REFLECT ON OUR PAST

EMBRACE THE FUTURE

15 ANNIVERSARY

Our Vision

VISION

To obtain the hallmark for quality services, technical excellence, reliability and safety.

OBJECTIVE

To provide innovative & economical design and to ensure safety & ease of construction.

VALUES

We value our staff for their creativity & commitment to quality.

We instill teamwork in our staff to ensure best solution for our clients.

We uphold integrity in all our dealings with our clients and colleagues.

inside/ 15th Anniversary Edition

Main Feature: Centerfold

Words From the Chairman

It gives me great pleasure to congratulate G&P Group on its 15th Anniversary celebration. G&P Group now has a staff force of over 300 and ranks fourth in the latest Directory of the Association of Consulting Engineers Malaysia in terms of staff strength. This impressive growth of the Group over the last 15 years, chalking up an average annual growth of approximately 30% for most of the years, is most commendable considering the workforce of each of the top three engineering consultancy firms have remained stagnant at about 500 each over the last 30 years. Even the largest engineering consultancy firm in Malaysia which was 600 strong in the 80s is not very active with only a few staff now.

I often receive praises and compliments from the industry when the topic of engineering consultancy services and G&P are discussed or mentioned. For this, I wish to express my heartfelt gratitude to all the directors and staff of the specialist firms in the Group for their dedication and commitment in implementing our four structured core values religiously (Structured QA/QC, Structured Training, Structured R&D/Knowledge Management System and Structured Sharing).

The structured core values and the unique model of sharing dividends for directors and staff in the specialist firms within the Group is a sustainable model in which we call it a “zero-in zero-out” system. I am in favour of this system as it promotes a culture of meritocracy, information sharing, improves workplace cooperation and productivity. Furthermore, this model also spreads ownership and compensation among the pool of staff. I have always believed that everyone has a little extra, when combined can be mutually beneficial to everyone especially with staff partaking in the decision making process of the firm which is in line with our culture of sharing.

Currently, three specialist firms in the Group are implementing this system, which eliminates the usual problems of finding buyers within the firm when a director retires. It is to my hope that more of the Group’s specialist firms will gravitate towards the uptake of this system.

I would also like to take this opportunity to thank our clients in entrusting us to provide quality engineering consultancy services and to continue tasking us with bigger projects.

Our commitment to the provision of better quality services with value-added engineering through structured R&D and our zero-in zero-out equity model will definitely move G&P Group further up in the list of top engineering consulting firms in Malaysia.

I wish everyone the best. Let us commemorate our glorious past and embrace a bright future ahead!

Tan Sri Dato’ Ir. Jamilus Hussein
Chairman

“Everyone has a little extra. When combined, all tasks are attainable”

Words From the CEO

"Challenge the Norm-
Excel Through R&D and Innovation"

OUR STORY SO FAR

Reminiscing 15 years back, Ir. Tan Yean Chin, Ir. Liew Shaw Shong and I founded Gue & Partners Sdn. Bhd, (now known as G&P Professionals Sdn. Bhd.), a geotechnical consulting firm in September 1999.

From our humble beginnings with only 5 staff then, we have expanded over the years. Currently, G&P Professionals Sdn. Bhd. comprises 12 specialist firms with a staff strength of over 300. The purpose of having many specialist firms in the group is to make G&P a "One Stop Value added Engineering Consultancy" centre providing a wide array of specialised services. This system promotes flexibility and efficiency as our diverse talents and strengths collectively solve many challenging facets of a project meeting the Clients' needs.

The core ideals that make G&P Professionals Sdn. Bhd. one of the prominent consultancies in the country are its value engineering, teamwork, unparalleled technical competency, and our passion in what we do best.

CONTINUOUS LEARNING AND GROWING

We are firm believers that learning is a never-ending process. In line with that, we have introduced structured training and sharing to improve the skills and knowledge of our staff. Our Group also adopts a Research and Development (R&D) culture as it plays a critical role in innovation of new systems and designs that are more efficient, economical and safe thus adding value to our Clients. We have won accolades as a direct result of intensive R&D, for example our innovative pile strip raft design for the Bandar Botanic, Klang project that saves time and money.

Unlike conventional design consultancies, we are also heavily involved in forensic investigations. To quote Alexander Lowen, "No one is exempt from the rule that learning occurs through recognition of error." By being involved in these investigations, we hone our technical competency in recognising and thus avoid the common pitfalls of flawed engineering designs.

ZERO-IN ZERO-OUT SYSTEM

To transform G&P into an institution, a system called the zero-in zero-out has been introduced. Our group is progressing well towards an employee owned company. Currently three specialist firms have moved towards this model and many more will follow suit in the near future. This model reinforces the retention of talent in G&P by providing incentives and boosting employees' morale through sharing in the group's growth. I am confident that this bold move will create a healthy competitive environment and steer the Group towards greater heights in addition to eliminating the hassle of buying and selling company shares when a senior staff retires.

VISION FOR THE FUTURE

Our group has made tremendous growth of up to 30 percent a year throughout our 15 years and I am pleased that we continue to make our mark in Malaysia and in the region. In terms of future growth directions, we intend to gear ourselves towards the international market. Recently, we have been courted by foreign investors from Myanmar and Mauritius. Besides that, we intend to venture into the oil and gas and energy sectors. In the local scene, we have been involved in mega projects such as MRT and Xiamen University.

I would like to thank our colleagues for their dedication and hard work which has helped shape G&P into what it is today. Special thanks go to our Clients for their support and trust in us throughout the years. We hope to continue to provide you with value added services for the years to come.

Dato' Ir. Dr. GUE See Sew
Chief Executive Officer

Our History

Establishment

Gue & Partners Sdn Bhd was established in September 1999 by its founding fathers- Dato' Ir. Dr. Gue See Sew, Ir. Tan Yean Chin & Ir. Liew Shaw Shong.

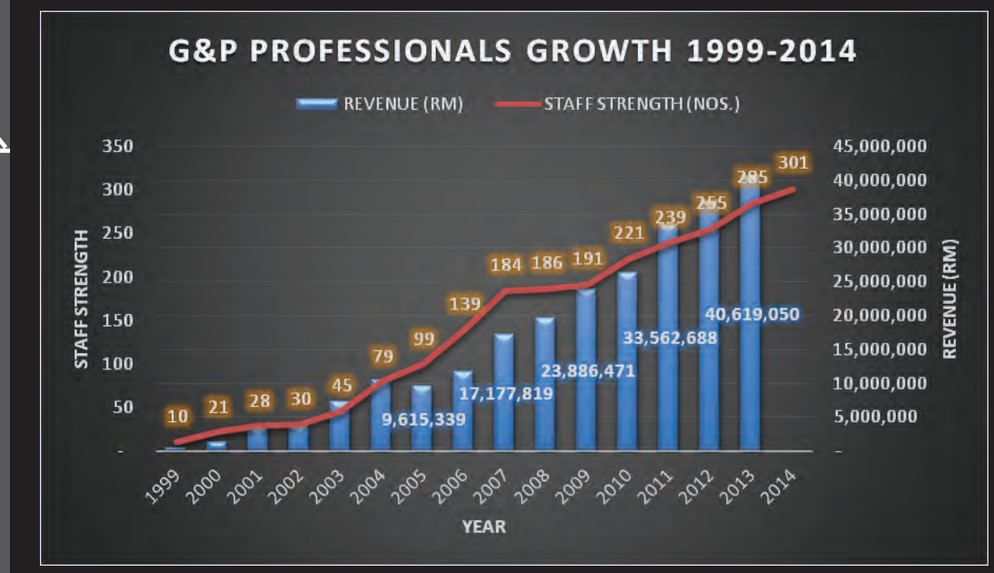
G&P Professionals

G&P Professionals was conceived on 23rd July 2003 with Gue & Partners Sdn Bhd (now G&P Geotechnics) and G&P Engineering Consultants (now G&P Structures) as the early specialist member firms. Today the Group stands tall amongst design consultancies with 12 specialist firms and is the 4th largest engineering consultancy in Malaysia.

