

HET

Harmony Engineering Technology (Thailand)



COMPANY PROFILE

A Licensee of



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Harmony Engineering Technology (Thailand) Co., Ltd.,

Harmony Engineering Technology (Thailand) Co., Ltd. (HET)

remains the sole authorized VSL Licensee and Representative (VSL Licensee) in Thailand.

The Company is committed to maintaining and upholding its organizational structure, management, material quality, equipment, and work standards without change.

Founded in 1983 as VSL Thailand Co., Ltd., it has been recognized as a leader in the construction of concrete structures for over 40 years. In addition, based on our professional technology and competitiveness, we are demonstrating our capabilities with the know-how of construction performance accumulated over a long period of time, including concrete box girder bridges, super-large cable-stayed bridges, LNG TANKS, submerged tunnels, cathodic protection and special structure projects such as heavy lifting.

In the future, **Harmony Engineering Technology (Thailand) Co., Ltd. (HET)** will continue to be a company that can continuously create value by providing customized services that meet the needs and demands of customers by utilizing these various construction experiences and advanced technologies.

Our global network



NORTH EAST ASIA	SOUTH EAST ASIA	IBERIAN PENINSULA, AFRICA, LATIN AMERICA	CENTRAL EUROPE & MIDDLE EAST	9 VSL LICENSEES	
<ul style="list-style-type: none"> 1. China 2. Philippines 3. Thailand 4. Vietnam 5. Hong Kong <p><small>(incl. VSL Hong Kong, Intrafor Hong Kong & FT Laboratories)</small></p>	<ul style="list-style-type: none"> 6. India 7. Malaysia 8. Singapore 9. Indonesia 10. Australia 	<ul style="list-style-type: none"> 11. Canada 12. Mexico 13. Chile 14. Argentina 15. Portugal 16. Spain 	<ul style="list-style-type: none"> 17. United Kingdom 18. Switzerland 19. Czech Republic 20. Poland 21. Saudi Arabia 22. Qatar 	<ul style="list-style-type: none"> 23. United Arab Emirates 24. Kuwait 25. Egypt 	<ul style="list-style-type: none"> 26. USA 27. Colombia 28. France 29. Netherlands 30. South Africa
					<ul style="list-style-type: none"> 31. Brunei 32. South Korea 33. Japan

60 YEARS OF EXPERIENCE AND INNOVATION

Post-Tensioning, Stay Cable, Repair, and Construction Methods

The company has adapted post-tensioning principles to civil structures such as wind farm, LNG tanks, reservoirs, plants, tunnels, off-shore platforms, concrete floating barges dams and stay cables. The company has participated in the construction of over one hundred stay cable bridges and VSL single strand installation system for stay cables offers high fatigue resistance, increased corrosion protection, replace ability strand by strand, and versatility. In addition to post-tensioning and stay cables, the group's scope of works covers rock and soil anchors, stabilized walls, heavy lifting, bearings, repair works, monitoring, geotechnics & deep foundations, formwork systems, pre-casting and segmental erection launching gantries.

History of Post-Tensioning system



2009

World premiere of the combined use of prefabricated segment construction together with electrically isolated post-tensioning tendons, carried out by VSL at the Lect Viaduct, Geneva, Switzerland

1993

Integration of the Spanish company CTT Stronghold S.A. into the VSL Group

1988

Development of the VSL PT-PLUS® duct system

1966

Introduction of the VSL Multistrand post-tensioning system, which can be stressed with centre hole jacks

2013

Introduction of the new VSLab system

2008

Foundation of the VSL Academy, the world's first post-tensioning training centre

1990

VSL is acquired and integrated into Bouygues Construction, a subsidiary of the Bouygues Group, one of the world's leaders in the building and civils work and maintenance sectors

