

The final Service Reservation distribution and geometry requires the approval of the Town Planning Department.

804 UTILITY DESIGN

804.01 GENERAL

Utility design requirements will be defined on final determination of the scope of utility works by the Department. The final design of each utility will proceed based on the existing utility information and proposed facility requirements. Refer to the Utilities Procedures Flow Chart, Figure 800.01.

In general, rapid development, incomplete as-built information and the harsh soil conditions make it difficult to determine the exact requirements for each service line, especially minor branches and connections, without the benefit of an extensive manual excavation program to locate the utilities. As a result, this effort should be accomplished during the construction phase to enable preparation of detailed shop drawings that will fully define the requirements for each utility. The procedure and specifications for this work are outlined in the Standard Specifications. The tender documents are prepared based on the best available information and may be limited to the major components of a particular service. This procedure varies with the different utilities and generally can be described under three categories:

Separate Plans and Specifications Prepared by Agency Designated Consultant- WED(Water) and Sanitary Drainage Network Section use a designated Consultant for the design of facilities. Final design plans, specifications and BOQ are prepared as separate documents and included in the project tender document package. The drawings will indicate the existing facilities anticipated to be protected, relocated or abandoned as well as new pipeline requirements. Based on the results of the manual excavation, the Contractor will prepare detailed shop drawings that include refinements and adjustments to the tender drawings to reflect the conditions encountered in the field. The shop drawings require the approval of the designated Consultant and the WED.

Separate Plans and Specifications Prepared by Utility Authority- WED(Electric) and ETISILAT normally prepare design plans and specifications for their facilities in-house. WED develops schematic drawings and estimated quantities for relocation, protection, salvage and supply of new cables for inclusion in the tender documents. The drawings and Bill of Quantities are modified as necessary by the authority based on the results of the manual excavation and issued to Construction. The Contractor will then prepare fully detailed shop drawings for final approval by the WED.

ETISILAT normally prepares detailed plans and specifications for the work based on their record drawings of the existing telephone system and the need for relocation or protection of plant impacted by the improvement project. These drawings are normally included with the tender documents. Any necessary adjustments based on manual excavation will be done through the shop drawing process in construction.

Consultant Prepared Plans and Specifications- The prime Consultant for the improvement project is required to prepare final design plans and specifications for Surface Drainage, Lighting, Traffic Control and Drainage/Irrigation. The designs are prepared in consultation with the agency or department and the drawings are normally prepared as separate documents and included with the project tender document package. Any necessary adjustments based on manual excavation will be done through the shop drawing process in construction.

804.02 UTILITY PROTECTION

All utilities under the roadway must be protected. This protection will continue under all pavements and extend beyond the back of curb, edge of shoulder or at the duct end wall constructed at the end of the duct by 0.50 meters. The Standard Drawings and General Specifications outline the type of protection to be used for the various utilities consisting of three types:

- Concrete Slab (Precast or Cast-in-Situ)
- Concrete Encasement
- Split Sleeve Concrete Encased