Oahu Army Natural Resource Program Baseyard Invasive Species Mitigation
Schofield Barracks HI

The Oahu Army Natural Resource Program Baseyard Invasive Species Mitigation project was completed in September 2013 by Kaikor Construction Company, Inc. and was funded by the Research Corporation of the University of Hawaii. The project's objectives of preventing the spread of invasive species through a dedicated vehicle wash area and improving the functionality of the Baseyard were accomplished through the construction of a two-vehicle, paved vehicle wash area served by a 1,500 square-foot bioretention planter (comprised of a 24" layer of 3/4"-diameter, washed gravel under 30" of Hawaiian Earth Products' "Greens Blend": 33% Menehune "MAGIC" compost, 33% Screened Soil and 33% Dune Sand, under bark mulch with a 6" ponding depth) to treat wash water, paved roads, an improved gravel drainage swale and a 5,000 square-foot pervious concrete parking lot that reduces storm water runoff volumes and associated pollutants while providing parking for Baseyard staff.

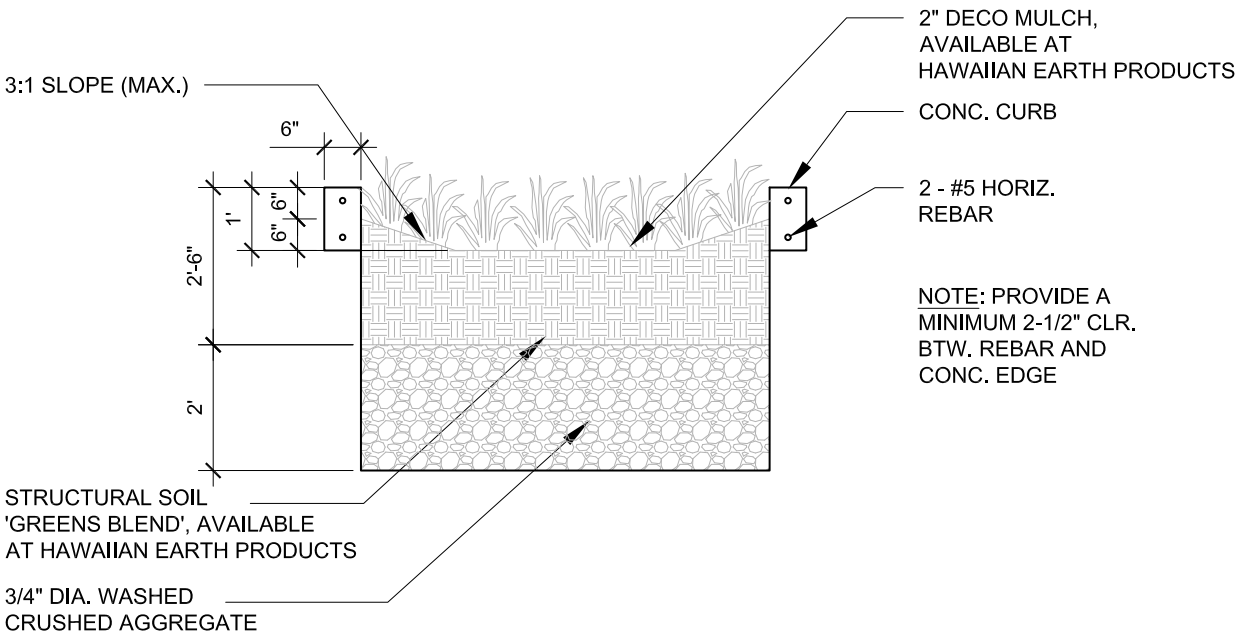
In general, porous pavements are effective at treating the particulates, oils, nutrients and bacteria that occur in the course of pavements' normal use and maintenance. The treatment involves the removal of solid particles and their attached chemical ions from water, and bringing oil into contact with microorganisms for biochemical degradation. The pores house a microecosystem that filters and biodegrades the pollutants that occurs generically on residential, commercial, and office pavements; the underlying soil ecosystem is a backup treatment system that assures high treatment levels, similar to the bioretention planter. Pervious concrete is made by binding open-graded aggregate with Portland cement. Most of the volume of concrete is aggregate; the cement binds the aggregate particles together. Pervious concrete is chemically identical to dense concrete; the defining difference is that pervious concrete is made with open-graded aggregate, which creates the voids in the concrete structure.

The Baseyard pervious concrete parking lot was constructed of a 6" thick pervious concrete pavement layer over a 6" thick layer of 3B coarse aggregate (aggregate size from 0.5" to 1" in diameter) at approximately $16 per square foot. A double ring infiltrometer test was conducted on the underlying, native soil material and showed an incremental infiltration rate of 0.5" per hour.


Pervious concrete parking lot


Excavation of the bioretention planter

Prepared by Directorate of Public Works Environmental Division Clean Water Program
US Army Garrison, Hawaii



Bioretention planter detail

References

Ferguson, Bruce. (2005). *Porous Pavements*. Boca Raton, Florida: CRC Press.

Hun-Dorris, Tara. (2005). “Advances in Porous Pavement.” March-April. stormh2o.com.