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# Raising Kota Bunyih Tailing Dam

## Project Summary

The existing capacity of Kota Bunyih (KB) Tailing Dam at Rahman Hydraulic Tin mine is expected to be exhausted in the next few years. Rahman Hydraulic Tin Sdn Bhd (RHT) proposed to raise the dam by another 11m to increase the dam's capacity for tailing disposal. The existing KB Dam is situated over a natural valley (former Sungai Kota Bunyih), spanning North-South between two ridges of the valley. The existing dam height is about 50m as shown in Figure 1.

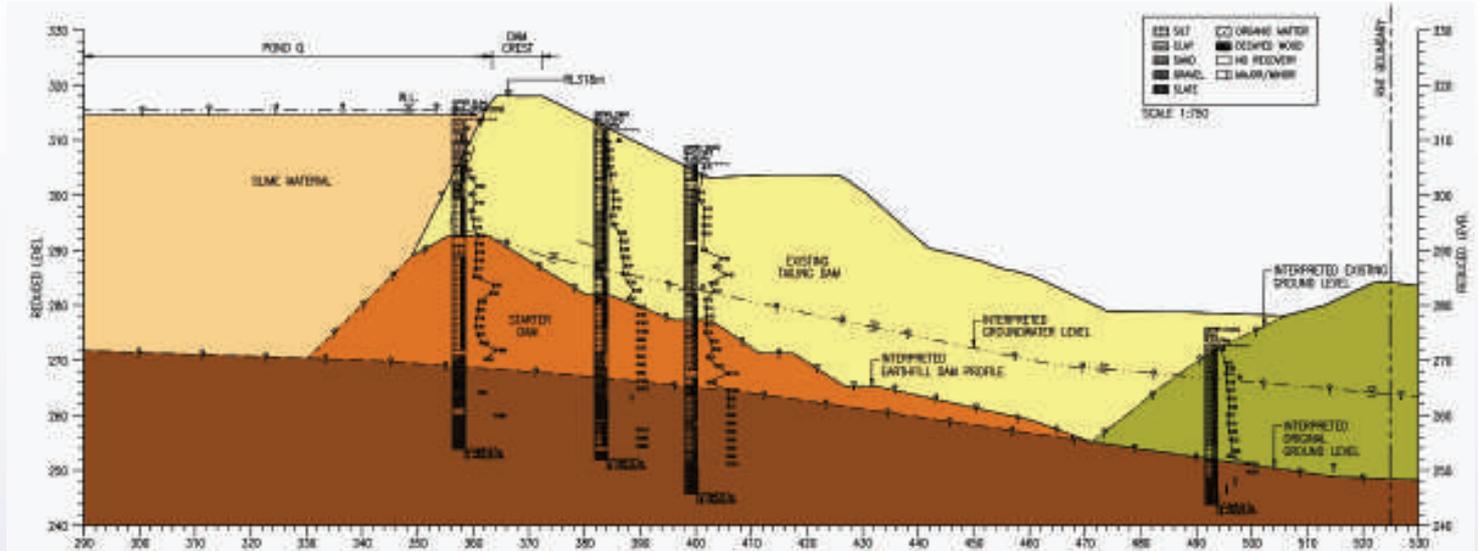


Figure 1

The following analyses have been carried out to assess the stability of raising the dam by 11m:

**a.** Steady state seepage analyses for the assessment of long-term stability of the downstream slope and also to assess the potential piping failure. (Figure 2).