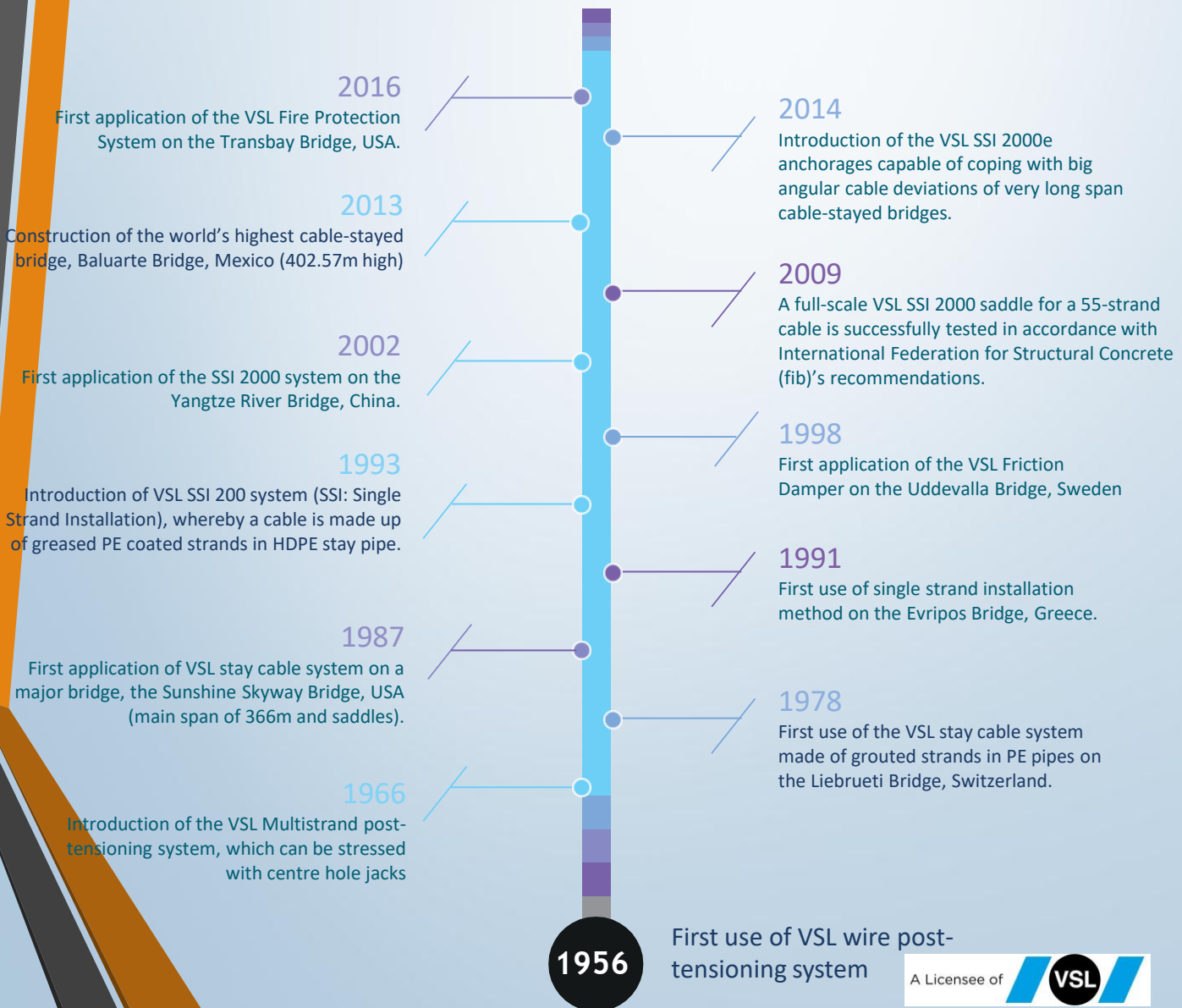
1985

World's first electrically isolated ground anchors installed by VSL (Stadelhofen Railway Station, Zürich, Switzerland)

1956

First use of VSL wire post-tensioning system

History of Stay Cable system



VSL (Thailand) Company Limited

VSL (Thailand) Co., Ltd. benefit from the unique international exchange of know-how within the group network. All our managers are entrepreneurs with good knowledge of Thailand and our regions markets and a commitment to provide creative solutions and top-quality services to our customers.

Since 1983, VSL Thailand has been able to contribute to some of the most prestigious and complex structures. These include:

- **The heavy lifting and placement** of 8 no. 210-meter-long super trusses weight about 1,600 ton per truss and other permanent structures (overall 23,000 ton) for main terminal building of Thailand's new international airport. In addition, VSL formed a joint venture with a local manufacturer to supply 800 ton of tension rods (size 20 to 72 mm. in diameter) and fitting for the roof elements. This contract is believed to be one of the largest supply contracts of its type in the world.



- **Repair and structural upgrades:** In 2023 - 2024, VSLTH was awarded two bearing replacement projects in Bangkok: the Motorway No. 9 and bearing replacement for BTS Skytrain Silon Line at Saladaeng station. Another project involved repair and structural upgrades was the Kerry Jetty Repair with external post-tensioning system. The project was completed in two phases with 122 U-girders in Phase 1 and an additional 60 U-girders in Phase 2 (See more details in reference).



Bearing Replacement: **Motorway No.9**



Bearing Replacement: **BTS Saladaeng**



KSSP Jetty Repair with External PT

- The world's record of shortest construction period of double stay cabled bridges (**Industrial Ring Road Project, Bangkok**), included Lifting of 500-ton composite concrete-steel segments of stay cabled bridge.



□ The Mass Rapid Transport Projects



- BTS Green Line (Mochit - Onnut)
- Suvarnabhumi Airport Rail Link
- MRT Purple Line (Bang Sue - Bang Yai)
- MRT Blue Line (Tha Phra - Lak Song)

- MRT Green Line (Bearing - Samutprakan)
- MRT Green Line North (Saphan Mai - Kukot)
- MRT Pink Line (Khae Rai - Minburi)
- MRT Yellow Line (Ladprao - Samrong)

HEAVY LIFTING PROJECTS IN THAILAND



Mochit Complex Heavy Lifting

CLIENT:

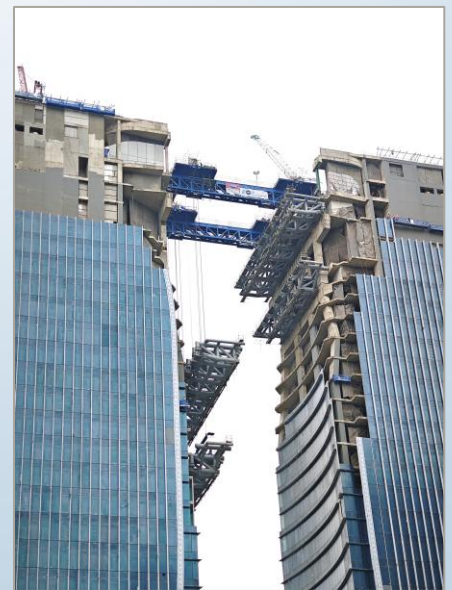
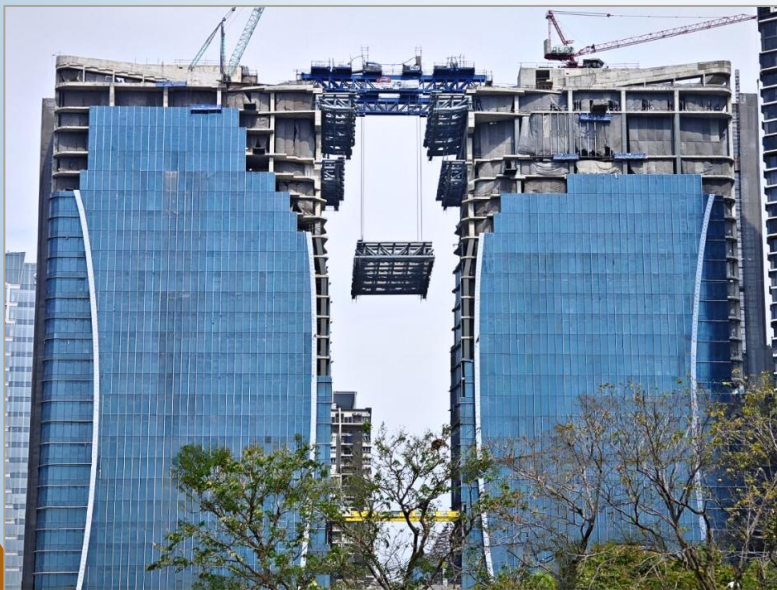
Mochit Land Company Limited

MAIN CONTRACTOR:

Sino-Thai Engineering and Construction PCL

PERIOD:

2023 - 2024



▲ The heaviest lifting operation was for a truss element B36, with the total weight of 325 tons.

▲ Lifting of truss elements C33 & C36

HEAVY LIFTING PROJECTS IN THAILAND



KingBridge Tower

CLIENT:

KingBridge Tower Company Limited

MAIN CONTRACTOR:

Thai Obayashi Company Limited

PERIOD:

2023 - 2024



▲ The site is located nearby our previous mega project, the Industrial Ring Road Bridge (Bhumibol Bridge)



▲ Lifting of truss elements for sky lounge

REPAIR AND INSPECTION PROJECTS



REPAIR AND INSPECTION PROJECTS

Motorway No. 9
Bearing Replacement

CLIENT:
Department of Highways

PERIOD:
2022



REPAIR AND INSPECTION PROJECTS

BTS Green Line

Bearing Replacement Pier SLM61

CLIENT:

BTSC

PERIOD:

2022



REPAIR AND INSPECTION PROJECTS



Huay Bong Wind Farm

Repair and strengthening existing foundation with PT bar system

CLIENT:

Wind Energy Holding

MAIN CONTRACTOR:

Demco PLC

PERIOD:

2015 - 2019



▲ Repair work in process.



