



REGISTRATION AS ACCREDITED CHECKER REGISTRATION IN GEOTECHNICAL AND STRUCTURAL ENGINEERING

Presenter:

Ir. Dr. MOHD ASBI BIN OTHMAN
Member, Accredited Checkers Committee

Date: 25th May 2021
Venue: Zoom



Outline of Presentation

REGISTRATION AS BEM ACCREDITED CHECKER

1. BACKGROUND

2. APPLICATION

3.1 GEOTECHNICAL AC

3.2 STRUCTURAL AC



1. BACKGROUND

- Accredited Checkers (AC's) were first established by the Board of Engineers Malaysia (BEM) to enable development on steep hillside (slope greater than 25 degrees) to be independently scrutinised by engineers who had acquired the knowledge and skill to analyse the design in terms of its geotechnical and structural adequacies.
- The need to establish AC engineers started after the Highland Tower Tragedy in 1993.





Highland Tower Collapse, 1993



Taman Hillview Landslide, 2002



Landslide Kpg. Pasir, 2006

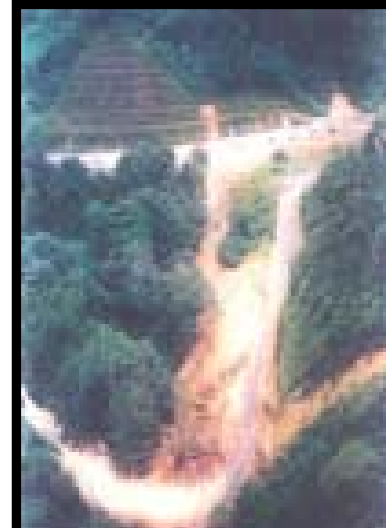


