2026
TRENCHLESS
MOROCCO

DE LA CÔTE À LA MER : SOLUTIONS DE DÉBARQUEMENT HDD

MARCIN FIRKOWSKI, HORIZONTAL DRILLING INTERNATIONAL (HDI)

Organised by WESTRADE GROUP LTD

Sponsored by CAPEP Travaux Publics, EUROHINCA EuroHinca Maroc, S.A.R.L., JBP combining strength

Supported by FSTT, GATT, iSTT International Society For Trenchless Technology, UKSTT

Chinese Partner 百斯特展览 Best Int'l Expo

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From Shore to Sea: HDD Landfall Solutions

2026 TRENCHLESS MOROCCO

HDI

2026 TRENCHLESS MOROCCO

PROGRAM

- **HDI - Horizontal Drilling International**
- **HDD - Horizontal Directional Drilling**
  - Technology
  - History
  - Landmark projects selection
- **Case studies**
  - Outfalls:
    - El Jadida
    - Anza - Agadir

HDI

Company overlook

Key Figures worldwide

+40 years of experience

Projects in over 40 countries

More than 2,000 HDD crossings

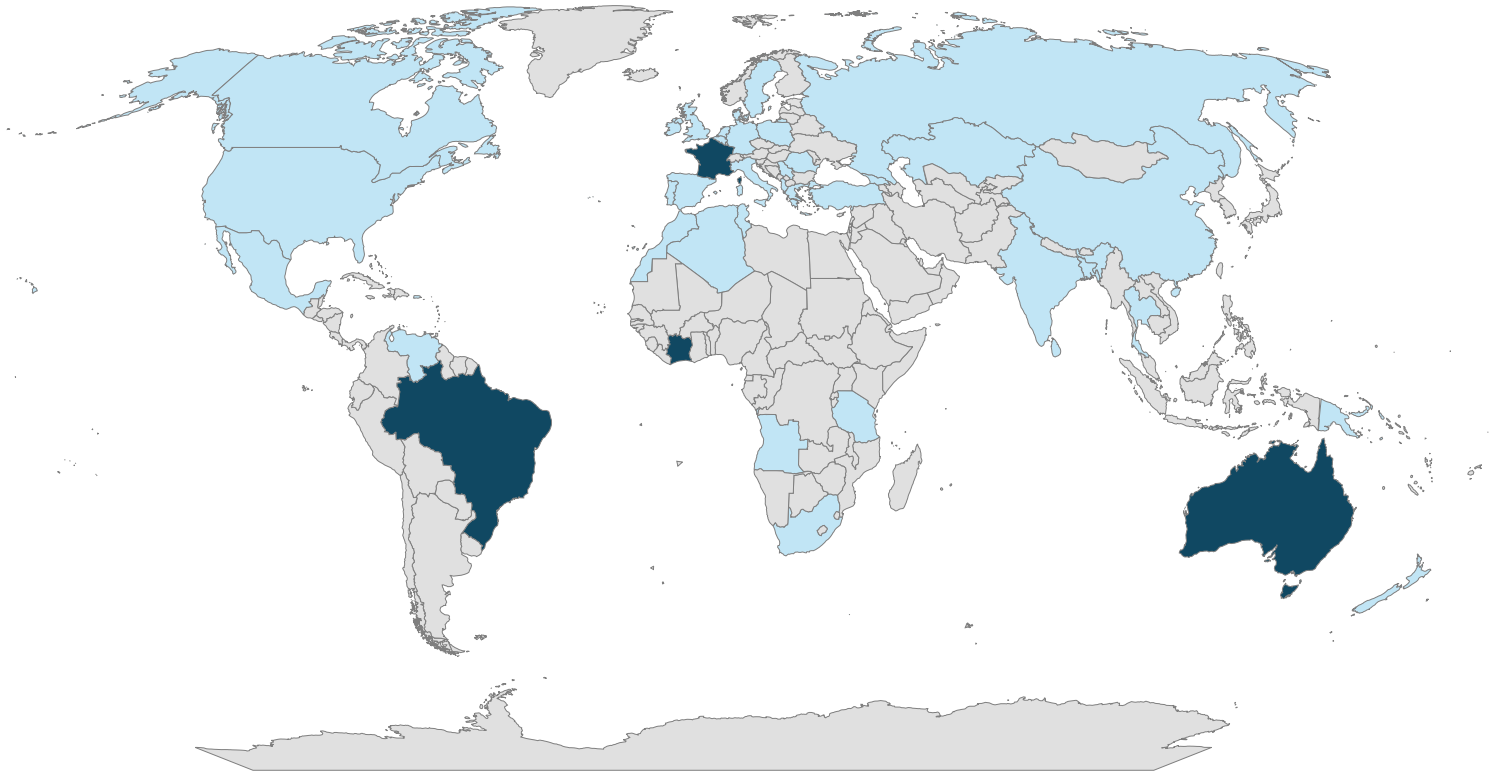
2000 km installed with HDD

+ 230 crossings for Electricity

+ 90 Landfalls

+ 500 projects for Oil & Gas

+ 150 projects for Water & Sanitation



HDI Location
HDI Headquarters – Nanterre, France
HDI Warehouse – Dunkerque, France