The Group envisages to be a One-Stop Value Adding Engineering Consultancy Services Provider.

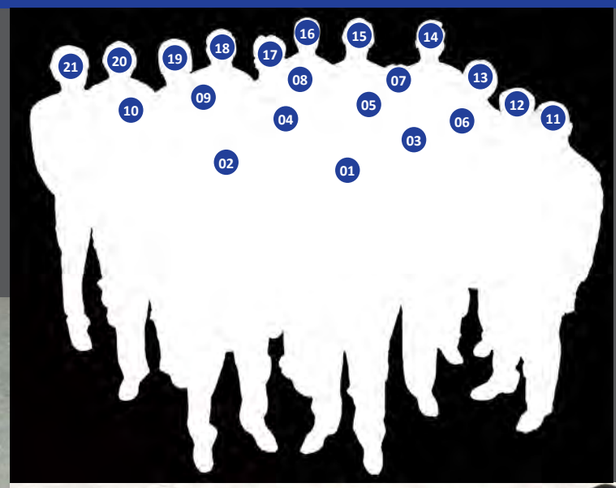
The Group's Growth

Today the group has a staff strength of more than 300. We are a diverse team of specialists dedicated to provide value added services. We are now ranked 4th largest in the latest Directory of the Association of Consulting Engineers Malaysia 2014.



G&P Staff Strength

G&P PROFESSIONALS SDN BHD
YEAR 2014



Board of Directors

01. Tan Sri Dato' Ir. Jamilus Hussein
02. Dato' Ir. Dr. Gue See Sew
03. Lt Gen (R) Dato' Ir Ismail Bin Samion
04. Ir. Heng Tang Hai
05. Ir. Lee Choy Hin
06. Ir. Ir Lalchand Gulabrai
07. Ir. Tan Wee Keong
08. Ir. Sreejit Raghu
09. Ir. Chow Chee Meng
10. Ir. Goh Han Siang
11. Ir. Tan Yean Chin
12. Ir. Lim Sin Poh
13. Ir. Yong Siew Fang
14. Ir. Saw How Teong
15. Ir. Liew Shaw Shong
16. Ir. Kho Lip Khiong
17. Ir. Loh Woei Chung
18. Ir. Chang Sheuan Voon
19. Ir. Steven Ng Tak Kee
20. Ir Beh Hong Lin
21. Ir. Lim Choon Lin

Not in Picture:
- Ir Hj Hosni Bin Hj. Bardan
- Datuk Wira Md. Sidek b.Ahmad
- Ir Lim Eng Chong
- Ir. Tan Kok Leong
- Ir. Chong Sun Fatt
- Ir. Teoh Tian Leng
- Ir. Ho Chee Siang
- Ir. Shafina Sabaruddin

QUALITY SERVICES
OUR COMMITMENT

G&P Regional Offices

Our Offices

Kuala Lumpur Offices
G&P Geotechnics Sdn. Bhd.
G&P Structures Sdn. Bhd.
G&P Infra Sdn. Bhd.
G&P Water & Maritime Sdn. Bhd.
G&P Claims & Contract Sdn. Bhd.
G&P Project Management Sdn. Bhd.
G&P Highways and Transportation Sdn. Bhd.
G&P Dams & Water Services Sdn. Bhd.
NGI-G&P Sdn. Bhd.
G&P R&D Sdn. Bhd.
G&P M&E Sdn. Bhd.
G&P Special Structures Sdn. Bhd.

Overseas / Branch Offices
G&P R International (Cambodia) Co. Ltd.
G&P Water (Singapore) Pte. Ltd.
G&P Professionals (Sarawak) Sdn. Bhd.
G&P Professionals (Sabah) Sdn. Bhd.
G&P-A&A International Consultant Joint Stock Company, Vietnam

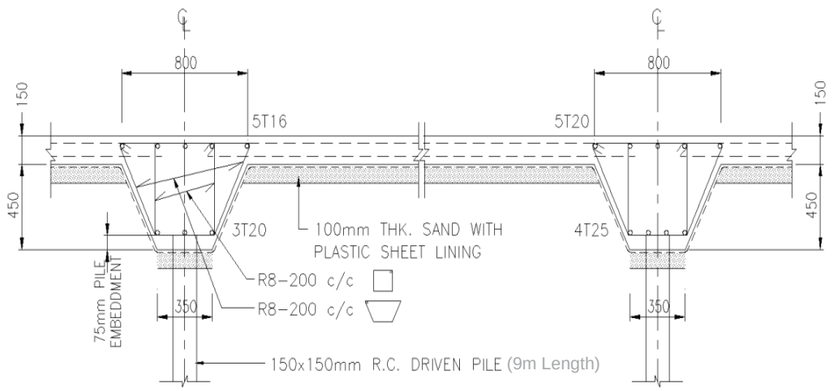
ONE-STOP VALUE-ADDING CENTRE

The night scene of a lakeside in Bandar Botanic

INNOVATIVE FOUNDATION FOR BANDAR BOTANIC

Bandar Botanic is a 1200-acre residential township developed by Harum Intisari Sdn. Bhd. (a subsidiary of Gamuda Land Bhd.) located at Bukit Tinggi, Klang. This development is constructed over a deep deposit of highly compressible soft silty clay, known as Klang Clay. An award winning foundation system – **The Piled Strip Raft** was adopted for this development to resolve the long standing problem common in structures overlying soft grounds - gap formation between the building & platform as the platform settles and settlement induced cracks.

TYPICAL DETAILS OF PILED STRIP RAFT FOUNDATION SYSTEM



Artist's Impression of Semi-Detached House in Bandar Botanic

MERITS OF THE PILED STRIP RAFT FOUNDATION SYSTEM

The conventional approach was to install piles to the hard stratum which was about 40m below ground owing to the thick soft layer. However, this new system adopted piled-to-length foundation which eliminated negative skin friction and part of the loads were supported by the strip-raft. This has reduced the foundation cost by having lesser piles and increased the cost-effectiveness of the project.

Small sized piles such as 150mm and 200mm R.C. square piles with short lengths (9m - 12m length) were adopted for the low-rise houses. This has solved the slenderness issue and increased the cost-effectiveness of the project.

The building settled together with its platform unlike conventional foundation systems. Hence no gaps formed beneath the building hence providing a safe environment for its residents.

Flexible underground piping system was adopted and the building was also designed to settle together with the building platform. These have greatly reduced the breakage and leakage of underground services.

Left: Completed low cost apartments which have adopted the Piled Strip Raft Foundation System.

Right: The Silver Award of Merit (2006) from the Association of Consulting Engineers Malaysia (ACEM).

SOIL NAILED SLOPE STABILITY IS OUR PRIORITY

Completed in 2008, developed over 18 acres of prime land in the heart of Malaysia's capital, a 30m deep 7 level basement car park retained by soil nails was constructed less than 5m away from adjacent low-rise structures. This innovative design by G&P has provided savings in both construction time and costs which amounted to approximately RM5 million.

