

CONSTRUCTION NOTES:

1. ALL APPLICABLE CONSTRUCTION WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986 AND STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1984, AS AMENDED, OF THE DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU AND THE COUNTIES OF KAUAI, MAUI, AND HAWAII.
2. THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXIST BY THE ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA. WHEREVER CONNECTIONS OF NEW UTILITIES TO EXISTING UTILITIES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES.
3. NO CONTRACTOR SHALL PERFORM ANY CONSTRUCTION OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW INTO EXISTING CITY DRAINAGE SYSTEMS, OR ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY.
4. THE GENERAL CONTRACTOR OF THE PROJECT SHALL BE RESPONSIBLE FOR CONFORMANCE WITH APPLICABLE PROVISIONS OF THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 54, "WATER QUALITY STANDARDS," AND TITLE 11, CHAPTER 55, "WATER POLLUTION CONTROL", AS WELL AS CHAPTER 14 OF THE REVISED ORDINANCES OF HONOLULU, AS AMENDED. BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED AT ALL TIMES DURING CONSTRUCTION.
5. THE GENERAL CONTRACTOR OF THE PROJECT SHALL OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE(S) FOR THE FOLLOWING:
 - STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES THAT DISTURB ONE (1) ACRE OR MORE, AND
 - DISCHARGES OF HYDROTESTING EFFLUENT, DEWATERING EFFLUENT, AND WELL DRILLING EFFLUENT TO STATE WATERS.

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

6. FOR NON-CITY PROJECTS, THE CONTRACTOR SHALL NOTIFY THE CIVIL ENGINEERING BRANCH, D.P.P. AT 768-8084 TO ARRANGE FOR INSPECTIONAL SERVICES AND SUBMIT TWO (2) SETS OF APPROVED CONSTRUCTION PLANS SEVEN (7) DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION WORK. FOR CITY PROJECTS, THE CONTRACTOR SHALL COORDINATE INSPECTIONAL SERVICES WITH THE RESPONSIBLE CITY AGENCY.
7. CONFINED SPACE FOR ENTRY BY CITY PERSONNEL, INCLUDING INSPECTORS, INTO A PERMIT REQUIRED CONFINED SPACE AS DEFINED IN 29 CFR PART 1910.146(B), THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING:
 1. ALL SAFETY EQUIPMENT REQUIRED BY THE CONFINED SPACE REGULATIONS APPLICABLE TO ALL PARTIES OTHER THAN THE CONSTRUCTION INDUSTRY, TO INCLUDE, BUT NOT LIMITED TO, THE FOLLOWING:
 - A. FULL BODY HARNESSES FOR UP TO TWO PERSONNEL.
 - B. LIFELINE AND ASSOCIATED CLIPS.
 - C. INGRESS/EGRESS AND FALL PROTECTION EQUIPMENT.
 - D. TWO-WAY RADIOS (WALKIE-TALKIES) IF OUT OF LINE-OF-SIGHT.
 - E. EMERGENCY (ESCAPE) RESPIRATOR (10 MINUTE DURATION).
 - F. CELLULAR TELEPHONE TO CALL FOR EMERGENCY ASSISTANCE.
 - G. CONTINUOUS GAS DETECTOR (CALIBRATED) TO MEASURE OXYGEN, HYDROGEN SULFIDE, CARBON MONOXIDE AND FLAMMABLES (CAPABLE OF MONITORING AT A DISTANCE AT LEAST 20- FEET AWAY).
 - H. PERSONAL MULTI-GAS DETECTOR TO BE CARRIED BY INSPECTOR.
 2. CONTINUOUS FORCED AIR VENTILATION ADEQUATE TO PROVIDE SAFE ENTRY CONDITIONS.
 3. ONE ATTENDANT/RESCUE PERSONNEL TOPSIDE (TWO, IF CONDITIONS WARRANT IT).
8. PURSUANT TO CHAPTER 6E, HRS, IN THE EVENT ANY ARTIFACTS OR HUMAN REMAINS ARE UNCOVERED DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL IMMEDIATELY SUSPEND WORK AND NOTIFY THE HONOLULU POLICE DEPARTMENT, THE STATE DEPARTMENT OF LAND AND NATURAL RESOURCES-HISTORIC PRESERVATION DIVISION (692-8015). IN ADDITION, FOR NON-CITY PROJECTS, THE CONTRACTOR SHALL INFORM THE CIVIL ENGINEERING BRANCH, DEPARTMENT OF PLANNING AND PERMITTING (768-8084); AND FOR CITY PROJECTS, NOTIFY THE RESPONSIBLE CITY AGENCY.
9. FOR PROJECTS ABUTTING STATE HIGHWAY'S RIGHTS-OF WAY, THE OWNER OR HIS AUTHORIZED REPRESENTATIVE SHALL NOTIFY THE STATE DEPARTMENT OF TRANSPORTATION, HIGHWAYS DIVISION, OAHU DISTRICT, DRAINAGE DISCHARGE UNIT AT 831- 6793 FOR AN ASSESSMENT OF STATE HIGHWAYS PERMIT REQUIREMENTS.
10. FOR BENCH MARK, SEE SHEET C100.

PUBLIC HEALTH, SAFETY AND ENVIRONMENTAL NOTES

1. THE CONTRACTOR SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS REQUIRED FOR THE PROTECTION OF PUBLIC HEALTH, SAFETY AND ENVIRONMENTAL QUALITY.
2. THE CONTRACTOR 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.
3. THE CONTRACTOR, AT HIS/HER OWN EXPENSE, SHALL KEEP THE PROJECT AND ITS SURROUNDING AREAS FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH. THE CITY SHALL REQUIRE SUPPLEMENTARY MEASURES AS REQUIRED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER QUALITY AND WATER POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 54, "WATER QUALITY STANDARDS" AND TITLE 11, CHAPTER 55, "WATER POLLUTION CONTROL", AS WELL AS CHAPTER 14 OF THE REVISED ORDINANCES OF HONOLULU 1990, AS AMENDED. BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED AT ALL TIMES DURING CONSTRUCTION.
5. THE CONTRACTOR'S ATTENTION IS DIRECTED TO HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 46, "COMMUNITY NOISE CONTROL" IN WHICH MAXIMUM ALLOWABLE NOISE LEVELS HAVE BEEN SET. IF THE CONSTRUCTION ACTIVITIES FOR THIS PROJECT WILL EXCEED THE ALLOWABLE NOISE LEVELS, THE CONTRACTOR WILL BE REQUIRED TO OBTAIN A PERMIT FROM THE DIRECTOR OF THE DEPARTMENT 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 CONSTRUCTION ACTIVITIES. APPLICATION AND INFORMATION ON VARIANCES ARE AVAILABLE AT THE ENVIRONMENTAL HEALTH SERVICES DIVISION, 591 ALA MOANA BOULEVARD, HONOLULU, HAWAII 96813 OR BY TELEPHONE (586-4700).

GRADING NOTES

1. ALL GRADING WORK SHALL BE DONE IN ACCORDANCE WITH CHAPTER 14, ARTICLES 13, 14, 15 AND 16, AS RELATED TO GRADING, SOIL EROSION AND SEDIMENT CONTROL, OF THE REVISED ORDINANCES OF HONOLULU, 1990, AS AMENDED.
2. NO CONTRACTOR SHALL PERFORM ANY GRADING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY.
3. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 60.1, "AIR POLLUTION CONTROL".
4. THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXIST BY THE ENGINEER FROM HIS/HER SEARCH OF AVAILABLE RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA. WHEREVER CONNECTIONS OF NEW UTILITIES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES.
5. ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SURFACE WATERS FROM DAMAGING THE CUT FACE OF AN EXCAVATION OR THE SLOPED SURFACES OF A FILL. FURTHERMORE, ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE SITE.
6. ALL SLOPES AND EXPOSED AREAS SHALL BE SODDED OR PLANTED AS SOON AS FINAL GRADES HAVE BEEEN ESTABLISHED. PLANTING SHALL NOT BE DELAYED UNTIL ALL GRADING WORK HAS BEEN COMPLETED. GRADING TO FINAL GRADE SHALL BE CONTINUOUS, AND ANY AREA WITHIN WHICH WORK HAS BEEN INTERRUPTED OR DELAYED SHALL BE PLANTED.
7. FILLS ON SLOPES STEEPER THAN 5:1 SHALL BE KEYED.
8. THE CITY SHALL BE INFORMED OF THE LOCATION OF THE BORROW/DISPOSAL SITE FOR THE PROJECT WHEN THE APPLICATION FOR A GRADING PERMIT IS MADE. THE BORROW/DISPOSAL SITE MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
9. NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS AND HOLIDAYS AT ANY TIME WITHOUT PRIOR NOTICE TO THE DIRECTOR, D.P.P., PROVIDED SUCH GRADING WORK IS ALSO IN CONFORMANCE WITH THE COMMUNITY NOISE CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 46, "COMMUNITY NOISE CONTROL".
10. THE LIMITS OF THE AREA TO BE GRADED SHALL BE FLAGGED BEFORE THE COMMENCEMENT OF THE GRADING WORK.
11. THE GENERAL CONTRACTOR OF THE PROJECT SHALL BE RESPONSIBLE FOR CONFORMANCE WITH APPLICABLE PROVISIONS OF THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 54, "WATER QUALITY STANDARDS," AND TITLE 11, CHAPTER 55, "WATER POLLUTION CONTROL", AS WELL AS CHAPTER 14 OF THE REVISED ORDINANCES OF HONOLULU, AS AMENDED. BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED AT ALL TIMES DURING CONSTRUCTION.

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

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

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

12. WHERE APPLICABLE AND FEASIBLE THE MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY EARTH MOVING PHASE OF THE GRADING IS INITIATED.
13. TEMPORARY EROSION CONTROLS SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN-PLACE AND ESTABLISHED.
14. TEMPORARY EROSION CONTROL PROCEDURES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO APPLICATION FOR GRADING PERMIT.
15. IF THE GRADING WORK INVOLVES CONTAMINATED SOIL, THEN ALL GRADING WORK SHALL BE DONE IN CONFORMANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS.
16. THE CONTRACTOR SHALL NOTIFY THE CIVIL ENGINEERING BRANCH, D.P.P. AT 768-8084 TO ARRANGE FOR INSPECTIONAL SERVICES AND SUBMIT TWO (2) SETS OF APPROVED CONSTRUCTION PLANS SEVEN (7) DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION WORK.
17. PURSUANT TO CHAPTER 6E, HRS, IN THE EVENT ANY ARTIFACTS OR HUMAN REMAINS ARE UNCOVERED DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL IMMEDIATELY SUSPEND WORK AND NOTIFY THE HONOLULU POLICE DEPARTMENT, THE STATE DEPARTMENT OF LAND AND NATURAL RESOURCES-HISTORIC PRESERVATION DIVISION (692-8015). IN ADDITION, FOR NON-CITY PROJECTS, THE CONTRACTOR SHALL INFORM THE CIVIL ENGINEERING BRANCH, D.P.P. (768-8084); AND FOR CITY PROJECTS, NOTIFY THE RESPONSIBLE CITY AGENCY.
18. FOR ALL PROJECTS, WHICH WILL DISTURB ONE (1) ACRE OR MORE OF LAND, THE CONTRACTOR SHALL NOT START CONSTRUCTION UNTIL A 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. ALSO, FOR NON-CITY AND OTHER NON-GOVERNMENTAL AGENCY PROJECTS, THE CONTRACTOR SHALL PROVIDE A WRITTEN COPY OF THE NGPC TO THE PERMITTING AND INSPECTION SECTION, CIVIL ENGINEERING BRANCH, D.P.P., AT LEAST SEVEN (7) CALENDAR DAYS BEFORE THE START OF THE CONSTRUCTION. FOR CITY OR OTHER GOVERNMENTAL PROJECTS, THE CONTRACTOR SHOULD PROVIDE A WRITTEN COPY OF THE NGPC TO THE APPROPRIATE CITY DEPARTMENT OR GOVERNMENTAL AGENCY PER THEIR REQUIREMENTS.
19. ALL GRADING AND CONSTRUCTION WORK SHALL IMPLEMENT MEASURES TO ENSURE THAT THE DISCHARGE OF POLLUTANTS FROM THE CONSTRUCTION SITE WILL BE REDUCED TO THE MAXIMUM EXTENT PRACTICABLE AND WILL NOT CAUSE OR CONTRIBUTE TO AN EXCEEDANCE OF WATER QUALITY STANDARDS.
20. NON-COMPLIANCE TO ANY OF THE ABOVE REQUIREMENTS SHALL MEAN IMMEDIATE SUSPENSION OF ALL WORK, AND REMEDIAL WORK SHALL COMMENCE IMMEDIATELY. ALL COSTS INCURRED SHALL BE BILLED TO THE VIOLATOR. FURTHERMORE, VIOLATORS SHALL BE SUBJECTED TO ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES.
21. FOR BENCH MARK, SEE SHEET C100.

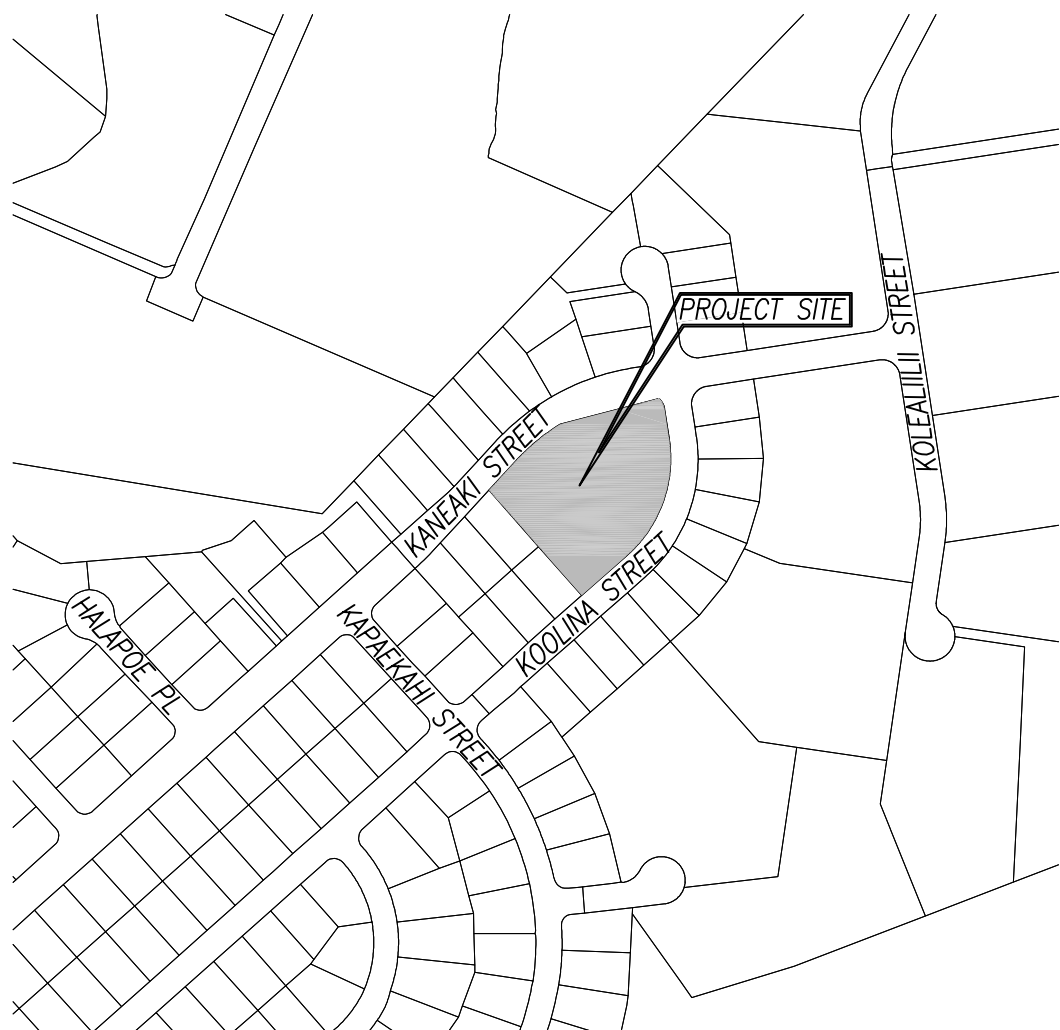
CONSTRUCTION PLANS FOR

DHHL WAIANAE VALLEY INCREMENT 4
SITE IMPROVEMENTS

(DPP SUBDIVISION FILE NO. 2018/SUB-89)

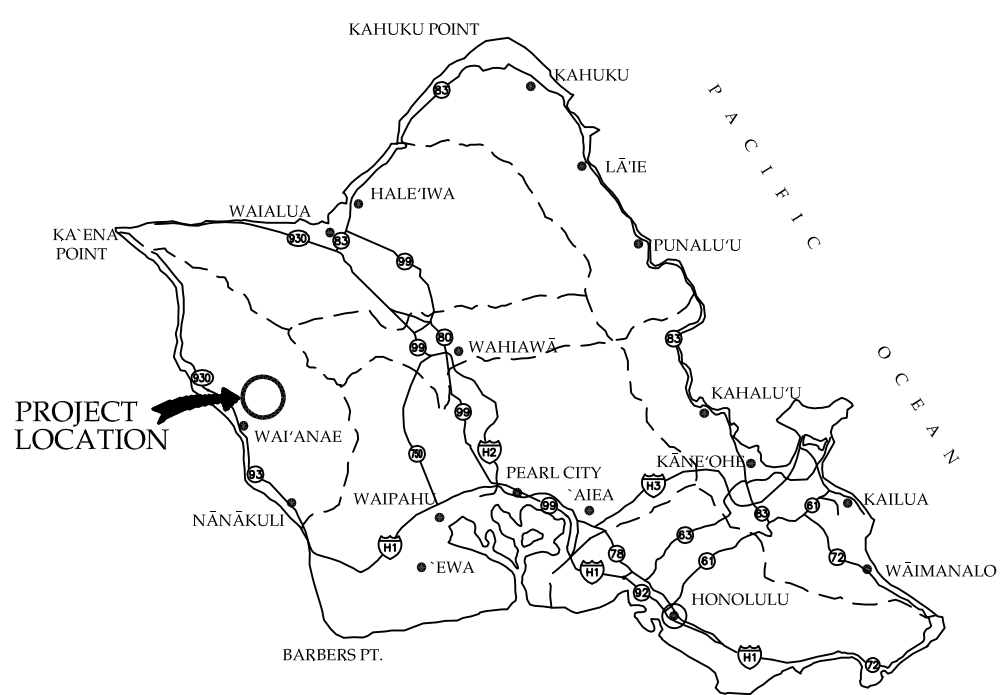
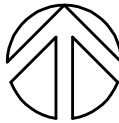
(DPP CONSTRUCTION FILE NO. 2018/CP-184)

TMK: 8-5-036:033



LOCATION MAP

NOT TO SCALE



OAHU

VICINITY MAP

NOT TO SCALE



APPROVED:

CHAIRMAN, HAWAII HOME COMMISSION
STATE OF HAWAII

DATE

DIRECTOR, DEPARTMENT OF PLANNING AND PERMITTING,
CITY AND COUNTY OF HONOLULU
(FOR SITE GRADING AND CONSTRUCTION WITHIN CITY
MAINTAINED ROW ONLY)

DATE

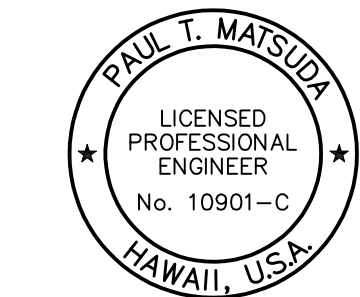
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.

DATE

DWG. NO.

C001

SHEET 1 OF 17



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

SIGNATURE
LICENSE EXP. DATE: APRIL 30, 2020

REVISION	DATE	BRIEF	MADE BY	APPROVED

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII

WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS
89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707
TMK: 8-5-036:033
JOB NO.

TITLE SHEET, LOCATION & VICINITY
MAPS NOTES INDEX TO DRAWINGS

DESIGNED BY: G70 CHECKED BY: SD DRAWN BY: AC

G70 111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5996
WWW.G70DESIGN.COM JANUARY 2019

FILE	POCKET	FOLDER	NO.
------	--------	--------	-----

WATER METER INSTALLATIONS (FOR METERS SMALLER THAN 3")

- UNLESS OTHERWISE SPECIFIED, ALL CONSTRUCTION ACTIVITIES AFFECTING BOARD OF WATER SUPPLY (BWS) FACILITIES IN THIS PROJECT SHALL BE IN ACCORDANCE WITH THE CITY AND COUNTY OF HONOLULU BOARD OF WATER SUPPLY'S "WATER SYSTEM STANDARDS", DATED 2002, THE "WATER SYSTEM EXTERNAL CORROSION CONTROL STANDARDS", VOLUME 3, DATED 1991, AND ALL SUBSEQUENT AMENDMENTS AND ADDITIONS.
- ALL PLANS APPROVED BY THE BOARD OF WATER SUPPLY ARE BASED SOLELY ON THE ADEQUACY OF THE WATER SUPPLY.
- THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES AND STRUCTURES AS SHOWN ON THE PLANS ARE FROM THE LATEST AVAILABLE DATA, BUT ARE NOT GUARANTEED AS TO THEIR ACCURACY OR THE ENCOUNTERING OF OTHER OBSTACLES DURING THE COURSE OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE AND PAY FOR ALL DAMAGES TO EXISTING UTILITIES. THE CONTRACTOR SHALL NOT ASSUME THAT WHERE NO UTILITIES ARE SHOWN, THAT NONE EXIST.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL WATERLINES DURING CONSTRUCTION. THE CONTRACTOR SHALL BE ESPECIALLY CAREFUL WHEN EXCAVATING BEHIND WATERLINES, TEES, AND BENDS WHEREVER THERE IS A POSSIBILITY OF WATERLINE MOVEMENT DUE TO THE REMOVAL OF THE SUPPORTING EARTH BEYOND THE EXISTING REACTION BLOCKS. THE CONTRACTOR SHALL TAKE WHATEVER MEASURES NECESSARY TO PROTECT THE WATERLINES, SUCH AS CONSTRUCTING SPECIAL REACTION BLOCKS (WITH BWS APPROVAL) AND/OR MODIFYING HIS CONSTRUCTION METHOD.
- THE CONTRACTOR SHALL NOTIFY BWS CAPITAL PROJECTS DIVISION, CONSTRUCTION SECTION IN WRITING, AND SUBMIT SIX (6) SETS OF APPROVED CONSTRUCTION DRAWINGS, ONE WEEK PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES.
- RE-APPROVAL SHALL BE REQUIRED IF THIS PROJECT IS NOT UNDER CONSTRUCTION WITHIN A PERIOD OF TWO (2) YEARS.
- PRIOR TO ANY EXCAVATING, THE CONTRACTOR SHALL VERIFY IN THE FIELD, THE LOCATION OF EXISTING WATERLINES AND APPURTENANCES.
- ANY ADJUSTMENTS TO THE EXISTING WATER SYSTEM REQUIRED DURING CONSTRUCTION, TO MEET THE REQUIREMENTS OF THE BWS STANDARDS, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE DONE BY THE CONTRACTOR AT NO COST TO THE BOARD.
- TEST PRESSURE SHALL BE 150 PSI. DURING THE 30-MINUTE PRESSURE TEST, THE PRESSURE SHALL NOT DROP MORE THAN 10 PSI.
- AFTER INSTALLATION OF TAPPING SLEEVE AND VALVE PRIOR TO ACTUAL TAPPING OPERATIONS, THE ASSEMBLY SHALL BE TESTED AT 150 PSI. ON BOTH SIDES OF THE VALVE.
- THE CONTRACTOR SHALL CHLORINATE THE ENTIRE INSIDE SURFACE OF EACH PIPE AND FITTING WITH DISINFECTION SOLUTION OF 5 OUNCES OF SODIUM HYPOCHLORITE MIXED WITH 10 GALLONS OF WATER (FOR CONNECTION ONLY)
- PRIOR TO INSTALLATION, THE CONTRACTOR SHALL SUBMIT FOR APPROVAL BY BOARD OF WATER SUPPLY, THE MANUFACTURER'S CERTIFICATION THAT ALL CAST IRON (GRAY OR DUCTILE) FITTINGS FOR THE PROJECT CONFORM IN ALL RESPECTS TO THE WATER SYSTEM STANDARDS, DATED 2002.
- THE CONTRACTOR SHALL FURNISH AND INSTALL POLYETHYLENE WRAP, 3 FEET MINIMUM AT ALL TAPS (FOR DI PIPE AND COPPER LATERAL COMBINATION ONLY).
- THE PROJECT SHALL PAY THE APPLICABLE WATER SYSTEM FACILITIES AND/OR ONE-TIME SERVICE CHARGE AND FOR THE METER WHICH WILL BE FURNISHED BY BWS AND INSTALLED BY THE CONTRACTOR WHEN THE LATERAL IS INSTALLED.
- CONTRACTOR SHALL CUT AND PLUG ALL EXISTING UNUSED LATERALS AT THE MAIN WHETHER OR NOT SHOWN ON THE PLANS. METER AND VALVE BOXES TO BE OR ALREADY ABANDONED SHALL BE DEMOLISHED OR REMOVED AND PROPERLY DISPOSED OF. THE DAMAGED AREA SHALL BE REPAIRED TO AN EQUAL OR BETTER CONDITION THAN THE IMMEDIATE AREA. ALL WORK SHALL BE DONE AT THE EXPENSE OF THE CONTRACTOR.
- THE CONTRACTOR/DEVELOPER SHALL OBTAIN A NPDES PERMIT PRIOR TO CHLORINATION AND/OR DEWATERING. A COPY OF THE PERMIT SHALL BE SUBMITTED TO THE BOARD OF WATER SUPPLY, CAPITAL PROJECTS DIVISION, CONSTRUCTION SECTION.
- PIPE CUSHION SHALL BE OF HIGH RESISTIVITY MATERIAL. THE CONTRACTOR SHALL SUBMIT A SOIL CERTIFICATION THAT HIGH RESISTANT CUSHION MATERIAL HAS A RESISTIVITY GREATER THAN 5,000 OHM-CM. REMAINDER OF THE BACKFILL MATERIAL SHALL BE SPECIFIED IN THE WATER SYSTEM STANDARDS. PIPE CUSHION AND BACKFILL MATERIAL SHALL CONTAIN NO HAZARDOUS SUBSTANCES ABOVE REGULATORY ACTION LEVELS INCLUDING BUT NOT LIMITED TO LEAD, ASBESTOS, MERCURY, CHROMIUM, CADMIUM, ZINC, STRONTIUM, AND POLYCHLORINATED BIPHENYLS (PCB).
- ALL DUCTILE IRON PIPE, FITTINGS AND VALVES SHALL BE WRAPPED WITH TWO LAYERS OF 8 MIL. POLYETHYLENE WRAP. THE INSIDE SURFACE OF THE POLYETHYLENE WRAP TO BE IN CONTACT WITH THE PIPE EXTERIOR SHALL BE INFUSED WITH A BLEND OF AN ANTIMICROBIAL TO MITIGATE MICROBIOLOGICALLY INFLUENCED CORROSION AND A VOLATILE CORROSION INHIBITOR TO CONTROL GALVANIC CORROSION.
- ALL DUCTILE IRON PIPE AND FITTINGS, INCLUDING SECTIONS REQUIRING REINFORCED CONCRETE JACKETING, SHALL BE DUCTILE IRON CLASS 53, AND COATED AS PER THE BWS WATER SYSTEM STANDARDS.
- CLEANING SHALL BE BY THE USE OF "PIGS" INTRODUCED INTO THE PIPELINE AND RUN COMPLETELY THROUGH ALL INSTALLED PIPELINES AND ALL BRANCH LINES FOR FIRE HYDRANTS. "PIGGING" OF SERVICE LATERALS IS NOT REQUIRED. BARE FOAM "PIGS" SHALL BE USED TO SWAB PIPING CLEAN AS EACH LENGTH OF THE PIPELINE IS INSTALLED. EACH "PIG" SHALL CONSIST OF A CYLINDRICAL PIECE OF POLYURETHANE FOAM WITH A DENSITY OF 3-7 POUNDS PER CUBIC FOOT AND A VINYL-COATED NOSE. OUTSIDE DIAMETER OF THE "PIG" SHALL BE EQUAL TO 1-1/4 TO 1-1/2 TIMES THE INSIDE DIAMETER OF THE PIPE BEING INSTALLED. THE LENGTH OF THE "PIG" SHALL BE 1-1/2 TO 2 TIMES ITS DIAMETER. PRIOR TO USE, THE "PIG" SHALL BE SUBMERGED IN A CHLORINE SOLUTION OF 1 OZ. OF 5% CHLORINE BLEACH IN 5 GALLONS OF WATER. "PIGGING" OF THE PIPELINE SHALL BE CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE NEW PIPELINE.
- ALL FIRE HYDRANTS TO BE ADJUSTED AND/OR RELOCATED SHALL BE REPLACED WITH NEW FIRE HYDRANTS, UNLESS OTHERWISE DIRECTED BY THE BWS.
- TWO-WAY BLUE REFLECTIVE HYDRANT MARKERS TYPE DB SHALL BE INSTALLED AT ALL NEW FIRE HYDRANT INSTALLATIONS. CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS OF HYDRANT MARKERS WITH THE NEAREST HONOLULU FIRE DEPARTMENT BATALION CHIEF.
- BALL CORP. AND BALL STOPO SHALL BE USED IN LIEU OF A CORPORATION STOP AND STOPCOCK, RESPECTIVELY.
- INSTALL 4 MIL THICK, NON-METALLIC, BLUE COLORED, 6 INCHES WIDE WARNING TAPE OVER THE CENTERLINE OF THE PIPE AND BELOW THE BASE COURSE ALONG THE ENTIRE LENGTH OF TRENCH. TAPE SHOULD BE MARKED WITH "CAUTION WATER LINE BURIED BELOW".
- THE CONTRACTOR SHALL INSTALL ELECTRONIC MARKERS TO ALL MAINS AND TEST THE ELECTRONIC MARKERS PRIOR TO INSTALLATIONS TO VERIFY PROPER OPERATION. BWS PERSONNEL SHALL VERIFY THE NUMBER AND LOCATIONS OF PLACED ELECTRONIC MARKERS BEFORE FINAL PAVING OF THE PROJECT.
- THE CONTRACTOR SHALL FURNISH AND INSTALL POLYETYLENE WRAP, 3 FEET MINIMUM AT ALL TAPS (FOR DI PIPE AND COPPER LATERAL COMBINATION ONLY) AND PLASTIC PIPE (PE TUBING) 3 FEET LONG AFTER METERS FOR ALL SERVICE LATERAL CONNECTIONS. (FOR COPPER SERVICE LATERALS ONLY.)
- BOARD OF WATER SUPPLY APPROVAL OF THESE PLANS DOES NOT CONSTITUTE A WATER COMMITMENT. AVAILABILITY OF WATER WILL BE DETERMINED WHEN BUILDING PERMIT IS PRESENTED TO THE DEPARTMENT. WATER COMMITMENT WILL DEPEND UPON THE STATUS OF THE WATER SYSTEM AT THAT TIME. SHOULD WATER SERVICE BE MADE AVAILABLE, THE WATER COMMITMENT WILL BE EFFECTIVE WHEN THE PROJECT RECEIVES AN APPROVED BUILDING PERMIT FROM THE BUILDING DEPARTMENT. ALL WATER COMMITMENTS WILL BE CANCELED IN THE EVENT THE BUILDING PERMIT IS CANCELED.

SEWER NOTES

- ALL SEWER CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY'S "STANDARD SPECIFICATIONS," SEPTEMBER 1986, THE DEPARTMENT OF ENVIRONMENTAL SERVICES "WASTEWATER SYSTEM DESIGN STANDARDS," JULY 2017 AND "WASTEWATER SYSTEM STANDARD DETAILS," JULY 2017, CURRENT CITY PRACTICES AND REVISED ORDINANCES OF HONOLULU, 1990 AS AMENDED.
- IN THE EVENT THAT ANY CHANGE IN ALIGNMENT OR GRADE FOR THE PROPOSED SEWERS ARE REQUIRED DUE TO UNFORESEEN CONFLICT WITH OTHER UTILITIES, THE ENGINEER IN CHARGE OR THE MAKER OF THE PLANS SHALL BE RESPONSIBLE FOR THE CHANGES WHICH ARE TO BE PRESENTED TO THE DEPARTMENT OF PLANNING AND PERMITTING (DPP) FOR APPROVAL.
- THE CONTRACTOR SHALL NOTIFY THE INSPECTION SECTION, CIVIL ENGINEERING BRANCH, DPP, AT 768-8084 TO ARRANGE FOR INSPECTION SERVICES AND SUBMIT FIVE (5) SETS OF APPROVED CONSTRUCTION PLANS SEVEN (7) DAY PRIOR TO COMMENCEMENT OF SEWER WORK. THE CONTRACTOR SHALL PAY FOR ALL INSPECTION COSTS.
- CRUSHED ROCK CRADLE IS PERMITTED WHERE SOIL IS STABLE. IN AREAS OF UNSTABLE SOIL, THE MAKER OF THE PLANS AND THE CONSTRUCTION ENGINEER WILL DETERMINE THE PIPE SUPPORT REQUIRED.
- THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXIST BY THE ENGINEER FROM HIS RESEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF THE FACILITIES, INCLUDING AND AFFECTING SEWER LINES, IN THE PRESENCE OF THE WASTEWATER INSPECTOR AND EXERCISE PROPER CARE IN EXCAVATING THE AREA. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL PAY FOR ALL DAMAGED UTILITIES.
- SEWER LATERALS SHALL BE CLEAR OF AND NOT CONFLICTING WITH ANY OTHER UTILITY. MINIMUM HORIZONTAL AND VERTICAL CLEARANCES SHALL BE STRICTLY OBSERVED AND FOLLOWED.
- SLOPE FOR SEWER LATERALS SHALL BE MINIMUM OF 2.00% UNLESS OTHERWISE NOTED.
- BUILDING PLUMBING FACILITIES SHALL BE CONTROLLED BY SEWER LATERAL INVERTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CONTINUOUS SEWER SERVICE TO ALL AFFECTED AREAS DURING CONSTRUCTION.
- THE CONSULTING ENGINEER SHALL SUBMIT TO THE WASTEWATER BRANCH, DPP "AS-BUILT" TRACINGS AND ELECTRONIC FILES OF THE CONSTRUCTION PLANS AS ACTUALLY CONSTRUCTED, SHOWING ALL CHANGES FROM THE ORIGINAL PLANS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SEWAGE SPILLS CAUSED DURING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE STATE DEPARTMENT OF HEALTH AND UTILIZE THE APPROPRIATE SAMPLING AND ANALYZING PROCEDURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PUBLIC NOTIFICATIONS AND PRESS RELEASES.
- THE CONTRACTOR SHALL INSTALL "RAINSTOPPER" MANHOLE INSERTS IN ALL SEWER MANHOLES WITH TYPE "SA" FRAME AND COVER.
- THE CONTRACTOR SHALL OBTAIN APPROVAL FOR ADVANCE SEWER RISER AGREEMENT AT THE DPP AND OBTAIN BUILDING PERMIT FOR PLUMBING WORK BEFORE ANY ADVANCE RISER IS MADE.
- ALL SEWER PIPE JOINTS WITHIN EASEMENTS SHALL BE WRAPPED WITH GEOTEXTILE ROOT BARRIER.
- S4C PIPE CRADLE SEALS SHALL BE INSTALLED 10 FEET FROM ALL SEWER MANHOLES TO PREVENT SOIL MIGRATION.
- GEOTEXTILE FABRIC TO ENVELOPE THE PIPE CRADLE AND SELECT BACKFILL MATERIAL SHALL BE PROVIDED WHERE WATER OR UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED.
- CONFINED SPACE

FOR ENTRY BY CITY PERSONNEL, INCLUDING INSPECTORS, INTO A PERMIT-REQUIRED CONFINED SPACE AS DEFINED IN 29 CFR PART 1910.146(b), THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING:
 - ALL SAFETY EQUIPMENT REQUIRED BY THE CONFINED SPACE REGULATIONS APPLICABLE TO ALL PARTIES OTHER THAN THE CONSTRUCTION INDUSTRY, TO INCLUDE, BUT NO LIMITED TO, THE FOLLOWING:
 - FULL BODY HARNESSSES FOR UP TO TWO PERSONNEL.
 - LIFELINE AND ASSOCIATED CLIPS.
 - INGRESS/EGRESS AND FALL PROTECTION EQUIPMENT.
 - TWO-WAY RADIOS (WALKIE-TALKIES) IF OUT OF LINE-OF-SIGHT.
 - EMERGENCY (ESCAPE) RESPIRATOR (10 MINUTE DURATION).
 - CELLULAR TELEPHONE TO CALL FOR EMERGENCY ASSISTANCE.
 - CONTINUOUS GAS DETECTOR (CALIBRATED) TO MEASURE OXYGEN, HYDROGEN SULFIDE, CARBON MONOXIDE AND FLAMMABLES (CAPABLE OF MONITORING AT A DISTANCE AT LEAST 20-FEET AWAY).
 - PERSONAL MULTI-GAS DETECTOR TO BE CARRIED BY INSPECTOR.
 - CONTINUOUS FORCED AIR VENTILATION ADEQUATE TO PROVIDE SAFE ENTRY CONDITIONS.
 - ONE ATTENDANT/RESCUE PERSONNEL TOPSIDE (TWO, IF CONDITIONS WARRANT IT).
- WHEN CONNECTING TO A LIVE SEWER LINE, THE CONTRACTOR SHALL ABIDE BY ALL CONDITIONS THAT THE STATE DEPARTMENT OF HEALTH SETS FORTH TO MITIGATE ANY WASTEWATER SPILL THAT MAY OCCUR. THE CONTRACTOR SHALL INFORM THE CITY INSPECTOR FIVE (5) WORKING DAYS PRIOR TO THE ACTUAL CONNECTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES AND PENALTIES DUE TO ANY SPILLS RESULTING FROM THE CONNECTION.
- NO RUNGS SHALL BE INSTALLED INSIDE NEW SEWER MANHOLES.
- FOR SEWER MANHOLE ADJUSTMENTS UPWARD LESS THAN 3", SEE STD DETAIL S-28. FOR SMH ADJUSTMENTS UPWARD GREATER THAN 3" OR FOR ANY ADJUSTMENTS DOWNWARD, RECONSTRUCT SMH TOP FROM BELOW THE CONE SECTION.
- IF THE CONTRACTOR ENCOUNTERS FLOW MONITORING DEVICES SUCH AS SPECIAL SEWER MANHOLE COVERS EMBEDDED WITH SOLAR PANELS, NOTIFY C&C HONOLULU, ENV-CSM AT 768-7272 TO COORDINATE TEMPORARY REMOVAL.
- THE CONTRACTOR SHALL MAINTAIN VISIBILITY AND MAINTENANCE ACCESS TO LIVE SEWER MANHOLE LOCATIONS AT ALL TIMES, INCLUDING DURING NON-WORK HOURS AND PAVING OPERATIONS.
- THE CONTRACTOR SHALL USE A MANHOLE DEBRIS CATCHING DEVICE WHEN PERFORMING MANHOLE HEIGHT ADJUSTMENT WORK AND REMOVE ANY CONSTRUCTION DEBRIS THAT HAS FALLEN INTO THE MANHOLE. DISPOSAL OF CONSTRUCTION DEBRIS IN THE SEWER SYSTEM IS STRICTLY PROHIBITED.
- FOR PRECAST SEWER MANHOLES, THE CONSULTING ENGINEER SHALL SUBMIT FOUR (4) SETS OF SHOP DRAWINGS TO THE WASTEWATER BRANCH, DPP FOR APPROVAL. AFTER THE SHOP DRAWINGS ARE APPROVED, THE MANUFACTURER SHALL NOTIFY THE INSPECTION SECTION, CIVIL ENGINEERING BRANCH, DPP, AT 768-8084 TO ARRANGE FOR INSPECTION SERVICES FOR CONCRETE POURS MADE AT ITS PLANT SEVEN (7) DAYS PRIOR TO POUR.