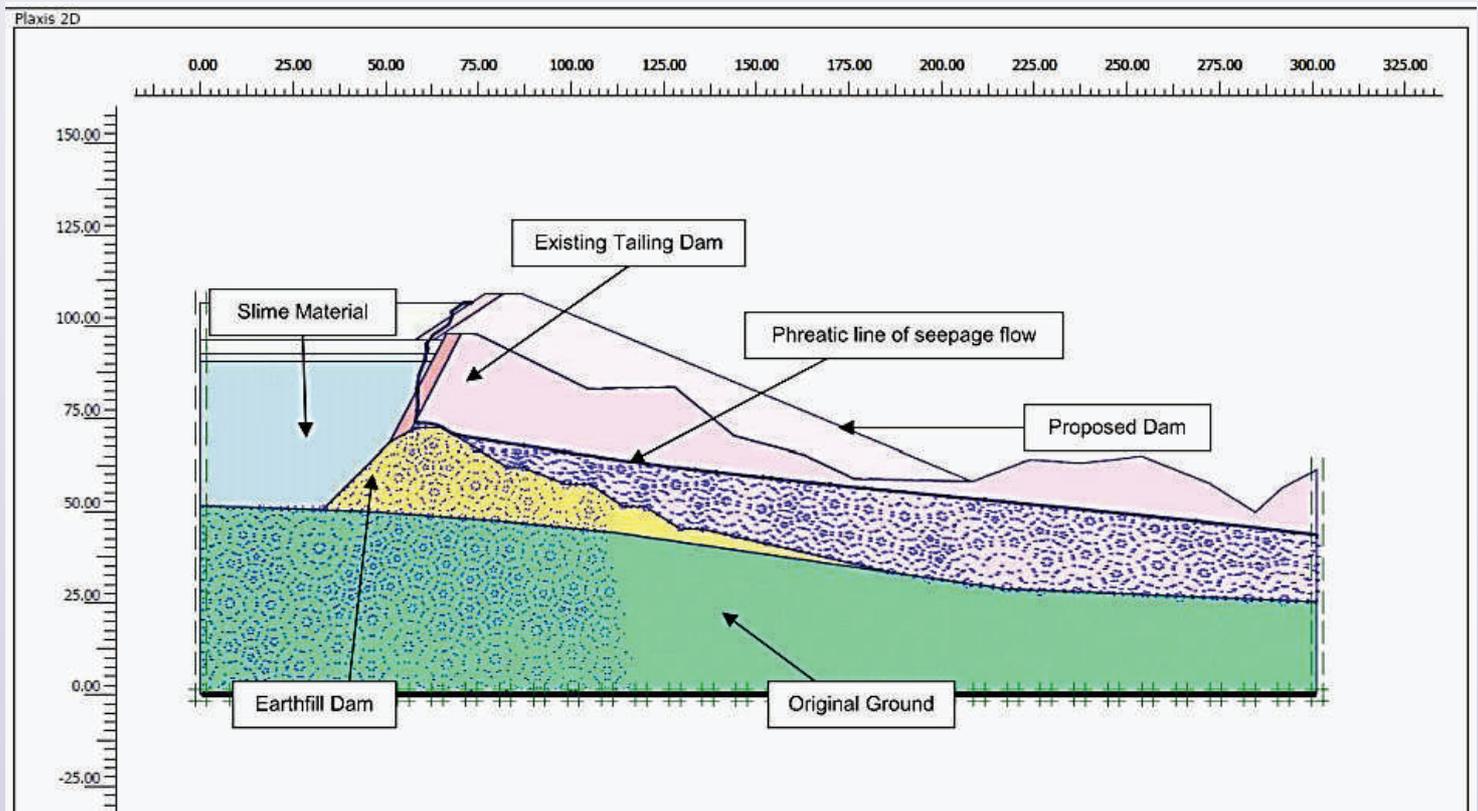


Figure 2

# Raising Kota Bunyih Tailing Dam

b. Long-term stability of the raised dam was assessed using Bishop's Simplified Slip Circle method with targeted minimum Factor of Safety (FOS) of 1.5 (Figure 3).

