



STATE OF HAWAII  
DEPARTMENT OF HAWAIIAN HOME LANDS  
91-5420 Kapolei Parkway,  
Kapolei, HI. 96707

# Plans

FOR

## **La'i 'Ōpua Village 5 Street Light Replacement**

RFQ-22-LDD-007

September 2021



# STREET & UTILITY PLANS FOR LA'T'OPUA VILLAGE 5 SUBDIVISION

KAILUA-KONA, NORTH KONA, HAWAII

OWNER / DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
1099 ALAKEA STREET, SUITE 1230  
HONOLULU, HAWAII 96813

TAX MAP KEY : (3) 7-4-21:6 & (3) 7-4-027:001-118  
SUBDIVISION APPLICATION NO: SUB-05-000171  
DPW FOLDER: 74139-B

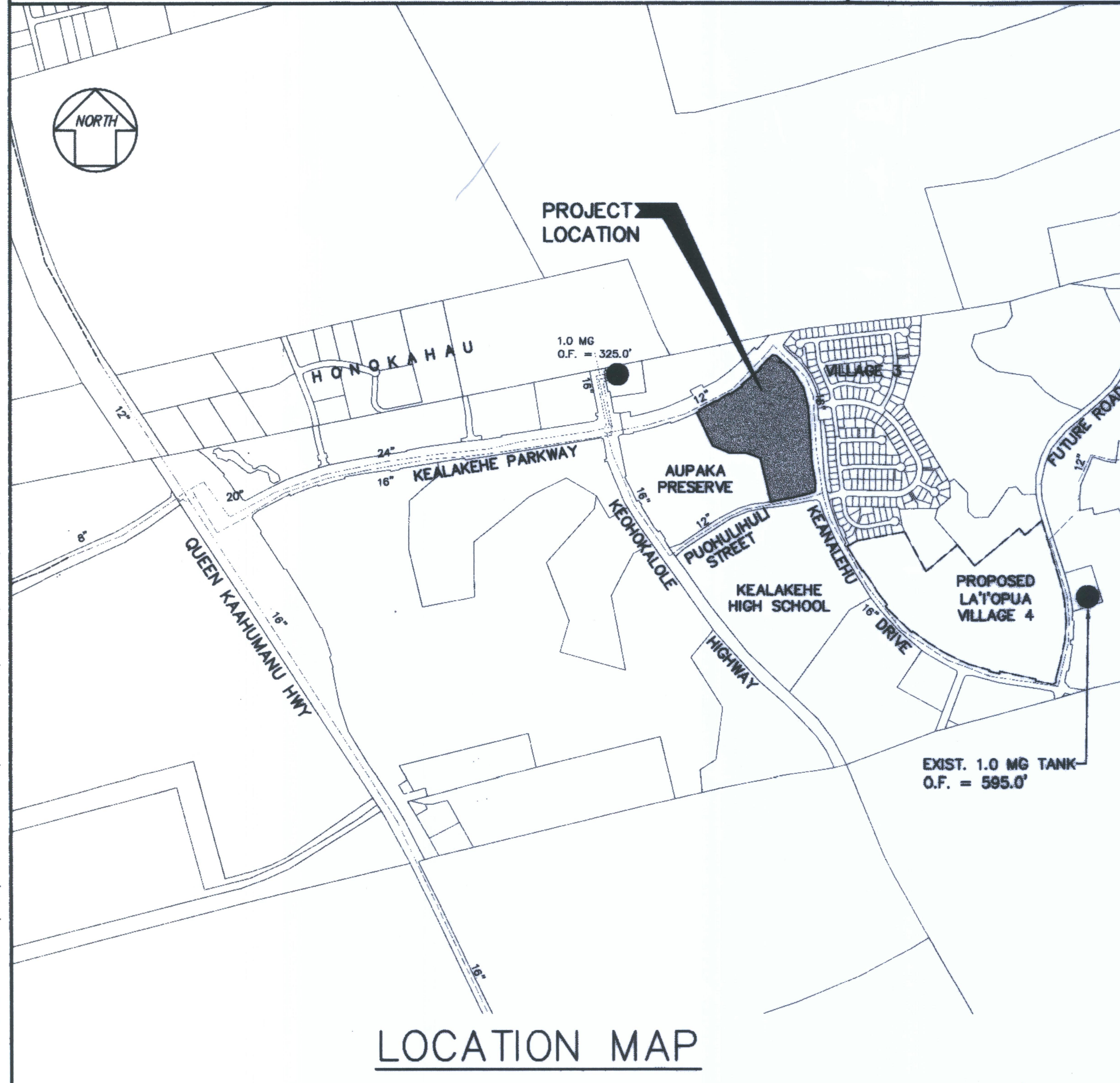
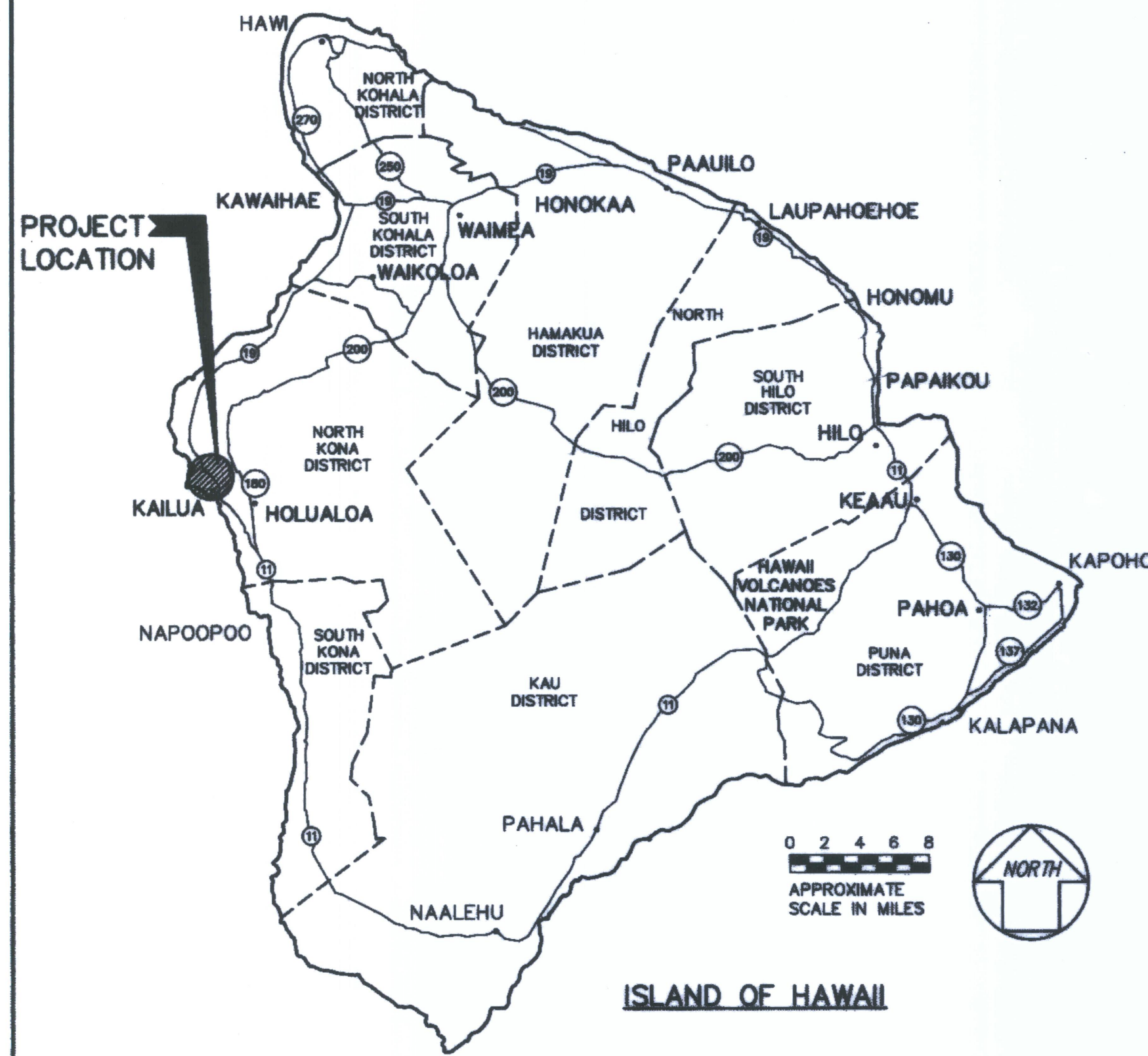
PREPARED BY:  
AKINAKA & ASSOCIATES, LTD.  
3049 UALENA ST., SUITE 500  
HONOLULU, HAWAII 96817

**AS-BUILT**

THIS SET OF "AS-BUILT" DRAWINGS IS BASED ON INFORMATION PROVIDED BY THE CONTRACTOR'S FIELD POSTED "AS-BUILT" DRAWINGS AND HAS NOT BEEN FIELD VERIFIED. "AS-BUILT" DRAWINGS ARE DEFINED AS RECORD DOCUMENTS PREPARED BY THE CONSULTANT UPON THE COMPLETION OF CONSTRUCTION BASED UPON THE DRAWINGS AND OTHER DATA FURNISHED TO THE CONSULTANT BY THE CONTRACTOR AND OTHERS SHOWING SIGNIFICANT CHANGES IN THE WORK MADE DURING CONSTRUCTION. THE CONSULTANT HAS NOT VERIFIED THE ACCURACY AND/OR THE COMPLETENESS OF THIS INFORMATION AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS THAT MAY BE INCORPORATED AS A RESULT OF ERRONEOUS INFORMATION PROVIDED BY OTHERS.

AS-BUILT  
Certified By: *[Signature]* Date: 6/12/12  
Contractor: *[Signature]*  
Submitted By: *[Signature]* Date: 5/20/12  
Consultant: Akinaka & Associates, Ltd.

NOTE:  
FINAL SUBDIVISION APPROVAL WAS GRANTED BY THE COUNTY OF HAWAII, PLANNING DEPARTMENT IN LETTERS DATED MAY 10, 2010 AND AUGUST 2, 2010.



**APPROVED BY:**

*[Signature]* 4-29-09  
DATE  
CHAIRMAN, HAWAIIAN HOMES COMMISSION  
STATE OF HAWAII

*[Signature]* 4/29/09  
DATE  
DIRECTOR, PLANNING DEPARTMENT  
COUNTY OF HAWAII

*[Signature]* 4/29/09  
DATE  
DIRECTOR, DEPARTMENT OF PUBLIC WORKS  
COUNTY OF HAWAII  
(PUD PERMIT 05-000003)

*[Signature]* 4/23/09  
DATE  
DIRECTOR, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
COUNTY OF HAWAII

*[Signature]* 4/22/09  
DATE  
MANAGER, DEPARTMENT OF WATER SUPPLY  
COUNTY OF HAWAII

*[Signature]* 4/23/09  
DATE  
DEPARTMENT OF HEALTH, STATE OF HAWAII

*[Signature]* 4-22-09  
DATE  
ADMINISTRATOR, HIGHWAYS DIVISION  
DEPARTMENT OF TRANSPORTATION, STATE OF HAWAII  
(APPROVAL GRANTED FOR WORK WITHIN STATE RIGHT-OF-WAY)  
APPROVAL LETTER NO. HWY-H 09-2.0356 DATE 4-22-09  
I.D. NO.

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**AS-BUILT**

Last Save by: JCT  
Last Saved: 4/20/2009  
Plotted on: 4/20/2009  
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LA'TOPUA VILLAGE, VILLAGE 5 SUBDIVISION STREET & UTILITY PLAN

**GENERAL NOTES**

- ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH STANDARD DETAILS AND STANDARD SPECIFICATIONS OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII.
- THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING VALVE BOXES, MANHOLE COVERS AND CENTERLINE MONUMENTS AND SHALL HAVE THEM RAISED TO MEET THE NEW PAVEMENT GRADE.
- EXISTING PAVEMENT SHALL BE BROOMED OFF AND SHALL RECEIVE A TACK COAT OF 0.15 GALLON PER SQUARE YARD OF EMULSIFIED ASPHALT (SS-1) BEFORE PLACING A.C. PAVEMENT. THE COST OF THE TACK COAT SHALL BE INCIDENTAL TO THE A.C. PAVEMENT.
- THE CONTRACTOR SHALL PAVE THE TOTAL WIDTH OF ROADWAY EACH DAY SO AS NOT TO LEAVE A LONGITUDINAL PAVEMENT DROP BETWEEN LANE PASSES OF THE PAVER. HOWEVER, AT THE DISCRETION OF THE ENGINEER, THE CONTRACTOR MAY CONSTRUCT A TRANSITION TAPER (1' WIDE) SO AS NOT TO LEAVE A VERTICAL FACE.
- THE CONTRACTOR SHALL PROVIDE A SMOOTH-RIDING CONNECTION TO EXISTING STREETS AND DRIVEWAYS AND AT THE BEGINNING AND ENDING OF THE PROJECT LIMITS AS DIRECTED BY THE ENGINEER.
- PAVEMENT STRIPING, INCLUDING CENTERLINE, CROSSWALK, STOP LINES, ETC. AND RAISED PAVEMENT MARKERS SHALL CONFORM TO THE COUNTY STANDARDS FOR PAVEMENT MARKINGS AND STRIPING NOTES OR AS MODIFIED BY THE DETAILS ON THESE PLANS.
- THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AND SURROUNDING AREAS FREE FROM DUST NUISANCES. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL RULES OF THE STATE DEPARTMENT OF HEALTH, HAR 11-60.1, FUGITIVE DUST.
- THE CONTRACTOR SHALL PROVIDE AT LEAST ONE (1) LANE FOR TRAFFIC MOVEMENT AT ALL TIMES. TWO (2) LANES FOR TRAFFIC MOVEMENT SHALL BE PROVIDED BETWEEN THE HOURS OF 3:30 P.M. TO 8:00 A.M.
- THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL COORDINATE THE REFERENCING OF THE CENTERLINE MONUMENTS TO BE RECONSTRUCTED BY A SURVEYOR LICENSE TO PRACTICE IN THE STATE OF HAWAII. AFTER PAVING, THE SURVEYOR SHALL LOCATE THE MONUMENTS, AND AFTER RECONSTRUCTION OF THE MONUMENTS, THE SURVEYOR SHALL PUNCH THE CENTERLINE LOCATION ON THE BRASS PINS. THE SURVEYOR SHALL SUBMIT WRITTEN CERTIFICATION OF THE INSTALLATION AND LOCATION OF THE CENTERLINE MONUMENTS TO THE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE DONE TO THE DWS EXISTING WATER SYSTEM.

**CONSTRUCTION NOTES**

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE COUNTY OF HAWAII, DEPARTMENT OF PUBLIC WORKS "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION," DATED SEPTEMBER 1984, AND "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" DATED SEPTEMBER 1986.
- CONSTRUCTION SHALL BE DONE IN SUBSTANTIAL CONFORMANCE WITH THE SUBSURFACE INVESTIGATION REPORT, "LAIOPUA VILLAGES 5 KEALAKEHE, HAWAII, HAWAII" DATED SEPTEMBER 22, 2005, BY FEWELL GEOTECHNICAL ENGINEERING, LTD. WHERE APPLICABLE.
- THE ENGINEER RESERVES THE RIGHT TO MAKE CHANGES TO THE DRAINAGE SYSTEM AS SUCH CHANGES ARE FOUND TO BE NECESSARY AS THE LAND IS CLEARED AND EROSION CONTROL CONSTRUCTION PROGRESSES.
- ALL CONSTRUCTION LINES, GRADES AND SURVEY MONUMENT STAKEOUTS SHALL BE MADE BY LICENSED SURVEYORS.
- A LICENSED SURVEYOR SHALL SUBMIT A LETTER TO THE DEPARTMENT OF PUBLIC WORKS CERTIFYING THAT THE MONUMENT STAKEOUT AND INSTALLATION IS CORRECT.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER SUFFICIENTLY IN ADVANCE OF OPENING ANY OR UTILIZING EXISTING BORROW PITS OR ON SITE BORROW, SO THAT A DETERMINATION CAN BE MADE AS TO THE SUITABILITY OF THE BORROW MATERIAL TO BE INCORPORATED INTO THE ROAD CONSTRUCTION.
- THE CONTRACTOR SHALL CONDUCT ALL TESTS AS REQUESTED BY THE ENGINEER AND BE RESPONSIBLE FOR ALL EXPENSES INCURRED IN CONDUCTING THESE TESTS.
- THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLAN OR NOT, AND SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF THE SAME IN THE EVENT OF DAMAGES DUE TO HIS CONSTRUCTION PRACTICES. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE RESPECTIVE UTILITY COMPANIES.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH THE CURRENT EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," AND AS DIRECTED BY THE DEPARTMENT OF PUBLIC WORKS.
- ALL VEGETATION, INCLUDING TREES, SHALL BE REMOVED FROM WITHIN THE ENTIRE GRADED ROADWAY RIGHT-OF-WAY.