Landslide Bukit Antarabangsa, 2008





Debris Flow Genting Sempah, 1995





Pos Dipang Debris Flow, 1996





NSE Debris Flow near Gua Tempurung, 2004



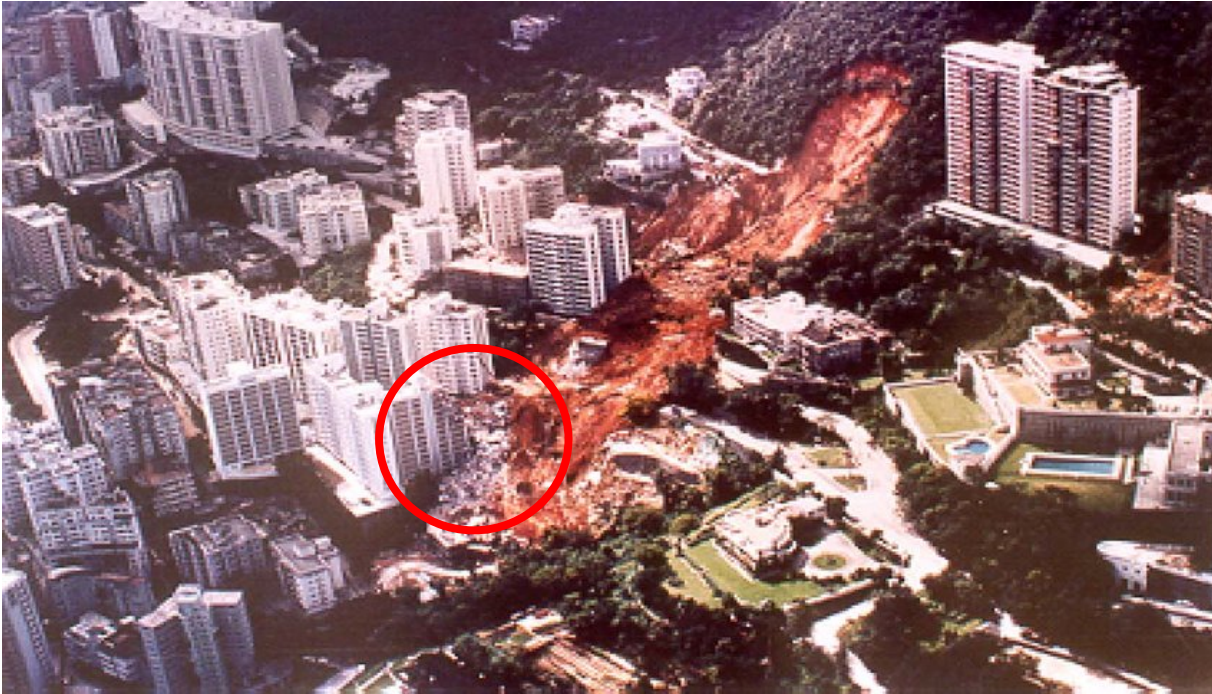


Bukit Lanjan Rockfall, 2003



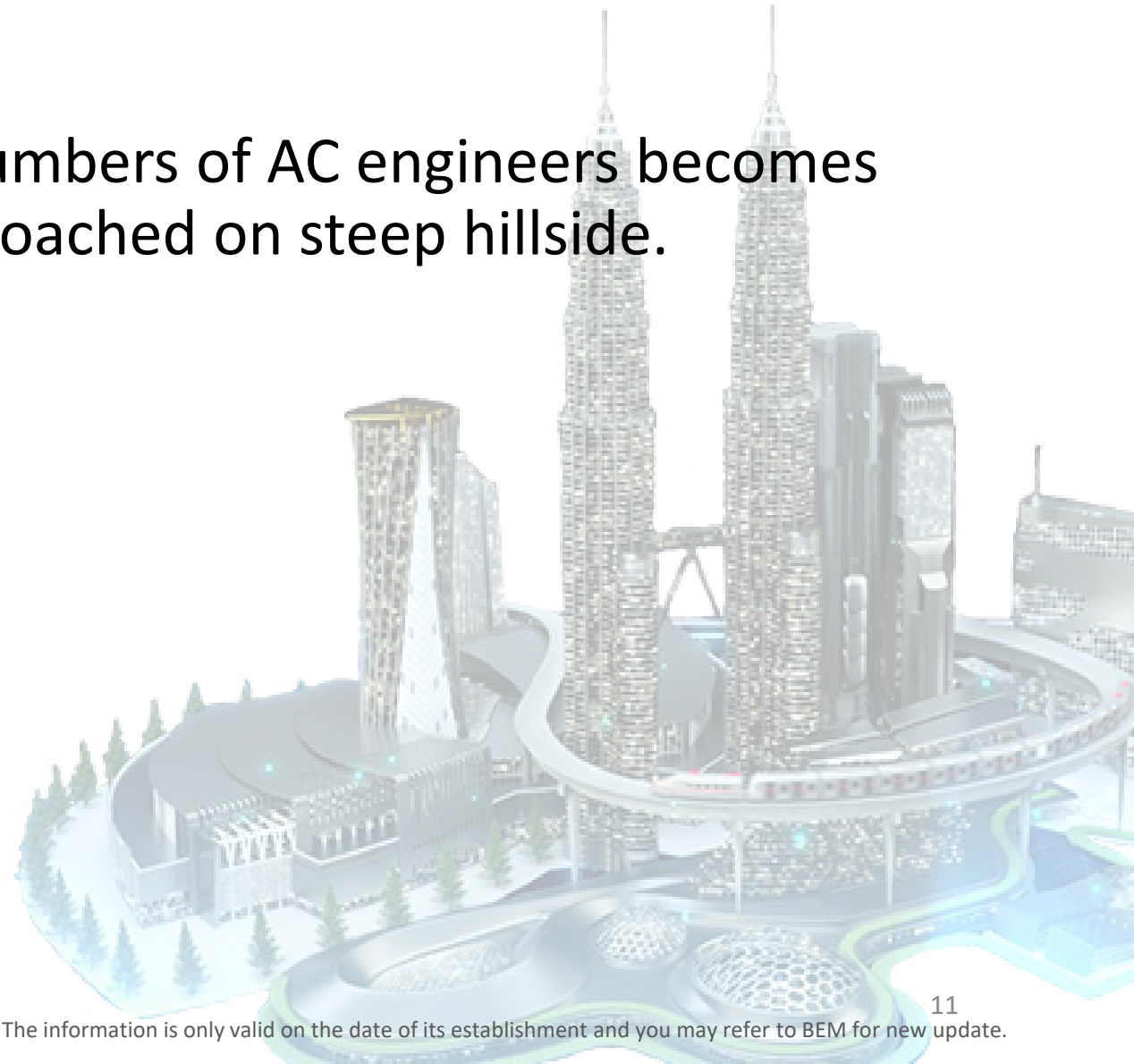


Po Shan Road Landslide Hong Kong, 1972



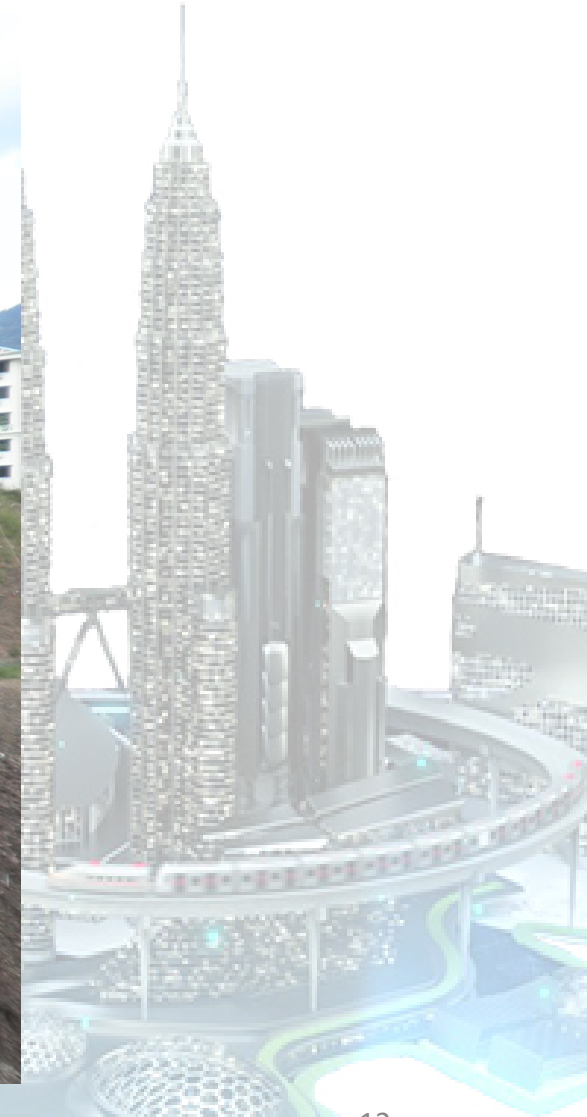


- The need for the increase in the numbers of AC engineers becomes apparent as development has encroached on steep hillside.



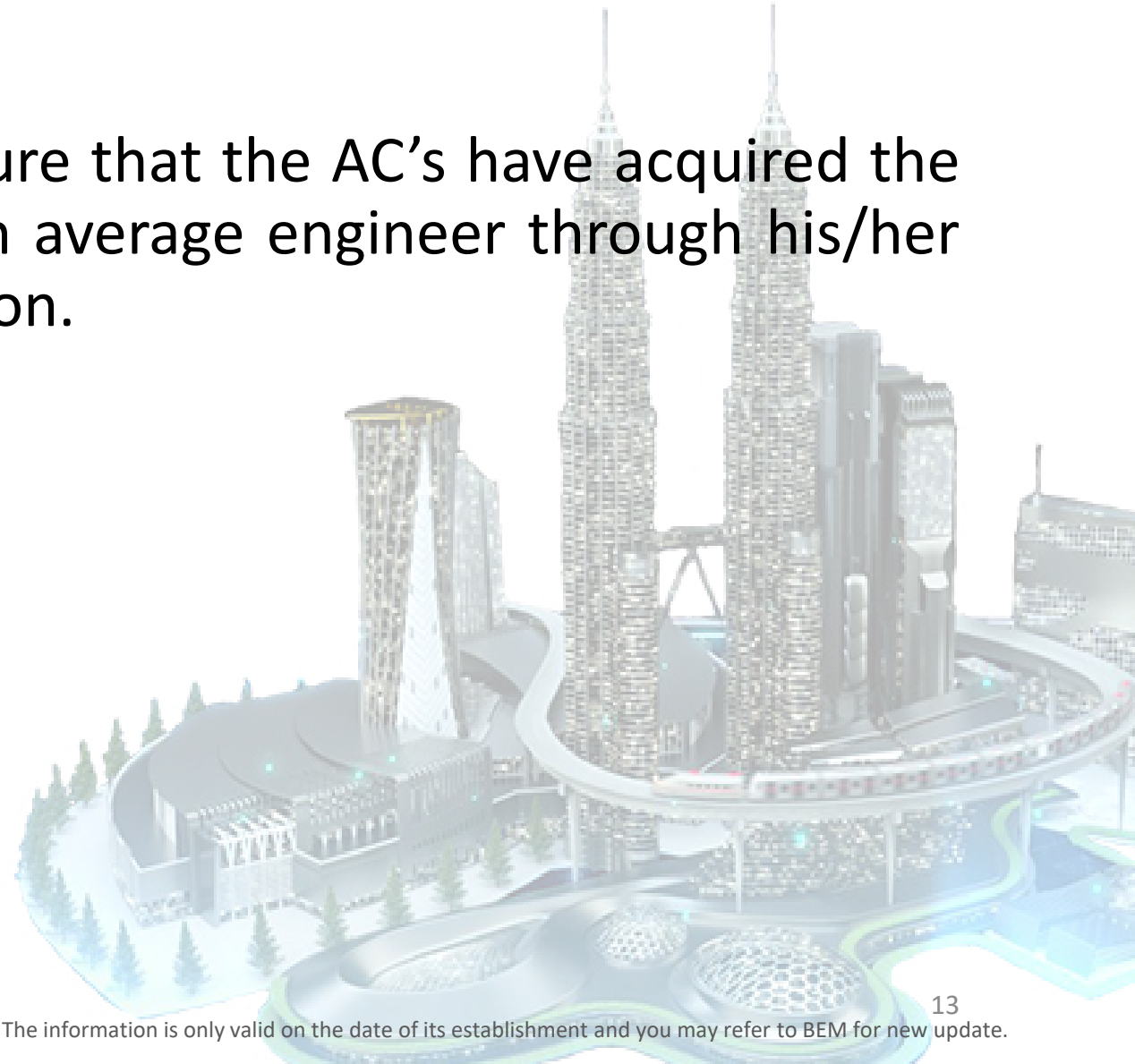


Meru Valley, Ipoh





- BEM has the responsibility to ensure that the AC's have acquired the knowledge and skill well above an average engineer through his/her professional career before admission.





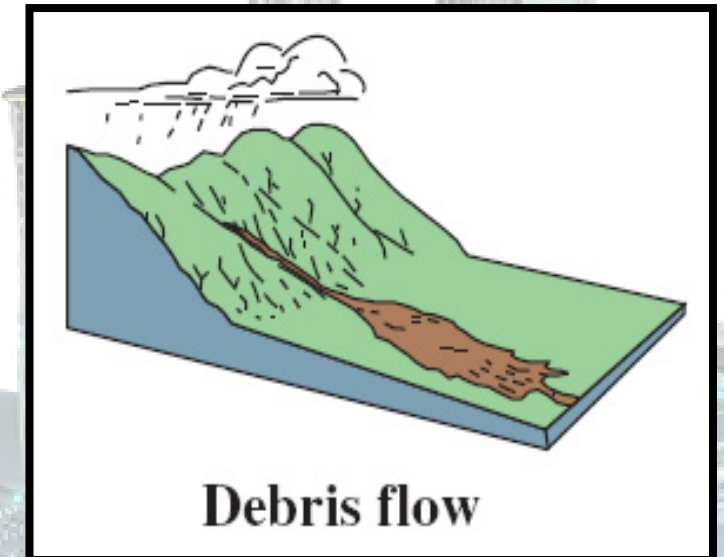
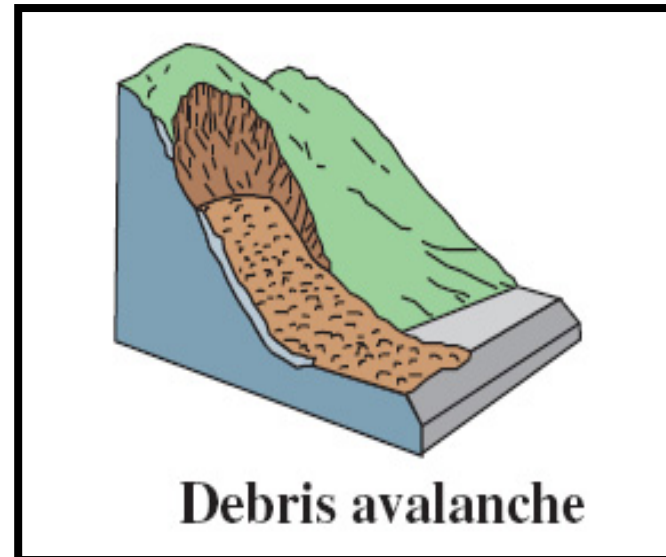
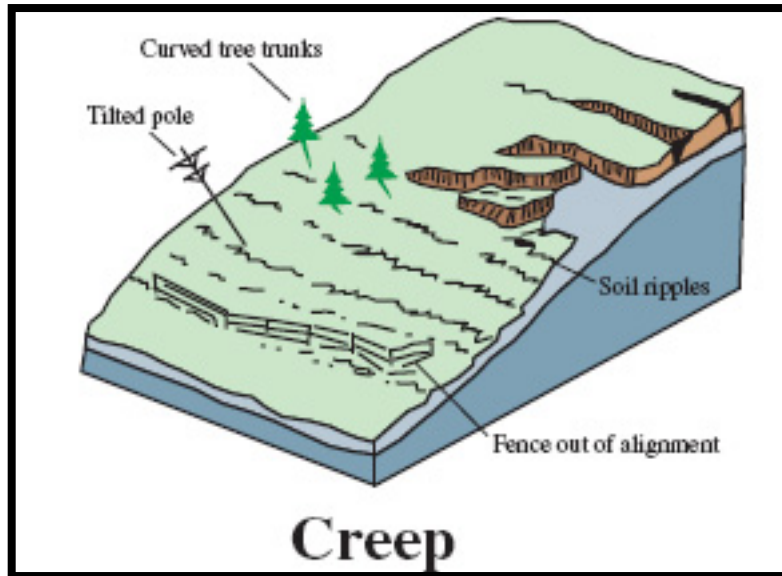
EXAMPLES OF SKILLS & EXPERIENCES FOR GEOTECHNICAL AC

