



## **MGM Construction S.A.L**

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## **Company Profile 2015**

**Presented to:**

**RAMCO**

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**[WWW.MGMSAL.COM](http://WWW.MGMSAL.COM)**



# INTRODUCTION



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Dear Sirs,

We are pleased to present to you a brief profile of our company.

**MGM** Construction is a Lebanese contracting company established and registered in 2010 under the number 2019170 in the registry of commerce at Baabda. **MGM** was founded by Eng. Georges Kenaan, a geotechnical engineer with over 30 years of experience in geotechnical engineering in the US and established in Lebanon since 1998. Since its foundation **MGM** has strived to provide its clients with high-quality service in the Geotechnical field. These services include Design, Technical assistance and Execution of Special works.

**MGM** is specialized in the “Design & Build” of Special Foundation and Shoring works such as piling, diaphragm wall, micro-piling, temporary and permanent anchoring, nailing, shotcreting, cement grouting, dewatering, soil investigation, cavity probing and filling, etc...

**MGM** has been involved in the execution of numerous projects of residential, commercial and industrial nature which are summarized in the following profile.

Our company has the experience, the technical know-how, the tools and the personnel to undertake important works such as deep excavations in urban areas, deep foundations, slope reinforcement, soil improvement, soil investigation campaigns and other soil related works. We design and execute safe and optimized systems which are technically guaranteed while maintaining the most optimized budget.

You may find attached in the present document the following information:

- List of equipment
- List of previous projects executed by MGM Construction
- List of previous projects executed by Georges Kenaan



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- List of key personnel
  - CV's of company engineers
  - Project Data sheets
  - General Photos of Equipment & Projects

Hoping the present document will provide you a general overview of our company, we hope to meet you in person to introduce our company and to lay the foundations of a future collaboration.

Best Regards,

**Antoine E. ABBOUD**

**General Manager  
MGM Construction S.A.L**



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# AREA OF EXPERTISE

Our area of expertise includes the following activities:

### Piling

**MGM** Construction has the experience, capability and proficiency in drilling various diameter bored cast-in place piles. Bore sizes and depths range from 500 mm to 1200 mm diameter up to 50 m in depth with single or double-wall casings. Previous executed projects include foundation piles, soldier piles, secant piles, trapezoidal piles...etc.



### Anchoring

Experienced, continuously trained drilling crews, high-performance special equipment and comprehensive quality control make **MGM** capable of a rapid, technically fault-free execution of ground anchors.



## Nailing

Soil nailing is another earth retention technique provided by **MGM**, using grouted tension-resisting steel elements (nails) that can be designed for permanent or temporary support. Nails typically consist of T25 or T32 mm reinforcement bars.



## Micropiling

Micro-Piles which are small diameter piles are usually used for shoring or foundation projects where piling is to be executed with minimum disturbance to the adjacent existing foundation and for projects where there is restriction of space for shoring elements. **MGM** uses various rotary rigs for micropile execution ranging from 150 mm to 300 mm diameter. Micropiles may consist of steel tubes or reinforced concrete.





## Shotcrete

Shotcrete is one of the fields of expertise of **MGM** Construction. Also known as gunite, it consists of micro-concrete that is pneumatically conveyed through a nozzle and placed at a high velocity on to a surface. It's applied as a surface facing or a structural element in connection with piles, anchors or nail elements.



## Dewatering

**MGM** has an extensive experience in the drainage and ground water control. The Company offers turn-key solutions for design, supply and installation of dewatering systems which include installation of deep wells, submersible pumps, evacuation network, electrical network and sedimentation tanks. **MGM** is capable of operating high quality pumps engineered with innovative design features for maximum serviceability, highly efficient performance, and cost effective pumping systems in the dewatering service.







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# LIST OF EQUIPMENT

## **PILING RIGS**

### **Piling rig**

Casagrande B250

Italian Made, 2006 Model

Status: Owned/Used

Estimated CIF value: 450,000 \$

Power Rating: 330 kW

Capacity: 250 kNm



### **Piling rig**

CMV TH14

Italian Made, 2007 Model

Status: Owned/Used

Estimated CIF value: 150,000 \$

Power Rating: 170 kW

Capacity: 140 kNm



### **Piling rig**

CMV TH14

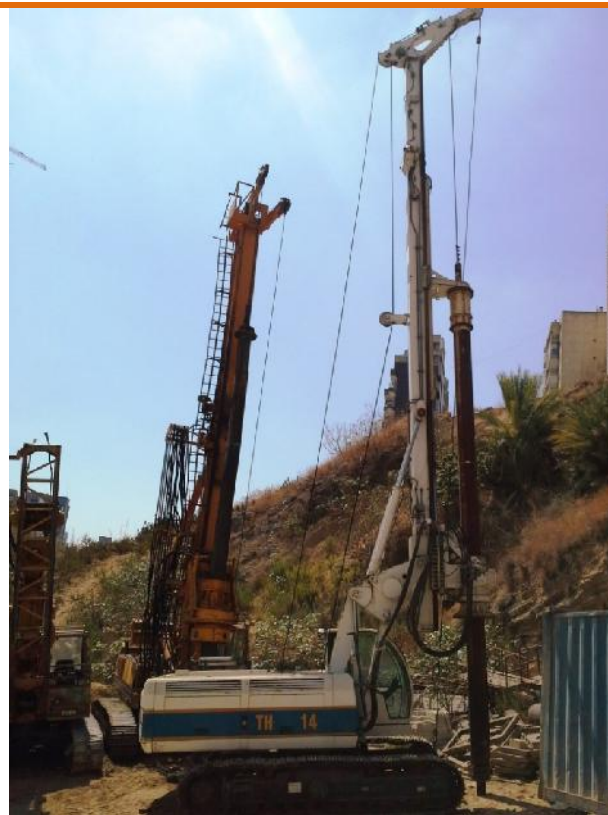
Italian Made, 2006 Model

Status: Owned/Used

Estimated CIF value: 150,000 \$

Power Rating: 170 kW

Capacity: 140 kNm



### **Piling rig**

Bauer BG18

German Made, 1990 Model

Status: Owned/Used

Estimated CIF value: 100,000 \$

Power Rating: 132 kW

Capacity: 177 kNm



### **Piling rig**

Bauer BG7

German Made, 1979 Model

Status: Owned/Used

Estimated CIF value: 100,000 \$

Power Rating: 132 kW

Capacity: 70 kNm





## ANCHOR MACHINE/MISCELLANEOUS EQUIPMENT

### **Anchor Machine**

Bauer UBW06  
 German Made, 1989 Model  
 Status: Owned/Used  
 Estimated CIF value: 50,000 \$  
 Power Rating: 65 kW  
 Capacity: 80 kN



### **Anchor Machine**

Bauer Klemm 806  
 German Made, 2004 Model  
 Status: Owned/Used  
 Estimated CIF value: 60,000 \$  
 Power Rating: 160 kW  
 Capacity: 100 kNm



### **Grouting Pump**

Clivio  
 Italian Made,  
 Status: Owned/Used



### **Grouting Pump x 2**

Bauer KV60

German Made,

Status: Owned/Used



### **Colloidal Mixer x 2**

Bauer

German Made

Status: Owned/Used



### **Shotcrete Machine**

Aliva, Sika Group

Swiss Made

Status: Owned/Used





**Air Compressor x 2  
(400 & 850 CFM)**

Ingersoll Rand  
American made





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# **LIST OF EXECUTED PROJECTS BY MGM**