TRAFFIC NOTES TO WORK ON CITY & COUNTY MAINTAINED STREETS

- A PERMIT SHALL BE OBTAINED FROM THE DEPARTMENT OF TRANSPORTATION SERVICES BEFORE WORK ON ANY PORTION OF A PUBLIC STREET OR HIGHWAY MAY BEGIN. CONSTRUCTION TRAFFIC CONTROL PLANS APPROVED BY THE DEPARTMENT OF TRANSPORTATION SERVICES AND/OR THE DEPARTMENT OF PLANNING AND PERMITTING MUST BE PROVIDED WHEN APPLYING FOR THE PERMIT.
 - THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL NECESSARY SIGNS AND OTHER PROTECTIVE FACILITIES, WHICH SHALL CONFORM WITH THE "HAWAII ADMINISTRATION RULES GOVERNING THE USE OF TRAFFIC CONTROL DEVICES AT WORK SITES ON OR ADJACENT TO PUBLIC STREETS AND HIGHWAYS" ADOPTED BY THE DIRECTOR OF TRANSPORTATION, AND THE CURRENT U.S. FEDERAL HIGHWAYS ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREET AND HIGWAYS, PART VI - TRAFFIC CONTROLS FOR STREET AND HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS."
 - WORK ON ANY CITY STREET AREA MAY BE PERFORMED ONLY BETWEEN THE HOURS OF 8:30 A.M. TO 3:30 P.M., MONDAY THROUGH FRIDAY, UNLESS OTHERWISE PERMITTED BY THE DEPARTMENT OF TRANSPORTATION SERVICES.
 - DURING WORKING HOURS, THE CONTRACTOR SHALL PROVIDE FOR THROUGH TRAFFIC. DURING NON-WORKING HOURS, ALL TRENCHES SHALL BE COVERED WITH A SAFE NON-SKID BRIDGING MATERIAL AND ALL LANES SHALL BE OPEN TO TRAFFIC.
 - AS REQUIRED BY THE DEPARTMENT OF TRANSPORTATION SERVICES, THE CONTRACTOR SHALL PROVIDE OFF-DUTY POLICE OFFICERS TO CONTROL THE FLOW OF TRAFFIC.
 - WHERE PEDESTRIAN WALKWAYS EXIST, THEY SHALL BE MAINTAINED IN PASSABLE CONDITION OR OTHER FACILITIES FOR PEDESTRIANS SHALL BE PROVIDED. PASSAGE BETWEEN WALKWAYS AT INTERSECTIONS SHALL LIKEWISE BE PROVIDED.
 - DRIVEWAYS SHALL BE KEPT OPEN UNLESS THE OWNERS OF THE PROPERTY USING THESE RIGHTS-OF-WAY ARE OTHERWISE PROVIDED FOR SATISFACTORILY.
 - CONTRACTOR SHALL REFERENCE TO THE APPROVAL OF THE DEPARTMENT OF TRANSPORTATION SERVICES AND THE DEPARTMENT OF PLANNING AND PERMITTING, ALL EXISTING TRAFFIC SIGNS, POSTS AND PAVEMENT MARKINGS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL REPLACE OR REPAIR ALL TRAFFIC SIGN, POSTS AND PAVEMENT MARKINGS DISTURBED BY HIS ACTIVITIES.
 - THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PLANNING AND PERMITTING AT 768-8084 ONE (1) WEEK PRIOR TO ANY WORK TO BE DONE ON SIGNS, POST AND PAVEMENT MARKINGS.
 - NO EQUIPMENT SHALL BE STORED WITHIN STREET RIGHTS-OF-WAY EXCEPT AT LOCATIONS DESIGNATED IN WRITING AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION SERVICES.
 - DEPARTMENT OF HAWAIIAN HOME LANDS IS RESPONSIBLE FOR ENSURING INSTALLATION OF CONSTRUCTION TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE MUTCD AND THE HAWAII ADMINISTRATION RULES AS SPECIFIED IN TRAFFIC NOTE #2.
- TRENCHING NOTES**
- PERFORM ALL WORK IN A NEAT AND WORKMANLIKE MANNER AND IN CONFORMITY WITH THE PROVISIONS OF CHAPTER 14, REVISED ORDINANCE OF HONOLULU 1990, AS AMENDED, OR AS MANY BE SUBSEQUENTLY AMENDED.
 - BEFORE PAVEMENT RESTORATION MAY COMMENCE, NOTIFY THE DIRECTOR OR AN AUTHORIZED REPRESENTATIVE AND FURNISH DATA ON TESTS PERFORMED UNDER THE SUPERVISION OF A REGISTERED CIVIL ENGINEER SUBSTANTIATING THAT THE BACKFILL HAS BEEN COMPACTED TO THE DENSITY SPECIFIED IN THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION FOR ALL TRENCHES THAT ARE OVER 2 FEET IN DEPTH IN MAJOR AND SECONDARY STREETS AND FOR ALL TRENCHES OVER FIFTY FEET IN LENGTH AND OVER 2 FEET IN DEPTH IN MINOR AND DEAD END STREETS. THE DIRECTOR MAY ALSO REQUIRE COMPACTION TESTS OF BACKFILL FOR HOLES AND FOR TRENCHES OF LESS THAN 2 FEET IN DEPTH AND ADDITIONAL COMPACTION TESTS ON TRENCHES FOR WHICH THE PERMITTEE HAS FURNISHED TEST DATA.
 - CONTACT THE DEPARTMENT OF PLANNING AND PERMITTING, SITE DEVELOPMENT DIVISION, CIVIL ENGINEERING BRANCH, PERMITTING AND INSPECTION SECTION TO SCHEDULE A FINAL INSPECTION OF PAVEMENT RESTORATION WORK. THE BOND FILED WITH THE CITY WILL BE RELEASED ONE (1) YEAR AFTER THE DATE OF THE FINAL INSPECTION (PHONE NUMBER: 768-8084).
 - PROVIDE SHORING AND TEMPORARY TRENCH COVERS ADEQUATE TO SUPPORT LEGAL TRAFFIC LOADS.
 - ACCOMPLISH EMERGENCY WORK INCLUDING BUT NOT LIMITED TO PATCHING HOLES, REPAIRING TEMPORARY TRENCH COVERS AND INSTALLATION OF WARNING LIGHTS OR BARRICADES WHEN THE "CONTACT FOR EMERGENCY REPAIRS" FURNISHED BY THE APPLICANT IS NOTIFIED. IF THE EMERGENCY WORK IS NOT MADE IN A REASONABLE TIME WHEN NOTIFIED OR UPON FAILURE OF THE "CONTACT FOR EMERGENCY REPAIRS," RESPOND AND PAY THE COST OF THE EMERGENCY WORK MADE BY THE DEPARTMENT OF FACILITY MAINTENANCE, DIVISION OF ROAD MAINTENANCE.
 - PURSUANT TO CHAPTER 6E, HRS, IN THE EVENT ANY ARTIFACTS OR HUMAN REMAINS ARE UNCOVERED DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL IMMEDIATELY SUSPEND WORK AND NOTIFY THE HONOLULU POLICE DEPARTMENT, THE STATE DEPARTMENT OF LAND AND NATURAL RESOURCES-HISTORIC PRESERVATION DIVISION (692-8015). IN ADDITION, FOR NON-CITY PROJECTS, THE CONTRACTOR SHALL INFORM THE CIVIL ENGINEERING BRANCH, D.P.P. (768-8084); AND FOR CITY PROJECTS, NOTIFY THE RESPONSIBLE CITY AGENCY.
 - UNDERTAKE, FOR A PERIOD OF ONE (1) YEAR AFTER THE SATISFACTORY COMPLETION AND APPROVAL OF RESTORATION WORK, ANY NECESSARY REPAIRS TO THE RESTORED WORK OR FACILITIES DISTURBED AND/OR BY THE WORK PERFORMED UNDER THIS PERMIT.
 - REMOVE, RELOCATE, REPLACE, RECONSTRUCT OR ADJUST, AT HIS/HER OWN EXPENSE, ANY OF HIS/HER FACILITIES THAT MAY EXIST ON OR UNDER THE RIGHT OF WAY WHENEVER AND AS OFTEN AS MAY BE REQUIRED BY THE DIRECTOR OR AN AUTHORIZED REPRESENTATIVE IN ORDER TO UNDERTAKE THE CONSTRUCTION, RECONSTRUCTION OR MAINTENANCE OF SAID RIGHT OF WAY.
 - KEEP ALL FACILITIES INSTALLED UNDER THE SAID PERMIT IN GOOD REPAIR SO THAT THE PRESENCE OF SUCH FACILITY ON OR UNDER THE RIGHT OF WAY WILL IN NO WAY IMPAIR THE USE OR USEFULNESS OF ANY IMPROVEMENT WHICH MAY NOW EXIST OR HEREAFTER COME INTO EXISTENCE.
 - PROCURE, AT HIS/HER OWN EXPENSE, AND KEEP IN FORCE AT ALL TIME INSURANCE NAMING THE CITY AS AN ADDITIONAL INSURED AS REQUIRED BY CHAPTER 14 AFORESAID AND SUPPLY EVIDENCE SATISFACTORY TO THE CITY THAT THE REQUIRED INSURANCE HAS BEEN PROCURED AND IS IN FORCE PRIOR TO ISSUANCE OF THE PERMIT.
 - KEEP A COPY OF PERMIT AND A COPY OF THE PLANS IN THE HANDS OF THE WORKING CREW FOR EXHIBIT UPON REQUEST OF ANY AUTHORIZED REPRESENTATIVE OF THE CITY.
 - SUBMIT AS-BUILT DRAWINGS TO THE DIRECTOR SHOWING THE ACTUAL CONSTRUCTION PERFORMED. AS-BUILT DRAWINGS ARE NOT REQUIRED FOR EMERGENCY REPAIRS AND SERVICE CONNECTIONS.
 - THE PERMIT FEE IS NOT REFUNDABLE UNDER ANY CONDITION.

APPROVED:

MANAGER AND CHIEF ENGINEER, BWS
(FOR WORK AFFECTING BWS FACILITIES
IN CITY/STATE R.O.W. ONLY)

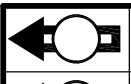

CHIEF, WASTEWATER BRANCH, D.P.P.
(FOR CONFORMANCE WITH CITY STANDARDS ONLY)

CHIEF, TRAFFIC REVIEW BRANCH, D.P.P.

DATE

DATE

DATE

				
				
REVISION	DATE	BRIEF	MADE BY	APPROVED

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII

WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS

89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707

TMK: 8-5-036:033

JOB NO.

NOTES 2

DESIGNED BY: G7O	CHECKED BY: SD	DRAWN BY: AC
------------------	----------------	--------------



111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5996
WWW.G7ODESIGN

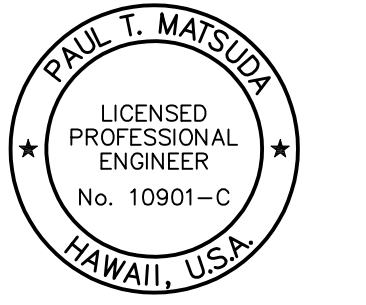
JANUARY 2019

FILE	POCKET	FOLDER	NO.
------	--------	--------	-----

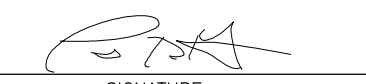
DWG. NO.

C002

SHEET 2 OF 17

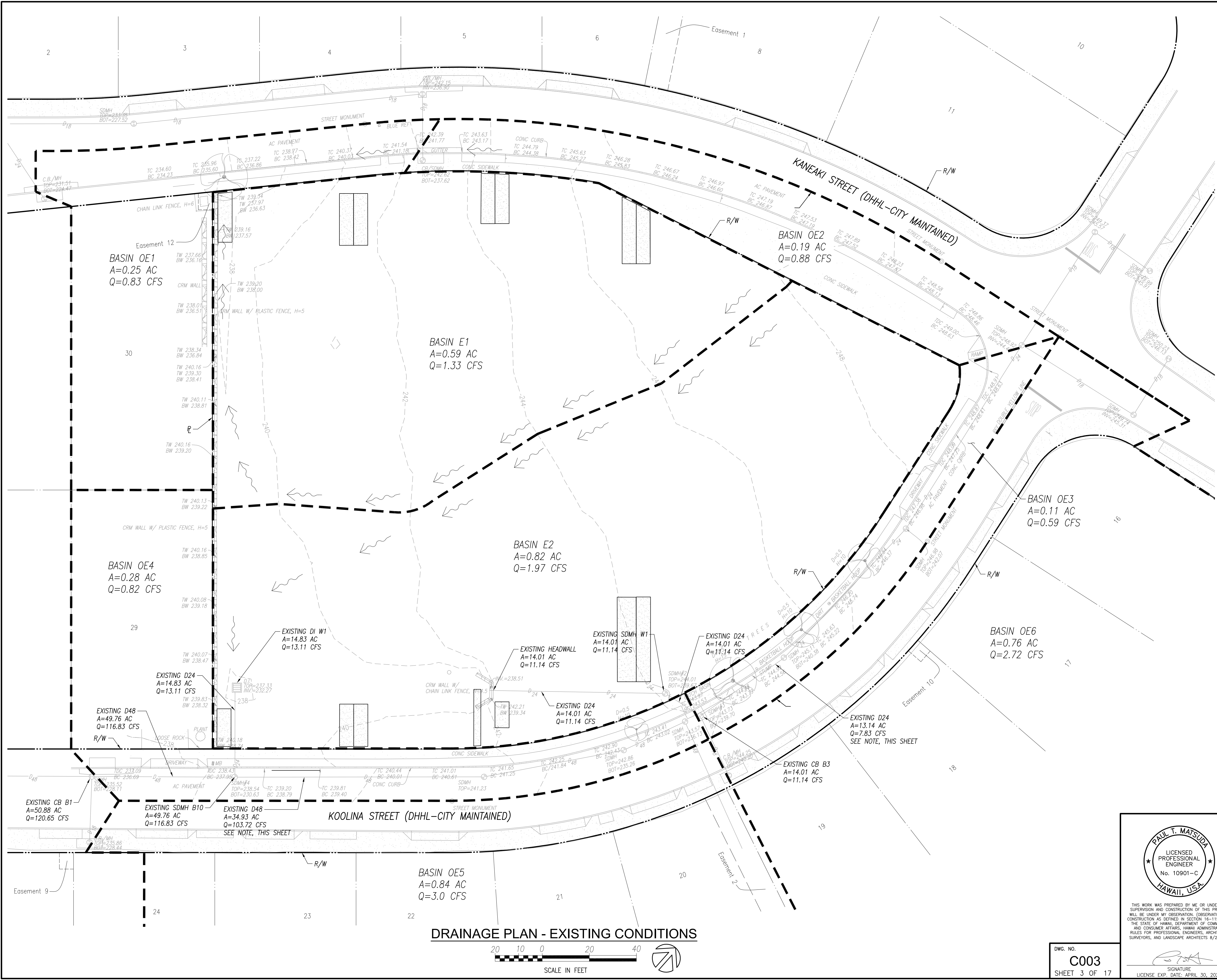


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).



SIGNATURE

LICENSE EXP. DATE: APRIL 30, 2020



LEGEND

- RIGHT-OF-WAY
- LOT LINE
- EXISTING GROUND CONTOUR
- EXISTING STORM DRAIN LINE
- EXISTING STORM DRAIN MANHOLE
- EXISTING SURFACE DRAINAGE FLOW
- EXISTING DRAINAGE BASIN

RUNOFF CRITERIA

RATIONAL METHOD: Q = CIA

BASIN E1
TOTAL DRAINAGE AREA = 0.59 AC
LANDSCAPE AREA = 0.59 AC

RUNOFF COEFFICIENT, C = 0.60

RECURRENCE INTERVAL, T_m = 10 YRS
ONE-HOUR RAINFALL INTENSITY, I = 2.22 IN

LONGEST OVERLAND RUN, L = 370 FT
SLOPE, S = 0.035 FT/FT

TIME OF CONCENTRATION, T_c = 20 MIN
CORRECTION FACTOR, CF = 1.7
RAINFALL INTENSITY (T_m = 10 YR)
I₁₀ = (2.22)(1.7) = 3.77 IN/HR

TOTAL RUNOFF, Q = (0.60)(3.77)(0.59) = 1.33 CFS

NOTE
EXISTING FLOWRATES AND AREAS DETERMINED BY THE FRIETAS DAIRY SUBDIVISION DRAINAGE REPORT PREPARED BY KIM AND SHIROMA ENGINEERING, INC, REVISED JUNE 2001.

REVISION	DATE	BRIEF	MADE BY	APPROVED

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII

WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS
89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707
TMK: 8-5-036:033
JOB NO.

DRAINAGE PLAN - EXISTING CONDITIONS

DESIGNED BY: G70 CHECKED BY: SD DRAWN BY: AC

G70 111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5996
WWW.G70.DESIGN

JANUARY 2019

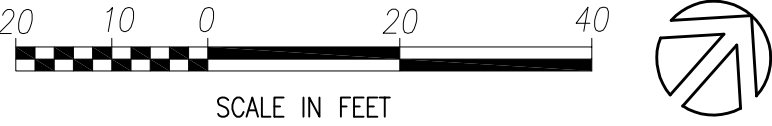


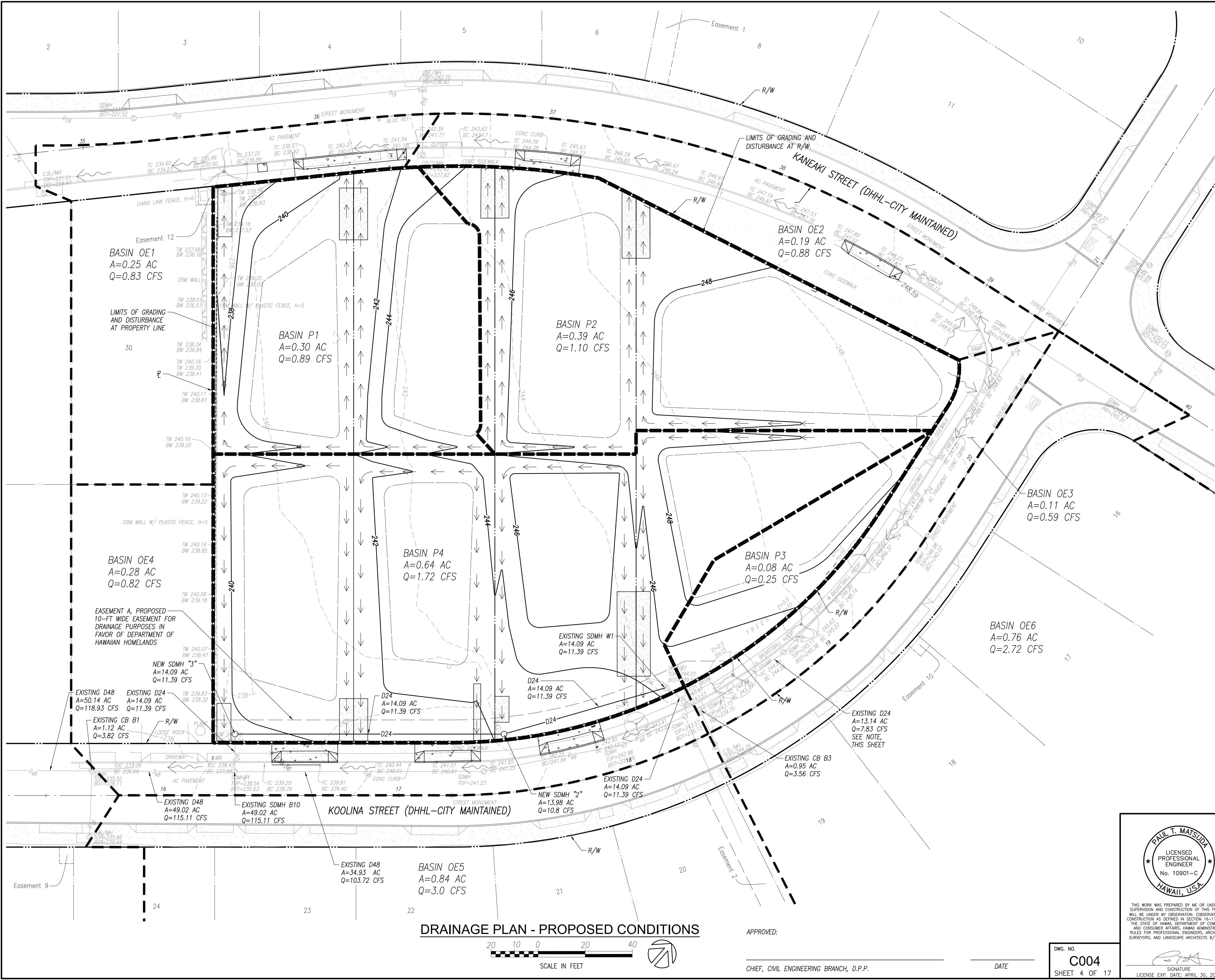
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

SIGNATURE
LICENSE EXP. DATE: APRIL 30, 2020

DWG. NO.
C003
SHEET 3 OF 17

DRAINAGE PLAN - EXISTING CONDITIONS





LEGEND

- RIGHT-OF-WAY
- LOT LINE
- EXISTING GROUND CONTOUR
- PROPOSED GROUND CONTOUR
- TOP OF BANK / SWALE
- EXISTING STORM DRAIN LINE
- EXISTING STORM DRAIN MANHOLE
- EXISTING SURFACE DRAINAGE FLOW
- PROPOSED DRAIN LINE
- PROPOSED STORM DRAIN MANHOLE
- VEGETATED SWALE
- PROPOSED DRAINAGE BASIN
- OFFSITE DRAINAGE BASIN

RUNOFF CRITERIA

RATIONAL METHOD: $Q = CIA$

BASIN P1
TOTAL DRAINAGE AREA = 0.30 AC
LANDSCAPE AREA = 0.30 AC

RUNOFF COEFFICIENT, $C = 0.75$

RECURRENCE INTERVAL, $T_m = 10$ YRS
ONE-HOUR RAINFALL INTENSITY, $I = 2.22$ IN

LONGEST OVERLAND RUN, $L = 170$ FT
SLOPE, $S = 0.031$ FT/FT

TIME OF CONCENTRATION, $T_c = 17.4$ MIN
CORRECTION FACTOR, $CF = 1.8$
RAINFALL INTENSITY ($T_m = 10$ YR)
 $I_{10} = (2.5)(2.7) = 3.97$ IN/HR

TOTAL RUNOFF, $Q = (0.75)(3.97)(0.30) = 0.89$ CFS

NOTE
EXISTING FLOWRATES AND AREAS DETERMINED BY THE FRIETAS DAIRY SUBDIVISION DRAINAGE REPORT PREPARED BY KIM AND SHIROMA ENGINEERING, INC. REVISED JUNE 2001.

REVISION	DATE	BRIEF	MADE BY	APPROVED

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII

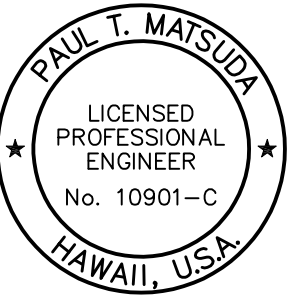
WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS
89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707
TMK: 8-5-036:033
JOB NO.

DRAINAGE PLAN - PROPOSED CONDITIONS

DESIGNED BY: G70 CHECKED BY: SD DRAWN BY: AC

G70 111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5886
WWW.G70DESIGN.COM

JANUARY 2019



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

SIGNATURE
LICENSE EXP. DATE: APRIL 30, 2020

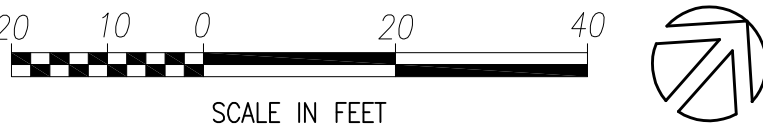
APPROVED:

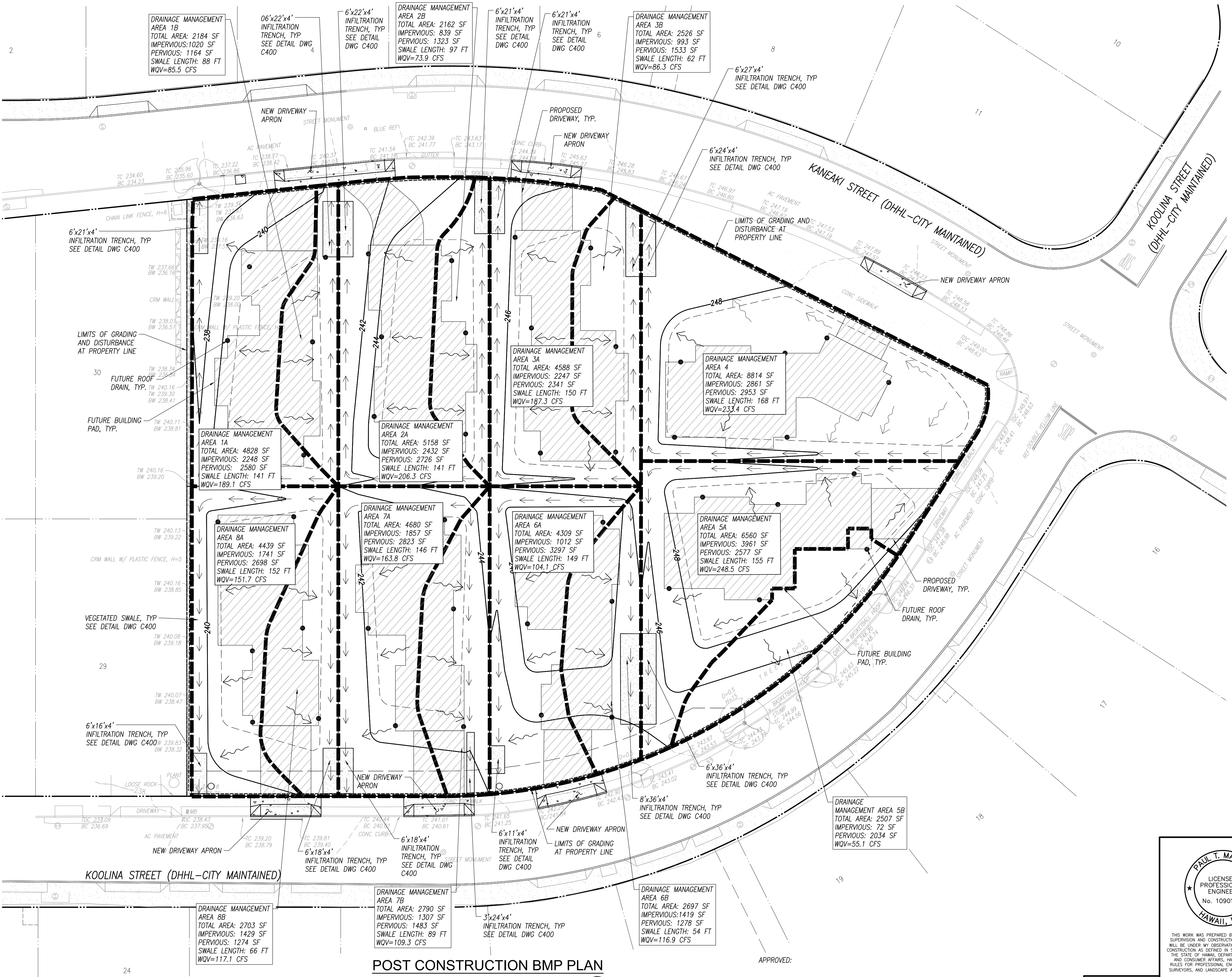
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.

DATE

DWG. NO.
C004
SHEET 4 OF 17

DRAINAGE PLAN - PROPOSED CONDITIONS





POST CONSTRUCTION BEST MANAGEMENT PRACTICES (PRIORITY A):

- LID SITE DESIGN STRATEGIES**
- MINIMIZE SOIL COMPACTION
 - MINIMIZE IMPERVIOUS SURFACE
 - DIRECT RUNOFF TO LANDSCAPED AREAS
 - SELF MITIGATING AREAS
- SOURCE CONTROL BMP**
SEE ATTACHMENT A OF SWOR FOR SOURCE CONTROL BMP
- PARKING AREAS: CARPORT/GARAGE AREA TO BE PAVED.
 - STORM DRAIN INLETS: ALL NEW AND MODIFIED DRAIN INLETS AND CATCH BASINS TO BE LABELED WITH PROHIBITIVE LANGUAGE.
 - LANDSCAPED AREAS: RUNOFF FROM LANDSCAPED AREAS TO IMPERVIOUS AREAS ARE LIMITED. NO AUTOMATIC IRRIGATION TO BE CONSTRUCTED. LANDSCAPING TO BE WATERED MANUALLY AND LIMITED TO ONLY AS NEEDED.
 - VEHICLE EQUIPMENT REPAIR: VEHICLE REPAIR WILL BE LIMITED TO WITHIN GARAGE/CARPORT.
 - VEHICLE AND EQUIPMENT WASHING AND CLEANING: CLEANING LIMITED TO WITHIN GARAGE/CARPORT. WASH WATER TO BE DIRECTED TOWARD LANDSCAPED AREAS, AND NOT TO RUN DIRECTLY TO THE DRIVEWAY/ROAD.
 - OUTDOOR TRASH STORAGE: TRASH STORAGE WILL BE PERMITTED UNDER COVERED AREAS
 - OUTDOOR MATERIAL STORAGE, WORK AREAS, AND PROCESS EQUIPMENT OPERATIONS NOT ALLOWED ONSITE.

- TREATMENT CONTROL BMP**
- VEGETATED SWALES
 - INFILTRATION TRENCHES

LEGEND

- LOT LINE
- GRADE BREAK
- PROPERTY LINE/RIGHT OF WAY
- FINISH CONTOUR
- EXISTING CONTOUR
- ROOF DRAIN
- DRAIN STRUCTURE
- BEST MANAGEMENT PRACTICES (VEGETATED SWALES)
- FLOW ARROW
- VEGETATED SWALE, SEE DETAIL C402
- INFILTRATION TRENCH, SEE DETAIL C402
- IMPERVIOUS AREA

NOTES

- UPON TRANSFER OF OWNERSHIP, ALL SUCCESSORS IN INTEREST (LOT PROPERTY OWNERS) SHALL BEAR THE RESPONSIBILITY OF IMPLEMENTING & MAINTAINING THE PCBMP REQUIREMENTS FOR EACH PLAN AS REFLECTED IN THIS PCBMP PLAN, AND THE OPERATION AND MAINTENANCE PLAN FOR PERMANENT STORM WATER BMPs THAT HAS BEEN PREPARED FOR EACH LOT.
- THE DEPARTMENT OF FACILITY MAINTENANCE WILL BE NOTIFIED OF ANY CHANGE OF OWNERSHIP AND THE NEW OWNER(S) SHALL SUBMIT A NEW OWNER'S CERTIFICATION FOR RESPONSIBILITY OF MAINTENANCE OF THE SOURCE CONTROL AND TREATMENT CONTROLS.
- DRAIN MANAGEMENT AREAS 4B AND 5B ARE SELF MITIGATING.

REVISION	DATE	BRIEF	MADE BY	APPROVED

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII
WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS
89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707
TMK: 8-5-036:033
JOB NO.

POST CONSTRUCTION BMP PLAN

DESIGNED BY: G70 CHECKED BY: SD DRAWN BY: AC

G70 111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5886
WWW.G70DESIGN.COM
JANUARY 2019

PAUL T. MATSUDA
LICENSED PROFESSIONAL ENGINEER
No. 10901-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

SIGNATURE
LICENSE EXP. DATE: APRIL 30, 2020

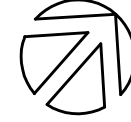
DWG. NO.
C005
SHEET 5 OF 17

POST CONSTRUCTION BMP PLAN

ORIGINAL PAPER SIZE: 34x22



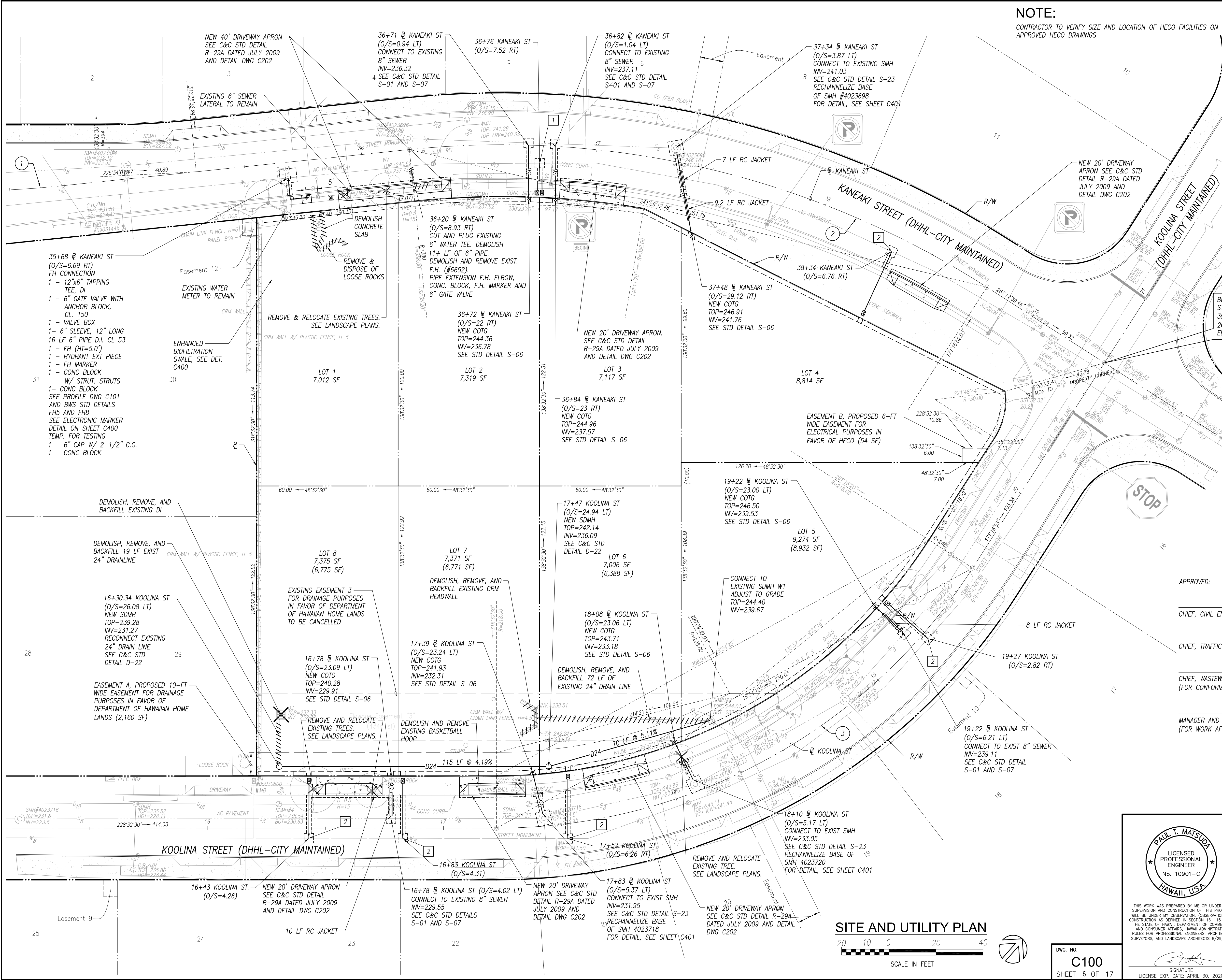
SCALE IN FEET



APPROVED:

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.

DATE



NOTE:
CONTRACTOR TO VERIFY SIZE AND LOCATION OF HECO FACILITIES ON APPROVED HECO DRAWINGS

- 1

CONNECT TO EXISTING 8" WATER.
CONTRACTOR TO INSTALL NEW TYPE "C-1" LATERAL AND TYPE "X" METER BOX AND ALL APPURTENANCES IN ACCORDANCE WITH BWS STANDARDS (SEE BWS STD DTL L12, L13, L14, L16 AND M3)
- 2

CONNECT TO EXISTING 8" WATER.
CONTRACTOR TO INSTALL NEW TYPE "A" LATERAL AND TYPE "X" METER BOX AND ALL APPURTENANCES IN ACCORDANCE WITH BWS STANDARDS (SEE BWS STD DTL L12, L13, L14, M3)

- NOTES:**
- ALL C&C SEWER STANDARD DETAILS SHALL FOLLOW THE JULY 2017 AMENDED DETAILS
 - NEW SEWER LATERALS SHALL BE 6" PVC C900 PIPE. WYE LATERALS ARE NOT ALLOWED.

LEGEND

- RIGHT OF WAY
- LOT LINE
- EASEMENT
- LIMITS OF DISTURBANCE
- EXISTING STORM DRAINLINE
- EXISTING STORM DRAIN MANHOLE
- EXISTING WATER LINE
- EXISTING SEWER LINE
- NEW WATER LINE
- NEW WATER METER BOX
- NEW SEWER LINE
- NEW SEWER CLEANOUT
- NEW STORM DRAINLINE
- NEW STORM DRAIN MANHOLE
- NEW CONCRETE SIDEWALK
- LIMITS OF AC PAVEMENT RECONSTRUCTION

CURVE TABLE						
CURVE NO	Δ	Δ/2	R	T	C	Lc
1	5°57'10"	2°58'35"	380.00'	19.76	39.46'	39.48'
2	38°41'19"	19°20'40"	380.00'	133.40	251.75'	256.59'
3	57°16'13"	28°38'06"	240.00'	131.04	230.03'	239.89'

APPROVED:

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.

DATE

CHIEF, TRAFFIC REVIEW BRANCH, D.P.P.

DATE

CHIEF, WASTEWATER BRANCH, D.P.P.
(FOR CONFORMANCE WITH CITY STANDARDS ONLY)

DATE

MANAGER AND CHIEF ENGINEER, BWS
(FOR WORK AFFECTING BWS FACILITIES IN CITY/STATE R/W AND BWS EASEMENTS ONLY)

DATE

REVISION	DATE	BRIEF	MADE BY	APPROVED



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

SIGNATURE
LICENSE EXP. DATE: APRIL 30, 2020

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII

WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS

89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707

TMK: 8-5-036:033

JOB NO.

