



شركة الخليج للاتفاق

Gulf Tunneling Company

The leader in Microtunneling in UAE.

INDEX

Company Profile

4

Organization Chart

6

Services Offered

8

Project History

14

Machines & Equipment

29

Technical Description

38

QHSE Policy

45

Certifications & Approvals

48

Trenchless Technology





Company Profile

Gulf Tunneling Company – LLC

Established in 1998, Gulf Tunneling Company – LLC (GTC) is now one of the leading companies in the Microtunneling fields in UAE. GTC had proven its expertise in the market by securing and executing multiple tunneling projects of more than **60,000m**.

As part of our effort to expand our reach throughout Middle East, we opened our branch in Qatar in 2014. **Doha Tunnels Company** is now one of the leading microtunneling companies in Qatar.

GTC acquired sophisticated MTBM machines from one of the best microtunneling equipment manufacturers in the world, HERRENKNECHT.

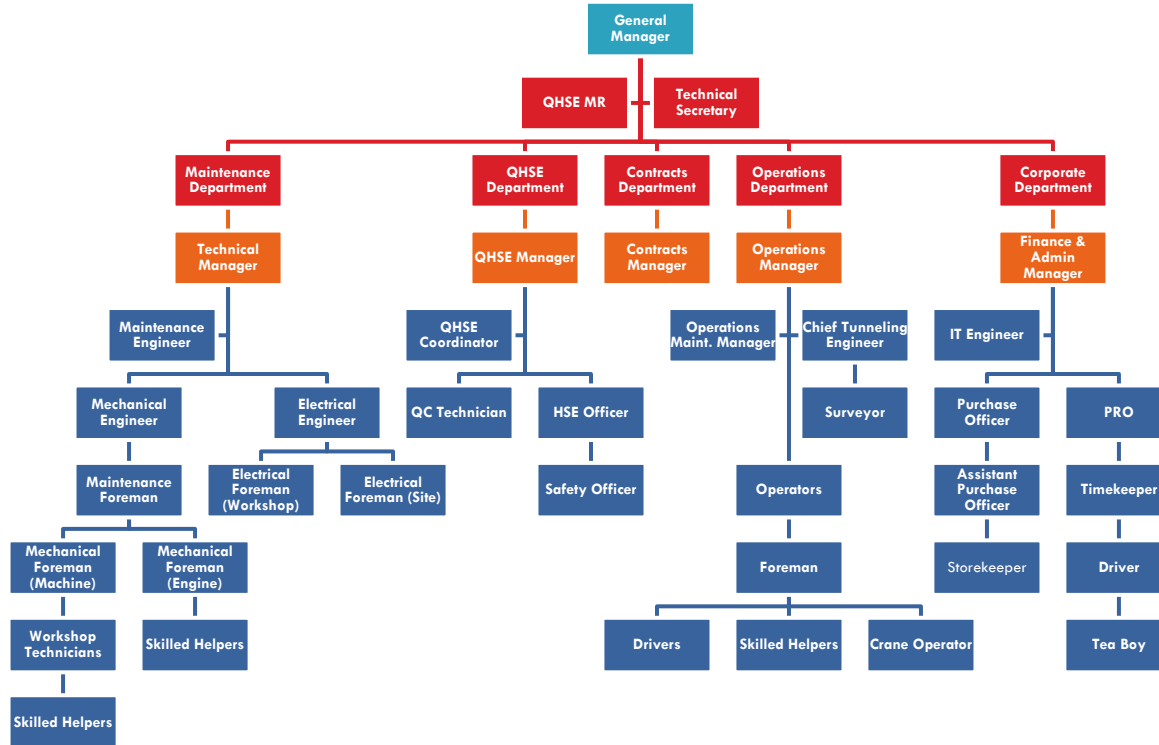
GTC achieved **ISO 9001:2008**, **ISO 14001:2004**, and **OHSAS 18001:2007** certifications through one of the leading assessment, verification and certification bodies in the world, NQA. Through a process of continual improvement, we aim to deliver supreme quality services.

GTC microtunneling boring machines are capable of making tunnels of diameter ranging from 500mm to 3000mm.