Project	Client	Location	Type of Work	Year
Normandy Project	Geneco	Beirut Sea Port	Soil Nails & Shotcrete	2009
Ras Beirut 1442	ICD	Verdun	750 mm contiguous Piles with braces	2010
Palacio	ICD	Verdun	750 mm contiguous Piles with bracing	2010
Nest One	Dr. Ghassan Azar	Achrafieh	Micro-piles with Anchors	2010
Ministry of Public Health	Akaria / Hicon	Jnah	Piles with Anchors	2010
Tower 3006	Maher Awad	Mar Elias	400 mm shoring piles, Micro piles	2011
Beirut Square Trade II	Rafik El Khoury and Partners	Wady Abou Jmil	600 mm Shoring piles, Anchors, Shotcrete	2011
Batrakieh 482-Tower	ICD	Batrakieh	400 mm shoring piles , Anchors	2011
Faqra Club	Solipro	Solipro	400 & 300 mm shoring piles , Anchors	2011
Chiah 665	Archeveque Catholique	Chiah	400 mm shoring piles , Anchors	2011
Faqra / Souhail Dagher	Mr. Souhail Dagher	Faqra	Anchors, nails, and shotcrete	2011
Beit Mery Lot 7500	Architect Ronald Baz	Beit Mery	650 mm piles, anchors, nails, and shotcrete	2011
ElQomam Road Saninne	Nasim Abou Habib	Saninne	800 mm piles, anchors, nails, and shotcrete	2011
Aley Lot#222	Achada	Aley	Anchors	2011
Villa Aoun	Lahoud Contracting	Baabdat	800 mm Foundation piles	2011
Tayouneh Mall	Ideal Development	Tayouneh	Nails, Shotcrete	2011
Trillium	Mercury	Adleih	800 mm piles, anchors, nails, and shotcrete	2012
Vi-Verdun	Dolmen	Verdun	1000 mm piles, anchors, shotcrete	2012
Bhamdoun Main Road	South for Construction	Bhamdoun	1200 mm, 800 mm Foundation piles	2012
Hamra Lot#1505 and Lot#955	Mohamad Zaidan	Beirut-Hamra	1000 mm piles, 600 mm piles, strut, shotcrete, and Anchors	2012



Chouiefat Mall	BA real state	Chouiefat	600 mm piles, shotcrete, anchors and nails	2012
Vermelho	Trillium Development	Beirut-Hamra	800 mm piles Trapezoidal shape, 600 mm piles, 400 mm piles, shotcrete, and anchors	2012
Dbayeh Marina 941	We Do It s.a.r.l.	Beirut- Dbayeh	800 mm/600 mm Secant pile wall, shotcrete and anchors	2013
Mar Yakoub Church	Mar Yakoub Church	Byblos	750 mm Foundation Piles	2014
Volvo Heavy Equipment Facility	Eng. Joe Rafka, Mr. Micheal Abd El-massih	Jdiedeh	Nails, Shotcrete	2014
Rafik Hariri Memorial, Martyr Square	Geneco	Beirut BCD	880 mm Foundation Piles	2014
Hazmieh 1292	Sami El Helou	Hazmieh	Shoring System: Micro piles, Shotcrete and Soil Nails	2014
Batroun BBC- Lot 1573	Mr. Halim Zihenni	Batroun	Shoring System: 60 cm spaced piles, Shotcrete and Soil Anchors	2014
Pumping Station- Ramleh el Baida	South for Construction	Ramleh el Baida	Shoring System: 60 cm spaced piles, Shotcrete and Soil Anchors	2015
Mar Roukoz- Lot 426	Mr. Johnny Haddad	Mar Roukoz	Shoring System: 80 cm spaced piles, Shotcrete and Soil Anchors- Foundation Piles 80cm	2015
Bhamdoun Train Station	South for Construction	Bhamdoun	Shoring System: 60 cm spaced piles	2015
Chouiefet Mall Ramp	Dolment	Chouiefet	Shoring System: 60 cm spaced piles	2015



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# **LIST OF EXECUTED PROJECTS BY Georges Kenaan**



Project	Client	Location	Type of Work	Year
BCD Cadmous Street	Mouawad / Edde sarl. (Subcontract from Bauer)	Beirut Central District	Foundation Piles 880mm	1997
Ashrafieh Lot No. 969	Comdex Co.	Ashrafieh Beirut	Bored Piles 620mm & Anchors	1997
BCD Pumping Station	Mouad / Edde sarl.(Subcontract from Bauer)	Beirut Central District	Secant Piles 880m	1997
Nestle Distribution Center	Nestle	Dbayeh	Bored Piles 620mm	1997
BCD RW4 Bridge	Mouawad / Edde sarl. (Subcontract from Bauer)	Beirut Central District	Bored Piles 520mm & Anchors	1997
Zalka Building	Barkev Demerjian	Zalka	Soil Nailing & Prestressed Anchors	1997
Haret Sakher 1482	LCC (Subcontract from Bauer)	Jounieh	Secant Piles 880mm & Corner Braces	1998
Phonecial Hotel	Karagulla.(Subcontractor from Bauer)	Beirut	Secant Piles 880mm	1998
North Metn Coastal Collector	El KAISSI ETS.	Dbayeh to Beirut	Shaft Construction (Bored Piles 520mm & Steel Sheet Piling)	1998
Ashrafieh Lot 1592	AL Moudaber Antoine & Joseph Naiim	Ashrafieh, Sasine	Bored Piles 650mm & Anchors	1998
Private Residential Building	Dr. & Mrs. Chehadee	Mar Elias 516	Bored Piles 650mm & Anchors	1998
Bassil Building	Mr. Karim Bassil	Rmeil 337	Bored Piles 650mm & Anchors	1999
Al Chaer Building	Dr. Joe El Chaeer	Ramly Bayda 4345	Bored Piles 650mm & Anchors	1999
BCD 47 Building	Fattal, Dr Kosta	Bcd Area	Foundation and Shoring Piles & Anchors	1999
Ashrafieh Lot 4638	Weavers	Ashrafieh Beirut	Prestress Wall	1999
Hanna Building	SEG	Ashrafieh No. 1095	650mm Foundation and Shoring Piles & Anchors	1999
Faubourg Du Mathaf	SEG	Ashrafieh No. 1012	650mm Shoring Piles & Anchors	2000





Bassil Building 2	Mr. Karim Bassil	Rmeil 284-285	650mm Shoring Piles & Anchors	2000
Mallouli Bridge	SOMAC INTERNATIONAL	Tripoli	800mm Foundation Piles	2000
Khannak Bridge	SOMAC INTERNATIONAL	Tripoli	800mm Foundation Piles	2000
Ras Beirut 298	Weavers	Ras Beirut	650mm Shoring Piles & Anchors	2000
Saint George Church	Matta, Dr. Kosta	Solidere	420mm Piles	2001
Bekeneya Retaining Wall	SEG	Bekenya	Prestress Wall	2001
Daychounieh	SEG	Daychounieh	520 mm Cantelever piles	2001
Mr. Akram Hachem Building	Engineer Bassam Hachem	Chiyah 6569	650mm Shoring Piles & Anchors	2001
Mr. Chahee Tchaghlassian	Engineer Vasken	Bouchrieh 2266	650mm Shoring Piles & Anchors	2001
Saint George Church	Matta, Dr. Kosta	Solidere	420mm Cantelever Piles	2001
Omary Mosque	Dr. Ahmad Hajj	Solidere	650mm Shoring Piles & Anchors	2001
Grand Magazin	Mr. Farouk Basil	Jbeil 2597	800mm shoring Piles & Anchors and Shotcrete	2001-2002
Residential Building	Eng.Ahmad Eido	Mazraat 1545	650mm Concrete and Steel Soldier Piles & Anchors	2002
Residential Building	Eng.Ahmad Seno	Msaytby 5062	650,1200 mm Shoring Piles & Anchors and Shotcrete	2002
Residential Building	Eng. Omar Sardouk	Chiyah 54	750,350 mm Shoring Piles and Anchors and Shotcrete	2002
Residential Building	Eng.Mehy El Dine Harb	Hamra 253	Prestressed Wall w/ Nail & Anchors	2002
Printing Facility Bldg.	Mr. Fouad Beano	Bourj El Barajneh 2862	650mm Shoring Piles & Anchors	2002
Mr. Artin	Eng.	Boucherieh	650mm Shoring Piles & Anchors	2002
Residential Building	Musbah Tayarah	Ras Beirut 2156	Prestressed Wall w/ Nail & Anchors	2002
St Rafca Church		Jrehta	Tension Piles	2002
Hamra 253		Hamra 253	Shotcrete and Anchors	2002