SOLARIS 2 DUTAMAS

"Design and construction of a 30m deep basement excavation in close proximity (less than 5m) from adjacent low rise structures using soil nailed system"

Solaris Dutamas was a mixed development project by Sunrise Berhad at Mon't Kiara, Kuala Lumpur. This project was developed over 18 acres of land and lasted for 4 years. One of the biggest challenges for G&P was to come up with an innovative design for a 30m deep basement to complement the superstructure.

CONTROLLING GROUND MOVEMENT

Preventing ground movement completely in deep excavations may be unrealistic as some minor ground displacement is expected and is controlled. Hence, designs were made to control the movement to prevent structural distress to adjacent structures.

This has brought considerable attention to limit the ground movement above the soil nailed slopes to avoid any potential structural damage to the existing buildings. To comply with this, analyses of the serviceability limit states were analysed and checked with the finite element method.

MONITORING GROUND MOVEMENT

To ensure the ground movement did not exceed the allowable movement, inclinometers were installed on the top berm to monitor the ground movement. The results from continuous monitoring for 17 months were compared with the predicted ground movement.

COMPARING GROUND MOVEMENT

Comparing the two, the actual ground movements were lower than the predicted values since moderately conservative parameters were used in the design. Nonetheless, the general trend of measured ground movement agrees well with the predicted curve.

The soil nailed slope is not expected to cause significant distress to the adjacent structures even with the upper bound ground movement prediction. Assessment carried out subsequently on the adjacent structures further verified the design assumptions.

This deep basement of up to 30m deep with close proximity to existing sensitive structures have been successfully designed and constructed using soil nailed system as an alternative to conventional retaining wall system.

The soil nailed system offered a viable and practical alternative solution to this project which made savings in cost and time possible, amounting to approximately RM 5million in addition to having a more robust and construction friendly system.

Did you know?

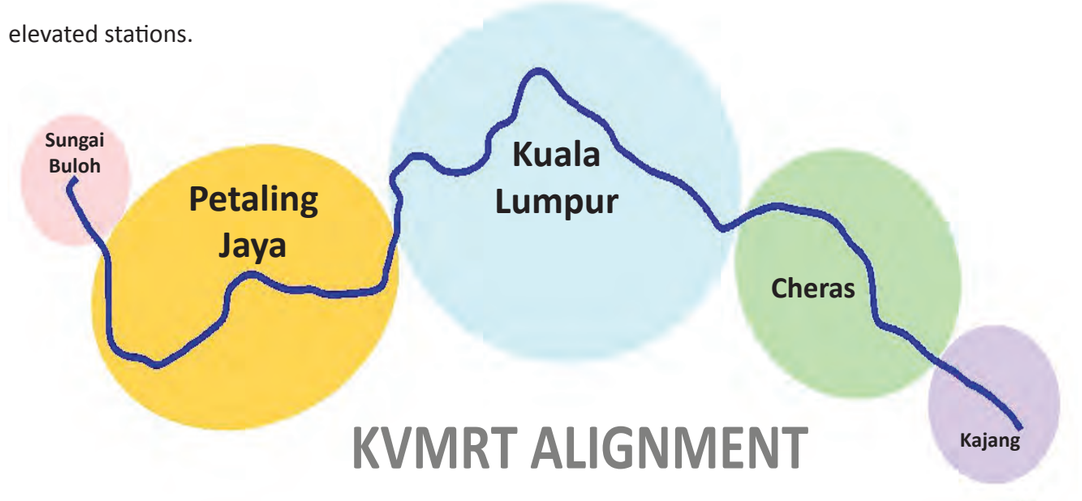
This landslide occurred at Puncak Setiawangsa in 2012. This slope is a ground anchored slope and not soil nailed slope.

Normally, ground anchor is used as temporary retaining system whereas soil nailed wall is preferred as permanent retaining system. This is because ground anchor is pre-stressed and will suffer pre-stress losses with time and as such, requires regular re-stressing to ensure its effectiveness.

MOVING PEOPLE

Klang Valley Mass Rapid Transit (KVMRT) Sungai Buloh-Kajang (SBK) Line covers a distance of 51km and is served by 31 stations. The SBK Line acts as a corridor to link 1.2 million people directly into Kuala Lumpur City Centre. The alignment starts from Sungai Buloh, northeast of Kuala Lumpur and ends in Kajang, southeast of the city centre. KVMRT is designed to transport over 20,000 passengers per hour per direction or 400,000 passengers a day.

The involvement of G&P in the design of KVMRT includes 3 underground stations, 1 portal and 4 elevated stations. The scope of design comprises temporary works for underground station excavation (exceeding 40m deep), ground improvement, damage assessment, foundation design for viaduct and elevated stations.



Klang Valley
Mass Rapid Transit
(KVMRT)
Sungai Buloh - Kajang Line

Excavation works for underground station consist of overburden soil and rock excavation in limestone formation to the required depth for permanent structure construction. Continuous vertical rock excavation with face support (i.e. rock bolts) to the final excavation level was carried out.

Grouting works (i.e. curtain grouting and base grouting) were carried out in limestone to reduce the rate of groundwater inflow into excavation and reduce water pathways around excavation areas. If any cavities were detected during drilling/grouting, compaction grouting with cement mortar will be used as cavity treatment.

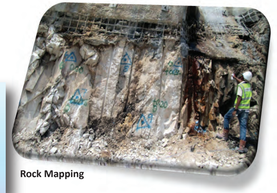
Rock Fissure Grouting

Secant pile wall was selected as the earth retaining system with temporary ground anchor tie backs or strut supports. The advantages of secant pile wall are:
- Water-tightness to prevent groundwater draw-down on the retained side;
- The ability to vary the pile lengths to suit the irregular limestone bedrock profiles.

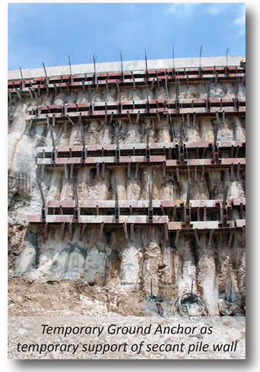
Installation of Secant Pile Wall

Rock Excavation

The rock excavation was carried out using controlled blasting with adequate protection. The blasting works were carried out in 2 to 3m benches. After blasting, geological mapping was carried out by qualified geologists to collect field data on the exposed rock face including details of discontinuities and rock face weathering conditions to determine suitable rock strengthening works.



Rock Mapping



Temporary Ground Anchor as temporary support of secant pile wall

Temporary Strut as temporary support of secant pile wall

Two types of tunnel boring machines (TBM) will be used to create the underground routes within Klang Valley, namely the Earth Pressure Balance (EPB) TBM and Variable Density (VD) TBM. The EPB TBMs were used to drill through the Kenny Hills formation while the VD TBMs were used under Kuala Lumpur Karstic Limestone.

Earth Pressure Balance Tunnel Boring Machine:

The Earth Pressure Balance (EPB) TBM is suitable to be used within the Kenny Hill formation as the subsoil condition is fairly uniform compared to the Kuala Lumpur Limestone formation which is karstic in nature. EPB TBM uses excavated material to provide support for the drill face, thus creating a positive face pressure and preventing the soft ground from falling in during the tunnelling process. The excavated material is stored behind the drill face and applies an outward pressure that is equivalent to the combined inward pressure exerted by external forces.

Variable Density Tunnel Boring Machine:

KVMRT has been privileged to utilize the first-in-the-world Variable Density (VD) TBM which is an innovation of the existing slurry shield TBMs. The VD TBM is suited to be used for tunnelling works within Kuala Lumpur Limestone formation where irregularities of fissures and chambers are found. The Variable Density Slurry Shield enables the TBM to alter the density and viscosity of the slurry, which will prevent the slurry from escaping into cavities or blowing out from fissures which lead to the surface. This will in turn preserve the face pressure of the TBM and keeps the terrain stable during the tunnelling process.

