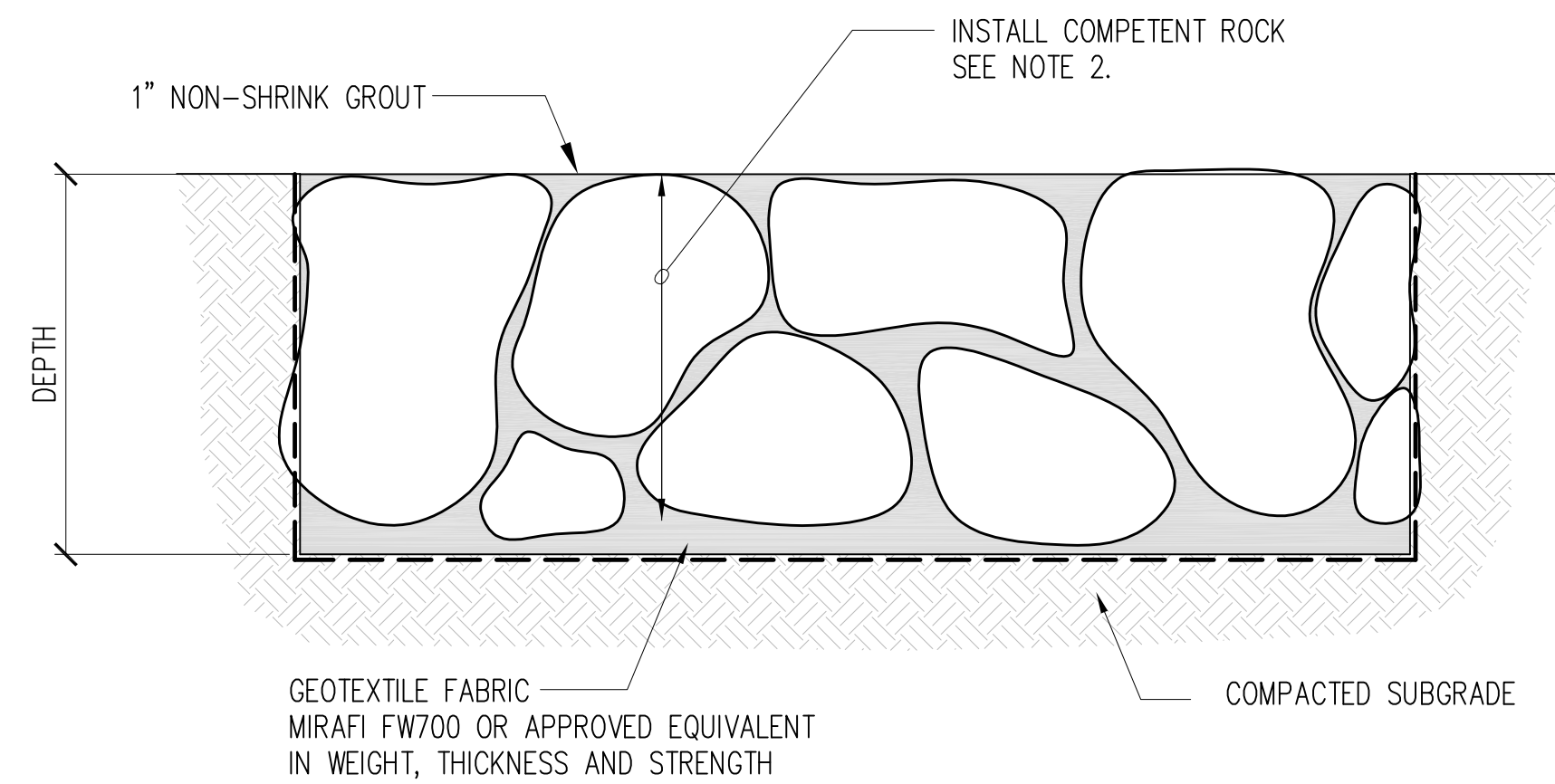
JOB NO. D00CK62C SHEET NO. 15 OF 18 SHEETS