- Ability to classify and identify landslides



- Rate of movement:

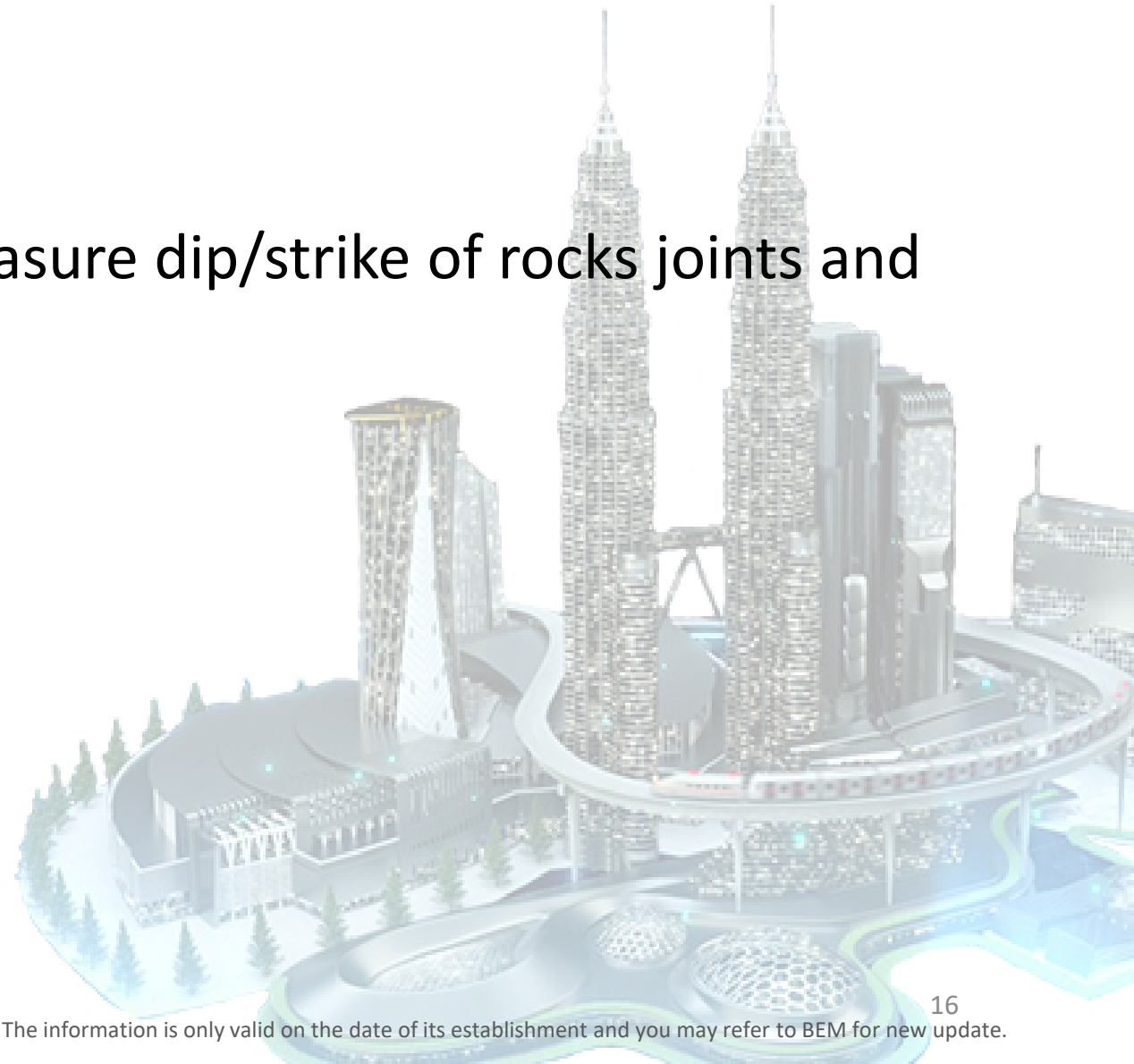
This ranges from very slow creep (mm/yr) to extremely rapid (m/sec).





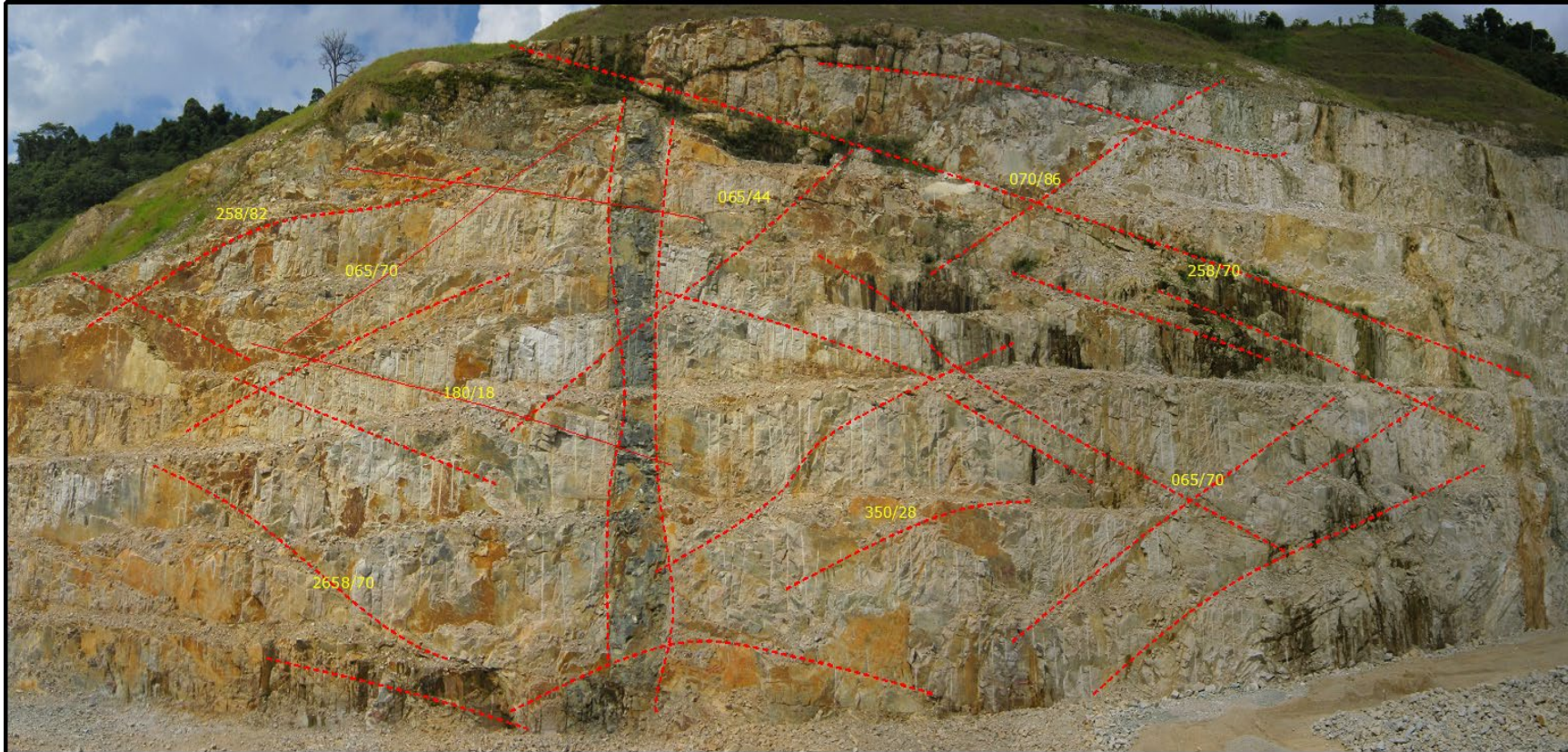
Good knowledge on geology;

