

WATER NOTES:

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2012	10	0

- ORIGINAL PLAN

SURVEY PLOTTED BY

DATE

NO.

DESIGNED BY

CHECKED BY

TRACED BY

CHECKED BY

1. All work shall be done according to the Water System Standards, State of Hawaii, dated 2002, as amended.

2. All existing waterlines, waterline appurtenances and other utility locations shown on the plans are obtained from the 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 during the contract period.

3. 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 work.

4. All connections to the existing County Water System shall be done by the D.W.S. The Contractor shall perform all excavation, backfill, road repair, traffic control, and provide equipment and materials necessary to complete the connection.

5. The Contractor shall pay for all work, equipment and material furnished by the D.W.S.

6. Where water shutoff of more than 3-hours becomes necessary, the Contractor, at his own expense, 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 deemed necessary.

7. Construction projects requiring temporary water service shall be metered and paid for by contractor.

8. Outside of State Road right-of-ways: minimum cover on water system pipelines 4-inch through 8-inch to be 2.0 feet. minimum cover on 12-inch pipelines to be 2.5 feet. minimum cover on pipelines greater than 12-inch to be 3.0 feet. maximum cover on pipelines not to exceed 5 feet unless approved by the manager of D.W.S. Within State road right-of-ways: min. cover on all sizes of waterlines to be 3.0 feet.

9. All newly installed waterlines shall have a 4 mil thick, 6-inch wide, non metallic blue warning tape over centerline of pipe labeled "caution - waterline buried below" placed 12 inches below finished grade along the entire length of the trench.

10. Minimum vertical clearance between waterlines and other utilities shall be 12-inches provided the other utility is concrete jacketed, and 18-inches if no concrete jackets are used. In all applicable instances, the waterlines shall be at a grade higher than other utilities. utilize perpendicular crossings where practicable. For waterlines, center full pipe lengths at utility crossings whenever possible.

11. Minimum horizontal clearance between waterlines and other utilities shall be 8-feet (clear space - not centerline to centerline) for road right-of-ways of 50 feet or less, and 10-feet for road right-of-ways of more than 50 feet.

12. When waterline is within 6-feet of a pressurized sewer line or within 18-inches of a gravity sewer line, the sewer main shall be reinforced concrete jacketed. Whenever a water main crosses under a sewer main, the sewer main shall have reinforced concrete jacket on both sides of crossing to a distance 5 feet from the waterline (measured perpendicular to waterline). Standard concrete jacket details for sewer lines, as specified by the department of public works standards shall be followed. Plastic pipes shall not be jacketed. Ductile iron or concrete cylinder pipe shall be used for the portion to be jacketed.

13. All water system pipelines, 4-inches or larger in diameter, shall be ductile iron, push on joints, class 52, and all pipelines smaller than 4-inches in diameter shall be soft copper, Type "K", unless otherwise specified.

14. All fittings (minimum class 250) and gate valves (resilient type, class 200) shall be ductile iron, with mechanical joints unless otherwise specified. Butterfly valves (MJ) shall be class 250 with fusion epoxy coated interior unless otherwise specified. Slope of pipe invert at valve locations shall not exceed 6% - adjust pipe as appropriate per standards.

15. Pipe joint restraints for mechanical joint (MJ) fittings and MJ valves shall be "Megalugs" series as manufactured by EBAA Iron, Inc., or an approved equal (wedge type), where ever called for on the plans and specifications.

16. Fire hydrant assemblies shall utilize EBAA "Megalugs" (or approved equal) at all MJ connections.

17. 4'x4'x4" reinforced concrete slab for fire hydrant shall be reinforced with 6x6x 10/10 welded wire fabric. Slab to slope away from hydrant at 2% in all directions.

18. The waterline shall be tested at a minimum of 225 psi or one-and-one-half times the static pressure at the low point (whichever is greater), under D.W.S. supervision. The testing shall be done just prior to paving, whenever applicable.

19. The contractor shall be responsible for the chlorination of the water system per the most current standards of governing agencies and shall bear all cost(s). The person(s) engaged to do the chlorination work must have the appropriate valid license to perform the work in the State of Hawaii.