(Source: http://www.mymrt-underground.com.my)

Variable Density (VD) TBM Breakthrough at Maluri South Portal

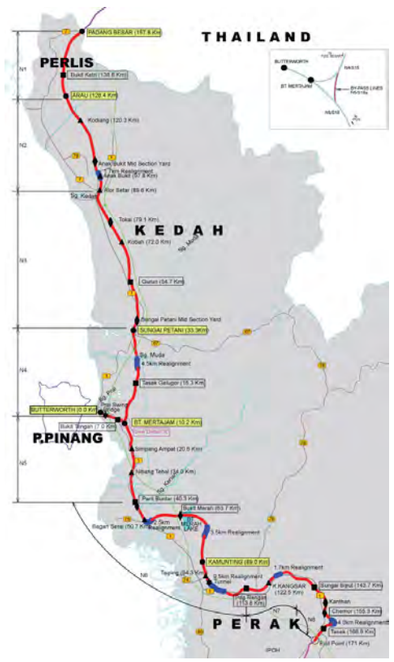
CONNECTING NORTH TO SOUTH

The Malaysian Government has decided to extend the electrified double track railway from Ipoh to Padang Besar in Peninsular Malaysia with a total distance of 350km, traversing soft alluvium soils to dense residual soils. G&P is the consultant engaged by MMC-Gamuda Joint Venture Sdn Bhd to provide ground treatment options for 200km of the double track railway extension with train design speeds of up to 180km/hour.

THE CHALLENGES

The railway tracks transverse a distance of 350km from north to south passing through subsoils which vary from soft alluvium deposits to dense residual soils. In addition, the geometrical tolerance of the railway tracks is very stringent, especially for trains with high design speeds of 180km/hr. The design performance requirements include differential settlement of not more than 10mm over a chord length of 10m and settlement of not more than 25mm within 6 months after completion.

Hence, various **ground treatment techniques were adopted** to meet the performance requirements and construction schedules, especially when long stretches of the embankment supporting the tracks traverses very soft to soft alluvium deposits with thickness of 15m to 20m.



ADOPTED GROUND TREATMENT TECHNIQUES:
- Excavation & Replacement of soft soil
- Surcharging
- Prefabricated Vertical Drain
- Stone Column

DESIGN OF EMBANKMENTS:
- Settlement Analyses
- Stability Analyses
- Dynamic Analyses
- Embankment Behaviour on Soft Ground

Top: *Temporary Sheet Pile for Excavation and Replace Method (E&R).*

Top: *Typical PVD Machine working beside the Live Track*

Right: *Embankment fill with surcharge next to existing live tracks*

REACHING FOR THE SKIES
COMMERCIAL, RESIDENTIAL & RETAIL MIXED DEVELOPMENT

Uptown Development @ Damansara Utama

Damansara Uptown Development, a freehold development owned by See Hoy Chan Sdn Bhd was conceptualized based on a one-stop-center setting on 12 acres space with a myriad of community facilities and amenities from two residential towers, a neighborhood retail mall, an office tower and a hotel which are targeted to be fully completed by year 2018. This truly puts Damansara Uptown on a pedestal as the Golden Hub of Petaling Jaya.

Due to this development having high ground water table (1.5m~3m below ground) and surrounded by old shops, 1000mm~1200mm Ø continuous secant pile walls tied back with temporary removable ground anchors are used to retain soil for 11m~13.5m deep excavation. Recharge wells are used to stabilise ground water to minimise settlement at the vicinity of basement excavation. Bored piles of diameter 750mm ~2500mmØ with 1m thick lowest basement flat slab are adopted to resist high uplift water pressure. The main feature of structural work is curvy facade with long floor slab (10.8~12.5m).

Due to limited headroom, different floor systems using precast hollow core slab, steel beam / truss, composite slab, post-tensioned concrete band beam / flat slab, conventional reinforced concrete beam / slab are adopted to achieve maximum headroom.

Another challenging part of this project is the logistic planning for a few contractors working together within a congested working space at the centre of busy Damansara Uptown. Engineers have to work closely with contractors in planning the sequence of works as well as temporary works.

Services Provided:
Civil, Structural and Geotechnical

Radia @ Bukit Jelutong

Radia, a derivation from the Latin word Radius, means an extension of a straight line from the centre of a circle or sphere to the circumference or surface. Located in the heart of Bukit Jelutong, Radia is a representation of connectivity from its centre to its surroundings in which its growth outwards from the centre holds the mould for an urban expansion.

Radia focuses on a sustainable integrated development which draws an inspiration that features both local and contemporary flavours. Radia provides a luxurious and lush landscape which harmonizes human existence with the integrated development and thus, offer a sense of belonging within the community.

Radia was conceptualized by J+H Boiffils, an international French architectural firm. Radia spans over 5 phases and consists of 4 blocks of offices, 5 blocks of residential, 5 blocks of retails, car parking podium with landscape, facilities and 2 link bridges.

With expected completion in 2018 and an estimated development cost of RM1b, G&P Structures Sdn Bhd and G&P Geotechnics Sdn Bhd are appointed along with other consultants to work hand in hand to breathe life into Radia.

As Radia sits largely on flat land with only shallow basement and good soil conditions, economical injection piles system is adopted for foundation to minimize noise to the surrounding residential area. With limited building height, G&P Structures Sdn Bhd took advantage of the post-tensioned flat slab system to the car park podium to minimize the floor-to-floor height. To further offer flexibility to the architectural planning and designs, the conventional beam and slab system is adopted for the superstructures.

Radia Bukit Jelutong is the proud result of a shared inspiration between UEM Sunrise Bhd and Sime Darby Property. G&P Structures Sdn Bhd and G&P Geotechnics Sdn Bhd are proud to be part of the design and consultant team in the civil, structural and geotechnical field.

Services Provided:
Civil, Structural and Geotechnical

HIGH RISE & COMPLEX STRUCTURES

IMPIANA Nusajaya

IMPIANA Nusajaya is the first high-end apartment in Nusajaya. It is strategically located in between Johor Bahru City and Singapore. Impiana Nusajaya is a luxury condominium offering the natural greenery of East Ledang and open space units to the residents.

This project features 4 tower blocks that are arranged symmetrically from the main axis; consisting of two 12-storeys and two 24-storeys apartment tower.

The key features include a grand staircase entrance, linking the main drop-off and the pool deck, which features plenty of greens and cascading water features, an infinity wall and a gym perched over the Olympic-sized pool.

Services Provided:
Civil, Structural and Geotechnical

Seringin Residences @ Happy Garden

Seringin Residences features 2 residential towers that contain 542 homes, including 10 Garden Villas & 8 Penthouses. At the podium of the residential towers, there is an extensive array of health and recreational facilities, ranging from a 50-metre pool and Lifestyle Pavilions, to sauna, playground and even a floating gym. Next to the towers is a double storey S.A.G.E. (Sustainable Application of Green Energy) which is powered by the latest in green technology to introduce eco-friendly living.

The tower design incorporates flat slab and shear wall system to achieve maximum headroom with no beam at living rooms and bedrooms. Aluminium formwork system is used to minimise construction time. Post-tensioned band beam and slab system is adopted in basement carpark to allow for longer floor span (max 12.8m) and better headroom. 2m deep transfer beams transfer the apartment shear wall loadings to columns at basement carpark.