Organization Chart

Organization Chart





Services Offered

Services Offered



Microtunneling



Pit Construction



Concrete Pre-casting



Dewatering

Microtunneling



Pit Construction



Sheet Pile



Caisson

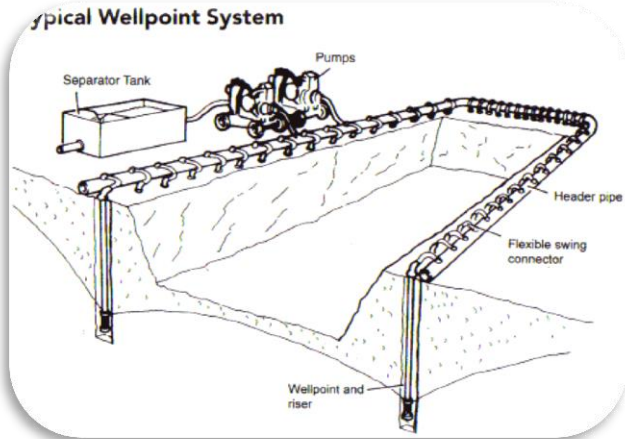


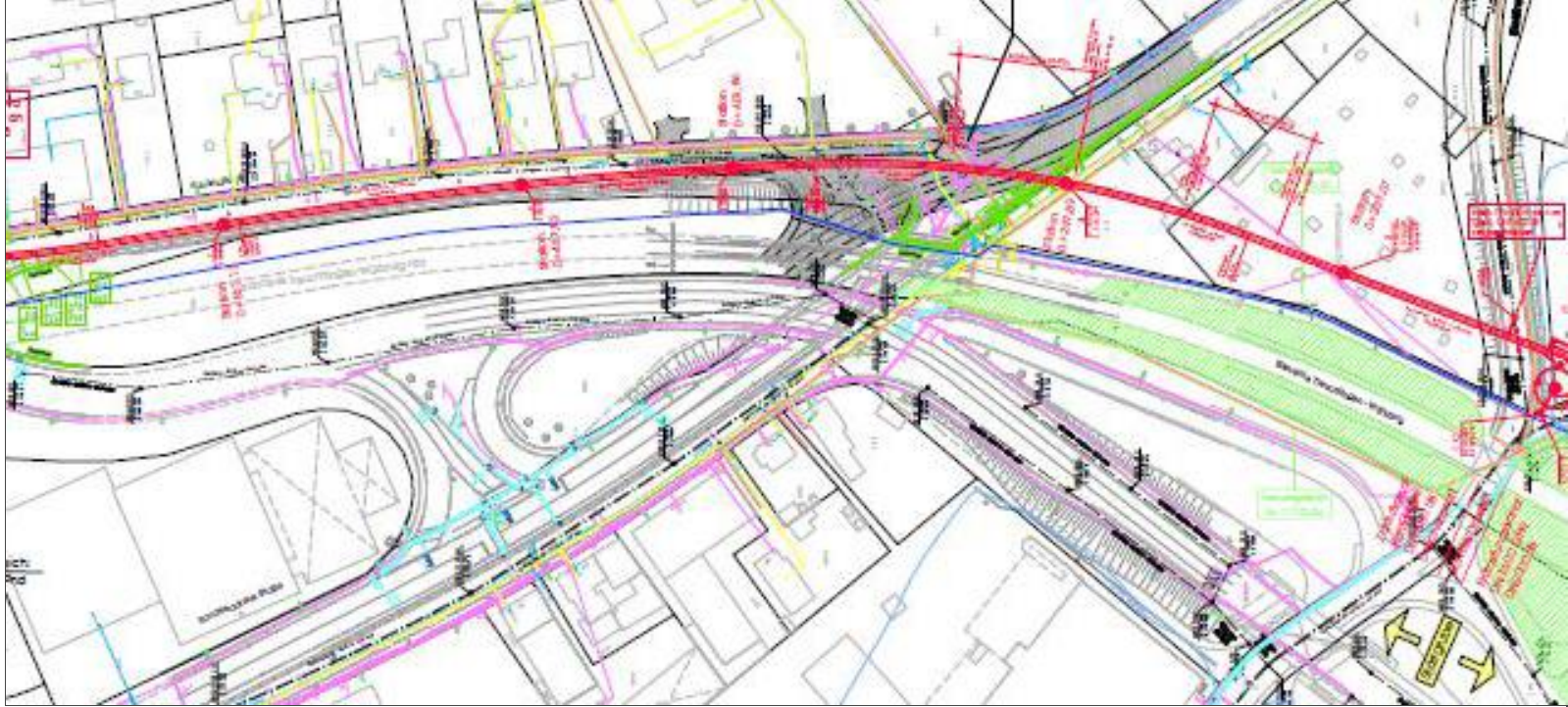
Secant Pile

Concrete Pre-casting



Dewatering





Project History (Completed & On-going)