Jbeil Supermarket	Gebzan Basil	jbeil 119	650mm Shoring Piles & Anchors	2003
Residential Building	Eng. Ahmad Seno	Msaytby 5062	650,1200 mm Shoring Piles & Anchors and Shotcrete	2003
School No. 16	Abniyah	Tareeq Al Jdideh	650mm Shoring Piles, Anchors and Shotcrete.	2003
Beirut Homes	Beam	Ashrafieh 770	650mm Shoring Piles, Anchors and Shotcrete.	2003
Kassar Residential Building	SEG	Ramlet Baida 3712	Prestressed Wall w/ Nail & Anchors	2003
Daychounieh	SEG	Daychounieh	Foundation Piles 650/520 mm	2003
Kassar Residential Building	SEG	Ramleh baida	Prestressed Wall w/ Nail & Anchors	2003
Residential Building	Bassam El Hachem	Jnah	650mm Shoring Piles, Anchors and Shotcrete.	2003
School No. 16 (Extension)	Abniyah	Tareeq Al Jdideh	650mm Shoring Piles, Anchors and Shotcrete.	2003
Kassar Residential Building	SEG (Extension)	Ramlet Baida 3712	Prestressed Wall w/ Nail & Anchors	2003
Companie D'assurance	SELCO (Selwan)	Baabda	650mm Shoring Piles, Anchors and Shotcrete.	2004
Residential Building	Eng : Fawzi Hammoud	Jnah	650mm Shoring Piles, Anchors and Shotcrete.	2004
Residential Building	Mr. Ali Merhe	Jnah	650mm Shoring Piles, Anchors and Shotcrete.	2004
Residential Building	Weavers	Ain Mreiseh 277	Prestressed Wall w/ Nail & Anchors	2004
Hbeyeb Villa	Mac Contracting	Faqra	Erosion Control	2004
Dagher Bldg.	Mr. Fares Dagher	Mtaileb 138	Erosion Control	2004
Trabeau 660	Trabeau 660 sal	Ashrafieh 659	650mm Shoring Piles, Anchors and Shotcrete.	2004-2005
Dbaye 401	Mr. Jihad Abboud	Dbaye 401	Prestressed Wall w/ Nail & Anchors	2005
Mazraat 1028	Mr. Bassam Hachem	Dbaye 402	Prestressed Wall w/ Nail & Anchors	2005
Haret Sakher 1422	Mr. Antoine Ashkar	Haret Sakher 1422	Cantilever Piles	2005-2006
Chiyah 6601	Mr. Mouhanad Jaafar	Chiyah 6601	650mm Shoring Piles, Anchors and Shotcrete.	2006



Haret Hreik 1624-1626	Mr. Hsein Yasine	Haret Hreik 1624-1626	650mm Shoring Piles, Anchors and Shotcrete.	2006
Msaytby 878	Mr. Hassan Jachy	Msaytby878	650mm Shoring Piles, Anchors and Shotcrete.	2006
Chiyah 6571	Mr. mouhanad Jaafar	Chiyah 6571	650mm Shoring Piles, Anchors and Shotcrete.	2006
Saifi 95	Mr. Ziad Zakka	Saifi 95	650mm Shoring Piles, Anchors and Shotcrete.	2006
Rmeil 183	Mr. Charle Awad	Rmeil 183	650mm Shoring Piles, Anchors and Shotcrete.	2007
Msaytby 4046	Mr. Hasan Damen	Msaytby 4046	650mm Shoring Piles, Anchors and Shotcrete.	2007
Jouneh Lagon Ski Club	Mr. Joseph Mnessa	Jounieh	750 mm contiguous Piles with braces	2007



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# LIST OF KEY PERSONNEL



Designation	Name	Summary of experience
Partner/ Managing Director	Eng. Georges Kanaan	Over 25 years of experience in design, construction supervision and management in the geotechnical engineering field
General Manager	Eng. Antoine Abboud	11 years of experience in geotechnical engineering design and contracting fields
Tender Manager/Cost Control Engineer	Eng. Hamze Tfaily	5 years of experience in geotechnical engineering contracting field
Project Manager	Eng. Mhammad Hamad	5 years of experience in geotechnical engineering contracting field
Piling Supervisor	Haidar Wehbe	12 years of experience in piling and shoring works
Workshop Manager	Khalil Saleh	20 years of experience in piling and shoring works
Foreman	Ibrahim Mhammad	7 years of experience in geotechnical projects
Foreman	Ibrahim Ismail	7 years of experience in geotechnical projects
Foreman	Ismail Hamad	5 years of experience in geotechnical projects



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# CV OF ENGINEERS



## **CURRICULUM VITAE**

**Name** : Georges Kenaan  
**Profession** : Civil Engineer (M.S. Sciences)  
**Date of Birth** : April 22, 1962  
**Citizenship** : US Citizen  
**Proposed Position** : Managing Director  
**Mobile** : +9613889820/+96170364300  
**Fax** : +9611454003  
**Mailing Address** : Mandaloun Bldg, street #1-6, red zone,  
Kfarhabab, Ghazir, Lebanon.  
**E-mail Address** : georgeskanaan@hotmail.com/gkkanaan@gmail.com

As a Manager expert, he will be responsible to all construction matters with tight coordination with Resident Contractor / Subcontractor and the Client.

### **Key Qualifications:**

Over 25 years of experience in the field of construction supervision and project management on various infrastructure projects. He has a wide experience in Project Management construction projects in the USA, the Lebanon, and the Middle East.

He is specialized in steel and reinforced concrete construction.

He is also specialized in shaft construction using sheet piles, reinforced cast-in-situ piles, micro-piles, soldier I shaped beams, and etc...; he acquired an extensive experience in concrete repair works (shotcreting consolidation, high-pressure grouting, application of concrete special materials, etc.), application of the water proofing products and floor topping projects. He is up-to-date in following up of new development and techniques related to Micro-Tunneling.

### **Education:**

<b>Degree</b>	<b>Specialization</b>	<b>Institution</b>	<b>Year</b>
M. Sc.	Civil / Environmental Engineering	The George Washington University Washington DC, U.S.A	1986
B. Sc.	Civil Engineering	The George Washington University Washington DC, U.S.A	1984

- He has successfully completed the Health and Safety Training for Hazardous Waste Site Investigation, required by OSHA in compliance with hazardous sites operations, Columbia Maryland, U.S.A. in 1991.
- He has successfully completed the Internal Auditor Training course, which meets the training requirements for Internal Auditors registered by the Governing Board of the IQA, Beirut in 1997.

### **Employment Record:**

#### **2009-Current MGM Construction s.a.l.**

##### **Beirut, Lebanon                      Partner/Managing Director**

Responsibilities included solicitation, preparation and presentation of bids. Design review; budgeting, staffing and scheduling and implementation of project design. He is responsible for cost and profit controls.

#### **1998-2009 A&K Foundation Specialists s.a.r.l.**

##### **Jounieh, Lebanon                      General Manager and Partner**

Responsibilities included solicitation, preparation and presentation of bids. Design review; subcontractor management; budgeting, staffing and scheduling and implementation of project design. He is responsible for day-to-day site supervision and control, cost and profit controls, and project management until completion and project closeout and release to client. He has an intensive experience in the fields of foundation and underground works, such as piling, anchoring, foundation pile, and shotcreting.

## **2007-Current Associated Consultant Engineers (ACE).**

### **Tripoli, Lebanon                      Micro-Tunneling Expert. (GC: Opere Pubbliche)**

**He has been involved in the Tripoli Sewer Networks Construction project as shaft and micro-tunneling specialist :**

The project consists of the construction of Tripoli Sewer Networks-Coastal Sewer Line Project. The project involves the laying of more than 3km of 1800 mm diameter pipes by Micro-tunneling.

## **1998-2002 Associated Consultant Engineers (ACE).**

### **Beirut, Lebanon                      Micro-Tunneling Expert.**

**He has been involved in the North Beirut and North Metn Coastal Collectors Construction project as shaft and micro-tunneling specialist :**

The project starts at Dbayeh and ends at the Daoura pretreatment plant and from Beirut River to Solidere Area. The project involves the laying of more than 8km of pipes by micro tunneling, five pumping stations with state-of-the-art systems for odor control, 14 Km of gravity line collectors and 1 Km of pressure lines and a sewer culvert of 3km length. During the execution of the project two types of micro-tunneling machines were used:

- EPB (earth Pressure Balance) Machine for Pipes of  $\phi 1800\text{mm}$
- AVN (slurry Material removal) Machine for pipe sizes of  $\phi 1200\text{mm}$ ,  $\phi 1000\text{mm}$  and  $\phi 500\text{mm}$ .

The pipes used, were reinforced concrete pipes especially designed to withstand the forces and stress of jacking.