1 TYPICAL CONCRETE DETAILS - PLAN VIEW  
S-003 NOT TO SCALE

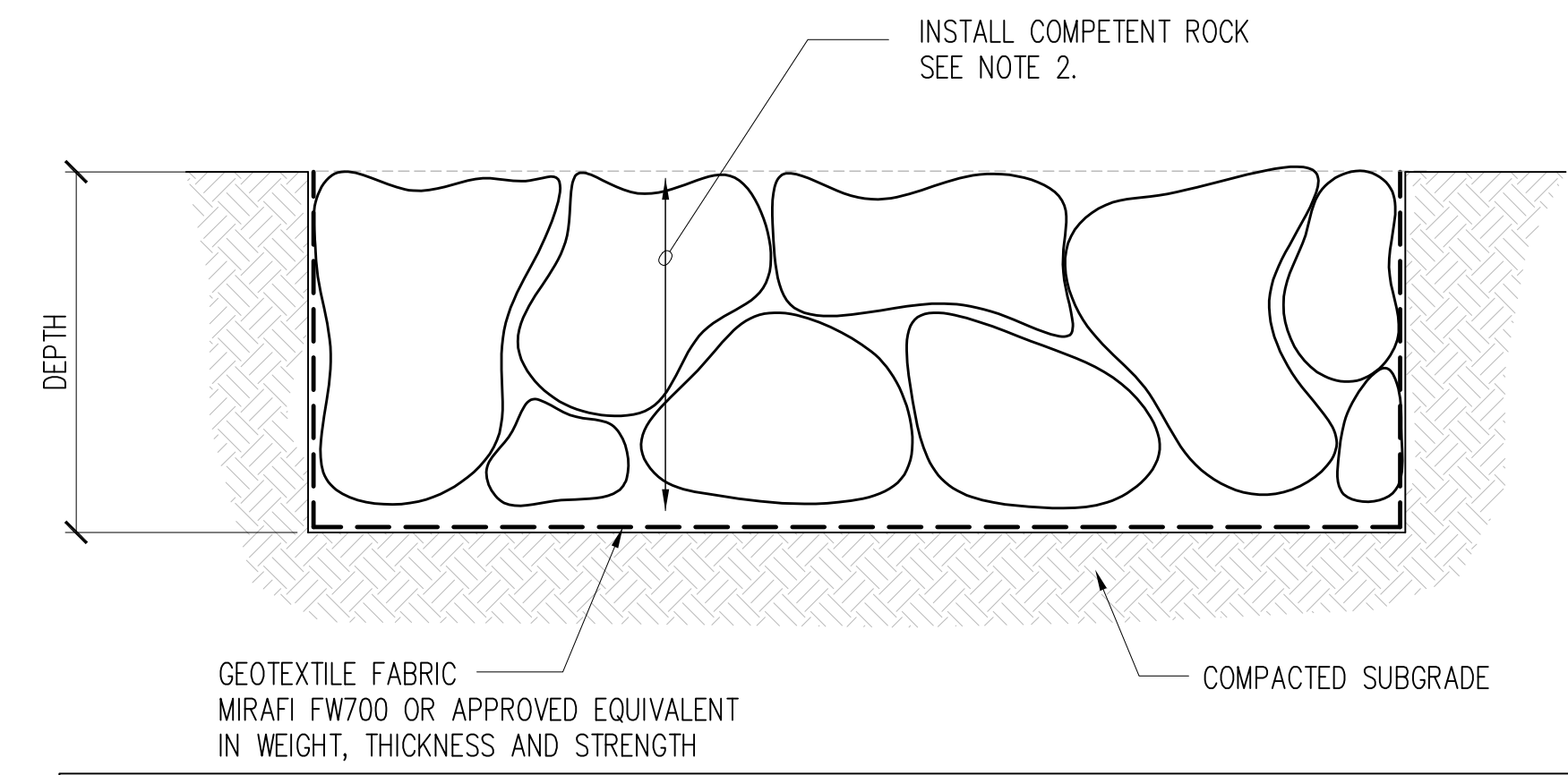


2 TYPICAL CUT-OFF  
S-003 NOT TO SCALE



NOTE:  
1. PRIOR TO LAYING STONES, CONTRACTOR SHALL NOTIFY THE ENGINEER 3 WORKING DAYS IN ADVANCE FOR INSPECTION OF FOUNDATION BED. WORK SHALL COMMENCE ONLY AFTER FOUNDATION IS ACCEPTABLE TO THE ENGINEER.  
2. FOR CLASSIFICATION, SEE CIVIL SHEETS.