Project (Completed)

Contract No.	Consultant	Client	Dia. (mm)	Pipe Type	Length (m)	Completion Date
ADSS 148/66 Mussafah	Acer John Taylor	Abu Dhabi Municipality & Town Planning	1800	RC	1100	12/1999
ADSS 503 Mussafah	Acer John Taylor	Abu Dhabi Municipality & Town Planning	1800	RC	1100	04/1999
ADSS 503 Samha West	Parson Engineering	Abu Dhabi Municipality & Town Planning	350	CE-GRP	600	07/1999
ADSS 503 Raha West	Parson Engineering	Abu Dhabi Municipality & Town Planning	1800	RC	555	07/1999
ADSS 148/66 Mussafah	Acer John Taylor	Abu Dhabi Municipality & Town Planning	1800	RC	50	11/1999

Project (Completed)

Contract No.	Consultant	Client	Dia. (mm)	Pipe Type	Length (m)	Completion Date
ADSS 212 Mafrq	Acer John Taylor	Abu Dhabi Municipality & Town Planning	350	SC-GRP	900	08/1999
ADSS 801 Mussafah	Acer John Taylor	Abu Dhabi Municipality & Town Planning	200 300	SC-GRP	752	01/2002
ADSS 713A Al Shwamkh	Montgomery Watson	Abu Dhabi Municipality & Town Planning	1200	CE-GRP	2500	02/2004
			1400	CE-GRP	1592	
			1600	CE-GRP	5400	
			1800	CE-GRP	95	

Project (Completed)

Contract No.	Consultant	Client	Dia. (mm)	Pipe Type	Length (m)	Completion Date
ADSS 803A Mussafah	ACE International	Abu Dhabi Municipality & Town Planning	1000	CE-GRP	960	12/2002
			1200	CE-GRP	1760	
			1400	CE-GRP	2500	
ADSS 803B Mussafah	ACE International	Abu Dhabi Municipality & Town Planning	400	CE-GRP	1100	10/2003
			800	CE-GRP	1500	
			1000	CE-GRP	1860	
			1200	CE-GRP	1530	
			1800	CE-GRP	2990	

Project (Completed)

Contract No.	Consultant	Client	Dia. (mm)	Pipe Type	Length (m)	Completion Date
ADSS 909/1 Abu Dhabi	Hyder Consulting	Abu Dhabi Municipality & Town Planning	1200	RC	1200	11/2006
ADSS 804/2 Mussafah	ACE International	Abu Dhabi Municipality & Town Planning	630	HDPE	1600	11/2004
ADSS 804/2 Mussafah	ACE International	Abu Dhabi Municipality & Town Planning	1400	CE-GRP	170	04/2005
ADSS 509/8 Ajban	Parson Engineering	Abu Dhabi Municipality & Town Planning	1400	CE-GRP	85	05/2005
ADSS 909/2 Abu Dhabi	Hyder Consulting	Abu Dhabi Municipality & Town Planning	1200	RC	1000	11/2008
PGD 842 Al Jarf	Dorsch Group	Public Gardens Directorate	800	RC	500	08/2009

Project (Completed)

Contract No.	Consultant	Client	Dia. (mm)	Pipe Type	Length (m)	Completion Date
ADCOP	ILF Engineering	International Petroleum Investment Company	1600	RC	800	07/2010
ADSSC O-1651	Parson Engineering	Abu Dhabi Sewerage Service Company	1400	RC	150	04/2011
ADSSC O-1434	Hyder Consulting	Abu Dhabi Sewerage Service Company	800	CE-GRP	500	11/2012
			1000	CE-GRP	400	
			1200	CE-GRP	850	
			1800	CE-GRP	4000	