Sister companies
INTECH – Brazil
HDI Lucas – Australia

Branches

HDI UK Branch – London, UK
HDI Poland Branch
HDI Ivory Coast–Ivory Coast
HDI German Branch

Our fleet

HDD Spreads with a pulling capacity ranging from 50 tons to 400 tons:

- 1x 50 ton
- 1x 100 ton
- 2x 250 ton
- 2x 400 ton
- 3x 300 ton full electric

- 1x80 ton
- 2x250 ton
- 1x400 ton

- 1x110 ton
- 1x250 ton

Pneumatic Hammers of large capacity

Pipe pusher & 2x Pipe Pusher AUS

1 x 500 ton Pipe Thruster

Logistics warehouse in Dunkirk, FR & Toowooba QLD

REAL SUCCESS IS THE SUCCESS YOU SHARE

HDI

HDD

What is it about?

Technologies overview

UTILITY TUNNELLING SOLUTIONS

Construction methods and their application range

	Semi-trenchless	Trenchless					
						Casing / tunnel	
	Pipe Express®	Auger Boring	HDD	Direct Pipe®	E-Power Pipe®	Pipe Jacking	Segment Lining
Installation	One-step	One-step/ Multi-step	Multi-step	One-step	Multi-step	One-pass/ two-pass	One-pass/ two pass
Material pipe, liner	Steel	All (stiff)	Steel/HDPE/ PVC…	Steel	Steel/HDPE/ PVC…	All (stiff)	Reinforced concrete
Diameter (ID/OD)	OD 30“ – 60“	OD 4“ - 56“	OD 10“ – 60“	OD 24“ – 60“	OD 10“ – 28“	250-4000mm Tunnel ID	>2300mm Tunnel ID
Max. installation length	~2,000 m	~100 m	~5,000 m	~2,000 m	~1,000 m	~2,500 m	~10,000 m
Min. installation depth	1 m	1.5 x Ø Pipe (OD)	10-15 x Ø Pipe (OD)	3 x Ø Pipe (OD)	1.5 m	2-3 x Ø Tunnel (OD)	2-3 x Ø Tunnel (OD)
Geology	All rock < 15 MPa	All rock < 30 Mpa	cohesive soil	All rock <150 MPa	All rock <30 MPa (temp. 150 MPa)	All rock <400 MPA	All rock <400MPa

The information in this table is intended as an initial guideline; the parameters may vary depending on the project.