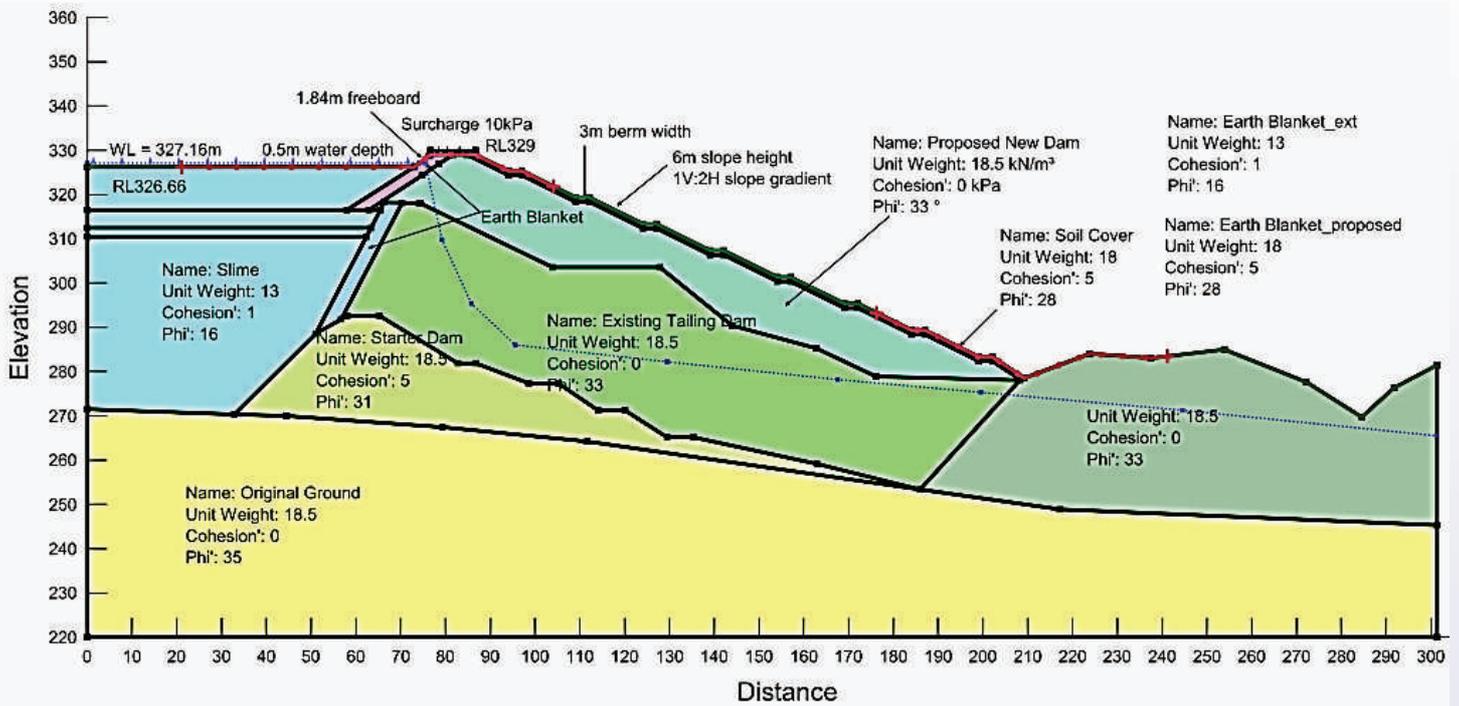


Figure 3

c. Stability analyses under seismic condition with minimum FOS of 1.2 - For the purpose of stability assessment under seismic condition, the seismic coefficient of 5% to 7% of gravitational acceleration (g) is adopted based on the seismic hazard map produced by United States Geological Survey (USGS) in April 2008.

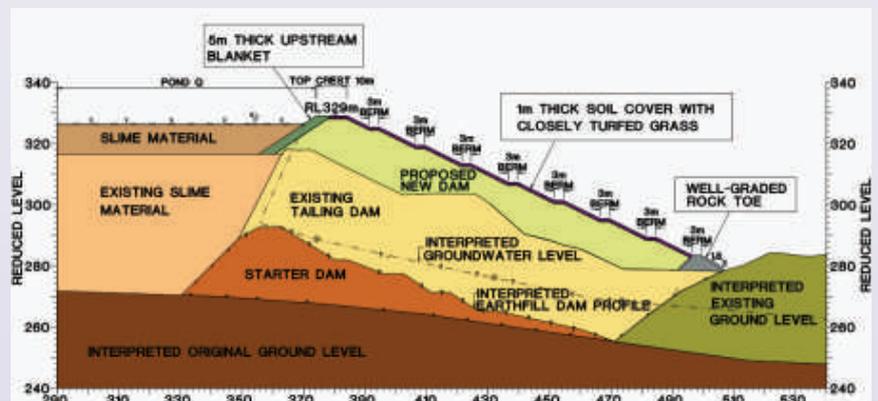


Figure 4

Upstream blanket, underdrain and rock toe (to filter coarse tailing material) were proposed to control the seepage and thus enhance the dam stability (Figure 4). The downstream slope of the KB Dam, which was formed by erodible coarse tailings, requires a closely turfed grass cover and proper surface drainage network to intercept surface runoff. The dam construction is shown in Figure 5.