Project (Completed)

Contract No.	Consultant	Client	Dia. (mm)	Pipe Type	Length (m)	Completion Date
O-11258	Hyder Consulting	Abu Dhabi Sewerage Services Company	800	RC	175	11/2013
O-11655	Parsons International Ltd	Abu Dhabi Sewerage Services Company	400	GRP	40	04/2014
			800		20	
5272	Dodsal Engineering & Construction Pte Ltd	Abu Dhabi Gas Industries Ltd. (GASCO)	1600	RC	2,880	06/2014
N7894B	ILF Engineering Consultants	Transco – Abu Dhabi	1800	RC	80	12/2014
			1600		80	
			1400		100	
			1200		57	

Project (Completed)

Contract No.	Consultant	Client	Dia. (mm)	Pipe Type	Length (m)	Completion Date
	OTAK International	Western Region Municipality	1500	GRP	120	11/2014
12W2011	FEWA – Federal Electricity & Water Authority	FEWA – Federal Electricity & Water Authority	1600	RC	50	10/2014
P128	Parsons International Ltd	Tourism Development & Investment Company (TDIC)	1200	RC	171	02/2015
ADSSC O-11655	Parsons International Ltd	Abu Dhabi Sewerage Service Company	700	GRP	210	02/2016
			800		605	
ADNOC 7010	Dar Al-Handassah	Abu Dhabi National Oil Company	1200	RC	150	04/2016
DS008	Parsons International Ltd	Public Works Authority (ASHGHAL) Doha, Qatar	1000	HDPE Liner	1,800	01/2017

Project (On-going)

Contract No.	Consultant	Client	Dia. (mm)	Pipe Type	Length (m)	Completion Date
DS008 Stage 2	Parsons International Ltd	Public Works Authority (ASHGAL) Doha, Qatar	800	HDPE Liner	1,957	On-Going
			1000		490	

Project Highlights – ADSSC Project O-1434

- Al Ain Assets Enhancement Scheme – Construction of Trunk Sewer and Treated Sewage Effluent (TSE) Infrastructure Part 1
- Serve more than 500,000 population
- More than 35Km tunnel length and GTC contributed 6km
- Up to 18m depth
- Mostly Asphalt Road crossings
- Achieved an alignment tolerance requirement of ± 25 mm in all crossings

Project Highlights – ADSSC Project O-1434



Project Highlights – GASCO Project 5272

- Habshan-Maqta-Taweelah (HMT) Gas Pipelines Project
- Abu Dhabi Gas Industries Limited (GASCO) intends to supply gas to Emirates Aluminium (EMAL) for their second expansion requirements.
- More than 300Km of gas pipelines of sizes 52" & 42"
- GTC contributed 3Km of tunnel length mostly in major roads crossings which required us to go deeper up to 16m
- Due to the complexity and urgency of the project, we mobilized all our resources and run 3 sites at the same time

Project Highlights – GASCO Project 5272



Project Highlights – ASHGHAL Project DS008

- Roads and Infrastructure in the North Part of New Slata within the Doha Municipality (Zone 40).
- The project is estimated at about 270,000 m² and will benefit around 696 plots of land. The project will include the development of roads and infrastructure to provide storm water drainage, sewage networks, and treated sewage effluent networks for irrigation.
- GTC completed jacking 5.5 km for sewerage pipeline (Concrete Encased GRP Pipe & HDPE Liner).
- GTC purchased 3 new microtunnel boring machines for this project – DN800, DN1000, and DN1200.
- GTC dedicated 3 teams of tunneling experts to run all machines simultaneously.