3 TYPICAL GRP DETAIL  
S-003 NOT TO SCALE



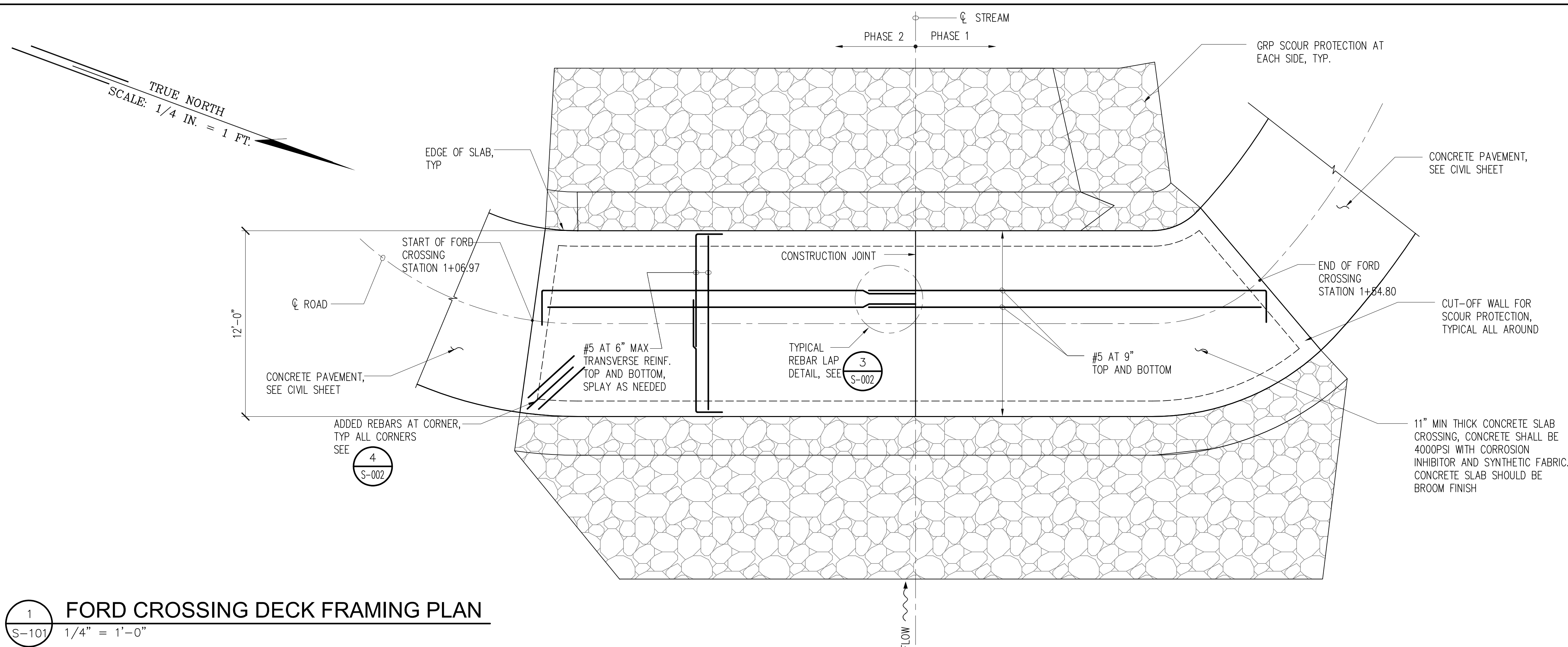
NOTE:  
1. PRIOR TO LAYING STONES, CONTRACTOR SHALL NOTIFY THE ENGINEER 3 WORKING DAYS IN ADVANCE FOR INSPECTION OF FOUNDATION BED. WORK SHALL COMMENCE ONLY AFTER FOUNDATION IS ACCEPTABLE TO THE ENGINEER.  
2. FOR CLASSIFICATION, SEE CIVIL SHEETS.