All pipes (except  $\phi 500\text{mm}$  which was treated with epoxy costing) were lined with a 1.65mm thick HDPE liner with integral locking extensions.

The Lengths of pipes jacked in place including highway & River Crossings are as follows:

- Installation of 1,000 mm pipes, 3,200 m, using AVN machine.
- Installation of 1,800 mm pipes, 5,400 m, using EPB machine.
- Installation of 500 mm pipes, 900 m, under highway crossing, using AVN machine.

The above included associated launching and receiving shafts and manholes with depths varying from 4m to 12m, using the sheet pile system in different sizes including HDPE liners, external waterproofing etc.

**1994-1998    BAUER Spezialtiefbau.**

**Beirut, Lebanon.                      Construction and Project Manager.**

Responsibilities included implementation of project Design and quality controls procedures; management of projects and personnel; it also included engineering Design and Review. Focus on operation of foundation works such as Piling and Anchoring.

**1992-1993    Lebanese American University (LAU).**

**Jbeil, Lebanon                      Associate Professor.**

Concentrated and Advanced Math (Calculus I, II, III).

**Nasr Contruction Group.**

**Ghazir, Lebanon                      Co-owner and Managing Director.**

Construction of two residential building from the excavation phase to the finishing phase. Responsibility included implementation of project design and management of the whole project.

**1989-1992    Schnabel Foundation Company.**

**Bethesda, MD.USA                      Construction Manager.**

Progressively increasing accountability and a broadening of responsibilities, which included business development; scope-of-work documents and bid preparation; proposal review; bidding presentation; staffing of winning project mobilization; management of projects and personnel; internal cost and profit controls; project management until completion; and project turnover. Focus on construction of commercial office buildings in the Mid-Atlantic area, and the above activities would involve several on-going projects simultaneously.

**1987-1989 Capitol Foundation Inc.**

**Silver Spring, MD. USA      Project Engineer.**

Responsibilities included implementing project controls procedures, scheduling, and project management on construction projects, for both owners and contractors to monitor construction progress on various projects. It also included engineering design and review. Focus on foundation and underground works, primarily for Washington Metro as well as other passenger and freight trains.

**1986-1987 The George Hyman Construction Co.**

**Bethesda, MD. USA      Foundation Engineer.**

(After completing my Master's degree, rejoined The George Hyman Construction Co.) Responsibilities included construction and engineering design and review; budgeting; and site supervision. Focus on commercial office construction in the Washington DC area.

**1984-1985 The George Hyman Construction Co.**

**Bethesda, MD. USA      Project Engineer.**

Responsibilities included administering and controlling change orders for the firm's subcontractors on large residential and commercial office buildings.

**Languages:**

	<b><u>English</u></b>	<b><u>French</u></b>	<b><u>Arabic</u></b>
<b>Reading</b>	Excellent	Excellent	Excellent
<b>Speaking</b>	Excellent	Excellent	Excellent
<b>Writing</b>	Excellent	Excellent	Excellent

**Membership:**

American Society for Civil Engineers.

Association of the Lebanese Engineers.

**Athletics:**

The George Washington University Varsity Team in Water-Polo (1979-1982)

The George Washington University Varsity Team in Wrestling (1982-1984)

**Certification:**

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe me, my qualifications and my experience.



# ANTOINE E. ABOUD

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## EDUCATION

**AMERICAN UNIVERSITY OF BEIRUT**  
**M.E. in Civil Engineering**  
*Geotechnical Engineering Sequence*

Beirut, Lebanon  
*Nov 2007*

**NOTRE-DAME UNIVERSITY**  
**B.E. in Civil Engineering**

Zouk-Mosbeh, Lebanon  
*June 2003*

**COLLEGUES DES FRERES, MONT LA SALLE**  
**Lebanese Baccalaureate**

Ain-Saade, Lebanon  
*June 1998*

## RELEVANT COURSE WORK

- Earthquake Engineering
- Pre-stressed Concrete
- Introduction to GIS
- Strength. & Rehab. of Conc. Structures
- Fiber Reinforced Cementi. Composites
- Environmental Geotechnics
- Earth Dams
- Finite Elements Method
- Applied Foundation Eng.
- Bridge Engineering

## WORK EXPERIENCE

**MGM Construction S.A.L**  
**General Manager-Primary Position**

Beirut, Lebanon  
*Jan 2015-Present*

- Managing the company operations on daily basis.
- Elaboration of yearly financial perspectives and establishing budget targets.
- Coordination between the different company units (accounting, design, workshop, site...).
- Responding to tenders by preparation of needed offers including financial and administrative aspects.
- Preparation of contract documents for awarded projects.
- Maintaining professional relations with past and present clients and prospecting for new clients.
- Establishing relations with project management companies, architectural and structural firms.
- Follow-up on site situations and progress of works in compliance with contract requirements and schedule of works.
- Follow-up on site financial situations and issuing of invoices in relation with site progress.
- Review of quotation approach and unit rates based on back analysis of site performances and detailed analysis of separate site activity.
- Follow-up on company financial issues; payment of suppliers, collection of invoices, loans...
- Holding regular coordination meetings with key personnel (site engineers).
- Maintaining the quality of works on site by enforcing strict control procedures.

### **Head of Design-Secondary Position**

- Creating and reinforcing the internal design unit acting as the technical backup-office
- Preparation of design solutions for tender proposals including summary technical note, schematic drawings and detailed BOQ.
- Preparation of full execution documents for awarded projects including detailed design notes and execution drawings.
- Reply to reviews or comments by consultants or controllers until obtaining design approval.
- Operating adequate software tools for elaboration of designs
- Researching for new design solutions or execution methods to be proposed as alternatives solutions in tenders
- Elaboration of method statements, quality control procedures and record forms for improvement of site performance

**SOL ET TRAVAUX SPECIAUX, CONSULTANTS**

Beirut, Lebanon

**Senior Geotechnical Consultant***June 2004-Dec 2014*

- In charge of the analysis and design of various local and overseas special works projects (Area of expertise: Deep urban excavations with anchored or strutted diaphragm walls, secant pile walls or soldier pile walls, top/down construction methods, deep foundation systems (piles and strip piles), underpass systems, grout injection & dewatering systems, slope stability analysis and reinforcement, soil improvement using rigid inclusions, rigid pavement design...)
- Producing detailed execution drawings for geotechnical projects including reinforcement cages shop drawings, anchor and strut detailing...
- Performing soil investigation campaigns starting from site preparation, mobilization, follow-up on sampling and in-situ testing (pressuremeter test, Lugeon test, SPT, CPT...), lab testing works, borehole logs, presenting site and lab work results and elaboration of recommendations with regards to foundation, shoring, lateral earth pressures...
- Performing third party technical control to various geotechnical and structural works.
- In charge of design/site coordination for several local projects, attending site meetings and resolving technical site difficulties.
- Establishing quality control procedures for site works such as D-Wall, piling, anchor, grout injection works...
- Preparation of tender documents (BOQ, drawings, specifications) for enabling works tenders. Follow-up on the tender process, review and analysis of bidding documents, selection of winning contractor and review of execution study.
- Supervision of geotechnical shoring and grout injection projects acting as client technical representative.

**LEBANESE AMERICAN UNIVERSITY**

Byblos, Lebanon

**Course Instructor**-Soil Mechanics Course for 4<sup>th</sup> Year Architecture Students *2010-Present***AMERICAN UNIVERSITY OF BEIRUT**

Beirut, Lebanon

**Course Instructor**-Soil Mechanics course for 3<sup>rd</sup> Year Engineering Students *2010-2011***Research & Graduate Assistant** assisting several instructors *2003-2006***ADVANCED CONSTRUCTION TECHNOLOGIE SERVICES**

Beirut, Lebanon

**Geotechnical Field and Lab Engineer***Oct 2003-May 2004*

- Carried out several geotechnical investigations performing the following tasks;  
Site activities: Monitoring of drilling operations, in-situ testing, sampling and field logging.  
Lab activities: testing of sampled materials for the determination of soil and rock properties. Reporting: Borehole logging, classification of materials, assigning geotechnical parameters, creating soil profile and preparing soil report and recommendations.

**NOTRE-DAME UNIVERSITY – ENGINEERING LABS**

Zouk-Mosbeh, Lebanon

**Laboratory Assistant***Oct 2003-June 2003*

- Assisted in concrete and soil testing, and supported instructor in lab courses such as mechanics of materials, soil and concrete.