- Courtesy of Herrenknecht AG

HDD principle

Drilling process

1. Pilot drilling
2. Reaming(s) stage(s)
3. Swabbing pass
4. Pipe installation

- Courtesy of Herrenknecht AG

HDD application

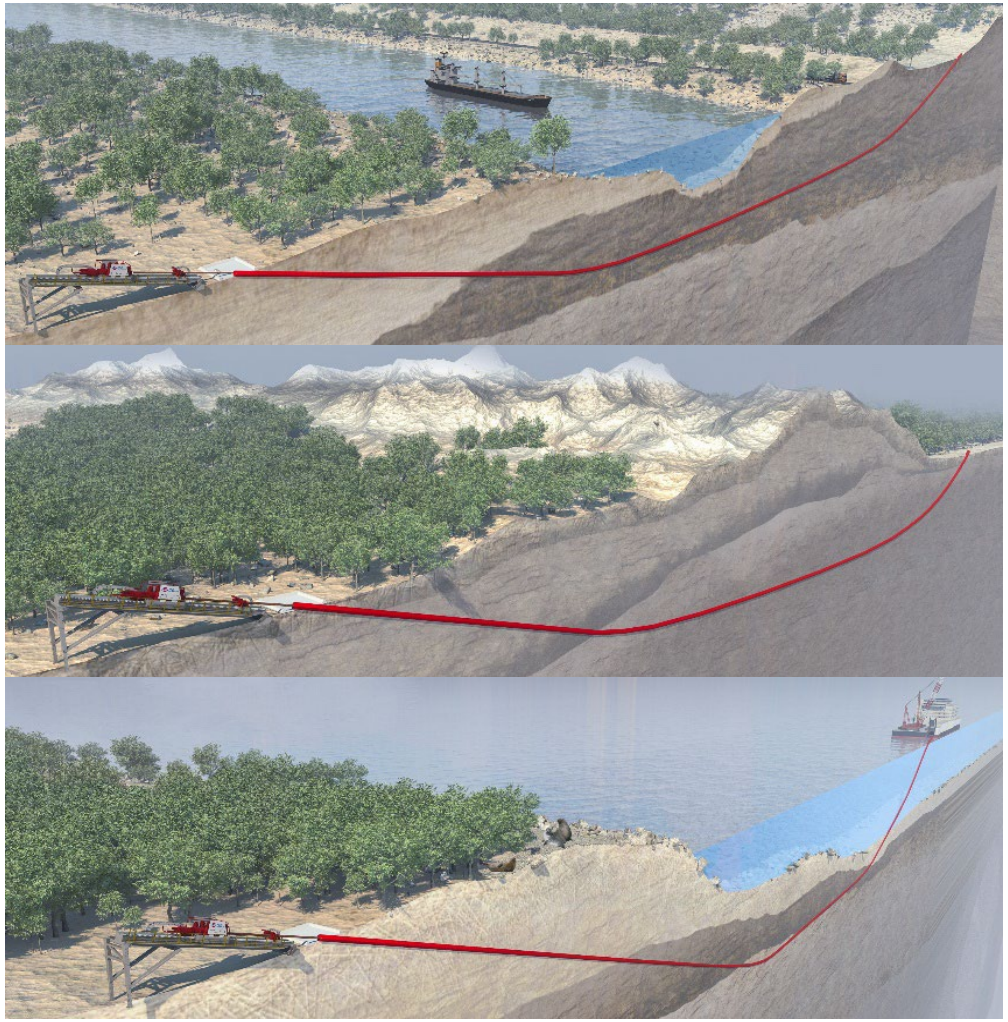
ONSHORE OBSTACLES

Typically, waterways (rivers, streams, canals, etc.), Roads, motorways or railways. Many other applications are possible, such as crossing golf courses, residential areas, rock outcrops, airport runways, dump sites, quarries under operation, environmentally sensitive areas, etc.

OFFSHORE OBSTACLES - LANDFALLS

Horizontal Directional Drilling approach offers an advantage compared to traditional techniques:

- No environmental impact on coastlines (protected beaches and sensitive areas) or on residents (protected fauna and holidaymakers);
- Safe crossing of surf zones;
- Drilling at a sufficient depth to ensure protection of the pipeline against erosion.



How it start?

1964

In the early 1960’s while working for a utility installation company, Martin Cherrington observed nearby workers utilizing a hand-held air drill. Cherrington became familiar with the concept of guided drilling and in 1964 developed the first HDD rig

How it start?

1970 – 1971

First HDD Installation Under Pajaro River

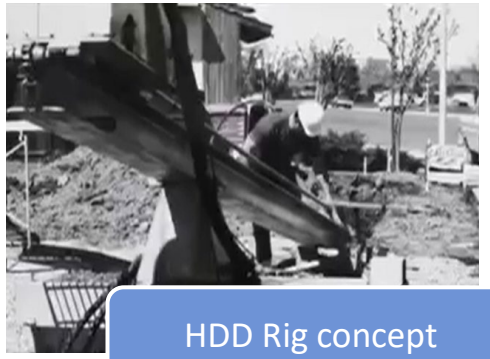
~140m

4in

II. HDD History

How it start?