SITE AND UTILITY PLAN

DESIGNED BY: G70 CHECKED BY: SD DRAWN BY: AC



111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5996
WWW.G70DESIGN

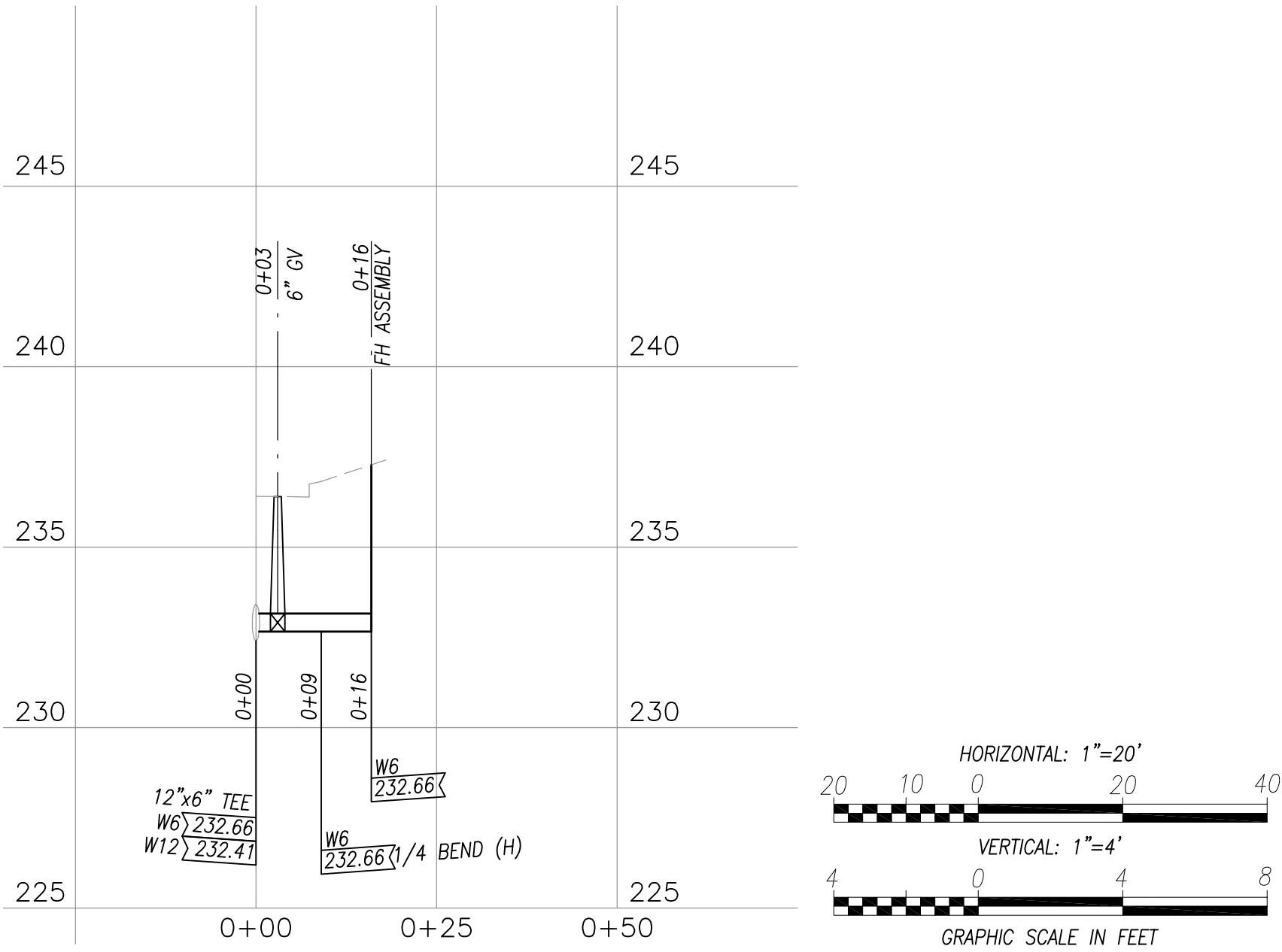
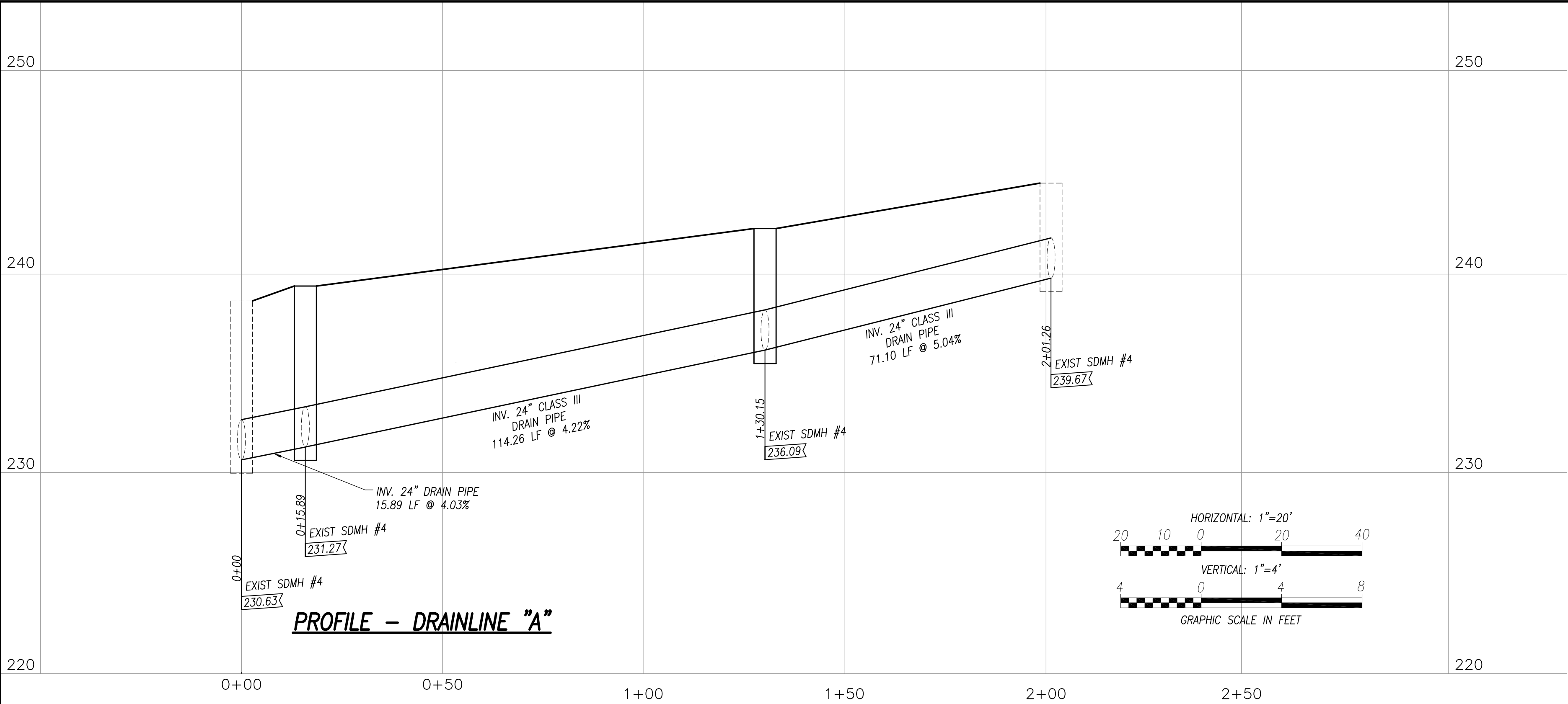
JANUARY 2019

FILE	POCKET	FOLDER	NO.

SITE AND UTILITY PLAN



DWG. NO.
C100
SHEET 6 OF 17



PROFILE – WATERLINE “A”
6” FIRE HYDRANT CONNECTION

APPROVED:

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.
(FOR CONSTRUCTION WITHIN CITY MAINTAINED ROW ONLY)

DATE

MANAGER AND CHIEF ENGINEER, BWS
(FOR WORK AFFECTING BWS FACILITIES IN CITY/STATE R/W AND BWS EASEMENTS ONLY)

DATE

DWG. NO.
C101
SHEET 7 OF 17



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

SIGNATURE

LICENSE EXP. DATE: APRIL 30, 2020

REVISION	DATE	BRIEF	MADE BY	APPROVED

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII
WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS
89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707
TMK: 8-5-036:033
JOB NO.

PROFILES

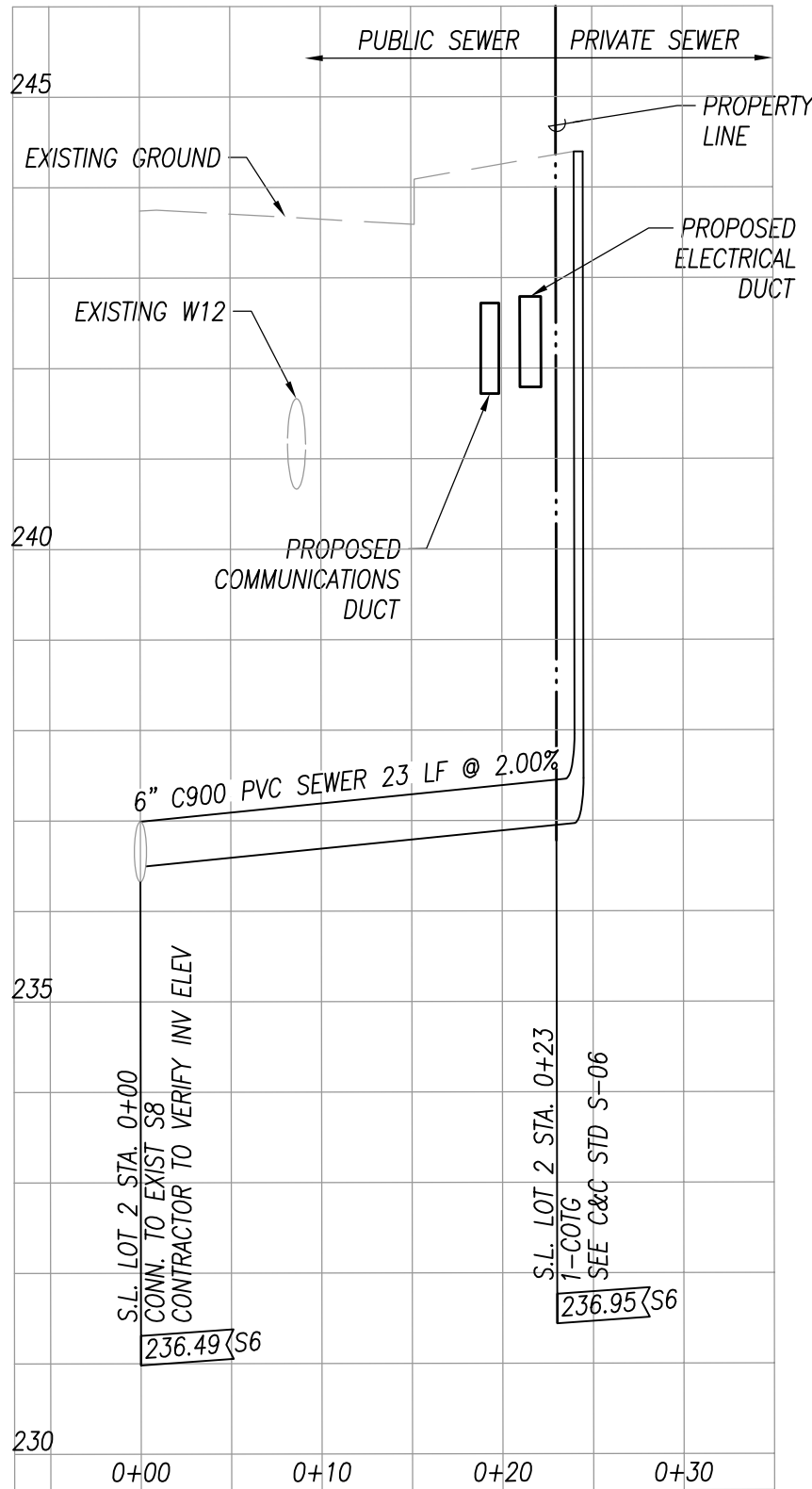
DESIGNED BY: G70 CHECKED BY: SD DRAWN BY: AC



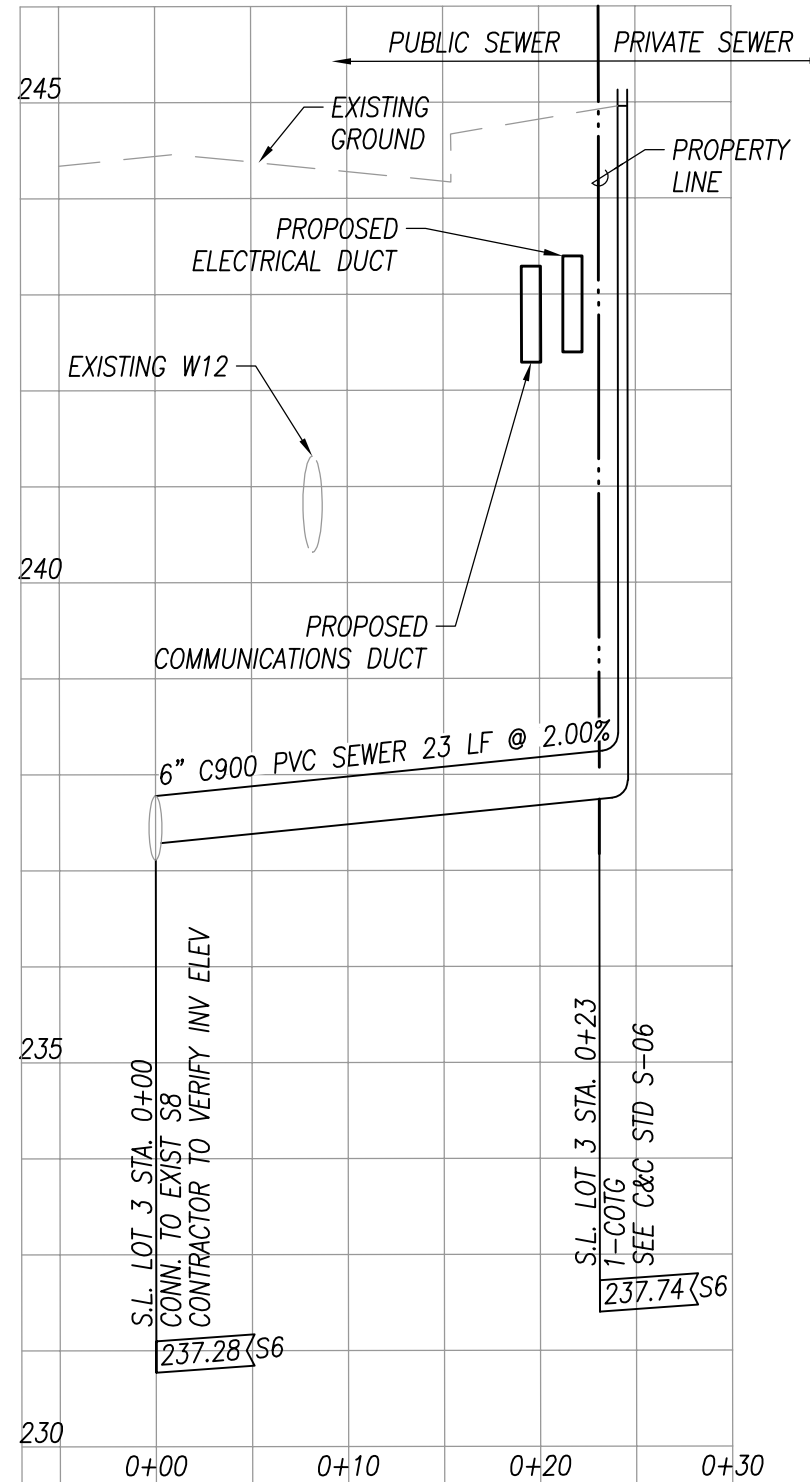
111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5986
WWW.G70.DESIGN

JANUARY 2019

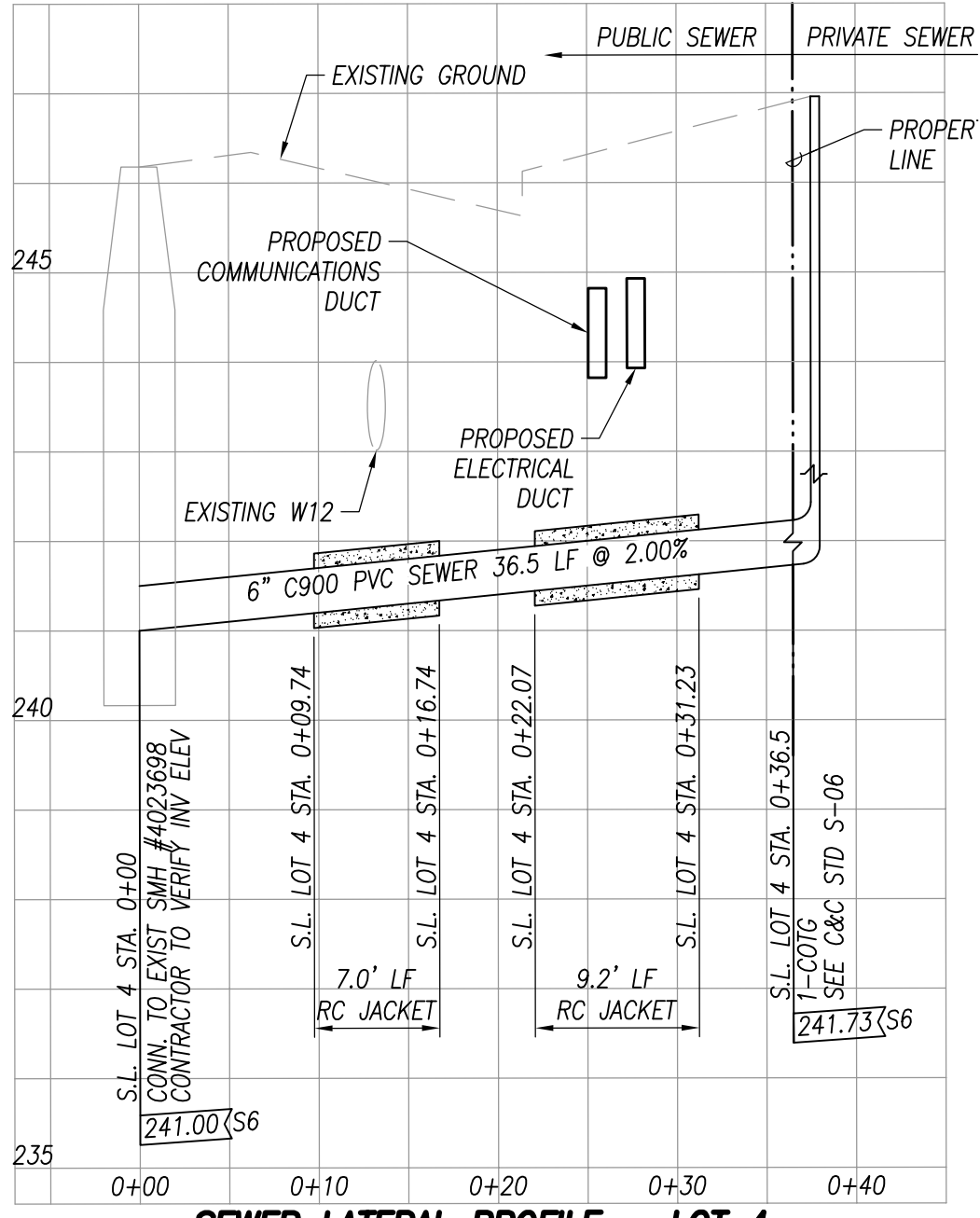
FILE	POCKET	FOLDER	NO.



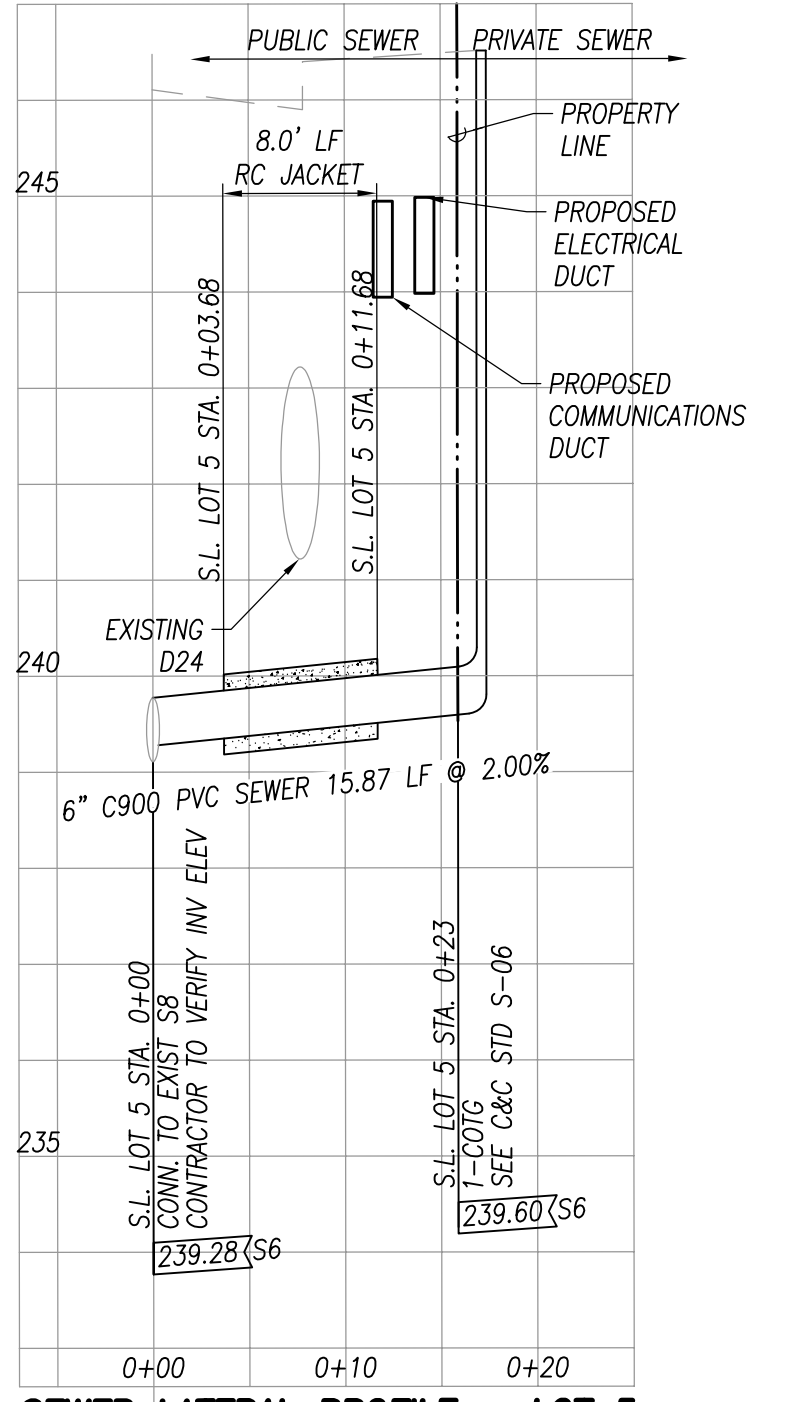
SEWER LATERAL PROFILE - LOT 2



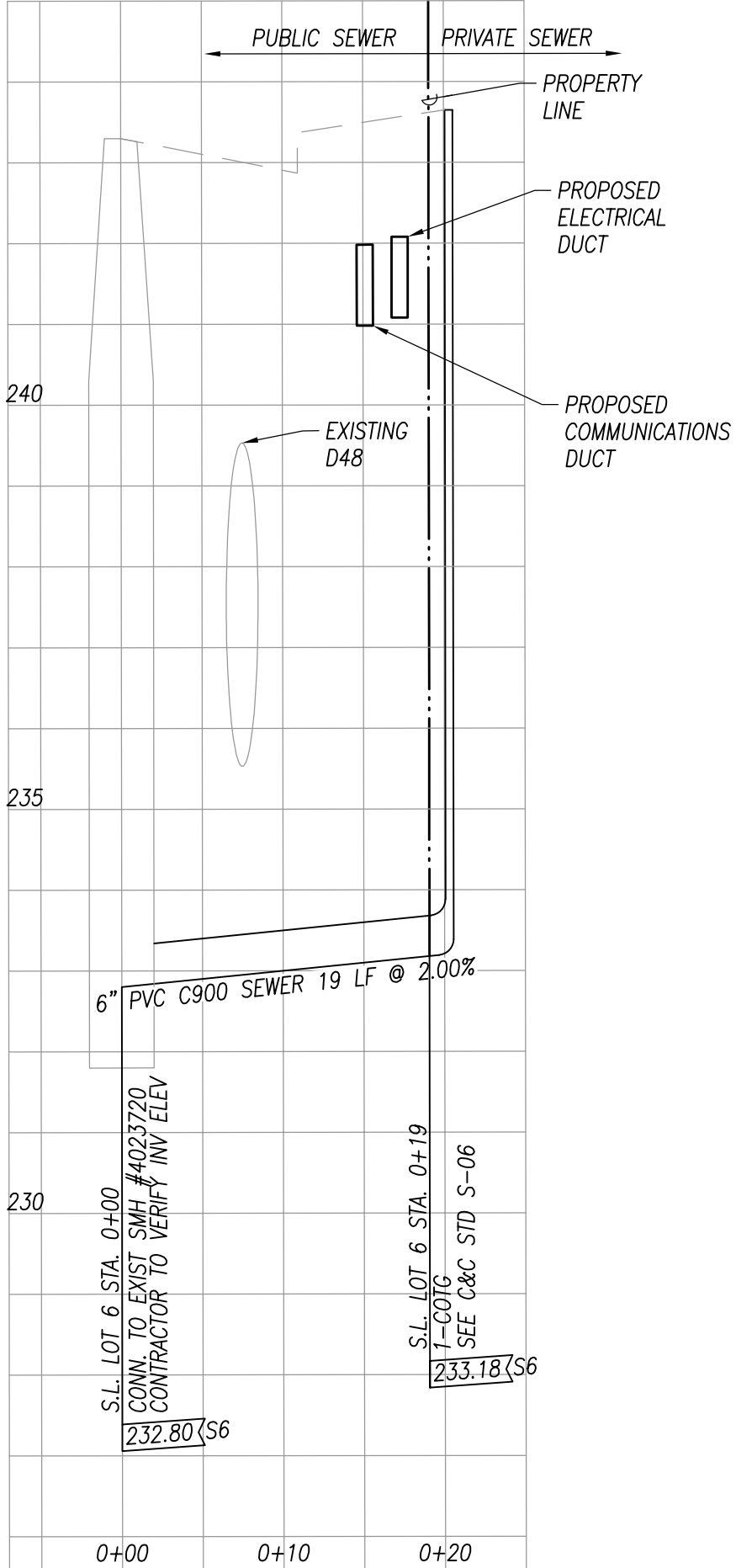
SEWER LATERAL PROFILE - LOT 3



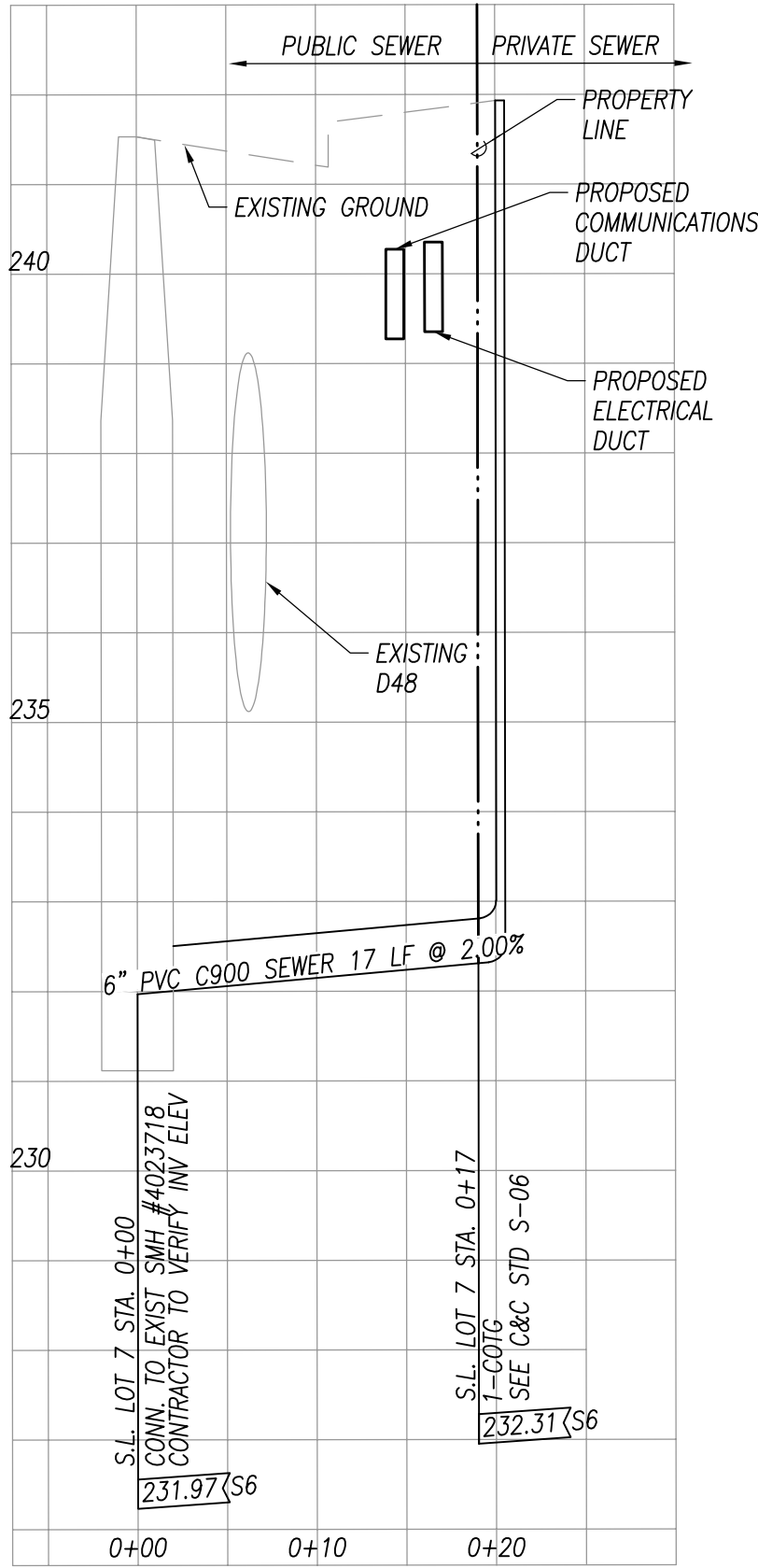
SEWER LATERAL PROFILE - LOT 4



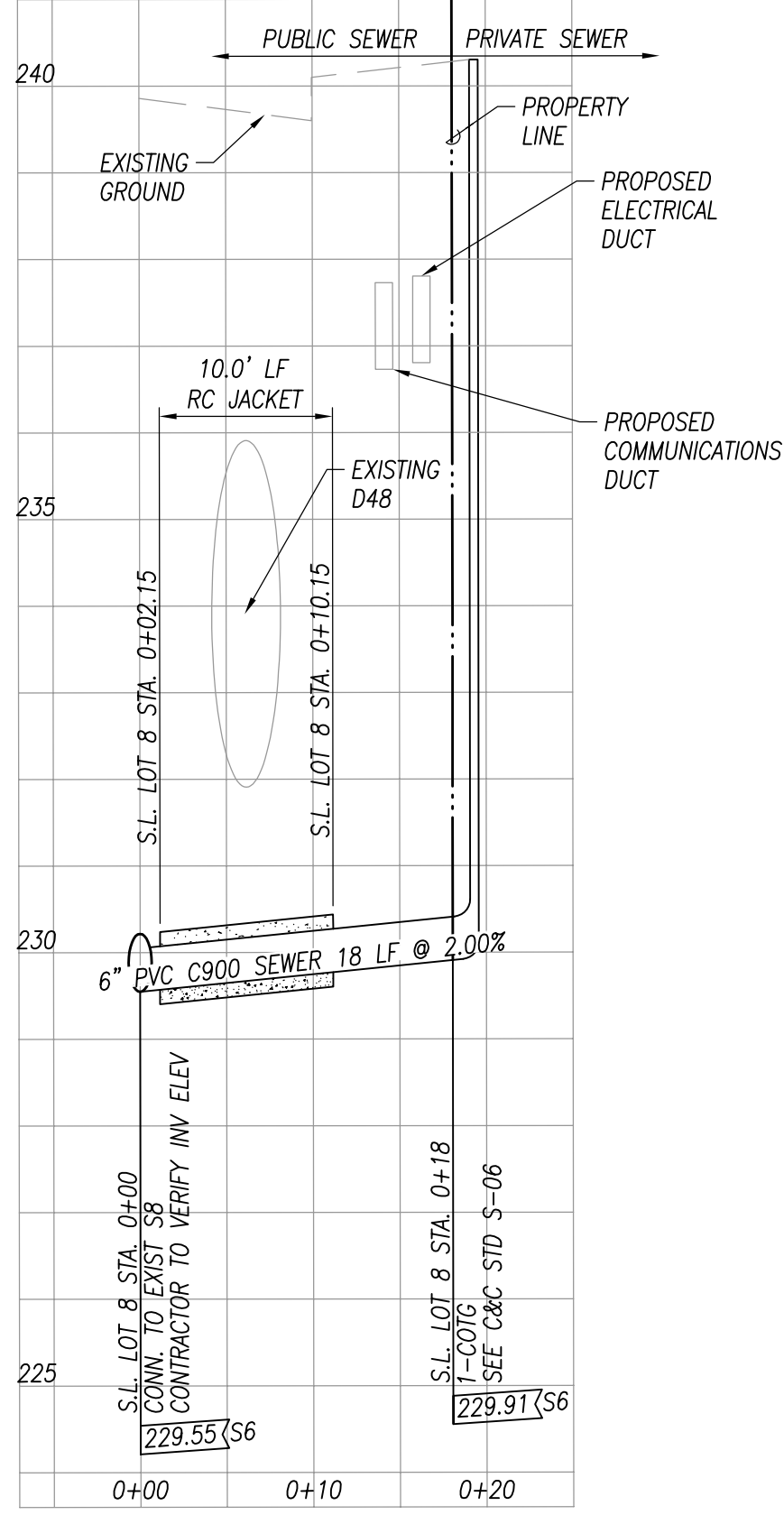
SEWER LATERAL PROFILE - LOT 5



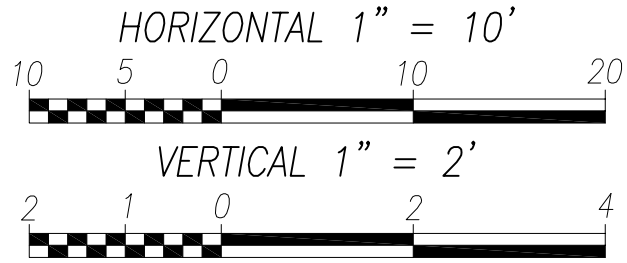
SEWER LATERAL PROFILE - LOT 6



SEWER LATERAL PROFILE - LOT 7

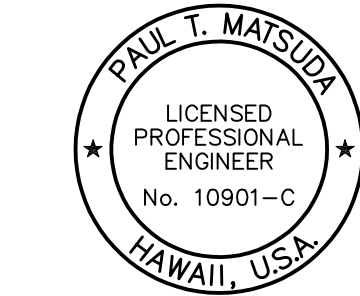


SEWER LATERAL PROFILE - LOT 8



CHIEF, WASTEWATER BRANCH, D.P.P.
(FOR CONFORMANCE WITH CITY STANDARDS ONLY)

DATE



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

SIGNATURE
LICENSE EXP. DATE: APRIL 30, 2020

REVISION	DATE	BRIEF	MADE BY	APPROVED

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII
WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS
89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707
TMK: 8-5-036:033
JOB NO.

SEWER LATERAL PROFILES

DESIGNED BY: G70 CHECKED BY: SD DRAWN BY: AC

G70 111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5986
WWW.G70DESIGN.COM

JANUARY 2019

FILE POCKET FOLDER NO.

LEGEND

- +—+—+— RIGHT-OF-WAY LINE
- +—+—+— LOT LINE
- LIMITS OF GRADING AND DISTURBANCE
- TOP OF BANK SWALE
- LIMITS OF AC PAVEMENT RESTORATION
- 240— PROPOSED CONTOUR
- 240--- EXISTING CONTOUR
- 245.58 PROPOSED GRADE
- 245.5±(E) EXISTING GRADE
- 2.0% PROPOSED SLOPE
- FP=246.50 PROPOSED FINISHED PAD ELEVATION
- SDMH NEW STORM DRAIN MANHOLE
- ←← NEW VEGETATED SWALE
- ←← NEW INFILTRATION TRENCH

- NOTES:
- FOR CROSS SECTION SEE DWG C201
 - FOR ADDITIONAL DRIVEWAY DETAILS SEE DWG C202
 - FOR EROSION AND SEDIMENT CONTROL PLAN SEE DWG C203

EARTHWORK SUMMARY
(FOR PERMIT PURPOSES ONLY)

	TOTAL
EXCAVATION	12 CY
EMBANKMENT	3,424 CY
AREA TO BE GRADED	1.38 ACS
AREA TO BE DISTURBED	1.44 ACS

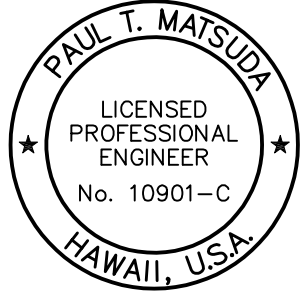
REVISION	DATE	BRIEF	MADE BY	APPROVED

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII
WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS
89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707
TMK: 8-5-036:033
JOB NO.