Services Provided:
Civil, Structural and Geotechnical

the MANSIONS @ Parkcity Heights

the MANSIONS involved the development of a prestigious 127 units Regal Parkhomes in a 19.6-acre gated and guarded hilltop enclave.

The key features include 3 ½-storey, 33-foot building width and individual lift.

The onsite facilities include: infinity pool, wading pool and water feature, children's playground, suspension bridge, gymnasium, multi-purpose hall and landscape park.

Services Provided:
Civil, Structural and Geotechnical

HIGH RISE & COMPLEX STRUCTURES

the Westside II @ Desa ParkCity

the Westside II is a 41 storey prestigious condo that offers 338 units of apartment with a distinctive double-storey link bridge that connects the tower to the facilities deck and carpark at podium.

Flat slab and shear wall system is adopted for the condominium and provide an economical structural system as shallower structural depth will result in reduced storey height.

With aluminium formwork system, the floor to floor construction cycle time can be achieved within 7 days, which is approximately half of the conventional construction time per floor.

Services Provided:
Civil, Structural and Geotechnical

SERINI Melawati

Serini Melawati is located within the heart of Taman Melawati, and it is part of the new Melawati Township.

It is a serviced apartment consisting of 2 identical 38-storey towers of 528 apartment units, and more than half-an-acre of podium space dedicated for recreation, which includes open-view gymnasium, open roof yoga area, and a half Olympic-size swimming pool connected by the surrounding greens.

Other facilities include kindergarten, lush garden at the arrival plaza and recreation deck.

Services Provided:
Civil, Structural and Geotechnical

Phase 1 Section 6 @ Putra Heights

Phase 1 Section 6 is Sime Darby Property's vision for a modern serviced apartment that will be an initial benchmark development for the future residential sites within the Putra Heights Section 6 Masterplan.

The development consists of 5 Blocks of residential apartment and 1 block of SOHO with 5 storey of carpark below together with facilities area on podium level. The on-site facilities include swimming pool, function hall, cafes and convenience stores.

G&P Structures has been engaged to provide civil and structural consultancy for the development. Flat slab and shear wall system is adopted for the tower blocks for a more economical construction cost due to the reduction in structural depth which in turns reduces the storey height.

Transfer beams and transfer slabs are used to transfer the shear wall loadings from the towers to columns at podium level. This allows flexibility for the architectural features at podium and carpark.

Services Provided:
Civil, Structural and Geotechnical

BUILDING TOWNSHIPS

Artist's Impression of Township Development at Nilai Impian

NILAI IMPIAN 2

Client: Sime Darby Property (Nilai) Sdn. Bhd.
Township development on approximately 550 acres of land consisting of landed residential buildings, business parks, retail parks, commercial buildings, public amenities, etc.

Artist's Impression of Mixed Development at Kajang 2

KAJANG 2

Client: Srijang Kemajuan Sdn. Bhd.
Mixed development on approximately 270 acres of land consisting landed and high rise residential buildings, shop offices, shopping mall, hotel, KTM station, KTM complex, public amenities, etc.

COMBATING FLOODS: SOLVING SG DAMANSARA FLOOD PROBLEMS THROUGH CREATIVE ENGINEERING SOLUTIONS

IN FEBRUARY 2006, several areas around Klang Valley were inundated by flash flood which included areas of Taman TTDI Jaya, Section 13 Shah Alam, Batu Tiga (Federal Highway), New Klang Valley Expressway (NKVE) and Kg Melayu Kebun Bunga. This event prompted the authorities to work on a flood mitigation project at Sg Damansara to prevent reoccurrence of flash flood around the Klang Valley areas. This Project was a design-and-build flood mitigation project for the lower reaches of Sg Damansara of about 11 km in length. The project was commissioned by the Government of Malaysia through Department of Irrigation and Drainage Malaysia under the 9th Malaysia Plan.