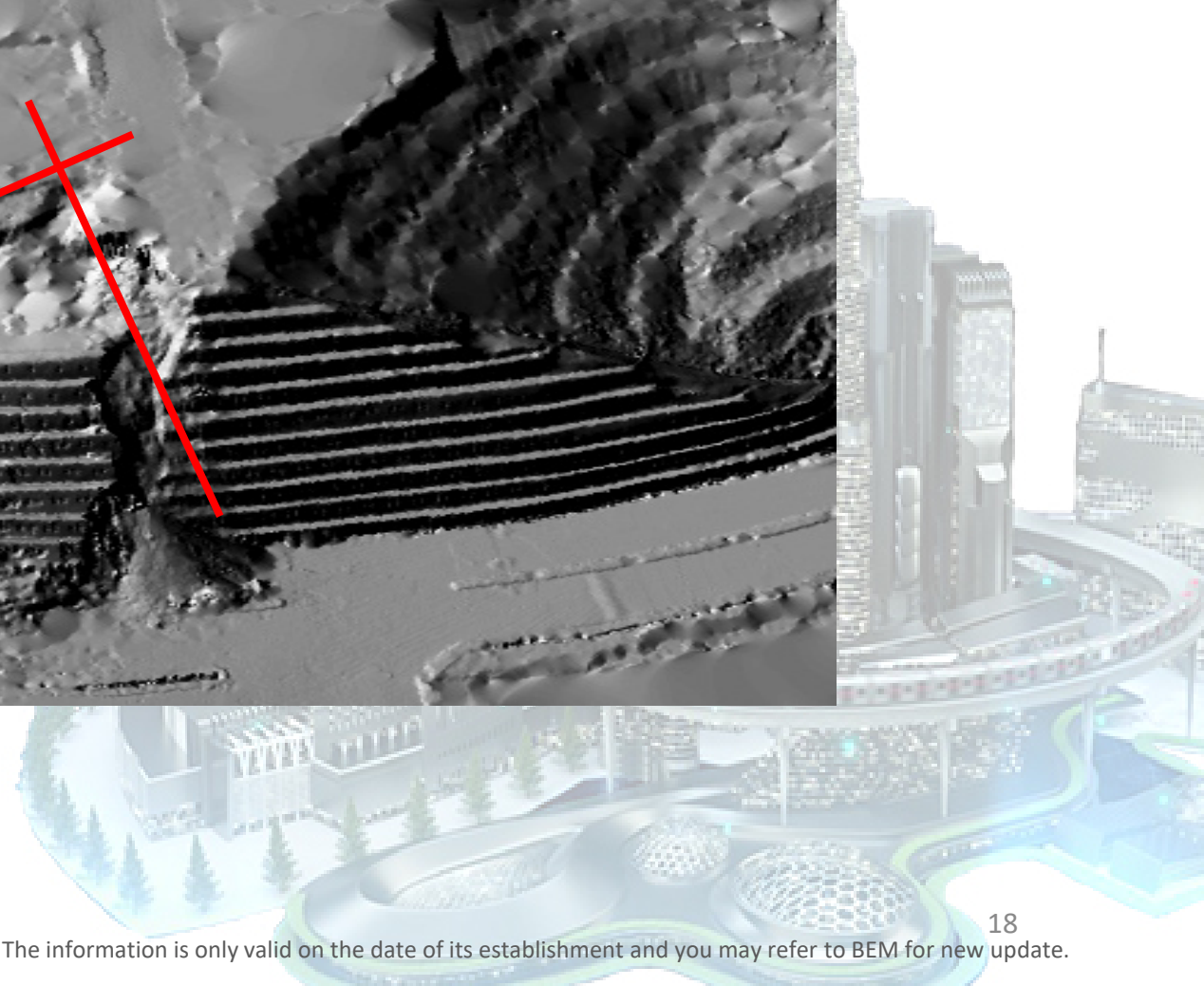
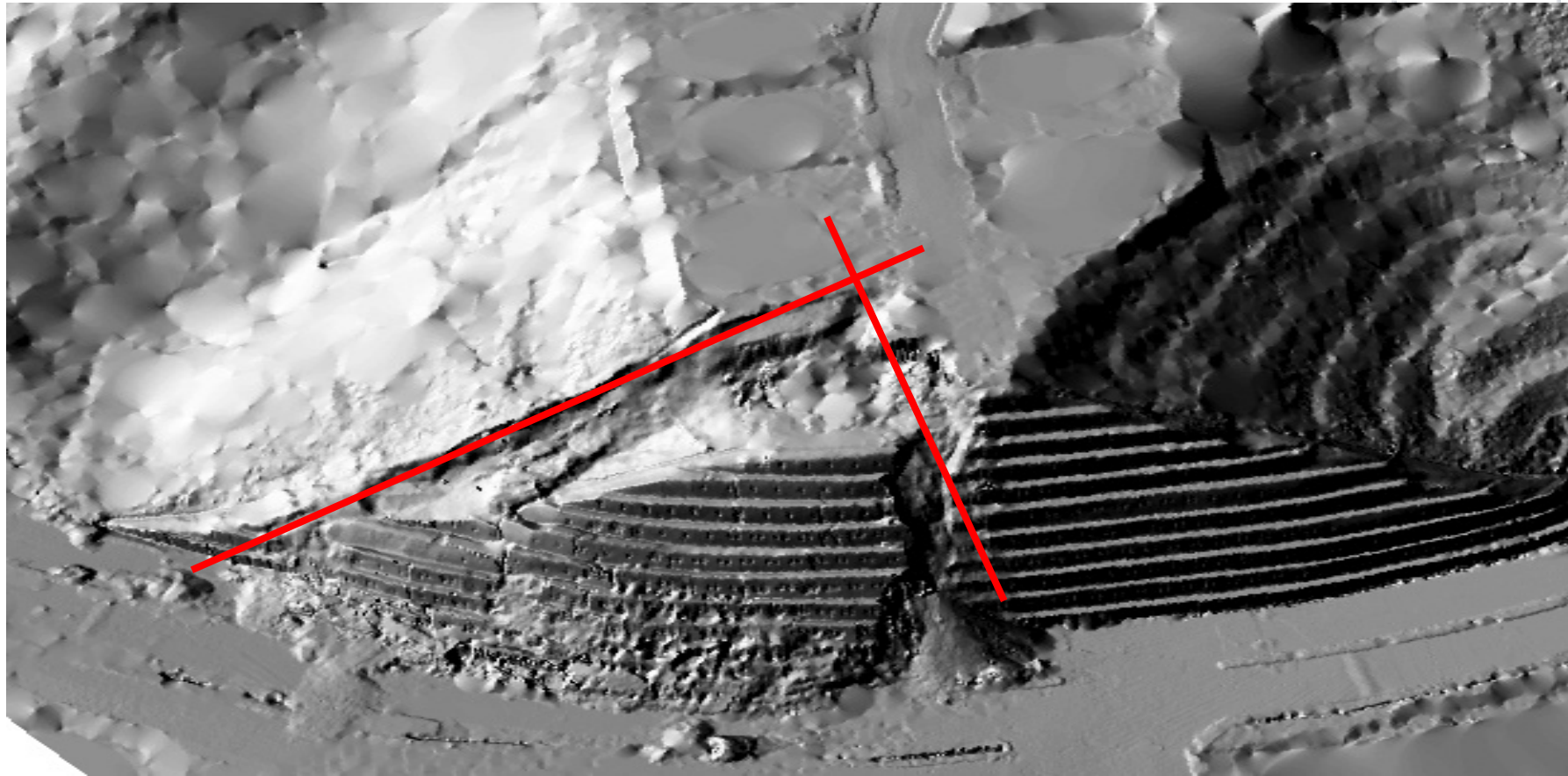
1. Geological formation.
2. Geological mapping – skill to measure dip/strike of rocks joints and plotting them on stereonet.
3. Stereonet analysis.

