



FLOW CAPACITY

GEOCOMPOSITES DRAINS VS. AGGREGATE

Since historic times, civil engineers and builders have used crushed stone (aggregate) for soil drainage. While providing reasonably satisfactory results, aggregate drainage has several drawbacks. Clean and properly sized material is often expensive or not readily available. Transportation is expensive due to weight and volume. Quality control requires close monitoring of material and construction. Waterproofing materials have to be protected from the damage the aggregate and installation equipment can inflict. Aggregate tends to become clogged with soil fines over time, thereby reducing drainage capacity. Despite great care in the design and construction of aggregate drains, their limitations often result in increased hydrostatic pressure, which increases loads on the structure and allows moisture intrusion into the structure.

Continual development of prefabricated geocomposite drainage products, which combine the soil retention capabilities of geotextile filter fabrics with the water transporting capabilities of specially formed polymeric cores, has resulted in today's products which are available in a wide selection of sizes, compressive strengths, flow rates, filtration capabilities, and chemical resistances to suit virtually any drainage application previously serviced by aggregate drainage. One of the many benefits of geocomposite drains, which range from 1/4" – 1" in thickness, is their efficiency in collecting and transporting water. As can be seen from the test results in Table 1 below, geocomposite drains have the ability to replace the equivalent of an aggregate drain many times thicker than those typically used.

TABLE 1: FLOW CAPACITY COMPARISON: SITEDRAIN PRODUCTS vs. AGGREGATE

	SITEDRAIN SHEET 90 or 450 SERIES	SITEDRAIN SHEET 180 SERIES	SITEDRAIN STRIP - HQS - HQ
Flow Capacity (per unit width)	9 gal/min	16 gal/min	100 gal/min (HG = 1) 21 gal/min (HG = 0.1)
Thickness of 3/8"-3/4" Aggregate Required to Obtain Same Flow Rate	> 6 ft	> 10 ft	> 67 ft (HG = 1) > 142 ft (HG = 0.1)
Thickness of Coarse Sand Required to Obtain Same Flow Rate	> 12 ft	> 20 ft	> 135 ft (HG = 1) > 205 ft (HG = 0.1)
* All tests at hydraulic gradient (HG) - 1, unless otherwise specified.			

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