The unique design of Alidrain reduces settlement time and increases site constructability.

Engineers are often required to build on sites comprising fine grained, saturated soils that have poor drainage properties. If the soil is not strengthened in advance, the added weight of a new structure will cause water to squeeze out over time. The soil layer will settle as water is removed.

Throughout this consolidation process, the foundation of the structure will continue to shift until the soil has completely settled. By this point, irreparable damage to the structure will have occurred.

It is critical that all excess water be removed from the soil before construction begins. This will increase the bearing strength of the soil and allow it to support the weight of the new building or other structure. However, fine grained, compressible soils have a low permeability and therefore take a very long time to consolidate.

This problem can be overcome by installing prefabricated vertical drains (PVD) which provide a shorter and easier drainage path through which the water can escape. The same degree of consolidation will ultimately occur, with or without PVDs. PVDs simply reduce the settlement time required to complete consolidation. The closer the drain spacing, the faster the rate of settlement.

Fill is placed on the site to trigger the movement of water. The increased pore water pressure caused by the fill exerts a force (gradient) which moves the water to the nearest drain and up to the drainage layer at the ground surface under the fill. Once the desired consolidation has been achieved, construction can continue. A site can be ready in just a matter of months instead of several years or even decades if drains are not used.

Performance of Vertical Drains
During consolidation, the PVDs are subjected to both tensile and compressive forces as the soil shifts and settles.

This can severely affect the ability of the drains to function as intended:

- **Lateral soil displacements** can cause certain drains to elongate beyond their rupture point.
- **Vertical soil compression** causes some drains to pinch off as the cores fold and buckle.

Drain performance under both conditions must be considered when selecting a PVD as failure can seriously jeopardise the project’s schedule and structural stability.

The unique Alidrain core has been specifically designed to ensure that adequate discharge capacity is maintained at all times, even under the most severe conditions.

Alidrain is available in a wide range of filter fabrics and cores to suit various soil conditions and engineering practices.