**NOTES FOR WORK WITHIN THE COUNTY RIGHT-OF-WAY**

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE COUNTY OF HAWAII, DEPARTMENT OF PUBLIC WORKS (DPW), "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION," DATED SEPTEMBER 1986 AND "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION," DATED SEPTEMBER 1984.
- THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLAN OR NOT, AND SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF SAME IN THE EVENT OF DAMAGES DUE TO HIS CONSTRUCTION PRACTICES. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE RESPECTIVE UTILITY COMPANIES.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH THE CURRENT EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," AND AS DIRECTED BY THE DEPARTMENT OF PUBLIC WORKS.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS 48 HOURS BEFORE THE COMMENCEMENT OF ANY UTILITY LINE WORK TO SCHEDULE A FIELD REVIEW AND SECURE APPROVAL OF THE PROPOSED UTILITY LINE LOCATION WITHIN THE COUNTY RIGHT-OF-WAY.
- THE PROPOSED UTILITY LINE LOCATION SHALL BE LAID OUT IN THE FIELD PRIOR TO THE CONDUCTING OF THE FIELD REVIEW BY THE DEPARTMENT OF PUBLIC WORKS.
- FIELD ADJUSTMENTS SHALL BE MADE AS DIRECTED BY THE DEPARTMENT OF PUBLIC WORKS PRIOR TO THE COMMENCEMENT OF ANY UTILITY LINE WORK.
- THE REQUIRED PERMIT, UNDER CHAPTER 22, ARTICLE 3, SECTION 22-44 OF THE HAWAII COUNTY CODE, SHALL BE OBTAINED FROM THE DEPARTMENT OF PUBLIC WORKS BY THE CONTRACTOR FOR WORK WITHIN THE COUNTY RIGHT-OF-WAY.
- THE CONTRACTOR SHALL PROVIDE AT LEAST ONE (1) LANE FOR TRAFFIC MOVEMENT AT ALL TIMES. TWO (2) LANES FOR TRAFFIC MOVEMENT SHALL BE PROVIDED BETWEEN THE HOURS OF 3:30 P.M. TO 8:00 A.M.
- THE EXISTING PAVEMENT SHALL BE SAW-CUT BEFORE COMMENCEMENT OF TRENCHING WORK.
- ANY PAVEMENT OUTSIDE THE CONTRACT ZONE LIMITS DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE RESTORED TO ITS ORIGINAL CONDITION, OR BETTER, AS DIRECTED BY THE DPW.
- A TEMPORARY COLD MIX PATCH SHALL BE APPLIED IMMEDIATELY UPON COMPLETION OF THE BACKFILLING OPERATION AND SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL A PERMANENT PATCH IS AUTHORIZED BY THE DEPARTMENT OF PUBLIC WORKS.
- NO MATERIAL, EXCEPT THE TRENCH EXCAVATED MATERIAL, SHALL BE STOCKPILED CLOSER THAN SIX (6) FEET FROM THE EXISTING EDGE OF PAVEMENT.
- NO CONSTRUCTION EQUIPMENT SHALL BE PARKED WITHIN THE ROAD RIGHT-OF-WAY IN SUCH A MANNER THAT THE EQUIPMENT WILL OBSTRUCT THE NORMAL MOVEMENT AND SIGHT DISTANCE OF THE DRIVING MOTORIST, EXCEPT DURING ACTUAL WORKING HOURS.
- EXCEPT DURING ACTUAL WORKING HOURS, ALL SIGNS THAT DO NOT PERTAIN TO THE CONSTRUCTION ACTIVITY, SUCH AS "MEN WORKING" AND "FLAGMAN AHEAD" SHALL BE COVERED OR LAID DOWN. HOWEVER, ALL SIGNS NECESSARY FOR THE SAFETY OF THE PUBLIC SHALL BE MAINTAINED.
- ANY PAVEMENT MARKINGS, STRUCTURES, AND APPURTENANCES (WITHIN OR OUTSIDE OF THE CONTRACT ZONE LIMITS) DAMAGED AND/OR WORN AWAY UNDER THE PERMIT SHALL BE REPAINTED OR RECONSTRUCTED AS DIRECTED BY THE DEPARTMENT OF PUBLIC WORKS.
- NO TRENCHING SHALL BE LEFT OPEN FOR MORE THAN FIVE (5) WORKING DAYS.
- SHOULD TRENCHING OCCUR THROUGH AN EXISTING SIDEWALK OR SHOULD DAMAGES OCCUR TO THE SIDEWALK AS A RESULT OF TRENCHING, THE FOLLOWING PROCEDURE SHALL BE UTILIZED TO REPAIR THE SIDEWALK.
  - ALL PORTLAND CEMENT CONCRETE TO BE REMOVED SHALL FIRST BE CUT WITH A CONCRETE SAW THAT HAS A DIAMOND OR CARBORUNDUM ABRASIVE WHEEL. THOSE CUTS SHALL BE MADE TO A DEPTH EQUAL TO AT LEAST ONE-FOURTH OF THE DEPTH OF THE SLAB, OR ENOUGH AS IS DEEMED NECESSARY BY THE DEPARTMENT OF PUBLIC WORKS, TO PERMIT BREAKING OUT THE BALANCE OF THE CONCRETE WITHOUT SPALLING OFF THE EXPOSED EDGES OF THE SLAB LEFT IN PLACE.
  - IF ANY CONCRETE BLOCK IS TOUCHED, THE WHOLE BLOCK SHALL BE REMOVED AND LATER REPLACED, UNLESS A MINOR VARIATION IS AUTHORIZED BY THE DPW OR ITS REPRESENTATIVE.
  - ANY DAMAGES TO ADJACENT AREAS DUE TO SETTLEMENT OR TO ANY OTHER EFFECTS WHATSOEVER CAUSED BY THE TRENCH CONSTRUCTION SHALL BE PROPERLY REPAIRED AND CORRECTED.
  - ALL OTHER INCIDENTAL WORK SHALL BE SATISFACTORILY PERFORMED TO EFFECT THE PROPER RESTORATION OF THE SIDEWALK AREA.
  - SHOULD DAMAGE TO A SIDEWALK, CURB AND/OR GUTTER OCCUR AT A LOCATION WHERE A CURB RAMP SHOULD EXIST, OR TO A DRIVEWAY THAT DOES NOT MEET WITH THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (ADA), REPAIR WORK SHALL INCLUDE THE CONSTRUCTION OF A CURB RAMP, RECONSTRUCTION TO THE DRIVE WAY SUCH THAT THE REPAIR WORK COMPLIES WITH THE ADA AND MEETS WITH THE APPROVAL OF THE DPW.
- THE PERMITTEE SHALL MAINTAIN, TO THE SATISFACTION OF THE DEPARTMENT OF PUBLIC WORKS, THE AREA WORKED WITHIN THE GOVERNMENT RIGHT-OF-WAY INCLUDING ANY REPAIRS TO PAVEMENT AND SHOULDER DAMAGED AS A RESULT OF THE INSTALLATION WORK, FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL INSPECTION. THE PERMITTEE SHALL UNDERTAKE REPAIRS EXPEDITIOUSLY, WHENEVER DIRECTED BY THE DEPARTMENT OF PUBLIC WORKS DURING THE MAINTENANCE PERIOD.
- SUBDIVIDER SHALL BE INFORMED THAT CHAPTER 23, UNDERGROUND INJECTION CONTROL (UIC), ADMINISTRATIVE RULES, DEPT. OF HEALTH, PROHIBIT ANY PERSON FROM OPERATING, CONSTRUCTING OR MODIFYING AN INJECTION WELL (DRYWELL) UNLESS AUTHORIZED BY A PERMIT ISSUED BY THE DIRECTOR OF HEALTH, STATE OF HAWAII. FURTHERMORE, SHOULD DEDICATION OF ROADWAYS INCLUDING DRYWELL BE CONTEMPLATED, THE DEPT. OF PUBLIC WORKS WILL NOT APPROVE DEDICATION OF ROADWAYS PRIOR TO COMPLIANCE WITH CHAPTER 23, UIC, ADMINISTRATIVE RULES.

**ARCHAEOLOGICAL NOTES**

- IN THE EVENT THAT AN ARCHAEOLOGICAL OR HISTORICAL STRUCTURE WITHIN THE WORK AREA IS INADVERTENTLY DAMAGED DURING CONSTRUCTION, CEASE WORK IN THE VICINITY OF THE SITE AND NOTIFY THE DEPARTMENT OF HAWAIIAN HOME LANDS AND THE STATE HISTORIC PRESERVATION DIVISION (SHPD) OF THE DEPARTMENT OF LAND AND NATURAL RESOURCES OF THE DAMAGE. SHPD WILL DETERMINE THE APPROPRIATE MITIGATION MEASURES.
- IN THE EVENT THAT A PREVIOUSLY UNKNOWN ARCHAEOLOGICAL FEATURE IS EXPOSED BY CONSTRUCTION, CEASE WORK IN THE VICINITY OF THE NEW FEATURE AND NOTIFY THE DEPARTMENT OF HAWAIIAN HOME LANDS, THE SHPD, AND THE HAWAII COUNTY PLANNING DEPARTMENT OF THE NEW DISCOVERY.
- IN THE EVENT THAT PREVIOUSLY UNKNOWN HUMAN REMAINS ARE EXPOSED BY CONSTRUCTION, CEASE ALL WORK IN THE AREA OF THE REMAINS, AND PROTECT THE AREA WITH AN APPROPRIATE MATERIAL. NOTIFY THE DEPARTMENT OF HAWAIIAN HOME LANDS AND THE SHPD.

**DEPT. OF HEALTH NOTES**

- OWNER SHALL OBTAIN PERMIT TO CONSTRUCT AND OPERATE INJECTION WELL(S) IN COMPLIANCE WITH CHAPTER 23, UNDERGROUND INJECTION CONTROL (UIC), ADMINISTRATIVE RULES, DEPARTMENT OF HEALTH.

**UIC - DRYWELL NOTE**

- THE SUBDIVIDER SHALL BE INFORMED THAT IF DRYWELLS ARE INCLUDED IN THE SUBJECT SUBDIVISION IMPROVEMENTS, CHAPTER 23, UNDERGROUND INJECTION CONTROL (UIC), ADMINISTRATIVE RULES, DEPARTMENT OF HEALTH, PROHIBITS ANY PERSON FROM OPERATING, CONSTRUCTING OR MODIFYING AN INJECTION WELL (DRYWELL) UNLESS AUTHORIZED BY A PERMIT ISSUED BY THE DIRECTOR OF HEALTH, STATE OF HAWAII. FURTHERMORE, SHOULD DEDICATION OF ROADWAYS INCLUDING DRYWELLS BE CONTEMPLATED, THE DEPARTMENT OF PUBLIC WORKS WILL NOT APPROVE DEDICATION ROADWAYS PRIOR TO COMPLIANCE WITH CHAPTER 23, UIC, ADMINISTRATIVE RULES.

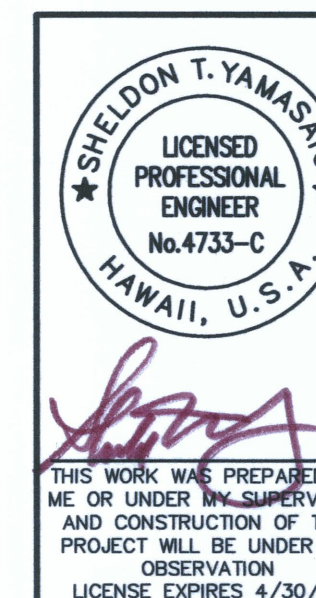
**SOLID WASTE CONSTRUCTION NOTES**

- UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER HANDLING, STORAGE AND/OR DISPOSAL OF ALL WASTE GENERATED BY THIS CONSTRUCTION, INCLUDING GRUBBING AND EXCESS EXCAVATED MATERIAL. ANY MATERIAL BROUGHT TO THE COUNTY LANDFILLS WILL BE SUBJECTED TO THE INSTITUTED TIPPING FEE SYSTEM, WITH NO EXCEPTIONS OR EXEMPTIONS.
- ALL WASTES GENERATED BY CONSTRUCTION, INCLUDING GRUBBING, DEMOLITION AND EXCESS EXCAVATION MATERIAL MAY BE BROUGHT TO THE WEST HAWAII OR THE HILO LANDFILL. THE CONTRACTOR SHALL CHECK WITH THE SOLID WASTE DIVISION FOR DISCLOSURE OF THE CURRENT LANDFILL FEE AND CONSIDERATION OF THAT FEE SHALL BE INCLUDED IN THE CONTRACTOR'S BID SUM.
- CONSTRUCTION, DEMOLITION AND GRUBBING MATERIAL SHALL NOT BE DEPOSITED AT AND OF THE COUNTY TRANSFER STATIONS, BUT SHALL BE TRANSPORTED FOR DISPOSAL TO EITHER THE WEST HAWAII OR HILO LANDFILL.
- ASBESTOS MATERIAL MUST BE SEPARATED, DOUBLE BAGGED AND LANDFILLED IN ACCORDANCE WITH REGULATIONS OF THE SOLID WASTE DIVISION, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT. INFORMATION MAY BE OBTAINED BY CALLING THE DIVISION AT (808) 961-8339 BETWEEN 7:00 A.M. AND 4:00 P.M. MONDAY THROUGH FRIDAY.

**COMPACTION TESTING**

THE DEPARTMENT OF HAWAIIAN HOME LANDS SHALL HIRE AN INDEPENDENT TESTING LAB TO CONDUCT COMPACTION TESTS. COMPACTION TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE SPECIFICATIONS FOR INSTALLATION OF MISCELLANEOUS IMPROVEMENTS WITHIN STATE HIGHWAYS. COMPACTION TESTS SHALL BE TAKEN ACCORDING TO SECTION 207.1, SPECIAL INSTRUCTIONS OF FIELD COMPACTION TESTING, HOOT TECHNICAL MANUAL ON MATERIAL QUALITY CONTROL, AS FOLLOWS:

- SUBBASE: ONE (1) COMPACTION TEST PER LIFT, PER 300 LINEAR FEET.
- BASE COURSE: ONE (1) COMPACTION TEST PER LIFT, PER 200 LINEAR FEET.
- ONE (1) COMPACTION TEST PER LIFT, PER 500 LINEAR FEET OF TRENCH.



REVISION DATE	DESCRIPTION	MADE BY	APPROVED
DEPARTMENT OF HAWAIIAN HOME LANDS <b>LAI'OPUA VILLAGE 5</b> TAX MAP KEY: (3) 7-4-21:6 KAILUA-KONA, NORTH KONA, HAWAII			
<b>CONSTRUCTION NOTES</b>			
Approved: _____			
COUNTY ENGINEER, DPW, COUNTY OF HAWAII		DATE _____	
AKINAKA & ASSOCIATES, LTD. CONSULTING ENGINEERS			

FILE	POCKET	FOLDER	NO.
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Last Save by: SHU  
 Last Saved: 5/25/2012  
 Plotted on: 5/29/2012  
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 Revised\DH04202\_STR.DWG

**WATER NOTES**

- ALL WORK SHALL CONFORM TO THE WATER SYSTEM STANDARDS – COUNTY OF HAWAII, DATED 2002, AS AMENDED.
- ALL EXISTING WATERLINE, WATERLINE APPURTENANCES AND OTHER UTILITY LOCATIONS SHOWN ON THE PLANS ARE OBTAINED FROM LATEST RELIABLE SOURCES. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXACT LOCATION OF ALL UTILITIES IN THE FIELD AND SHALL BEAR ALL COSTS FOR DAMAGES DONE UNTO THEM DURING THE CONTRACT PERIOD.
- THE CONTRACTOR SHALL PAY FOR ALL DAMAGES DONE TO ANY UTILITY DURING CONSTRUCTION.
- WHENEVER CONNECTION TO EXISTING MAINS ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING MAIN BY HAND EXCAVATION PRIOR TO EXCAVATING TRENCHES FOR NEW MAINS.
- THE CONTRACTOR SHALL INFORM THE D.W.S. ENGINEER 72 HOURS PRIOR TO THE BEGINNING OF ANY WATERLINE WORK AND TWO WEEKS PRIOR TO ANY CONNECTION, CHLORINATION, SHUT-OFF OR RELOCATION.
- ALL METER BOXES AND COVERS SHALL BE FURNISHED AND INSTALLED, IN PLACE COMPLETE BY THE CONTRACTOR, IN ACCORDANCE WITH COUNTY OF HAWAII, DEPT. OF WATER SUPPLY, "WATER SYSTEM STANDARDS – 2002", SHEETS 37 TO 39, UNLESS OTHERWISE NOTED.
- ALL FITTINGS (CLASS 250) AND GATE VALVES (CLASS 200 WITH FUSION EPOXY COATED INTERIOR) SHALL BE DUCTILE IRON, MECHANICAL JOINT, UNLESS OTHERWISE NOTED.
- ALL PIPES SHALL BE DUCTILE IRON (CLASS 52) WITH PUSH-ON JOINTS, UNLESS OTHERWISE NOTED.
- ALL WORK AND MATERIALS FURNISHED BY THE DEPARTMENT OF WATER SUPPLY SHALL BE PAID FOR BY THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CHLORINATION OF THE WATER SYSTEM AND SHALL BEAR ALL COST. THE PERSONS ENGAGED TO DO THE CHLORINATION WORK MUST HAVE THE APPROPRIATE LICENSE TO PERFORM THE WORK IN THE STATE OF HAWAII.
- THE WATER LINE SHALL BE TESTED AT A MINIMUM OF 225 P.S.I. OR ONE AND A HALF TIMES THE STATIC PRESSURE AT THE LOW POINT, UNDER D.W.S. SUPERVISION JUST PRIOR TO PAVING THE ROADWAYS.
- ALL CONNECTION TO EXISTING MAINS SHALL BE DONE BY THE DEPARTMENT OF WATER SUPPLY AND PAID FOR BY THE CONTRACTOR. THE CONTRACTOR SHALL DO ALL EXCAVATION, BACKFILL, FURNISH ALL MATERIALS, CONSTRUCT REACTION BLOCKS AND VALVE BOXES, PAVEMENT REPAIR, PROVIDE FLAGMEN WHEN NECESSARY, AND ALL NECESSARY EQUIPMENT TO MAKE HOOK-UP.
- THE D.W.S. WILL NOT ASSUME OWNERSHIP OF NOR GRANT ANY WATER SERVICE UNTIL THE WATER SYSTEM BEING CONNECTED TO IS DEDICATED TO THE D.W.S. ALONG WITH ALL NECESSARY EASEMENTS AND DOCUMENTS.
- WHERE WATER SHUT-OFF OF MORE THAN 3-HOURS BECOMES NECESSARY, THE CONTRACTOR, AT HIS OWN COST, SHALL PROVIDE A TEMPORARY BYPASS LINE, SIZE OF WHICH SHALL BE DETERMINED BY THE D.W.S. ENGINEER. THE D.W.S. ENGINEER, ALSO RESERVES THE RIGHT TO REQUIRE BYPASS LINES, REGARDLESS OF THE WATER SHUT-OFF PERIOD, IF IT IS DEEMED NECESSARY.
- AT ALL COMMON CROSSING WITH WATERLINES, SEWERLINES SHALL BE JACKETED WITH REINFORCED CONCRETE AND SHALL BE INSTALLED BELOW THE WATERLINE.
- THE DEPARTMENT OF WATER SUPPLY SHALL NOT BE HELD RESPONSIBLE FOR ANY WATERLINE WORK DOWNSTREAM OF THE METER. THE ADEQUACY AND INSTALLATION OF THE CONSUMER PIPELINES SHALL BE THE RESPONSIBILITY OF THE SUBDIVIDER OR OWNER.
- ALL METERS SHALL BE 5/8" METERS UNLESS OTHERWISE NOTED.
- PIPE CUSHION FOR COPPER PIPES SHALL BE NO. 4 FINE, MANUFACTURED SAND.
- THE SERVICE LATERAL INSTALLATION SHALL BE DONE BY A GENERAL CONTRACTOR OR PLUMBER LICENSED IN THE STATE OF HAWAII TO DO SUCH WORK.
- THE SERVICE LATERAL SHALL BE FLUSHED BY THE CONTRACTOR UNDER THE SUPERVISION OF THE DEPARTMENT OF WATER SUPPLY.
- ALL SERVICE LATERALS SHALL BE SOFT COPPER, TYPE "K", WITH BRASS FITTINGS.
- MINIMUM HORIZONTAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 8 FEET UNLESS OTHERWISE SPECIFIED. MINIMUM VERTICAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 12 INCHES PROVIDED CONCRETE JACKETS ARE USED AND 18 INCHES IF NO CONCRETE JACKETS ARE USED. IN ALL INSTANCES, THE WATERLINE SHALL BE AT A GRADE HIGHER THAN OTHER UTILITIES.
- SERVICE LATERAL TAPS ONTO THE WATERLINE SHALL BE SEPARATED BY 18 INCHES MINIMUM.
- SOLDER AND FLUX SHALL CONTAIN NOT MORE THAN 0.2% LEAD.
- LOTS REQUIRING A DEPARTMENT OF WATER SUPPLY APPROVED BACKFLOW PREVENTION ASSEMBLY SHALL HAVE ONE. BACKFLOW DEVICE INSTALLATION MAY NOT BE REQUIRED, BEFORE WATER SERVICE IS ALLOWED. IT MUST BE INSTALLED ON PRIVATE PROPERTY IN ACCORDANCE WITH DWS STANDARD DETAIL NO. V9 AND DEPARTMENTAL STAFF MUST APPROVE THE INSTALLATION BEFORE WATER SERVICE CAN BE STARTED.