Project Highlights – ASHGHAL Project DS008





Tunneling Machines & Equipments

Tunnel Boring Machines



List of Microtunnel Boring Machine

SN	Tunneling Machine	Extension Kit
1	AVN500A	-
2	AVN800A	DN1000
3	AVN1200S	DN1400
4	AVN1400C	DN1600
5	AVN1600E	DN1800
6	AVN1800AB	-
7	AVN800XC	DN1000
8	AVN1000XC	-
9	AVN2400AB	-
10	AVN2400AB	DN2600/DN2800



Microtunnel Boring Machine



AVN1800AB



AVN800XC



AVN1000XC

Microtunnel Boring Machine



AVN1400C



AVN1600E



AVN2400AB

Microtunnel Boring Machine



AVN800A



AVN1200S

List of Main Auxilliary Equipment

SN	Description	Manufacturer	No. of Units
1	27 KVA Generator Set	Perkins	12
2	30 KVA Generator Set	FIAT	1
3	100 KVA Generator Set	Perkins	2
4	200 KVA Generator Set	Perkins	1
5	250 KVA Generator Set	Caterpillar	1
6	365 KVA Generator Set	Caterpillar	3
7	650 KVA Generator Set	Perkins	4
8	800 KVA Generator Set	Perkins	1
9	70 Ton Lattice Boom Crane	Lorrain	1
10	Vibrohammer	APE	1
11	High Pressure Pump	Herrenknecht	4
12	Jacking Frame	Herrenknecht	10

SN	Description	Manufacturer	No. of Units
13	Slurry Pump	Herrenknecht	18
14	Feed Pump	Herrenknecht	8
15	Bentonite Pump	Herrenknecht	8
16	Desanding Plant	SAICI/BAUER SCHAUENBURG	5
17	DC Welding Machine	Miller	5
18	Portable Air Compressor	Kaesser	4
19	Sand Blasting Machine	-	1
20	Tower Crane	SIMA	2
21	Submersible Pumps	-	14
22	Water Tanks	-	23
23	Service Containers	-	7

Auxilliary Equipment



Bentonite Pump



Interjack Station



Slurry & Feed Pump

Auxilliary Equipment



70 Ton Lorrain Crane



**Desanding
Plant**



Vibrotory Hammer



Technical Description

What is Microtunneling?

Microtunnelling is a process that uses a remotely controlled Tunneling Machine combined with the pipe jacking technique to directly install product pipelines underground in a single pass. This process avoids the need to have long stretches of open trench for pipe laying, which causes extreme disruption to the community. Product pipes of a variety of materials can be used, but typically consist of steel, concrete and GRP.

Technical benefits associated with pipe jacking are:

- Minimizes disruption to existing utilities and services during construction.
- Faster construction, especially in highly urbanized environments.
- Considerably reduces the amount of excavated material to be stacked/removed compared to an open cut excavation method because only the pipe bore, not an open trench, is excavated.
- Avoids the need to de-water the pipe trench, thereby significantly reducing the risk of collapse/settlement to surrounding structures/roads, compared to open trench installation methods.
- Reduces the need for man-entry and improves operator/worker safety because of remote control capability.
- Minimizes restoration costs to road surfaces after construction.
- Accurate line installation with tolerance of $\pm 20\text{mm}$.
- Smooth internal finish gives good flow characteristics.
- Prevention of ground water intrusion by use of pipes with sealed flexible joints.

Cutting Wheel



The micro tunnel boring machine is equipped with tools which enable excavation. The cutting wheels are differently designed according to the grounds.

For standard soil, cutting wheels fitted with scrapers are used.

For mixed soil, cutting wheels fitted with scrapers and disc cutters are used. Can work in a compressive strength of up to 75MPa.

For rock, cutting wheels with disc cutters are used. Can work in a compressive strength of up to 200MPa.

Guidance System

Electronic Laser System - Hydrostatic Water Levelling (ELS-HWL)

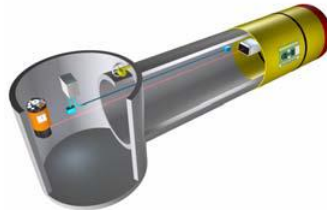
An advance laser, which is installed at a fixed point in the launch shaft, is aimed at a fixed electronic target installed on the machine. Using a reference sensor in the launch shaft and a height sensor in the tunnel boring machine, an additionally integrated electronic hose water level permanently delivers height values. These results are temperature-independent and are not subject to laser refraction.



The results are transferred to an industrial computer, and displayed on the monitor.

Electronic Laser System (ELS)

An advance laser, which is installed at a fixed point in the launch shaft, is aimed at a fixed electronic target installed on the machine.