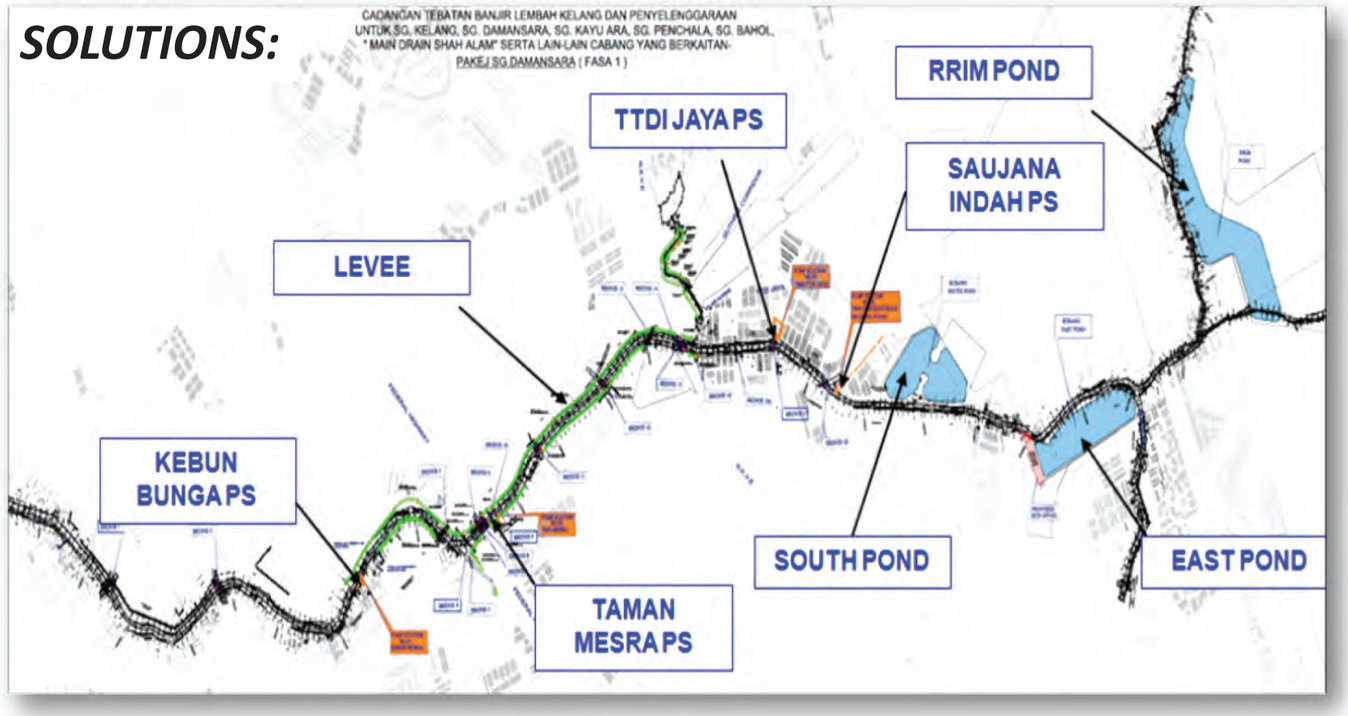
ACHIEVEMENTS

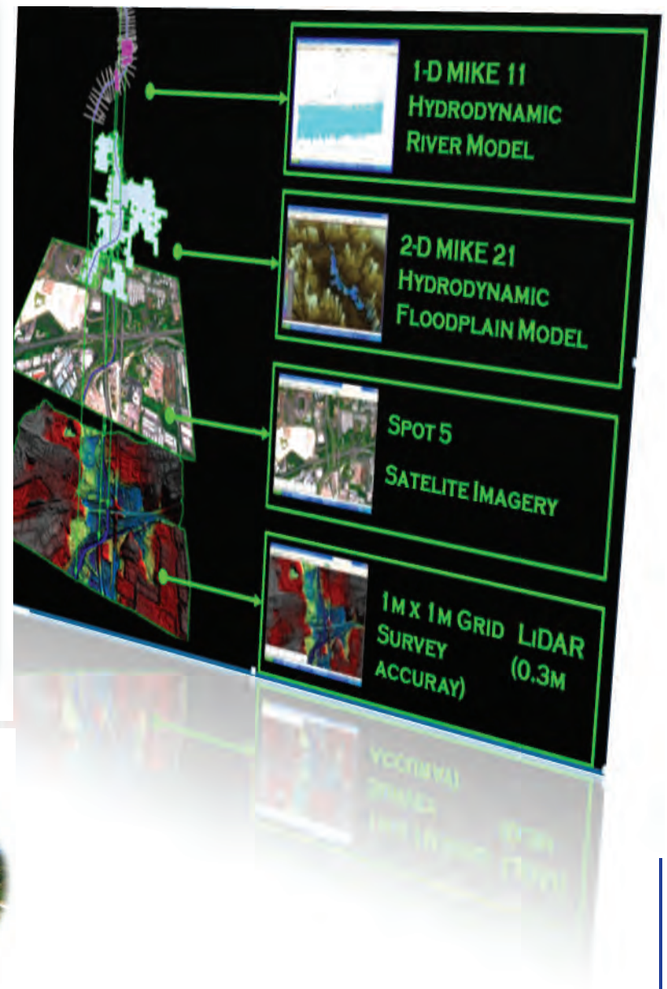
for the Project include setting up new industrial practice for flood analysis and design, being the first consultant in the country to introduce LiDAR survey coupled with 2-D hydrodynamic computer simulation for flood mitigation design.

TTDI JAYA
DETENTION POND

LEVEE

SOLUTIONS:





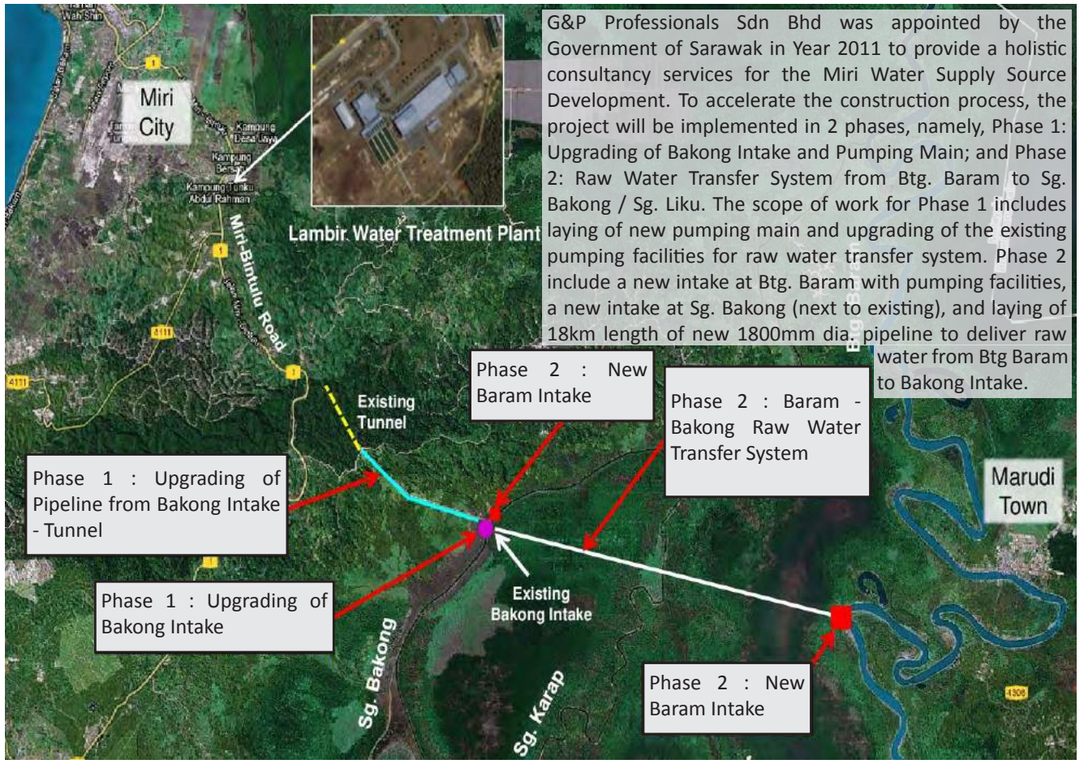
PUMPING STATION (PS)

REMOVAL OF BRIDGE CONSTRICTIONS

RRIM POND

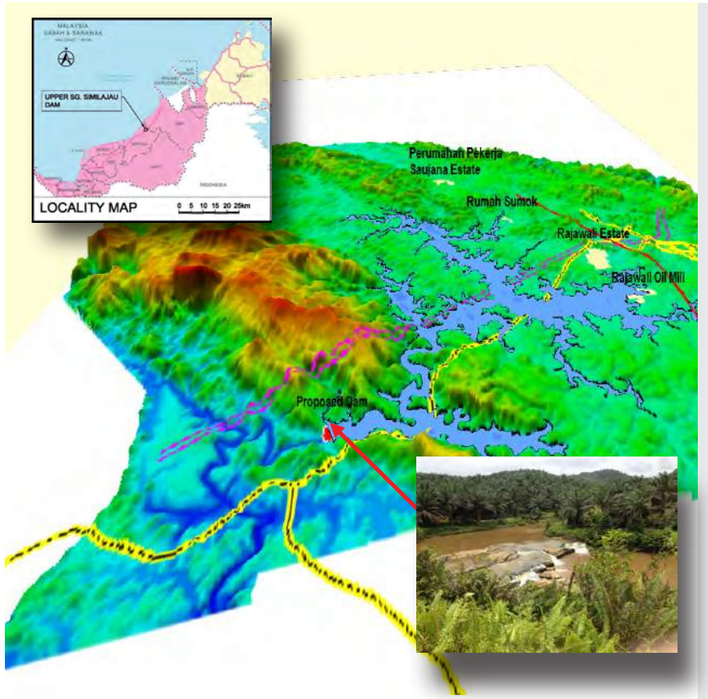
SUBANG JAYA
SOUTH POND

MIRI WATER SUPPLY SOURCE DEVELOPMENT



G&P Professionals Sdn Bhd was appointed by the Government of Sarawak in Year 2011 to provide a holistic consultancy services for the Miri Water Supply Source Development. To accelerate the construction process, the project will be implemented in 2 phases, namely, Phase 1: Upgrading of Bakong Intake and Pumping Main; and Phase 2: Raw Water Transfer System from Btg. Baram to Sg. Bakong / Sg. Liku. The scope of work for Phase 1 includes laying of new pumping main and upgrading of the existing pumping facilities for raw water transfer system. Phase 2 include a new intake at Btg. Baram with pumping facilities, a new intake at Sg. Bakong (next to existing), and laying of 18km length of new 1800mm dia. pipeline to deliver raw water from Btg Baram to Bakong Intake.