4 DUMPED RIPRAP DETAIL  
S-003 NOT TO SCALE

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STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
NA PALI KONA FOREST RESERVE STREAM CROSSINGS					
STRUCTURAL TYPICAL DETAILS - 2					
DESIGNED:	JC	SUBMITTED:	JC	DATE:	APRIL 2026
DRAWN:	CAD	CHECKED:	BL	SCALE:	AS SHOWN
APPROVED:	Dina Lau E-signed 2026-04-23 10:30AM HST dina.u.lau@hawaii.gov State of Hawaii Civil Engineer		DRAWING NO. S-003		

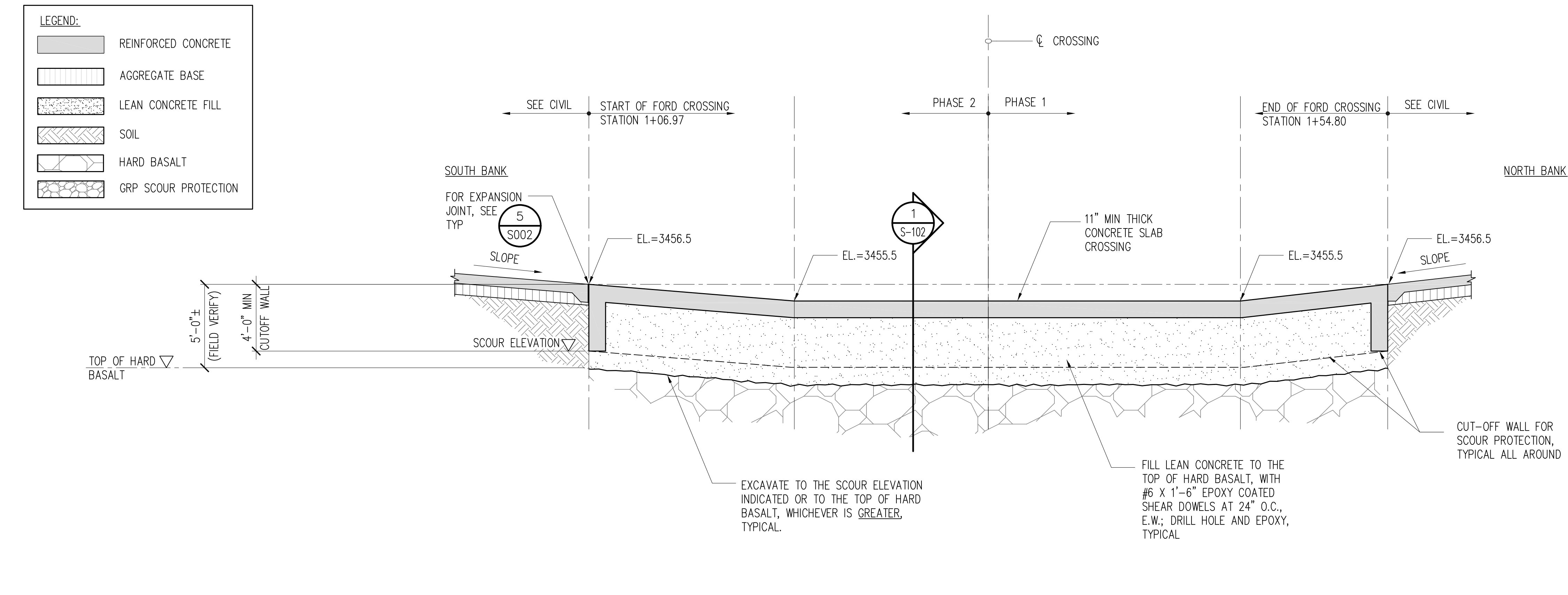


EXPIRATION DATE OF THE LICENSE 4/30/2028  
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION



- NOTES**
1. SEE CIVIL SHEETS FOR DEMOLITION LIMITS.
  2. VERIFY THE STATIONS AND ELEVATIONS WITH CIVIL SHEETS.
  3. THE CONSTRUCTION PHASING SHOWN IS FOR INFORMATIONAL PURPOSES ONLY. THE ACTUAL CONSTRUCTION SEQUENCE AND PHASING IS AT THE DISCRETION OF THE CONTRACTOR.
  4. THE CONTRACTOR IS RESPONSIBLE FOR DESIGNING, INSPECTION AND MAINTENANCE OF BMPS AND SANDBAG BARRIERS. STREAM WATER ELEVATION WILL INCREASE DUE TO THE STREAM DIVERSION, AND THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY POTENTIAL DAMAGE DURING THE CONSTRUCTION.
  5. THE COST OF THE WORK PERFORMED ON CONCRETE SLAB CROSSING CORNERS AND SUPPORT (ADDITIONAL REBARS, DRILL AND EPOXY CONNECTION, AND MISC. WORKS) SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED INCIDENTAL TO THE CROSSING STRUCTURE.

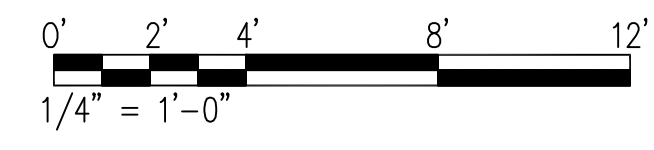
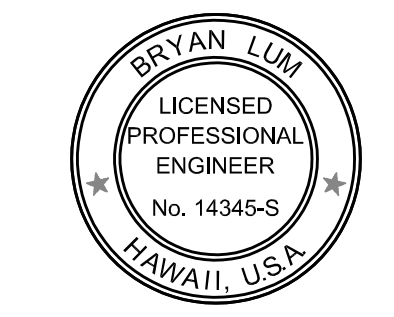
**1 FORD CROSSING DECK FRAMING PLAN**  
S-101 1/4" = 1'-0"