Gyro Navigation System (GNS)

The north-seeking gyro compass, which is installed at a fixed point in the tunnel boring machine, determines the north direction in relation to the machine axis. The current machine position is calculated on the basis of dead reckoning navigation. An electronic hose water level, which is integrated in the system, permanently delivers height values via a reference sensor installed in the launch shaft and a height sensor installed in the tunnel boring machine. These height results are temperature-independent and are not subject to laser refraction.

The position encoder sits on the pipe section in the driving pit. It determines the current length of the injected pipe section.



Intermediate Jacking Station

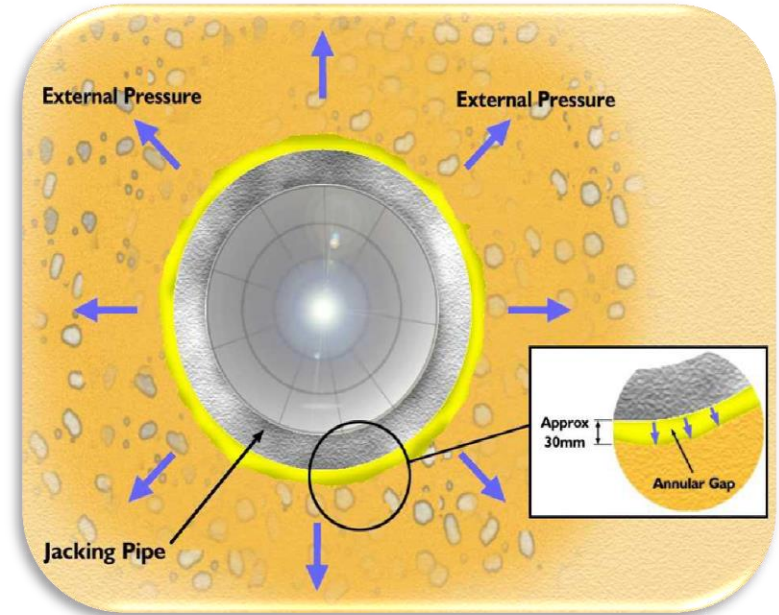
In order to redistribute the total required jacking force on the pipeline, intermediate jacking stations are frequently used between the launch pit jacking rig and the tunneling machine. A special twin pipe set incorporating an increased length steel collar which slides over a corresponding length spigot detail is introduced into the pipeline. Hydraulic jacks are placed between the two opposing pipes such that when activated they open the gap between the leading and trailing pipes.