**CONCRETE NOTES**

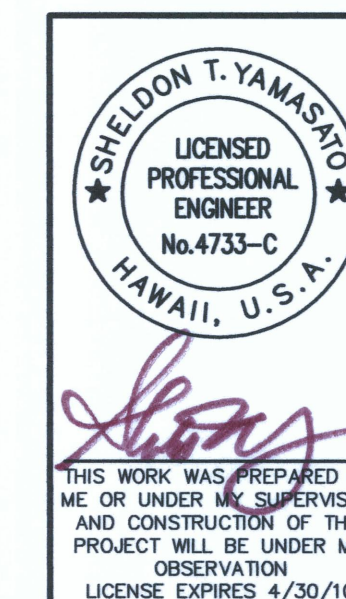
- DESIGN AND CONSTRUCTION SHALL CONFORM TO THE LATEST "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" OF THE AMERICAN CONCRETE INSTITUTE.
- ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT THE AGE OF 28 DAYS UNLESS NOTED OTHERWISE.
- ALL REINFORCING SHALL BE ASTM A-615 GRADE 60.
- ARRANGEMENT AND DETAILS OF REINFORCING STEEL, INCLUDING BAR SUPPORTS AND SPLICES, SHALL BE IN ACCORDANCE WITH THE LATEST ACI 315 DETAIL MANUAL.
- ALL SLAB REINFORCING SHALL HAVE A MINIMUM EXTENSION INTO THE SUPPORT IN ACCORDANCE WITH THE LATEST ACI CODE. IF SUCH EXTENSION IS NOT POSSIBLE, BARS SHOULD TERMINATE IN STANDARD HOOKS.
- ALL REINFORCING SHALL LAP A MINIMUM OF 1.76 Ld AT SPLICES UNLESS OTHERWISE SHOWN. FOR TOP BARS INCREASE LAP BY A FACTOR OF 1.4.

BAR SIZE	TENSION DEVELOPMENT LENGTH
#3	12-INCHES
#4	12-INCHES
#5	15-INCHES
#6	19-INCHES
#7	26-INCHES
#8	35-INCHES

- WHEREVER IT IS NECESSARY TO SPLICE REINFORCEMENT OTHERWISE THAN IS SHOWN ON THE CONTRACT DRAWINGS, THE CHARACTER OF THE SPLICE SHALL BE AS SPECIFIED BY THE ENGINEER. SPLICING SHALL BE STAGGERED.
- HOOK BARS AT OPENINGS.
- ALL EXPOSED EDGES AND CORNERS OF CONCRETE SHALL BE CHAMFERED 3/4-INCH UNLESS OTHERWISE NOTED.
- UNLESS OTHERWISE SHOWN, THE MINIMUM COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:
 

CONCRETE CAST AGAINST THE EARTH	3 INCHES
CONCRETE EXPOSED TO EARTH OR WEATHER	2-1/2 INCHES
CONCRETE EXPOSED TO INTERIOR TANK ATMOSPHERE	2 INCHES
ALL OTHER EXPOSURES	1-1/2 INCHES
- ALL REINFORCING MARKED CONTINUOUS (CONT.) ON THE PLANS SHALL BE LAPPED AS REQUIRED, UNDER NOTE NO. 6, AT ALL SPLICES, LAPS, CORNERS AND INTERSECTIONS.

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THIS WORK WAS PREPARED BY  
 ME OR UNDER MY SUPERVISION  
 AND CONSTRUCTION OF THIS  
 PROJECT WILL BE UNDER MY  
 OBSERVATION  
 LICENSE EXPIRES 4/30/10

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
DEPARTMENT OF HAWAIIAN HOME LANDS <b>LA'I'OPUA VILLAGE 5</b> TAX MAP KEY: (3) 7-4-21:6 KAILUA-KONA, NORTH KONA, HAWAII			
<b>CONSTRUCTION NOTES</b>			
Approved: _____			
COUNTY ENGINEER, DPW, COUNTY OF HAWAII		DATE	
AKINAKA & ASSOCIATES, LTD. CONSULTING ENGINEERS			

FILE	POCKET	FOLDER	NO.

**WASTEWATER COLLECTION SYSTEM NOTES**

**GENERAL REQUIREMENTS**

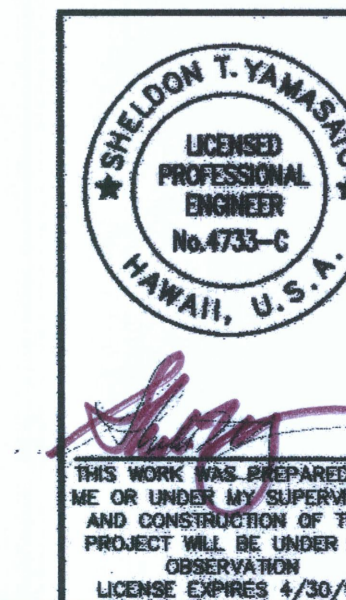
1. ALL CONSTRUCTION DETAILS AND SPECIFICATIONS NOT SHOWN ON THE PLANS SHALL CONFORM TO THE STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1984, WASTEWATER DIVISION STANDARD DETAILS, AND STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986.
2. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR AND EQUIPMENT FOR ALL SEWER WORK WITHIN THE COUNTY'S RIGHT-OF-WAY.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INVESTIGATION, INSPECTION AND VERIFICATION OF ALL EXISTING UTILITIES SUPPLEMENTED BY ACTUAL DIGGING IN THE FIELD IF NECESSARY, TO DETERMINE THE ACTUAL LOCATION OF SUCH UTILITIES WITH THEIR BRANCH AND SERVICE LINES, WHETHER INDICATED ON PLANS OR NOT.
4. THE CONTRACTOR SHALL BE REQUIRED TO TAKE OUT AND PAY FOR ALL NECESSARY PERMITS AND LICENSES WHICH ARE REQUIRED BY LOCAL ORDINANCES FOR THE PROSECUTION OF THIS WORK.
5. WORKMANSHIP SHALL BE FIRST CLASS. ALL WORK SHALL BE PERFORMED BY THE RESPECTIVE TRADE PERSON IN ACCORDANCE WITH APPLICABLE COUNTY ORDINANCE AND STATE REGULATION.
6. THE CONTRACTOR SHALL NOTIFY THE WASTEWATER DIVISION (961-8338) AT LEAST FORTY-EIGHT HOURS IN ADVANCE OF ANY WORK BEING DONE ON, OR ANY CONNECTIONS BEING MADE TO THE EXISTING COUNTY WASTEWATER COLLECTION SYSTEM. INSPECTION SHALL BE PERFORMED BY AN AUTHORIZED REPRESENTATIVE OF THE WASTEWATER DIVISION PRIOR TO BACKFILLING OR COVERING OF THE WORK AND AFTER ALL PLUMBING WORK, IN ACCORDANCE WITH THE PLUMBING PERMIT, IS COMPLETE WITHIN THE PARCEL.
7. THE CONTRACTOR SHALL REPAIR, AT THEIR EXPENSE, ALL DAMAGES SUSTAINED DURING THE COURSE OF HIS WORK AND LEAVE COMPLETED WORK IN ITS ORIGINAL OR BETTER CONDITION.
8. NO DEBRIS RESULTING FROM THE CONSTRUCTION WORK SHALL BE ALLOWED TO ENTER THE EXISTING WASTEWATER COLLECTION SYSTEM. THE CONTRACTOR SHALL PROVIDE THE NECESSARY BARRIERS AND COLLECTION DEVICES TO PREVENT DEBRIS FROM ENTERING THE SYSTEM. THE CONTRACTOR SHALL FLUSH ALL NEWLY CONSTRUCTED SEWER PIPES BEFORE CONNECTION TO THE EXISTING WASTEWATER COLLECTION SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL DEBRIS THAT ENTERS THE EXISTING SYSTEM AS A RESULT OF THE CONSTRUCTION WORK.
9. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE WASTEWATER DIVISION (961-8338) SHOULD ANY EXISTING WASTEWATER COLLECTION SYSTEM LINE BE DAMAGED. THE CONTRACTOR SHALL REPAIR THE LINE AND ANY ROCKS OR DEBRIS THAT ENTERED THE SYSTEM SHALL BE PHYSICALLY REMOVED FROM THE SYSTEM TO THE SATISFACTION OF THE WASTEWATER DIVISION. THE WORK MAY INCLUDE FLUSHING AND/OR USE OF A PIPE PIG.
10. BYPASSING OR SPILLING OF SEWAGE TO THE GROUND, DRAINAGE SYSTEM OR STATE WATERS IS PROHIBITED. THE CONTRACTOR SHALL PAY PENALTIES, INCLUDING LEGAL FEES AND OTHER COSTS AS A RESULT OF THE BYPASS OR SPILL.
11. PRIVATE DEVELOPMENTS FOR DEDICATION TO THE COUNTY OF HAWAII, SHALL BE INSPECTED AND CERTIFIED BY AN INDEPENDENT LICENSED ENGINEER REGISTERED IN HAWAII FOR COMPLIANCE WITH APPROVED PLANS, SPECIFICATIONS AND APPLICABLE DOCUMENTS. PRIOR TO CONSTRUCTION, SUBMIT TO THE WASTEWATER DIVISION THE NAME, AFFILIATION, ADDRESS AND PHONE NUMBER OF THE PROJECT ENGINEER/INSPECTOR REPRESENTING THE OWNER FOR THIS PURPOSE. THE LICENSED ENGINEER SHALL PROVIDE A STAMPED REPORT UPON COMPLETION OF THE PROJECT IN ACCORDANCE WITH HAR TITLE 16, CHAPTER 115 INDICATING THAT THE PROJECT WAS COMPLETED IN ACCORDANCE WITH PLANS AND SPECIFICATIONS.
12. BEFORE FINAL PROJECT INSPECTION APPROVAL BY WWD PERSONNEL, SUBMIT ONE (1) SET OF "AS-BUILT" PLANS ON VELLUM, INCLUDING TWO (2) COPIED SETS AND ONE SET OF ELECTRONIC DRAWINGS IN AUTOCAD 2002 VERSION. IT IS MANDATORY THAT THE "AS-BUILT" PLANS SHOW CORRECTLY IDENTIFIED PROPERTY TMK NUMBERS AND ACCURATELY LOCATED SEWER MANHOLES, LATERALS, CLEANOUTS AND ALL OTHER MAJOR COMPONENTS OF THE WASTEWATER COLLECTION SYSTEM.
13. BEFORE FINAL PROJECT INSPECTION APPROVAL BY WWD PERSONNEL, SUBMIT DOCUMENTATION CERTIFIED BY AN INDEPENDENT PROFESSIONAL LAND SURVEYOR DULY REGISTERED WITH THE HAWAII BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS, ARCHITECTS, LAND SURVEYORS AND LANDSCAPE ARCHITECTS ATTESTING TO THE LOCATION AND ELEVATION OF ALL SEWER MANHOLES, SEWER LATERALS, CLEANOUTS AND ALL OTHER MAJOR COMPONENTS OF THE WASTEWATER COLLECTION SYSTEM AND AS SHOWN ON "AS BUILT" PLANS.
14. BEFORE FINAL PROJECT INSPECTION APPROVAL BY WWD PERSONNEL, SUBMIT COPIES OF ALL TESTING/RE-TESTING DATA (I.E., SOIL COMPACTION, LEAKAGE, MANDREL, ETC.). TESTING SHALL BE WITNESSED AND CERTIFIED BY AN INDEPENDENT LICENSED ENGINEER AND/OR APPROVED TESTING LABORATORY.

