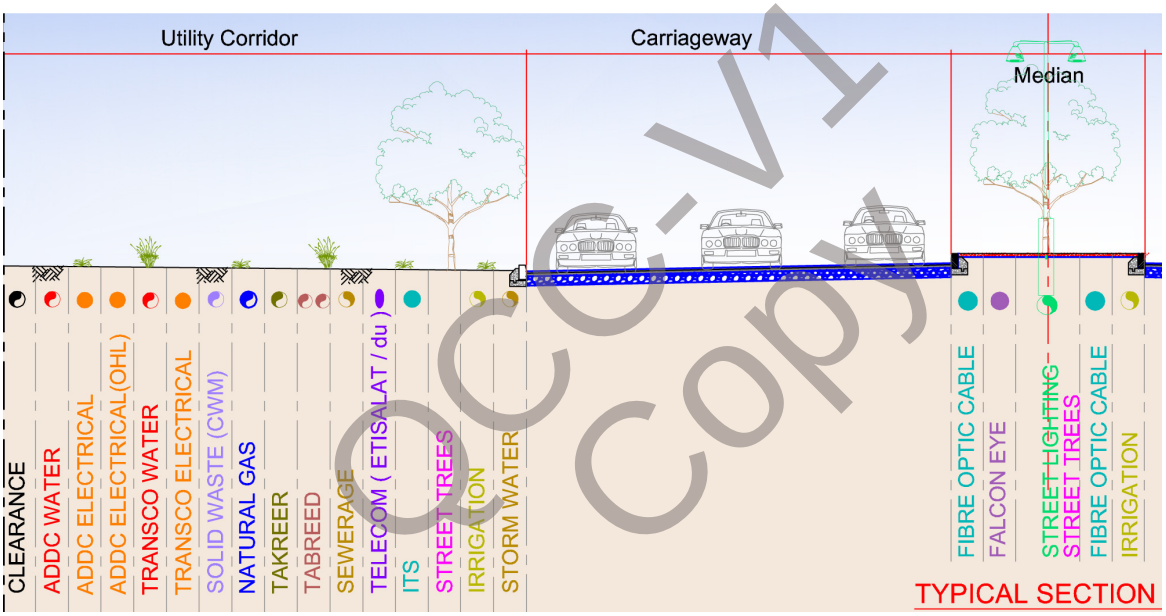
4.4 Typical ROW Utilities

A typical ROW consists of a carriageway, service road, parking, sidewalk and landscape on the at grade level, whereas; all the utilities are provided below the ground surface with respect to their required sequencing and layouts. The types of utilities within a typical ROW cross section are presented in Figure 9.

Figure 9: Types of Utilities within a Typical ROW



The utilities that are usually laid within the ROW of access controlled roads (i.e. main roads) are storm water drainage, irrigation, power supply, water, gas, sewerage, telecom, ITS, fibre optics and falcon eye system. However, depending on the service or utility demand some other utilities such as district cooling (e.g. TABREED) and oil refinery pipelines (e.g. TAKREER) are also provided. The design details and corridor requirements for the accommodation of all such utilities are presented in the following Sections.

4.4.1 Storm Water Drainage

A storm water drainage network is designed to drain excess rain and ground water from the road surface. The drains in the network vary in design and size depending on the drainage requirements. However, the design of storm water drainage network including the drains (pipes) and manholes shall be in accordance with the general requirements and standard design details published by PRFD-ADM/AAM/WRM.

The allocation of storm water drainage corridor width depends on the diameter of the pipe that is to carry the storm water. The minimum diameter of pipe to be considered is 0.3m; however, if there is no debris control provided at gates, the minimum pipe diameter to be considered is 0.5m. The pipe corridor width requirements for different pipe diameters are shown below in Table 6.