Martin Cherrington – father of HDD



HDD Rig concept

HDD operations

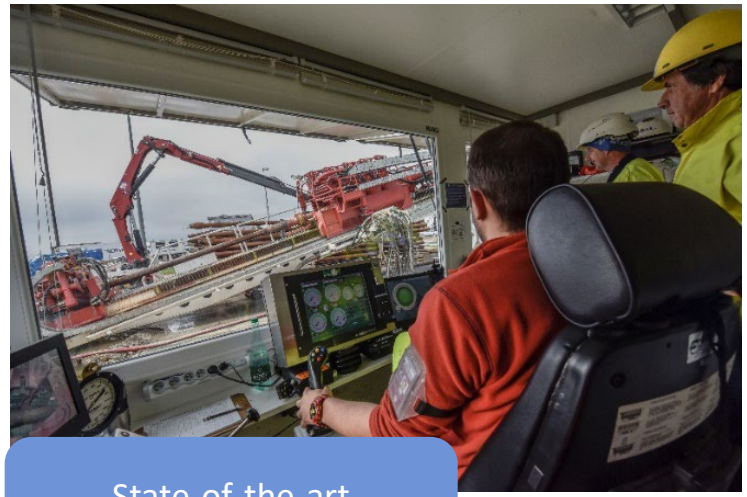
Martin Cherrington

First maxi rigs

First maxi rigs

II. HDD History

HDD Nowadays



State-of-the-art operations

Fully electric rigs

Hybrid rigs

Length records

World record

5205 m

Europen Record

4608 m

Historical milestones

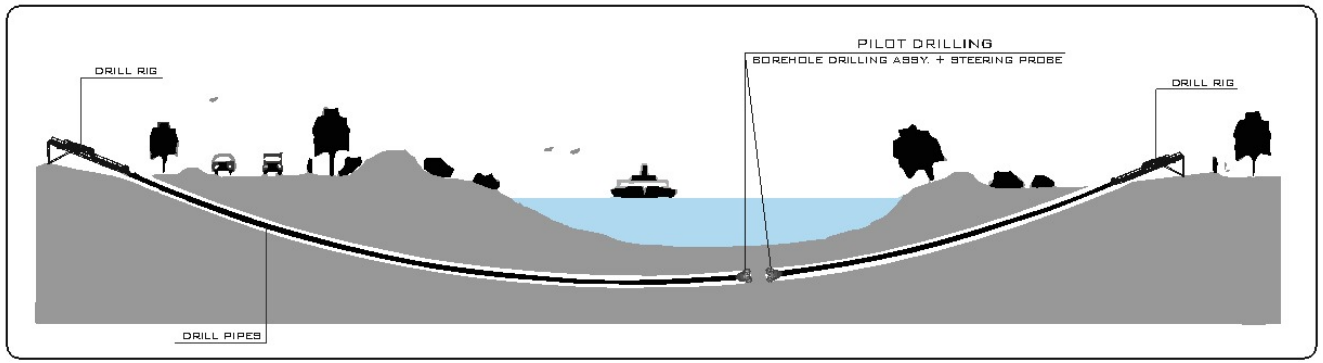
III. HDD Historical milestones

First installation of 42” pipeline

Contractor**: HDI**
Investor**: Snam**
Country**: Italy**
Crossing**: 425m x 42”**
Year: **1985**

First installation of 48” pipeline

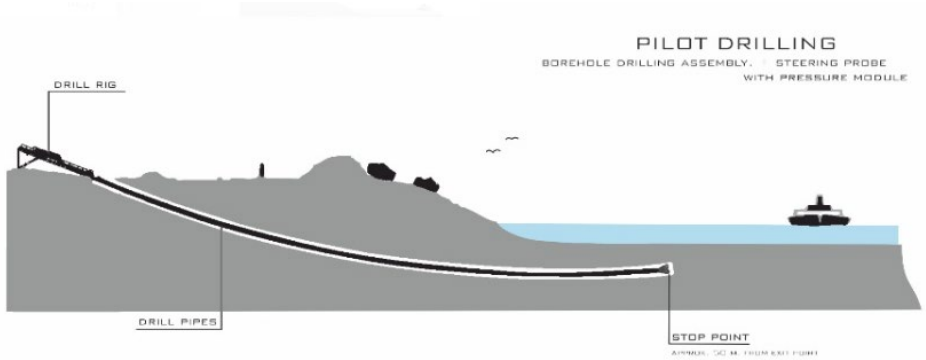
Contractor**: HDI**
Investor**: GASUNIE**
Country**: The Netherlands**
Crossing**: 600m x 48”**
Year: **1991**

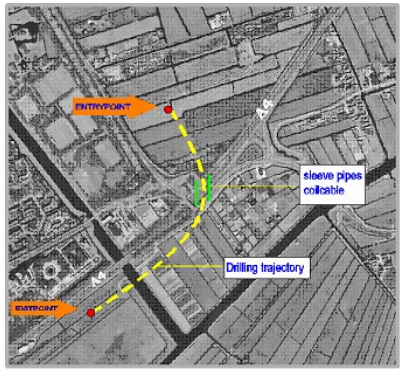


First Intersect for big pipe installation
Contractor**: Haustadt & Timmermann**
Client**:** n/a
Country**: The Netherlands**
Crossing**: 750m x 36”**
Year: **1999**

III. HDD Historical milestones

First big landfall
Contractor**: Hydro Soil Services**
Client**:** n/a
Country**: UK, Scotland**
Crossing**: 935 m x 315 mm & 614 m x 450 mm**
Year: **1999**





Drilling with 90deg azimuth chanage
Contractor**: Visser & Smit Hanab**
Client**:** n/a
Country**: The Netherlands**
Crossing**: 950m x 325mm**
Year: **1999**

Retractable Microtunel
Contractor**: HDI**
Investor**: Total**
Country**: France**
Crossing**: 1500m x 34”,**
Year: **2009**