**SEWER SYSTEM REQUIREMENTS**

1. UNLESS OTHERWISE APPROVED OR NOTED, ALL SEWER PIPES AND FITTINGS SHALL BE PVC SDR-26 BELL(S) AND SPIGOT. MATERIALS FOR CLASS B PIPE BEDDING SHALL BE 3/4" AGGREGATE BASE COURSE PLACED IN SUCCESSIVE HORIZONTAL LAYERS OF LOOSE MATERIAL NOT TO EXCEED 6 INCHES IN DEPTH, AND SHALL BE UNIFORMLY CONSOLIDATED TO 95 PERCENT MAXIMUM DRY DENSITY. COMPACTION TESTING FOR COMPLIANCE SHALL BE ROUTINELY PERFORMED AND APPROVED BY THE INDEPENDENT TESTING AND QUALITY CONTROL LABORATORY. ALL TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR FINAL ACCEPTANCE.
2. SEWER PIPE CONNECTIONS TO NEW MANHOLES SHALL BE WITH AN APPROVED CAST-IN-PLACE MANHOLE PIPE ADAPTER (A-LOK, ECONOSEAL, OR APPROVED EQUAL). SEWER PIPE CONNECTIONS TO EXISTING MANHOLES SHALL BE WITH AN APPROVED MANHOLE PIPE ADAPTER (A-LOK FIELD SLEEVE OR APPROVED EQUAL).
3. ALL DROP MANHOLES, MANHOLES WITH SEWER MAIN PIPE LINES LARGER THAN OR EQUAL TO 12-INCHES, AND MANHOLES LOCATED IN COMMERCIAL OR INDUSTRIAL AREAS SHALL BE LINED WITH A PVC LINER (DURA-PLATE OR EQUAL) AND BENCHES SHALL BE SAUREREISEN F-120 CORROSION RESISTANT POLYMER CONCRETE OR APPROVED EQUAL.
4. THE ANGLE BETWEEN THE INLET AND OUTLET SEWERS SHALL BE A MINIMUM OF 90 DEGREES. NEW AND EXISTING MANHOLE BASE SECTIONS SHALL BE CHanneled AS NECESSARY. CHANNELS SHALL PROVIDE A SMOOTH TRANSITION BETWEEN INLET AND OUTLET SEWERS.
5. UNLESS OTHERWISE APPROVED OR NOTED, ALL MANHOLES SHALL BE PROVIDED "ECCENTRIC" CONE SECTIONS WITH TYPE SA FRAMES AND COVERS (STD. DETAIL S-22). ALL MANHOLES LESS THAN 5'-0" DEEP SHALL BE PROVIDED 22-INCH "CONCENTRIC" CONE SECTIONS WITH TYPE SB FRAMES AND COVERS (STD. DETAIL S-21).
6. ALL LATERAL CONNECTIONS TO THE SEWER MAIN SHALL BE MADE WITH A WYE FITTING ROTATED 45 DEGREES ABOVE THE SEWER SPRING LINE.
7. WHEN PERMITTED BY THE ENGINEER, SEWER LATERAL CONNECTIONS TO AN EXISTING VCP OR PVC SEWER SHALL BE MADE WITH A WYE CONFIGURED FLEXIBLE SADDLE (DFW/HPI, OR APPROVED EQUAL) ROTATED 45 DEGREES ABOVE THE SEWER SPRING LINE. THE SEWER MAIN PIPE SADDLE ENTRY SHALL BE NEATLY CORED (SAW-CUT).
8. WHEN PERMITTED BY THE ENGINEER, SEWER LATERAL CONNECTIONS TO EXISTING RCP SEWER MAIN PIPE LINES SHALL BE MADE WITH A TEE CONFIGURED PIPE SADDLE ROTATED 45 DEGREES ABOVE THE SEWER SPRING LINE. THE SEWER LATERAL ENTRY SHALL BE CORE DRILLED PERPENDICULAR TO THE SEWER PIPE WALL. CORED SURFACE AND ANY DAMAGED INTERNAL PIPE SURFACE SHALL BE COATED WITH SAUREREISEN F-120 CORROSION RESISTANT POLYMER CONCRETE OR APPROVED EQUAL IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
9. THE SEWER LATERAL SADDLE CONNECTION AND CORED SEWER MAIN PIPE ENTRY SHALL PROVIDE A SMOOTH AND UNOBSTRUCTED FLOW AREA. THE SEWER SADDLE SHALL COMPLETELY OVERLAY THE CORED ENTRY AREA ON THE MAIN SEWER PIPE. THE SEWER SADDLE SHALL BE SECURED TO THE MAIN SEWER PIPE WITH STAINLESS STEEL STRAPS AND JACKETED WITH CLASS B REINFORCED CONCRETE (STD DETAIL S-5). THE REINFORCED CONCRETE JACKET SHALL COMPLETELY ENCASE THE EXISTING MAIN SEWER PIPE, BE A MINIMUM 8-INCHES THICK AND EXTEND A MINIMUM OF 6-INCHES BEYOND THE SEWER SADDLE IN BOTH DIRECTIONS ALONG THE EXISTING SEWER PIPE.
10. SEWER CLEANOUTS SHALL BE LOCATED IN THE COUNTY RIGHT-OF-WAY WITHIN ONE-FOOT OF THE PROPERTY LINE. THE CLEANOUT SHALL BE EASILY ACCESSIBLE (I.E., NOT BE BURIED OR LOCATED UNDER OR CLOSE TO ROCK WALLS, FENCES OR OTHER OBSTRUCTIONS). IF THE CLEANOUT IS DETERMINED TO BE INACCESSIBLE, IT SHALL BE RELOCATED AT THE CONTRACTOR'S EXPENSE. THE CLEANOUT SHALL BE OF THE SAME MATERIAL AND DIAMETER (TYPICAL, 6-INCH) AS THAT OF THE SEWER LATERAL PROVIDED. THE CLEANOUT SHALL BE PROVIDED A BRASS COUNTERSUNK CAP AND AN 18" x 18" x 8" CLASS B CONCRETE COLLAR REINFORCED WITH 1-#3 REINFORCEMENT STEEL LOOP. THE CLEANOUT SUBJECT TO VEHICULAR OR ABNORMAL LOADING SHALL BE PROVIDED A TRAFFIC RATED FRAME/COVER (MODEL SBF 1246 W, MANUFACTURED BY SOUTH BAY FOUNDRY, OR APPROVED EQUAL) INSTALLED TO GRADE WITH AN 24" x 24" x 8" CLASS B CONCRETE COLLAR REINFORCED WITH 1-#3 REINFORCEMENT STEEL HOOP.
11. SEWER MANHOLES LOCATED IN UNPAVED AREAS SHALL BE PROVIDED A CONCRETE COLLAR. THE CONCRETE COLLAR SHALL BE CLASS "B" CONCRETE REINFORCED WITH 1-#3 REINFORCEMENT STEEL HOOP. THE CONCRETE COLLAR SHALL BE 42"x42"x6" FOR TYPE SA FRAMES, 54"x54"x6" FOR TYPE SB FRAMES.
12. UNLESS OTHERWISE NOTED AND LOCATIONS DETAILED ON APPROVED PLANS, CONCRETE JACKETING OF NEW AND OR EXISTING SEWER MAINS AND SERVICE LATERALS SHALL NOT BE PERMITTED.
13. SEWER LATERALS SHOULD BE SHOWN WITH CORRECT LOCATIONS AND DEPTHS RELATIVE TO PROPERTY BOUNDARY PINS AND EXISTING GROUND SURFACE. UPON COMPLETION OF THE PROJECT, SUBMIT ONE (1) SET OF 8-1/2" X 11" PLOT PLANS FOR EACH PROPERTY TMK THAT CONTAINS THIS INFORMATION.
14. WWD WILL PERFORM CCTV INSPECTION OF THE SEWER LINE PRIOR TO ACCEPTANCE OF THE SYSTEM. TESTING FOR DEFLECTION WILL BE ACCOMPLISHED WITH THE CCTV INSPECTION. IF THE CCTV INSPECTION REVEALS CONDITIONS SUCH AS SAGS, DENTS, OUT-OF-ROUND CONDITION, ETC., THEN MANDREL TESTING IN ACCORDANCE WITH 21.3.E OF THE STANDARD SPECIFICATIONS WILL BE REQUIRED AT WHICH THE COST WILL BE BORNE BY THE CONTRACTOR. CCTV ACCEPTANCE CRITERIA IS AVAILABLE AT WWD. INITIAL CCTV INSPECTION OF THE SYSTEM WILL BE PROVIDED AT NO COST TO THE CONTRACTOR. CCTV COST FOR RE-INSPECTION AND/OR ADDITIONAL INSPECTIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

APPROVED: *Doug Reed* 4/22/09  
 DIVISION CHIEF, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 COUNTY OF HAWAII

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
DEPARTMENT OF HAWAIIAN HOME LANDS LA'IOPIA VILLAGE 5 TAX MAP KEY: (3) 7-4-21-6 KAILUA-KONA, NORTH KONA, HAWAII			
<b>CONSTRUCTION NOTES</b>			
Approved: _____ COUNTY ENGINEER, DPW, COUNTY OF HAWAII DATE _____			
AKINAKA & ASSOCIATES, LTD. CONSULTING ENGINEERS			



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION LICENSE EXPIRES 4/30/10

FILE	POCKET	FOLDER	NO.

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 Last Saved: 4/16/2009  
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**NOTES FOR CONSTRUCTION WITHIN THE STATE RIGHT-OF-WAY**

1. THE CONTRACTOR SHALL OBTAIN A PERMIT TO PERFORM WORK UPON STATE HIGHWAYS FROM THE STATE HIGHWAY DIVISION, HAWAII DISTRICT ENGINEER, AT 50 MAKAALA STREET, HILO, HI 96720, PRIOR TO COMMENCEMENT OF WORK WITHIN THE STATE HIGHWAY RIGHT-OF-WAY.
2. CONSTRUCTION AND RESTORATION OF ALL EXISTING HIGHWAY FACILITIES WITHIN STATE RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE SECTIONS OF THE CURRENT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND PUBLIC WORKS CONSTRUCTION, AND THE SPECIFICATIONS FOR INSTALLATION OF MISCELLANEOUS IMPROVEMENTS WITHIN STATE HIGHWAYS, OF THE STATE DEPARTMENT OF TRANSPORTATION'S HIGHWAYS DIVISION.
3. ALL LANES SHALL BE OPEN TO TRAFFIC DURING THE MORNING PEAK HOURS FROM 6:30 A.M. TO 8:30 A.M. AND DURING THE AFTERNOON PEAK HOURS FROM 3:30 P.M. TO 5:30 P.M., AND DURING OFF-WORK HOURS. ONLY ONE LANE OF TRAFFIC SHALL BE CLOSED AT ANY OTHER TIME.
4. 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 TRAVELING PUBLIC. ALL SUCH PROTECTIVE FACILITIES AND PRECAUTIONS SHALL CONFORM WITH THE "ADMINISTRATIVE RULES OF HAWAII GOVERNING THE USE OF TRAFFIC CONTROL DEVICES AT WORK SITES ON, OR ADJACENT TO, PUBLIC STREET AND HIGHWAYS", ADOPTED BY THE DIRECTOR OF TRANSPORTATION, AND THE CURRENT U.S. FEDERAL HIGHWAY ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, PART VI-STANDARDS AND GUIDES FOR TRAFFIC CONTROLS FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE, UTILITY, AND INCIDENTAL MANAGEMENT OPERATIONS". IF LANE CLOSURES ARE REQUIRED DURING CONSTRUCTION, A TRAFFIC CONTROL PLAN SHALL BE INCORPORATED INTO THE CONSTRUCTION PLANS AND MUST BE APPROVED BY THE DIVISION PRIOR TO THE ISSUANCE OF THE PERMIT.
5. THE MINIMUM PAVEMENT STRUCTURE SHALL CONSIST OF:
  - A. CHANNELIZED INTERSECTIONS AND UTILITY INSTALLATIONS ON MAJOR HIGHWAYS:
    - 1) 4" ASPHALT CONCRETE, 8" AGGREGATE BASE COURSE ON 12" AGGREGATE SUBBASE, OR 4" ASPHALT CONCRETE ON 8" GLASSPHALT CONCRETE BASE COURSE OR ASPHALT CONCRETE OR, MATCH EXISTING PAVEMENT STRUCTURE, WHICH EVER IS GREATER.
6. NO MATERIAL AND/OR EQUIPMENT SHALL BE STOCKPILED OR OTHERWISE STORED WITHIN HIGHWAY RIGHT-OF-WAY, EXCEPT AT LOCATIONS DESIGNATED IN WRITING AND APPROVED BY THE HAWAII DISTRICT ENGINEER.
7. COMPACTION TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE CURRENT "SPECIFICATIONS FOR INSTALLATION OF MISCELLANEOUS IMPROVEMENTS WITHIN STATE HIGHWAYS", AS FOLLOWS:
  - A. SUBBASE: 1 COMPACTION TEST(S) PER LIFT EACH 300 LIN. FT.
  - B. BASE COURSE: 1 COMPACTION TEST(S) PER LIFT EACH 200 LIN. FT.
  - C. 1 COMPACTION TEST(S) PER LIFT FOR EACH 200 LINEAL FEET OF TRENCH.
  - D. A COPY OF THE TEST RESULTS SHALL BE SUBMITTED TO THE DISTRICT ENGINEER FOR ACCEPTANCE.
8. NO TRENCH SHALL BE OPENED MORE THAN 500 FEET IN ADVANCE OF THE INSTALLED AND TESTED PIPE AND/OR DUCTLINE.
9. PRIOR TO COMMENCING TRENCH EXCAVATION WORK, THE CONTRACTOR SHALL TAKE A SURFACE PROFILE ALONG THE CENTERLINE OF THE PROPOSED UTILITY TRENCH. THIS INFORMATION SHALL BE USED IN VERIFYING THAT THE ROADWAY HAS BEEN RESTORED TO ITS ORIGINAL CONDITION. A COPY OF THE TRENCH PROFILE SHALL BE SUBMITTED TO THE HAWAII DISTRICT ENGINEER.
10. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ADEQUATE, SAFE, NON-SKID BRIDGING MATERIAL OVER THE TRENCH, INCLUDING SHORING, WHEN TRENCHING IN PAVEMENT AREAS TO HANDLE ALL TYPES OF VEHICULAR TRAFFIC. SMOOTH RIDING TAPERS SHALL BE PROVIDED FOR PAVEMENT TRANSITIONS AND ADVANCED WARNING SIGNS SHALL BE POSTED. PRIOR TO INSTALLING SUCH BRIDGING MATERIAL, THE CONTRACTOR SHALL SUBMIT TO THE HAWAII DISTRICT ENGINEER FOR ACCEPTANCE, DRAWING STAMPED BY A LICENSED STRUCTURAL ENGINEER.
11. LONGITUDINAL DRAINAGE ALONG THE HIGHWAY SHALL BE MAINTAINED AT ALL TIMES.
12. EXISTING HIGHWAY DRAINAGE SYSTEMS SHALL REMAIN FUNCTIONAL AT ALL TIMES.
13. PAVEMENT STRIPING SHALL BE DONE BY THE CONTRACTOR, AND SHALL BE REPLACED IN KIND.
14. APPROVAL OF PERMIT CONSTRUCTION PLANS SHALL BE VALID FOR A PERIOD OF ONE YEAR THEREOF FROM THE DATE OF NOTIFICATION OF APPROVAL TO THE APPLICANT. IN THE EVENT CONSTRUCTION DOES NOT COMMENCE WITHIN THIS ONE-YEAR PERIOD, THE APPLICANT WILL BE REQUIRED TO RESUBMIT HIS CONSTRUCTION PLANS TO DOT, STATE HIGHWAYS, HAWAII DISTRICT FOR REVIEW AND APPROVAL.
15. ALL REGULATORY, GUIDE, CONSTRUCTION SIGNS, AND BARRICADES SHALL BE OF HIGH INTENSITY REFLECTIVE SHEETING.
16. UNPROTECTED PAVEMENT DROP OFFS GREATER THAN 2" WITHIN 8 FEET OF THE TRAVEL WAY SHALL NOT BE ALLOWED DURING NON-WORKING HOURS, EXCEPT WHERE APPROVED BY THE ENGINEER IN WRITING.
17. NO OPEN TRENCHES SHALL BE PERMITTED WITHIN THE CLEAR ZONE, DEFINED BY THE CURRENT EDITION OF THE AASHTO ROADSIDE DESIGN GUIDE, EXCEPT WHERE SPECIFIED IN THE APPROVED TRAFFIC CONTROL PLAN, OR AS APPROVED BY THE ENGINEER IN WRITING.
18. FREE FLOW OF TRAFFIC SHALL BE MAINTAINED IN BOTH DIRECTIONS AT ALL TIMES. TEMPORARY STOPPAGES REQUIRE ADVANCE APPROVAL IN WRITING FROM THE HAWAII DISTRICT ENGINEER AND A NOTICE TO MOTORISTS MAY BE REQUIRED. SUBMIT THE NOTICE TO THE STATE HIGHWAYS DIVISION-HAWAII DISTRICT FOR REVIEW AND ACCEPTANCE A MINIMUM OF 6 WEEKS PRIOR TO PUBLICATION.

**NOTES FOR CONSTRUCTION WITHIN THE STATE RIGHT-OF-WAY (CONT'D.)**

19. CLEAR SHOULDER AREAS SHALL BE MAINTAINED FOR BICYCLISTS AND PEDESTRIAN TRAFFIC AT ALL TIMES. IF ONE SHOULDER IS TO BE CLOSED, APPROPRIATE SIGNS SHALL BE POSTED DIRECTING BICYCLISTS AND PEDESTRIANS TO USE ALTERNATE SHOULDER AREA.
20. CONTRACTOR SHALL PROVIDE STATE HIGHWAYS-HAWAII DISTRICT WITH "AS-BUILT" DRAWINGS UPON COMPLETION OF THE WORK. THIS SHALL BE DONE PRIOR TO THE DEPARTMENT'S RELEASE OF THE PERMIT BOND.
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND REPAIR ALL DAMAGE CAUSED BY THE CONTRACTOR'S OPERATIONS. ANY SUCH REPAIR WORK SHALL BE DONE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE STATE. DAMAGES TO ANY EXISTING FACILITIES SHALL BE IMMEDIATELY REPORTED TO THE RESPECTIVE UTILITY COMPANIES, CITY OR STATE AGENCY.
22. CONTRACTOR SHALL INFORM THE STATE PERMIT OFFICE, (808) 933-8866, AT LEAST TWO (2) DAYS PRIOR TO CLOSING ANY LANES.
23. THE CONTRACTOR SHALL REFERENCE TO THE SATISFACTION OF THE DISTRICT ENGINEER, ALL EXISTING TRAFFIC SIGNS, POSTS, AND PAVEMENT MARKINGS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL REPLACE OR REPAIR ALL TRAFFIC SIGNS, POSTS AND PAVEMENT MARKINGS DISTURBED BY HIS ACTIVITIES, AT NO ADDITIONAL COST TO THE STATE, UNLESS DIRECTED OTHERWISE BY THE HAWAII DISTRICT ENGINEER OR HIS REPRESENTATIVE.
24. THE CONTRACTOR SHALL SCHEDULE HIS WORK AROUND THE IRONMAN TRIATHLON RACE ACTIVITIES, HELD ANNUALLY IN OCTOBER AND ANY OTHER PERMITTED RACE. ALL PAVEMENT AND SHOULDER AREAS SHALL BE RESTORED TO SMOOTH RIDING CONDITION, COMPLETELY CLEANED WITH PAVEMENT STRIPING INSTALLED, THREE WEEKS PRIOR TO THE EVENT. NO CONSTRUCTION WORK WITHIN THE STATE RIGHT-OF-WAY SHALL BE PERMITTED DURING THIS PERIOD THAT INTERFERES WITH THE PREPARATION AND RUNNING OF THE RACE. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL CHECK WITH THE HAWAII DISTRICT PERMIT OFFICE AT (808) 933-8866 AND THE POLICE DEPARTMENT, TRAFFIC SERVICES BRANCH, AT (808) 961-2227, FOR ANY PERMITTED RACE THAT WOULD BE AFFECTING HIS CONSTRUCTION WORK.

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS FOR PERMIT PROJECTS WITHIN STATE HIGHWAY RIGHT-OF-WAY**

1. THE CONTRACTOR SHALL OBTAIN AND COMPLY WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS FOR HAWAII DISTRICT PERMIT PROJECTS. THIS IS AVAILABLE AT THE HAWAII DISTRICT OFFICE AT 50 MAKAALA STREET, HILO, HAWAII (PH. 933-8866). DUE TO POTENTIAL COST IMPACTS, THE CONTRACTOR NEEDS TO BE AWARE OF THESE REQUIREMENTS.
2. ALL CONSULTANT(S)/CONTRACTOR(S) INVOLVED WITH ANY CONSTRUCTION PROJECT OR PERMIT PROJECTS WITHIN THE STATE HIGHWAYS RIGHT-OF-WAY ARE REQUIRED TO OBTAIN AND HAVE A COPY OF HAWAII DEPARTMENT OF TRANSPORTATION, HIGHWAYS DIVISION "CONSTRUCTION BEST MANAGEMENT PRACTICES FIELD MANUAL" AND "RULES RELATING TO SOIL EROSION STANDARDS AND GUIDELINES" OF THE CITY AND COUNTY OF HONOLULU, ON SITE BEFORE PROCEEDING WITH ANY WORK WITHIN THE STATE HIGHWAYS RIGHT-OF-WAY. THE HAWAII DEPARTMENT OF TRANSPORTATION, HIGHWAYS DIVISION "CONSTRUCTION BEST MANAGEMENT PRACTICES FIELD MANUAL" CAN BE DOWNLOADED FROM THE WEB SITE AT [HTTP://WWW.STORMWATERHAWAII.COM/RESOURCES/](http://www.stormwaterhawaii.com/resources/).  
  