GRADING PLAN

DESIGNED BY: G70 CHECKED BY: SD DRAWN BY: AC

G70 111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5996
WWW.G70DESIGN.COM
JANUARY 2019



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

SIGNATURE
LICENSE EXP. DATE: APRIL 30, 2020

DWG. NO.
C200
SHEET 9 OF 17

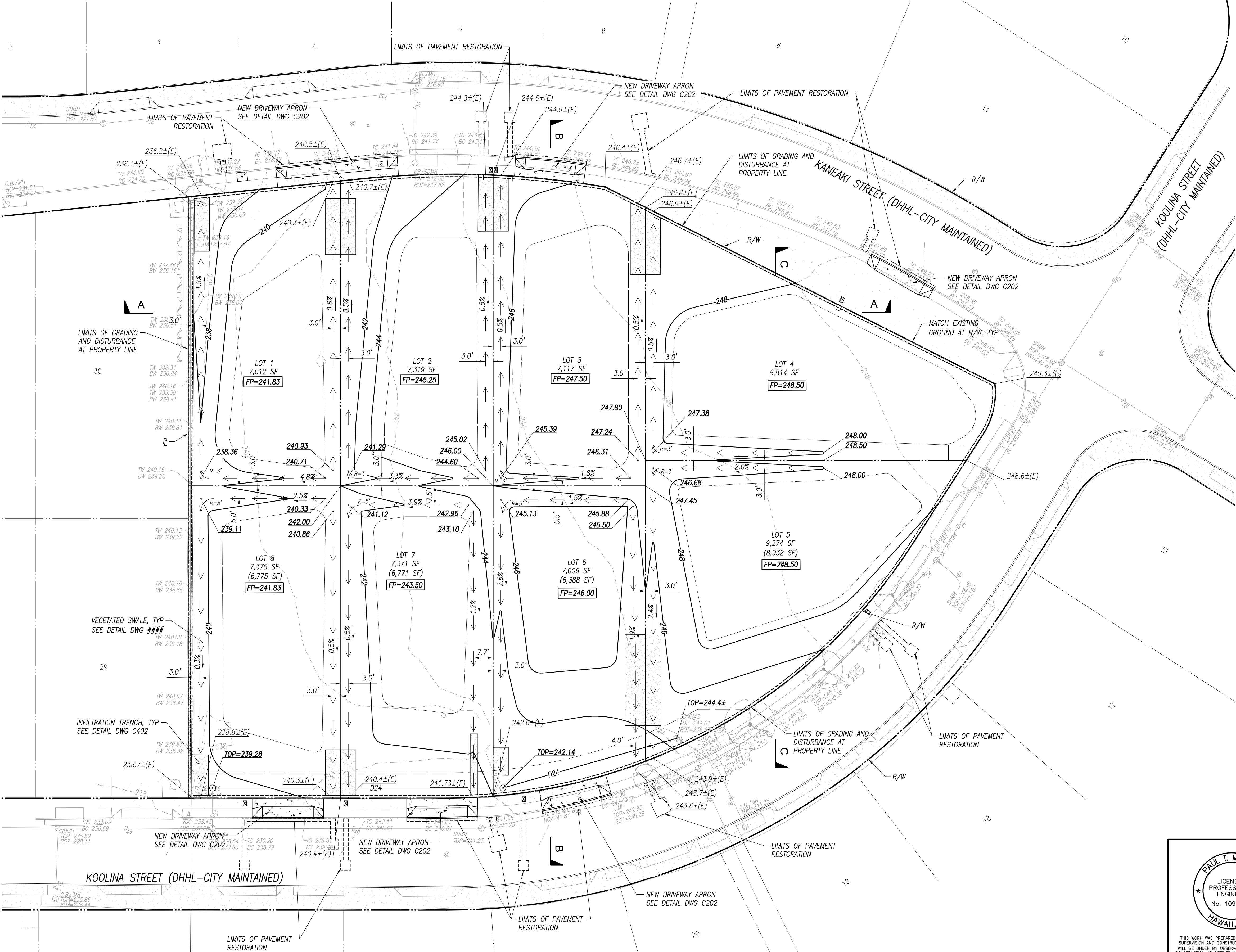
DATE

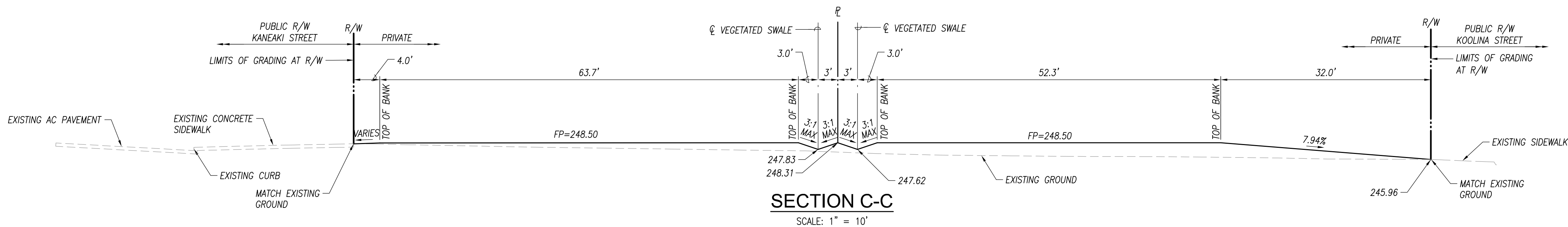
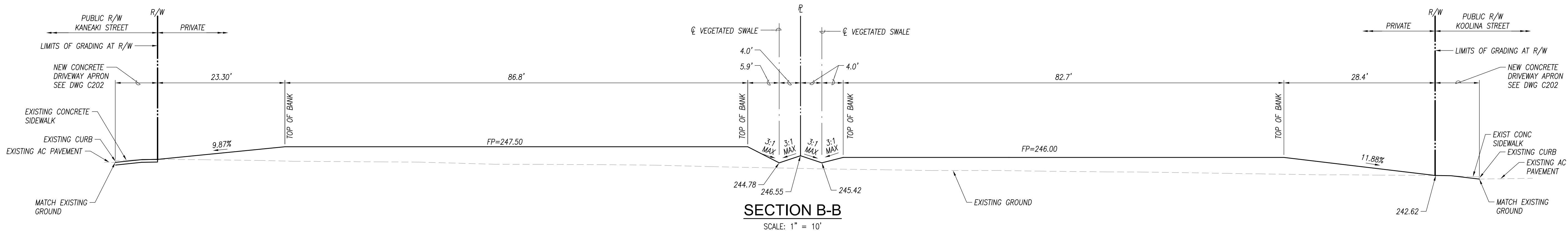
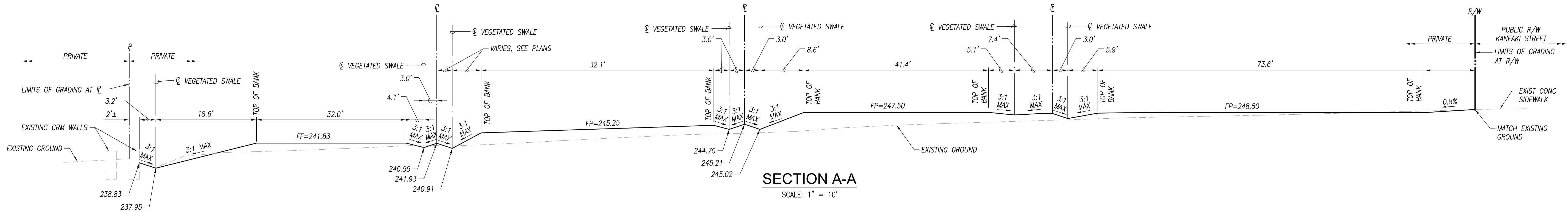
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.

APPROVED:

GRADING PLAN

SCALE IN FEET
20 10 0 20 40





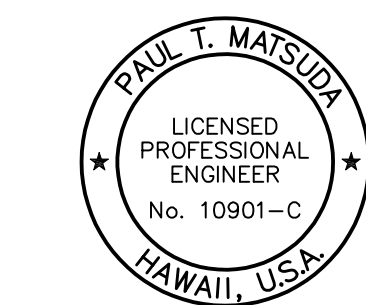
NOTES:
1. FOR LOCATION OF SECTIONS SEE DWG C200

APPROVED:

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.

DATE

DWG. NO.
C201
SHEET 10 OF 17



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

SIGNATURE
LICENSE EXP. DATE: APRIL 30, 2020

REVISION	DATE	BRIEF	MADE BY	APPROVED

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII
WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS
89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707
TMK: 8-5-036:033
JOB NO.

TYPICAL SECTIONS

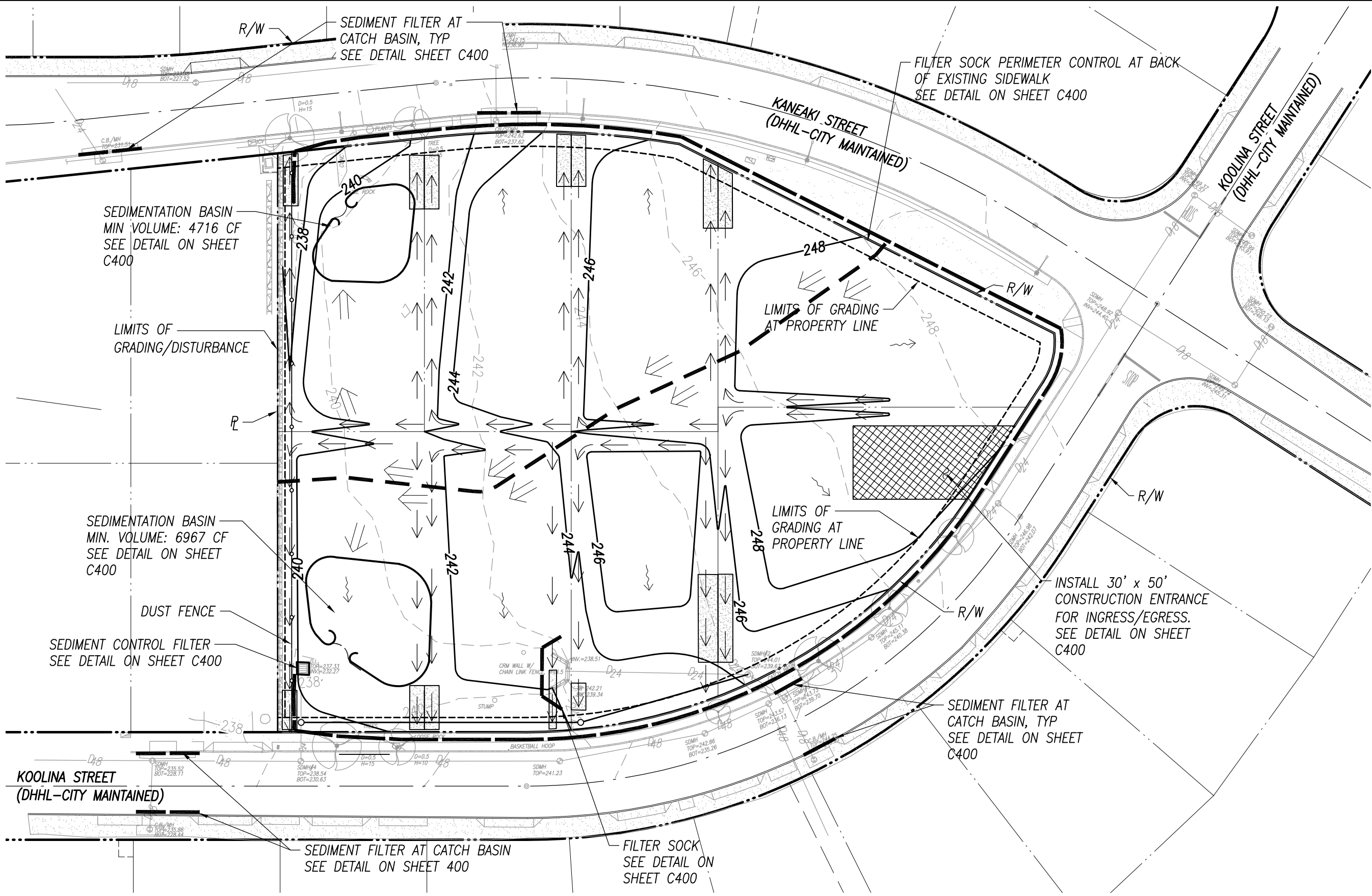
DESIGNED BY: G70 CHECKED BY: SD DRAWN BY: AC



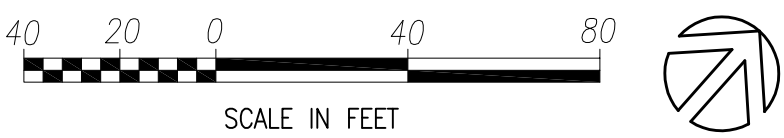
111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5996
WWW.G70DESIGN

JANUARY 2019

FILE POCKET FOLDER NO.



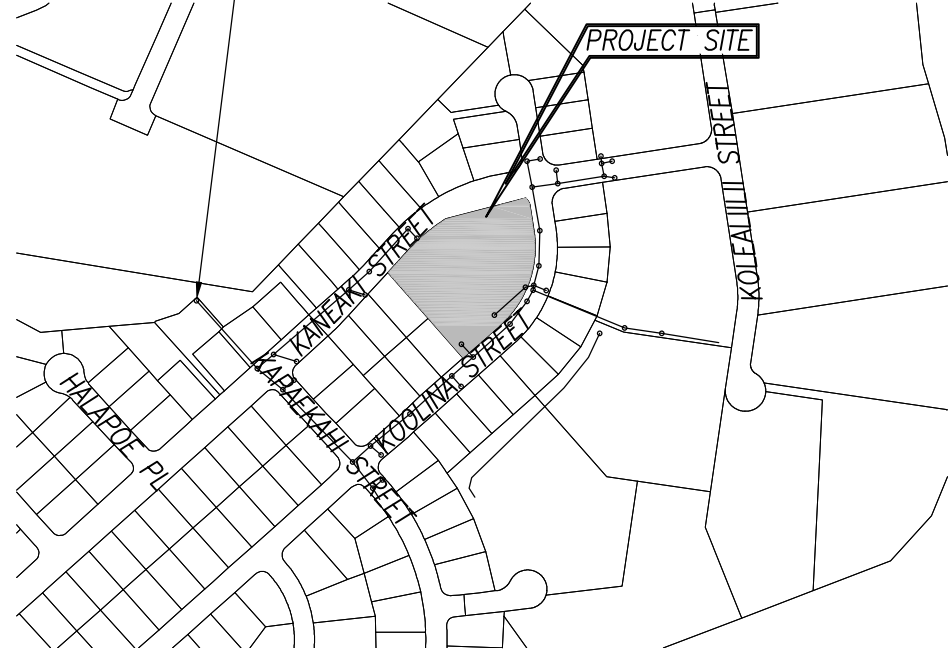
EROSION AND SEDIMENT
CONTROL PLAN (CATEGORY 5)



LEGEND

- PROPERTY LINE/RIGHT OF WAY LINE
- LOT LINE
- LIMITS OF GRADING/DISTURBANCE
- DUST FENCE
- TEMPORARY FILTER SOCK
- CONSTRUCTION ENTRANCE FOR INGRESS/EGRESS
- PROPOSED CONTOUR
- EXISTING CONTOUR
- SEDIMENT CONTROL FILTER AT CATCH BASIN
- VEGETATED SWALE
- FLOW ARROW
- TEMP. FLOW INTO SED. TRAP
- INFILTRATION TRENCH
- DIVIDING LINE BETWEEN EXISTING DRAINAGE BASINS

DISCHARGE INTO KAUPUNI
STREAM, CLASS 2 WATERS
(21.45943418993877,-158.16240636452727)



LOCATION MAP
NOT TO SCALE

SEDIMENT TRAP VOLUME CALCULATIONS (2 YEAR, 24 HOUR):

DRAINAGE AREA	AREA (AC)	RUNOFF COEFFICIENT, C	CORRECTED RAINFALL INTENSITY, I ₂ (IN/HR)	RUNOFF, Q (CFS)	SEDIMENT TRAP VOLUME (CF)
E1	0.59	0.6	7.43	2.62	4716
E2	0.82	0.6	7.87	3.87	6967

EROSION PREVENTION/ SEDIMENT CONTROL NOTES:

- THE CONTRACTOR SHALL FOLLOW THE GUIDELINES IN THE CITY AND COUNTY OF HONOLULU'S "RULES RELATING TO WATER QUALITY"
- MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY EARTHWORK IS INITIATED.
- TEMPORARY STABILIZATION

TEMPORARY STABILIZATION IS REQUIRED ON DISTURBED AREAS WHICH ARE AT FINAL GRADE OR WHEN THE DISTURBED AREA WILL NOT BE WORKED FOR 14 CONSECUTIVE DAYS OR MORE.

- PERMANENT STABILIZATION

ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE COVERING, PAVEMENT, OR EQUIVALENT, PRIOR TO REMOVING EROSION AND SEDIMENT MEASURES. TRAPPED SEDIMENT AND AREAS OF DISTURBED SOIL WHICH RESULT FROM THE REMOVAL OF THE TEMPORARY MEASURES SHALL BE IMMEDIATELY AND PERMANENTLY STABILIZED.

- PRESERVE EXISTING VEGETATION CLEARLY MARK THE AREA TO BE PRESERVED WITH FLAGS OR TEMPORARY FENCING. WHERE TEMPORARY FENCING IS USED, FENCING MUST BE ADEQUATELY SUPPORTED BY POSTS AND MAINTAINED IN AN UPRIGHT POSITION.
- MINIMIZE SOIL COMPACTION AREAS WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE PROTECTED FROM EXCESSIVE COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOILS TO SUPPORT VEGETATION SHALL BE IMPLEMENTED IN THE AREAS THAT HAVE BEEN COMPACTED AND ARE DESIGNATED TO REMAIN VEGETATIVE OR POST-CONSTRUCTION INFILTRATION AREAS. CLEARLY MARK THE AREAS TO BE AVOIDED WITH FLAGS OR TEMPORARY FENCING. WHERE TEMPORARY FENCING IS USED, FENCING MUST BE ADEQUATELY SUPPORT BY POSTS AND MAINTAINED IN AN UPRIGHT POSITION.
- PERIMETER CONTROLS PERIMETER CONTROLS ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.
- INLET PROTECTION
 - ALL STORM DRAIN INLETS ONSITE AND THOSE OFFSITE WHICH MAY RECEIVE RUNOFF FROM THE SITE SHALL USE AN INLET PROTECTION DEVICE UNLESS THEY ARE DIRECTED TO A SEDIMENT BASIN.
 - SEDIMENT LEVELS MAY NOT EXCEED ONE THIRD OF THE HEIGHT OF A SEDIMENT BARRIER OR INLET PROTECTION DEVICE AT ANY POINT ALONG THE LENGTH OF THE SEDIMENT BARRIER OR THE INLET PROTECTION DEVICE.
 - SEDIMENT BARRIERS AND INLET PROTECTION DEVICES MUST BE UNCLOGGED AND CLEANED WHEN PERFORMANCE IS COMPROMISED
 - TORN, WEATHERED OR SAGGING SEDIMENT BARRIERS OR INLET PROTECTION DEVICES MUST BE REPAIRED OR REPLACED IMMEDIATELY.
- SEDIMENT TRAPS: SEDIMENT TRAPS MUST BE KEPT IN EFFECTIVE OPERATING CONDITION AND SEDIMENT SHALL BE REMOVED TO MAINTAIN AT LEAST ONE THIRD OF THE DESIGN CAPACITY AT ALL TIMES.

- TRACKING CONTROL
 - MINIMIZE SEDIMENT TRACK-OUT ONTO OFF-SITE STREETS, OTHER PAVED AREAS, AND SIDEWALKS FROM VEHICLES EXITING THE CONSTRUCTION SITE BY RESTRICTING VEHICLE TRAFFIC TO PROPERLY DESIGNATED AREAS AND USING ADDITIONAL CONTROLS TO REMOVE SEDIMENT FROM VEHICLE TIRES PRIOR TO EXITING THE SITE.
 - VEHICULAR PARKING AND MOVEMENTS ON PROJECT SITES MUST BE CONFINED TO PAVED SURFACES OR PREDEFINED PARKING AREAS AND VEHICLE PATHS, WHICH SHALL BE MARKED WITH FLAGS OR BOUNDARY FENCING.
 - ALL POLLUTANTS AND MATERIALS THAT ARE DROPPED, WASHED, TRACKED, SPILLED, OR OTHERWISE DISCHARGED FROM A PROJECT SITE TO OFF-SITE STREETS, OTHER PAVED AREAS, SIDEWALKS OR THE MS4 MUST BE CLEANED USING DRY METHODS SUCH AS SWEEPING OR VACUUMING.
 - WASHING POLLUTANTS AND MATERIALS THAT ARE DISCHARGED FROM THE PROJECT SITE TO THE MS4 INTO DRAIN INLETS OR CATCH BASINS IS PROHIBITED UNLESS THE MATERIAL IS SEDIMENT AND THE INLETS ARE DIRECTED TO A SEDIMENT BASIN OR SEDIMENT TRAP.
- BEST MANAGEMENT PRACTICES (BMPs) SHALL NOT BE REMOVED UNTIL FINAL STABILIZATION IS COMPLETE FOR THAT PHASE.
- REFER TO CITY AND COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL- CONSTRUCTION, FOR MORE INFORMATION ON BMPs.
- THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULE REQUIREMENTS OF THE CITY'S RULES RELATING TO WATER QUALITY AND SHALL SUBMIT THE SCHEDULED START DATE TWO (2) WEEKS PRIOR.
- THE OWNER OF THE PROPERTY OR THEIR AUTHORIZED AGENT MUST DESIGNATE A PERSON RESPONSIBLE FOR IMPLEMENTING THE ESCP AT THE PROJECT SITE ("ESCP COORDINATOR") PRIOR TO PERMIT ISSUANCE USING THE FORM PROVIDED AS APPENDIX A TO THE RULES RELATING TO WATER QUALITY.
- THE FOLLOWING BMPs WERE DETERMINED TO NOT BE APPLICABLE BASED ON THE SITE SPECIFIC CONDITIONS. A BRIEF EXPLANATION WHY EACH OMITTED BMP IS UNNECESSARY OR IMPRACTICABLE HAS BEEN PROVIDED UNDER SEPARATE DOCUMENTATION TO DPP. AS CONSTRUCTION PROGRESSES, REVISION MAY BE NECESSARY AND WILL BE PROVIDED TO DPP INSPECTORS
 - BUFFER ZONE PRACTICES ARE NOT APPLICABLE.
 - SEDIMENT BASIN PRACTICES ARE NOT APPLICABLE.
 - DIVERSION BMPs TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF THE SITE ARE NOT APPLICABLE.
 - VELOCITY DISSIPATION DEVICES ARE NOT APPLICABLE.
 - DEWATERING PRACTICES ARE NOT APPLICABLE.

GOOD HOUSEKEEPING BMPs:

- STREET SWEEPING AND VACUUMING. ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEEPED OR VACUUMED EACH DAY BEFORE LEAVING THE JOB SITE.
- MATERIALS DELIVERY, STORAGE AND USE MANAGEMENT. PREVENT, REDUCE, OR ELIMINATE THE DISCHARGE OF POLLUTANTS FROM MATERIAL DELIVERY, STORAGE, AND USE TO THE STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSITE. STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT, CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER SOURCES OF POLLUTION SHALL NOT BE STORED IN BUFFER AREAS, NEAR AREAS OF CONCENTRATED FLOW, OR AREAS ADJUTING THE MS4, RECEIVING WATERS, OR DRAINAGE IMPROVEMENTS THAT DISCHARGE OFF-SITE. PRIMARY AND SECONDARY CONTAINMENT CONTROLS AND COVERS SHALL BE IMPLEMENTED.
- SPILL PREVENTION AND CONTROL. CREATE AND IMPLEMENT SPILL PREVENTION AND RESPONSE PLANS TO ELIMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO THE MS4 AND RECEIVING WATERS FROM LEAKS AND SPILLS BY REDUCING THE CHANCE FOR SPILLS, ABSORBING, CONTAINING, AND CLEANING UP SPILLS AND PROPERLY DISPOSING OF SPILL MATERIALS. AT A MINIMUM, ALL PROJECTS SHALL CLEANUP ALL LEAKS AND SPILLS IMMEDIATELY.
- HAZARDOUS MATERIALS. PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL. IN THE EVENT THAT HAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT OF FACILITIES MAINTENANCE, HONOLULU FIRE DEPARTMENT, AND HONOLULU POLICE DEPARTMENT OF THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.
- NONHAZARDOUS MATERIALS. IN THE EVENT THAT NONHAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE CITY DEPARTMENT OF FACILITIES MAINTENANCE BY TELEPHONE NO LATER THAN THE NEXT BUSINESS DAY. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.
- VEHICLE AND EQUIPMENT CLEANING. ELIMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM VEHICLE AND EQUIPMENT CLEANING OPERATIONS BY USING OFF-SITE FACILITIES WHEN FEASIBLE. WASHING IN DESIGNATED/CONTAINED AREAS ONLY, AND ELIMINATING DISCHARGES TO THE STORM DRAIN SYSTEM BY EVAPORATING AND/OR TREATING WASH WATER, AS APPROPRIATE OR INFILTRATING WASH WATER FOR EXTERIOR CLEANING ACTIVITIES THAT USE WATER ONLY.
- VEHICLE AND EQUIPMENT FUELING. PREVENT FUEL SPILLS AND LEAKS BY USING OFF-SITE FACILITIES, FUELING ONLY DESIGNATED AREAS, ENCLOSING OR COVERING STORED FUEL, AND IMPLEMENTING SPILL CONTROLS SUCH AS SECONDARY CONTAINMENT AND ACTIVE MEASURES USING SPILL RESPONSE KITS.
- VEHICLE AND EQUIPMENT MAINTENANCE. ELIMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM VEHICLE AND EQUIPMENT MAINTENANCE OPERATIONS BY USING OFF-SITE FACILITIES WHEN FEASIBLE, PERFORMING WORK IN DESIGNATED AREAS ONLY, USING SPILL PADS UNDER VEHICLES AND EQUIPMENT, CHECKING FOR LEAKS AND SPILLS, AND CONTAINING AND CLEANING UP SPILLS IMMEDIATELY.
- SOLID WASTE MANAGEMENT. PREVENT OR REDUCE DISCHARGE OF POLLUTANTS TO THE LAND, GROUNDWATER, AND IN STORM WATER FROM VEHICLE AND EQUIPMENT MAINTENANCE OPERATIONS BY PROVIDING DESIGNATED WASTE COLLECTION AREAS, COLLECT SITE TRASH DAILY, AND ENSURING THAT CONSTRUCTION WASTE IS COLLECTED, REMOVED, AND DISPOSED OF ONLY AT AUTHORIZED DISPOSAL AREAS.
- SANITARY/SEPTIC WASTE MANAGEMENT. LIQUID WASTE SHALL BE CONTAINED IN A CONTROLLED AREA SUCH AS A HOLDING PIT, SEDIMENT BASIN, ROLL-OFF BIN, OR PORTABLE TANK OF SUFFICIENT VOLUME AND TO CONTAIN THE LIQUID WASTES GENERATED. CONTAINMENT AREAS OR DEVICES MUST BE IMPERMEABLE AND LEAK FREE AND SHOULD NOT BE LOCATED WHERE ACCIDENTAL RELEASE OF THE CONTAINED LIQUID CAN DISCHARGE TO WATER BODIES, CHANNELS, OR STORM DRAINS
- STOCKPILE MANAGEMENT. STOCKPILES SHALL NOT BE LOCATED IN DRAINAGE WAYS, WITHIN 50 FEET FROM AREAS OF CONCENTRATED FLOWS, AND ARE NOT ALLOWED IN THE CITY RIGHT-OF-WAY. SEDIMENT BARRIERS OR SILT FENCES SHALL BE USED AROUND THE BASE OF ALL STOCKPILES. STOCKPILES SHALL NOT EXCEED 15 FEET IN HEIGHT. STOCKPILES GREATER THAN 15 FEET IN HEIGHT SHALL REQUIRE 8 FOOT WIDE BENCHING IN ACCORDANCE WITH ROH CHAPTER 14, ARTICLE 15. STOCKPILES MUST BE COVERED WITH PLASTIC SHEETING OR A COMPARABLE MATERIAL IF THEY WILL NOT BE ACTIVELY USED WITHIN 7 DAYS.
- LIQUID WASTE MANAGEMENT. LIQUID WASTE SHALL BE CONTAINED IN A CONTROLLED AREA SUCH AS A HOLDING PIT, SEDIMENT BASIN, ROLL-OFF BIN, OR PORTABLE TANK OF SUFFICIENT VOLUME TO CONTAIN THE LIQUID WASTES GENERATED. CONTAINMENT AREAS OR DEVICES MUST BE IMPERMEABLE, LEAK FREE, AND SHOULD NOT BE LOCATED WHERE ACCIDENTAL RELEASE OR THE CONTAINED LIQUID CAN DISCHARGE TO WATER BODIES, CHANNELS, OR STORM DRAINS.
- DUST CONTROL: DUST FROM THE PROJECT SITE SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION STANDARDS CONTAINED IN THE "HAWAII ADMINISTRATIVE RULES" TITLE 11, CHAPTER 60.1 "AIR QUALITY CONTROL".

EROSION AND SEDIMENT CONTROL PLAN
SCHEDULE:

PROJECT SEQUENCE:

- INSTALL STABILIZED CONSTRUCTION ENTRANCES, PERIMETER CONTROLS, INLET PROTECTION, AND SEDIMENT TRAPS, CLEAR AND GRUB AS NECESSARY FOR THE INSTALLATION OF THESE BMP.
- CONSTRUCTION TEMPORARY SWALES TO DIRECT RUNOFF INTO THE SEDIMENT BASINS. STABILIZE IMMEDIATELY.
- PROCEED WITH CONSTRUCTION AND GRADING WITH LEAST POSSIBLE DISTURBANCE OF VEGETATIVE AREAS AND TEMPORARY STRUCTURES.
- PLANT PERMANENT GROUND COVER ACCORDING TO THE LANDSCAPING PLAN AS SOON AS POSSIBLE.
- REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
- PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
- INSPECTIONS WILL BE PERFORMED WEEKLY.

RAIN RESPONSE PLAN:

THE FOLLOWING WILL BE PERFORMED WHEN HEAVY RAINS, A TROPICAL STORM, OR A HURRICANE IS IMMINENT OR FORECASTED IN THE NEXT 48 HOURS.

- TEMPORARY SUSPENSION OF ACTIVE GRADING, AND TRENCHING.
- INSPECT ALL SEDIMENT TRAPS, TEMPORARY SWALES, PERIMETER CONTROLS, AND INLET PROTECTION DEVICES, AND MAINTAIN AS NEEDED. REINSTALL ANY PERIMETER CONTROLS THAT WERE REMOVED DUE TO ACTIVE WORK IN THE AREA. IF A SEVERE STORM IS EXPECTED, REMOVE INLET PROTECTION DEVICES TO PREVENT FLOODING ON SURROUNDING STREETS.
- COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
- PLACE SPILL PANS OR OIL-ONLY SPILL PADS UNDER CONSTRUCTION VEHICLES TO PREVENT RUNOFF FROM CONTACTING ANY SPILLED PETROLEUM PRODUCTS. PROPERLY DISPOSE OF ANY ACCUMULATED OILY WATER AFTER THE RAIN EVENT.
- RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPs, AS NEEDED.

APPROVED:

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.

DATE

REVISION	DATE	BRIEF	MADE BY	APPROVED



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

SIGNATURE
LICENSE EXP. DATE: APRIL 30, 2020

DWG. NO.
C203
SHEET 12 OF 17

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII

WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS
89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707
TMK: 8-5-036:033
JOB NO.

EROSION AND SEDIMENT
CONTROL PLAN

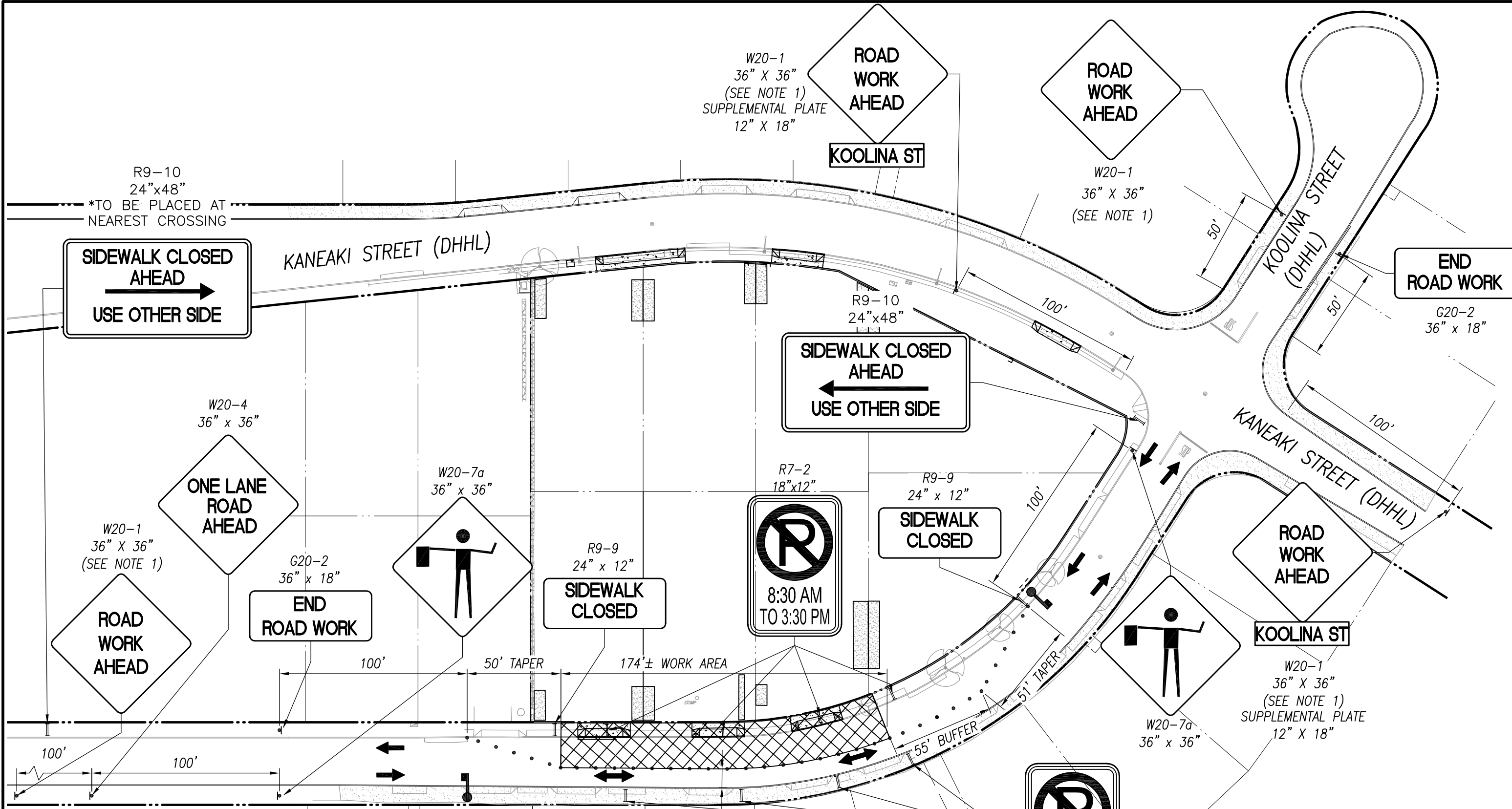
DESIGNED BY: G70 CHECKED BY: SD DRAWN BY: AC

111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5896
WWW.G70DESIGN.COM
JANUARY 2019

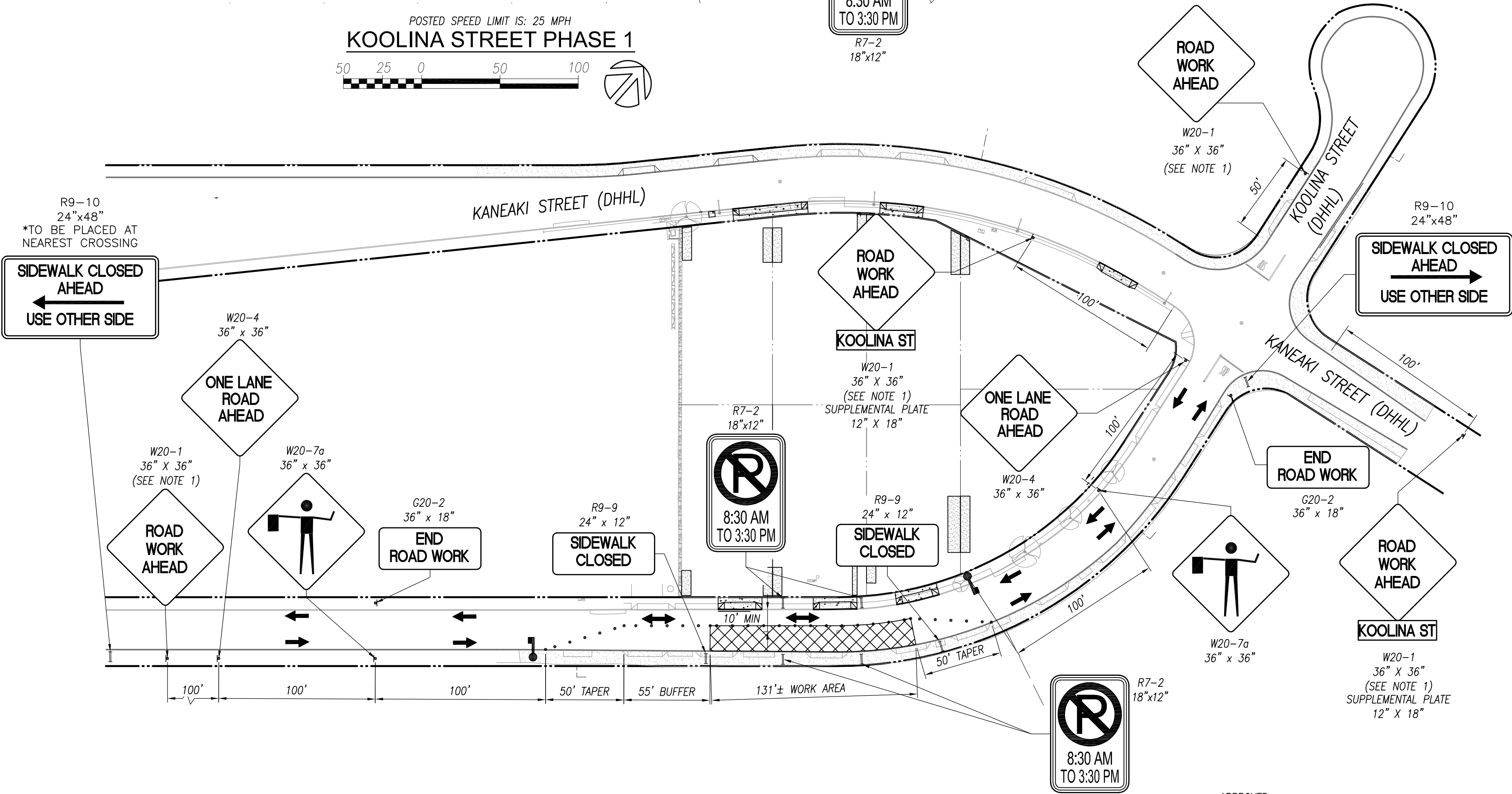
FILE	POCKET	FOLDER	NO.
------	--------	--------	-----

GENERAL NOTES FOR TRAFFIC CONTROL PLAN

1. THE PERMITEE SHALL MAKE MINOR ADJUSTMENTS AT INTERSECTIONS, DRIVEWAYS, BRIDGES, STRUCTURES, ETC., TO FIT FIELD CONDITIONS.
2. CONES OR DELINEATORS SHALL BE EXTENDED TO POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
3. TRAFFIC CONTROL DEVICES SHALL BE INSTALLED SUCH THAT THE SIGN OR DEVICE FARTEST FROM THE WORK AREA IS PLACED FIRST. THE OTHERS SHALL THEN BE PLACED PROGRESSIVELY TOWARD THE WORK AREA.
4. REGULATORY AND WARNING SIGNS WITHIN THE CONSTRUCTION ZONE THAT ARE IN CONFLICT WITH THE TRAFFIC CONTROL PLANS SHALL BE REMOVED OR COVERED.
5. POLICE OFFICERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.
6. WHEN REQUIRED BY THE ISSUING OFFICE, THE PERMITEE SHALL INSTALL A FLASHING ARROW SIGNAL AS SHOWN ON THE TRAFFIC CONTRL PLANS.
7. ALL TRAFFIC LANES SHALL BE A MINIMUM OF 10 FEET WIDE.
8. ALL CONSTRUCTION WARNING SIGNS SHALL BE PROMPTLY REMOVED OR COVERED WHENEVER THE MESSAGE IS NOT APPLICABLE OR NOT IN USE.
9. THE BACKS OF ALL SIGNS USED FOR TRAFFIC CONTROL SHALL BE APPROPRIATELY COVERED TO PRECLUDE THE DISPLAY OF INAPPLICABLE SIGN MESSAGES (i.e., WHEN SIGNS HAVE MESSAGES ON BOTH FACES).
10. LANE CLOSURE SHALL BE LIMITED ONLY TO THE EXTENT OF ACCOMPLISHING EACH DAY'S WORK. AS SOON AS EACH DAY'S WORK IS COMPLETED, THE PERMITEE SHALL REMOVE ALL TRAFFIC CONTROL DEVICES NO LONGER NEEDED TO PERMIT FREE AND SAFE PASSAGE OF PUBLIC TRAFFIC. REMOVAL SHALL BE IN THE REVERSE ORDER OF INSTALLATION. EXISTING FADED OR OBLITERATED PAVEMENT MARKINGS THAT ARE NECESSARY FOR SAFE TRAFFIC FLOW IN THE CONSTRUCTION AREA SHALL BE REPLACED WITH TEMPORARY OR PERMANENT MARKINGS BEFORE OPENING THE ROADWAY TO PUBLIC TRAFFIC EACH DAY.
11. PERMANENT PAVEMENT MARKINGS AND TRAFFIC SIGNS SHALL BE REPLACED UPON COMPLETION OF EACH PHASE OF WORK.
12. CONES AND DELINEATORS SHALL BE SPACED AT A MAXIMUM DISTANCE OF 20 FEET APART. A MINIMUM OF SIX CHANNELIZING DEVICES SHALL BE USED FOR EACH TAPER LENGTH.
13. DRIVEWAYS SHALL BE KEPT OPEN UNLESS THE OWNERS OF THE PROPERTY USING THE DRIVEWAY ARE OTHERWISE PROVIDED FOR SATISFACTORILY. FURTHER, THE PERMITEE SHALL CONTROL TRAFFIC GOING INTO AND OUT OF DRIVEWAYS.
14. BUFFER AND TAPER AREA ON APPROACH TO ANY WORK AREA SHALL BE KEPT CLEAR OF VEHICLES AND EQUIPMENT.
15. A HIGH LEVEL WARNING DEVICE (FLAG TREE) SHALL BE INSTALLED ON APPROACH TO ALL WORK AREAS.
16. "NO PARKING" SIGNS SHALL BE POSTED WITHIN ANY WORK AREA AND FOR THE BUFFER AND TAPER AREAS APPROACHING THE WORK AREA.
17. TRAFFIC CONTROL PLANS ARE APPROVED FOR WORK ON ANY CITY STREET AREA ONLY BETWEEN THE HOURS OF 08:30 A.M. AND 03:30 P.M. (MONDAY-FRIDAY).