▲ Coring existing wind turbines foundation for PT bar system.

“ Though there was a delay from various external factors, finally the repair construction completed with **full stakeholder satisfaction.**”

REPAIR AND INSPECTION PROJECTS

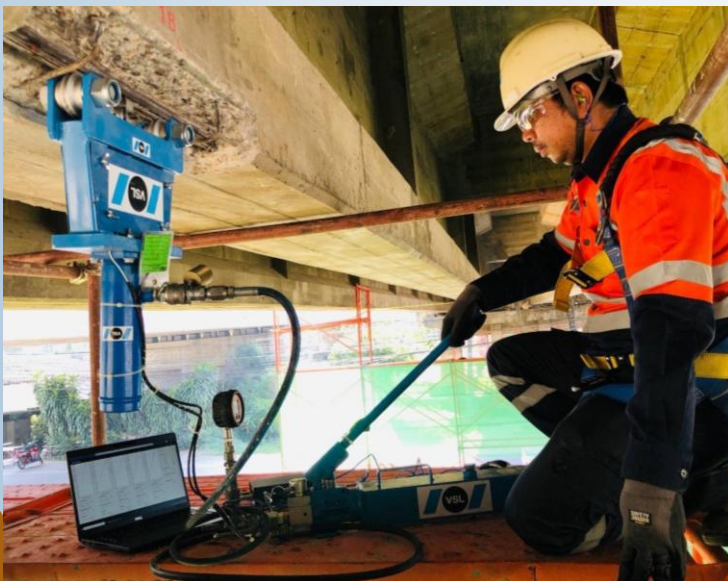
**Tension Measurement
With Crossbow Method**

CLIENT:

Department of Highways

PERIOD:

2023



REPAIR AND INSPECTION PROJECTS

BTS Green Line (South)

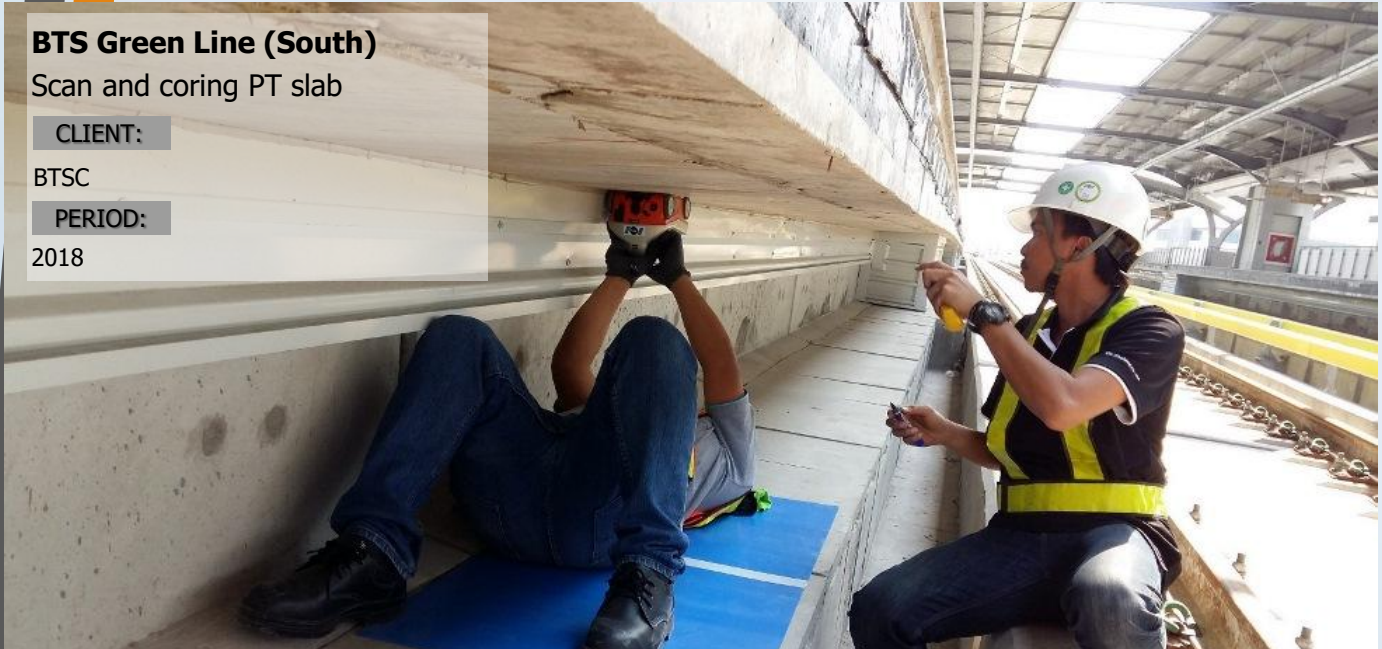
Scan and coring PT slab

CLIENT:

BTSC

PERIOD:

2018



REPAIR AND INSPECTION PROJECTS

U-Turn Bangbuathong

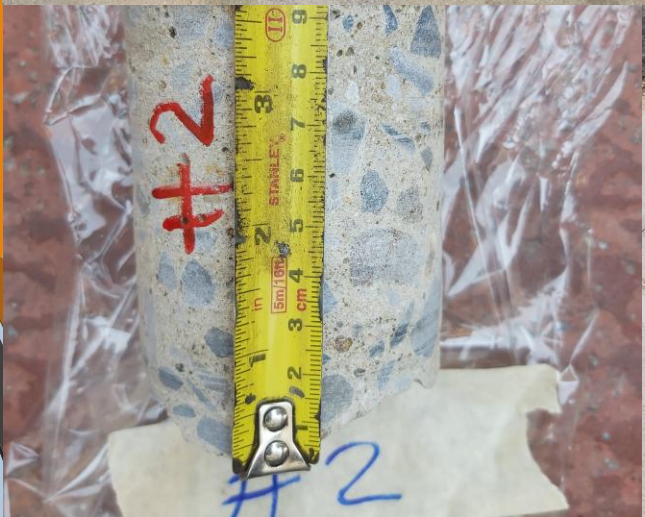
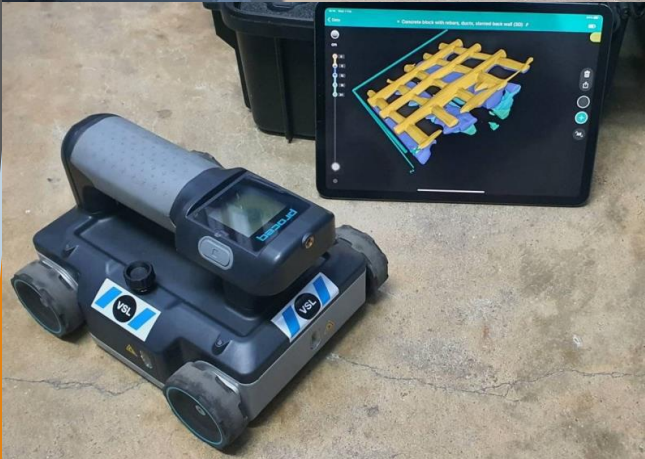
Inspection with GPR scanner