Figure 5

# Developing Xiamen University At Ampar Tenang

## Project Summary

In line with the spirit of globalization to foster stronger international ties between Malaysia and China, our Government has agreed to set up Xiamen University, China's first university outside its own country. G&P has been appointed as the consultants for the civil, structural and geotechnical works. The site is situated on 150 acres of land at Ampar Tenang, Mukim Dengkil, Daerah Sepang, Selangor Darul Ehsan.

The development consists of the following phases:

### a. Phase 1

- Five Blocks of Academic Building with One Level Basement Car Park.
- Six Student Hostel Buildings
- One Cafeteria Building
- A Science and Art Auditorium.
- A Stadium.
- Clock Tower.

### b. Phase 2

- Seven Academic Buildings with One Level Basement Car Parks for Six Blocks.
- Three Student Hostel Buildings.
- One Cafeteria Building.



Artist's Impression of Xiamen University (from Architecture and Urban Planning Institute of Xiamen University)

# Transforming Damansara Uptown Phase 2

## Project Summary

Damansara Uptown has an unsightly 12 acre open car park space which is to be developed into a vibrant commercial and residential centre comprising of a condominium, serviced apartments, shopping complex and office tower.

The development comprises of a three (3) level basement car park with the excavation depths ranging from 7m to 15m deep. The site is surrounded by four (4) stories of existing shop lots supported by shallow foundations on filled platform. Therefore, the main challenge of the excavation is to prevent excessive retaining wall movement and subsequently causing deformation and structural distress to the existing shop lots.

Based on the topography plan, the site was originally a crest and subsequently extending into a valley running approximately along the southern site boundary which has been filled up to form the existing platform. The maximum fill thickness of 13m lies at the Southern Boundary.

A “bottom-up” basement construction method utilizing secant pile walls supported by temporary removable ground anchors was proposed to facilitate the excavation in the ‘loose’ fill materials found particularly at the Southern Boundary of the site. Owing to the deep excavation depth, stretches of retaining walls were supported by temporary ground anchors to reduce ground movements and retain Uptown’s adjacent buildings.

### Advantages of Bottom-Up Basement Construction

•**Cost-Effective** – The “bottom up” basement construction does not create any space constraint to carry out earthworks (excavation works). A larger working space promotes work efficiency and translates into reduced cost of excavation per cubic metre of earth. Furthermore, cutting down to the final excavation level also saves on the total bored length of the bored pile foundations.

•**Neater Construction** – Owing to the use of temporary removable ground anchors to support the secant pile walls, it provides clear and neat working space without obstructions such as internal struts. In contrast, top-down construction creates lesser headroom/working space for the excavation works.

•**Flexibility** – In view of the fast track project, the bottom up construction provides flexibility as the foundation piles and basement slabs are only cast after excavating down earth to the final excavation level. On the contrary, the top down construction method restricts architectural design freedom and any new changes to design as the new loading changes will affect foundation piling provision which will have to be constructed before the basement excavation in order to support any super structure or/and basement structures.



Figure (Top) – Initial stage of excavated platform - Residential Package



Figure (Top) - Construction of superstructure - Residential Package (Architect: DES Architect)



Figure (Top) - Initial stage of excavated platform - Retail Package



Figure (Top) - Current stage of basement construction - Retail Package

# G&P's 14<sup>th</sup> ANNIVERSARY DINNER

## Saloma Bistro Theatre Restaurant

### A WORD FROM OUR CEO

#### Dato' Ir. Dr.Gue See Sew:

**Very good evening to all of you and welcome to our 14th Anniversary dinner of G&P. Special thanks to the family members of our Directors and staff for gracing this Annual Dinner.**

We are now 14 years old and currently one of the prominent engineering consultancy firms in Malaysia providing "One Stop Value added Engineering Consultancy". With many diverse talents in our firm I am sure we will continue to scale greater heights.