POSTED SPEED LIMIT IS: 25 MPH
KOOLINA STREET PHASE 1



POSTED SPEED LIMIT IS: 25 MPH
KOOLINA STREET PHASE 2

LEGEND

- RIGHT-OF-WAY
- LOT LINE
- SIGN
- CONE OR DELINEATOR
- WORK AREA
- FLAGGER
- DIRECTION OF TRAFFIC

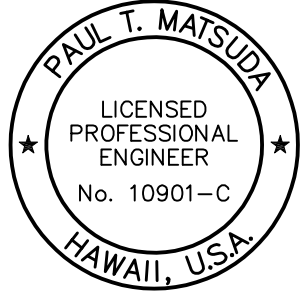
REVISION	DATE	BRIEF	MADE BY	APPROVED

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII
WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS
89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707
TMK: 8-5-036:033
JOB NO.

TRAFFIC CONTROL PLAN AND
NOTES

DESIGNED BY: G70 CHECKED BY: SD DRAWN BY: AC

111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5996
WWW.G70DESIGN.COM
JANUARY 2019



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

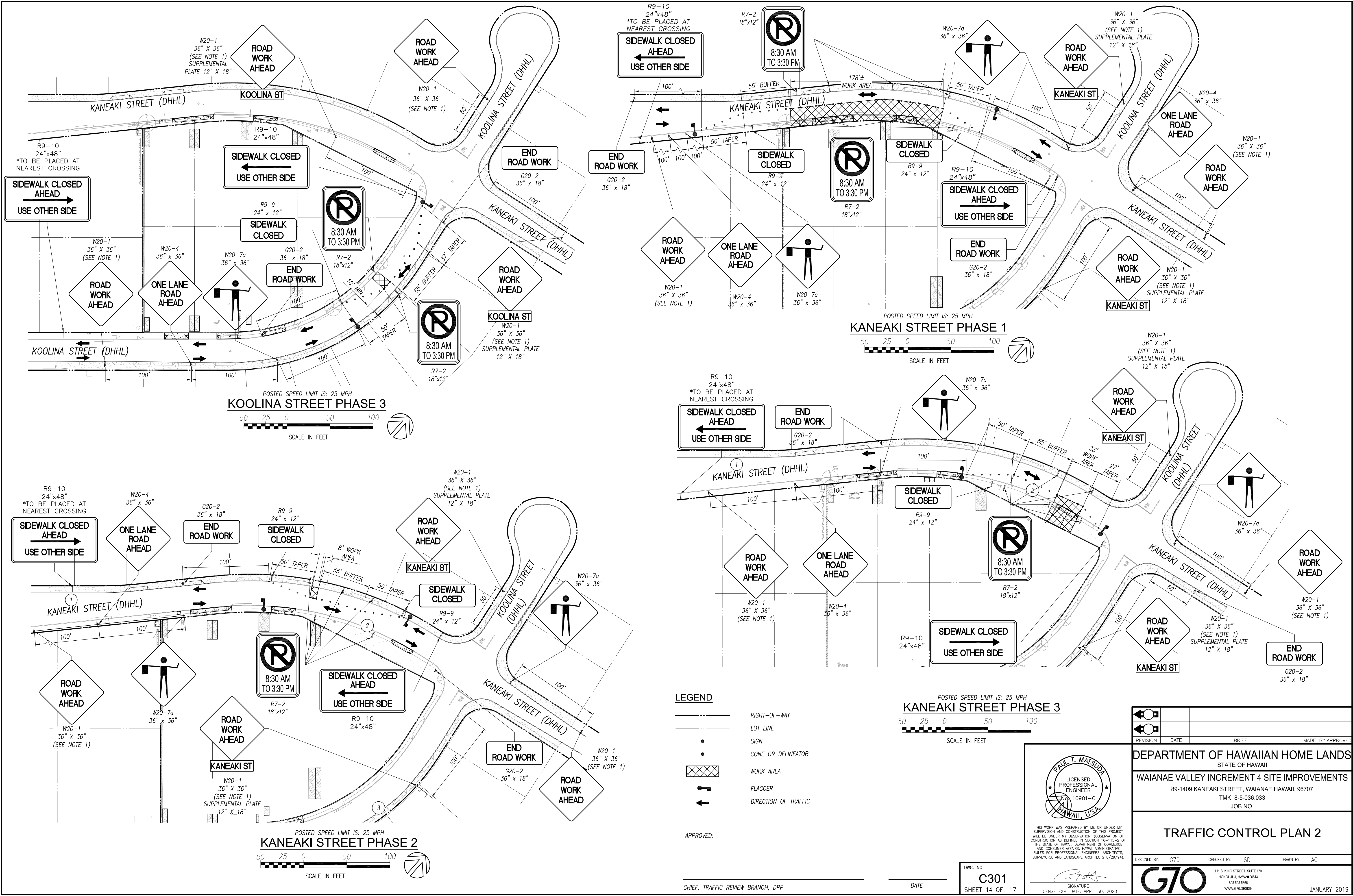
SIGNATURE
LICENSE EXP. DATE: APRIL 30, 2020

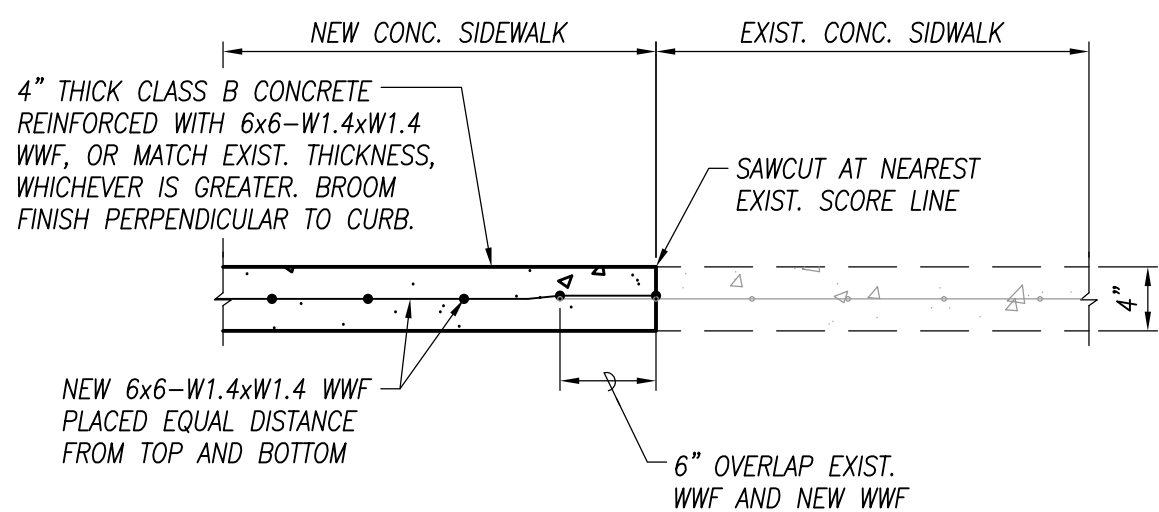
DWG. NO.
C300
SHEET 13 OF 17

APPROVED:

CHIEF, TRAFFIC REVIEW BRANCH, DPP

DATE



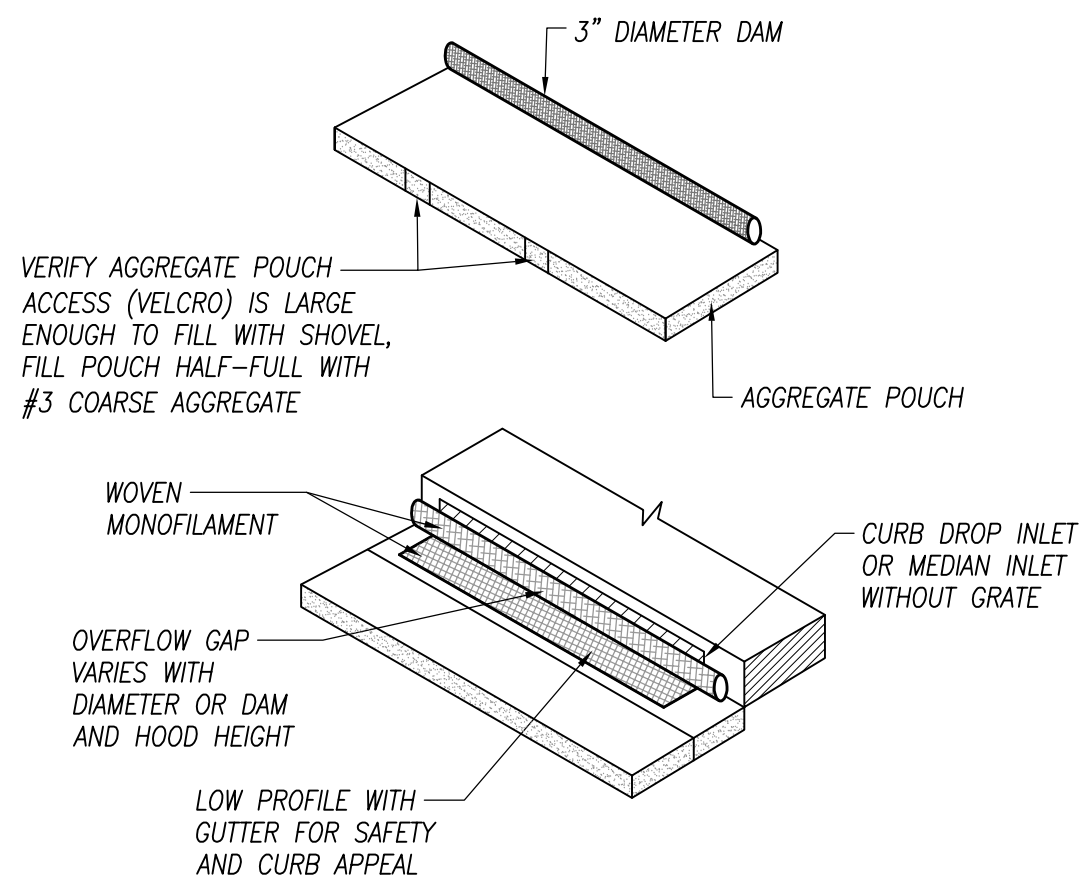


NOTE:

1. CONTRACTOR SHALL COMPLY WITH STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION R-28
2. CONTRACTOR SHALL COMPLY WITH ENGINEERING AND POLICY MEMORANDUM NO. CEB-1-09, DATED APRIL 6, 2009, TITLED "JOINTING REQUIREMENTS FOR CONCRETE SIDEWALKS AND DRIVEWAYS."

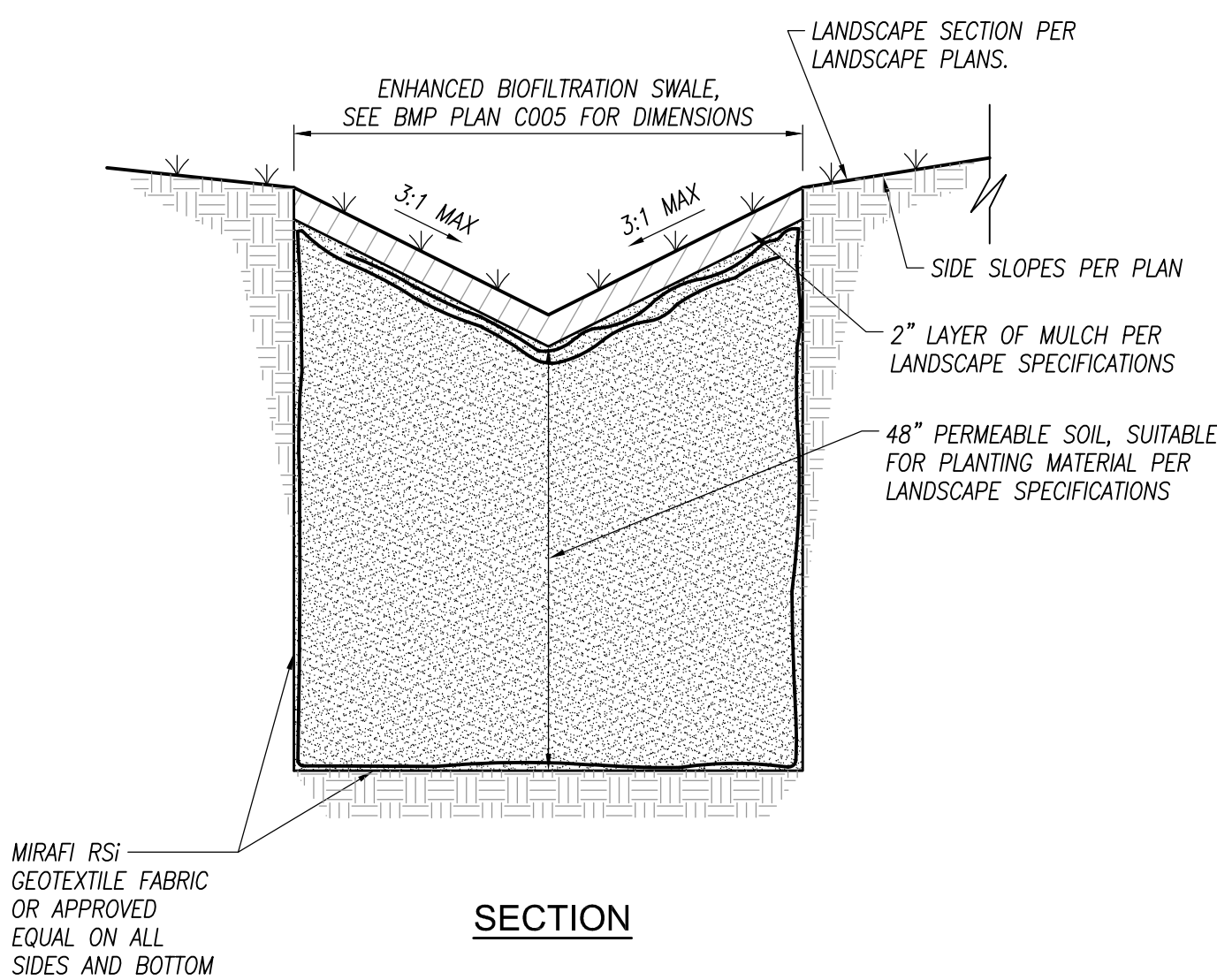
TYPICAL CONCRETE SIDEWALK
CONNECTION DETAIL

NOT TO SCALE



SEDIMENT FILTER FOR CATCH BASINS

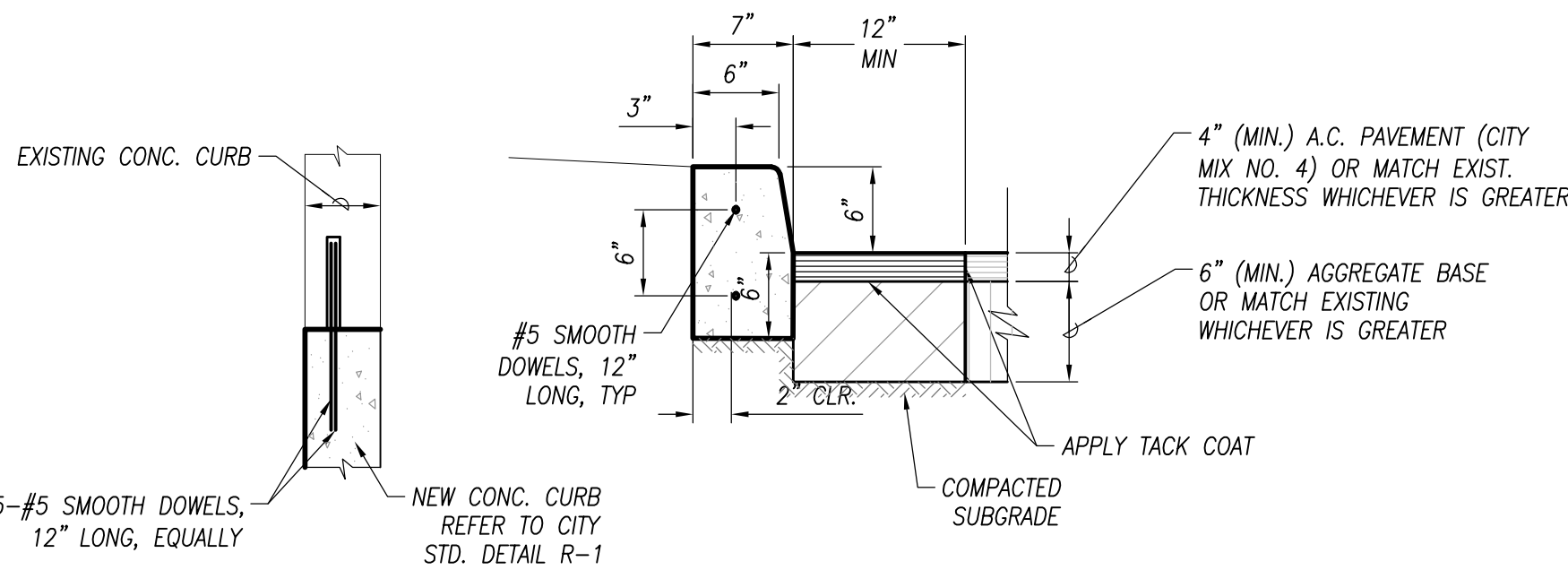
NOT TO SCALE



SECTION

INFILTRATION TRENCH

NOT TO SCALE

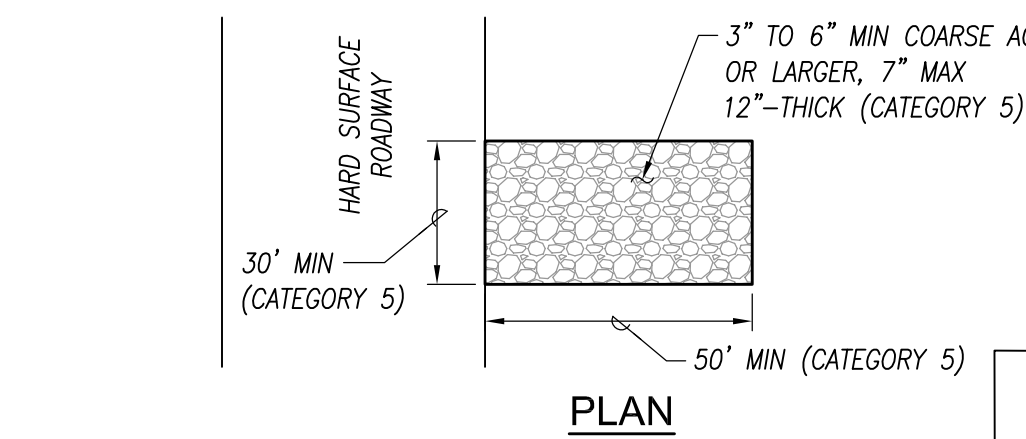


PLAN

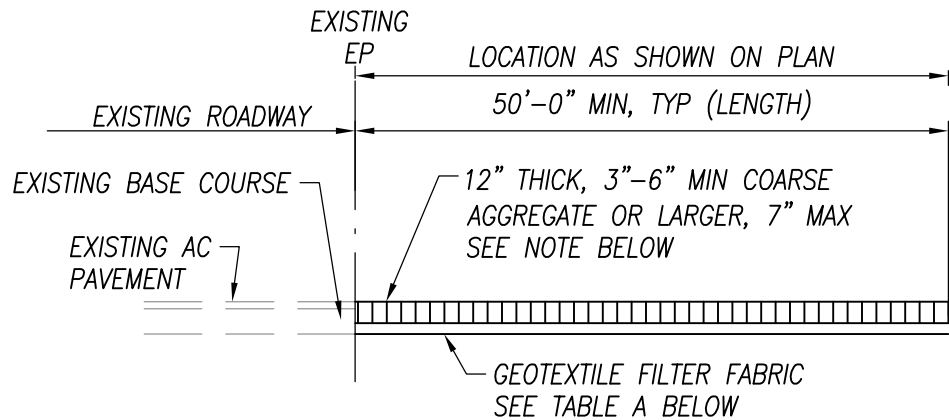
SECTION A-A

TYPICAL CURB CONNECTION DETAIL

NOT TO SCALE



PLAN



SECTION

CONSTRUCTION INGRESS/EGRESS DETAIL

NOT TO SCALE

NOTE:

8" COURSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO INSTALLATION OR ROADWAY BASE COURSE.

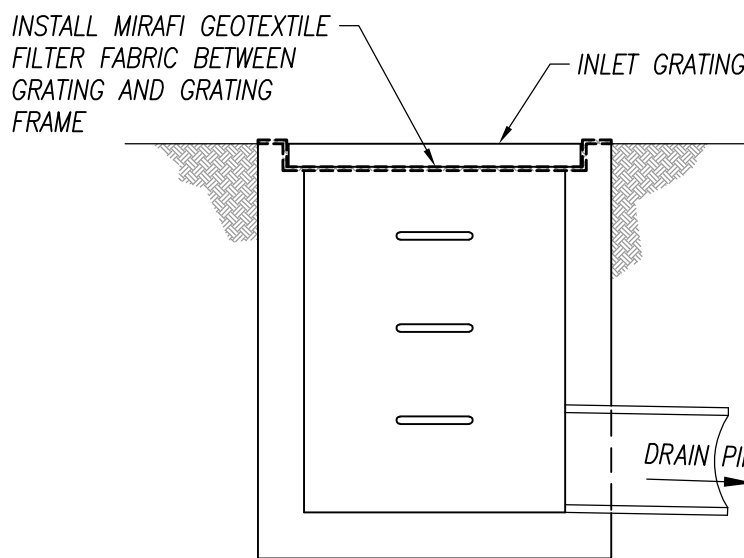
TABLE A GEOTEXTILE REQUIREMENTS	
PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3768)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)

OPERATION & MAINTENANCE NOTES:

1. INFILTRATION TRENCHES ARE HIGHLY SUSCEPTIBLE TO CLOGGING AND REQUIRE ROUTINE MAINTENANCE TO REMOVE ACCUMULATED SEDIMENTS. MAINTENANCE ACTIVITIES INCLUDE REMOVING THE TRENCH ROCK AND FILTER FABRIC AND CLEANING AND PROPERLY DISPOSING OF ACCUMULATED SEDIMENTS WHEN OBSERVED INFILTRATION RATES ARE BELOW THE MINIMUM OF 0.5 INCHES/HOUR.
2. THE INFILTRATION TRENCH SHOULD BE INSPECTED A MINIMUM OF 3 TIMES A YEAR AND WITHIN 24 HOURS OF EVERY MAJOR STORM EVENT. THE INFILTRATION TRENCH SHOULD BE INSPECTED FOR ACCUMULATED SEDIMENT, LEAVES AND DEBRIS IN ANY PRETREATMENT DEVICE, CLOGGING OF INLET AND OUTLET PIPES AND PONDING WATER.
3. IF CLOGGING APPEARS TO BE ONLY AT THE SURFACE, IT MAY BE ONLY NECESSARY TO REMOVE, CLEAN, AND REPLACE THE FIRST LAYER OF CRUSHED ROCK AND/OR FILTER FABRIC.
4. PONDING (AS VISIBLE FROM THE OBSERVATION WELL) AFTER 4 HOURS OF A STORM EVENT MAY INDICATE THE BOTTOM OF THE TRENCH IS CLOGGED. IN THIS CASE, ALL OF THE TRENCH ROCK AND/OR FILTER FABRIC OR SAND MEDIA MUST BE REMOVED, CLEANED, AND REPLACED. THE BOTTOM SHOULD BE SCARIFIED OR TILLED BEFORE BACKFILLING THE TRENCH.
5. THE USE OF FERTILIZERS ON AREAS CONTRIBUTARY TO THE INFILTRATION TRENCH SHOULD BE MINIMIZED OR AVOIDED COMPLETELY.

CONSTRUCTION NOTES:

1. INFILTRATION AREAS SHALL BE FENCED OFF AND PROTECTED WITH TEMPORARY BMPs FROM THE FIRST DAY OF EARTH-MOVING ACTIVITIES UNTIL PROJECT COMPLETION TO PREVENT COMPACTION OF SUBGRADE AND SEDIMENT TRACKING.
2. CRUSHED ROCK SHALL BE WASHED AND DELIVERED CLEAN TO PREVENT FINES FROM CLOGGING THE INFILTRATION TRENCH.
3. SCARIFY SUBGRADE TO A DEPTH OF 6 INCHES (MIN) IMMEDIATELY PRIOR TO PLACEMENT OF CRUSHED ROCK.
4. INFILTRATION TRENCH MATERIALS SHALL BE PLACED ON UNCOMPACTED NATIVE SOIL. BACKFILLED MATERIALS SHALL NOT BE COMPACTED.

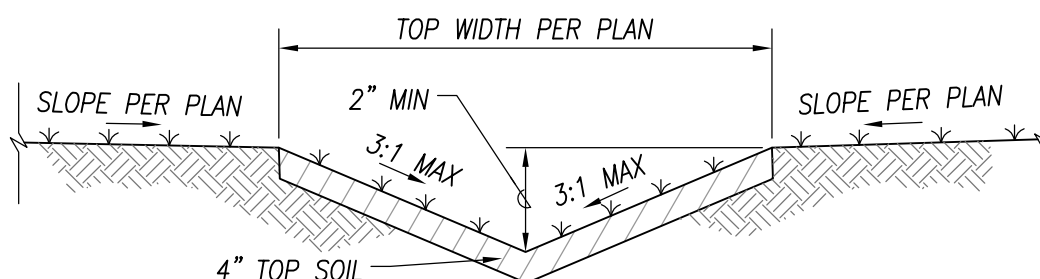


NOTE:

1. MIRAFI GEOTEXTILE FILTER FABRIC SHALL BE INSTALLED UNDER ALL NEW PRIVATE DRAIN INLET GRATES WITHIN THE PROJECT SITE AND EXISTING DRAIN INLETS SURROUNDING THE PROJECT.

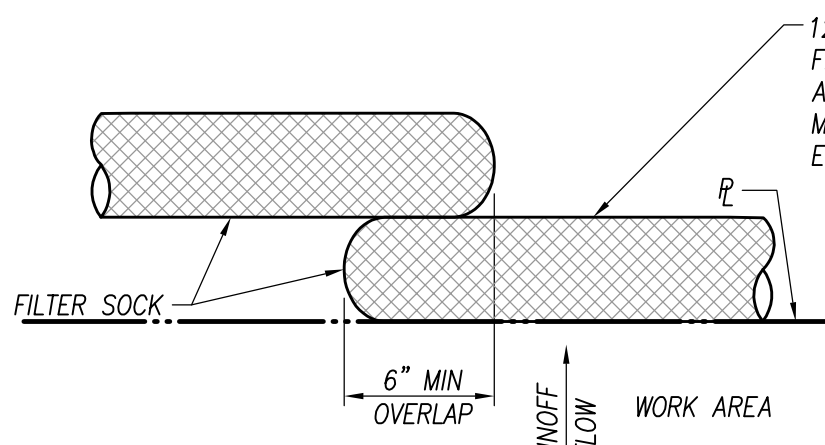
SEDIMENT CONTROL FILTER
AT PRIVATE DRAIN INTLET DETAIL

NOT TO SCALE

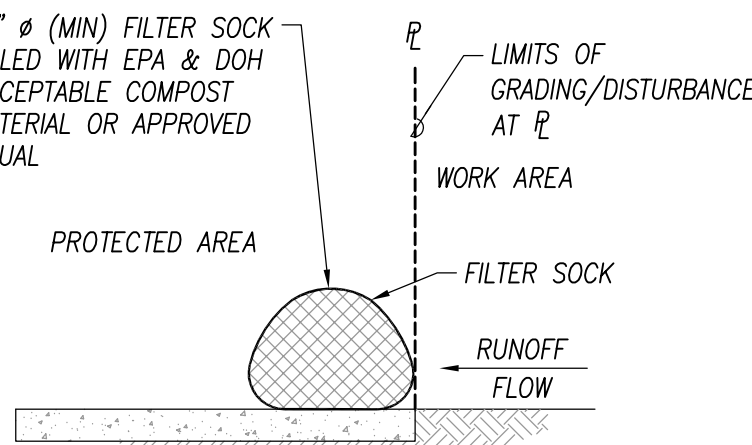


VEGETATED SWALE

NOT TO SCALE



PLAN



SECTION

FILTER SOCK/FILTRATION TUBE

SCALE: NOT TO SCALE

APPROVED:

CHIEF, WASTEWATER BRANCH, D.P.P.
(FOR CONFORMANCE WITH CITY STANDARDS ONLY)

DATE

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.

DATE

REVISION	DATE	BRIEF	MADE BY	APPROVED

PAUL T. MATSUDA
LICENSED PROFESSIONAL ENGINEER
No. 10901-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

SIGNATURE
LICENSE EXP. DATE: APRIL 30, 2020

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII

WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS
89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707
TMK: 8-5-036:033
JOB NO.

DETAILS

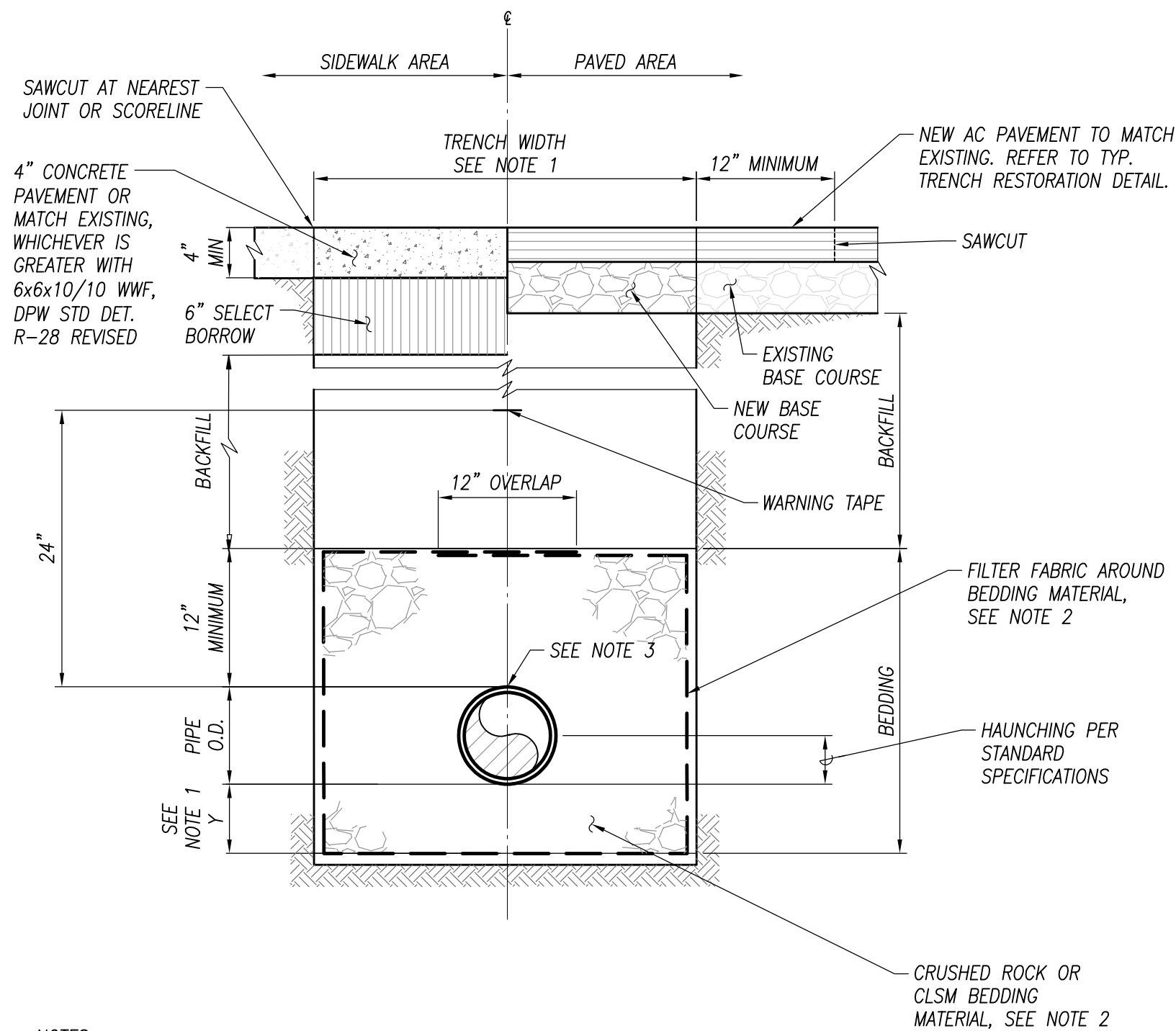
DESIGNED BY: G70 CHECKED BY: SD DRAWN BY: AC

G70
111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5996
WWW.G70DESIGN

JANUARY 2019

DWG. NO.
C400
SHEET 15 OF 17

FILE	POCKET	FOLDER	NO.
------	--------	--------	-----



NOTES:

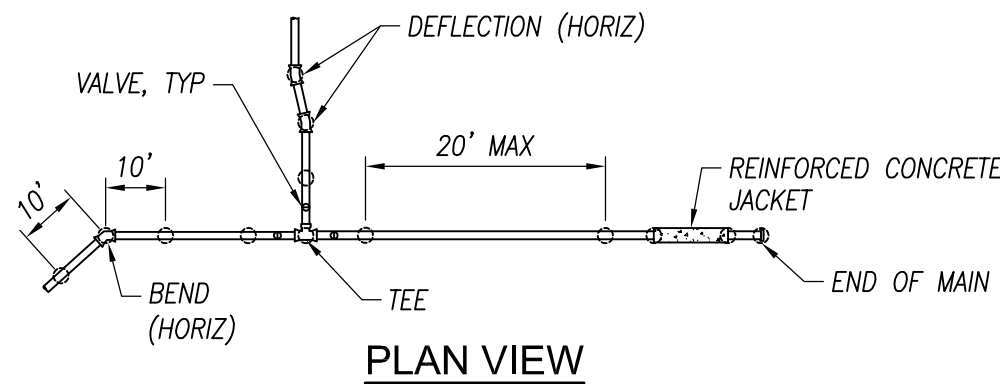
- SEE S-02 FOR PAYMENT WIDTHS AND BEDDING DIMENSIONS.
- FILTER FABRIC NOT REQUIRED FOR CLSM BEDDING
- FOR SEWER JOINTS LOCATED 5' BEYOND ANTICIPATED DRIP LINE OF TREES AND SHRUBS, WRAP WILL BE A GEOTEXTILE FABRIC WITH HERBICIDE.

TYPICAL GRAVITY SEWER TRENCH

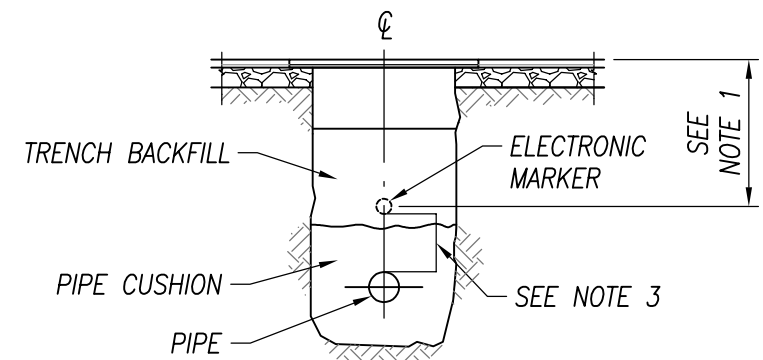
NOT TO SCALE

NOTE:

- ELECTRONIC MARKER



PLAN VIEW



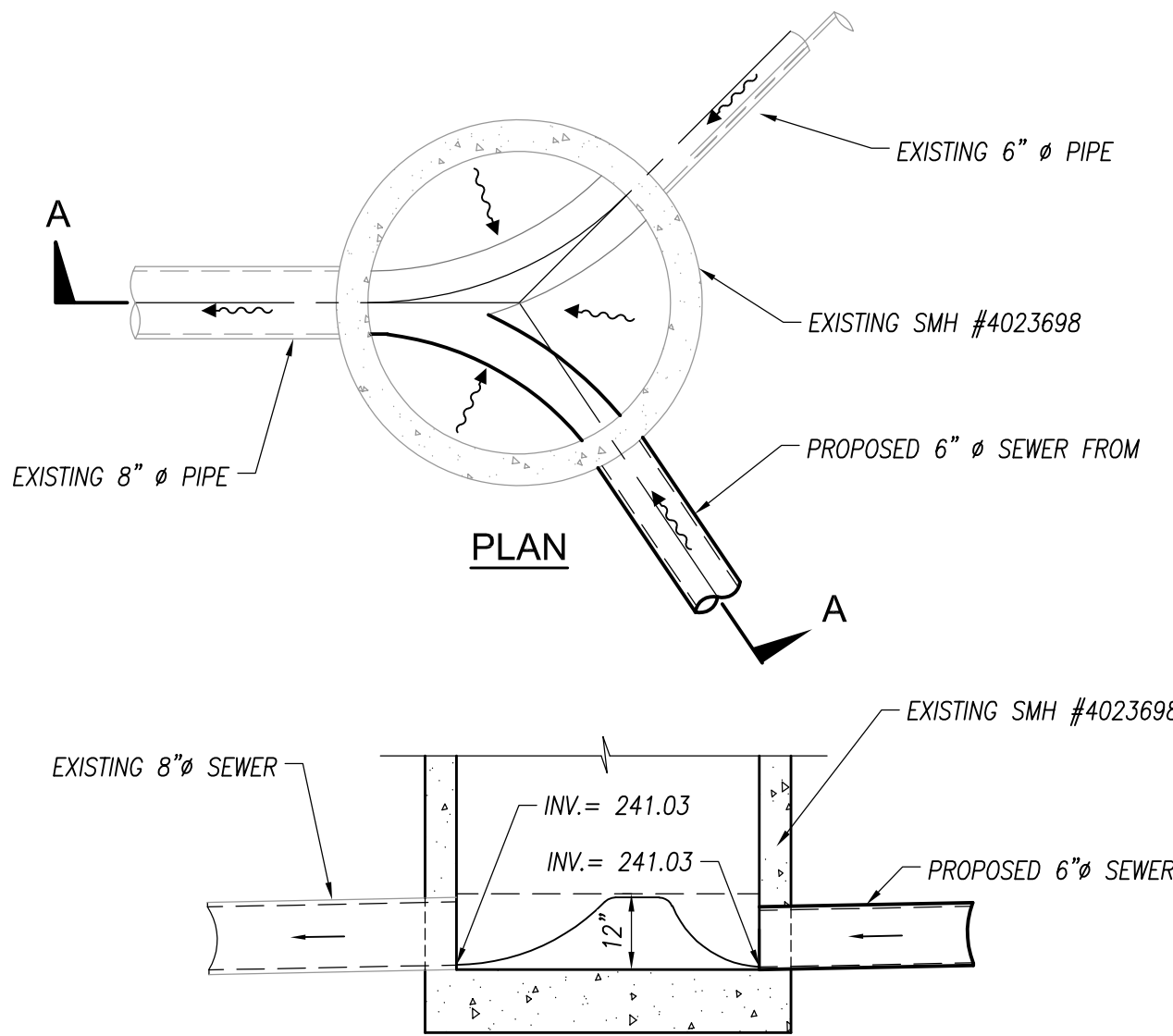
SECTION VIEW

NOTES:

- INSTALL ELECTRONIC MARKER OVER CENTER LINE OF PIPE AT A MINIMUM DEPTH OF 2 FEET AND A MAXIMUM DEPTH OF 3 FEET FROM FINISH GRADE.
- INSTALL TRENCH BACKFILL AND PIPE CUSHION MATERIAL IN ACCORDANCE TO THE PLANS AND SPECIFICATIONS.
- INSTALL ELECTRONIC MARKER AT A MINIMUM CLEARANCE OF 6-INCHES, WHERE POSSIBLE. INSTALL MARKERS ON OR ABOVE CONCRETE JACKETS.