\*PROOF OF POSSESSION OF THE ABOVE DOCUMENTS MAY BE REQUIRED AT ANY TIME DURING THE PERMIT PROCESS.
3. THE CONTRACTOR SHALL COMPLETE AND SUBMIT A CONTRACTOR'S CERTIFICATION OF NPDES COMPLIANCE, INCLUDING COMPLETION OF THE BEST MANAGEMENT PRACTICE (BMP) CHECKLIST AND SUBMITTAL OF A WRITTEN BMP PLAN AND DRAWINGS, PRIOR TO ISSUANCE OF THE "PERMIT TO PERFORM WORK UPON STATE HIGHWAYS" OR "APPLICATION & PERMIT FOR THE OCCUPANCY AND USE OF STATE HIGHWAY RIGHT-OF-WAY.
4. THE CONTRACTOR SHALL OBTAIN A GENERAL NPDES PERMIT FROM THE DEPARTMENT OF HEALTH, FOR ANY PROJECT 1 ACRE OR GREATER IN AREA, PRIOR TO THE ISSUANCE OF THE PERMIT TO PERFORM WORK UPON STATE HIGHWAYS.

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 LICENSE EXPIRES 4/30/10

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
DEPARTMENT OF HAWAIIAN HOME LANDS LA'IOPIA VILLAGE 5 TAX MAP KEY: (3) 7-4-21:6 KAILUA-KONA, NORTH KONA, HAWAII			
<b>CONSTRUCTION NOTES</b>			
Approved: _____			
COUNTY ENGINEER, DPW, COUNTY OF HAWAII			DATE _____
AKINAKA & ASSOCIATES, LTD. CONSULTING ENGINEERS			
FILE	POCKET	FOLDER	NO.

**AS-BUILT**

TRUE NORTH  
SCALE: 1" = 60'

INSTALL 500 L.F. OF 15' HIGH DUST SCREEN FROM LOT 47 TO LOT 54. MIN. 15' FROM TOE OF SLOPE. SEE DETAIL SHT. 37.

INSTALL 500 L.F. OF 15' HIGH DUST SCREEN FROM LOT 46 TO PUOHULULI ST. MIN. 15' FROM TOE OF SLOPE. SEE DETAIL SHT. 37.

10' WIDE EASEMENT FOR SANITARY SEWER PURPOSES  
EXIST DRAIN EASEMENT

15' WIDE EASEMENT FOR DRAINAGE PURPOSES

INSTALL 250 L.F. OF 15' HIGH DUST SCREEN FROM LOT 36 TO 38 ALONG THE TOP OF SLOPE. SEE DETAIL SHT. 37.

"NO VEHICULAR ACCESS" PLANTING SCREEN EASEMENT

INSTALL 70 L.F. OF 15' HIGH DUST SCREEN ACROSS UHIUHI PLACE. SEE DETAIL SHT. 37.

EXIST. DRAIN EASEMENT

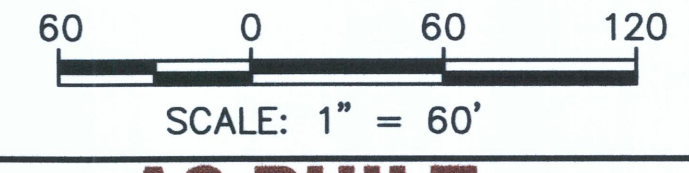
"NO VEHICULAR ACCESS" PLANTING SCREEN EASEMENT

INSTALL 380 L.F. OF 15' HIGH DUST SCREEN FROM LOT 16 TO PUOHULULI ST. ALONG THE TOP OF SLOPE. SEE DETAIL SHT. 37.

NOTE:  
FINAL SUBDIVISION APPROVAL WAS GRANTED BY THE COUNTY OF HAWAII, PLANNING DEPARTMENT IN LETTERS DATED MAY 10, 2010 AND AUGUST 2, 2010.

FOR WORK ALONG KEALAKEHE PARKWAY:  
ALL PAVEMENT MARKING(S) DETERMINED TO BE DISTURBED BY THE HAWAII DISTRICT ENGINEER OR HIS REPRESENTATIVE, SHALL BE IMMEDIATELY REPLACED WITHOUT QUESTION AND AT NO COST TO THE STATE.

**GENERAL LAYOUT PLAN**  
SCALE: 1" = 60'



**AS-BUILT**



APPROVED: [Signature]  
COUNTY ENGINEER, DPW, COUNTY OF HAWAII

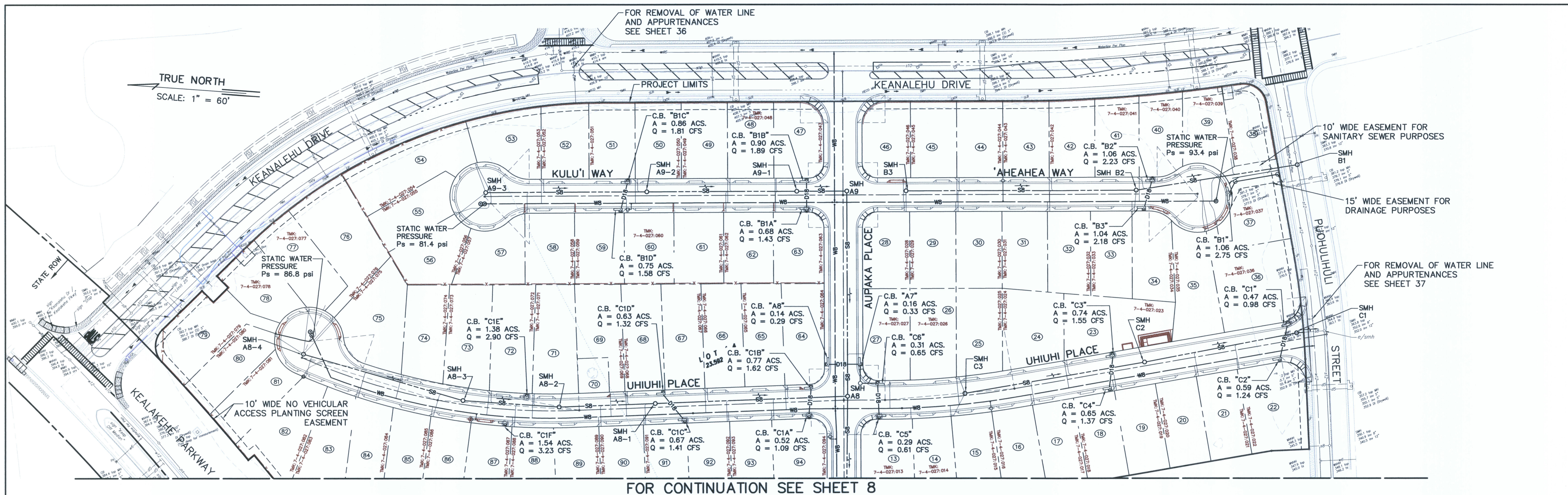
REVISION DATE	DESCRIPTION	MADE BY	APPROVED
DEPARTMENT OF HAWAIIAN HOME LANDS <b>LA'IOPIA VILLAGE 5</b> TAX MAP KEY: (3) 7-4-21:6 KAILUA-KONA, NORTH KONA, HAWAII			
<b>GENERAL LAYOUT PLAN</b>			
Approved: _____ DATE: _____ COUNTY ENGINEER, DPW, COUNTY OF HAWAII			
AKINAKA & ASSOCIATES, LTD. CONSULTING ENGINEERS			
FILE	POCKET	FOLDER	NO.

**LEGEND**

- WB— EXIST. WATER LINE
- WB— NEW WATER LINE
- D24— EXIST. DRAIN LINE
- D24— NEW DRAIN LINE
- e— EXIST. UTILITY/ELECT. LINE
- SB— EXIST. SEWER LINE
- SB— NEW SEWER LINE
- SB— DOUBLE SERVICE SEWER LATERAL
- SB— SINGLE SERVICE SEWER LATERAL
- FH— FIRE HYDRANT
- 1 1/2" DS WATER LATERAL W/ TYPE B CONNECTION FOR 2-5/8" METERS
- 1" SS WATER LATERAL W/ TYPE A CONNECTION FOR ONE 5/8" METER
- LOT NUMBER
- SEWER FLOW DIRECTION

Last Save by: GMG  
 Last Saved: 5/29/2012  
 Plotted on: 5/29/2012  
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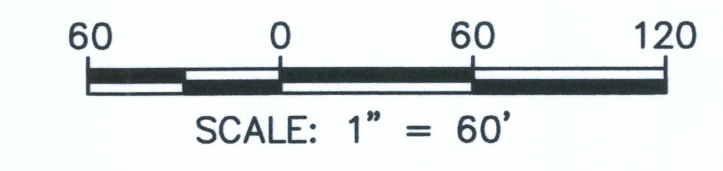
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 Plotted on: 5/29/2012  
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**LEGEND**

- EXIST. WATER LINE
- NEW WATER LINE
- EXIST. DRAIN LINE
- NEW DRAIN LINE
- EXIST. UTILITY/ELECT. LINE
- EXIST. SEWER LINE
- NEW SEWER LINE
- DOUBLE SERVICE SEWER LATERAL
- SINGLE SERVICE SEWER LATERAL
- FIRE HYDRANT
- 1 1/2" DOUBLE SERVICE WATER LATERAL W/ TYPE B CONNECTION FOR 2-5/8" METERS<sup>C</sup>
- 1" SINGLE SERVICE WATER LATERAL W/ TYPE A CONNECTION FOR ONE 5/8" METER
- LOT NUMBER
- SEWER FLOW DIRECTION

**UTILITY PLAN**  
SCALE: 1" = 60'

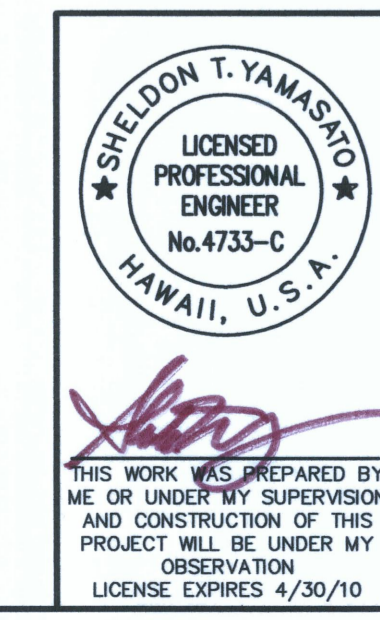


**FOR WORK ALONG KEALAKEHE PARKWAY:**

ALL PAVEMENT MARKING(S) DETERMINED TO BE DISTURBED BY THE HAWAII DISTRICT ENGINEER OR HIS REPRESENTATIVE, SHALL BE IMMEDIATELY REPLACED WITHOUT QUESTION AND AT NO COST TO THE STATE.

**NOTE:**

FINAL SUBDIVISION APPROVAL WAS GRANTED BY THE COUNTY OF HAWAII, PLANNING DEPARTMENT IN LETTERS DATED MAY 10, 2010 AND AUGUST 2, 2010.



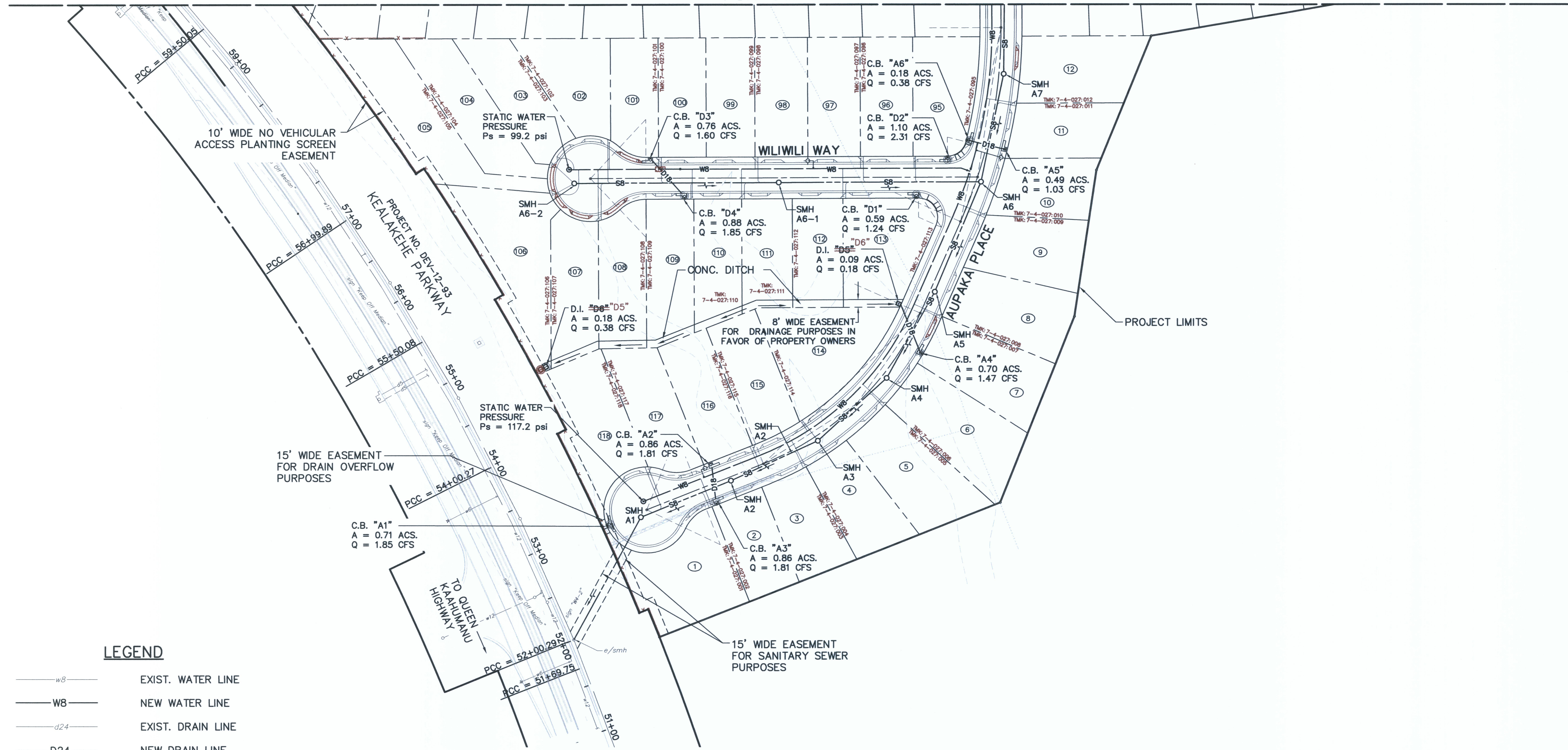
REVISION DATE	DESCRIPTION	MADE BY	APPROVED
DEPARTMENT OF HAWAIIAN HOME LANDS <b>LA'I'OPUA VILLAGE 5</b> TAX MAP KEY: (3) 7-4-21:6 KAILUA-KONA, NORTH KONA, HAWAII			
<b>UTILITY PLAN</b>			
Approved: _____			
COUNTY ENGINEER, DPW, COUNTY OF HAWAII		DATE	
<b>AKINAKA &amp; ASSOCIATES, LTD.</b> CONSULTING ENGINEERS			
FILE	POCKET	FOLDER	NO.

**AS-BUILT**



FOR CONTINUATION SEE SHEET 7

TRUE NORTH  
SCALE: 1" = 60'



**LEGEND**

- EXIST. WATER LINE
- NEW WATER LINE
- EXIST. DRAIN LINE
- NEW DRAIN LINE
- EXIST. UTILITY/ELECT. LINE
- EXIST. SEWER LINE
- NEW SEWER LINE
- DOUBLE SERVICE SEWER LATERAL
- SINGLE SERVICE SEWER LATERAL
- FIRE HYDRANT
- 1 1/2" DOUBLE SERVICE WATER LATERAL W/ TYPE B CONNECTION FOR 2-5/8" METERS
- 1" SINGLE SERVICE WATER LATERAL W/ TYPE A CONNECTION FOR ONE 5/8" METER
- LOT NUMBER
- SEWER FLOW DIRECTION

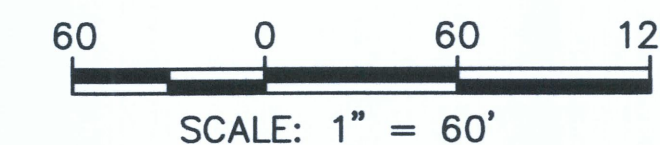
**FOR WORK ALONG KEALAKEHE PARKWAY:**

ALL PAVEMENT MARKING(S) DETERMINED TO BE DISTURBED BY THE HAWAII DISTRICT ENGINEER OR HIS REPRESENTATIVE, SHALL BE IMMEDIATELY REPLACED WITHOUT QUESTION AND AT NO COST TO THE STATE.

**NOTE:**

FINAL SUBDIVISION APPROVAL WAS GRANTED BY THE COUNTY OF HAWAII, PLANNING DEPARTMENT IN LETTERS DATED MAY 10, 2010 AND AUGUST 2, 2010.