**BAUER, FOUNDATION SPECIALISTS**

Jdeide, Lebanon

**Trainee Engineer – Four Seasons Hotel Site***July 2002-April 2003*

- Assisted in site administration works (reporting of activities)
- Supervised technical site activities in geotechnical works

**MATTA ENTERPRISES**

Ashrafieh, Beirut

**Trainee Engineer – NDU Construction Site***July 2001-Sept 2001*

- Supervised Observed site activities; steel reinforcement, formwork and concrete pouring for different structural elements and pre-stressed joist slabs. Excavation works, road leveling and paving, construction of reinforced earth wall, floor coatings and waterproofing. Quantity survey; quantity take-off for concrete elements and finishing.

<b>MEMBERSHIPS</b>	<ul style="list-style-type: none"> <li>• Member of the Order of Engineers and Architects, Beirut <i>2003-Present</i></li> <li>• Member of the Int. Society for Soil Mechanics and Geotechnical Engineers <i>2011-Present</i></li> </ul>
<b>VOLUNTEERING</b>	<ul style="list-style-type: none"> <li>• Provincial Coordinator, Faith &amp; Light, Int. Assoc. for people with disabilities <i>2007-Present</i></li> <li>• BASSMA Humanitarian Association (Vice-President) <i>2002-2012</i></li> <li>• President, Society of Civil Engineers, NDU <i>2002-2003</i></li> <li>• Volunteer Teacher with JA (Junior Achievement) - Sagesse High School <i>2002</i></li> <li>• Protocol Site Agent – 9<sup>th</sup> Summit of the Francophone Nations - Beirut <i>2002</i></li> <li>• Animator with APPEL (Association for the progress of the Lebanese Child) <i>2001</i></li> <li>• Animator and coordinator of JDA Group (Jeunes d’Aujourd’hui), Mont La Salle <i>1998-2002</i></li> </ul>
<b>SKILLS</b>	<p><i>Software:</i> Microsoft Office, AutoCAD, GIS, Robot, Plaxis 2D 2012, Softwares by Terrasol-France (K-Rea, Talren v5, Foxta), Softwares by Soletanche-Bachy (Paroi 1, Paroi 2, Cacao, Proverbe, Kranz, Butons).</p> <p><i>Languages:</i> Fluent in English, Arabic and French.</p>
<b>CONFERENCES &amp; WORKSHOPS</b>	<ul style="list-style-type: none"> <li>• 18<sup>th</sup> International Conference on Soil Mechanics and Geotechnical Engineering- Palais des Congrès - Paris <i>Sept 2013</i></li> <li>• 5<sup>th</sup> International Young Geotechnical Engineer’s Conference - Lecturer Ecole des Ponts, PariTech - Paris <i>Aug 2013</i></li> <li>• Training Workshop on Foxta Software – Terrasol France <i>June 2013</i></li> <li>• Training Workshop on K-Rea Software – Terrasol France <i>March 2012</i></li> </ul>
<b>PUBLICATIONS</b>	<ul style="list-style-type: none"> <li>• Case Study: Deep Excavation in Beirut Suburb (<i>Proceedings of the 5<sup>th</sup> International Young Geotechnical Engineer’s Conference</i>)</li> <li>• Compressive Strength of Fiber-Reinforced Lightly-Cement Stabilized Sand (<i>Proceedings of the 18<sup>th</sup> International Conference on Soil Mechanics and Geotechnical Engineering</i>)</li> </ul>

Hamze Riad Tfaily  
Beirut, Lebanon  
Telephone No: 70-699484  
Email id: hamzetfaily@hotmail.com

Title: Civil Engineer with more than five years experienced in site construction works, piling, shoring works and material testing.

Objective: To pursue a professional career and enrich my qualification, experience, know-how and eagerness in the field of civil engineering, with a firm that offers a challenging career and staff effectiveness preparation.

Skills and Personal Attributes:

- Highly capable civil engineer, problem solver, confident and enthusiastic about engineering.
- Efficient management and organizational skills.
- Good communication and writing skills.
- Open minded and able to work in complex projects and environment with flexibility and self motivation.
- Computer skills: AutoCAD, MS Office (Word, Excel, PowerPoint and Outlook), Primavera, Robot, Safe, Arch-effel, Wallap, Talren, GIS and Liscad.
- Language known: Arabic, English, French (Basic).

Work Experience:

- Civil Engineer, MGM Construction s.a.l, Beirut, from January 2012 up to date, where the responsibilities involve:
  - Tender manager; preparing bid files with BOQ and price analysis.
  - Quality control on all running projects.
  - Site Engineer responsible of several active sites, supervising piling works, anchoring and shotcreting.
  - Preparing shop-drawings and BOQs for the projects.
  - Responsible for all paper works and correspondences.
  - Time and resources management, implementation of work and monitoring.

Projects worked on during this period: ( DBAYEH MARINA 941, VERMELHO, HAMRA 1505, V-VERDUN, TRILLIUM and Bhamdoun Road)

- Site Engineer, International Piling Group (IPG), Beirut, from 2010 till January 2012, where the responsibilities involved:
  - Responsible for large scale projects (execution of foundation piles, shoring piles, anchors and bracing systems).
  - As a site civil engineer, provided time and resources management for projects responsible for.
  - Performed field investigations, engineering analyses, construction monitoring.
  - Evaluated, reduced, and reported instrumentation data.
  - Prepared written proposals, reports, and cost estimates.
  - Attended weekly site meetings.

Projects worked on during this period: Marina Underground Car Park- BCD, Saifi Village Extension, Plus Towers I and II, and other medium scale projects.

- Pre-graduate Engineer with Architectural Engineering Group (AEG), Beirut, summer 2008, where the responsibilities involved:
  - Construction field inspections.
  - Execution surveillance.
- Pre-graduate Engineer with Assaco S.A.R.L., Beirut, summer 2007, where the responsibilities involved:
  - Geotechnical Reporting and field investigations.
  - Laboratory Testing (Soil, Concrete, Steel, Bitumen, Chemical testing...)

Education:

- B.S. in Civil Engineering from Lebanese University, which is equivalent to a Master of Engineering Degree, Beirut in 2010.

Hobbies:

- Swimming, reading and hunting.

References: Available upon request

# MOHAMMAD M HAMAD

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E-MAIL: [ENG.MOHAMADHAMAD@GMAIL.COM](mailto:ENG.MOHAMADHAMAD@GMAIL.COM)  
MHAMAD@MGMSAL.COM

## **Education:**

*B.S. in Engineering* , at the “*Beirut Arab University*”.

## **Professional experience:**

**1/6/2010-Current** **Project Directors**, with **MGM Construction s.a.l.**, Beirut, Lebanon (Foundation Company).

The responsibilities involve:

- In charge of shoring design implementation, and quality control of all projects.
- Improve the operational systems, processes and policies in support of organizations mission -- specifically, support better management reporting, information flow and management, business process and organizational planning.
- Play a significant role in long-term planning, including an initiative geared toward operational excellence.
- Development of individual program budgets.
- Invoicing to funding sources, including calculation of completed units of service.
- Payroll management, including tabulation of accrued employee benefits.
- Regular meetings with Executive Director around fiscal planning.
- Supervise and coach office manager on a weekly basis.
- Responsible for data entry, accounts payable, payroll, grant report entry, managing the organizations HR, Working with the management team, policies and practices, also interact with the Board of Directors.

**1/7/2010-30/7/2011** **Project Coordinator**, with **Ideal Development**, Beirut, Lebanon.

- Management, Planning, and Budgeting of many projects in Lebanon and Overseas.

**8/2/2010 – 30/6/2010** **Project Engineer** , with **International Piling Group (IPG)** Beirut, Lebanon.

**(Foundation company)**

- In charge at **Plus Towers** project in BCD area, and **LOT 178** next to Fouad Chehab Bridge.
- Responsible of large scale projects (execution of foundation piles, shoring piles, anchors and bracing systems).
- Project engineer, provided time and resources management for projects responsible for.
- Performed field investigations, engineering analyses, construction monitoring.
- Evaluated, reduced, and reported instrumentation data.
- Prepared written proposals, reports, and cost estimates.
- Attended weekly site meetings.

**15/8/2009 – 7/2/2010**    **Quality Controller,** with **Geneco Co.,** Beirut, Lebanon. (General Contractor).

- In charge of all quality control and supervision of all concrete works at the “Car Park” at the Normandy area.

**8/2/2006 - 30/4/2009**    **Site Engineer** , with **A & K Foundation Co.,** Jounieh, Lebanon. (Foundation Company).

- In charge of all the shoring works on various Projects in the Beirut and the Suburbs area.

## **Computer and communication Skills:**

A strong technical experience in the following areas:

- Microsoft Office, Internet Skills
- Wallap, Talren
- Operating Systems: WINDOWS(XP service pack 2,service pack 3, and VISTA)
- AutoCAD
- MATLAB, Primavera, and M.S Project.
- Database design and analysis
- Microsoft Visio 2000, and Microsoft Project

## **Personal Abilities:**

- Hardworking.
- Highly capable project manager, problem solver, confident and enthusiastic about engineering
- Extremely reliable, considerate, and organized
- Skilled at evaluating options and generating solutions
- Team and individual work.
- Comfortable working with all personality types.
- Fluent in Spoken and written Arabic and English, French (Basic).

## **Personal Information:**

- Marital Status : Married
- Date of Birth : June 10, 1985
- Place of Birth : Beirut ,Lebanon



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# PROJECT DATA SHEETS



## SHORING SYSTEMS

Secant Pile Wall, Anchors, Shotcrete, Grouting, Dewatering and Excavation

Execution of a 9.0 m excavation under high water table level using a water-tight shoring system composed of an anchored secant pile wall associated to a grouting program and dewatering system.

**TOTAL CONTRACT AMOUNT: 1,073,926 USD**

- Located on the Beirut-Tripoli Highway covering an area of about 1,500 m<sup>2</sup>, this project was executed by MGM in a 12 months duration proving the effectiveness of the adapted secant pile shoring wall associated to a grout plug and deep well dewatering system in the local soil formation. This project was a major endeavor for its weak soil stratigraphy and high water infiltration knowing that the bottom excavation level was at 9.0 m below the road level with 6.0 m below water table level. The soil layers consisted of: Fill, Quaternary Sand and Gravel, Clayey Sand and finally a Marly Limestone substratum.



*General View of Site Area*

<b>Client:</b>	<b>WE DO IT s.a.r.l</b>
<b>Architect:</b>	<b>3 AS, Designers. Consultants</b>
<b>Geotechnical Eng.:</b>	<b>GSC</b>
<b>Main Contractor:</b>	<b>TOHME Contracting</b>



*Piling Operations under way*

### Main Quantities

2,130 lm of 880 mm Secant pile Wall
1,290 lm of 620 mm Secant pile Wall
2,476 lm of Ground Anchors
142 lm of Capping Beam
852 m <sup>2</sup> of Shotcrete
8 Deep Wells
1034 m <sup>2</sup> of cement grout
174 m <sup>2</sup> of chemical grout

## SHORING SYSTEMS

Secant Pile Wall, Anchors, Shotcrete, Grouting, Dewatering and Excavation



*Shotcrete Operations under way*



*Grouting Operations under way*

- Upon the completion of the 15 m deep secant pile wall, the grouting program was executed to reduce the water infiltrations to a controllable amount. 8 Dewatering wells were executed in the pile wall periphery with additional pits operating 24/7 to remove any water infiltration. Two rows of anchors supported the pile wall with shotcrete layer covering the piles for waterproofing purposes. The project ended in August 2014 over which a high-end commercial center is currently under construction.



*Excavation and shotcrete works*



Execution of a 13.0 m deep excavation using an anchored soldier pile wall with shotcrete facing.

**TOTAL CONTRACT AMOUNT: 209,000 USD**

- Located in the center of Batroun over a surface area of 2,200m<sup>2</sup>, this is the first project executed in the region composed of five underground basements. The excavation depth and the adapted shoring system were unprecedented in the area till the present time. The business center constituted of 6 upper floors for commercial and office use in a vital need for business development in Batroun. The shoring system consists of executing 600 mm soldier piles spaced at 2.5 m and supported by two layers of ground anchors covered by a 10 cm reinforced shotcrete layer. The soil stratum descends from Fill material, silty Sand, Sandstone to Creamy Marl as we reach the water table corresponding to the sea level.



*General View of Site Area*

<b>Client:</b>	<b>BBC s.a.l.</b>
<b>Architect:</b>	<b>Accent DG</b>
<b>Engineer:</b>	<b>Haleem Zihenni Office</b>
<b>Structural Eng.:</b>	<b>Rodolphe Mattar</b>

### Main Quantities

564 lm of 600 mm soldier piles
1,032 lm of Ground Anchors
107 lm of Capping Beam
1,137 m <sup>2</sup> of Shotcrete



*Pile concreting operation underway*





## BBC, BATROUN BUSINESS CENTER

### SHORING SYSTEMS

Soldier Pile Wall, Anchors, Shotcrete



*Shotcrete smooth finish*



*View of shoring from excavation level*



*CMV Machine operating on site*



Execution of a 30 m deep excavation using an anchored and nailed shotcrete facing. Anchors were supported on concrete whaler beams.

**TOTAL CONTRACT AMOUNT: 1,469,121 USD**

- Hotel Tanios, a landmark in Aley from the late 1950s, will be revived after decades of abandonment. The enabling works were executed by MGM Construction in 2011 and 2012 and the Hotel is currently under construction. As described above, the shoring system consisted of multiple layers of soil nails and anchors executed over shotcrete and whaler beams.
- The soil sub-surface layers consist of: Marly Limestone, Claystone and Limestone.
- Different technics were used because of the difficult execution conditions due to the presence of major cavities in the top layers of anchors. The karstic limestone rock formation showed cavities of 3.0 to 4.0 m in size and important intercalations of clayey layers



*General View of Site Area*

<b>Client:</b>	<b>HOTEL TANIOS</b>
<b>Architect:</b>	<b>ASHADA</b>
<b>Geotechnical Eng.:</b>	<b>Touma Engineering</b>
<b>Main Contractor:</b>	<b>ASHADA</b>

#### Main Quantities

21,866 lm of Ground Anchors
848 lm of soil nailing
852 m <sup>2</sup> of Shotcrete



*Anchor drilling operations underway*

Execution of a 16.0 m excavation using a shoring system composed of top shoring and an anchored soldier pile wall associated to a top shoring system of nailed shotcrete wall.

**TOTAL CONTRACT AMOUNT + VO's.: 1,475,431 USD**

- The project was excavated by around 8 meters from natural ground level without any shoring when MGM took over. Some backfilling works were needed in some areas to prepare suitable working platforms for piling, soil nailing and shotcrete works.
- The typical soil profile consists of: top fill material, clay with cobbles and boulders followed by sandstone rock formation.
- The overall duration of the shoring works was 6 months.
- Cavity probing was done after reaching the bottom of excavation and some cavities were detected; grouting procedure was carried on to ensure that all cavities were filled by grout.



*General View of Site Area*

<b>Client:</b>	<b>Trillium Development</b>
<b>Architect:</b>	<b>DNA</b>
<b>Structural Eng.:</b>	<b>Dr. Assad Kallassy</b>
<b>Main Contractor:</b>	<b>Dolmen Contracting</b>
<b>Sub-Contractor:</b>	<b>HOMEN</b>

### Main Quantities

3,495 lm of soldier piles
298 lm of capping beam
7,367 lm of Ground Anchors
528 lm of soil nailing
395 m <sup>2</sup> of Shotcrete



*Cavity probing works underway*





## SHORING SYSTEMS

Soldier Pile Wall, Anchors, Shotcrete, Strutting,

Execution of a 21.3 m excavation using a shoring system composed of 60 cm soldier pile wall, supported by one layer of struts and two layers of anchors. Kingposts of 1 m diameter supported the bracing system. Shotcrete and cavity probing activities were done as well.

**TOTAL CONTRACT AMOUNT: 1,767,912 USD**

- Hamra 1505 is one of the most important projects executed by MGM Construction. The project included the enabling and excavation works for two buildings, a tower consisting of 6 basements, a GF and 21 upper floors, and a second building with 6 basements, a GF and 14 upper floors. The site is located over a surface area of around 2,015 m<sup>2</sup>. A total of 100 soldier piles spaced at 2,2/2,4 m of 24 m length were executed on the periphery of the site. One level of struts and two levels of pre-stressed anchors supported the pile wall. A shotcrete facing covered the excavation surface. The project duration was 14 months including the excavation works.