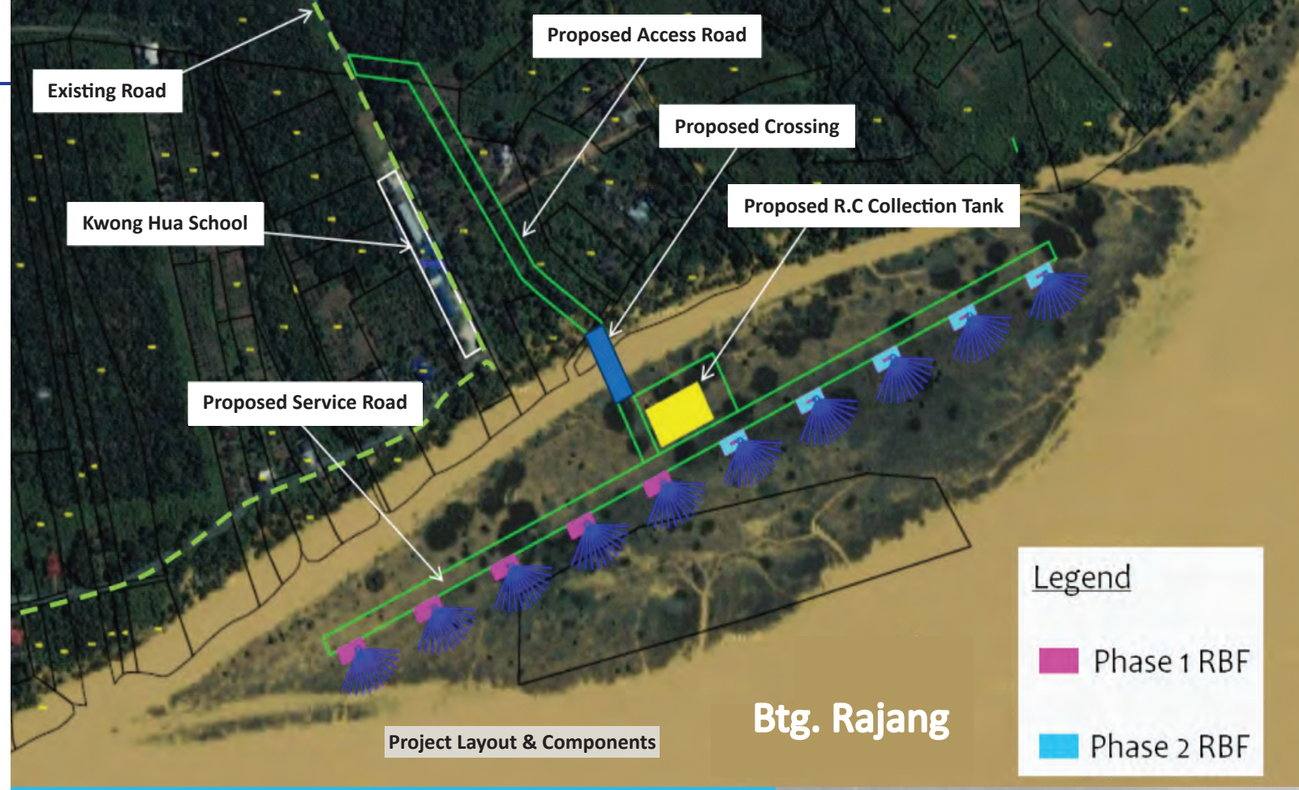
BEKALAN AIR SAMALAJU, BAHAGIAN BINTULU



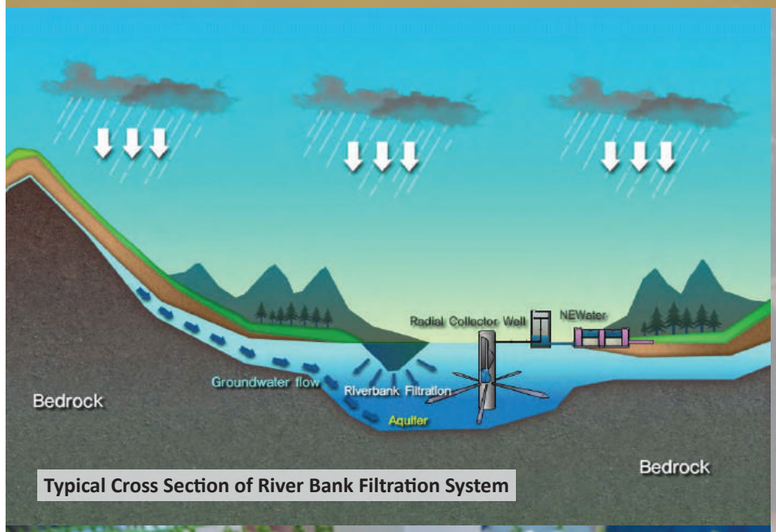
G&P Professionals (Sarawak) was appointed by the Government of Sarawak in Year 2012 to provide the consultancy services for Bekalan Air Samalaju, Bahagian Bintulu, Sarawak – Phase 1 Stage 3B: Proposed Sg.Similajau Reservoir and Associated Facilities. The purpose of this project is to provide sufficient raw water supply to Samalaju District in the Bintulu Division in order to cater for the future water demand required for the industries. A "run-of-river" concept of water supply method has been adopted with a regulating dam being proposed to regulate the upstream reservoir and release water to the intake at downstream of the river.

The scope of works consists of the followings:

- Pre-design assessment study
- Detail design of dam, mechanical and electrical & infrastructure components
- Tender documentation
- Construction Supervision



Project Layout & Components



Typical Cross Section of River Bank Filtration System

Model of Water Treatment Plant

TANGJUNG MANIS WATER SUPPLY

G&P Professionals (Sarawak) was appointed by the Government of Sarawak in Year 2012 to provide consultancy services for the Tanjung Manis Water Supply Phase 1 – Raw Water Source Development. The purpose of this project is to provide sufficient raw water supply to Tanjung Manis from Sibu, Sarawak. A cost effective yet natural pre-treatment technology known as 'River Bank Filtration (RBF)' utilizes nature's geology instead of chemical methods was proposed to pre-treat the water intake. This technology offers cost savings in terms of maintenance and operation.

The scope of work consists of the followings:

- Coordinate and oversee the topographical survey works, soil investigation works and other required testing to determine the RBF site
- Carry out engineering design
- Preparing tender and contract documents
- Liaise and coordinate with local authorities
- Contract administration and construction supervision

Centrifuge Dewaterer in Sg Sayong Water Treatment Plant

G&P assisted Syarikat Air Johor (SAJ) in improving the environmental management of water treatment plant residuals. Residuals treatment facility is introduced in the Sg. Sayong 45 megalitres per day (Mld) Water Treatment Plant to meet Department of Environment's requirement on industrial effluent quality. Residuals collection tank, gravity thickener and two centrifuge dewaterers are installed for the dewatering of the plant residuals to a dryness (percentage of dry solids over total sludge) of > 25%. Total project cost is RM 7.5 million.

Residuals Collection Tank

Inside view of gravity thickener

Internal view of RBF well

River Bed Filtration (RBF) for Raw Water Abstraction

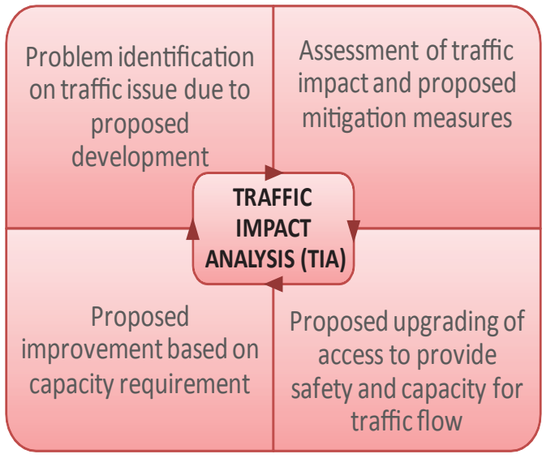
To improve raw water quality, Lembaga Air Perak (LAP) decided to install the River Bed Filtration (RBF) system at the raw water intake of Kota Lama Kiri Water Treatment Plant. A central well is sunk to the required depth and radial collectors are drilled horizontally towards the river below the bed. The system uses river bank deposits to naturally filter the surface water of a lot of its particulates and contaminants before delivering it to the water treatment plant.