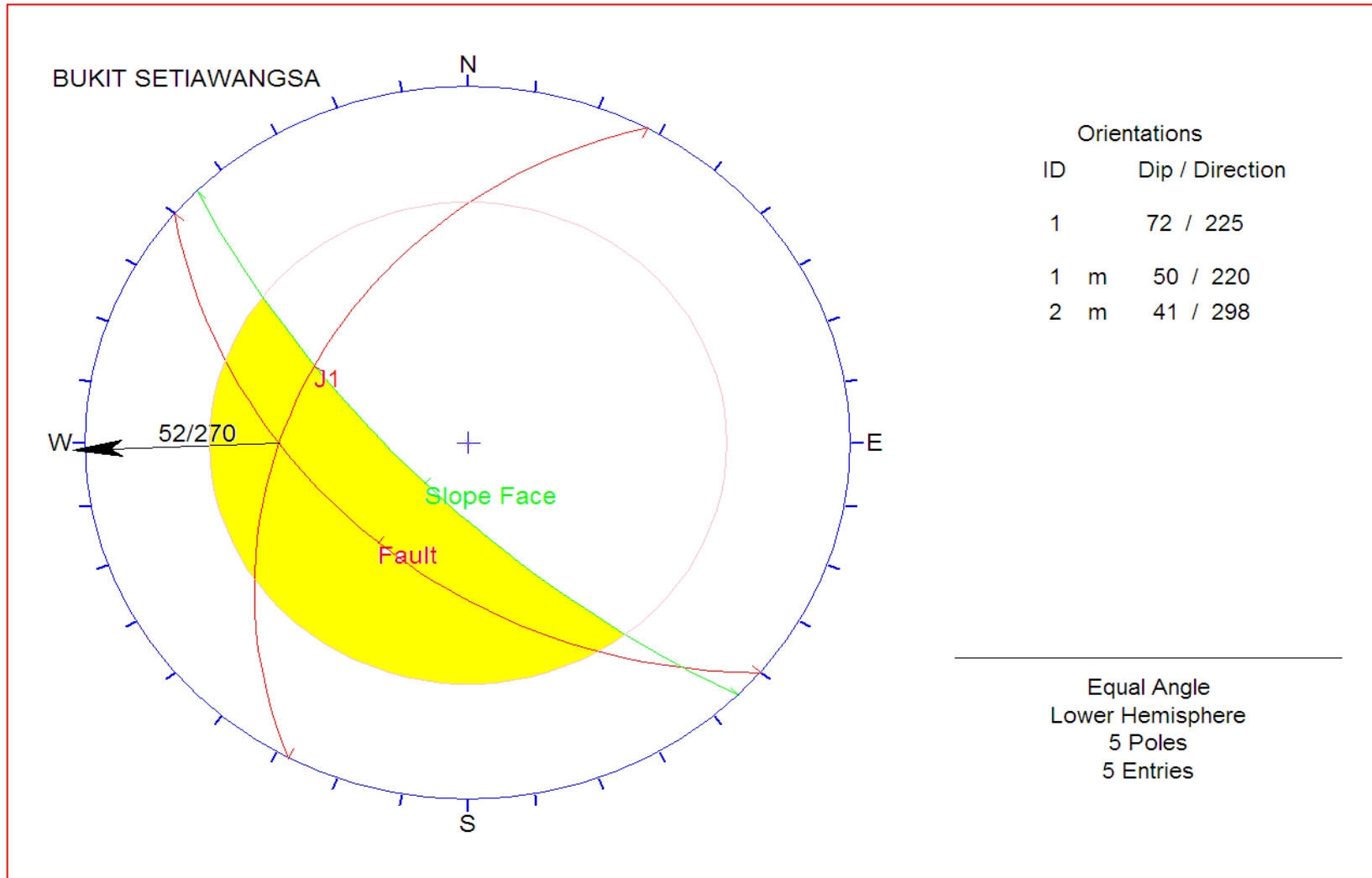




Geological Mapping



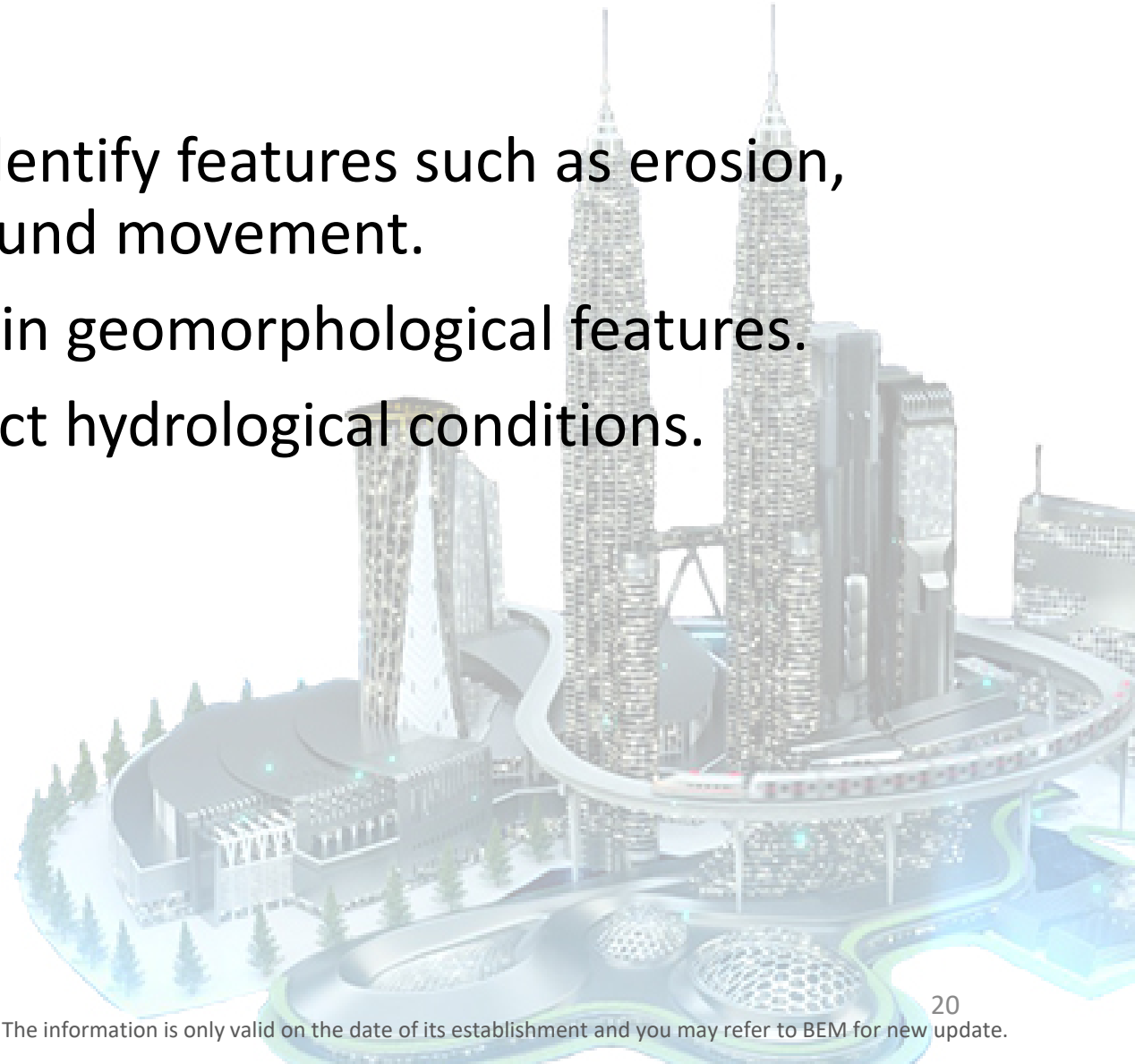







Good knowledge of slope geomorphology & hydrology;

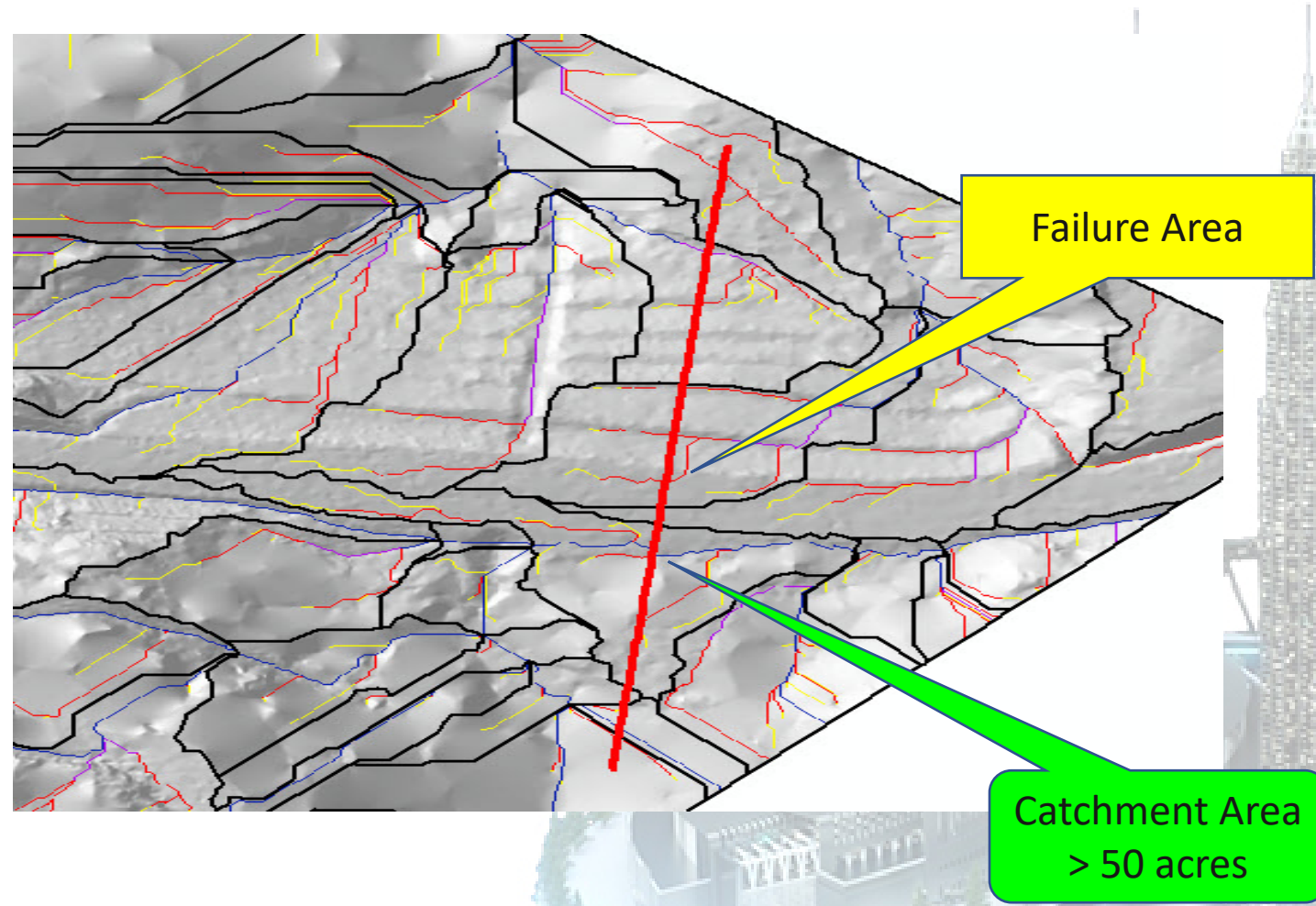
1. Geomorphological mapping to identify features such as erosion, water seepage, vegetation & ground movement.
2. Use of terrain modelling to explain geomorphological features.
3. Use of terrain modelling to predict hydrological conditions.





