

### ADVICE FOR INSTALLATION OF DRAINAGE SYSTEM

The choice of grate should be based on the characteristics of load resistance of the channel grate must endure, the architectural finish preferred, and the surface water capture characteristics in relation to the size of the grate.

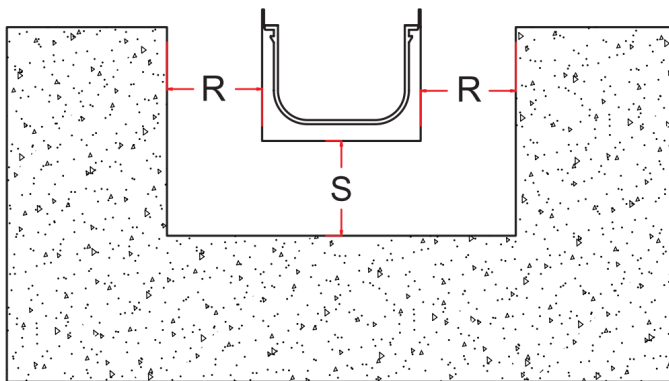
The design of the drainage system should be taken into consideration due to the rainfall and meteorological characteristics of the site in relation to size, shape and slope of the catchment area, surface type and properties of the runoff liquid.

The DuraDRAIN channel and grate system requires a base of concrete thick enough to spread the weight load in accordance with the Class rating of the grate selected.

### PREPARING FOR INSTALLATION

- The excavation for the installation of the drainage system must be dimensioned taking into account the channel selected and the thickness of concrete required for the abutment and the substrate as given in table 1. In addition to these thicknesses (R and S) the excavation should allow for the possible passage of pipes to the final drain connection. The natural ground the drain is being laid in must have a bearing capacity sufficient to support the load classes selected. It may be necessary to increase the bearing capacity by tamping down the foundation or providing some form of ground or soil reinforcement. In particular, soft sub grades may be necessary to make the concrete foundation wider to provide a greater support.

**Figure 1:**



**Table 1.** Recommended thickness for subgrade and concrete abutments according to load classes

Class Loading		
Thickness	B	D
R	100	150
S	100	150



- The bedding must be prepared to provide for a concrete base thickness of S. The concrete to be used for the base of DuraDRAIN must have flow properties conducive to the filling of all cavities formed by the ribs external reinforcement channel for the same reason the size of aggregates in concrete content should not exceed the diameter of 15-18mm.

The minimum strength class of concrete of the foundation and abutment must be between 25 to 30 MPA for grate load classes (B80, D210). There are a number of premixed mortars in the market that may be used such as Mapegrout SV Sikagrout 312 Emaco Ultra Rapid or similar. For installations in cold temperatures, Emaco Fast or similar can be used. These mortars also provide a low volume shrinkage of concrete and reduce the time for transitability line drainage for road works with instant you can use premixed mortar type SikaPatch-4 or similar.

### INSTALLATION OF CHANNEL

1. Begin the installation from the point of discharge (well), connecting the outlet to the stormwater system. For a perfect seal of the male-female joint, use a thixotropic bituminous type sealant or Sikaflex 221 Adhesive. The channel should be installed with the grates already in place, it is therefore recommended to perform this operation before locating the drain in the excavation. Care should be taken in ensuring the correct placement and orientation of grates on the channel before tightening the fixing screws.

2. To connect storm water pipes to the DuraDRAIN channel, drill out the required size hole in the bottom, side or end cap located on the channel using the appropriate sized hole saw to suit the size of the discharging storm water pipe. Remove any rough edges located around the inside of the channel. Insert the required size PVC pipe fitting onto the connection outlet of the channel and seal with Sikaflex 221 adhesive or similar around the fitting and channel. Connect the storm water pipe to the PVC pipe fitting using an approved PVC solvent cement.



3. It is extremely important to avoid distortion at the edge of the channel and subsequent difficulties locating or removing the grate, or issues getting the water to drain correctly to the grate abutment. It is recommended to install a compression or expansion strip approx 40mm x 8mm along both outside edges of the channel between the concrete and the drain to allow for any expansion movement in either the concrete or channel. During installation, avoid any damage to the grates and or the edge of the channel.
4. The channel abutments should then be filled with concrete to a thickness of R (table 1) as required providing for the selected class load. It is also necessary to allow for any floor finishes such as tiles paving etc as it is important that the finished floor remains 3-5mm above the floor drainage grate.

For class D, the concrete finish shall protect the finished surface side of the support edge of the channel. It is important that the concrete is completely cured before subjecting the channel to loads.