CLIENT:

Department of Highways

PERIOD:

2023



STAY CABLE PROJECTS



Industrial Ring Road Contract I & II (Bhumibol Bridge)

CLIENT:
Ministry of Transport

MAIN CONTRACTOR:
TNN-JV Taisei Corporation
Nishimatsu Construction Co., Ltd,
JFE Engineering Corporation
Sino Thai Engineering & Construction PLC

CONSULTANT:
Asian Engineering Consultants Corp. Ltd.,
Team Consulting Engineering & Management Ltd.
Thai Engineering Consultants Co., Ltd,
Index International Group Co., Ltd
Jean Muller International

PERIOD:
2005 - 2007



▲ Stay cable composite bridge across Chao Phraya River with bustling 7 traffic lanes.



▲ Bridge deck erection and supply and installation of stay cable.

“ The erection cycle two days faster than initially anticipated, **allowing a gain of about a month** in **main decks erection** program. ”

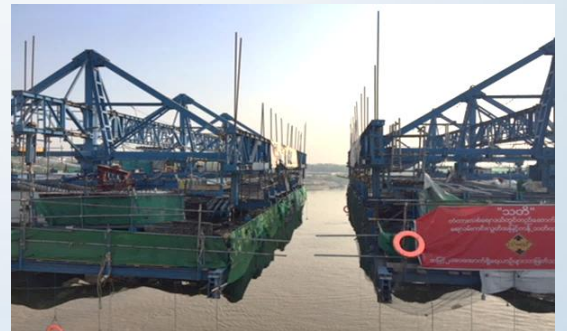
STAY CABLE PROJECTS



**New Thaketa Bridge,
Myanmar**

CLIENT:
Tokyu Construction

PERIOD:
2017-2018



“ VSL Thailand’s scope include **design, supply, and installation** of stay-cable systems for the Bridge”

▲ Total quantity PT was 350 tons

BRIDGE ERECTION PROJECTS



Southern-Outer Bangkok Ring Road

CLIENT:

Department of Highways, Thailand

MAIN CONTRACTOR:

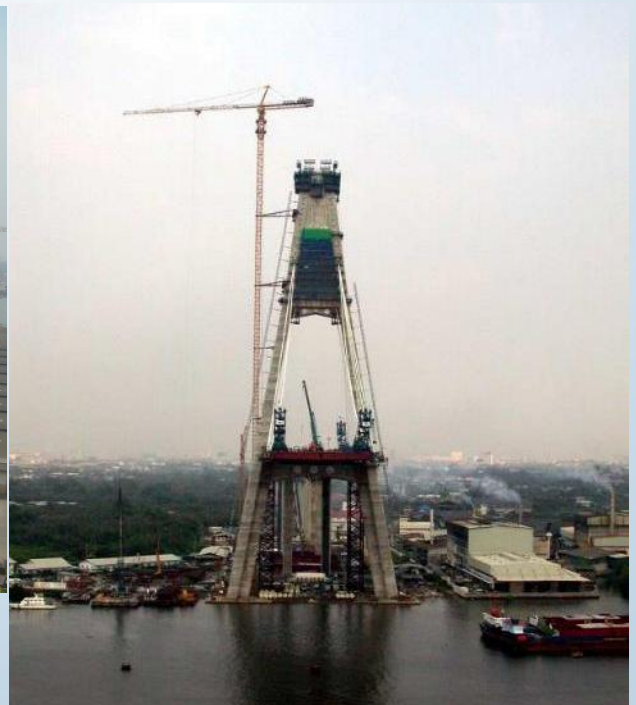
Ch Karnchang PLC

PERIOD: 2005 - 2007



▲ VSL form traveller

“ VSL was awarded **Erection** work and **Free-cantilever** for cast in-situ of Southern Outer Bangkok Ring Road ”



▲ Main span: bridge deck erection of the main cable-stayed bridge.

BRIDGE ERECTION WITH FORM TRAVELER PROJECTS



Xedone Bridge, Pakse

CLIENT:

Government of Laos

CONSULTANT:

GECI Consultants Co., Ltd.

SUPERSTRUCTURE CONTRACTOR:

Lao World Co., Ltd.

PERIOD:

Oct 2014 - Feb 2016



▲ The two form travellers used on the project were designed, supplied and controlled by VSL.

“ Key aims of the main contractor were to complete the construction of the new 220m-long bridge **on time** and **without accidents.**”



▲ VSL's form travellers have proven their effectiveness worldwide.

CIVIL WORKS PROJECTS



**High Speed Railway
Bangkok - Nakhon Ratchasima
Contract 3-4**

CLIENT:

State Railway of Thailand (SRT)

MAIN CONTRACTOR:

Italian-Thai Development

PERIOD:

2021 - Ongoing



“ VSL provide **PT supplies, technology,**
and **solutions** to meet
the objectives of the project. ”

▲ VSL Thailand Management Team visits the HSR construction site.