Flow Accumulation

-  < 500
-  500 - 1000
-  1000 - 5000
-  5000 - 10000
-  > 10000

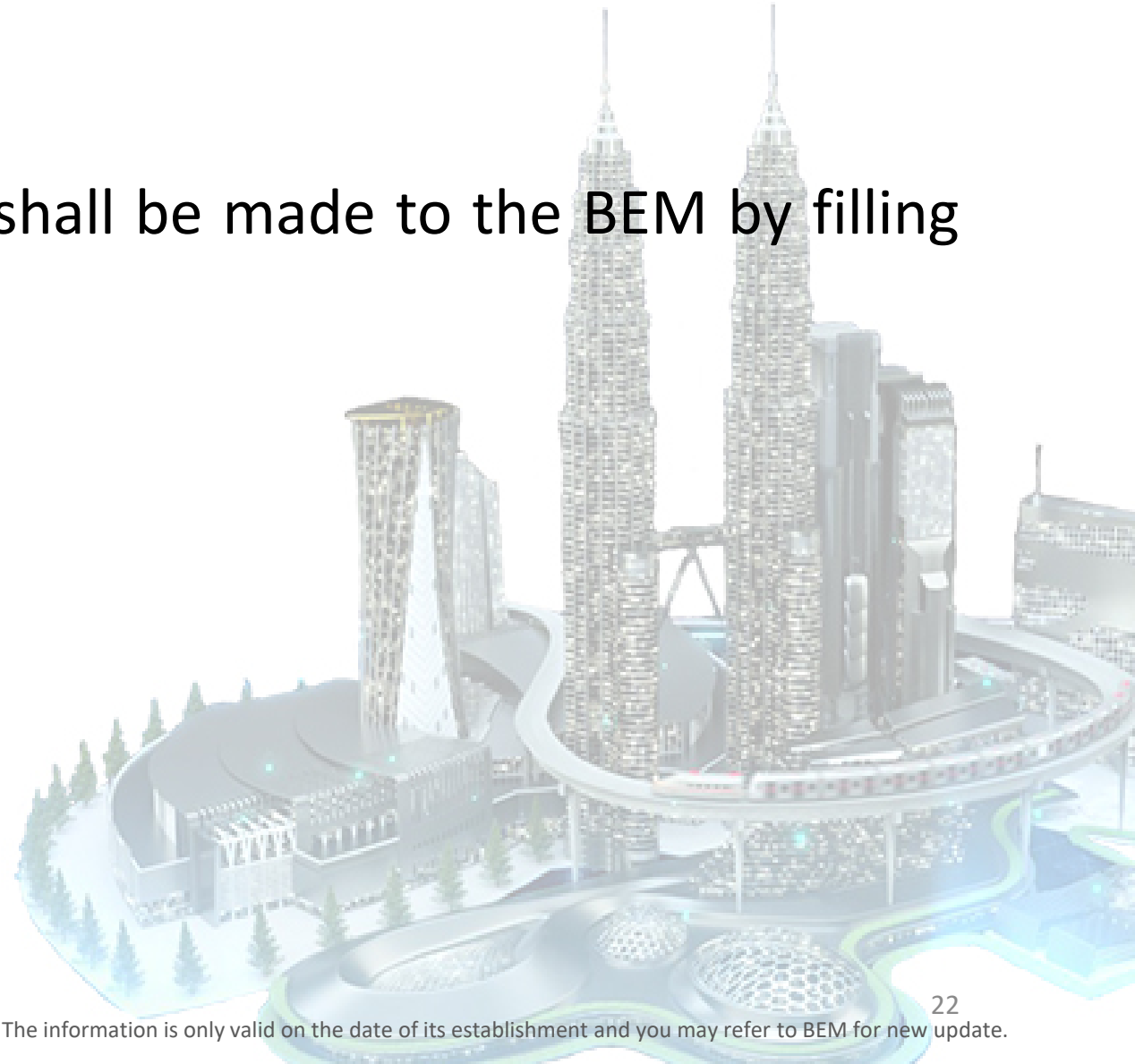




2. APPLICATION

Application for admission as an AC shall be made to the BEM by filling up the following forms:

1. Form A6
2. Self-Appraisal Form Rev. 3 BEM





Form A6

FORM A6
REGISTRATION OF ENGINEERS ACT 1967
REGISTRATION OF ENGINEERS REGULATIONS 1990

Rev. No.: 1
Date: 12.12.2016

Applicant's
current
passport size
photo

APPLICATION FOR REGISTRATION AS AN ACCREDITED CHECKER
(To be completed by the Applicant in BLOCK LETTERS)

SECTION A (to be filled in by All)

Name:

Gender: Male Date of Birth:

 Female Place of Birth:

Nationality:..... Identification Card No.:

Address in Malaysia (if any):

.....

Tel. No.: Mobile Phone No.: Fax No.:

Postal Address (if different from above):

.....

E-mail Address:

Professional Engineer With Practising Certificate Registration No:

I wish to apply for Accredited Checker Branch:

Structural Geotechnical

SECTION B (to be filled in by Non-Malaysian)

Passport No.: Place of Issue:

Date of Issue: Date of Expiry:

Country of Birth: Nationality:

Address in Country of Origin:

.....

I have been a Permanent Resident of Malaysia since..... Identification Card No.:

SECTION C (to be filled in by Non-Malaysian)

I am a holder of a Work Permit valid from to

PENALTY

Section 24(a) of the Registration of Engineers Act 1967: "Any person, sole proprietorship, partnership or body corporate who procures or attempts to procure registration or a certificate of registration under this Act by knowingly making or producing or causing to be made or produced any false or fraudulent declaration, certificate, application or representation whether in writing or otherwise, shall be guilty of an offence and shall, on conviction, be liable to a fine not exceeding fifty thousand ringgit, or to imprisonment for a term not exceeding three years, or to both."