III. HDD Historical milestones

Big pipe diameter OPAL pipeline
Contractor**: Visser & Smit Hanab**
Client**: N/A**
Country**: Germany**
Crossings**: 1080, 960, 765m x 56”,**
Year: **2010-2011**

First INTERSECT with GST RADAR
Contractor**: Visser & Smit Hanab**
Client**: N/A**
Country**: Netherlands**
Crossings**: 1475, 1491 m Steel in steel 610/406 mm** Year: **2013**

World record in hole volume

Contractor**: HDI**
Client**: TAP Bonatti**
Country**: Greece**
Crossing**: 1812m x 48”**
Year: **2018**

Case Studies

Outfalls in Morocco

OUTFALL EL JADIDA MOROCCO

Client
RADEEJ

Contractor
JV: Geocean / Somagec / Etermar

Crossing
1000 m x HDPE 36’’

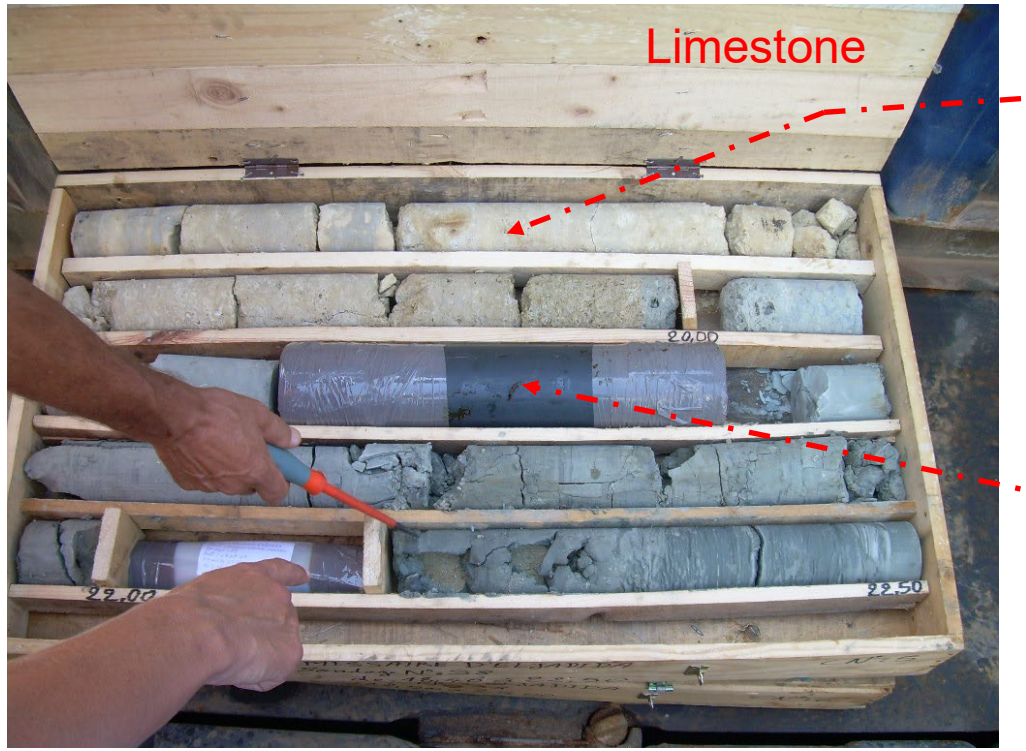
Execution
2010

Location
El Jadida -~200km from the conference venue

OUTFALL EL JADIDA MOROCCO

Geology

- Medium rock (30 MPa) as expected
- Surface fractured at sea bed



I. Case study

OUTFALL EL JADIDA MOROCCO

Rig site - onshore

Man-made constructed bank

400 meters long

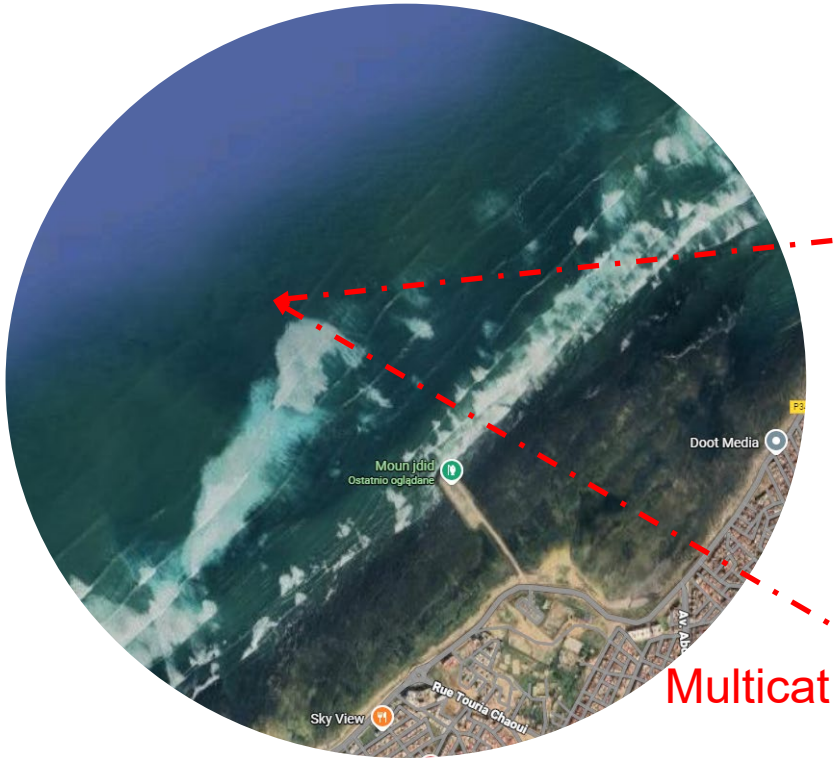
9m50 above sea bed

Steel casing inserted untill bedrock

I. Case study

OUTFALL EL JADIDA MOROCCO