CIVIL WORKS PROJECTS



Motorway No. 82 (Contract 2 & 4)

CLIENT:
Department of Highways, Thailand

MAIN CONTRACTOR:
Contract 2: Krungthon-Thai Joint Venture
Contract 4: Krungthon Engineering

PERIOD:
2023 - 2026



CIVIL WORKS PROJECTS

MRT Pink & Yellow Line

CLIENT:
Mass Rapid Transit Authority of Thailand (MRTA)

MAIN CONTRACTOR:
Sino-Thai Engineering and Construction PCL

PERIOD:
2019 -2023

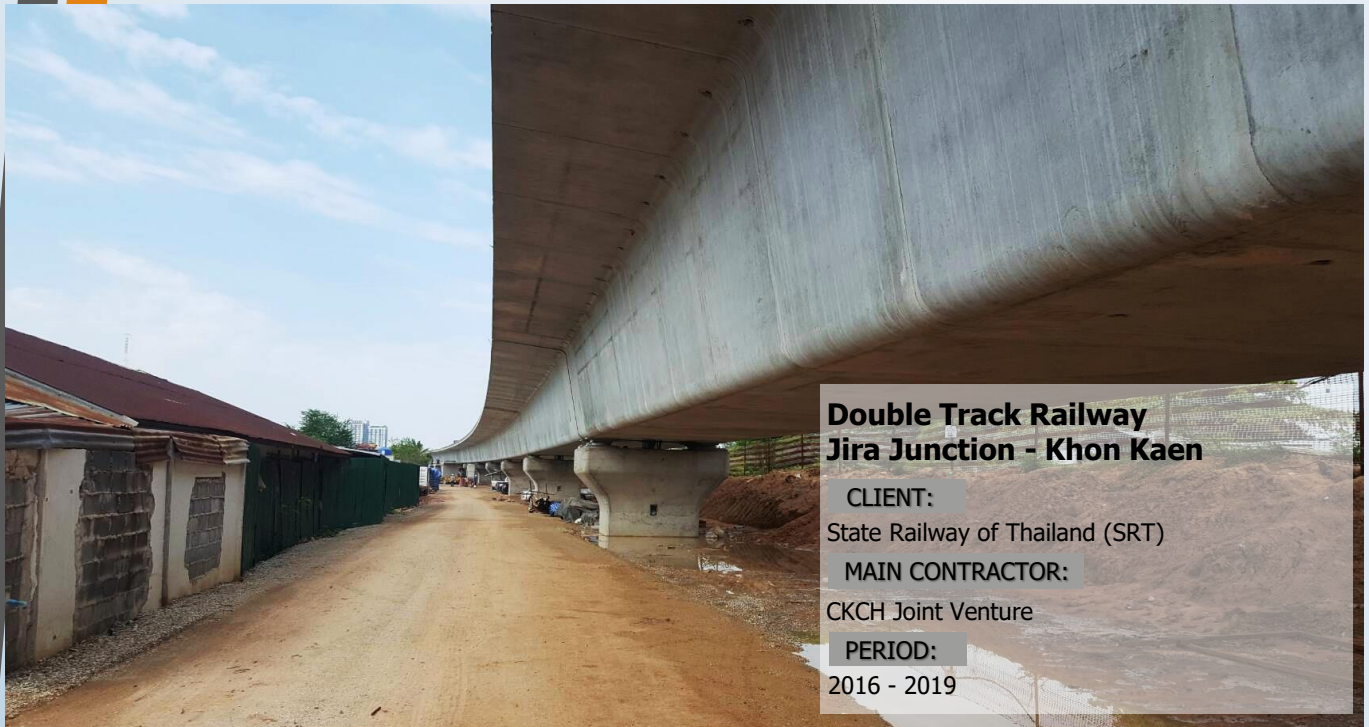


▲ MRT Pink Line covers 34.5 km with 30 stations starting from Nonthaburi to Minburi Station (east Bangkok).

“ With professional collaboration with the main contractor in several projects, **VSL is awarded for proven expertise in post-tension and bridge erection works**”

▲ MRT Yellow Line runs 30.4 km with 23 stations connecting the east Bangkok to Samut Prakan.

CIVIL WORKS PROJECTS



**Double Track Railway
Jira Junction - Khon Kaen**

CLIENT:

State Railway of Thailand (SRT)

MAIN CONTRACTOR:

CKCH Joint Venture

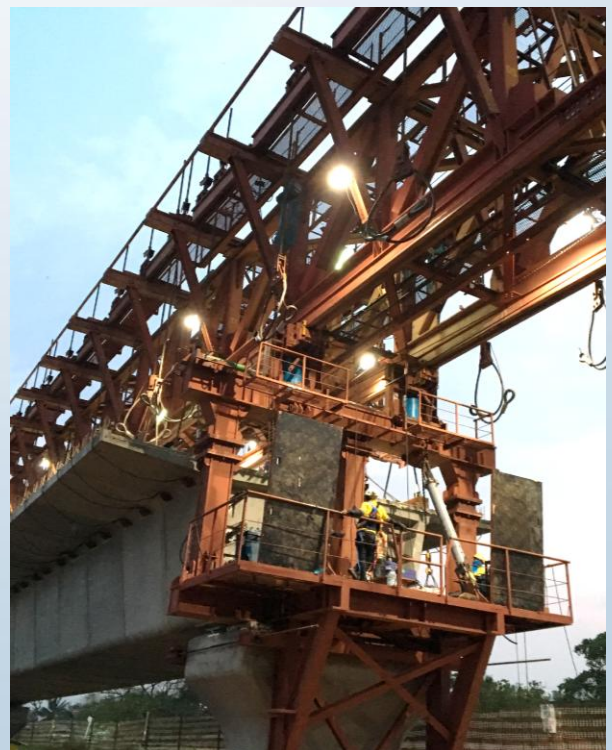
PERIOD:

2016 - 2019



▲ VSL launching gantry

“With our reputation in post-tensioning and related engineering, **VSL was awarded the post-tension work** for longitudinal box segment of mainline crossbeam and station”



CIVIL WORKS PROJECTS

Si-Rat Outer Ring Road

CLIENT:

Mass Rapid Transit Authority of Thailand (MRTA)

MAIN CONTRACTOR:

Sino-Thai Engineering and Construction PCL
Ch-Karnchang PCL

PERIOD:

2015-2018



“ With professional collaboration with the main contractor in several projects,
VSL is awarded for proven expertise
in post-tension and bridge erection works”

CIVIL WORKS PROJECTS



MRT Blue Line: Elevated Extension

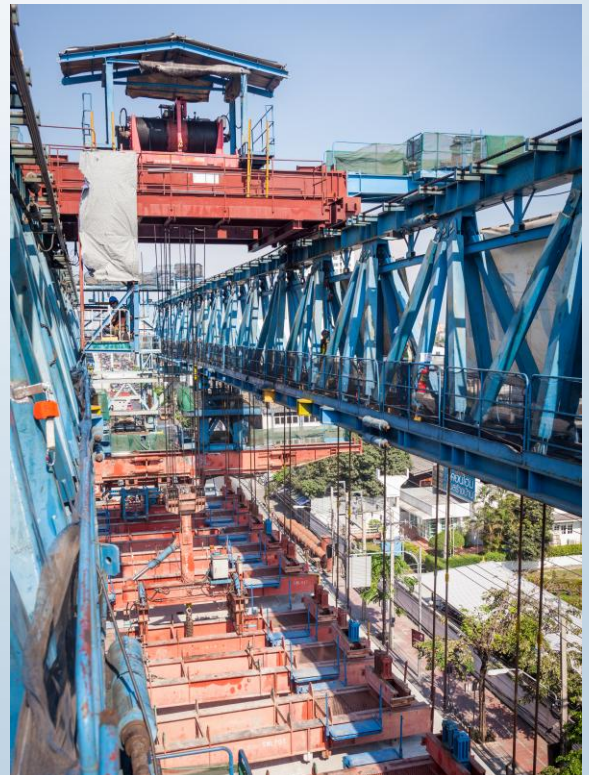
CLIENT:
Mass Rapid Transit Authority of Thailand (MRTA)

MAIN CONTRACTOR:
Sino Thai Engineering & Construction PLC

PERIOD:
2013 - 2017



▲ The works was completed in 2017.