Self-Appraisal Form Rev. 3 BEM

Rev. No.: 3
Date : 26/11/2010

SELF EVALUATION BY APPLICANT/ASSESSOR

PURPOSE

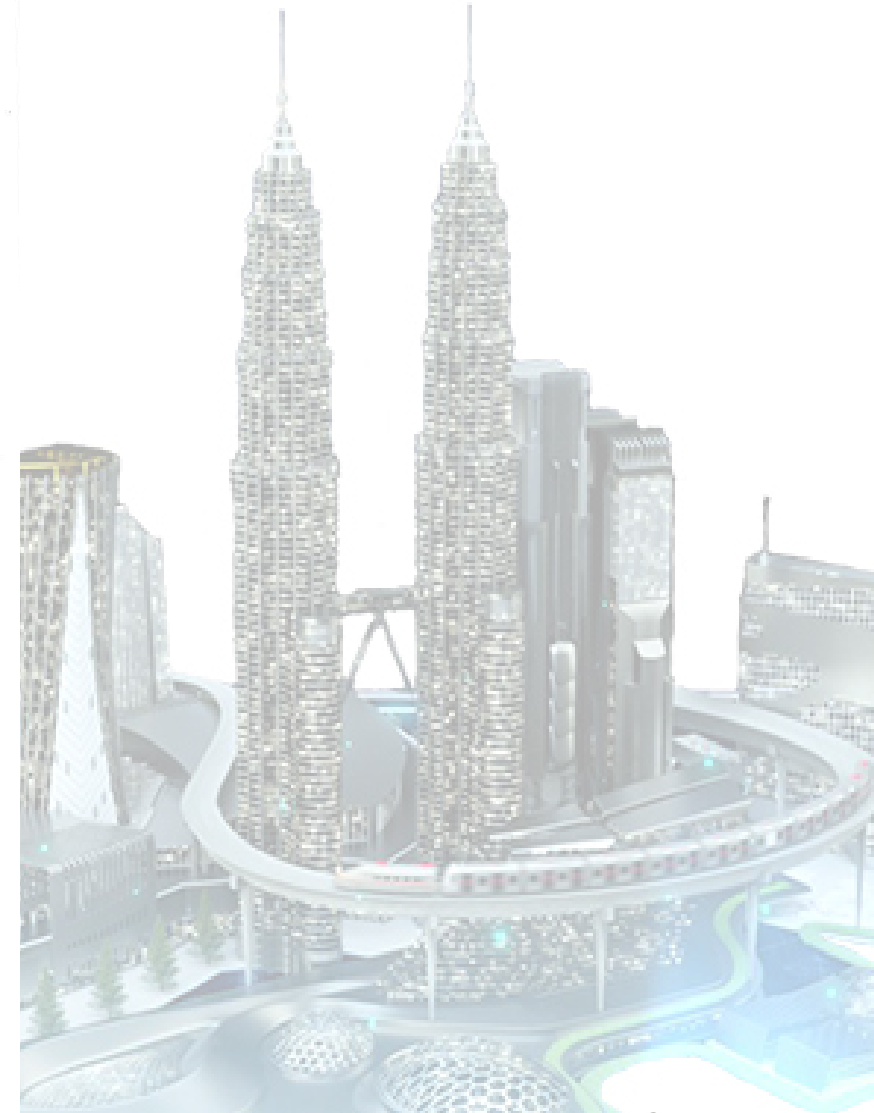
- (i) To ensure and enhance safety and stability of building and structure design especially for hill site developments.
- (ii) To prevent structural failures by checking the design of structural and geotechnical engineering works.

EVALUATION

1. Qualifications:	Yes	No.	N/A	Comments (for official use by assessor). * Please use separate sheet for comments
	(to be filled by applicant)			
I wish to be:-	Yes	No		
(i) A Professional Engineer registered with the BEM in the Civil or Structural or geotechnical engineering discipline and specializing in: a. Structural b. Geotechnical	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
2. Experience: The applicant:				
(i) I have at least 10 years' relevant practical experience in the design or construction of buildings	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Refer to attachment
(ii) I have the ability and standing in the profession, or specialized knowledge or practical experience in civil, structural or geotechnical engineering.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
(iii) I have been engaged in geotechnical or structural design after registration as a Professional Engineer.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
(iv) For a continuous period of 1 year immediately preceding the date of my application, I have the practical experience in the relevant field gained in Malaysia.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
(v) I have much more experience in the structural and geotechnical area than the typical Professional Engineers registered with the Board.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

Important Notes:

1. The applicant have to substantiate all the statements he make.
2. Failure to sign the application form, the application will be rejected.
3. The Assessor have to give the rating.
Rating: 1 - Poor 2 - Fair 3 - Satisfactory 4 - Good 5 - Excellent
4. The Assessor will verify the statement and document submitted
5. To indicate N/A if the statement are not applicable





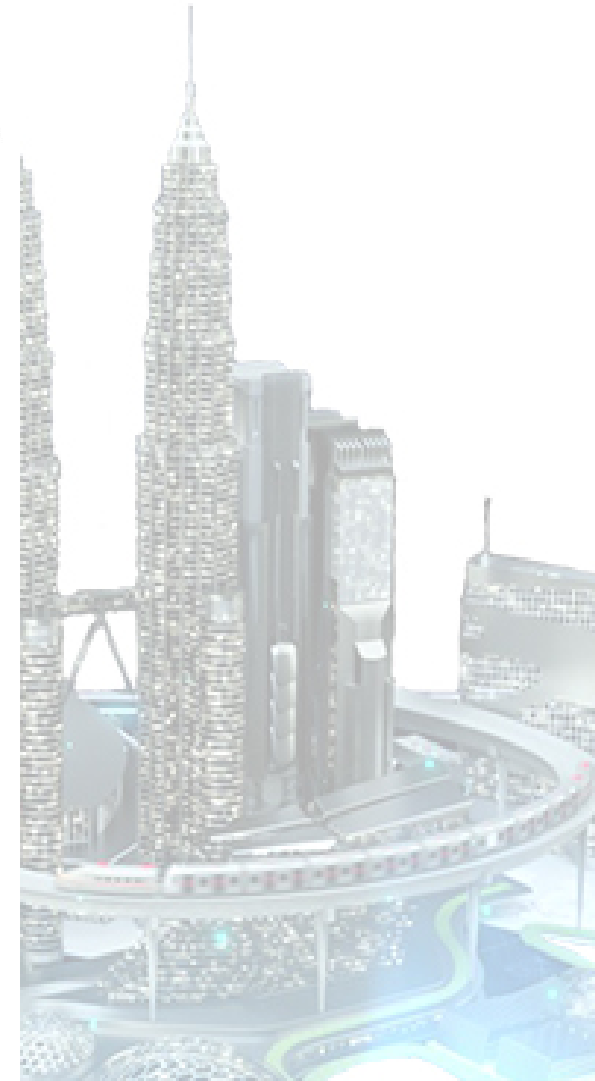
Self-Appraisal Form Rev. 3 BEM

3(a). Design or Review Report - for Structural Applicant only:	Yes	No	N/A	Comments
	(to be filled by applicant)			(for official use by assessor). * Please use separate sheet for comments
The applicant is expected to have covered (with substantiations) all the aspects specified in the Tasks Of Accredited Checkers (BEM/RD/AC/02) in his/her design or review report:	Yes			
(i) Generally, check on the technical suitability and reliability of the Consultant's structural design with particular reference to the technical adequacy, construction viability, long-term serviceability, and compliance to the legislation, acceptable codes of practice, standards and approved design guides.	1	2	3 4 5	1 2 3 4 5
(ii) Evaluate, analyse and review the structural design in the plans of the building works including its substructure and foundation.	1	2	3 4 5	1 2 3 4 5
(iii) Verify that the key elements of the structure including its substructure and foundation which are being designed are consistent with the layout as shown in the latest building plans and any amendments thereto.	1	2	3 4 5	1 2 3 4 5
(iv) Evaluate, analyse and review the proposed temporary work where it is to be executed for the substructure works and its foundation to ensure that it is practically viable and potential damages to adjoining properties during the construction of the proposed building are minimized and is not endangering public safety.	1	2	3 4 5	1 2 3 4 5
(v) Determine and use the relevant Codes of Practices in the preparation of the structural design in the plans of the building works including its substructure and foundation.	1	2	3 4 5	1 2 3 4 5
(vi) Check the design loading for both gravity loads and lateral loads acting on the structure.	1	2	3 4 5	1 2 3 4 5
(vii) Check the standards and specifications of materials to be used in the building works including its substructure and foundations.	1	2	3 4 5	1 2 3 4 5
(viii) Ascertain the structural design concept including its substructure and foundation and identify the key structural elements to be checked.	1	2	3 4 5	1 2 3 4 5