**UTILITY PLAN**  
SCALE: 1" = 60'



**AS-BUILT**

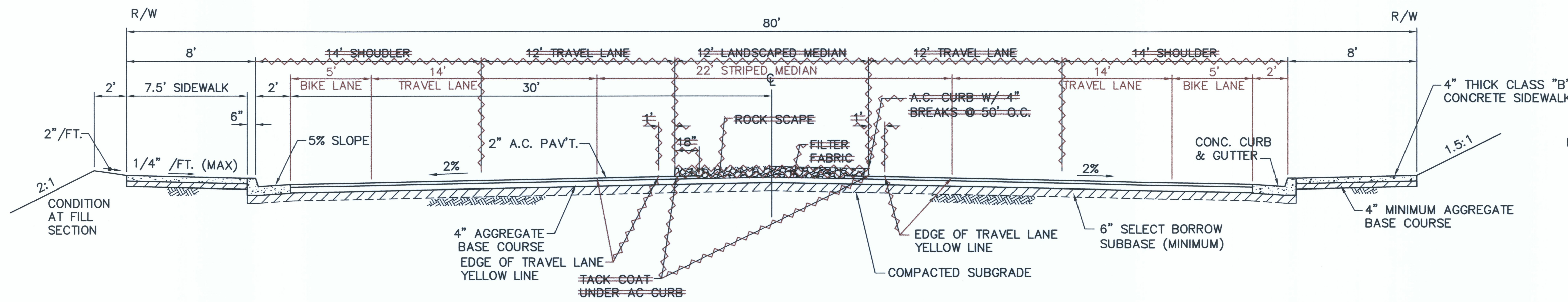


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION  
LICENSE EXPIRES: 4/30/10

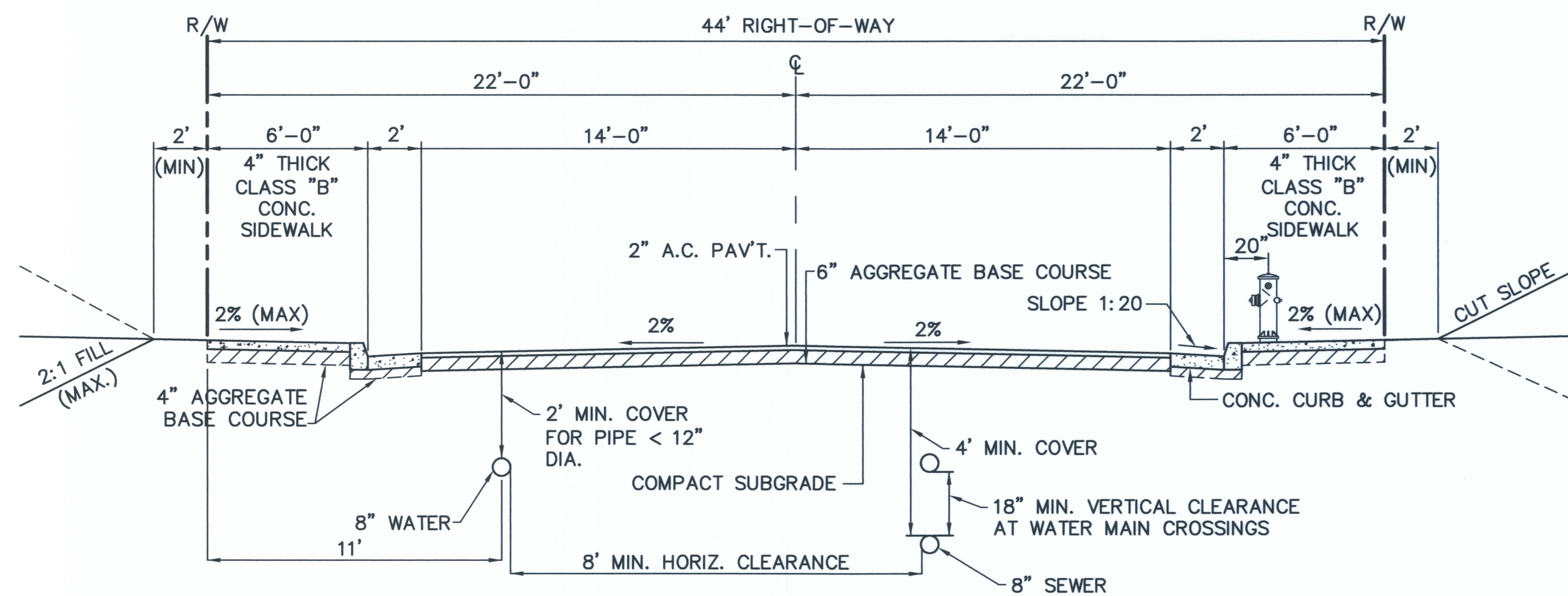
REVISION DATE	DESCRIPTION	MADE BY	APPROVED
DEPARTMENT OF HAWAIIAN HOME LANDS <b>LA'IOPIA VILLAGE 5</b> TAX MAP KEY: (3) 7-4-21-6 KAILUA-KONA, NORTH KONA, HAWAII			
<b>UTILITY PLAN</b>			
Approved: _____ COUNTY ENGINEER, DPW, COUNTY OF HAWAII			
AKINAKA & ASSOCIATES, LTD. CONSULTING ENGINEERS			

FILE	POCKET	FOLDER	NO.

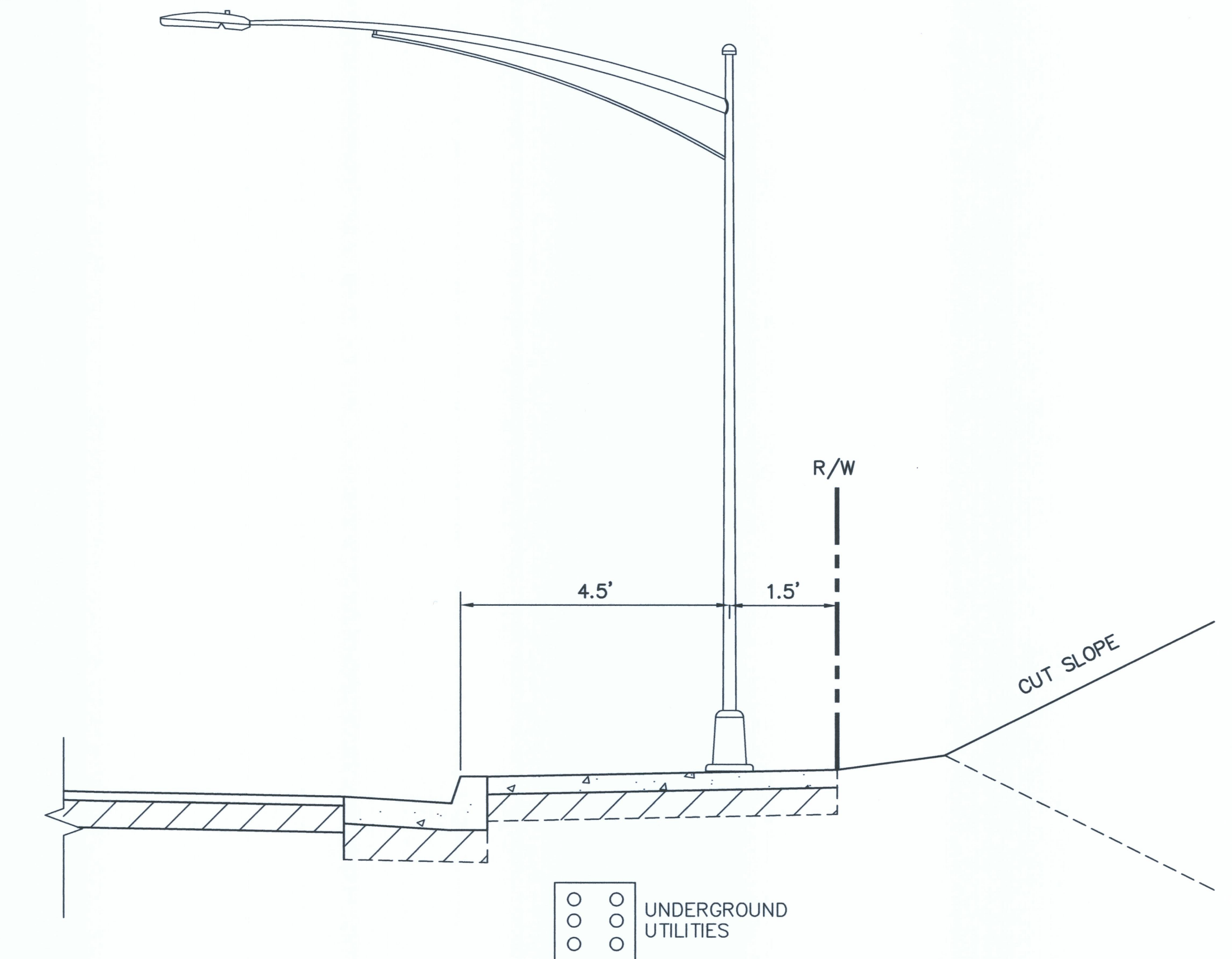
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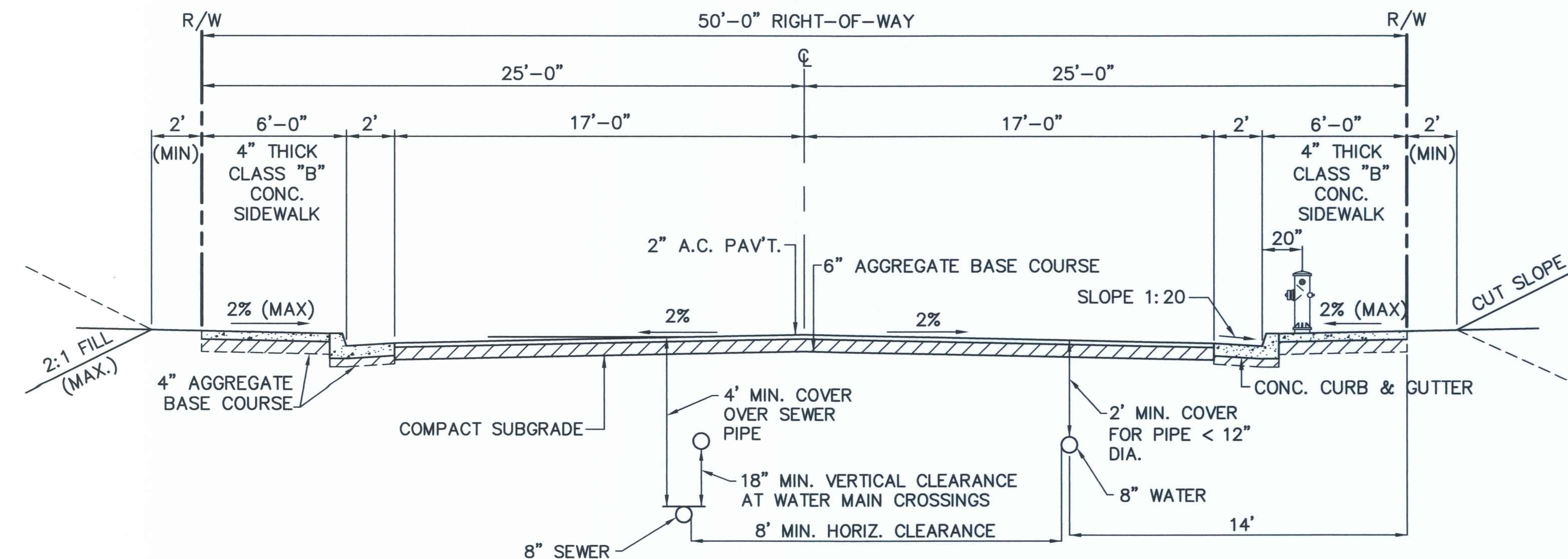
**1**  
**9** TYPICAL SECTION - KEANALEHU DRIVE  
SCALE: 1/4" = 1'-0"



**2**  
**9** TYPICAL SECTION - 44 FT. ROAD RIGHT-OF-WAY  
SCALE: 1/4" = 1'-0"



**4**  
**9** TYPICAL SECTION - SIDEWALK  
SCALE: NOT TO SCALE



**3**  
**9** TYPICAL SECTION - 50 FT. ROAD RIGHT-OF-WAY  
SCALE: 1/4" = 1'-0"



Approved: *[Signature]*  
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION  
LICENSE EXPIRES 4/30/10

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
DEPARTMENT OF HAWAIIAN HOME LANDS <b>LA'I'OPUA VILLAGE 5</b> TAX MAP KEY: (3) 7-4-21:6 KAILUA-KONA, NORTH KONA, HAWAII			
<b>TYPICAL SECTIONS</b>			
Approved: _____		DATE _____	
COUNTY ENGINEER, DPW, COUNTY OF HAWAII		DATE _____	
<b>AKINAKA &amp; ASSOCIATES, LTD.</b> CONSULTING ENGINEERS			
FILE	POCKET	FOLDER	NO.

Last Save by: SHU  
 Last Saved: 5/23/2012  
 Plotted on: 5/23/2012  
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**ROAD NOTES**

- R1 STA. 0+00 @ AUPAKA PLACE = STA 11+54.51 @ KEANALEHU DRIVE  
INSTALL ST. SURVEY MONUMENT  
TOP OF PIN EL. = 404.75
- R2 STA. 1+61.48 @ AUPAKA PLACE = STA 0+00 @ 'AHEAHEA WAY & KULU'I WAY  
INSTALL ST. SURVEY MONUMENT  
TOP OF PIN EL. = 398.21
- R3 STA. 4+28.48 @ AUPAKA PLACE = STA 0+00 @ UHIUHI PLACE  
INSTALL ST. SURVEY MONUMENT  
TOP OF PIN EL. = 380.01
- R4 P.C. STA. 5+54.94 @ AUPAKA PLACE  
INSTALL ST. SURVEY MONUMENT  
TOP OF PIN EL. = 370.39
- R5 STA. 7+14.15 @ AUPAKA PLACE = STA 0+00 @ WILIWILI WAY  
INSTALL ST. SURVEY MONUMENT  
TOP OF PIN EL. = 358.43
- R6 P.T. STA. 7+64.20 @ AUPAKA PLACE  
INSTALL ST. SURVEY MONUMENT  
TOP OF PIN EL. = 355.37
- R7 PROVIDE SMOOTH RIDING CONNECTION  
SEE DETAIL SHEET 33
- R8 CONSTRUCT WHEEL CHAIR RAMP  
SEE DETAIL SHEET 25
- R9 MATCH NEW CURB, GUTTER & SIDEWALK TO EXIST.
- R10 SAWCUT & REMOVE EXIST. CURB, GUTTER & SIDEWALK BETWEEN STA 10+99.51 & STA 12+09.51

**WATER NOTES**

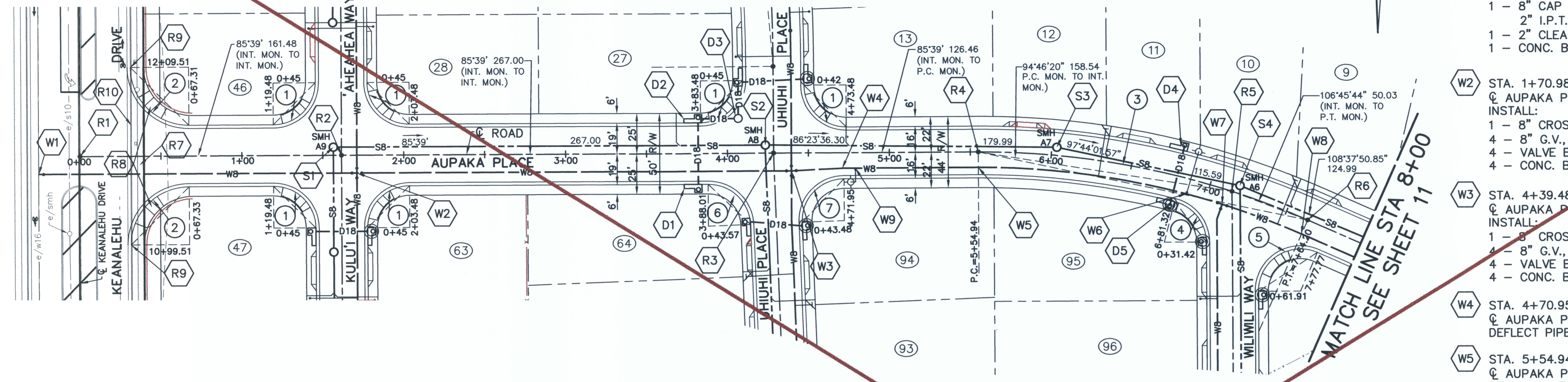
- W1 STA. (-)0+25.54 O/S 11' RT. @ AUPAKA PLACE  
CONNECT NEW 8" PIPE TO EXIST. 16" PIPE  
INSTALL:  
1 - 16" x 8" TAPPING SLEEVE  
1 - 8" TAPPING VALVE,  
1 - C.I. VALVE BOX & COVER  
1 - CONC. BLOCK  
TEMP. FOR TESTING  
1 - 8" CAP TAPPED FOR  
2" I.P.T.  
1 - 2" CLEANOUT  
1 - CONC. BLOCK
- W2 STA. 1+70.98 O/S 11' RT. @ AUPAKA PLACE  
INSTALL:  
1 - 8" CROSS  
4 - 8" G.V., 200#  
4 - VALVE BOXES & COVERS  
4 - CONC. BLOCKS
- W3 STA. 4+39.48 O/S 11' RT. @ AUPAKA PLACE  
INSTALL:  
1 - 8" CROSS  
4 - 8" G.V., 200#  
4 - VALVE BOXES & COVERS  
4 - CONC. BLOCKS
- W4 STA. 4+70.95 O/S 9.5' RT. @ AUPAKA PLACE  
DEFLECT PIPE
- W5 STA. 5+54.94 O/S 9.5' RT. @ AUPAKA PLACE  
BEGIN W.L. PIPE DEFLECTION
- W6 STA. 6+87.34 O/S 9.5' RT. @ AUPAKA PLACE  
INSTALL:  
TYPE "B" F.H. CONNECTION  
1 - 8" x 6" C.I. TEE, M.J  
2 - MEGALUGS BTWN. TEE & VALVE  
1 - NIPPLE, 2' LONG  
1 - 6" G.V., M.J.  
1 - C.I. VALVE BOX & COVER  
1 - 6" HYDRANT ELBOW, M.J.  
26 L.F. 6" DI PIPE  
1 - 8" CAP TAPPED FOR  
2" I.P.T.  
2 - CONC. BLOCKS
- W7 STA. 7+10.82 O/S 9.5' RT. @ AUPAKA PLACE  
INSTALL:  
1 - 8" TEE, M.J.  
3 - 8" G.V., M.J.  
3 - VALVE BOXES & COVERS  
1 - CONC. BLOCK
- W8 STA. 7+64.20 O/S 9.5' RT. @ AUPAKA PLACE  
END W.L. PIPE DEFLECTION
- W9 STA. 4+79.06 O/S 9.5' RT. @ AUPAKA PLACE  
INSTALL:  
TYPE "A" F.H. CONNECTION  
1 - 8" x 6" C.I. TEE, M.J.  
2 - MEGALUGS BTWN. TEE & VALVE  
1 - NIPPLE, 2' LONG  
1 - 6" G.V., M.J.  
1 - C.I. VALVE BOX & COVER  
1 - 6" HYDRANT ELBOW, M.J.  
12 L.F. 6" D.I. PIPE  
1 - 6" 1/4 C.I. BEND, M.J.  
3 - CONC. BLOCKS