Rig site - offshore



Multicat

Jack up equipped with a second rig

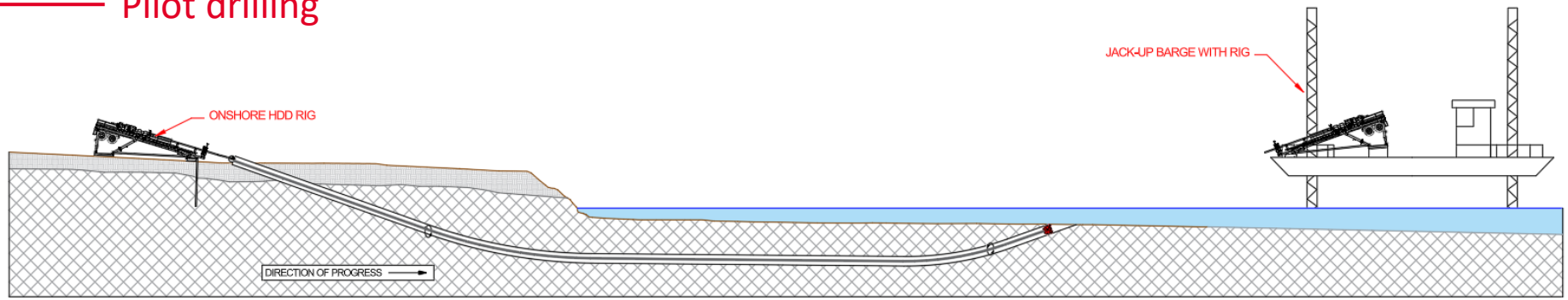
I. Case study

OUTFALL EL JADIDA MOROCCO

Jack-up

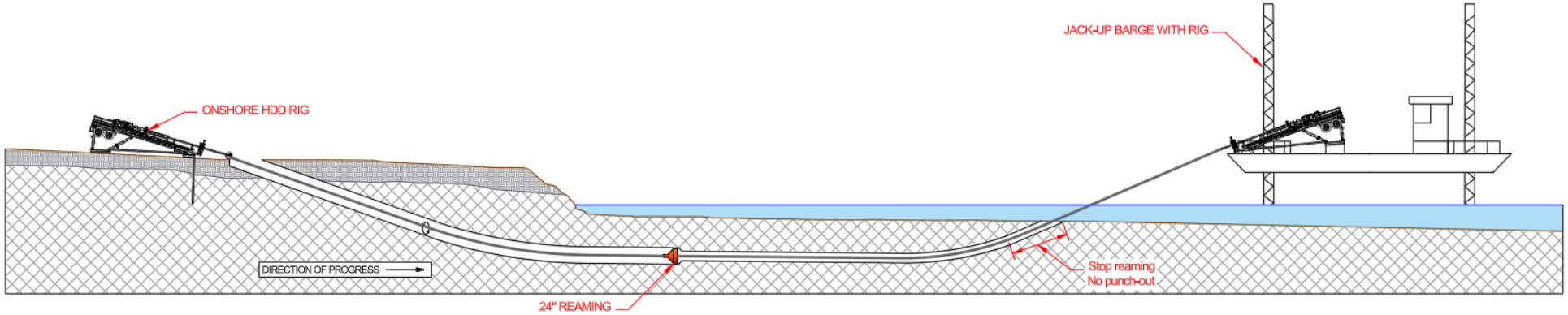
OUTFALL EL JADIDA MOROCCO

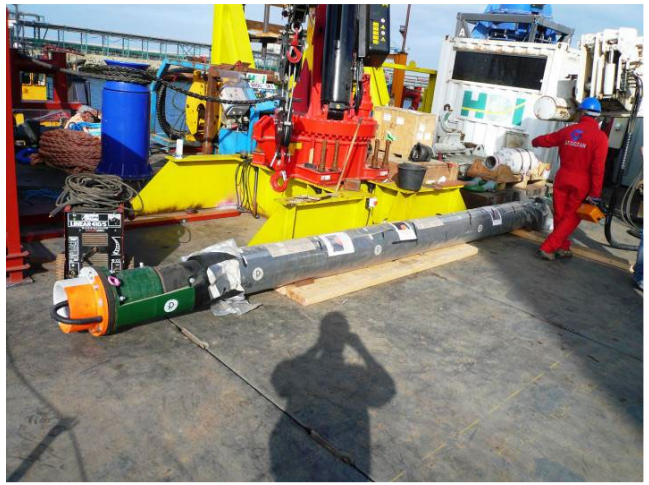
Pilot drilling

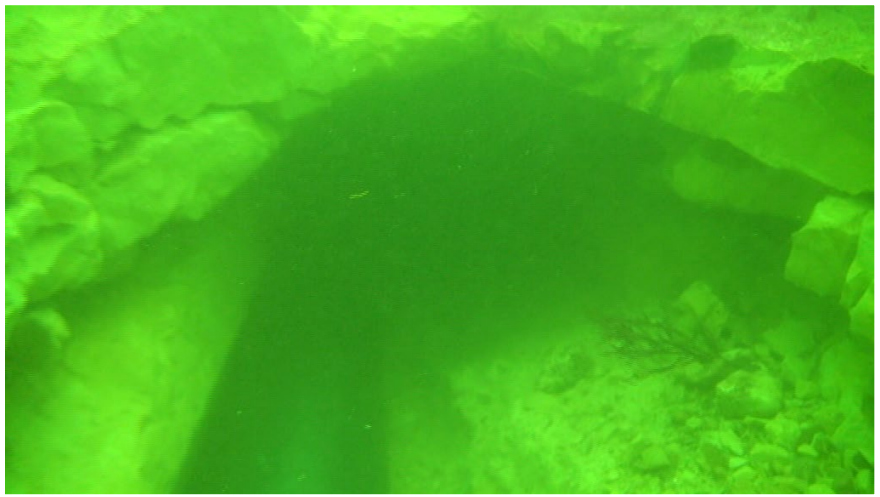


OUTFALL EL JADIDA MOROCCO

Reaming drilling



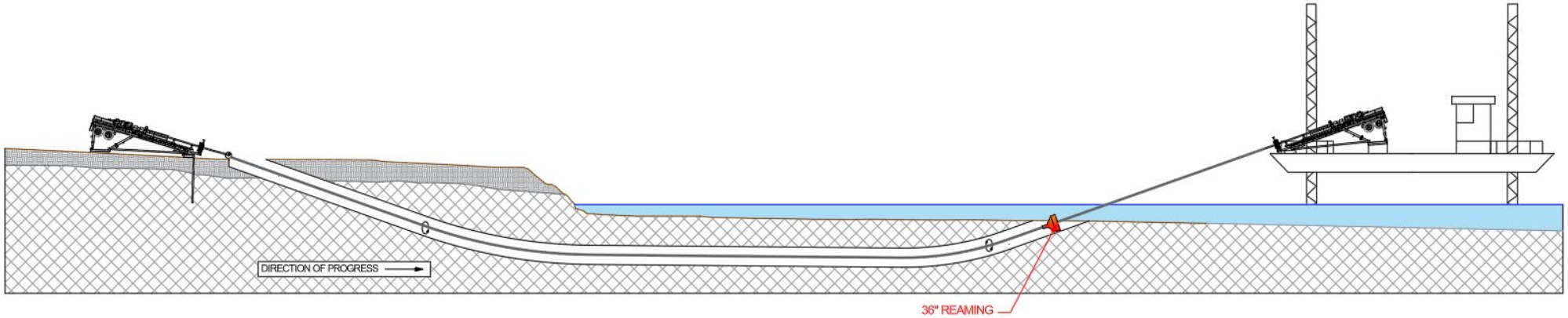




I. Case study

OUTFALL EL JADIDA MOROCCO

Punch Out & Swab



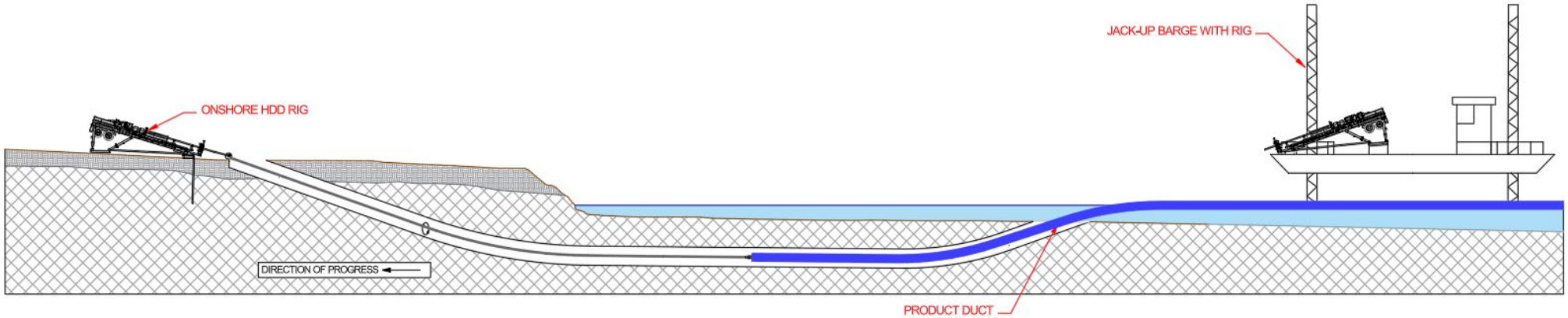
