TechTip 004

2MHConsulting

Tennis Court Drainage

All hardcourt surfaces and the majority of sand filled artificial grass court surfaces are non-porous so it is critical that stormwater runoff from the courts is controlled in a way that protects the immediate surrounds from the effects of stormwater runoff and also protects this stormwater runoff from migrating back under the court pavement.

This can cause localised movement in the pavement (swelling) leading to an uneven pavement and eventually pavement failure. An adequate drainage system also allows for the courts playing surface to return to a playable condition faster, following a rain event. The conventional approach to achieve this control is to provide concrete spoondrains along the low sides of the courts. The runoff from the court surface then flows into the spoondrains which diverts the water into concrete stormwater pits via grates in the spoondrain and pipes buried under the spoondrain. The stormwater then discharges (by gravity) into the nominated outfall pit and then into the local Council drainage system or overland swale (see side illustration).

Concrete spoondrain and stormwater grated pit cover. This is located at the lowest corner.

Concrete spoondrain with corner junction pit and intermediate pit for added capacity. Note: debris in the form of grass clippings requires continual maintenance to keep the system functioning as intended.

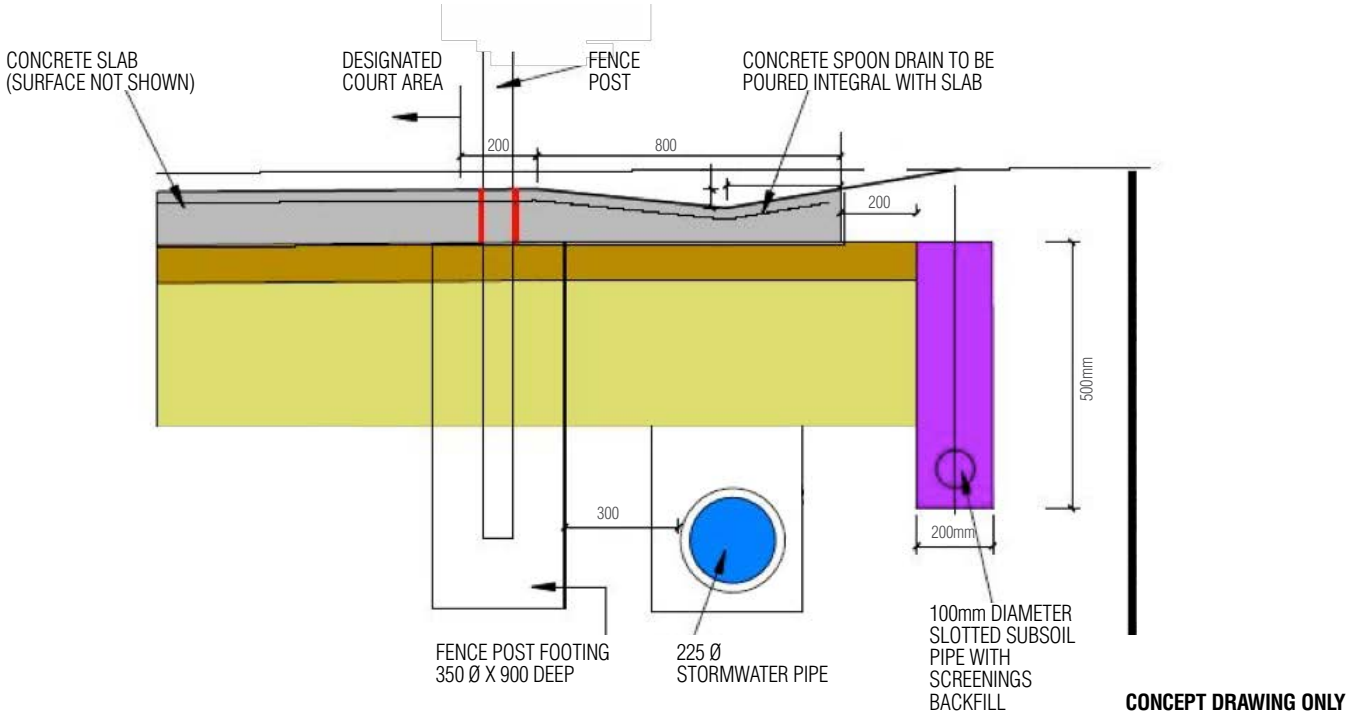
tennis

Surrounding and Subsurface drainage

Subsoil Drainage Installation and backfill

The lay of the land surrounding the courts can dictate the need to include drainage infrastructure such as concrete spoondrains along the high sides of the courts to prevent overland flows from flooding onto the court surface.

Protecting the court pavement beneath the courts from the influence of external water/moisture migration is also very important. The installation of slotted subsurface (AG) drainage is highly recommended around the full perimeter. Such drains are installed approximately 500mm below the surface in a trench and backfilled with free draining screenings (10mm-20mm diameter). Water enters the trench from the surface (overland flow) or from the sides (subsurface moisture) and enters the pipes through the specially designed slots which then discharge this water into the nearest downstream stormwater pit by gravity. A well designed system is easily maintained (see below). Therefore it is important that there is provision in the design to flush out these slotted drains on an annual basis or as required. This is usually provided by a special flush out pit or they can be flushed out from the stormwater pits provided the upstream ends of the drains are incorporated into the stormwater pit wall when it is cast. The subsurface drains play their most important role when the ground is saturated, normally at the end of a wet Victorian winter.



Above: Typical conventional stormwater drainage and subsoil (AG) drainage arrangement

Maintenance

All stormwater drainage systems require ongoing maintenance to function adequately. It is critical that all pits and pipes associated with the system remain free of debris, silt & dirt in order for the system to act as the designer intended. Any debris within the system reduces its capacity to cope with heavy downpours and the poorly maintained system will fast become ineffective. The aim should be to frequently clean the drainage system to keep it functioning efficiently. This will protect the pavement from adverse conditions and increase the overall lifespan of the pavement.