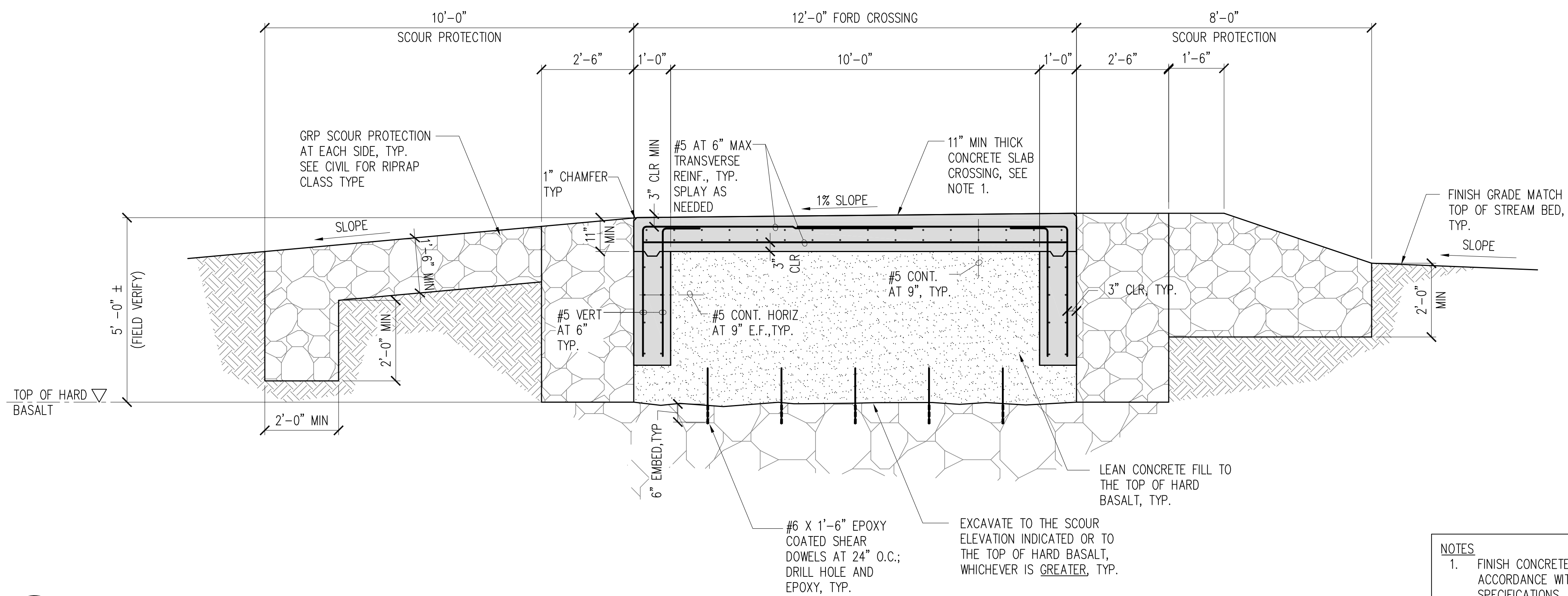


- NOTES**
1. THE GEOTECHNICAL INVESTIGATION INDICATES THAT THE BASALT LAYERS ARE RELATIVELY SHALLOW, TYPICALLY BETWEEN APPROXIMATELY 1.5 FEET AND 5 FEET BELOW THE GROUND SURFACE. THE CONTRACTOR SHALL REMOVE THE LOOSE, WEATHERED BASALT LAYER AND EXCAVATE TO THE SCOUR ELEVATION, AND REACH THE FRESH, HARD BASALT. EXCAVATIONS FOR FOUNDATIONS SHALL BE MONITORED AND APPROVED BY GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF CONCRETE AND REINFORCING STEEL TO CONFIRM FOUNDATION BEARING CONDITIONS AND REQUIRED EMBEDMENT DEPTHS.
  - 2.
  3. THE SLAB REINFORCING NOT SHOWN FOR CLARIFY. SEE SHEET S-102 FOR DETAIL.

**2 FORD CROSSING LONGITUDINAL SECTION ALONG ROAD CL**  
S-101 1/4" = 1'-0"

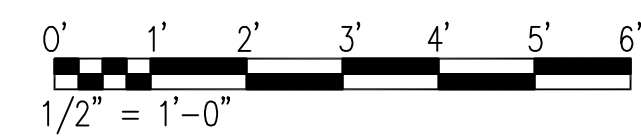
REVISION NO.	SYM.	DESCRIPTION	SHT. OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
NA PALI KONA FOREST RESERVE STREAM CROSSINGS					
FORD CROSSING LONGITUDINAL SECTION					
DESIGNED:	JC	SUBMITTED:	JC	DATE:	APRIL 2026
DRAWN:	CAD	CHECKED:	BL	SCALE:	AS SHOWN
APPROVED:	Dina Lau E-signed 2026-04-23 10:30AM HST dina.u.lau@hawaii.gov State of Hawaii Civil Engineer		DRAWING NO. S-101		






1 FORD CROSSING CROSS SECTION  
 S-102 1/2" = 1'-0"

**NOTES**  
 1. FINISH CONCRETE SLABS WITH WEARING SURFACES IN ACCORDANCE WITH CURRENT HDOT STANDARD SPECIFICATIONS, PROVIDING A UNIFORM TRANSVERSE TINED TEXTURE USING A METAL TINE RAKE (COMB).



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STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
NA PALI KONA FOREST RESERVE STREAM CROSSINGS					
TYPICAL FORD CROSSING SECTION					
DESIGNED:	JC	SUBMITTED:	JC	DATE:	APRIL 2026
DRAWN:	CAD	CHECKED:	BL	SCALE:	AS SHOWN
APPROVED:	 Dina Lau E-signed 2026-04-23 10:30AM HST dina.u.lau@hawaii.gov State of Hawaii Civil Engineer		DRAWING NO. S-102		
EXPIRATION DATE OF THE LICENSE 4/30/2028 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION					