4.1.2. System Performance and Recommended Design Return Period

Refer to Section 3 for rainfall characteristics and run-off parameters.

The storm water system hydraulic performance shall relate to the importance of the catchment area and the consequences of flooding. Areas shall be classified into the groups in accordance with Table 3-2 (Design storm standards for various facilities) to establish the level of performance required.

It may be necessary to test several storm types to arrive at the worst-case conditions to take account of the various types of contributing surfaces and area priorities.

Lagoons (detention ponds) that do not have an outlet and where overtopping may lead to flooding of properties shall be designed to hold the run-off from a 1 in 25 year storm. Lagoons that have an outlet or overland flow track to sea that does not cause disruption to properties or road users, the lagoon is to be sized for the next higher event in Table 3-2 (e.g. a lagoon serving an area which is generally a 1 in 5 year catchment type shall be sized for a 1 in 10 years storm before an overflow occurs).

The amenity value of detention ponds located in urban areas or areas close to residential developments is to be considered. In these areas consideration should be given to landscaping the area as park land and utilising the pond as a shallow open water feature, or wetland with reed beds or other plant life, to encourage wildlife. The increased depth following a storm should be lowered to the amenity level within one week.

The presence of a mechanical aerator, such as a fountain in the middle of the lagoon, often makes the site more attractive, deters the growth of unwanted vegetation and reduces the possibilities of mosquitoes using the lagoon as a breeding site.

Detention ponds in rural areas should be dry and facilities installed to empty the pond within one week installed unless DMAT approval is obtained to an evaporative lagoon.

4.1.3. Surface Flooding

No surface flooding will be allowed unless agreed with DMAT, along with the necessary checks at the appropriate design storms and return periods.

4.1.4. Pipes Located Near to Structures and Buildings

Pipelines shall be designed with a clear width on each side shown Figure 4-1 to allow for future maintenance/repair access and to avoid additional forces from structures and buildings.