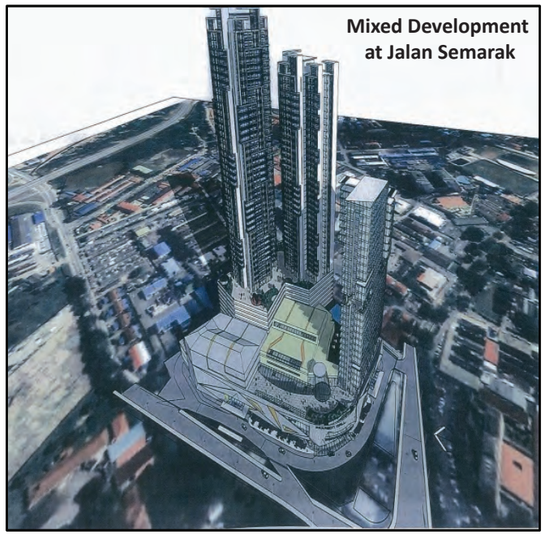
Project Details:	
Designed Pumping Capacity:	**25 megalitres per day (Mld)**
Number of pumps:	**2 on duty**
	1 on standby
Diameter of Central Well:	**6m**
Number of laterals:	**10**
Total length of laterals:	**400m**

The completed RBF well

Installation of screen in progress

TRANSPORTATION PLANNING




Mixed Development at Jalan Semarak


Media City Development

MEDIA CITY DEVELOPMENT

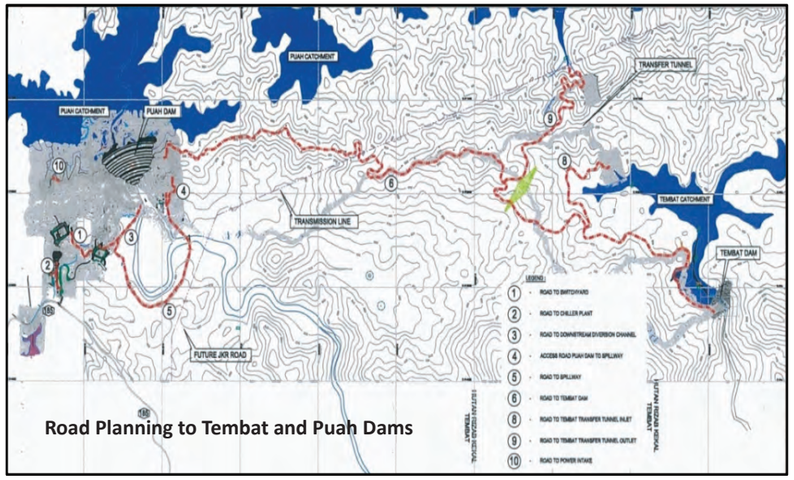
Major upgrading of the existing broadcasting centre to Media City Development of the country. TIA performed to improve accessibility.

MIXED DEVELOPMENT AT JALAN SEMARAK

TIA was performed for the project located in a matured neighbourhood. Proposed access provision with adequate capacity and safety to ensure success of the project.

ROAD PLANNING AND DESIGN

Designing and constructing an access road from JKR Route 185 to Puah and Tembat Dams. This access road traverses through hilly terrain leading to Puah Dam. Planning and construction of the access road posed great challenges in terms of optimum route location and slope stability consideration.



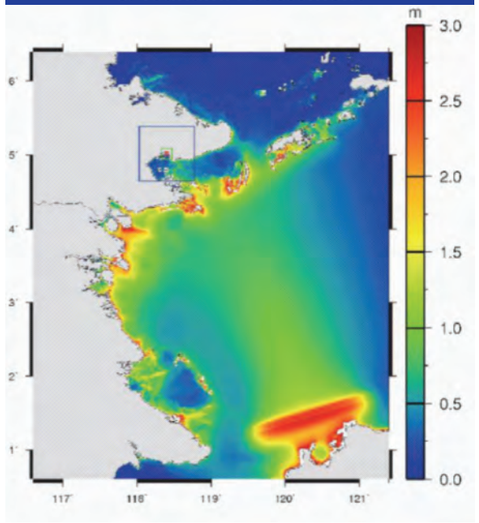
Road Planning to Tembat and Puah Dams

NGI – G&P

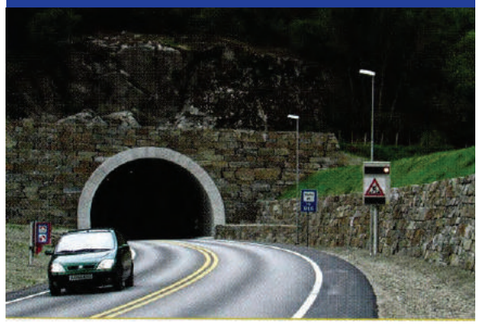
NGI-G&P Sdn Bhd combines the expertise of G&P Professionals with extensive local experience in Geotechnical, Civil & Structural, Mechanical & Electrical, Infrastructure, Maritime, Environmental and Water in Malaysia with the international expertise of the Norwegian Geotechnical Institute (NGI). Together, the new joint company offers world-renowned expertise on:

Offshore Geotechnics

Earthquake Engineering & Tsunami Assessment

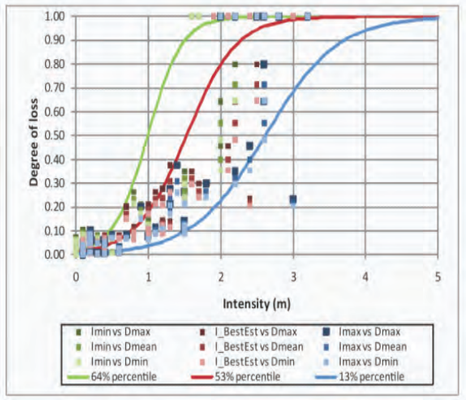


Tunnel & Underground Facilities



Environmental Engineering

Risk Assessment and Management



VENTURING INTO OIL & GAS

In 2011, Malaysia Marine and Heavy Engineering Sdn Bhd (MMHE) planned to construct a 55,000 metric ton (MT) Loadout Facility & Associated Works to support the construction of deepwater offshore projects at Quay 6 in Pasir Gudang, Johor.

G&P Professionals Sdn Bhd was appointed by MMHE as the engineering consultant to provide engineering consultancy services for the foundation design of 55,000MT Loadout Track and Jacking Foundation.

Fabrication of topsides in progress at Quay 6 in Pasir Gudang

G&P Geotechnics Sdn Bhd (G&P) was appointed by Dialog E&C Sdn Bhd as the geotechnical consultant to carry out detailed design for foundation of storage tanks at Langsat Terminal (One) & Langsat CTF, Tanjung Langsat Port, Johor Darul Takzim.

The scope entails the design of foundations for twenty (20) tanks of various storage capacities ranging from 5,000m^3 to 40,000m^3. Some of the design considerations include wind load and seismic load assessment, interaction effect of pile-soil-raft and stringent distortion criteria.

Storage Tanks of 20,000m^3 capacity under construction

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