

# SCOPE OF WORKS

## **DESCRIPTION OF THE WORKS**

### **Introduction**

### **Executive Summary**

This scope of works is designed to define the entire process required by Haya Water for the Construction Services required for the deployment of a Fibre Optic Network within identified areas in Muscat.

Haya Water has successfully applied to the Telecommunications Regulatory Authority (TRA) to run a passive Gigabit capable Passive Optic Fibre Network (GPON).

The network topology will be termed:- Fibre To The Home (FTTH) and is detailed in the attached network design guidelines specification (SPC-TEL-013).

The project will consist of facilitating the connection around 49,000 plots in the Governorate of Muscat.

The scope of the works will be detailed below but in summary it will cover the following items for which Haya Water is expecting a turnkey design and build solution:-

#### PoP site Installation

- Plan and design shelter configuration
- Procure telecom shelter
- Install and commission all alarm , mechanical , electrical and building services within shelter
- Install telecom shelter on site including power connection, shelter grounding, earth and foundation works
- Provide diverse (Redundant) ducted entries into the shelter
- Provide Shelter boundary wall or fence.

#### Network Installation

- Plan and design all civil and cable systems
- Ensure that efficient use of 'existing' duct and chambers are reflected in the designs
- Provide all cable, duct and chamber accessory materials for the works
- Construct all ducting and chambers requirements
- Installation of ODF at PoP site
- Cable installation within the main line ducts including PoP to PoP connectivity (core network)
- Cable terminations at the PoP site, street cabinet distribution hubs and network access points
- Installation of street cabinet distribution hubs and associated splitters

The areas to be covered by the project are listed below with an estimate of the number of plots to be covered.

## Area Descriptions

**Madinat Qaboos (MQ) and Shatti Al Qurum (SHQ)** is mainly residential areas of some 1800 properties with SHQ having a number of foreign embassies and diplomatic missions. MQ & SHQ are deemed as 'Fibre only areas' which means no existing telecoms duct has been laid as part of a waste water project.

Haya Water has completed designs for this area and this will be attached separately in the attached drawings. The Tenderer will validate and approve this design during Tender stage.

The POP site will be located within the grounds of MQ sewage treatment plant near to the British School as indicated on the diagrams

The Tenderer is to supply a lump sum cost which covers the scope of works as described in this document and in accordance with the specification.

**Azaiba & Ghubra** consists of around 7800 properties, mainly residential although Ghubra has a thriving commercial centre. The area has had some telecom duct laid alongside the new sewer pipes – but only approximately 25% of the primary duct. Designs are required to integrate the existing duct, plan the remaining primary duct, 100% of all chambers and the entire secondary duct to each property boundary when considered to be shared as part of the primary duct trench..

The POP site will be located within the grounds of Al Ansab sewage treatment plant located behind the contractors camps in Azaiba.

The Tenderer is to supply a lump sum cost which covers the scope of works as described in this document and in accordance with the specifications.

**Aynt and Coastal Darsayt** consists of around 350 properties, mainly residential.

This area has the entire primary and secondary duct laid as part of the waste water project.

Cable designs are required utilizing the existing duct based on the shop drawings provided.

It is envisaged that all the E side fibres will be brought to a cabinet located at the Darsayt sewage treatment plant. The Tenderer is to supply a lump sum cost which covers the scope of works as described in this document and in accordance with the specifications.

**Coastal Seeb** consists of around 14,100 properties, mainly residential but also a large commercial sector. There exists a blossoming high-tech business park (The Knowledge Oasis)

This area has the entire primary and secondary duct laid as part of the waste water project.

Cable designs are required utilizing the existing duct based on the shop drawings provided.

It is envisaged that Coastal Seeb will be split into two POP areas, Mabella North (Existing POP site) and a new POP location to be housed within the Al Khoud sewage treatment plant.

The Tenderer is to supply a lump sum cost which covers the scope of works as described in this document and in accordance with the specifications.

**Mabella** consists of around 24,800 properties, mainly residential but with a substantial commercial area..This area has the entire primary and secondary duct laid as part of the waste water project. Cable designs are required utilizing the existing duct based on the shop drawings provided. Mabella will be fed from the existing POP site located at Vacuum pumping station No 9 in Mabella North.

The Tenderer is to supply a lump sum cost which covers the scope of works as described in this document and in accordance with the specifications.

The **Airport Heights** area consists of around 160 properties, mainly residential. This area has the entire primary and secondary duct laid as part of the waste water project. Cable designs are required utilizing the existing duct based on the shop drawings provided. The Airport Heights area will be fed from the POP site to be located within the grounds of Al Ansab sewage treatment plant located behind the contractors camps in Azeibha

The Tenderer is to supply a lump sum cost which covers the scope of works as described in this document and in accordance with the specifications.

The <b>Core Network</b> consists of a 144 fibre G655 trunk cable to connect the new PoP sites to the existing telecom shelter at VS9, Mabella. The route is highlighted on the attached diagrams.Area	<b>Plots/number</b>
<b>MSQ</b>	647
<b>Shatti Al Qurum</b>	1,147
<b>Airport Heights</b>	154
<b>Darsait</b>	258
<b>Aynt</b>	73
<b>Mabella</b>	24,799
<b>Seeb</b>	14,100
<b>Al Azeibah</b>	3,345
<b>Al Ghubra</b>	4,361
<b>Core network</b>	37,000 m

The PoP sites to be installed will be in :-

- Al Khoud STP
- MSQ STP
- Al Ansab STP

The individual PoP site locations are shown in the drawings attached.

The PoP sites will be interconnected by a 144 fibre cable which will form part of the core network. An indicative route is appended in the drawings attached.

Haya Water had completed a design for the MSQ and Shatti Al Qurum areas and is appended in the drawings attached.