36’’ Hole Opener & 32’’ Barrel Reamer

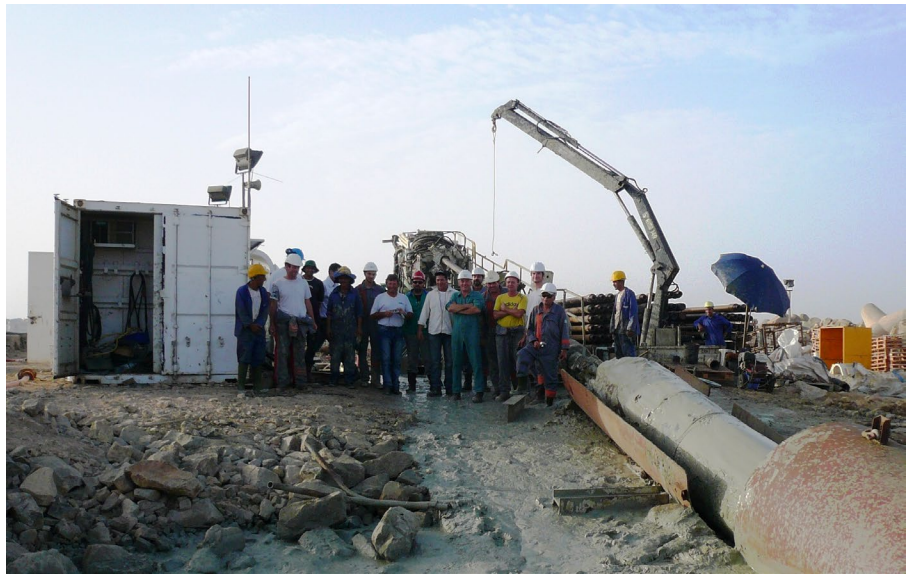
42’’ Hole Opener & 38’’ Barrel Reamer

I. Case study

OUTFALL EL JADIDA MOROCCO

Pull-back



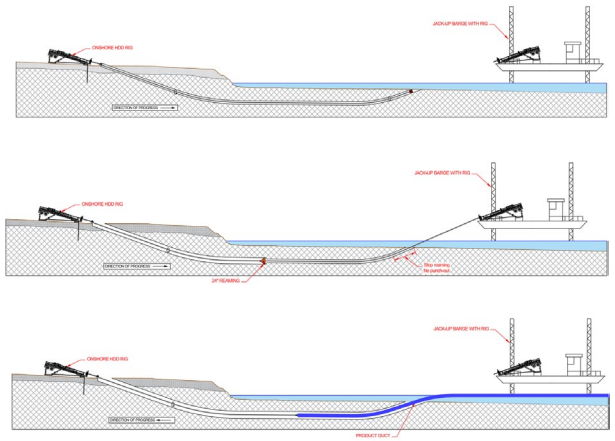


OUTFALL ANZA - AGADIR WATER OUTFALL

Project information

Year 2012-2013

Drilling sequence



Client

RAMSA

Contractor

JV: Somagec/Geocean/Etermar

MAIN CHARACTERISTICS:

Length

977 m HDPE

Diameter

Ø 700 mm

Drill Rig

HK 250

Geology

Limestone, Claystone and Sandstone Layers – UCS 25 to 70 MPa


Thank You
HDI
REAL
SUCCESS
IS THE
SUCCESS
YOU SHARE