**DRAIN NOTES**

- D1 STA. 3+81.98 @ AUPAKA PLACE  
CONSTRUCT C.B. "A8"  
TYPE "A"  
INV. = 379.35
- D2 STA. 3+81.98 @ AUPAKA PLACE  
CONSTRUCT C.B. "A7"  
TYPE "A"  
INV. = 378.95
- D3 STA. 4+06.77 O/S 21.51' LT. @ AUPAKA PLACE  
CONSTRUCT DMH  
TOP = 380.88  
INV. = 376.60
- D4 STA. 6+78.98 @ AUPAKA PLACE  
CONSTRUCT C.B. "A5"  
TYPE "A"  
INV. = 356.85
- D5 STA. 6+78.97 @ AUPAKA PLACE  
CONSTRUCT C.B. "A6"  
TYPE "A" OVER DRYWELL  
TOP OF DRYWELL = 356.50  
SEE DETAIL SHEET 29

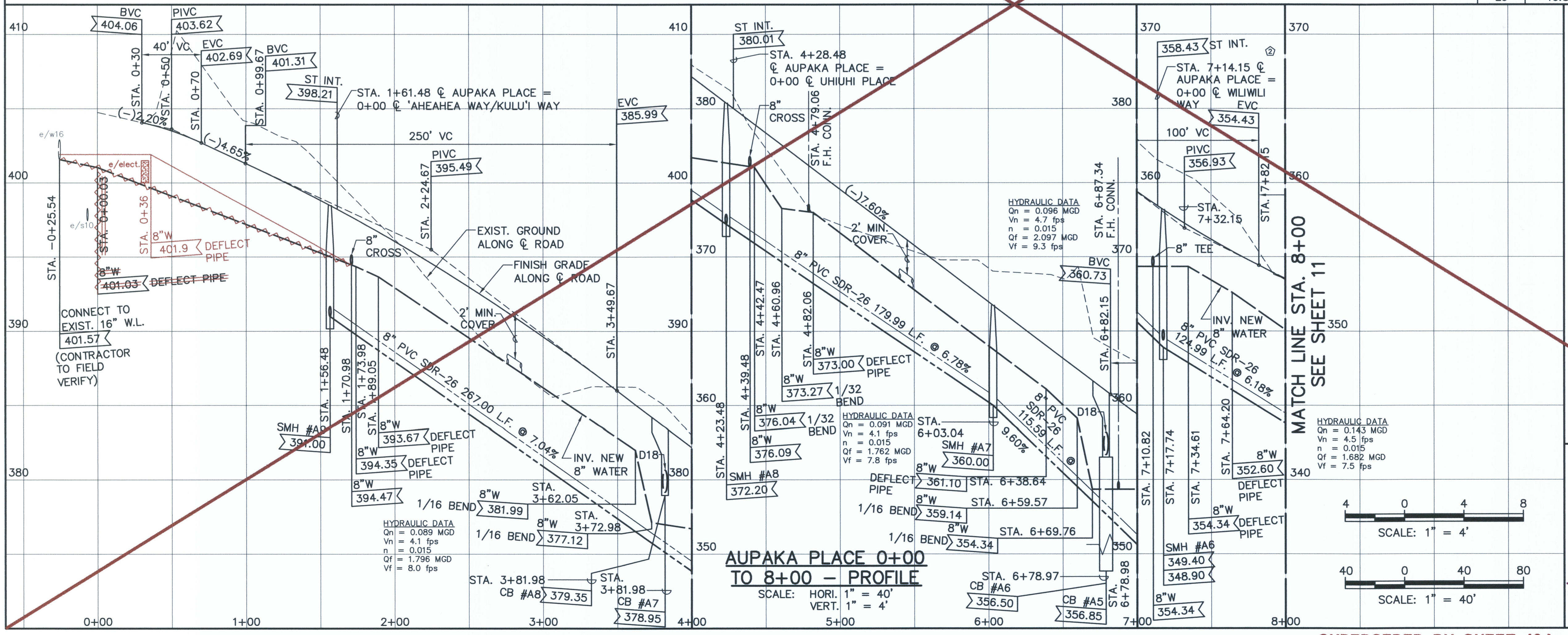
**SEWER NOTES**

- S1 STA. 1+56.48 O/S 5' LT. @ AUPAKA PLACE  
CONSTRUCT SMH #A9  
TOP = 398.37  
INV. = 391.00
- S2 STA. 4+23.48 O/S 5' LT. @ AUPAKA PLACE  
CONSTRUCT SMH #A8  
TOP = 380.28  
INV. = 372.20
- S3 STA. 6+03.04 O/S 5' LT. @ AUPAKA PLACE  
CONSTRUCT SMH #A7  
TOP = 366.64  
INV. = 360.00
- S4 STA. 7+17.74 O/S 5' LT. @ AUPAKA PLACE  
CONSTRUCT SMH #A6  
TOP = 358.09  
INV. = 349.40 (WILIWILI WAY 8" IN)  
INV. = 348.90



**AUPAKA PLACE 0+00 TO 8+00 - PLAN**  
SCALE: 1" = 40'

CURVE	1	2	3	4	5	6	7
Δ	90°00'	90°00'	23°58'47"	75°31'07"	113°58'49"	88°01'15"	91°58'55"
Δ/2	45°00'	45°00'	11°59'23.5"	37°45'33.5"	56°59'24.5"	44°00'37.5"	45°59'27.5"
R	26.00	36.00	500.00	26.00	26.00	26.00	26.00
T	26.00	36.01	106.19	20.14	40.02	25.12	26.92
C	36.77	50.92	207.74	31.84	43.61	36.13	37.40
Lc	40.84	56.56	209.26	34.27	51.72	39.94	41.74



**AUPAKA PLACE 0+00 TO 8+00 - PROFILE**  
SCALE: HORI. 1" = 40'  
VERT. 1" = 4'

**LEGEND**

- e/w8- EXIST. WATER LINE
- W8- NEW WATER LINE
- e/d24- EXIST. DRAIN LINE
- D24- NEW DRAIN LINE
- e/s8- EXIST. SEWER LINE
- S8- NEW SEWER LINE
- DOUBLE SERVICE SEWER LATERAL
- SINGLE SERVICE SEWER LATERAL
- FIRE HYDRANT
- 1 1/2" DOUBLE SERVICE WATER LATERAL W/ TYPE B CONNECTION FOR 2 - 5/8" METERS C
- 1" SINGLE SERVICE WATER LATERAL W/ TYPE A CONNECTION FOR ONE 5/8" METER LOT NUMBER

APPROVED: \_\_\_\_\_

DIVISION CHIEF, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
COUNTY OF HAWAII

PCD #3	07/31/09	REVISE WATER LATERAL CALL OUT	DATE
PCD #2	06/09/09	REVISE STATION LABEL	
REVISION DATE	DESCRIPTION	MADE BY	APPROVED

DEPARTMENT OF HAWAIIAN HOME LANDS  
**LA'I'OPUA VILLAGE 5**  
TAX MAP KEY: (3) 7-4-21-6  
KAILUA-NONA, NORTH KONA, HAWAII

**PLAN & PROFILE  
AUPAKA PLACE  
0+00 TO 8+00**

Approved: \_\_\_\_\_  
COUNTY ENGINEER, DPW, COUNTY OF HAWAII

AKINAKA & ASSOCIATES, LTD.  
CONSULTING ENGINEERS

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION  
LICENSE EXPIRES 4/30/10

FILE	POCKET	FOLDER	NO.
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Last Save by: GMG  
 Last Saved: 6/4/2012  
 Plotted on: 6/4/2012  
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**ROAD NOTES**

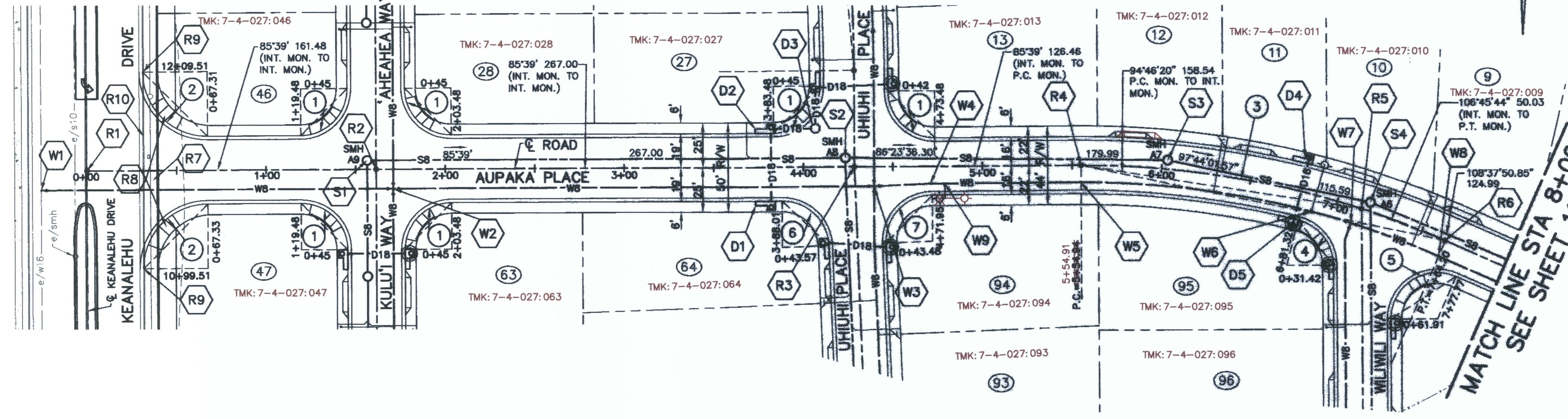
- R1 STA. 0+00.52 @ AUPAKA PLACE = STA 11+54.51 @ KEANALEHU DRIVE  
INSTALL ST. SURVEY MONUMENT  
TOP OF PIN EL. = 404.75-404.79
- R2 STA. 1+61.48 @ AUPAKA PLACE = STA 0+00 @ 'AHEAHEA WAY & KULU'I WAY  
INSTALL ST. SURVEY MONUMENT  
TOP OF PIN EL. = 398.21-398.38
- R3 STA. 4+28.48 @ AUPAKA PLACE = STA 0+00 @ UHIUHI PLACE  
INSTALL ST. SURVEY MONUMENT  
TOP OF PIN EL. = 380.01-380.23
- R4 P.C. STA. 5+54.91 @ AUPAKA PLACE  
INSTALL ST. SURVEY MONUMENT  
TOP OF PIN EL. = 370.39-370.52
- R5 STA. 7+14.12 @ AUPAKA PLACE = STA 0+00 @ WILWILI WAY  
INSTALL ST. SURVEY MONUMENT  
TOP OF PIN EL. = 358.43-358.68
- R6 P.T. STA. 7+64.20 @ AUPAKA PLACE  
INSTALL ST. SURVEY MONUMENT  
TOP OF PIN EL. = 355.37-355.59
- R7 PROVIDE SMOOTH RIDING CONNECTION  
SEE DETAIL SHEET 33
- R8 CONSTRUCT WHEEL CHAIR RAMP  
SEE DETAIL SHEET 25
- R9 MATCH NEW CURB, GUTTER & SIDEWALK TO EXIST.
- R10 SAWCUT & REMOVE EXIST. CURB, GUTTER & SIDEWALK BETWEEN STA 10+99.51 & STA 12+09.51

**WATER NOTES**

- W1 STA. (-)0+25.54 O/S 11' RT. @ AUPAKA PLACE  
CONNECT NEW 8" PIPE TO EXIST. 16" PIPE  
INSTALL:  
1 - 16" x 8" TAPPING SLEEVE  
1 - 8" TAPPING VALVE,  
1 - C.I. VALVE BOX & COVER  
1 - CONC. BLOCK  
TEMP. FOR TESTING  
1 - 8" CAP TAPPED FOR 2" I.P.T.  
1 - 2" CLEANOUT  
1 - CONC. BLOCK
- W2 STA. 1+70.98 O/S 11' RT. @ AUPAKA PLACE  
INSTALL:  
1 - 8" CROSS  
4 - 8" G.V., 200#  
4 - VALVE BOXES & COVERS  
4 - CONC. BLOCKS
- W3 STA. 4+39.48 O/S 11' RT. @ AUPAKA PLACE  
INSTALL:  
1 - 8" CROSS  
4 - 8" G.V., 200#  
4 - VALVE BOXES & COVERS  
4 - CONC. BLOCKS
- W4 STA. 4+70.95 O/S 9.5' RT. @ AUPAKA PLACE  
DEFLECT PIPE
- W5 STA. 5+54.94 O/S 9.5' RT. @ AUPAKA PLACE  
BEGIN W.L. PIPE DEFLECTION

**DRAIN NOTES**

- D1 STA. 3+81.98 @ AUPAKA PLACE  
CONSTRUCT C.B. "A8"  
TYPE "A" (HDOT STD. PLAN INV. = 379.35 H-01B & H-01C)
- D2 STA. 3+81.98 @ AUPAKA PLACE  
CONSTRUCT C.B. "A7"  
TYPE "A" (HDOT STD. PLAN INV. = 378.95 H-01B & H-01C)
- D3 STA. 4+06.77 O/S 21.51' LT. @ AUPAKA PLACE  
CONSTRUCT DMH  
TOP = 380.88  
INV. = 376.60
- D4 STA. 6+78.98 @ AUPAKA PLACE  
CONSTRUCT C.B. "A5"  
TYPE "A" (HDOT STD. PLAN INV. = 356.85 H-01B & H-01C)
- D5 STA. 6+78.97 @ AUPAKA PLACE  
CONSTRUCT C.B. "A6"  
TYPE "A" OVER DRYWELL  
TOP OF DRYWELL = 356.50  
SEE DETAIL SHEET 29



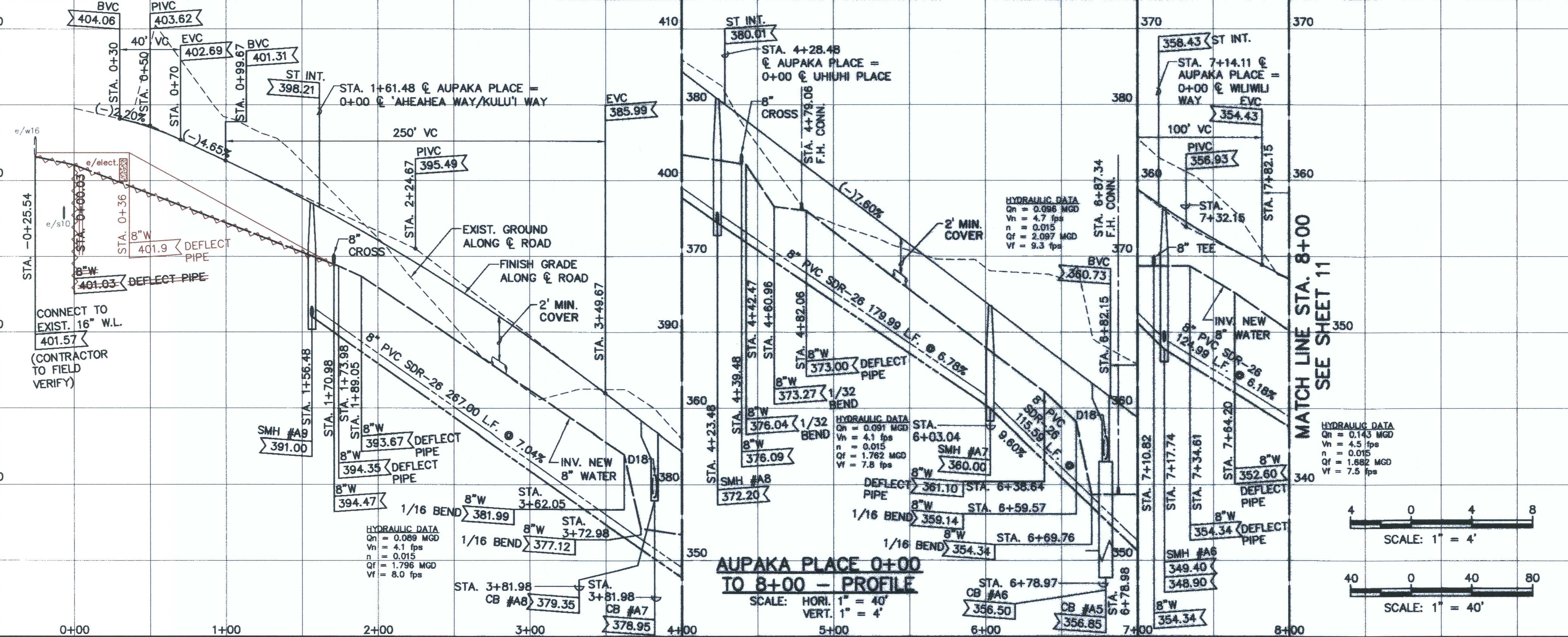
**SEWER NOTES**

- S1 STA. 1+56.48 O/S 5' LT. @ AUPAKA PLACE  
CONSTRUCT SMH #A9  
TOP = 398.37  
INV. = 391.00
- S2 STA. 4+23.48 O/S 5' LT. @ AUPAKA PLACE  
CONSTRUCT SMH #A8  
TOP = 380.28  
INV. = 372.20
- S3 STA. 6+03.04 O/S 5' LT. @ AUPAKA PLACE  
CONSTRUCT SMH #A7  
TOP = 366.64  
INV. = 360.00
- S4 STA. 7+17.74 O/S 5' LT. @ AUPAKA PLACE  
CONSTRUCT SMH #A6  
TOP = 358.09  
INV. = 349.40 (WILWILI WAY 8" IN)  
INV. = 348.90