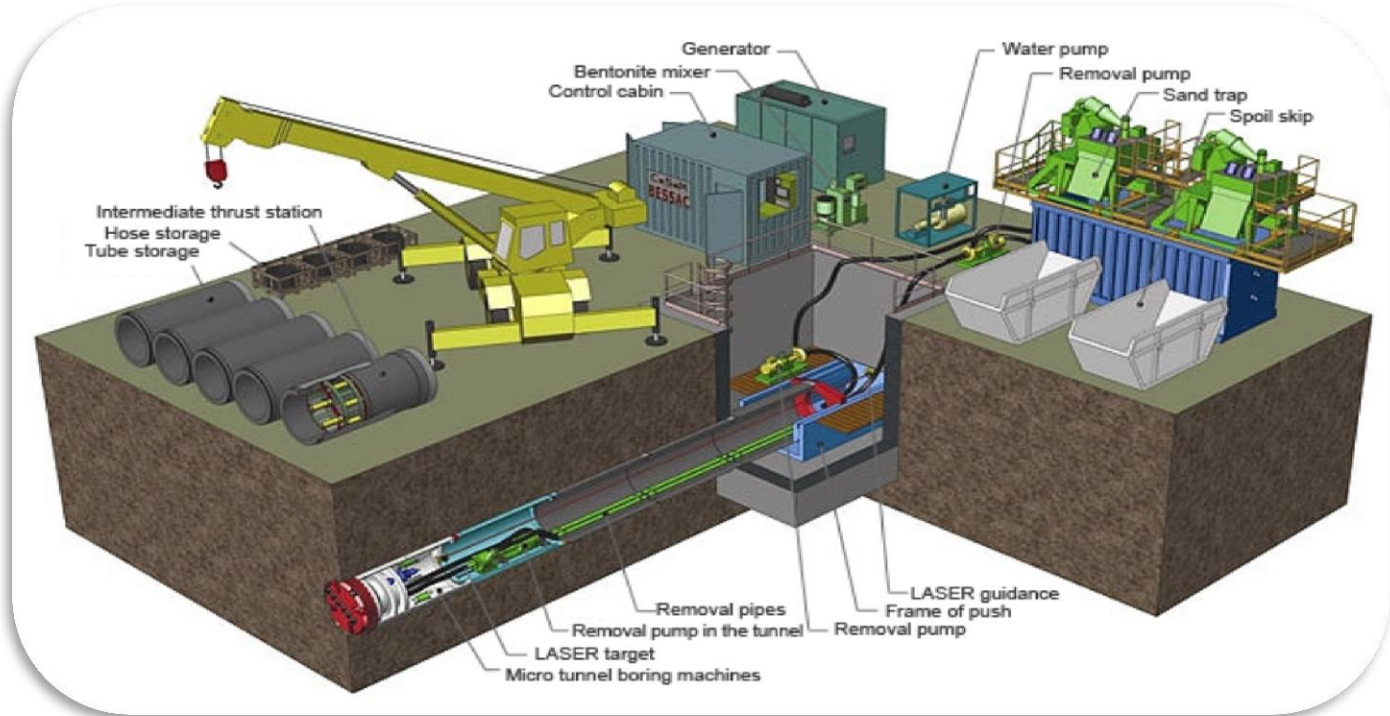
Bentonite System

During pipe jacking either the complete pipe conduit is moved or, when intermediate jacking stations are installed, long partial sections. The result is friction on the external side of the pipe conduit. The frictional resistance has to be overcome during tunneling. During pipe jacking the bentonite suspension serves as a means of support and lubrication. It is pressed outwards through injection nozzles in the back up pipe and acts as a supplement to the product pipe by filling the ring space which results from the difference in diameter between overcut and pipe. The liquid film around the pipe reduces the friction between the pipe casing and as a result, also the tunneling force.

For tunneling in loose soil, the bentonite suspension is also used to support the working face. In order to avoid subsidence, the ring gap should always be filled. When the pipe jacking has been completed, the lubrication media can be expelled with a mixture based on a cement and water and possibly additives. Once the grout has set the lubrication pipes can be de-coupled and the opening in the product pipe can be sealed by pipe plugs.



Overall Layout





Quality, Health, Safety & Environment Policy

Quality Policy

Gulf Tunneling Company – LLC is one of the groundbreakers of trenchless technology in UAE with over 13 years proven commitment in providing exceptional microtunneling services, which meet or exceed customer expectation. Our business practices are based on the principles of focus on quality and customer satisfaction to establish long term relationship with the customers.

Employee's individual contribution is vitally important to our progress therefore we provide resources to ensure first-class personnel expertise.

Our quality policy is implemented through following schemes:

- ❑ Understanding customer requirements thoroughly and properly

- ❑ Fulfilling agreed customer requirements and striving to exceed customer expectations

- ❑ Adopting management system that conforms to ISO 9001:2008 requirements.

- ❑ Complying with applicable statutory and legal requirements

- ❑ Monitoring, measuring and evaluating the performance of processes

- ❑ Establishing measurable and achievable quality objectives

- ❑ Acquiring the most advance technology in order to ensure error-free condition.

- ❑ Providing safe working environment with the aim of improving overall productivity of an organization.

We endeavor to continually improve the effectiveness of "Quality Management System" that conforms with ISO 9001:2008 Standard.

HSE Policy

We, **Gulf Tunneling Company – LLC**, is committed to providing a safe and healthy workplace and conducting our activities in a manner that protects the environment. We strive to minimize the impact of our activities to the environment.

Our HSE policy is implemented through the following principles:

- Identification and evaluation of all HSE hazards or aspects and managing those risk to reduce their impact to acceptable levels
- Compliance with all applicable HSE legal requirements
- Setting a clear objective and hold each employee accountable for their individual responsibility for Health, Safety & Environment
- Eliminate unsafe conditions and behaviors that contribute to accidents

- Ensure that appropriate training, supervision, information and resources are provided to all employees and contractors in order to achieve our objectives
- Prevention of incidents, injuries and pollution by fostering HSE culture throughout the organization
- Recording and communicating HSE performance throughout the organization.