ELECTRONIC MARKER INSTALLATION

NOT TO SCALE



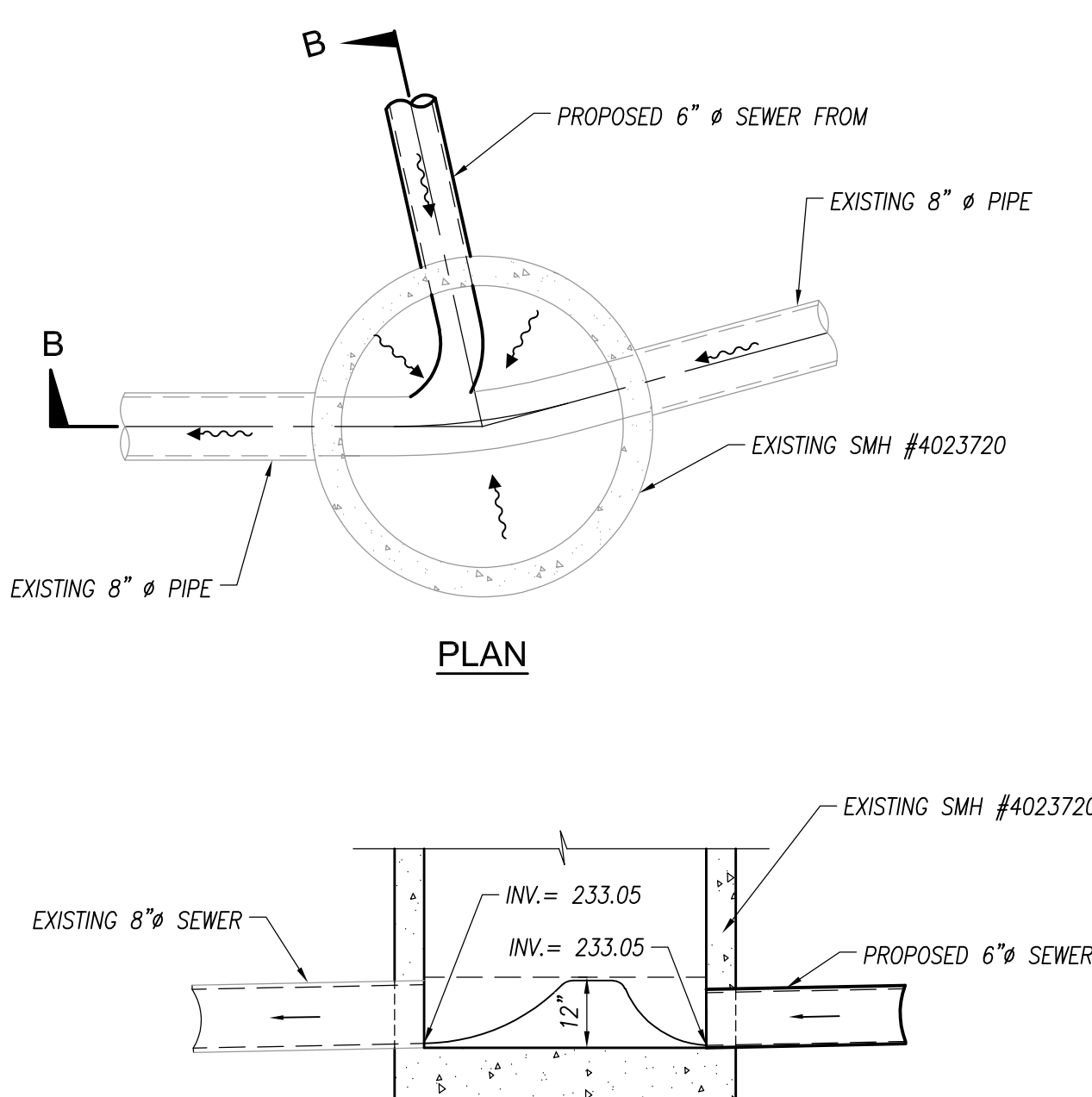
SECTION A-A

NOTES:

- UNLESS SPECIFIED OTHERWISE, ALL CONSTRUCTION SHALL BE PURSUANT TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AS REVISED BY THE CITY AND COUNTY OF HONOLULU.
- FOR SEWER PIPES AND APPURTENANCES 12 INCHES AND SMALLER, PIPE MATERIALS SHALL BE PURSUANT TO "SECTION 21 - PVC SEWER PIPE AND APPURTENANCES" OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AS REVISED BY THE CITY AND COUNTY OF HONOLULU.
- FOR SEWER PIPES AND APPURTENANCES 15 INCHES AND LARGER, PIPE MATERIALS SHALL BE PURSUANT TO "SECTION 19 - REINFORCED CONCRETE SEWER PIPE AND APPURTENANCES" OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AS REVISED BY THE CITY AND COUNTY OF HONOLULU.
- SEWER PIPE CONNECTIONS SHALL BE PURSUANT TO "SECTION 22 - CONNECTION TO EXISTING SEWER" OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AS REVISED BY THE CITY AND COUNTY OF HONOLULU.

SEWER MANHOLE #4023698 CHANNELIZATION

NOT TO SCALE



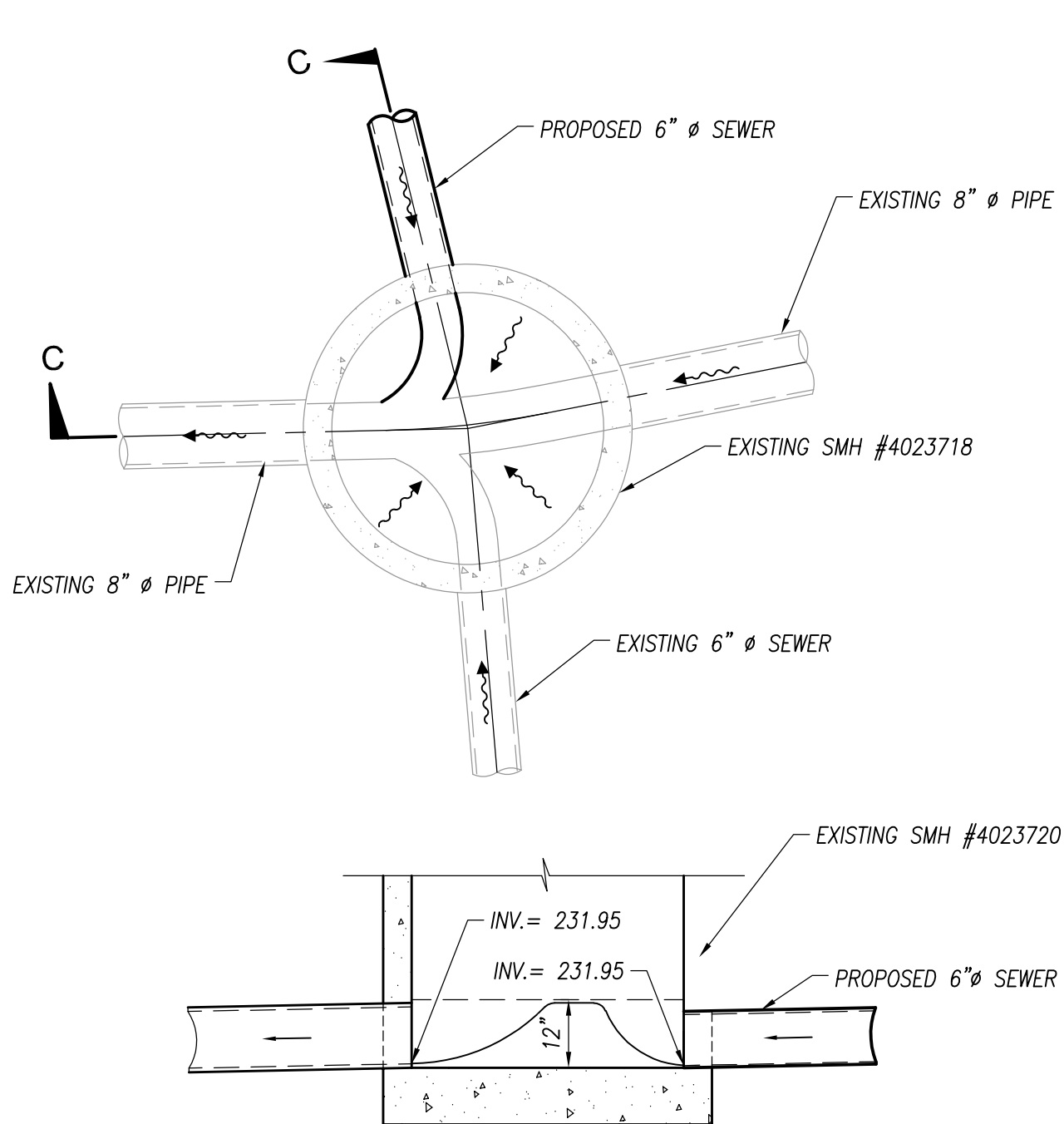
SECTION B-B

NOTES:

- UNLESS SPECIFIED OTHERWISE, ALL CONSTRUCTION SHALL BE PURSUANT TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AS REVISED BY THE CITY AND COUNTY OF HONOLULU.
- FOR SEWER PIPES AND APPURTENANCES 12 INCHES AND SMALLER, PIPE MATERIALS SHALL BE PURSUANT TO "SECTION 21 - PVC SEWER PIPE AND APPURTENANCES" OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AS REVISED BY THE CITY AND COUNTY OF HONOLULU.
- FOR SEWER PIPES AND APPURTENANCES 15 INCHES AND LARGER, PIPE MATERIALS SHALL BE PURSUANT TO "SECTION 19 - REINFORCED CONCRETE SEWER PIPE AND APPURTENANCES" OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AS REVISED BY THE CITY AND COUNTY OF HONOLULU.
- SEWER PIPE CONNECTIONS SHALL BE PURSUANT TO "SECTION 22 - CONNECTION TO EXISTING SEWER" OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AS REVISED BY THE CITY AND COUNTY OF HONOLULU.

SEWER MANHOLE #4023720 CHANNELIZATION

NOT TO SCALE



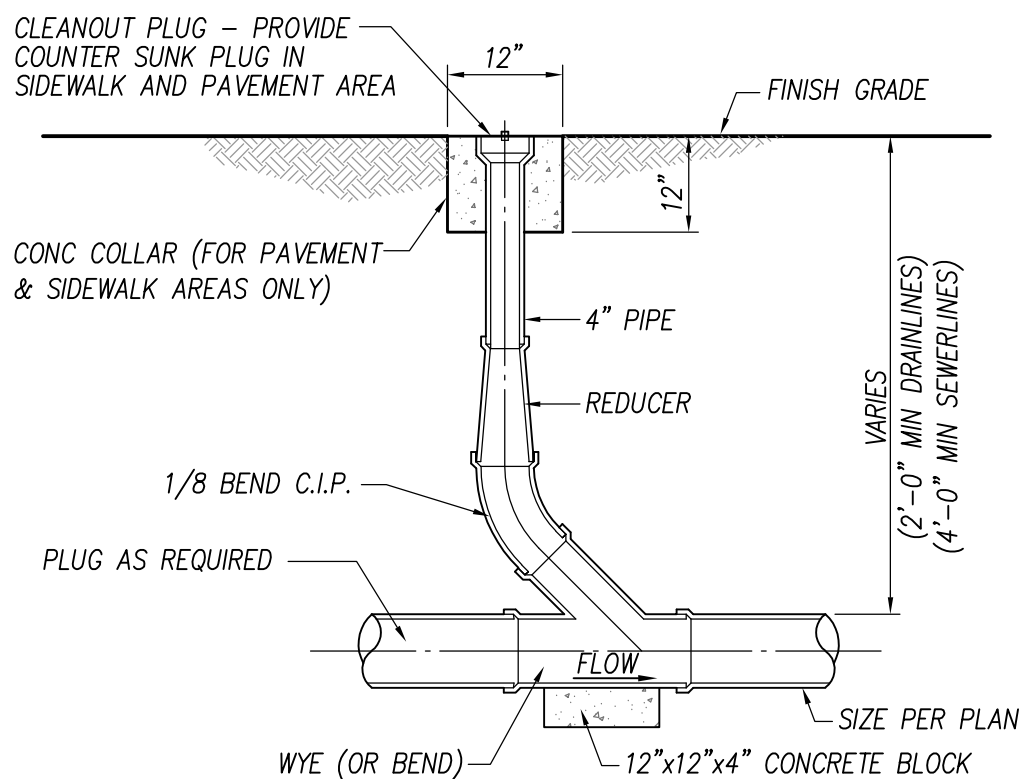
SECTION C-C

NOTES:

- UNLESS SPECIFIED OTHERWISE, ALL CONSTRUCTION SHALL BE PURSUANT TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AS REVISED BY THE CITY AND COUNTY OF HONOLULU.
- FOR SEWER PIPES AND APPURTENANCES 12 INCHES AND SMALLER, PIPE MATERIALS SHALL BE PURSUANT TO "SECTION 21 - PVC SEWER PIPE AND APPURTENANCES" OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AS REVISED BY THE CITY AND COUNTY OF HONOLULU.
- FOR SEWER PIPES AND APPURTENANCES 15 INCHES AND LARGER, PIPE MATERIALS SHALL BE PURSUANT TO "SECTION 19 - REINFORCED CONCRETE SEWER PIPE AND APPURTENANCES" OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AS REVISED BY THE CITY AND COUNTY OF HONOLULU.
- SEWER PIPE CONNECTIONS SHALL BE PURSUANT TO "SECTION 22 - CONNECTION TO EXISTING SEWER" OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AS REVISED BY THE CITY AND COUNTY OF HONOLULU.

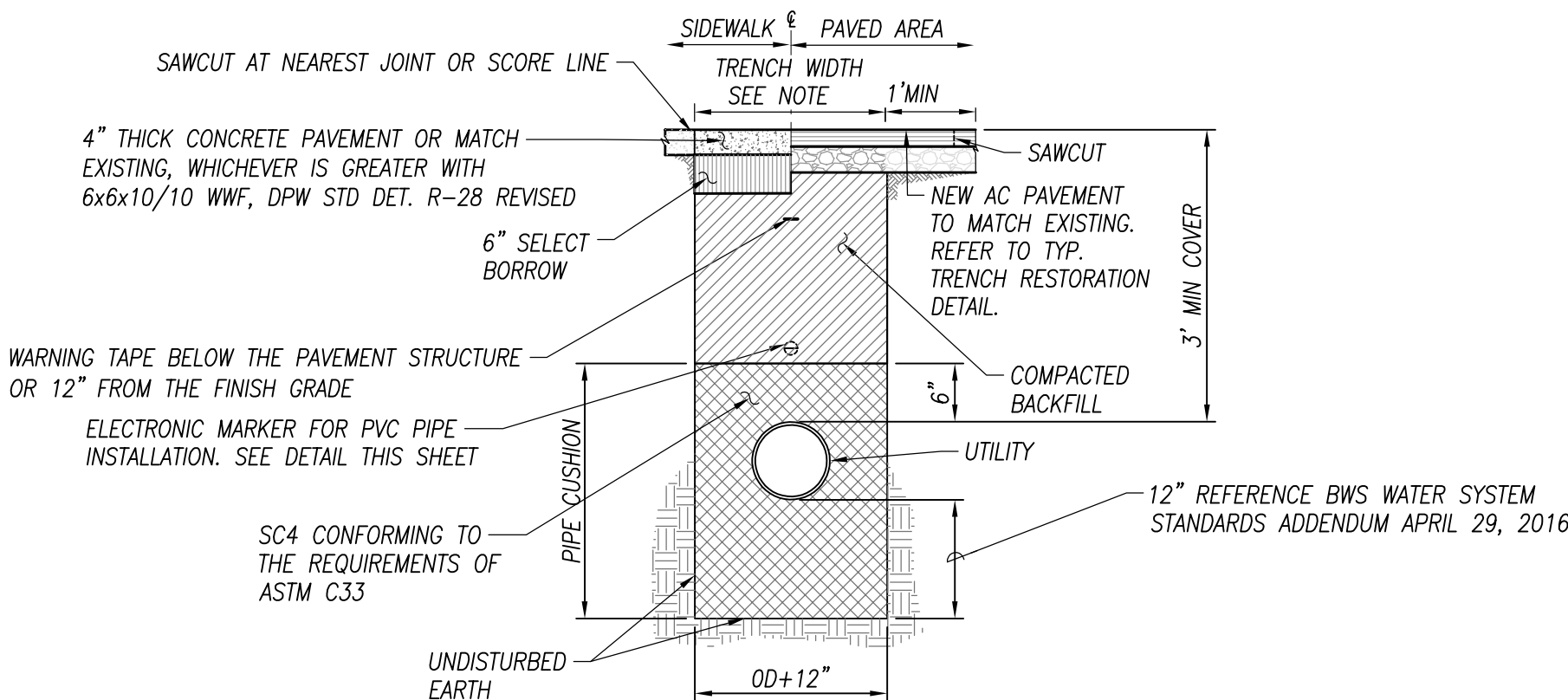
SEWER MANHOLE #4023718 CHANNELIZATION

NOT TO SCALE



CLEANOUT (PRIVATE)

NOT TO SCALE



NOTES:

- UNLESS SPECIFIED OTHERWISE, ALL CONSTRUCTION SHALL BE PURSUANT TO THE BOARD OF WATER SUPPLY'S WATER SYSTEM STANDARDS DATED 2002 AND WATER SYSTEM EXTERNAL CORROSION CONTROL STANDARDS, VOLUME 3, DATED 1991, AND ALL SUBSEQUENT AMENDMENTS AND ADDITIONS.
- PAVEMENT STRUCTURES, INCLUDING AC PAVEMENT, BASE COURSE AND SUBBASE, SHALL BE EQUAL TO OR BETTER IN THICKNESS AND QUALITY.
- ROADWAY SHALL BE PAVED TO THE TRENCH WIDTH PLUS AN ADDITIONAL ONE FOOT ON EACH SIDE OF THE TRENCH.
- ALL DISTURBED PAVEMENT MARKINGS SHALL BE REPLACED AND ALL REQUIRED UTILITY ADJUSTMENTS SUCH AS MANHOLE COVERS, ETC., SHALL BE DONE BY THE CONTRACTOR.

WATER TRENCH DETAIL

NOT TO SCALE

APPROVED:

CHIEF, WASTEWATER BRANCH, D.P.P.
(FOR CONFORMANCE WITH CITY STANDARDS ONLY)

DATE

MANAGER AND CHIEF ENGINEER, BWS
(FOR WORK AFFECTING BWS FACILITIES
IN CITY/STATE R.O.W. ONLY)

DATE

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.

DATE

REVISION	DATE	BRIEF	MADE BY	APPROVED

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII

WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS
89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707
TMK: 8-5-036:033
JOB NO.

DETAILS 2

DESIGNED BY: G70 CHECKED BY: SD DRAWN BY: AC

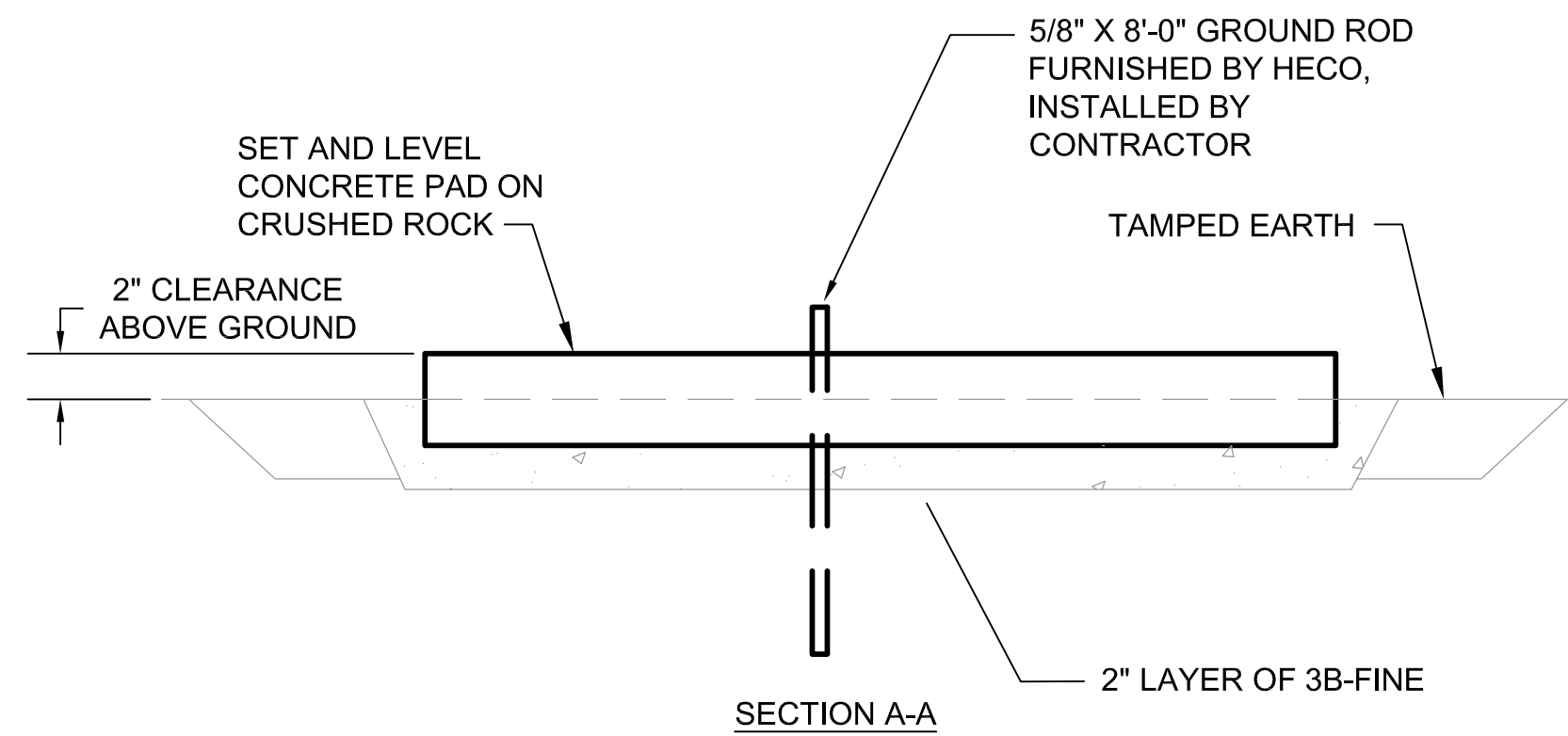
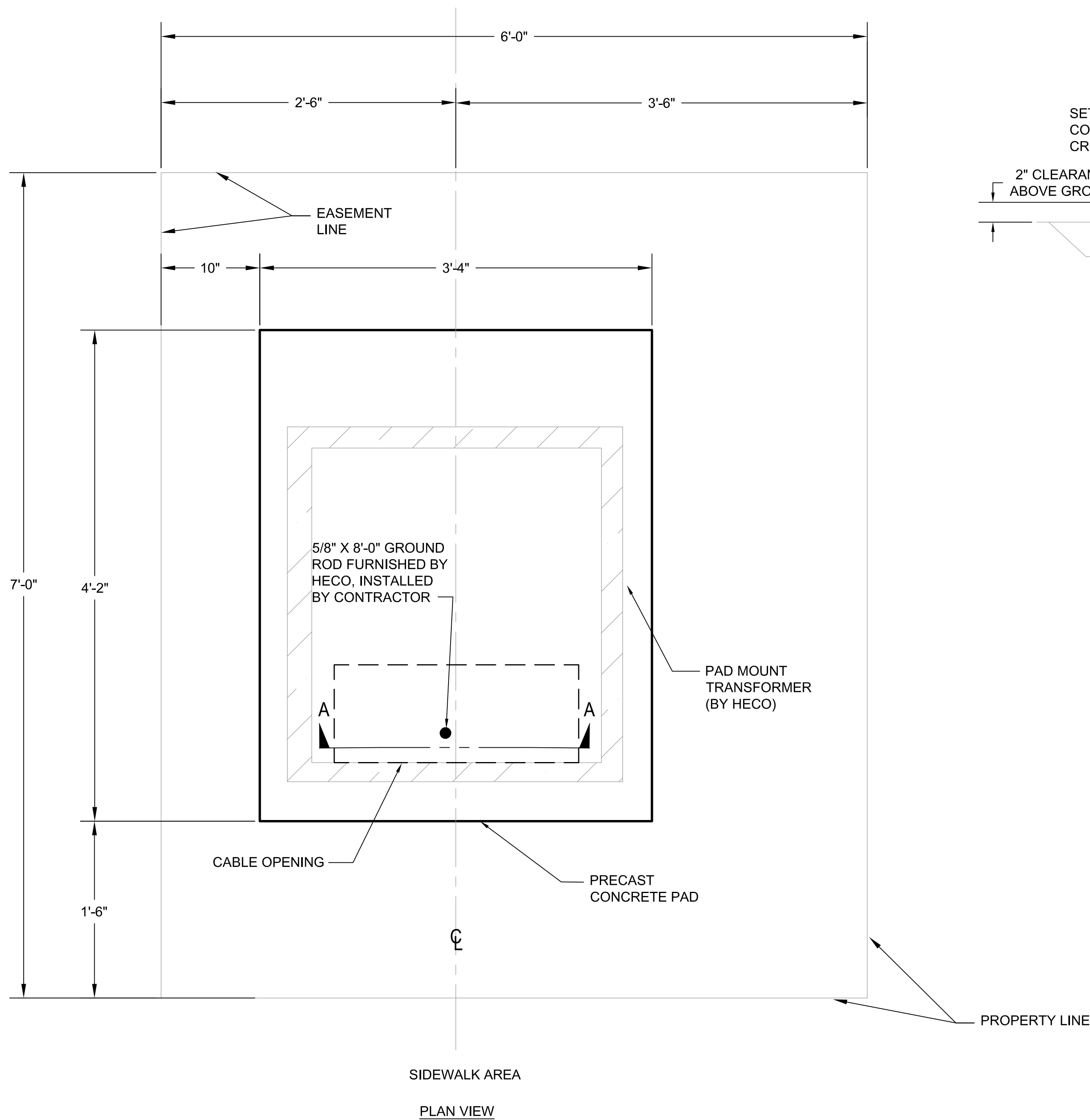
G70

111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5986
WWW.G70DESIGN.COM

JANUARY 2019

DWG. NO.
C401
SHEET 16 OF 17

FILE POCKET FOLDER NO.



NOTES:

1. GRADE AND COMPACT THE PAD SITE. FRONT CORNER SHALL MATCH THE CONCRETE SIDEWALK GRADE. MAXIMUM SLOPE TOWARD SIDEWALK SHALL BE 1/2" PER FOOT TOWARD SIDEWALK.
2. TRANSFORMER PAD SHALL BE 2" HIGHER THAN THE HIGHEST POINT OF THE SIDEWALK FRONTING THE PAD.
3. CONSTRUCT A RETAINING WALL AROUND TRANSFORMER LOT TO PREVENT FUTURE FILLING IN OF LOT. SEE HECO STANDARD 30-5002.
4. COMPACT SITE IN ACCORDANCE WITH COUNTY SPECIFICATIONS FOR COMPACTING SIDEWALK AREAS.
5. FILL LOT AREA AFTER MINIMUM 95% COMPACTION WITH 3B-FINE.
6. REFER TO HECO MATERIAL DRAWING 011249 FOR CONCRETE PAD DETAILS.

1
ES501

TRANSFORMER PAD DETAILS
SCALE: NOT TO SCALE

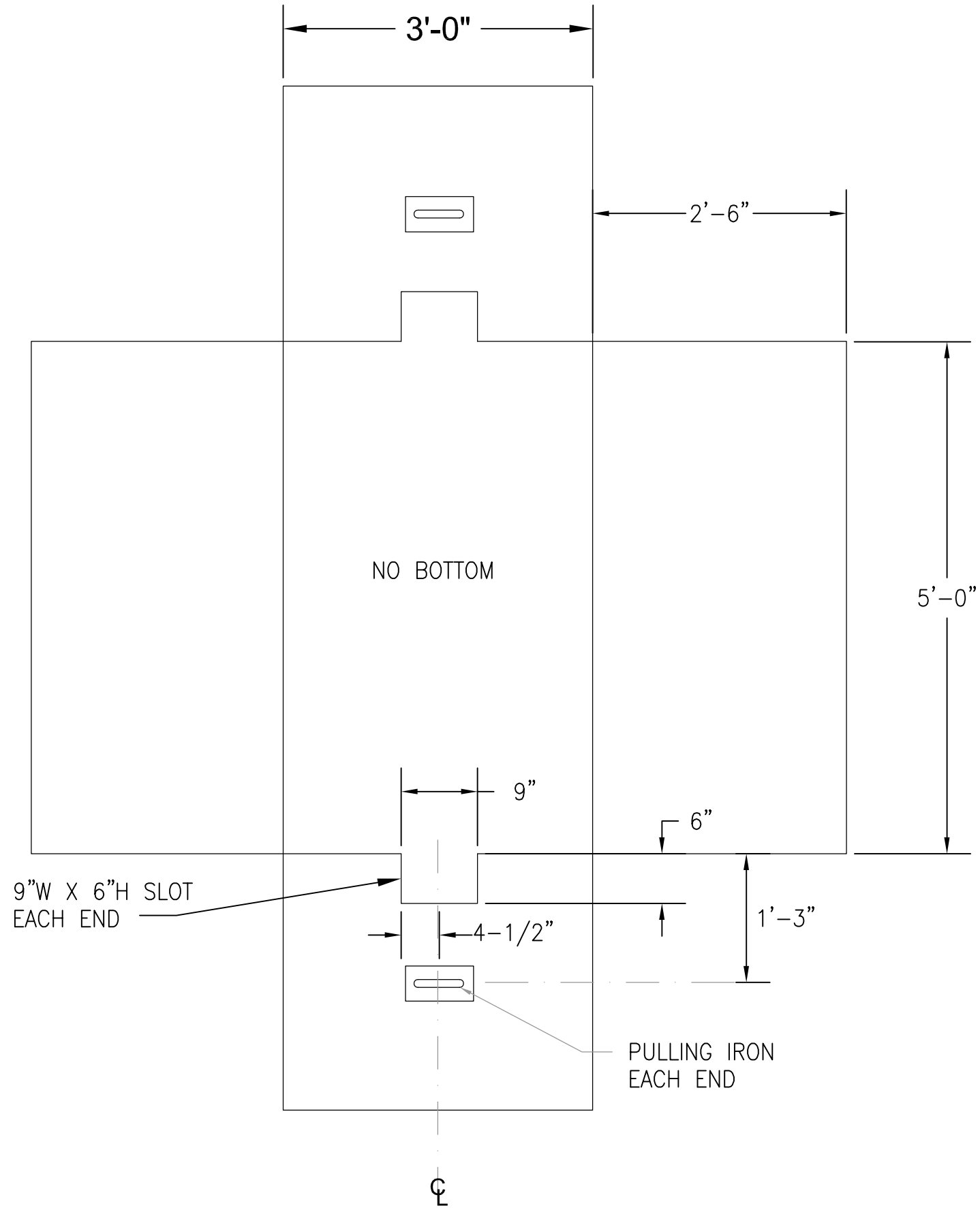
DWG. NO.
ES501
SHEET 19 OF 17

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

SIGNATURE
LICENSE EXP. DATE: APRIL 30, 2020

REVISION	DATE	BRIEF	MADE BY	APPROVED
DEPARTMENT OF HAWAIIAN HOME LANDS STATE OF HAWAII WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS 89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707 TMK: 8-5-036:033 JOB NO.				
TRANSFORMER PAD DETAILS				
DESIGNED BY: G70	CHECKED BY: SD	DRAWN BY: AC		
G70		111 S. KING STREET, SUITE 170 HONOLULU, HAWAII 96813 808.523.5986 WWW.G70.DESIGN		
JANUARY 2019				

FILE	POCKET	FOLDER	NO.

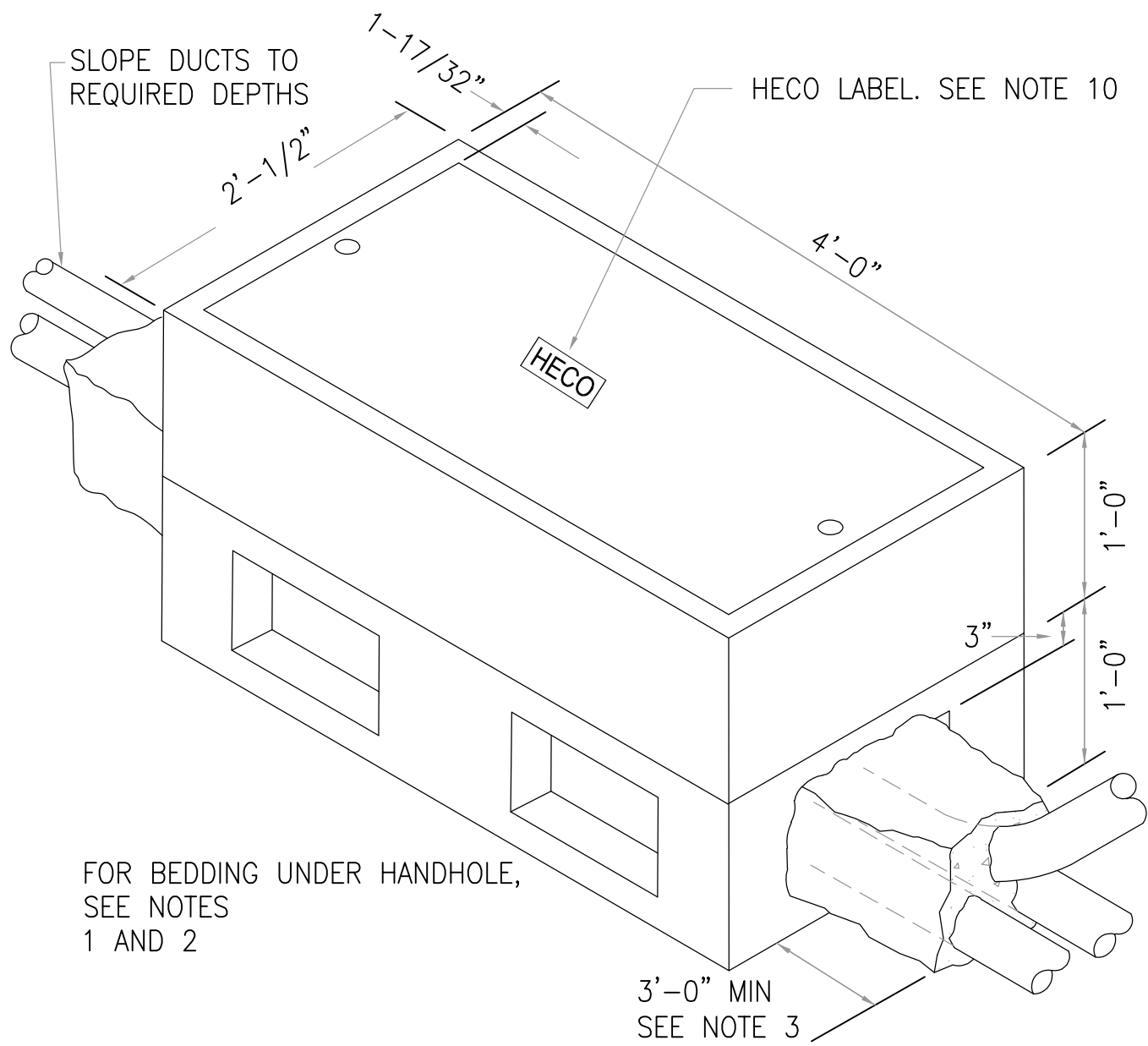


NOTES:

1. REFER TO HECO SPECIFICATION CS 9401-5 FOR CONSTRUCTION REQUIREMENTS

1
ES502
NOT TO SCALE

3' X 5' HECO NON-VEHICULAR TRAFFIC HANDHOLE DETAIL



NOTES:

1. HANDHOLE SHALL BE INSTALLED ON TOP OF A 5" THICK, 3B FINE ROCK BED. IF HECO PRIMARY DUCTS ARE TO BY-PASS UNDER THE HANDHOLE, THE PRIMARY DUCTS SHALL BE ENCASED SUCH THAT A "FLOOR" IS FORMED UNDER THE HANDHOLE.
2. BEDDING MATERIAL BENEATH THE 3B FINE ROCK BED AS WELL AS THE BACKFILL MATERIAL SHALL MEEET HECO SPECIFICATION CS 7001 LATEST EDITION.
3. DUCTS ENTERING/EXITING THE HANDHOLE SHALL HAVE A 3" CONCRETE ENCASEMENT AND SHALL EXTEND FOR AT LEAST 3'-0" ALONG THE DUCT. REFER TO PROJECT DRAWINGS IF MORE ENCASEMENT ALONG THE DUCTLINE IS REQUIRED.
4. FOR HANDHOLES THAT CONTAIN VOLTAGES OF 751V TO 15KV, A 5/8" DIA., 8' LONG COPPER CLAD GROUND ROD SHALL BE INSTALLED. THE GROUND ROD SHALL BE INSTALLED IN A CORNER 6" FROM EACH WALL AND 6" ABOVE THE FLOOR GRADE.
5. THIS HANDHOLE SHALL NOT BE USED IN AREAS SUBJECTED TO VEHICULAR TRAFFIC.
6. ALL JOINTS SHALL BE SEALED WITH A JOINT SEALER.
7. ALL SECTIONS OF THE HANDHOLE MUST BE PRE-CASTED BY A HECO/MECO/HELCO APPROVED MANUFACTURER. REFER TO HECO SPECIFICATION CS 9401 LATEST EDITION FOR APPROVAL PROCESS.
8. ALL EXCAVATION AND INSTALLATIONS MUST BE APPROVED AND INSPECTED BY A HECO/MECO/HELCO INSPECTOR PRIOR TO BACKFILLING OR CONCRETE ENCASING FACILITIES.
9. REFER TO THE FOLLORING MATERIAL STANDARD DRAWINGS FOR EACH SECTION OF THE 2X4 PRE-CAST HANDHOLE.

11310	12" BODY
11311	6" EXTENSION
11312	COVER
11313	BASE RISER WITH KNOCKOUTS
10. COVER SHALL BE STAMPED WITH APPROPRIATE COMPANY NAME: HECO, MECO, OR HELCO.
11. MAXIMUM DEPTH OF HANDHOLE IS 30": 1'-0" BASE RISER, 1'-0" BODY, & 6" EXTENSION.
12. IF CONCRETE AND POLYMER SECTIONS ARE USED TOGETHER, THEY MUST INTERLOCK AND FIT TOGETHER PROPERLY.