▲ Erection of bridge segments.

“ With **good collaboration** with main contractor in MRT Purple Line, VSL has continuously awarded for MRT Blue Line”

CIVIL WORKS PROJECTS

MRT Purple Line

CLIENT:

Mass Rapid Transit Authority of Thailand (MRTA)

MAIN CONTRACTOR:

Ch Karnchang PLC
Sino Thai Engineering & Construction PLC

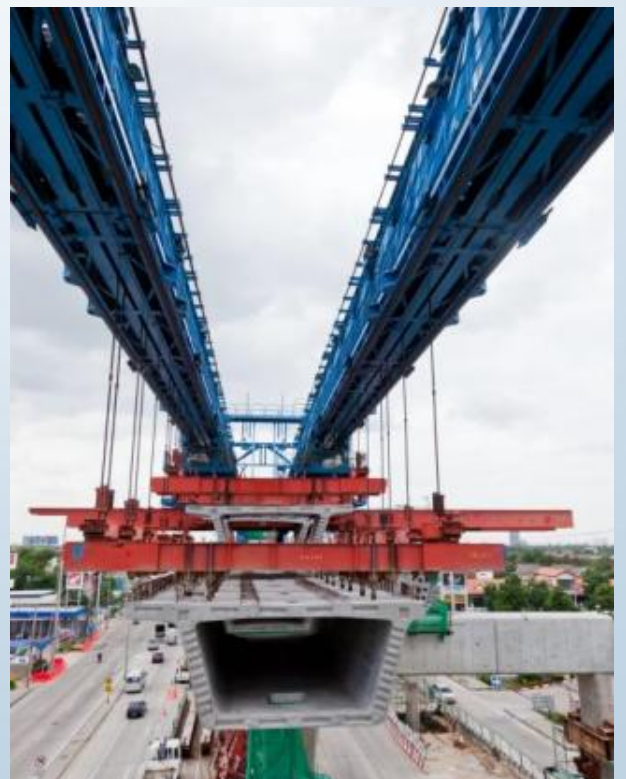
PERIOD:

2012 - 2016



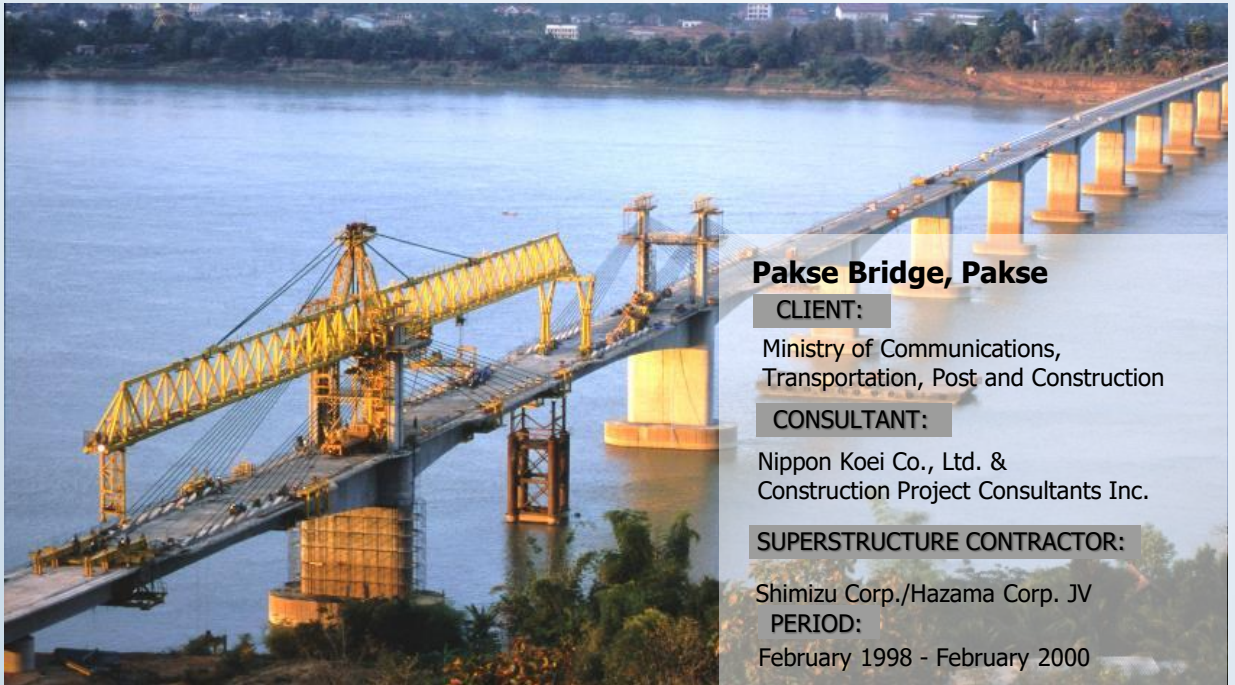
▲ The Purple Line contributes to relieving traffic congestion in Nonthaburi and Bangkok.

“ The contract was splitted into two main contractors, **VSL was appointed by both main contractors** and so carried out the external post-tensioning works.”



▲ The launching geometry could be adjusted to suit the segments being erected.

CIVIL WORKS PROJECTS



Pakse Bridge, Pakse

CLIENT:

Ministry of Communications,
Transportation, Post and Construction

CONSULTANT:

Nippon Koei Co., Ltd. &
Construction Project Consultants Inc.

SUPERSTRUCTURE CONTRACTOR:

Shimizu Corp./Hazama Corp. JV

PERIOD:

February 1998 - February 2000



▲ 384 segments are cast in moulds in the precast segment production yard on site.



▲ Erection of precast segments using a launching gantry designed, supplied, commissioned and operated by VSL

“The superstructure construction of the Pakse Bridge in Champasak, the southern province of Laos was completed in February 2000, 4 months ahead of schedule.”

