





**THE IDEA OF  
CONNECTING  
ALL PEOPLE TO  
KNOWLEDGE &  
EACH OTHER IS  
ENDURING**

~ BRAN FERREN





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## OVERVIEW

Lemac Technologies is a Level 2 B-BBEE contributor with 51% Black shareholding of which 39% is Black Female owned. 49% Of the shares are white owned.

The company has a combined experience of 38 years in the Construction and Telecommunication industry.

# PLANNING





## DESIGN

A Full design service of fibre links is available from single uplink applications to large fibre to the home (FTTH) sites.

During this phase routes are planned to minimize cost and expedite delivery.

## PERMISSION

Permission from a landowner, for the purposes of carrying out work on the land (to lay cables or pipes or dig in a road reserve) needs to be granted in form of a wayleave. The purpose of having a wayleave in place before work commences, is to ensure that no damage is done to existing infrastructure, such as excavating where pipes or cables have been laid.





# PRE- CONSTRUCTION



## PRE-CONSTRUCTION

The detection and identification of underground services has become a critical function prior to any invasive or civil engineering groundwork. As infrastructure networks grow, so does the density of cables, pipes and other services. A reality is that a large proportion of underground services are not appropriately surveyed and recorded. In many instances, this information was recorded, but had not been retained or is not available.

Subterranean features are mapped and detected using a variety of equipment which is dictated by site and equipment constraints.

The equipment used for this:

- Metal detectors
- Ground Penetrating Radar (GPR)

# CONSTRUCTION





Ducting and Trenching is the traditional method of laying optical fibres and is still preferred in south Africa. This involves creating a trench through manual or mechanised soil excavation.

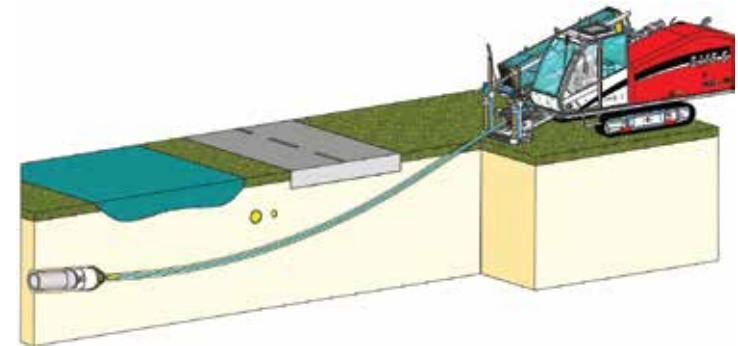
Equipment available for this:

- TLB
- Excavator
- Bobcat
- Fully kitted rigs with Shovels, Picks and Compactors

Horizontal Directional Drilling (HDD) is also referred to as Directional boring, and is a trenchless technique used for installing conduits, underground pipes and cables.

For this type of installation, a drilling rig that is launched from the surface is used to create a shallow arc along a predefined path. The impact on surrounding areas using this method is minimal and it is therefore preferred when excavating or trenching is not practical.

It can be used for numerous soil conditions and jobs including landscape, road and river crossings.



Some cities will only issue Right-of-Way (ROW) permissions for HDD based cable laying.

The process is multi staged and the first step involves creating an entrance pit with a receiving hole. A pilot hole is then drilled through the designed path, after which the hole is enlarged (reamed) with a larger cutting tool known as the back reamer. The diameter of the reamer is determined by the size of the pipe to be pulled back through the hole. In the next stage, a casing pipe is placed in the enlarged hole by using the drill stem. A fully automatic gyro based drilling mechanism is used by advanced HDD machines.



Prefabricated manholes are normally used but if the client specifies brick manholes it can be constructed. The Main, Inner and Sub ducts are installed, in accordance with the Customer's standard specifications.

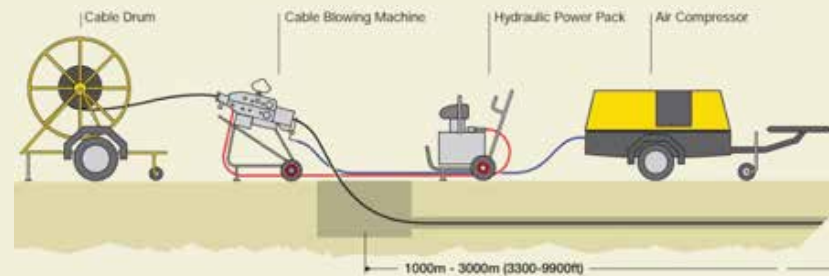
# FIBRE

# INSTALLATION





A cable blowing machine is a machine used to fit fibre optic cables into telecommunication ducts and micro-ducts with the use of compressed air. The blowing operation floats the cable on a cushion of air, minimising the contact points with the duct, reducing the friction that would be created by pulling the fibre through the duct.

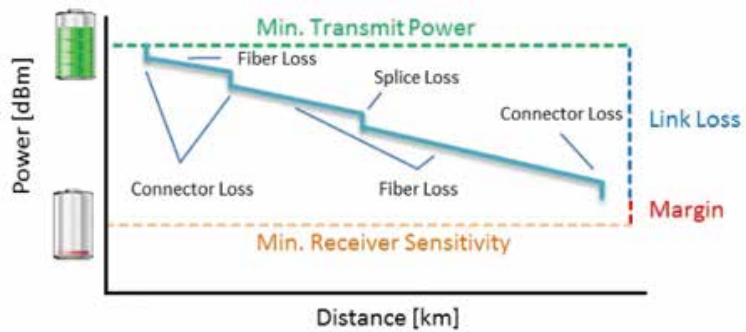


Fibre splicing is the process of permanently joining two fibres together. Fusion splicing provides the most reliable joint between two fibres. Fusion splicing is done by a fusion splicer machine.





**COMMISSIONING**



Testing for loss (also called "insertion loss") requires measuring the optical power lost in a cable (including fibre attenuation, connector loss and splice loss) with a fibre optic light source and power meter (LSPM) or optical loss test set (OLTS.)

The Optical Time Domain Reflectometer (OTDR) is useful for testing the integrity of fibre optic cables. It can verify splice loss, measure length and find faults. The OTDR is also commonly used to create a "picture" of fibre optic cable when it is newly installed.

Equipment available for this:

- Optical Power Meter
- Time Domain Reflectometer



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