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ENGINEERING DIVISION MEMORANDUM

To: Public

From: Alan Keone Thompson, P.E.

Date: August 29, 2024

Subject: Drywell Capacity Verification Testing

The procedures below shall be followed for the capacity verification testing of all newly installed drywells intended to control rainfall runoff in the County of Hawaii:

- Upon completion of construction of the drywell, the following steps shall be taken. Verification testing shall be done in the presence of the Engineer or a representative. All processes and results shall be documented by the contractor on the attached form.
  - Pretest: Inject a minimum of 2,000 gallons of potable water into the drywell.
  - First Test: Within two hours of the completion of the previous step, inject a minimum of 2,000 gallons of potable water into the drywell at the maximum flowrate allowable by the equipment used.
    - Record volume, start time of injection, time to complete the injection, and the time required for the water to fall each of three 24" increments.
    - Calculate the rate of infiltration for each 24" increment and the average rate of infiltration for the three increments combined.
  - Second Test: Within two hours of the completion of the previous step, inject a minimum of 2,000 gallons of potable water into the drywell at the maximum flowrate allowable by the equipment used.

    - Record volume, start time of injection, time to complete the injection, and the time required for the water to fall each of three 24" increments.
    - Calculate the rate of infiltration for each 24" increment and the average rate of infiltration for the three increments combined.
- Average infiltration rates for the measured tests must be within 0.5 cubic feet per second of each other or a third test must be conducted within two hours of the end of the second. If a third test is required, the average of the results of the second and third tests shall be used to determine the capacity of the drywell.
- If standing water is observed at the bottom of the drywell and/or the bottom of the drywell is at or below 10' above Mean Sea Level, an additional 500 gallons of water must be added to each of the testing quantities and the bottom of the lowest reading must be at least 24" above the observed standing water level or the bottom of the drywell, whichever is higher.

Project Name _____

Date of Test _____

Drywell Location _____

_____

_____

Diameter of Drywell _____

First Injection (Pretest)

_____ Volume

_____ Start Time _____ End Time

Second Injection (First Test)

_____ Volume

_____ Start Time _____ Time to Complete (sec)

_____ Average Injection Rate (gal/sec)

_____ Time to drop first 24" _____ Infiltration Rate ((πr^2 x 24")/time)

_____ Time to drop second 24" _____ Infiltration Rate ((πr^2 x 24")/time)

_____ Time to drop third 24" _____ Infiltration Rate ((πr^2 x 24")/time)

_____ Average Infiltration Rate

Third Injection (Second Test)

_____ Volume

_____ Start Time _____ Time to Complete (sec)

_____ Average Injection Rate (gal/sec)

_____ Time to drop first 24" _____ Infiltration Rate ((πr^2 x 24")/time)

_____ Time to drop second 24" _____ Infiltration Rate ((πr^2 x 24")/time)

_____ Time to drop third 24" _____ Infiltration Rate ((πr^2 x 24")/time)

_____ Average Infiltration Rate

Contractor's Name / Signature _____

DPW Representative Name / Signature _____