***General View of Excavated Site Area***



***Piling Operations under way***

<b>Client:</b>	<b>HAMRA 1505 s.a.l.</b>
<b>Management:</b>	<b>ASAM</b>
<b>Architect:</b>	<b>A-Consult</b>
<b>Main Contractor:</b>	<b>ABNIAH</b>

<b>Main Quantities</b>
2,316 lm of 600 mm soldier piles
204 lm of 1000 mm kingpost
1,350 lm of Ground Anchors
142 lm of Capping Beam & struts
4,194 m <sup>2</sup> of Shotcrete
51,560 m <sup>3</sup> of excavation



## SHORING SYSTEMS

Soldier Pile Wall, Anchors, Shotcrete, Strutting,



*View of site with excavation works underway*



*General View of site area*



*Smoothing of shotcrete facing*



Execution of a 21.0 m excavation using a shoring system composed of an anchored soldier pile wall with shotcrete facing.

**TOTAL CONTRACT AMOUNT: 837,290 USD**

- The location of the V-Verdun project on a corner of the main Verdun Street presents a major constraint on the execution of the project in light of the residential nature of the area, the high traffic conditions and pedestrian crowding.
- MGM successfully completed the project ahead of the expected end date.
- Removal of the spoils was difficult in light of the critical position of the ramp requiring double-handling maneuvers.
- The soil profile consisted of a top fill layer, clay with gravel, cobbles and boulders, limestone rock and finally a sandstone substratum.
- The execution period of the project totaled 12 months.
- An existing soldier pile wall of 500 mm diameter piles with a toe level at mid excavation depth was previously executed before MGM took over. MGM executed a row of piles in front of the existing piles by lowering a drilling machine into the excavation.



*General View of Excavated Site Area*

<b>Client:</b>	<b>Trillium Development</b>
<b>Architect:</b>	<b>DNA</b>
<b>Structural Eng.:</b>	<b>Dr. Assad Kallassy</b>
<b>Main Contractor:</b>	<b>Dolmen Contracting</b>

### Main Quantities

1,300 lm of 1000 mm soldier piles
98 lm of 800 mm soldier piles
392 lm of 600 mm soldier piles
4,395 lm of Ground Anchors
165 lm of Capping Beam
1,554 m <sup>2</sup> of Shotcrete



*Excavation process underway*

Execution of a 21.0 m excavation using a shoring system composed of an anchored soldier pile wall with shotcrete facing.

**TOTAL CONTRACT AMOUNT: 1,245,411USD**

- The location of the Vermelho project on the main Hamra Street presented a constraint on the execution of the project in light of the residential nature of the area, the high traffic conditions, pedestrian crowding and the unavailability of any set-back limit.
- Types of shoring elements were various depending on the space constraint; 300, 600 and 800 mm (Trapezoidal shaped) piles were used.
- Removal of the spoils was difficult in light of the critical position of the ramp requiring double-handling maneuvers.
- The soil profile consisted of a top fill layer, clay with gravel, cobbles and boulders and finally a limestone substratum.
- The execution period of the project totaled 12 months.



*General View of Excavated Site Area*

<b>Client:</b>	<b>Trillium Development</b>
<b>Architect:</b>	<b>DNA</b>
<b>Structural Eng.:</b>	<b>Dr. Assad Kallassy</b>
<b>Main Contractor:</b>	<b>Dolmen Contracting</b>

### Main Quantities

879 lm of 800 mm Trapezoidal shaped piles
810 lm of 600 mm soldier piles
778 lm of 300 mm soldier piles
4,897 lm of Ground Anchors
185 lm of Capping Beam and struts
132 lm of steel struts
2,176 m <sup>2</sup> of Shotcrete



*Excavation process underway*



Execution of a 18 m excavation using a shoring system composed of an anchored soldier pile wall with shotcrete facing.

**TOTAL CONTRACT AMOUNT: 169,339.25 USD**

- This project included the execution of the shoring system along Pierre Gemayel Boulevard for two high rise towers (25 and 20 floors). The executed piles were 18 m length and spaced at 2.2 m. The pile wall was supported by three rows of anchors and the exposed surface was cover by shotcrete. A special case study was done under an existing electrical room containing a post for EDL, under which no pile could be executed. Instead, a shotcrete wall of 20 cm thickness supported by 4 layers of nails against whaler beams, were implemented to support the cut.



*General View of Excavated Site Area*



*Piling process  
underway*

<b>Client:</b>	<b>Mercury Development S.A.L</b>
<b>Architect:</b>	-
<b>Structural Eng.:</b>	-
<b>Main Contractor:</b>	<b>Kfoury Contracting</b>

### Main Quantities

428 lm of 880 mm piles
78 lm of soil nails
609 lm of Ground Anchors
50 lm of Capping Beam
769 m <sup>2</sup> of Shotcrete

*Concreting operation  
underway*



**Execution of 52 foundations piles of 650 mm diameter**

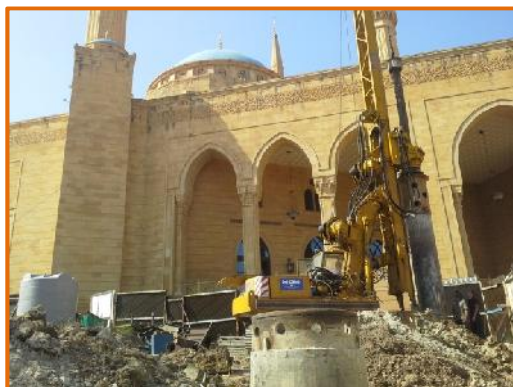
**TOTAL CONTRACT AMOUNT: 51,548.5 USD**

- This project involved executing 52 foundation piles to support the slab on grade over which the memorial square was constructed. Two piling rigs were mobilized to the site in the first stage, since it was divided into an upper constricted part, where the BG7 fitted for the mission and a lower bigger part where the B250 executed the remaining piles. Later on, the new CMV rig executed the piles in the narrow north passage due to its high versatility. The piles were drilled to the required depth to ensure a 7 m embedment in the Claystone layer below the Fill and Marl material. Sonic tubes were installed in 4 piles and all integrity and sonic tests presented satisfactory results.



*General View of site area*

*Piling process underway*



<b>Client:</b>	<b>Solidere</b>
<b>Architect:</b>	<b>Marc Barani, Rachid Karam</b>
<b>Structural Eng.:</b>	<b>CODE</b>
<b>Main Contractor:</b>	<b>GENECO</b>

### Main Quantities

734 lm of 650 mm piles





# Bhamdoun-Saoufar Highway FOUNDATION PILES

**Execution of foundation piles for Bhamdoun highway service road and tunnel and execution of foundation piles for Saoufar overpass**

**TOTAL CONTRACT AMOUNT: 730,658.52 USD**

- The project consisted of executing permanent foundations piles for different structures part of the Bhamdoun-Saoufar highway works.
- Soil profile in the area is highly variable consisting of sandstone, limestone and marlstone rock intercalated with sandy, clayey and gravelly soil layers.
- Works includes drilling in existing RC foundations in some area.
- Overall project execution period was 8 months including the execution of more than 4,216 lm of 800 and 1,200 mm piles.
- 1,200 mm diameter piles drilling to 25 m depth with top casing.
- Working conditions were severe in the light of heavy winter including cold and snowy weather conditions.
- Works controlled and approved satisfactorily by Messrs. Khatib & Alami.