We currently rank No.5 in the country in terms of the number of staff. Our family is growing at a steady pace with 285 staff. Our core values have certainly propelled us to more achievements. For the benefit of the new staff, the four core values are:

- Structured QA/QC
- Structured Training
- Structured R&D and KM System
- Structured Sharing

I wish to update you all on some of our achievements: On Projects, we have secured:-

Xiamen University at Salak Tinggi near KLIA. This is China's first university outside its own country. We have been appointed as the consultants for the geotechnical, civil and structural works. The university has received 100million ringgit donation from Robert Kuok for the construction of the university's library. The university is set to be operational in 2015. Incidentally, I was also sponsored by Robert Kuok through his Kuok Foundation for my Doctorate degree at Oxford University.

The other mega projects are:

- Second line of MRT. We carried out the preliminary Geotechnical study for 26km of the line.
- On overseas projects, we have been dated by investors in Myanmar and Mauritius. Hopefully we will be doing some interesting projects in these countries.
- On Licensing with Petronas, GLC, we are just about to be registered with Petronas. It was a real challenge to get registered with Petronas. It will be good to get into oil and gas sector.

Our group has made significant growth last year. I am pleased that we continue to set our mark in Malaysia and the region. Back to G&P internal affairs, I am pleased to announce that our group is progressing well towards employee owned company. Currently 3 companies have moved towards this status and I hope many more will follow suit in the near future.

This model reinforces the retention of talent in G&P. Another significant milestone is the merger of G&P Water and G&P Maritime. They will be styled as G&P Water & Maritime Sdn Bhd.

Last but not least, I would like to thank my fellow colleagues for their commitment, hard work and loyalty which makes G&P what it is today. I wish you all have an enjoyable and memorable evening. Finally, let us give a round of applause to Colin Lim and the Sports Club Committee of 2012/2013 for tirelessly putting this event together.

Thank You.



## Dato'ship of Our CEO

G&P Professionals Sdn Bhd congratulates our Chief Executive Officer, Dato' Ir. Dr. Gue See Sew for being conferred the Darjah Setia Pangkuan Negeri (D.S.P.N.) which carries the title Dato' by the Yang di-Pertua Negeri Pulau Pinang Tun Abdul Rahman Abbas in conjunction with the Yang di-Pertua Negeri's 75th birthday on 13 July 2013.

Dato' Ir Dr. Gue See Sew was awarded the Dato'ship for his contribution to the geotechnical engineering field and as the Penang Hillside Geotechnical Advisory Panel chairman.



## G&P's IDOL 2013

G&P's Idol creates a platform for talented staff to show their potential in music, dancing, drama, etc.

Stunning performances presented by the staff brought a joyful and entertaining night to the audiences.



# LIST OF SOME RECENT PROJECTS

PROJECT TITLE	CLIENT
PR1MA Phase 1 (Eight Blocks of 25-Storey Buildings) at Seremban	Brunsfeld Development Sdn Bhd
Commercial North, Puteri Harbour, Johor (48 Acres of Mixed Residential, Commercial and Recreational Development)	Orientis Solutions Sdn Bhd
Proposed Marina and Waterfront at Teluk Burau, Langkawi	Benua Mahsuri Sdn Bhd
Penang World City-Viaducts, Interchange, Underpass & Upgrading of Roads	Tropicana Ivory Sdn Bhd
Proposed Coastal Development- Front Engineering at Batu Maung, Penang (Development Area-25 Acres)	Mah Sing Properties Sdn Bhd
C&S Residential South, Puteri Harbour, Nusajaya, Johor	Nusajaya Premier Sdn Bhd
Proposed College Heights at Bukit Jambul, Penang (9 Acres of One Apartment and One Low Medium Cost Apartment Blocks)	IJM Land Sdn Bhd

# CORPORATE PROFILE

G&P Professionals Group consists of the following specialist engineering consulting firms that provide a wide range of quality engineering services:

- G&P Geotechnics Sdn. Bhd.
- G&P Structures Sdn. Bhd.
- G&P Infra Sdn. Bhd.
- G&P Maritime Sdn. Bhd.
- G&P Claims & Contracts Sdn. Bhd.
- G&P Project Management Sdn. Bhd.
- G&P Water Sdn. Bhd.
- G&P R International (Cambodia) Co. Ltd.
- G&P Highways & Transportation Sdn. Bhd.
- G&P Dams & Water Services Sdn. Bhd.
- G&P Professionals (Sarawak) Sdn. Bhd.
- NGI - G&P Sdn. Bhd.
- G&P Water (Singapore) Pte. Ltd.
- G&P - AA International Consultant Joint Stock Company, Vietnam
- G&P Professional (Sabah) Sdn. Bhd.
- G&P R&D Sdn. Bhd.
- G&P M&E Sdn. Bhd.
- G&P Special Structures Sdn. Bhd.