**AUPAKA PLACE 0+00 TO 8+00 - PLAN**

SCALE: 1" = 40'

CURVE	1	2	3	4	5	6	7
Δ	90°00'	90°00'	23°58'47"	75°31'07"	113°58'49"	88°01'15"	91°58'55"
Δ/2	45°00'	45°00'	11°59'23.5"	37°45'33.5"	56°59'24.5"	44°00'37.5"	45°59'27.5"
R	26.00	36.00	500.00	26.00	26.00	26.00	26.00
T	26.00	36.01	106.19	20.14	40.02	25.12	26.92
C	36.77	50.92	207.74	31.84	43.61	36.13	37.40
Lc	40.84	56.56	209.26	34.27	51.72	39.94	41.74



**AUPAKA PLACE 0+00 TO 8+00 - PROFILE**

SCALE: HORI. 1" = 40'  
VERT. 1" = 4'

**LEGEND**

- e/w- EXIST. WATER LINE
- WB- NEW WATER LINE
- e/d24- EXIST. DRAIN LINE
- D24- NEW DRAIN LINE (HDPE)
- e/s- EXIST. SEWER LINE
- SB- NEW SEWER LINE
- DOUBLE SERVICE SEWER LATERAL
- SINGLE SERVICE SEWER LATERAL
- FIRE HYDRANT
- 1 1/2" DOUBLE SERVICE WATER LATERAL W/ TYPE B CONNECTION FOR 2 - 5/8" METERS
- 1" SINGLE SERVICE WATER LATERAL W/ TYPE A CONNECTION FOR ONE 5/8" METER

APPROVED: *Ricky Beck* 4/22/09  
DIVISION CHIEF, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
COUNTY OF HAWAII

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

DEPARTMENT OF HAWAIIAN HOME LANDS  
LA'I'OPUA VILLAGE 5  
TAX MAP KEY: (3) 7-4-21-6  
KAILUA-KONA, NORTH KONA, HAWAII

**PLAN & PROFILE  
AUPAKA PLACE  
0+00 TO 8+00**

APPROVED: *SHELDON T. YAMASAKI*  
LICENSED PROFESSIONAL ENGINEER  
No. 4733-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  
LICENSE EXPIRES 4/30/10

COUNTY ENGINEER, DPK, COUNTY OF HAWAII

AKINAKA & ASSOCIATES, LTD.  
CONSULTING ENGINEERS

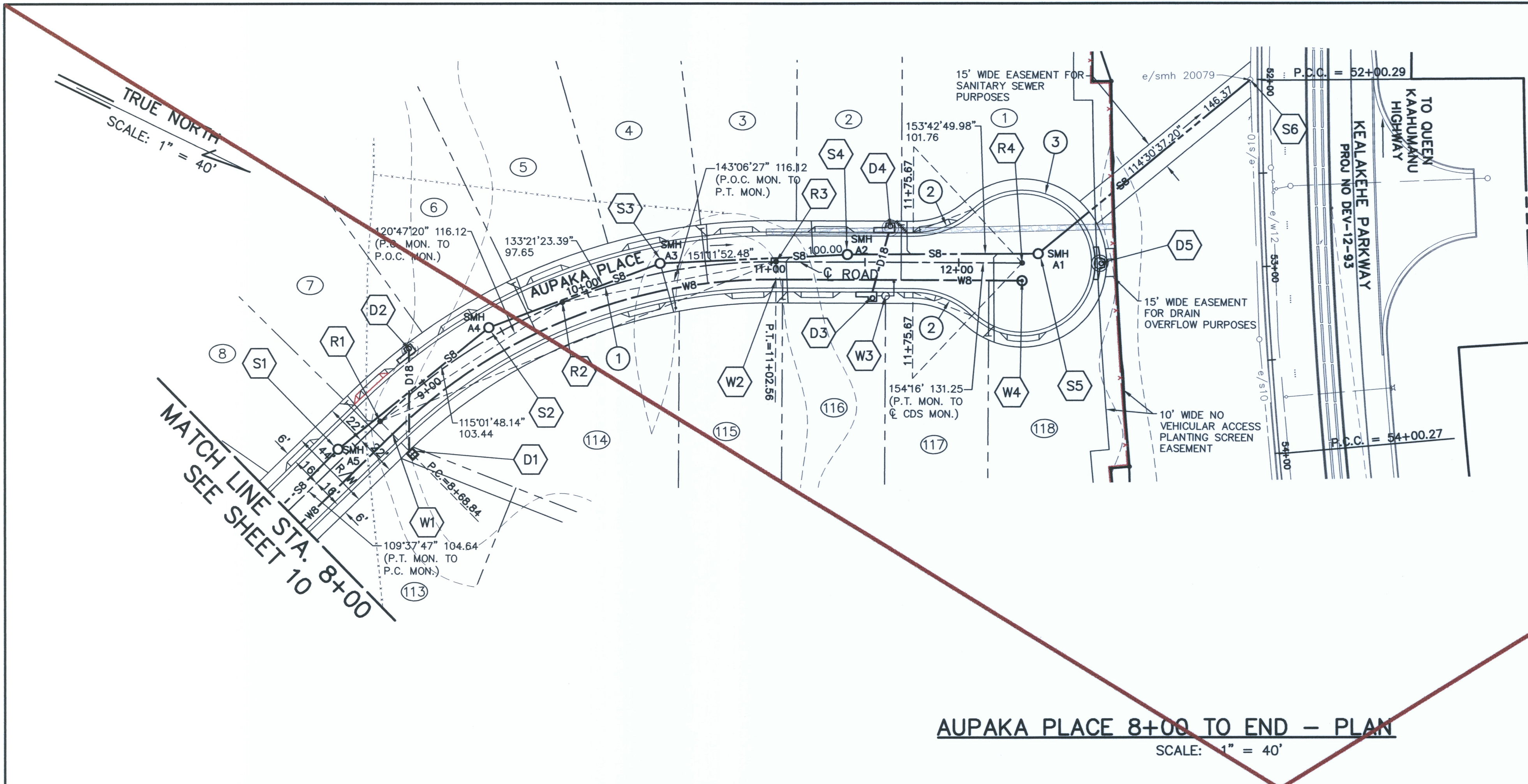
SCALE: 1" = 4'

SCALE: 1" = 40'

**AS-BUILT**

FILE	PROJECT	FOLDER	NO.

Last Save by: GMC  
Last Saved: 4/21/2009  
Plotted on: 4/21/2009  
G:\DHHL0402\ACAD\PCD1\DHHL04209\_ST\FCD1.DWG



**AUPAKA PLACE 8+00 TO END - PLAN**  
SCALE: 1" = 40'

**ROAD NOTES**

- R1 P.C. STA. 8+68.84 @ AUPAKA PLACE  
INSTALL ST. SURVEY MONUMENT  
TOP OF PIN EL. = 348.36
- R2 P.O.C. STA. 9+85.70 @ AUPAKA PLACE  
INSTALL ST. SURVEY MONUMENT  
TOP OF PIN EL. = 339.63
- R3 P.T. STA. 11+02.56 @ AUPAKA PLACE  
INSTALL ST. SURVEY MONUMENT  
TOP OF PIN EL. = 333.79
- R4 @ CDS STA. 12+33.82  
@ AUPAKA PLACE  
INSTALL ST. SURVEY MONUMENT  
TOP OF PIN EL. = 327.23

**SEWER NOTES**

- S1 STA. 8+42.31 O/S 5' LT.  
@ AUPAKA PLACE  
CONSTRUCT SMH #A5  
TOP = 350.48  
INV. = 341.18
- S2 STA. 9+44.84 O/S 5' LT.  
@ AUPAKA PLACE  
CONSTRUCT SMH #A4  
TOP = 341.90  
INV. = 334.78
- S3 STA. 10+41.31 O/S 5' LT.  
@ AUPAKA PLACE  
CONSTRUCT SMH #A3  
TOP = 336.75  
INV. = 329.67
- S4 STA. 11+40.58 O/S 5' LT.  
@ AUPAKA PLACE  
CONSTRUCT SMH #A2  
TOP = 331.81  
INV. = 324.67

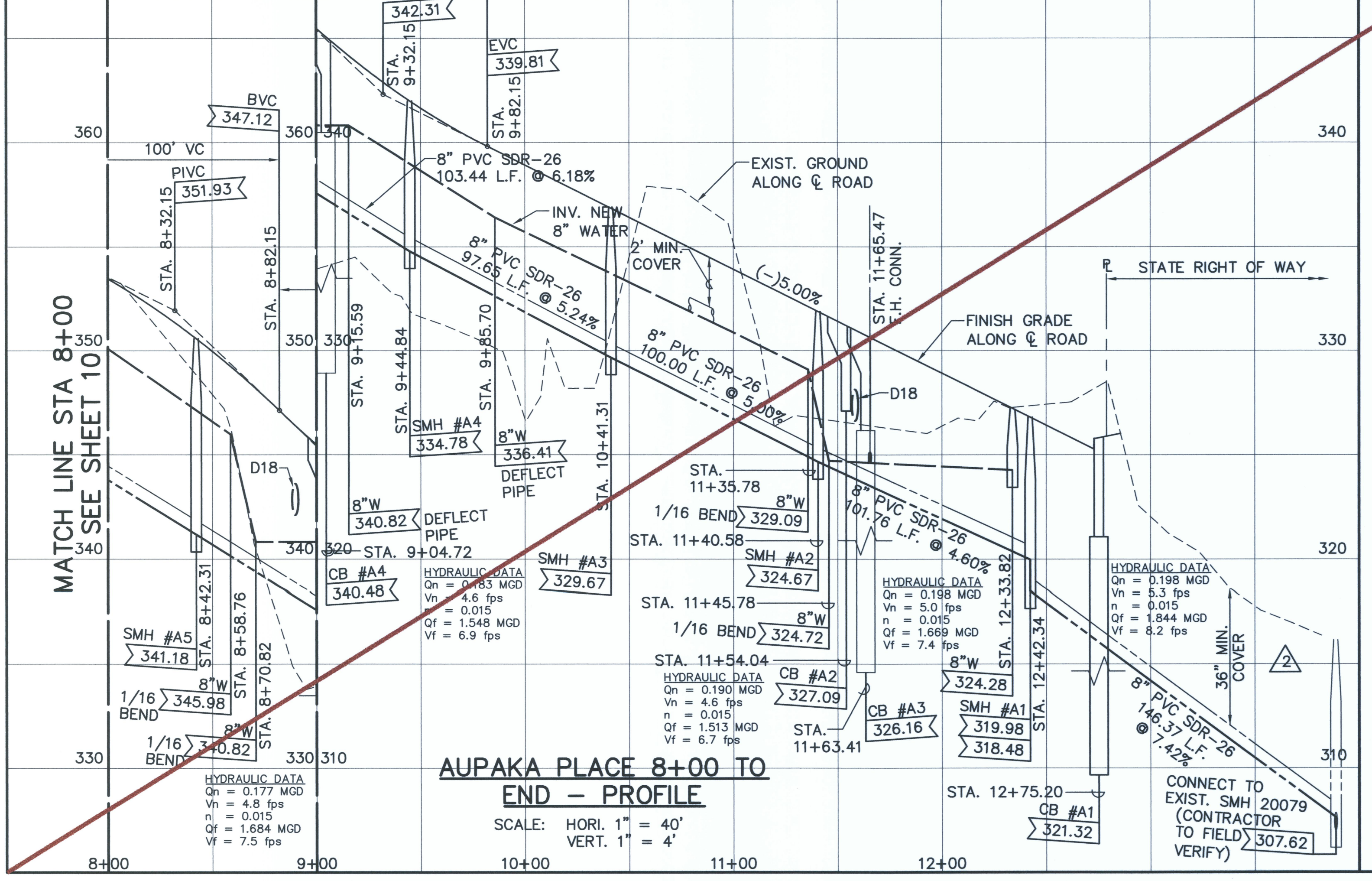
**DRAIN NOTES**

- D1 G.I. "D6"  
SEE SHT. 28  
DETAIL "GRATE INLET  
WITHOUT DRYWELL"
- D2 STA. 9+04.72 @ AUPAKA PLACE  
CONSTRUCT C.B. "A4"  
TYPE "A" OVER EXIST. DRYWELL  
TOP OF DRYWELL = 340.48  
SEE DETAIL SHEET 30
- D3 STA. 11+54.04 @ AUPAKA PLACE  
CONSTRUCT C.B. "A2"  
TYPE "A"  
INV. = 327.09
- D4 STA. 11+63.41 @ AUPAKA PLACE  
CONSTRUCT C.B. "A3"  
TYPE "A" OVER EXIST. DRYWELL  
TOP OF DRYWELL = 326.16  
SEE DETAIL SHEET 30
- D5 STA. 12+75.20 @ AUPAKA PLACE  
CONSTRUCT C.B. "A1"  
TYPE "E" OVER DRYWELL  
TOP OF DRYWELL = 321.32  
SEE DETAIL SHEET 31

**WATER NOTES**

- W1 STA. 8+68.84 O/S 9.5' RT.  
@ AUPAKA PLACE  
BEGIN PIPE DEFLECTION
- W2 STA. 11+02.56 O/S 9.5' RT.  
@ AUPAKA PLACE  
END PIPE DEFLECTION
- W3 STA. 11+65.47 O/S 9.5' RT.  
@ AUPAKA PLACE  
INSTALL:  
TYPE "A" F.H. CONNECTION  
1 - 8" x 6" C.I. TEE, M.J.  
2 - MEGALUGS BTWN. TEE & VALVE  
1 - NIPPLE, 2' LONG  
1 - 6" G.V., M.J.  
1 - C.I. VALVE BOX & COVER  
1 - 6" 1/4 C.I. BEND, M.J.  
1 - 6" HYDRANT ELBOW, M.J.  
11 L.F. 6" D.I. PIPE  
1 - F.H. (HT.=4')  
3 - CONC. BLOCKS
- W4 STA. 12+33.82 O/S 9.5' RT.  
@ AUPAKA PLACE  
END 8" WATER  
INSTALL:  
1 - 8" CAP TAPPED FOR 2" I.P.T.  
1 - 2" CLEANOUT  
1 - M.H.  
1 - CONC. BLOCK

CURVE	(1)	(2)	(3)
Δ	44'38"13"	43'09"46"	266'19"33"
Δ/2	22'19"06.5"	21'34"53"	133'09"46.5"
R	300.00	46.00	39.00
T	123.15	18.20	41.58
C	227.85	33.84	56.89
Lc	233.72	34.65	181.28



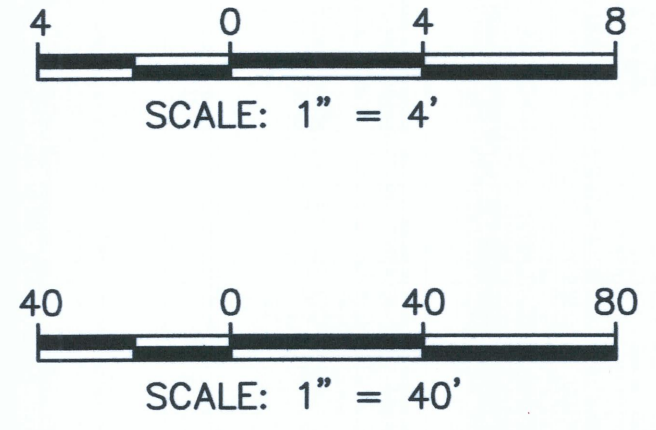
**AUPAKA PLACE 8+00 TO END - PROFILE**  
SCALE: HORI. 1" = 40'  
VERT. 1" = 4'

**LEGEND**

- e/w8 EXIST. WATER LINE
- WB NEW WATER LINE
- e/d24 EXIST. DRAIN LINE
- D24 NEW DRAIN LINE
- e/s8 EXIST. SEWER LINE
- S8 NEW SEWER LINE
- DOUBLE SERVICE SEWER LATERAL
- SINGLE SERVICE SEWER LATERAL
- FIRE HYDRANT
- 1 1/2" DOUBLE SERVICE WATER LATERAL W/ TYPE B CONNECTION FOR 2 - 5/8" METERS
- 1" SINGLE SERVICE WATER LATERAL W/ TYPE A CONNECTION FOR ONE 5/8" METER
- LOT NUMBER

FOR WORK ALONG KEALAKEHE PARKWAY:

ALL PAVEMENT MARKING(S) DETERMINED TO BE DISTURBED BY THE HAWAII DISTRICT ENGINEER OR HIS REPRESENTATIVE, SHALL BE IMMEDIATELY REPLACED WITHOUT QUESTION AND AT NO COST TO THE STATE.



APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

DIVISION CHIEF, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
COUNTY OF HAWAII

PCD #	REVISION DATE	REVISION DESCRIPTION	A&A	MADE BY	APPROVED
07/31/09		REVISE WATER LATERAL CALL OUT			

DEPARTMENT OF HAWAIIAN HOME LANDS  
**LA'I'OPUA VILLAGE 5**  
TAX MAP KEY: (3) 7-4-21:6  
KAILUA-KONA, NORTH KONA, HAWAII

**PLAN & PROFILE  
AUPAKA PLACE 8+00 TO  
END**

Approved: \_\_\_\_\_ DATE: \_\_\_\_\_  
COUNTY ENGINEER, DPW, COUNTY OF HAWAII

AKINAKA & ASSOCIATES, LTD.  
CONSULTING ENGINEERS

FILE	POCKET	FOLDER	NO.

Last Save by: GMG  
Last Saved: 6/4/2012  
Plotted on: 6/4/2012  
G:\DHHL0402\ACAD\PCD3\DHHL04210\_STP\PCD3.DWG