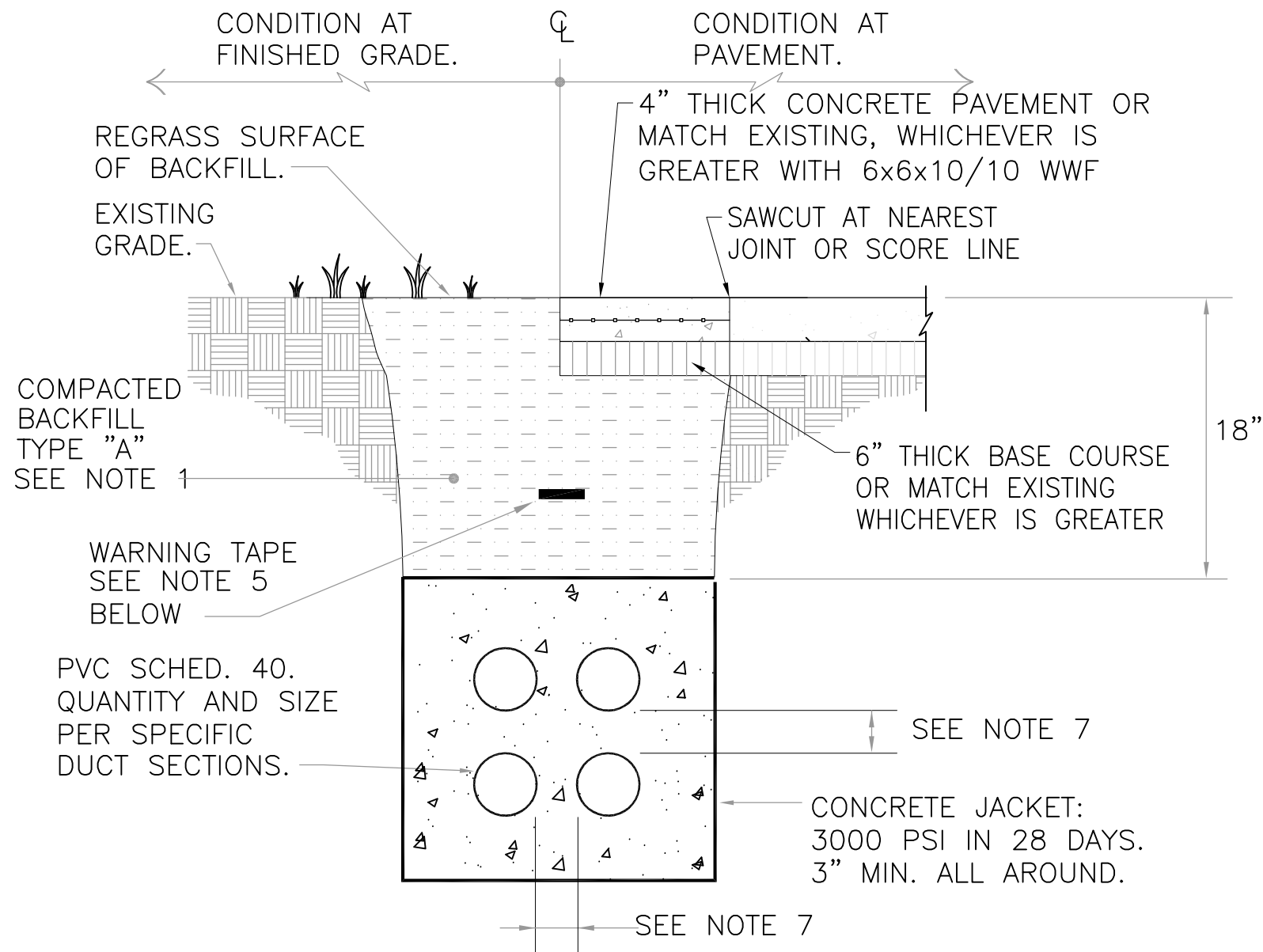
2
ES502
NOT TO SCALE

HECO 2'X4' HANDHOLE DETAILS

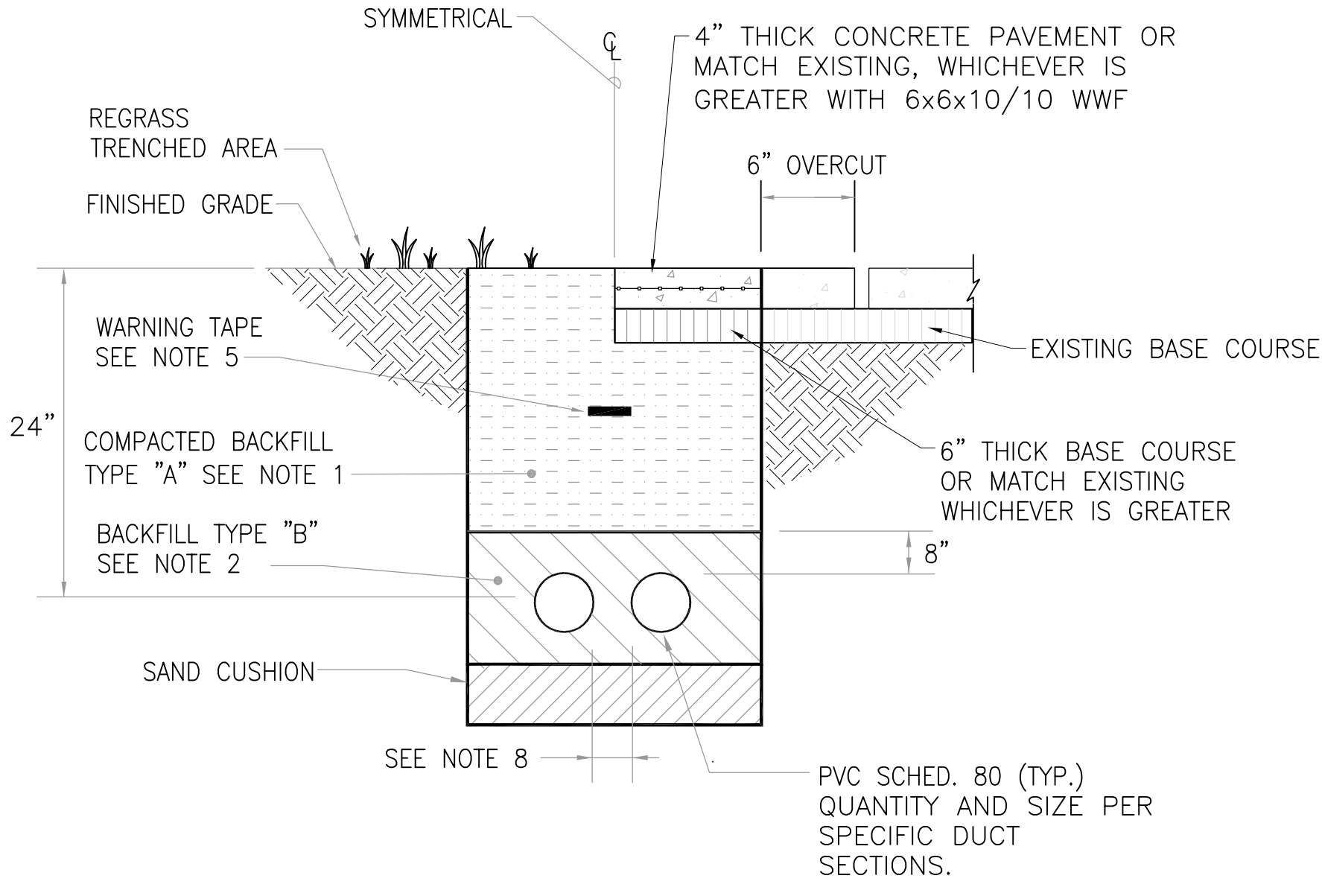
<p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).</p>	<p>REVISION</p>				<p>DATE</p>				<p>BRIEF</p>				<p>MADE BY</p>				<p>APPROVED</p>			
	<p>DEPARTMENT OF HAWAIIAN HOME LANDS</p>																			
	<p>STATE OF HAWAII</p>																			
	<p>WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS</p>																			
	<p>89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707</p>																			
<p>TMK: 8-5-036:033</p>																				
<p>JOB NO.</p>																				
<p>HANDHOLE DETAILS</p>																				
<p>DESIGNED BY: G7O</p>																				
<p>CHECKED BY: SD</p>																				
<p>DRAWN BY: AC</p>																				
<p>111 S. KING STREET, SUITE 170</p>																				
<p>HONOLULU, HAWAII 96813</p>																				
<p>808.523.5986</p>																				
<p>WWW.G7O.DESIGN</p>																				
<p>JANUARY 2019</p>																				

DWG. NO.
ES502
SHEET 20 OF 17

SIGNATURE
LICENSE EXP. DATE: APRIL 30, 2020



TYPICAL CONC. ENCASED DUCT SECTION



TYPICAL DIRECT BURIED DUCT SECTION

GENERAL NOTE:
REFER TO CIVIL DRAWINGS FOR ROADWAY RESTORATION DETAILS.

DUCT SECTION NOTES:

- BACKFILL MATERIAL TYPE "A": EARTH OR EARTH AND GRAVEL MIXTURE, ROCK SIZE SHALL BE 1" OR SMALLER AND SHALL NOT CONTAIN MORE THAN 50% ROCK PARTICLES BY VOLUME.
- BACKFILL MATERIAL TYPE "B" EARTH OR EARTH AND GRAVEL MIXTURE, MUST PASS A 1/2" MESH SCREEN AND CONTAIN NOT MORE THAN 20% BY VOLUME OF ROCK PARTICLES.
- ALL UNDERGROUND CONCRETE ENCASED DUCTS SHALL BE PVC SCHEDULE 40, UNLESS OTHERWISE NOTED. TELEPHONE DUCTLINE TYPE SHALL BE GT42 PVC.
- ALL UNDERGROUND TELEPHONE DUCTLINES SHALL CONTAIN A "MULE TAPE" PULL LINE (NEPTCO, WP 1800P, OR APPROVED EQUAL) UNLESS NOTED OTHERWISE. ELECTRICAL DUCTLINES SHALL CONTAIN A 200LB TINSEL STRENGTH NYLON CORD.
- WARNING TAPE: BRIGHTLY COLORED PLASTIC RED TAPE, 8 MIL THICKNESS, NOT LESS THAN 4" IN WIDTH. APPROXIMATELY 12" BELOW FINISHED GRADE. ENTIRE LENGTH OF DUCTLINE. TELEPHONE WARNING TAPE 4" ORANGE IN COLOR WITH BLACK IMPRINTED "WARNING STOP DIGGING – CALL HAWAIIAN TELCOM, COMMUNICATIONS CABLE BURIED BELOW"
- COORDINATE CONSTRUCTION AND INSPECTION WITH RESPECTIVE UTILITY COMPANY INSPECTOR PRIOR TO BACKFILL.
- MAINTAIN 3" MINIMUM SPACING BETWEEN UNDERGROUND DUCTLINES OF DIFFERENT SYSTEMS. MAINTAIN 2" MINIMUM SPACING BETWEEN UNDERGROUND DUCTLINES OF SIMILAR SYSTEMS.
- MAINTAIN 12" MINIMUM SPACING BETWEEN UNDERGROUND DUCTLINES OF DIFFERENT SYSTEMS. MAINTAIN 3" MINIMUM SPACING BETWEEN UNDERGROUND DUCTLINES OF SIMILAR SYSTEMS.
- NUMBER PRECEEDING LETTER DENOTES DUCT SIZE. LETTER FOLLOWING NUMBER DENOTES DUCT USE.

C– COMMUNICATION T– TELEPHONE
D– DATA V– TV
E– ELECTRIC L– LIGHT

APPROVED:

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.

DATE

REVISION	DATE	BRIEF	MADE BY	APPROVED
DEPARTMENT OF HAWAIIAN HOME LANDS STATE OF HAWAII WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS 89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707 TMK: 8-5-036:033 JOB NO.				
DUCT SECTION DETAILS				
DESIGNED BY: G7O	CHECKED BY: SD	DRAWN BY: AC		
		111 S. KING STREET, SUITE 170 HONOLULU, HAWAII 96813 808.523.5986 WWW.G7O.DESIGN		
SIGNATURE		JANUARY 2019		
LICENSE EXP. DATE: APRIL 30, 2020				

HECO NOTES

1. LOCATION OF HECO FACILITIES

THE LOCATION OF HECO’S OVERHEAD AND UNDERGROUND FACILITIES SHOWN ON THE PLANS ARE FROM EXISTING RECORDS WITH VARYING DEGREES OF ACCURACY AND ARE NOT GUARANTEED AS SHOWN. THE CONTRACTOR SHALL VERIFY IN THE FIELD THE LOCATIONS OF THE FACILITIES AND SHALL EXERCISE PROPER CARE IN EXCAVATING AND WORKING IN THE AREA. WHEREVER CONNECTIONS OF NEW UTILITIES TO EXISTING UTILITIES AND UTILITY CROSSINGS ARE SHOWN, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS AND CROSSINGS TO VERIFY THE DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO HECO’S FACILITIES WHETHER SHOWN OR NOT SHOWN ON THE PLANS.

2. COMPLIANCE WITH HAWAII OCCUPATIONAL SAFETY AND HEALTH LAWS

THE CONTRACTOR SHALL COMPLY WITH THE STATE OF HAWAII’S OCCUPATIONAL SAFETY AND HEALTH LAWS AND REGULATIONS, INCLUDING WITHOUT LIMITATION, THOSE RELATED TO WORKING ON OR NEAR EXPOSED OR ENERGIZED ELECTRICAL LINES AND EQUIPMENT.

CLEARANCE

THE CONTRACTOR SHALL OBTAIN AN EXCAVATION CLEARANCE FROM HECO’S PLANNING AND DESIGN SECTION OF THE CUSTOMER INSTALLATIONS DEPARTMENT (543–5654) LOCATED AT 820 WARD AVENUE, 4TH FLOOR, A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO STARTING CONSTRUCTION.

CAUTION!!! ELECTRICAL HAZARD!!!

EXISTING HECO OVERHEAD AND UNDERGROUND LINES ARE ENERGIZED AND WILL REMAIN ENERGIZED DURING CONSTRUCTION UNLESS PRIOR SPECIAL ARRANGEMENTS HAVE BEEN MADE WITH HECO. ONLY HECO PERSONNEL ARE TO HANDLE THESE ENERGIZED LINES AND ERECT TEMPORARY GUARDS TO PROTECT THESE LINES FROM DAMAGE. THE CONTRACTOR SHALL WORK CAUTIOUSLY AT ALL TIMES TO AVOID ACCIDENTS AND DAMAGE TO EXISTING HECO FACILITIES, WHICH CAN RESULT IN ELECTROCUTION.

UNDERGROUND LINES

THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHENEVER CONSTRUCTION CROSSES OR IS IN CLOSE PROXIMITY OF UNDERGROUND LINES. HECO’S EXISTING ELECTRICAL CABLES ARE ENERGIZED AND WILL REMAIN ENERGIZED DURING CONSTRUCTION. ONLY HECO PERSONNEL ARE TO BREAK INTO EXISTING HECO FACILITIES, HANDLE THESE CABLES, AND ERECT TEMPORARY GUARDS TO PROTECT THESE CABLES FROM DAMAGE. THE COST OF HECO’S ASSISTANCE IN PROVIDING PROPER SUPPORT AND PROTECTION OF ITS UNDERGROUND LINES WILL BE CHARGED TO THE CONTRACTOR. FOR ASSISTANCE/COORDINATION IN PROVIDING PROPER SUPPORT AND PROTECTION OF THESE LINES, THE CONTRACTOR SHALL CALL HECO’S CUSTOMER INSTALLATIONS DEPARTMENT AT 543–7846 A MINIMUM OF TEN (10) WORKING DAYS IN ADVANCE.

FOR VERIFICATION OF UNDERGROUND LINES, THE CONTRACTOR SHALL CALL THE HAWAII ONE CALL CENTER AT 866–423–7287 MINIMUM OF FIVE (5) WORKING DAYS IN ADVANCE.

EXCAVATIONS

WHEN TRENCH EXCAVATION IS ADJACENT TO OR BENEATH HECO’S EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR IS RESPONSIBLE FOR:

- A) ARRANGING FOR HECO STANDBY PERSONNEL TO OBSERVE WORK AT CONTRACTOR’S COST.
- B) SHEETING, BRACING, OR OTHERWISE SUPPORTING THE EXCAVATION AND STABILIZING THE EXISTING GROUND TO RENDER IT SAFE AND SECURE AND TO PREVENT POSSIBLE SLIDES, CAVE–INS, AND SETTLEMENTS.
- C) PROPERLY SUPPORTING EXISTING STRUCTURES OR FACILITIES WITH BEAMS, STRUTS, UNDER–PINNINGS, OR OTHER NECESSARY METHODS TO FULLY PROTECT IT FROM DAMAGE.
- D) BACKFILLING WITH PROPER BACKFILL MATERIAL INCLUDING SPECIAL THERMAL BACKFILL WHERE EXISTING (REFER TO ENGINEERING DEPARTMENT FOR THERMAL BACKFILL SPECIFICATIONS).

RELOCATION OF HECO FACILITIES

ANY WORK REQUIRED TO RELOCATE OR MODIFY HECO FACILITIES SHALL BE DONE BY HECO, OR BY THE CONTRACTOR UNDER HECO’S SUPERVISION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION, AND SHALL PROVIDE NECESSARY SUPPORT FOR HECO’S WORK, WHICH MAY INCLUDE, BUT NOT BE LIMITED TO, STAKING OF POLE/ANCHOR LOCATIONS, IDENTIFYING RIGHT OF WAY AND PROPERTY LINES, EXCAVATION AND BACKFILL, PERMITS AND TRAFFIC CONTROL, BARRICADING, AND RESTORATION OF PAVEMENT, SIDEWALKS, AND OTHER FACILITIES.

ALL COSTS ASSOCIATED WITH ANY RELOCATION OR MODIFICATION (EITHER TEMPORARY OR PERMANENT) FOR THE CONVENIENCE OF THE CONTRACTOR, OR TO ENABLE THE CONTRACTOR TO PERFORM HIS WORK IN A SAFE AND EXPEDITIOUS MANNER IN FULFILLING HIS CONTRACT OBLIGATIONS SHALL BE BORNE BY THE CONTRACTOR.

CONFLICTS

ANY REDESIGN OR RELOCATION OF HECO’S FACILITIES NOT SHOWN ON THE PLANS MAY BE CAUSE FOR LENGTHY DELAYS. THE CONTRACTOR ACKNOWLEDGES THAT HECO IS NOT RESPONSIBLE FOR ANY DELAY OR DAMAGE THAT MAY ARISE AS A RESULT OF ANY CONFLICTS DISCOVERED OR IDENTIFIED WITH RESPECT TO THE LOCATION OR CONSTRUCTION OF HECO’S ELECTRICAL FACILITIES IN THE FIELD, REGARDLESS OF WHETHER THE CONTRACTOR HAS MET THE REQUESTED MINIMUM ADVANCE NOTICES. IN ORDER TO MINIMIZE ANY DELAY OR IMPACT ARISING FROM SUCH CONFLICTS, HECO SHOULD BE NOTIFIED IMMEDIATELY UPON DISCOVERY OR IDENTIFICATION OF SUCH CONFLICT.

DAMAGE TO HECO FACILITIES

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL HECO SURFACE AND SUBSURFACE UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGES TO HECO’S FACILITIES AS A RESULT OF HIS OPERATIONS. THE CONTRACTOR SHALL IMMEDIATELY REPORT SUCH DAMAGES OR ANY HAZARDOUS CONDITIONS RELATED TO HECO’S LINES TO HECO’S TROUBLE DISPATCHER AT 548–7961. REPAIR WORK SHALL BE DONE BY HECO OR BY THE CONTRACTOR UNDER HECO’S SUPERVISION. COSTS FOR DAMAGES TO HECO’S FACILITIES SHALL BE BORNE BY THE CONTRACTOR.

10. HECO STAND–BY PERSONNEL
THE CONTRACTOR SHALL PAY FOR HECO APPROVED QUALIFIED STAND BY PERSONNEL TO PROVIDE OBSERVATION DURING CONSTRUCTION NEAR HECO’S FACILITIES.

THE CONTRACTOR SHALL CALL HECO’S CUSTOMER INSTALLATIONS DEPARTMENT AT 543–7846 A MINIMUM OF FIVE (5) WORKING DAYS IN ADVANCE TO NOTIFY HECO THAT CONSTRUCTION WORK WILL OCCUR NEAR HECO FACILITIES. CONTRACTOR SHALL ALSO PROVIDE THE NAME AND EMPLOYER OF THE STAND BY PERSON QUALIFIED TO OBSERVE CONSTRUCTION NEAR HECO FACILITIES.

11. CLEARANCES
THE FOLLOWING CLEARANCES SHALL BE MAINTAINED BETWEEN HECO’S DUCTLINE AND ALL ADJACENT STRUCTURES (CHARTED AND UNCHARTED) IN THE TRENCH:

MINIMUM SEPARATION CLEARANCES TO EXISTING UNDERGROUND DUCTLINES HORIZONTAL (PARALLEL):

UTILITY BEING INSTALLED	EXISTING DIRECT BURIED CABLE	EXISTING DIRECT BURIED IN CONDUIT (NO CONCRETE ENCASEMENT)	EXISTING 3" CONCRETE ENCASEMENT	APPLICABLE NOTES:
HECO DB CONDUITS	12"	3"	0"	
HECO 3" ENCASEMENT	0"	0"	0"	
TELEPHONE/CATV DB	12"	12"	6"	
TELEPHONE/CATV DB DUCTS	12"	12"	6"	
TELEPHONE/CATV 3" ENCASEMENT	0"	0"	0"	5
TRAFFIC SIGNAL	12"	12"	12"	
WATER DB	36"	36"	36"	1,4
WATER SERVICE LATERALS	12"	12"	12"	
WATER (CONCRETE JACKETED)	36"	36"	36"	1,4
GAS DB	12"	12"	12"	1
GAS (CONCRETE JACKETED)	12"	12"	12"	1
SEWER DB	36"	36"	36"	1,2
SEWER (CONCRETE JACKETED)	36"	36"	36"	1,2
DRAIN	12"	12"	12"	1
FUEL PIPELINES	48"	48"	48"	3

NOTES:

- WHERE SPACE IS AVAILABLE, PARALLEL CLEARANCE TO OTHER UTILITIES, OR FOREIGN STRUCTURES OTHER THAN COMMUNICATION OR TRAFFIC SIGNAL SHALL BE 36".
- IF 36" CLEARANCE CANNOT BE MET:
 - IF CLEARANCE IS LESS THAN 12", JACKET SEWER LINE WITH REINFORCED CONCRETE (PER HECO’S STD. 30–1030) FOR A DISTANCE OF 5’ PLUS PIPE DIAMETER.
 - IF CLEARANCE IS BETWEEN 12" AND 36", JACKET SEWER LINE WITH PLAIN CONCRETE.
- ELECTRICAL CONDUIT CROSSINGS OF FUEL LINES SHOULD BE KEPT A MINIMUM OF 48" CLEAR BELOW FUEL LINE FOR THE FULL EASEMENT WIDTH. IF THE 48" CLEARANCE CANNOT BE MET BUT THERE IS A MINIMUM OF 24", THE FUEL LINE MUST BE ENCASED WITH 6" OF CONCRETE.
- 5’ CLEAR TO WATER MAINS 16" AND LARGER.
- FOR SITUATIONS WITH 0" MINIMUM SEPARATION, A 6" SEPARATION IS RECOMMENDED.
- CLEARANCES MEASURED FROM OUTER EDGES OR DIAMETERS OF UTILITES.

MINIMUM SEPARATION CLEARANCES TO EXISTING UNDERGROUND DUCTLINES VERTICAL (CROSSING):

UTILITY BEING INSTALLED	EXISTING DIRECT BURIED CABLE	EXISTING DIRECT BURIED IN CONDUIT (NO CONCRETE ENCASEMENT)	EXISTING 3" CONCRETE ENCASEMENT	APPLICABLE NOTES:
HECO DB CONDUITS	6"	3"	0"	
HECO 3" ENCASEMENT	0"	0"	0"	
TELEPHONE/CATV DB	12"		6"	
TELEPHONE/CATV DB DUCTS	12"	12"	6"	
TELEPHONE/CATV 3" ENCASEMENT	0"	0"	0"	5
TRAFFIC SIGNAL	12"	12"	6"	
WATER DB	6"	6"	6"	2
WATER SERVICE LATERALS	6"	6"	6"	
WATER (CONCRETE JACKETED)	6"	6"	6"	2
GAS DB	12"	12"	12"	
GAS (CONCRETE JACKETED)	12"	12"	12"	
SEWER DB	24"	24"	24"	1
SEWER (CONCRETE JACKETED)	24"	24"	24"	1
DRAIN	12"	12"	12"	
FUEL PIPELINES	48"	48"	48"	3

NOTES:

- WHERE SPACE IS AVAILABLE, PARALLEL CLEARANCE TO OTHER UTILITIES, OR FOREIGN STRUCTURES OTHER THAN COMMUNICATION OR TRAFFIC SIGNAL SHALL BE 36".
- IF 36" CLEARANCE CANNOT BE MET:
 - IF CLEARANCE IS LESS THAN 12", JACKET SEWER LINE WITH REINFORCED CONCRETE (PER HECO’S STD. 30–1030) FOR A DISTANCE OF 5’ PLUS PIPE DIAMETER.
 - IF CLEARANCE IS BETWEEN 12" AND 36", JACKET SEWER LINE WITH PLAIN CONCRETE.
- ELECTRICAL CONDUIT CROSSINGS OF FUEL LINES SHOULD BE KEPT A MINIMUM OF 48" CLEAR BELOW FUEL LINE FOR THE FULL EASEMENT WIDTH. IF THE 48" CLEARANCE CANNOT BE MET BUT THERE IS A MINIMUM OF 24", THE FUEL LINE MUST BE ENCASED WITH 6" OF CONCRETE.
- 5’ CLEAR TO WATER MAINS 16" AND LARGER.
- FOR SITUATIONS WITH 0" MINIMUM SEPARATION, A 6" SEPARATION IS RECOMMENDED.
- CLEARANCES MEASURED FROM OUTER EDGES OR DIAMETERS OF UTILITES.

12. INDEMNITY
THE CONTRACTOR SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS HECO FROM AND AGAINST ALL LOSSES, DAMAGES, CLAIMS, AND ACTIONS, INCLUDING BUT NOT LIMITED TO REASONABLE ATTORNEY’S FEES AND COSTS BASED UPON OR ARISING OUT OF DAMAGE TO PROPERTY OR INJURIES TO PERSONS, OR OTHER TORTIOUS ACTS CAUSED OR CONTRIBUTED TO BY CONTRACTOR OR ANYONE ACTING UNDER ITS DIRECTION OR CONTROL OR ON ITS BEHALF; PROVIDED CONTRACTOR’S INDEMNITY SHALL NOT BE APPLICABLE TO ANY LIABILITY BASED UPON THE SOLE NEGLIGENCE OF HECO.

ADDITIONAL NOTES WHEN WORK INVOLVES CONSTRUCTION OF HECO FACILITIES

- SCHEDULE
CONTRACTOR SHALL FURNISH HIS CONSTRUCTION SCHEDULE SIX (6) MONTHS PRIOR TO STARTING WORK ON HECO FACILITIES. CONTRACTOR SHALL GIVE HECO, IN WRITING, THREE (3) MONTHS NOTICE TO PROCEED WITH HECO’S PORTION OF WORK.
- AUTHORITY
ALL CONSTRUCTION, RESTORATION WORK, AND INSPECTION SHALL BE SUBJECT TO WHICHEVER GOVERNMENTAL AGENCY HAS AUTHORITY OVER THE WORK.
- SPECIFICATIONS
CONSTRUCTION OF HECO’S UNDERGROUND FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REVISIONS OF HECO SPECIFICATIONS CS7001, CS7003, CS7202, CS9301, AND CS9401 AND APPLICABLE HECO STANDARDS. HECO SPECIFICATIONS CS7001, CS7003, CS7202, CS9301, AND CS9401 CAN BE FOUND AT WWW.HECO.COM.
- CONSTRUCTION
CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, AND SERVICES TO PROPERLY PERFORM AND FULLY COMPLETE ALL WORK SHOWN ON THE CONTRACT, DRAWINGS, AND SPECIFICATIONS. ALL MATERIALS SHALL BE NEW AND MANUFACTURED IN THE UNITED STATES OF AMERICA. ALL MANHOLE, HANDHOLE, AND DUCTLINE INSTALLATIONS SHALL BE INSPECTED AND APPROVED BY HECO PRIOR TO EXCAVATION AND PRIOR TO PLACING CONCRETE. CONTRACTOR SHALL NOTIFY HECO’S INSPECTION DIVISION AT 543–7520 AT LEAST 48 HOURS PRIOR TO PLACING CONCRETE.

CONTRACTOR TO COORDINATE WORK TO BREAK INTO HECO’S EXISTING ELECTRICAL FACILITIES WITH HECO’S INSPECTION DIVISION AT 543–7520 AT LEAST TEN (10) WORKING DAYS IN ADVANCE.
- STAKEOUT
THE CONTRACTOR SHALL ARRANGE FOR TONEOUTS OF ALL UNDERGROUND FACILITIES AND SHALL STAKEOUT ALL PROPOSED HECO FACILITIES WITHIN THE PROJECT AREA SO AS TO NOT CONFLICT WITH ANY UTILITY (EXISTING OR PROPOSED) AND ANY PROPOSED CONSTRUCTION OR IMPROVEMENT WORK FOR VERIFICATION BY HECO BEFORE PROCEEDING WITH HECO WORK.
- DUCTLINES
ALL DUCTLINE INSTALLATIONS SHALL BE PVC SCHEDULE 40 ENCASED IN CONCRETE, UNLESS OTHERWISE NOTED. ALL COMPLETED DUCTLINES SHALL BE MANDREL TESTED BY THE CONTRACTOR IN THE PRESENCE OF HECO’S INSPECTOR USING HECO’S STANDARD PRACTICE. THE CONTRACTOR SHALL INSTALL A 1/8" POLYOLEFIN PULL LINE IN ALL COMPLETED DUCTLINES AFTER MANDREL TESTING IS COMPLETE.
- AS–BUILT PLANS
THE CONTRACTOR SHALL PROVIDE HECO WITH TWO SETS OF AS–BUILT REPRODUCIBLE TRACINGS SHOWING THE OFFSETS, STATIONING, AND VERTICAL ELEVATION OF THE DUCT LINE(S) CONSTRUCTED.
- MISSING HECO STANDARDS/DETAILS/SPECIFICATIONS
SOME HECO STANDARDS, DETAILS, AND SPECIFICATIONS REFERENCED IN THESE DRAWINGS MAY NOT BE AVAILABLE PRIOR TO BIDDING. FOR ANY DOCUMENT NOT AVAILABLE, IT IS THE CONTRACTOR’S RESPONSIBILITY TO OBTAIN THE DOCUMENT FROM HECO AFTER AWARD CONTRACT.

IN CASE OF DAMAGE OR SUSPECTED DAMAGE, PLEASE IMMEDIATELY CONTACT:

- HECO TROUBLE DISPATCHER AT PH: 548–7961 (THIS PHONE NUMBER IS MANNED 24–HOURS A DAY)

DWG. NO.
ES002
SHEET 13 OF 17

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

SIGNATURE
LICENSE, EXP. DATE: APRIL 30, 2020

REVISION	DATE	BRIEF	MADE BY	APPROVED	
DEPARTMENT OF HAWAIIAN HOME LANDS STATE OF HAWAII					
WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS 89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707 TMK: 8-5-036:033 JOB NO.					
HECO NOTES					
DESIGNED BY: G7O		CHECKED BY: SD		DRAWN BY: AC	
		111 S. KING STREET, SUITE 170 HONOLULU, HAWAII 96813 808.523.5986 WWW.G7O.DESIGN		JANUARY 2019	

SITE ELECTRICAL GENERAL NOTES:

1. THE CONTRACTOR SHALL COMPLY WITH THE CONSTRUCTION PRACTICES AND REQUIREMENTS OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70), NATIONAL ELECTRICAL SAFETY CODE, AMERICAN ELECTRICIANS HANDBOOK BY CROFT EDISON ELECTRIC INSTITUTE, APPLICABLE INSTRUCTIONS OF MANUFACTURERS OF EQUIPMENT AND MATERIALS SUPPLIED FOR THE PROJECT, AND ALL ORDINANCES, RULES AND POLICIES OF THE STATE AND COUNTY IN WHICH THE WORK IS TO BE PERFORMED.
2. THE CONTRACTOR SHALL VISIT THE JOB SITE AND FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS AND THE EXTENT OF REMOVAL, RELOCATION, RECONNECTION AND/OR NEW WORK PRIOR TO BIDDING. BID SUBMISSION SHALL BE CONSIDERED AS EVIDENCE THAT THE CONTRACTOR HAS VISITED THE SITE AND RESOLVED ALL DISCREPANCIES AND QUESTIONS AND NO EXTRA PAYMENT WILL BE AUTHORIZED FOR WORK MADE NECESSARY BY THE CONTRACTOR'S FAILURE TO DO SO.
3. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL JUNCTION AND PULL BOXES REQUIRED FOR THE INSTALLATION OF ELECTRICAL DEVICES AND EQUIPMENT, WHETHER OR NOT SPECIFICALLY INDICATED ON THE PLANS. SIZING OF THESE BOXES SHALL BE PER THE NATIONAL ELECTRICAL CODE.
4. THE CONTRACTOR SHALL FURNISH ALL EQUIPMENT FOR TEMPORARY CONSTRUCTION POWER AS REQUIRED.
5. SHOULD PROJECT CONDITIONS REQUIRE REARRANGEMENT OF WORK, THE CONTRACTOR SHALL MARK SUCH CHANGES ON THE AS-BUILT DRAWINGS. IF THESE CHANGES REQUIRE ALTERNATE METHODS TO THOSE SPECIFIED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL SUBMIT DRAWINGS SHOWING THE PROPOSED ALTERNATE METHODS TO THE ENGINEER. THE CONTRACTOR SHALL NOT PROCEED UNTIL APPROVAL IS OBTAINED. REARRANGEMENT OF WORK FOR THE PURPOSE OF COORDINATION SHALL NOT BE CONSIDERED AN ITEM FOR EXTRA COST.
6. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. TESTING SHALL BE DONE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
7. TONE AND LOCATE ALL ELECTRICAL UTILITY LINES WITHIN THE PROJECT AREA PRIOR TO START OF EXCAVATION IN ORDER TO AVOID DAMAGE TO EXISTING UNDERGROUND UTILITIES. REPAIR ALL DAMAGES TO EXISTING UTILITIES AT NO COST TO THE GOVERNMENT.
8. REPAIR ANY DAMAGE TO EXISTING CONSTRUCTION RESULTING FROM THE INSTALLATION OF ELECTRICAL ITEMS. THE AREAS REPAIRED SHALL MATCH THE ADJACENT SURFACES IN TEXTURE AND COLOR.
9. PROVIDE DEWATERING EFFORT FOR NEW BELOW GRADE EXCAVATION/TRENCHING AND WORK IN UNDERGROUND STRUCTURES IF GROUND WATER IS ENCOUNTERED.
10. ALL ELECTRICAL SPLICES BELOW GRADE SHALL BE WATERPROOF.
11. ALL EXPOSED EXTERIOR SUPPORT CHANNELS, MOUNTING HARDWARE AND FASTENING DEVICES SHALL BE 304 STAINLESS STEEL, UNLESS OTHERWISE NOTED.
12. ALL MATERIAL, DEVICE AND WIRING LOCATED OUTDOORS SHALL BE RATED FOR WET CONDITIONS. JUNCTION BOXES AND CABINETS SHALL BE NEMA 4X 304 STAINLESS STEEL.
13. ALL COSTS FOR ELECTRICAL WORK SHALL BE INCLUDED IN THE CONTRACTOR'S BID PROPOSAL. PAY FOR ALL HECO INSPECTION FEES .
14. RESOLVE ANY DISCREPANCY OR QUESTION WITH THE ENGINEER PRIOR TO START OF ANY WORK.
15. ROUTING OF ELECTRIC, TELEPHONE, CATV, ROADWAY LIGHTING, AND OTHER UTILITY DUCTLINES:

A. SEPARATION BETWEEN ELECTRICAL DUCTS AND OTHER UNDERGROUND UTILITIES SHALL BE ACCORDING TO HECO STANDARDS FOR HECO UNDERGROUND DISTRIBUTION, AND NESC STANDARDS FOR ALL OTHER UNDERGROUND DISTRIBUTION, UNLESS NOTED OTHERWISE.
16. PROVIDE A NYLON PULL CORD IN ALL EMPTY CONDUITS.
17. FOR INTERRUPTION OF THE FLOW OF TRAFFIC, CONTRACTOR SHALL COORDINATE CONSTRUCTION WORK WITH THE CIVIL CONTRACTOR.
18. FOR INTERRUPTION OF ELECTRICAL POWER, CONTRACTOR SHALL COORDINATE CONSTRUCTION WORK WITH HECO.
19. SEE CIVIL DRAWINGS FOR ALL RECONSTRUCTION WORK OF SIDEWALK, ROADS, ETC.
20. PROVIDE 5/8"ø x 8'-0" COPPERWELD GROUND ROD FOR ALL NEW COMMUNICATION HANDHOLES. BOND ALL METAL PARTS OF TO GROUND ROD. COORDINATE WITH SANDWICH ISLES COMMUNICATIONS. SEE HECO DRAWINGS FOR ADDITIONAL REQUIREMENTS.

ABBREVIATIONS

- SIC SANDWICH ISLES COMMUNICATIONS
- HECO HAWAIIAN ELECTRIC COMPANY
- CATV CABLE TELEVISION
- DB DIRECT BURIED
- XFMR TRANSFORMER
- HH HANDHOLE

LEGEND

- E

ELECTRICAL MANHOLE OR HANDHOLE, SIZE/TYPE AS NOTED
- C

COMMUNICATIONS MANHOLE OR HANDHOLE, SIZE/TYPE AS NOTED
- C

UNDERGROUND DUCT, COMMUNICATIONS. SIZE AND QUANTITY AS NOTED.
- E

UNDERGROUND DUCT, ELECTRICAL. SIZE AND QUANTITY AS NOTED.

1

ES001

GENERAL NOTES

NOT TO SCALE

DWG. NO.

ES001

SHEET 12 OF 17

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

SIGNATURE

LICENSE EXP. DATE: APRIL 30, 2020

REVISION

DATE

BRIEF

MADE BY/APPROVED

DEPARTMENT OF HAWAIIAN HOME LANDS

STATE OF HAWAII

WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS

89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707

TMK: 8-5-036:033

JOB NO.

GENERAL NOTES

DESIGNED BY: G7O

CHECKED BY: SD

DRAWN BY: AC

G7O

111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5886
WWW.G7O.DESIGN

JANUARY 2019

FILE	POCKET	FOLDER	NO.

SANDWICH ISLES COMMUNICATIONS CONSTRUCTION NOTES

GENERAL:

ALL WORK SHALL BE IN STRICT ACCORDANCE WITH SPECIFICATIONS AND REQUIREMENTS OF THE RURAL UTILITIES SERVICES (RUS) AND SANDWICH ISLES COMMUNICATIONS (SIC), WHICH COMPLIES WITH ALL APPLICABLE CITY, COUNTY, STATE AND FEDERAL REQUIREMENTS.

ALL MATERIALS USED MUST BE APPROVED AND (OR) ACCEPTED BY SANDWICH ISLES COMMUNICATIONS, INC.

CONTRACTOR MAY REFER TO THE RUS WEBSITE (HTTPS://WWW.RD.USDA.GOV/PUBLICATIONS/REGULATIONS-GUIDELINES) FOR REGULATIONS, BULLETINS, FORMS, ETC.

CONTACT THE HAWAII ONE CALL CENTER AT (866) 423-7287 FOR LOCATING EXISTING UNDERGROUND FACILITIES PRIOR TO BEGINNING ANY EXCAVATION.

THE CONTRACTOR SHALL PROCURE AND PAY FOR ALL LICENSES AND PERMITS AND SHALL GIVE ALL NOTICES NECESSARY FOR PROSECUTION OF THE WORK.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WORK SCHEDULES WITH ALL UTILITY COMPANIES, COUNTY, OR STATE AGENCIES REQUIRED FOR THIS PROJECT. THIS IS TO INCLUDE COORDINATION OF ANY INSPECTION AND SPECIFICATIONS BY THOSE UTILITY COMPANIES, COUNTY, OR STATE AGENCIES.

THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS RELATING TO THIS PROJECT BEFORE COMMENCING THE REQUIRED WORK.

THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ENGINEER OF ANY DISCREPANCIES AND/OR CONDITIONS WHICH WOULD PREVENT HIM FROM FULFILLING THE TERMS OF THIS CONTRACT.

ALL SIC PULLBOXES THAT THE CONTRACTOR ENTERS FOR INSTALLATION OF FACILITIES MUST BE CLEARED OF STANDING WATER AND DEBRIS. CONTRACTOR SHALL ORGANIZE EXISTING CABLE FACILITIES, TO INCLUDE ADDING CABLE RACKS AND TYING DOWN EXISTING CABLE, IN ORDER TO ACCOMMODATE NEW FACILITIES BEING PLACED. CLEANING AND ORGANIZING OF PULLBOXES SHALL BE DONE TO THE SATISFACTION OF THE PROJECT MANAGER.

THE CONTRACTOR SHALL SUBMIT AS-BUILT DRAWINGS TO THE OWNER AT COMPLETION OF THE PROJECT. AS-BUILT DRAWINGS REFER TO DOCUMENTS MAINTAINED AND ANNOTATED BY THE CONTRACTOR DURING CONSTRUCTION AND INCLUDE ANY CHANGES OR NEW INFORMATION FOUND OR ADDED THROUGHOUT CONSTRUCTION OF THE PROJECT.

CONDUITS:

- ALL UNDERGROUND PVC CONDUITS, SWEEPS, COUPLINGS, ADAPTERS AND BELL ENDS SHALL BE SCHEDULE 40, UNLESS OTHERWISE SPECIFIED.
- ALL HIGH DENSITY POLYETHYLENE CONDUITS SHALL BE SDR 11. TYPICAL 3-PACK UNIT INCLUDES THREE 1.5-INCH SDR 11 RATED CONDUITS IN THE COLORS OF BLACK, RED, AND ORANGE, UNLESS OTHERWISE SPECIFIED. ALL CONDUITS TO BE PRESSURE TESTED AT 120 PSI. FUSION SPLICING OF THE CONDUIT SHALL BE ACCEPTABLE ONLY WHEN PULLING JOINTS THROUGH BORES. ALL COUPLINGS SHALL BE DOUBLE "E-LOC" MANUFACTURED BY ETOC SPECIALTY PRODUCTS, INC.
- MAIN CONDUIT RUNS, EXCEPT RISER CONDUITS, SHALL BE CONSTRUCTED WITH MINIMUM 6-FOOT RADIUS CURVES, UNLESS OTHERWISE APPROVED BY THE PROJECT MANAGER.
- AFTER THE CONDUITS ARE INSTALLED, A ROUND SOLID MANDREL NOT LESS THAN 12-INCHES IN LENGTH AND HAVING A DIAMETER OF 1/4-INCH LESS THAN THE INSIDE DIAMETER OF THE CONDUIT SHALL BE PULLED THROUGH EACH CONDUIT. THE SIC PROJECT MANAGER SHALL BE PRESENT DURING ALL MANDREL TESTING. SUFFIXES LISTED IN RUS 515B FOR CONDUITS ARE APPLICABLE.
- INSTALL MULETAPE IN ALL PVC CONDUITS TWO (2) INCH DIAMETER AND LARGER. THE NEPTCO MULETAPE (OR APPROVED EQUAL) IS AVAILABLE IN 3,000FT., 6,500FT., AND 10,000FT. REELS FROM WESTINGHOUSE ELECTRIC SUPPLY COMPANY (WESCO), THE NEPTCO MULETAPE IS PRE-LUBRICATED AND PRINTED WITH SEQUENTIAL FOOTAGE MARKINGS. PVC CONDUITS WITH A DIAMETER OF 1.5-INCH OR LESS SHALL HAVE A POLY-LINE (P-LINE) INSTALLED. ALL DUCTS SHALL BE SEALED AFTER MULETAPE/P-LINE HAS BEEN INSTALLED, FOLLOWING THE SPECIFICATIONS BELOW.
- ALL CONDUITS AND DUCTS SHALL BE PROPERLY SEALED USING COMMSCOPE, JACKMOON DUCT SEALS, APPLICABLE BUSHING SLEEVES AND BLANK DUCT PLUGS. THE CONDUIT DIAMETER, INSIDE DIAMETER AND CABLE SIZE(S) SHALL BE TAKEN INTO CONSIDERATION WHEN ORDERING AND INSTALLING "JACKMOON" DUCT SEALS.

COMMSCOPE JACKMOON SEALS SHALL BE:
2-INCH CONDUIT: TRIPLEX DUCT SEALS, SERIES 70
3-INCH CONDUIT: TRIPLEX DUCT SEALS, SERIES 136
3.5-INCH AND LARGER CONDUIT: QUADPLEX DUCT SEALS, SERIES 136

ALL OTHER DUCTS SHALL HAVE COMMSCOPE, BLANK JACKMOON PLUGS TO KEEP THEM FREE OF WATER AND DEBRIS.

- CONDUIT STUBS FROM HANDHOLES TO INDIVIDUAL RESIDENTIAL LOTS SHALL BE SCHEDULE 40 PVC, 1-INCH DIAMETER AND EXTENDED 5-FEET BEYOND PROPERTY LINE. CAP AND SEAL END AND MARK LOCATIONS WITH ABOVE GROUND MARKER.
- ALL CONDUITS SHALL ENTER MANHOLES AT A 90 DEGREE ANGLE AND SHALL EXTEND INTO THE MANHOLE AS FOLLOWS: CONDUITS DESIGNATED FOR FIBER SHALL EXTEND 12-INCHES INTO THE MANHOLE. ALL OTHER CONDUITS SHALL BE FLUSH WITH THE INSIDE WALL AND INCLUDE BELL ENDS. ANY EXCEPTIONS SHALL ONLY BE PERMITTED WHEN SPECIFIED BY THE PROJECT MANAGER.
- ALL CONDUITS ENTERING MANHOLES OR HANDHOLES SHALL BE GROUTED BETWEEN THE CONDUITS AND SIDEWALL, INSIDE AND OUT. ALL CONDUITS WILL ENTER THE MANHOLES AND HANDHOLES ON THE PROPERTY SIDE AT ALL TIMES UNLESS OTHERWISE SPECIFIED BY THE PROJECT MANAGER.
- BACKFILL AND COMPACTION FOR DUCTLINE TRENCHES, MANHOLES AND HANDHOLES, SHALL BE IN ACCORDANCE WITH:
 - STATE HIGHWAY DEPARTMENTS STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION WITH LATEST AMENDMENTS, IF CONSTRUCTION IS LOCATED UNDER A STATE STREET OR ROAD, OR LOCATED IN PRIVATE PROPERTY.
 - THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND PUBLIC WORKS CONSTRUCTION, DATED 1994, OF THE DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU, WITH LATEST AMENDMENTS; COUNTY OF KAUAI, MAUI, OR HAWAII, AS THE CASE MAY BE, IF CONSTRUCTION IS LOCATED UNDER COUNTY STREETS AND ROADS.
- BACKFILLING SHALL BE SUBJECT TO THE APPROVAL OF THE SIC PROJECT MANAGER, THE AUTHORIZED REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION, STATE OF HAWAII AND/OR DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU, COUNTY OF KAUAI, MAUI OR HAWAII, AS THE CASE MAY BE.
- A THIRD PARTY GEOTECHNICAL ENGINEER, LICENSED AND INSURED IN THE STATE OF HAWAII, MUST CERTIFY THAT THE EXCAVATED AREA MEETS THE GOVERNING AGENCIES AND/OR OWNERS' STANDARDS FOR BACKFILL AND COMPACTION.
- EXCAVATED MATERIAL MAY BE REUSED AS BACKFILL, PROVIDING THAT IT CONFORMS TO REQUIREMENTS OF TYPE "A" AND TYPE "B" BACKFILL, AS REQUIRED WITHIN THE STANDARD SPECIFICATIONS. A WRITTEN SOILS REPORT OF CONFORMANCE BY A LICENSED THIRD PARTY GEOTECHNICAL ENGINEER IS NEEDED PRIOR TO BACKFILL USING THE EXCAVATED MATERIAL.
 - TYPE A BACKFILL IS DEFINED AS BEACH SAND, EARTH OR EARTH AND GRAVEL. MAXIMUM PARTICLE SIZE SHALL BE 1-INCH AND MIXTURE SHALL NOT CONTAIN MORE THAN 20% BY VOLUME OF ROCK PARTICLES.
 - TYPE B BACKFILL IS DEFINED AS BEACH SAND, EARTH OR EARTH AND GRAVEL. MAXIMUM PARTICLE SIZE SHALL BE 1/2-INCH AND MIXTURE SHALL NOT CONTAIN MORE THAN 20% BY VOLUME OF ROCK PARTICLES.
- ALL CONDUIT RUNS SHALL HAVE A 3-INCH NON-METALLIC WARNING TAPE PLACED 12-INCHES ABOVE THE CONDUIT RUN. THE TAPE SHALL READ "CAUTION BURIED FIBER OPTIC CABLE BELOW".

MANHOLES AND HANDHOLES:

- ALL MANHOLES SHALL HAVE HS20-44 TRAFFIC LOADING COVERS (UNLESS OTHERWISE NOTED). HANDHOLES SHALL HAVE 20K TRAFFIC LOAD RATED COVERS.
- ALL MANHOLE AND HANDHOLE COVERS SHALL HAVE COVER LOGO TO READ "SIC".
- ALL MANHOLE AND HANDHOLE COVER BOLTS SHALL BE STAINLESS STEEL 3/4-INCH PENTAHEAD, UNLESS OTHERWISE NOTED.
- ALL MANHOLES AND HANDHOLES ARE SPECIFIED AS FOLLOWS:
 - UM35 AND UM46 MANHOLE - CONSISTS OF A REINFORCED CONCRETE MANHOLE WITH CAST IRON LID AND RISERS (IF REQUIRED). ALL MANHOLES ARE UNDER MASTER PURCHASE AGREEMENT WITH HAWAII PRECAST, INC. LOCATED IN CAPTAIN COOK, HAWAII (808-326-7730).
 - UH35 AND UH46 HANDHOLE - CONSISTS OF A REINFORCED CONCRETE HANDHOLE WITH TRAFFIC RATED HINGED COVERS (UH35) OR SIX TRAFFIC RATED SLIP-NOT COVERS (UH46) AND RISERS (IF REQUIRED). ALL HANDHOLES ARE UNDER MASTER PURCHASE AGREEMENT WITH HAWAII PRECAST, INC. LOCATED IN CAPTAIN COOK, HAWAII (808-326-7730).
 - UHC30X48X33 HANDHOLE (PULLBOX) - CONSISTS OF A TWO-TIER ARMORCAST POLYMER CONCRETE BOX & COVER ASSEMBLY. PART NUMBER (A6001430TA-SIC4).
 - UHC13X24X30 HANDHOLE (PULLBOX) - CONSISTS OF AN ARMORCAST POLYMER CONCRETE BOX & COVER ASSEMBLY. PART NUMBER (A6001946TA-SIC1).
- ALL MANHOLES AND HANDHOLES TO BE ORDERED WITH ALL HARDWARE, INCLUDING CABLE RACKS, STEPS AND LOCKS.
- SET MANHOLE OR HANDHOLE ON A LEVEL AREA, IN THE BOTTOM OF THE EXCAVATION, ON A 4-INCH LAYER OF CRUSHED ROCK, FOR DRAINAGE PURPOSES.
- THE BASE OF ALL MANHOLES AND HANDHOLES WILL BE PLACED LEVEL. SOME MANHOLES HAVE ADJUSTABLE FRAMES. ALL VOIDS CREATED DURING INSTALLATION MUST BE FILLED WITH MORTAR MIX OR CONCRETE. THIS IS ESPECIALLY TRUE FOR MANHOLES AND HANDHOLES SET IN ROADWAYS.
- BEFORE BACKFILLING AND COMPACTING, MAKE SURE COVERS ARE IN PLACE AND SECURE. LAYER 6-INCHES TO 8-INCHES OF BACKFILL MATERIAL AROUND THE MANHOLE OR HANDHOLE. TAMP EACH INDIVIDUAL LAYER OF BACKFILL MATERIAL. CONTINUE THE LAYERING AND "TAMPING" UNTIL FINAL GRADE IS ACHIEVED.
- THE TOPS OF ALL MANHOLES AND HANDHOLES SHALL BE FLUSH TO GRADE IN PAVED AREAS OR 1-INCH ABOVE FINISH GRADE IN NON-PAVED AREAS, UNLESS OTHERWISE SPECIFIED BY PROJECT MANAGER.
- PROVIDE A 5/8-INCH DIAMETER X 8-FOOT COPPER CLAD GROUND ROD AT HANDHOLES AND MANHOLES AS SPECIFIED ON THE DRAWINGS OR AS DIRECTED BY THE PROJECT MANAGER.
- FIELD MODIFICATIONS ARE ACCOMPLISHED BY USING A FINE TOOTHED SAW. RACKS OR OTHER EQUIPMENT MAY BE SECURED TO THE SIDE OF THE VAULT BY USE OF TOGGLE BOLTS, MOLLY BOLTS, ETC. AND MUST BE APPROVED BY THE PROJECT MANAGER.

REVISION	DATE	BRIEF	MADE BY	APPROVED

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII

WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS
89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707
TMK: 8-5-036:033
JOB NO.

SANDIWCH ISLE NOTES

DESIGNED BY: G7O CHECKED BY: SD DRAWN BY: AC

 111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5986
WWW.G7O.DESIGN

SIGNATURE
LICENSE EXP. DATE: APRIL 30, 2020

JANUARY 2019

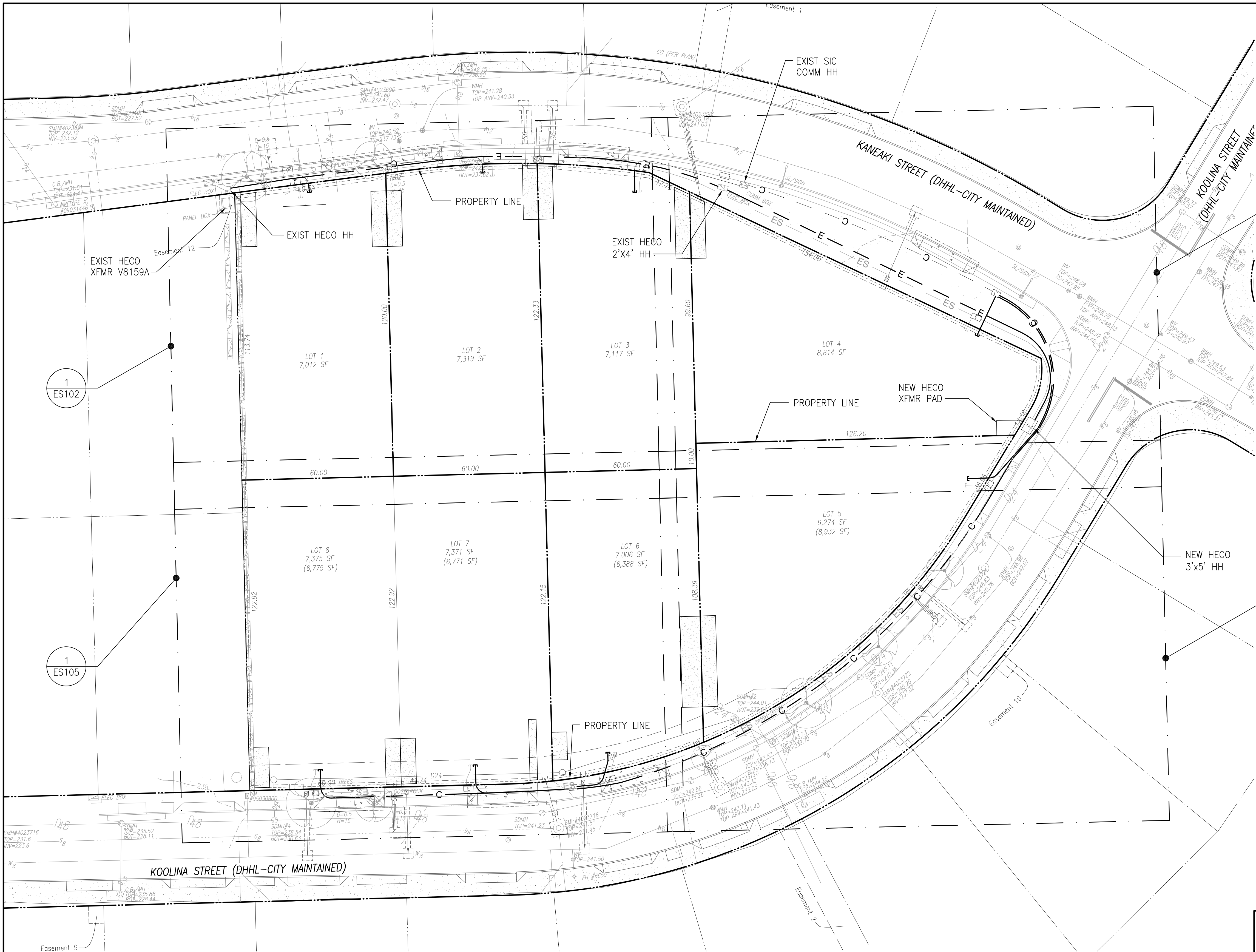
1
ES003

SANDWICH ISLE COMMUNICATION NOTES

NOT TO SCALE

DWG. NO.
ES003
SHEET 12 OF 17

FILE	POCKET	FOLDER	NO.



1
ES103

LEGEND:

- E — PRIMARY ELECTRICAL
- ES — SECONDARY ELECTRICAL
- C — COMMUNICATION LINE
- [C] COMMUNICATION HAND HOLE
- [E] ELECTRICAL HAND HOLE
- PROPERTY LINE

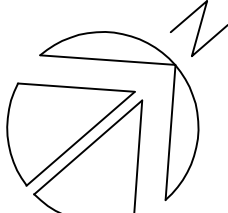
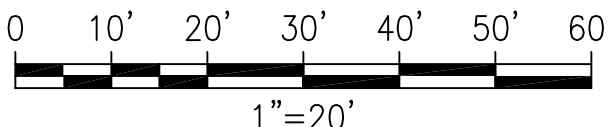
1
ES104

APPROVED:

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.

DATE

1
ES101 ELECTRICAL AND COMMUNICATIONS OVERALL SITE PLAN
SCALE: 1"=20'



DWG. NO.
ES101
SHEET 14 OF 17

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

SIGNATURE
LICENSE EXP. DATE: APRIL 30, 2020

REVISION	DATE	BRIEF	MADE BY	APPROVED

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII

WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS
89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707
TMK: 8-5-036:033
JOB NO.

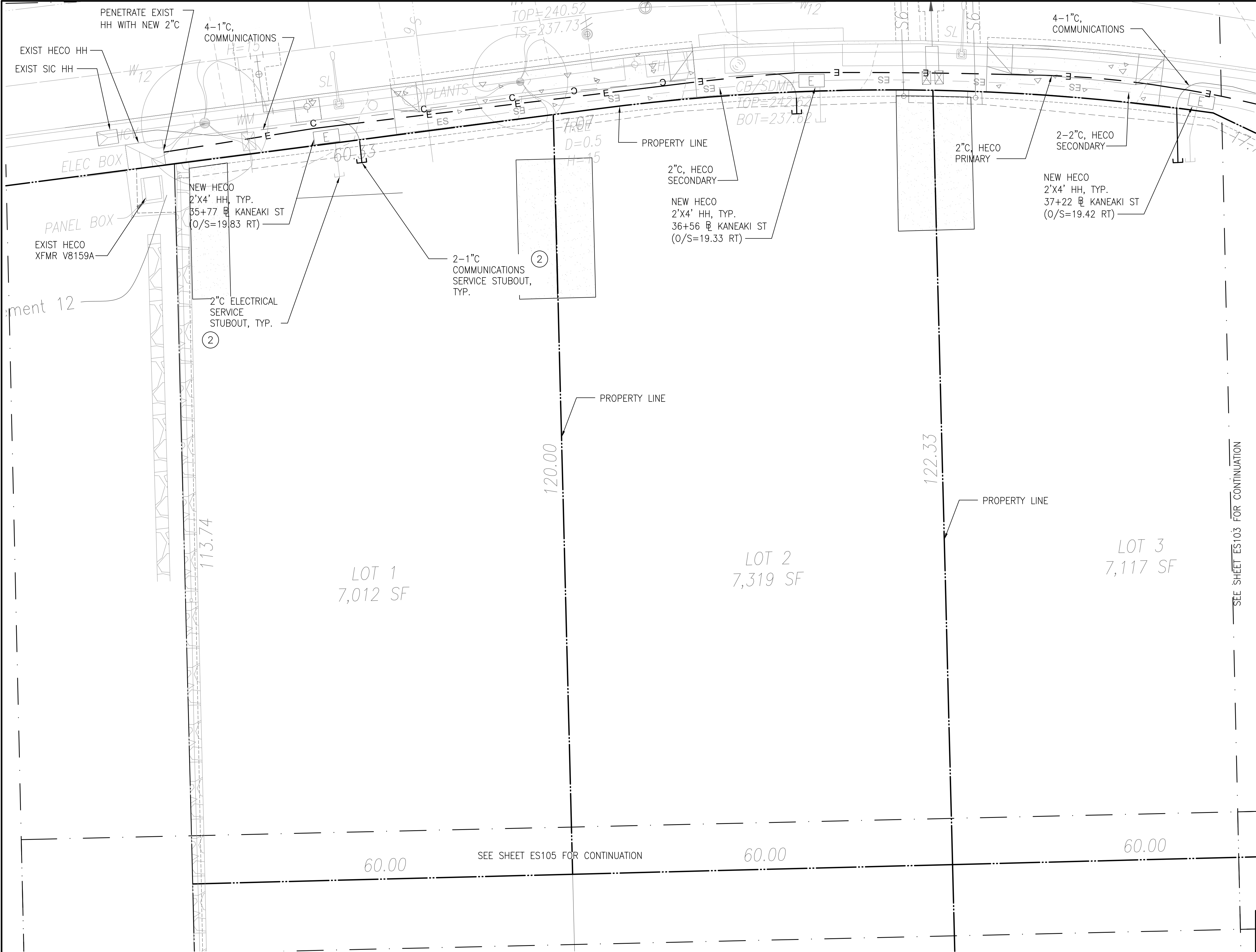
ELECTRICAL AND COMMUNICATIONS SITE PLAN

DESIGNED BY: G70 CHECKED BY: SD DRAWN BY: AC

G70 111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5996
WWW.G70DESIGN.COM

JANUARY 2019

FILE	POCKET	FOLDER	NO.
------	--------	--------	-----



- KEYNOTES

 - ① INTERCEPT EXISTING DUCTLINE
 - ② DIRECT BURIED, TYPICAL ALL STUBOUTS.
- GENERAL NOTES

 - 1. CONCRETE ENCASE ALL DUCTS UNDER SIDEWALK AND DRIVEWAYS.
- LEGEND:

	PRIMARY ELECTRICAL
	SECONDARY ELECTRICAL
	COMMUNICATION LINE
	COMMUNICATION HAND HOLE
	ELECTRICAL HAND HOLE
	PROPERTY LINE

APPROVED: _____ DATE _____

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.

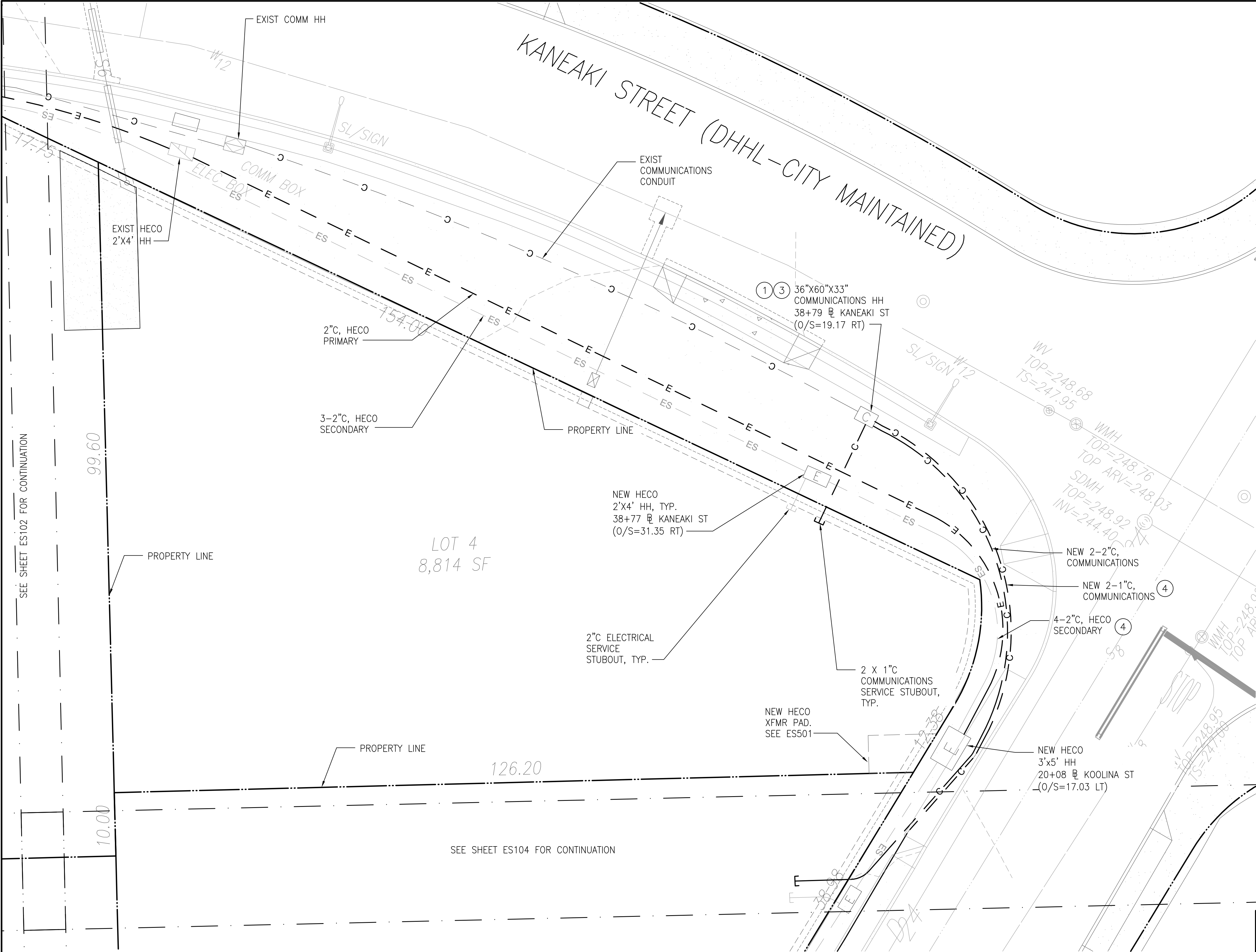
1 ENLARGED ELECTRICAL AND COMMUNICATIONS SITE PLAN
ES102 SCALE: 1:100

DWG. NO.
ES102
SHEET 15 OF 17

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

SIGNATURE
LICENSE EXP. DATE: APRIL 30, 2020

REVISION	DATE	BRIEF	MADE BY	APPROVED
DEPARTMENT OF HAWAIIAN HOME LANDS STATE OF HAWAII				
WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS 89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707 TMK: 8-5-036:033 JOB NO.				
ENLARGED ELECTRICAL AND COMMUNICATIONS SITE PLAN				
DESIGNED BY: G70	CHECKED BY: SD	DRAWN BY: AC		
		111 S. KING STREET, SUITE 170 HONOLULU, HAWAII 96813 808.523.5986 WWW.G70.DESIGN		
SIGNATURE		JANUARY 2019		



- KEYNOTES**
- ① INTERCEPT EXISTING DUCTLINE
 - ② DIRECT BURIED, TYPICAL ALL STUBOUTS.
 - ③ SEE SANDWICH ISLES COMMUNICATIONS STANDARD DRAWING UM35 INTERCEPT (ATTACHED)
 - ④ DO NOT ROUTE UNDER RAMP.
- GENERAL NOTES**
- 1. CONCRETE ENCASE ALL DUCTS UNDER SIDEWALK AND DRIVEWAYS.
- LEGEND:**
- E — PRIMARY ELECTRICAL
 - ES — SECONDARY ELECTRICAL
 - C — COMMUNICATION LINE
 - C COMMUNICATION HAND HOLE
 - E ELECTRICAL HAND HOLE
 - PROPERTY LINE

APPROVED: _____ DATE _____
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.

1 ENLARGED ELECTRICAL AND COMMUNICATIONS SITE PLAN
ES103 SCALE: 1:100

DWG. NO.
ES103
SHEET 16 OF 17

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

SIGNATURE
LICENSE EXP. DATE: APRIL 30, 2020

REVISION	DATE	BRIEF	MADE BY	APPROVED

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII

WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS
89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707
TMK: 8-5-036:033
JOB NO.

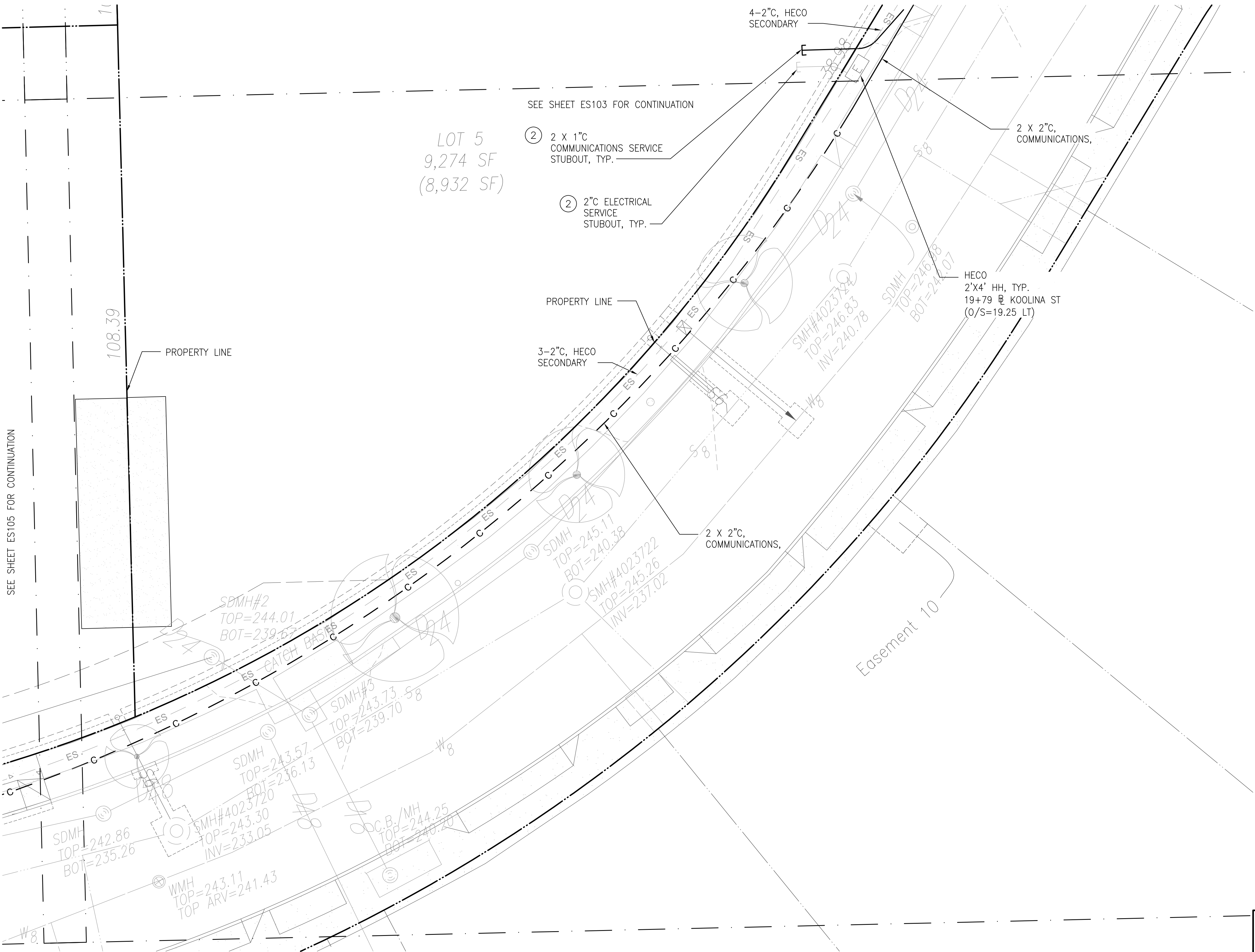
ENLARGED ELECTRICAL AND COMMUNICATIONS SITE PLAN

DESIGNED BY: G7O CHECKED BY: SD DRAWN BY: AC

G7O 111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5986 WWW.G7O.DESIGN

JANUARY 2019

SEE SHEET ES105 FOR CONTINUATION



1
ES104

ENLARGED ELECTRICAL AND COMMUNICATIONS SITE PLAN
SCALE: 1:100

DWG. NO.
ES104
SHEET 17 OF 17

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

SIGNATURE
LICENSE EXP. DATE: APRIL 30, 2020

KEYNOTES

- 1 INTERCEPT EXISTING DUCTLINE
- 2 DIRECT BURIED, TYPICAL ALL STUBOUTS.
- 3 SEE SANDWICH ISLES COMMUNICATIONS STANDARD DRAWING A6001430TS-SIC4 (ATTACHED)

GENERAL NOTES

1. CONCRETE ENCASE ALL DUCTS UNDER SIDEWALK AND DRIVEWAYS.

LEGEND:

- E — PRIMARY ELECTRICAL
— ES — SECONDARY ELECTRICAL
— C — COMMUNICATION LINE
[C] COMMUNICATION HAND HOLE
[E] ELECTRICAL HAND HOLE
- - - - - PROPERTY LINE

APPROVED:

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.

DATE

REVISION	DATE	BRIEF	MADE BY	APPROVED

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII
WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS
89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707
TMK: 8-5-036:033
JOB NO.

ENLARGED ELECTRICAL AND COMMUNICATIONS SITE PLAN

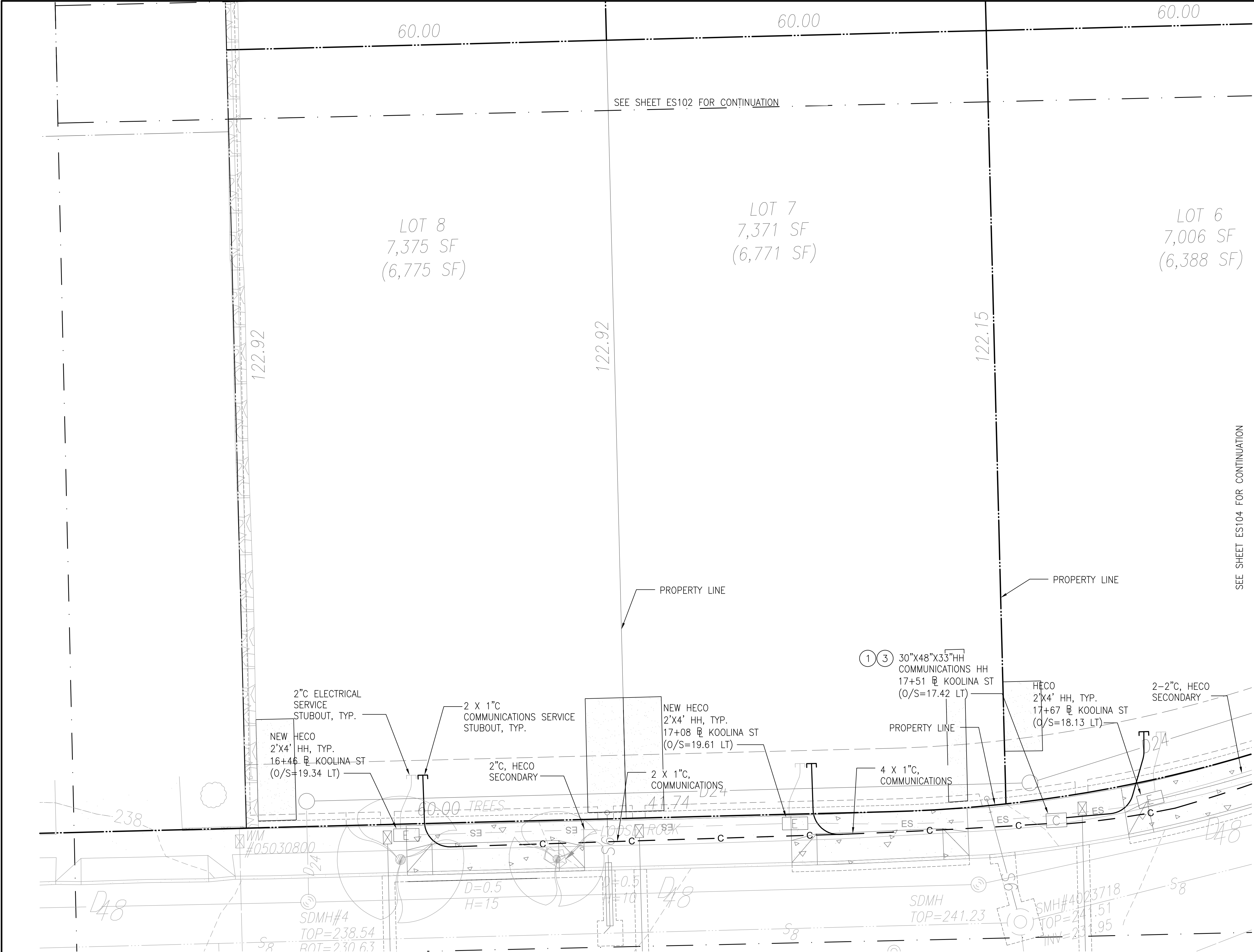
DESIGNED BY: G70 CHECKED BY: SD DRAWN BY: AC

G70

111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5986
WWW.G70DESIGN

JANUARY 2019

FILE POCKET FOLDER NO.



- KEYNOTES**
- 1 INTERCEPT EXISTING DUCTLINE
 - 2 DIRECT BURIED, TYPICAL ALL STUBOUTS.
 - 3 SEE SANDWICH ISLES COMMUNICATIONS STANDARD DRAWING A6001430TS-SIC4 (ATTACHED)
- GENERAL NOTES**
1. CONCRETE ENCASE ALL DUCTS UNDER SIDEWALK AND DRIVEWAYS.
- LEGEND:**
- E — PRIMARY ELECTRICAL
 - ES — SECONDARY ELECTRICAL
 - C — COMMUNICATION LINE
 - [C] COMMUNICATION HAND HOLE
 - [E] ELECTRICAL HAND HOLE
 - PROPERTY LINE

SEE SHEET ES104 FOR CONTINUATION

APPROVED: _____ DATE _____
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.

REVISION	DATE	BRIEF	MADE BY	APPROVED

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII
WAIANAE VALLEY INCREMENT 4 SITE IMPROVEMENTS
89-1409 KANEAKI STREET, WAIANAE HAWAII, 96707
TMK: 8-5-036:033
JOB NO.

ENLARGED ELECTRICAL AND COMMUNICATIONS SITE PLAN

DESIGNED BY: G70 CHECKED BY: SD DRAWN BY: AC

G70 111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5996
WWW.G70DESIGN.COM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

SIGNATURE _____
LICENSE EXP. DATE: APRIL 30, 2020

JANUARY 2019

1 ENLARGED ELECTRICAL AND COMMUNICATIONS SITE PLAN
ES105 SCALE: 1:100

DWG. NO.
ES105
SHEET 18 OF 17