We endeavor to continually improve the effectiveness of HSE system that conforms to **OSHAS 18001:2007 & ISO 14001:2004** standards. Therefore this policy will be reviewed periodically to ensure that it remains relevant and appropriate to the nature and scale of HSE impacts to our activities and services provided.



Certifications & Approvals

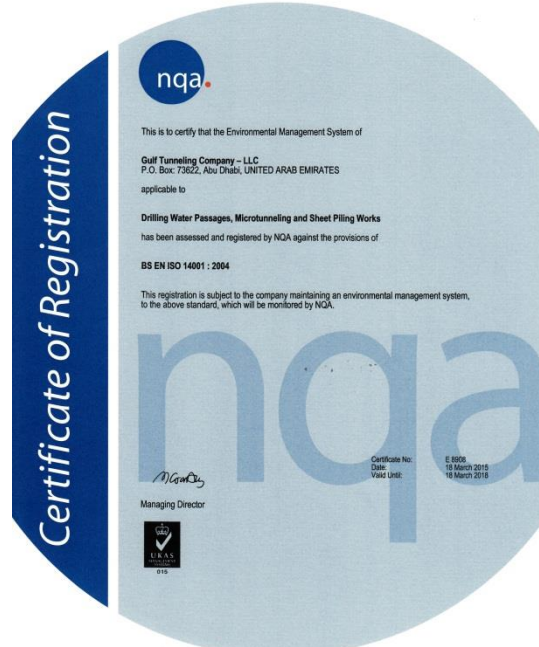
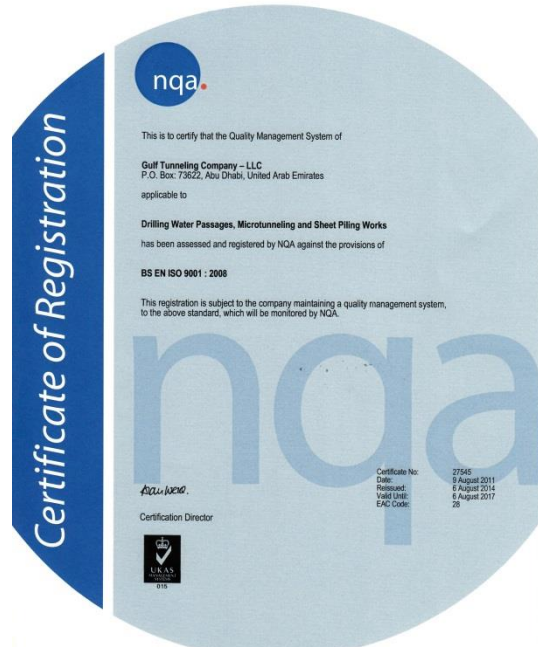
Certifications

Gulf Tunneling Company – LLC achieved ISO 9001:2008, ISO 14001:2004, and OHSAS 18001:2007 certifications through one of the leading assessment, verification and certification bodies of the world, NQA. This achievement is an important milestone for us as it brings us a step closer to our corporate goals. Through a process of continual improvement, we aim to deliver supreme quality services.

GTC is also pursuing to achieve integrated management system (ISO 9001:2008, OSHAS 18001:2007 & ISO 14001:2004) certification and soon it will be realized.



Compliance Certificates



Approvals

Gulf Tunneling Company – LLC received approvals from numerous government entities and consultants which reinforced its undisputable reputation in the market.



Major Approvals



DEPARTMENT OF MUNICIPAL AFFAIRS
AL AIN CITY MUNICIPALITY



دائرة الشؤون البلدية
بلدية مدينة العين



شركة الاستثمارات البترولية الدولية
INTERNATIONAL PETROLEUM INVESTMENT COMPANY



BUILDING A BETTER WORLD

دائرة النقل
DEPARTMENT OF TRANSPORT



دائرة الشؤون البلدية
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بلدية المنطقة الغربية
WESTERN REGION MUNICIPALITY



قطر تستحق الأفضل

PARSONS
BRINCKERHOFF

المجلس الأعلى للبترول
SUPREME PETROLEUM COUNCIL



AECOM

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Thank you for your attention...