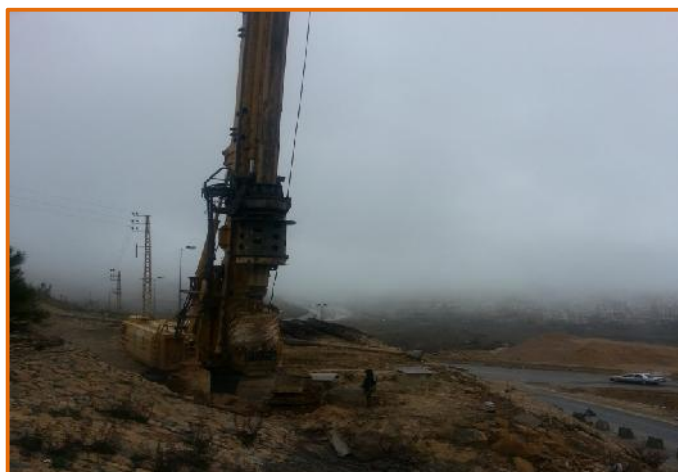


*Piling operations underway in Bhamdoun*

<b>Client:</b>	<b>CDR</b>
<b>Funding:</b>	<b>Kuwait Fund</b>
<b>Technical Control:</b>	<b>Khatib &amp; Alami</b>
<b>Main Contractor:</b>	<b>South for Construction</b>

## Main Quantities

1,821 lm of 1200 mm piles
2,395 lm of 800 mm piles



*Piling operation underway for  
Saoufar overpass*



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# GENERAL PHOTOS



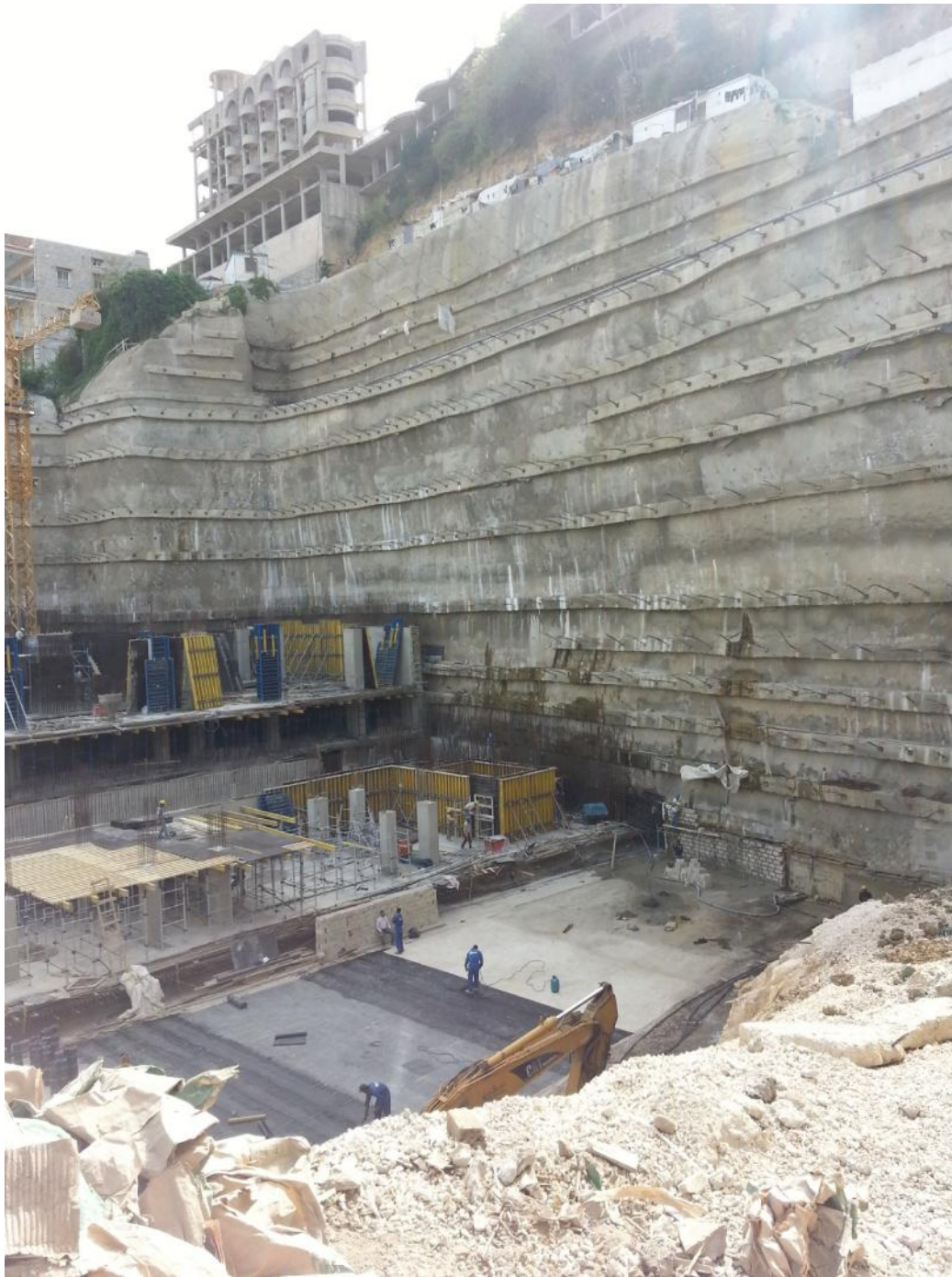
**SADATE 955/2012-2013**





## V-VERDUN - 2012





## HOTEL TANIOUS- ALEY - 2012



## **DBAYEH MARINA 941 - 2013**





## RAFIK HARIRI MEMORIAL - 2015





## BATROUN BUSINESS CENTER - 2014-2015



## VERMELHO- HAMRA - 2013-2014



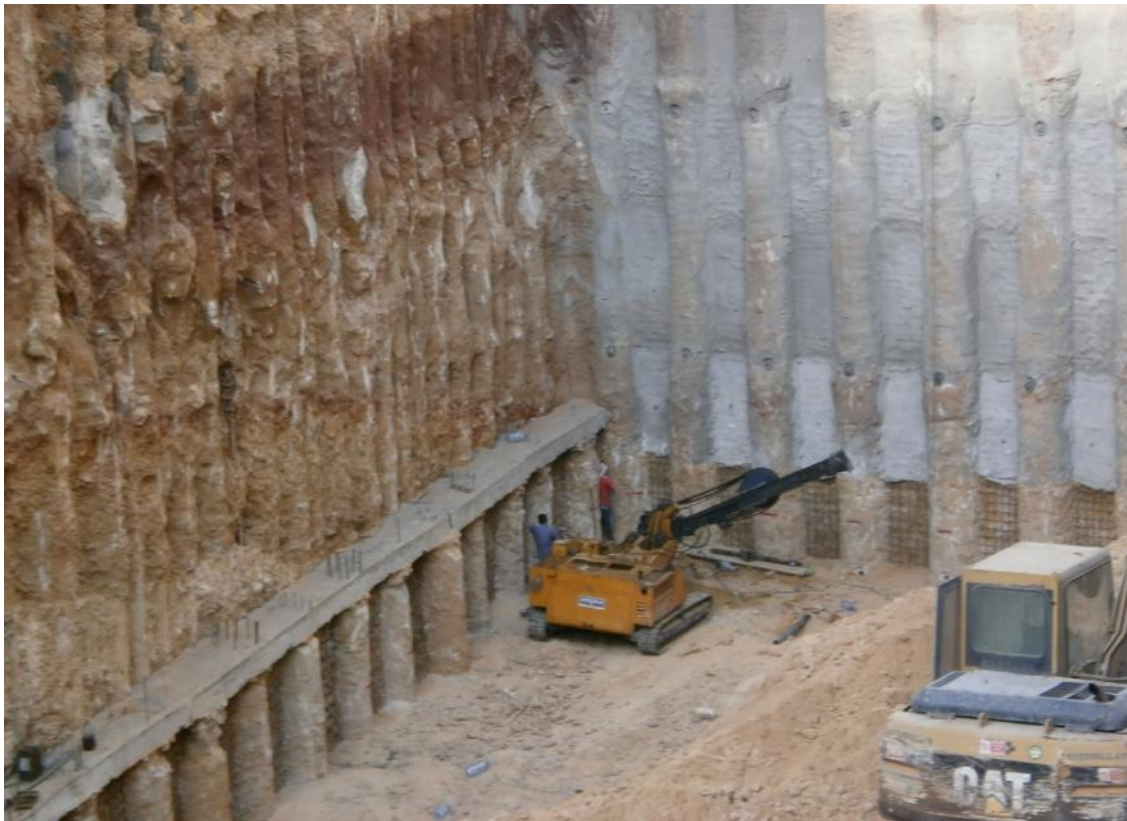


## CHOUIFET MALL - 2013



## SHOTCRETE AND GROUT PLUG ACTIVITIES





## ANCHORING ACTIVITIES





## DEWATERING WELLS



## PILES, ANCHORS AND SHOTCRETE