20. Existing valves, fire hydrant units, valve boxes, frames and covers designated "remove and salvage" shall be cleaned of all dirt, scabs, and concrete and delivered to the respective D.W.S. baseyard. This work shall be considered incidental to the various bid items, unless specified otherwise.

21. Existing waterlines, valves, fittings and appurtenances not designated "remove and salvage" shall be abandoned in place. All exposed valve boxes, valves, pipes and appurtenances shall be removed and disposed of properly at no cost to the D.W.S.

22. Removal of existing fire hydrant units as follows: For mechanical joint fittings - plug tee at the main; For lead joint fittings - cut tee from main and install pipe nipple using two transition couplings.

23. Meter boxes for 5/8-inch meters placed outside of pavement to be Type "B" per Std Details M1 & M2. Meter boxes for 1-inch meters or for 5/8-inch meters located within pavement to be Type "X" per Std Detail M3.

24. Relocation of existing meters shall be done under D.W.S. supervision. Relocations of customer service lines to relocated meters shall be copper (Type "K") and done by the Contractor. All work and materials shall be provided by the Contractor and considered incidental to the relocation work. Existing meter boxes damaged by the Contractor shall be replaced at the Contractor's cost. When applicable, a dielectric union shall be used to connect the copper pipe to the customer's galvanized iron (G.I.) pipe.

25. Solder (1/8-inch dia.) and flux used shall not contain more than 0.2% lead.

26. When compaction tests are required, the Contractor shall be responsible to provide the D.W.S. with proctor results of materials to be used for that portion of the work requiring compaction. These results shall be certified and shall be furnished to D.W.S. one week prior to commencement of work. Cost for compaction tests shall be incidental to pipeline installation.

27. The Contractor shall be responsible to maintain and certify the record drawings (as-built drawings) as to accuracy and as-built condition, and a licensed Engineer shall certify the drawings. The Contractor shall then submit the record drawings and as-built tracings to the D.W.S.

28. Lots requiring a Department of Water Supply approved backflow prevention assembly shall have one. Backflow device installation may not be required for final subdivision approval but must be installed, where required, before water service is allowed. It must be installed on private property in accordance with D.W.S. Standard Detail No. V9 and departmental staff must approve the installation before water service can be started.

29. When necessary per D.W.S. Stds. or cross connection control requirements, Install D.W.S. approved reduced pressure principle type backflow prevention assembly, above ground and immediately after meter on customer's property, per D.W.S. Standard V-9. No taps or connections are allowed between the meter and the approved backflow preventer. If the distance between the meter and the backflow preventer is greater than 5 feet, then the line between them shall be concrete jacketed. Concrete jacket encasement shall be a minimum of 3 inches all around pipe. Inspection by D.W.S. cross-connection personnel required at time of concrete placement. Assembly testing requirements are 1x per year. The owner shall make their own provisions for those times when the backflow prevention assembly is being tested.

30. Pressures at all locations within the water system improvements shall not be less than 40 psi static or greater than 125 psi static. Pressures at all locations within the water system shall not fall below 20 psi residual during maximum day flow plus fire flow from any fire hydrants within the water system improvements shown.

31. For County Water Systems: The D.W.S. will not assume ownership or grant any water service until the water system is dedicated to the D.W.S. along with all necessary easements and documents.

32. For private water systems: The Department of Water Supply (D.W.S.) is providing its review and inspection for the subject water system improvements only. This review is based on the information and certification provided to D.W.S. by the Developer, Licensed Architect or Engineer, and the owner of the water company/utility and successors or assigns, and is for general conformance to the current water system standards and D.W.S. rules and regulations.

33. Water system approved on conformance to water system standards only. Plan approval and signature by the Manager, Department of Water Supply only indicates that the water system improvements shown on the plans generally conform to water system standards for the County of Hawaii. They are not guarantees of water availability or of a water commitment for the subject project which are handled separately from plan review.

LIANA S.F. CHOY

LICENSED PROFESSIONAL ENGINEER

No. 9209-C

HAWAII, U.S.A.

4/30/2016

SIGNATURE

EXPIRATION DATE OF THE LICENSE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

C-7

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

WATER NOTES

MAUNA KEA MAINTENANCE  
BASEYARD  
Saddle Road

Project No. 200A-01-10

Scale: None Date: September, 2015

SHEET No. 7 OF X SHEETS