CIVIL WORKS PROJECTS



MRT Green Line (South)

CLIENT:

Mass Rapid Transit Authority of Thailand (MRTA)

MAIN CONTRACTOR:

Ch Karnchang PLC

PERIOD:

2013 - 2016



▲ Green Line Bearing – Samut Prakan runs across the city center from Mo Chit.

“As cooperated on similar projects in MRT Purple Line and share the same **commitment to quality**, VSL has awarded for MRT Green Line”



▲ Design, supply and operation of specialized equipment.

CIVIL WORKS PROJECTS



Suvarnabhumi Airport Rail Link

CLIENT:

State Railway of Thailand

CONSULTANT:

Asian Engineering Consultants
Thai Engineering Consultants
Design Concept
Transport East West Expert Team
Pacific Consultants International

MAIN CONTRACTOR:

Sino Thai Engineering & Construction PLC

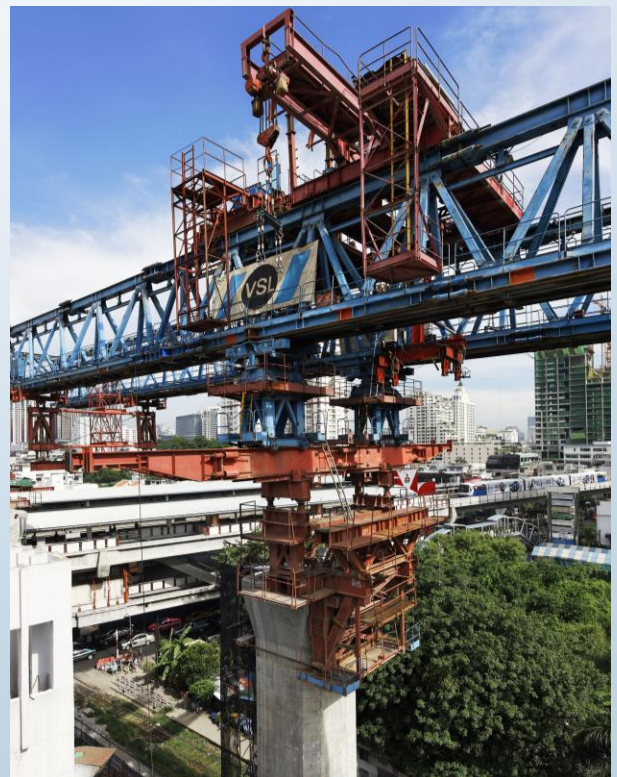
PERIOD:

2005 - 2007



▲ Airport Rail Link from Suvarnabhumi Airport view.

“ The segment loader concept was devised by VSL and fabricated, supplied and operated by Main contractor to **simplify the erection and delivery logistics.”**



▲ One of the gantries used on the project.

LNG TANK PROJECTS



PTT LNG Tank Phase 2

CLIENT: PTT LNG

MAIN CONTRACTOR: IHI Corporation

PERIOD: 2014 - 2016



▲ Aerial view of the two LNG tanks



▲ Tank under construction

“ VSL provided installation concrete, rebar and post-tensioning, **saving four months** in the construction schedule for two LNG tanks. ”

WIND FARM PROJECTS



T5 Wind Farm

CLIENT:

Wind Energy Holding

MAIN CONTRACTOR:

Max Bogl

PERIOD:

2018 - 2019



▲ One of the precast concrete segmental tower.

WIND FARM PROJECTS



**Watabak Wind Farm
New foundations**

CLIENT:

Wind Energy Holding

MAIN CONTRACTOR:

Demco PLC

PERIOD:

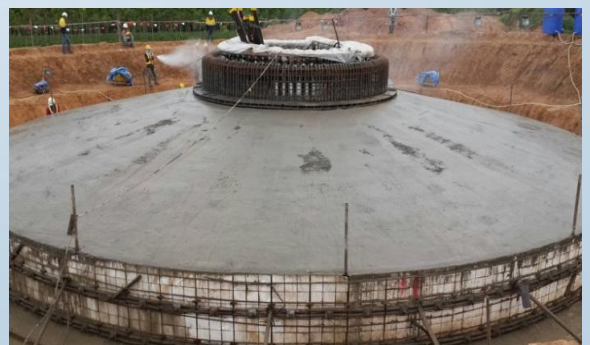
2016 - 2018



▲ One of the turbine foundation formwork.



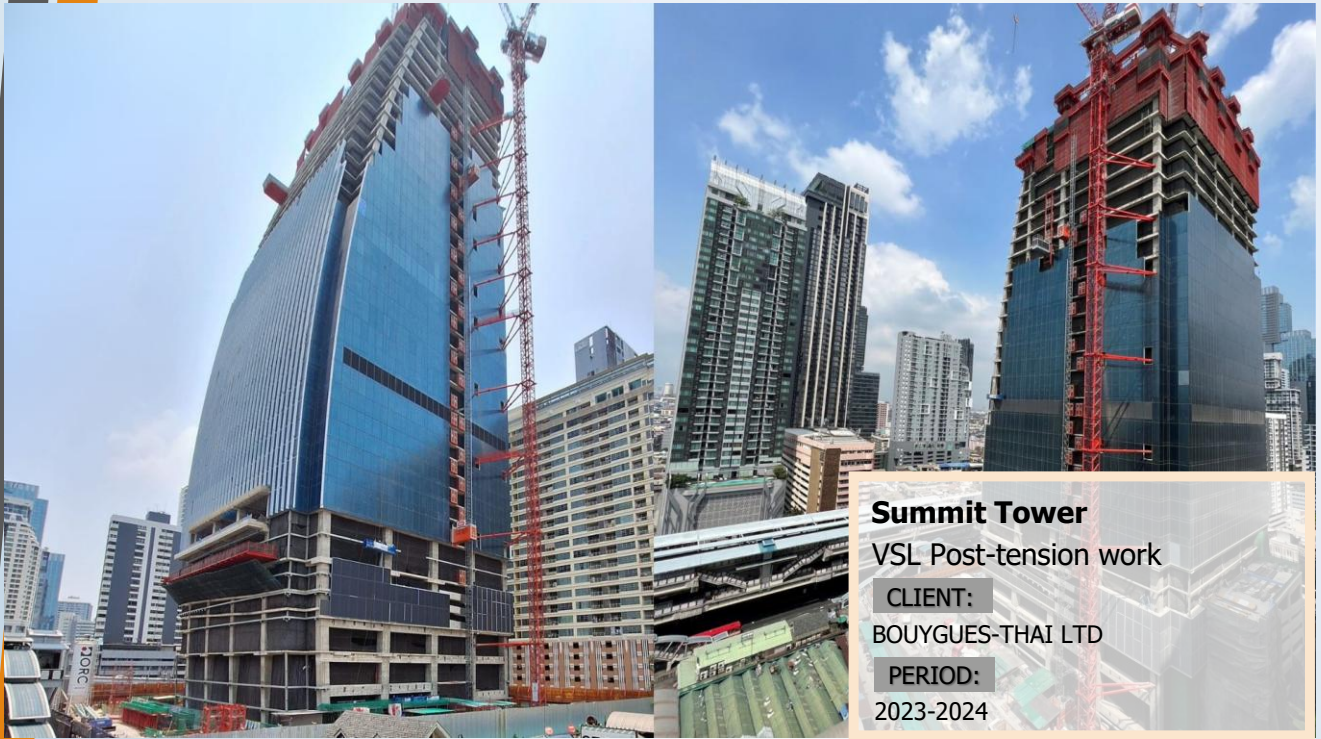
▲ Work in progress.