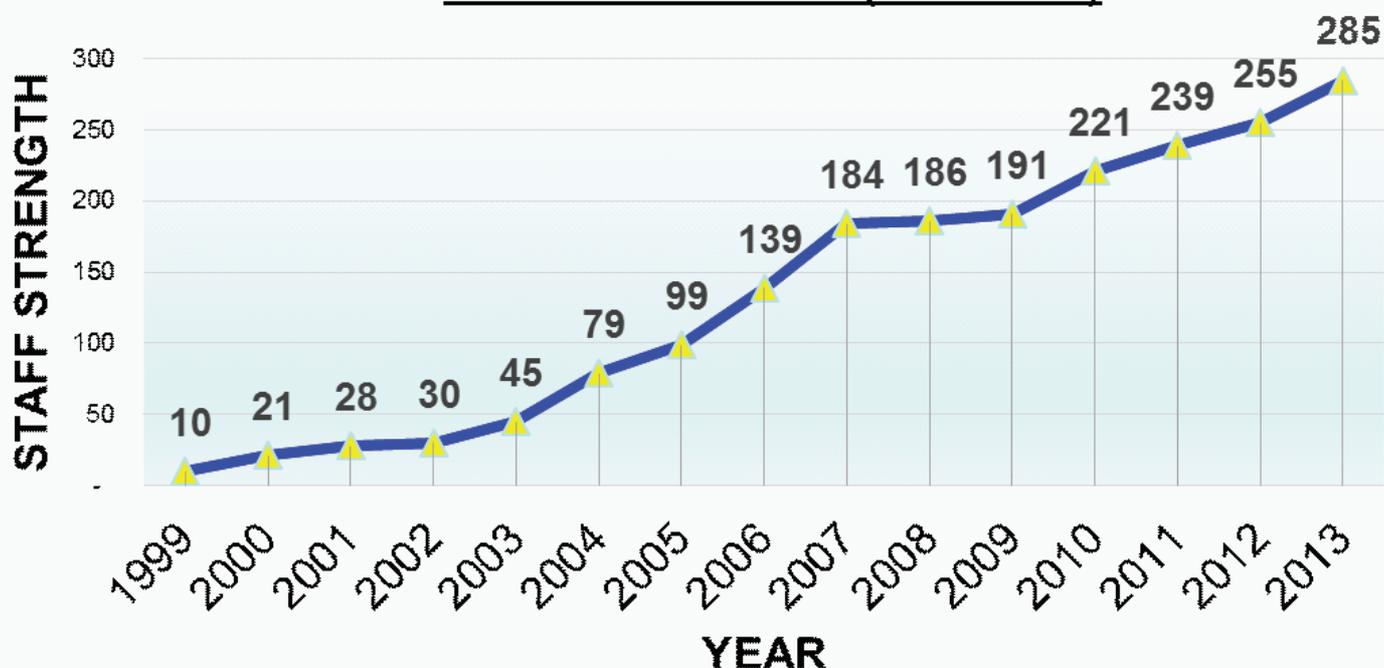
The Group has a fast expanding pool of highly qualified and experienced Geotechnical, Civil & Structural, Mechanical & Electrical, Infrastructure, Maritime, Water, Highways, Railways & Transportation and Dams Engineers, Engineering Geologists and technical support staff.

The Group has several associated organizations overseas where value adding is further enhanced. The project activities are handled by the specialists within the Group to explore innovative and economical solutions tailored to the needs of the projects. Our research and development culture augments our services at the forefront of world trends.

## Associated Organization



## STAFF STRENGTH (1999-2013)



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