▲ Turbine casting

“VSL designed a low-heat concrete mix to meet the goal of the owner for **virtually crack-free** wind turbine foundation.”

BUILDING PROJECTS



BUILDING PROJECTS



King Power Mahanakhon

VSL Post-tension work

CLIENT:

BOUYGUES-THAI LTD

PERIOD

2014-2015



“ VSL was awarded the contract because of its reputation as a **market leader** and its **extensive experience.**”

BUILDING PROJECTS



The new Australian Embassy complex which will include the ambassador's residence, diplomatic services, reception rooms, a conference center and an event space."

MISCELLANEOUS



VSoL® Retained Earth Wall

CLIENT:

Department of Highways, Thailand

PERIOD:

1992 – present

- Korat (1992)
- Saraburi (1994)
- Kamphangpet (1998)
- Ubolrajchathani - Over Mool River (2001)
- Chiangmai - Over Ping River (2002)
- Chumphon (2006)
- Motor Way Bangkok - Chonburi (2006)
- Nakhonsrithammarat - Toong Song (2010)
- Saraburi (2011)
- Uttaradit - Den Chai (2013)
- Pitsanulok - Lom Sak (2015)
- Track Doubling Cha Am - Hua Hin (2019)



“ VSL had been entrusted in various **VSoL® (Retained earth wall)** construction by Department of Highways since 1992 ”

MISCELLANEOUS

Barge Crane

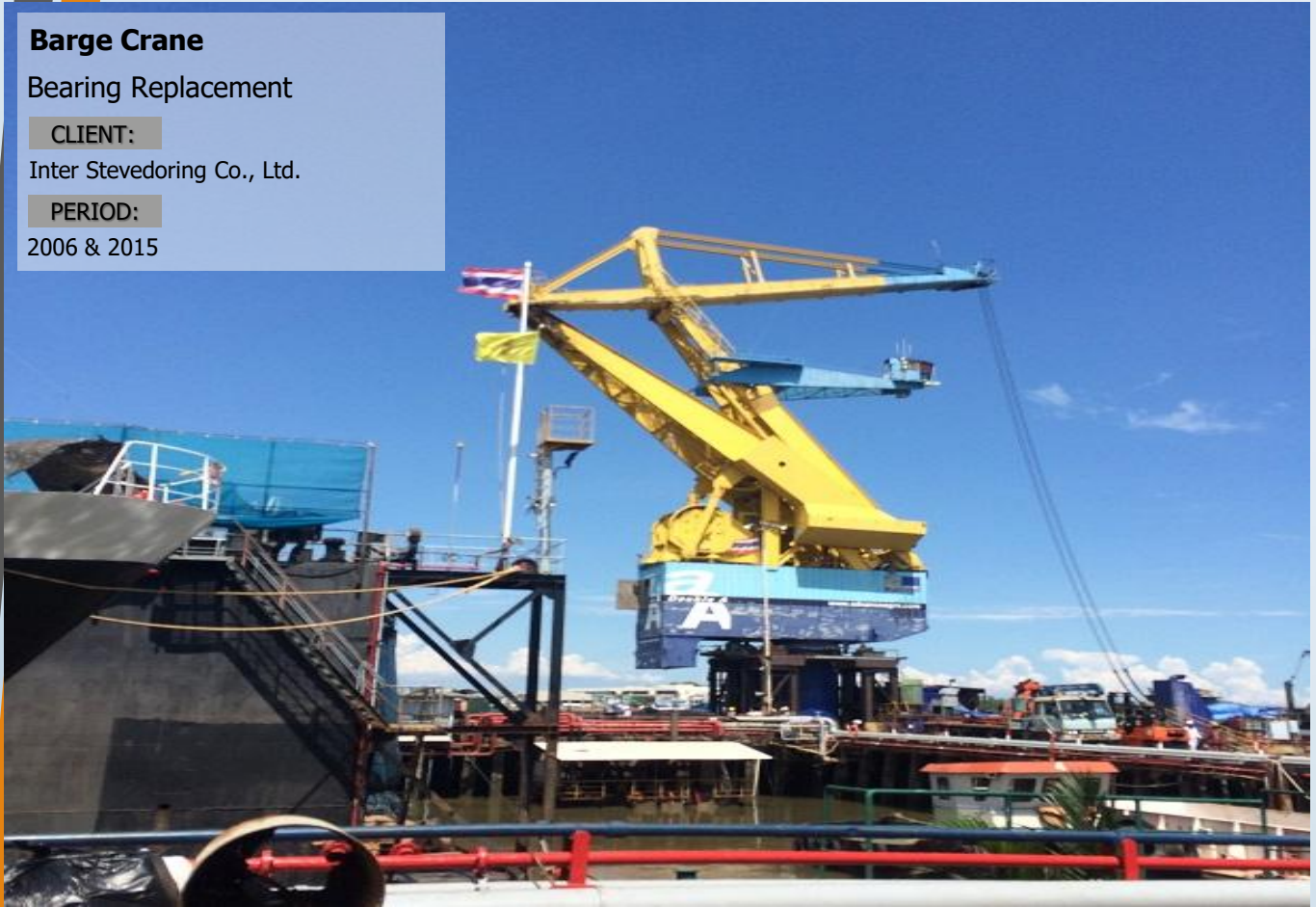
Bearing Replacement

CLIENT:

Inter Stevedoring Co., Ltd.

PERIOD:

2006 & 2015



MISCELLANEOUS

**Phu Kham Copper Project,
Ban Houayxai**

VSL Permanent Anchors in Rocks

CLIENT:

Phu BIA Mining

PERIOD:

February 1998 - February 2000



▲ Permanent anchors were supplied and stressed in Phu Kham Copper Project.

“ VSL was awarded the contract because of its reputation as a **market leader** and its **extensive experience.** ”



▲ During construction, it enables for ground stability.

HET

Harmony Engineering Technology (Thailand)



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