Page 2

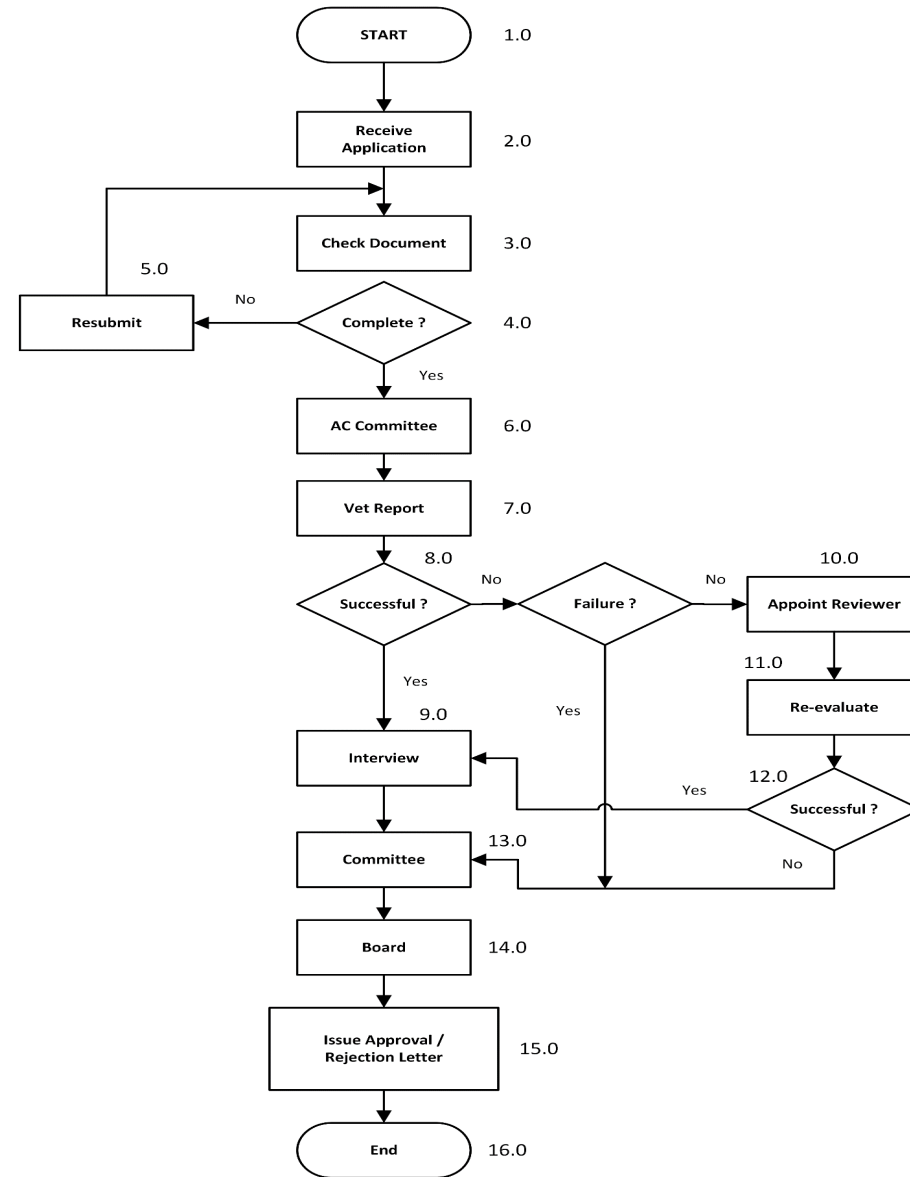
3(b). Design or Review Report - for Geotechnical Applicant only:	Yes	No	N/A	Comments
	(to be filled by applicant)			(for official use by assessor). * Please use separate sheet for comments
I have covered (with substantiations) all the aspects specified in the Tasks Of Accredited Checkers For Geotechnical Works (BEM/RD/AC/03) in my design or review report:				
(i) I have designed all geotechnical engineering works with particular reference to technical adequacy, constructability, short term and long term safety including that of the adjacent properties, serviceability, and compliance to the relevant legislation, acceptable codes of practice, standards and guidelines.	1	2	3 4 5	1 2 3 4 5
(ii) I have checked the site mapping and topography, geomorphology of the site and adjacent areas.	1	2	3 4 5	1 2 3 4 5
(iii) I have checked the geological implication on the design.	1	2	3 4 5	1 2 3 4 5
(iv) I have checked on the adequacy of the subsurface investigation (S. I.) and laboratory carried out for the proposed development.	1	2	3 4 5	1 2 3 4 5
(v) I have checked interpretation of subsurface investigation (S. I.) and subsoil/rock parameters and groundwater conditions.	1	2	3 4 5	1 2 3 4 5
(vi) I have checked on all assumptions, interpreted and selected design soil/rock parameters and groundwater conditions.	1	2	3 4 5	1 2 3 4 5
(vii) I have checked on geotechnical analyses and designs of Slopes:				
(a) Slope terrain classification: Zoning of slopes at the site and adjacent sites (if there is an influence on the site) into different class in accordance to DOE requirements.	1	2	3 4 5	1 2 3 4 5
(b) Slope stability analyses of existing, natural and engineering cut & fill slopes. Various failure modes shall be checked including relevant surcharge loads and etc.	1	2	3 4 5	1 2 3 4 5
(c) Exposed rock slopes should include detailed rock mapping and kinematic analyses.	1	2	3 4 5	1 2 3 4 5

Page 4





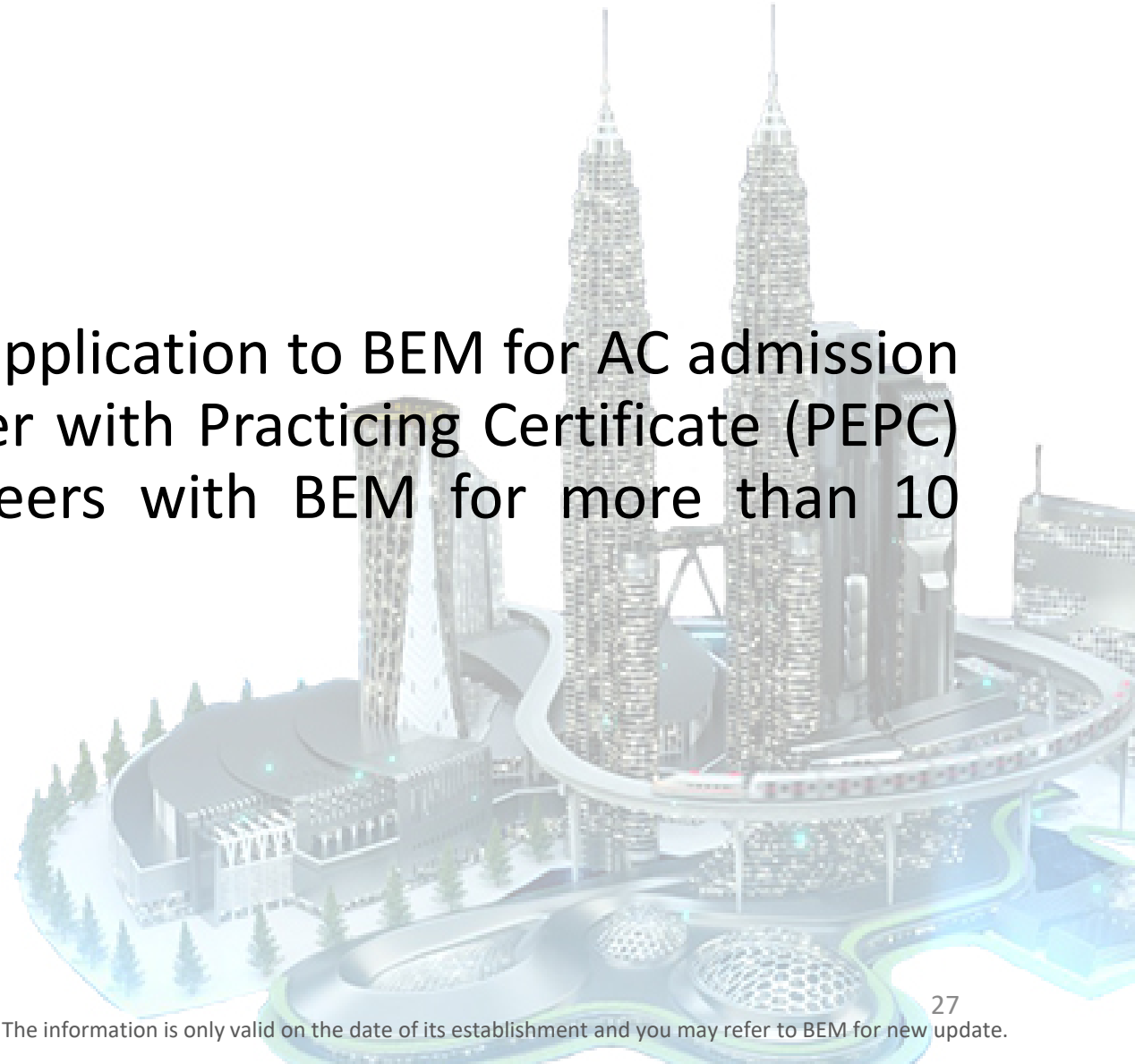
Flowchart Application To Register As Accredited Checker





2.1 PRE-QUALIFICATION

Candidates who wish to submit an application to BEM for AC admission shall possess a Professional Engineer with Practicing Certificate (PEPC) and have been Professional Engineers with BEM for more than 10 years.





2.2 ADDITIONAL SUBMITTING DOCUMENTS

All submissions shall be accompanied with:

1. CV.
2. Write-up of not more than 1000 words of relevant experiences in projects undertaken **after PE admission**. Candidates must give detailed account of their **specific involvement, roles and responsibility** in each project **relevant** for this application.
3. AC Examination Project Reports (see Section 3.0).



- Application shall be made for one of the following disciplines,
 1. Geotechnical AC
 2. Structural AC
- The candidate shall, in the application of either discipline, submit 2 (two) reports,
 1. at least one shall be **Compulsory Examination Project Report**
 2. a **Supplementary Examination Project Report.**
- Compulsory and Supplementary Project Reports shall be made exclusively for AC examination and each **shall not** exceed 150 pages.



- **Company report on projects will not be accepted.**
- Computer data printouts **shall not** be included in the report.
- The report shall list the candidate's involvement in the project either in planning, investigation, design processes, construction, instrumentation & monitoring, etc. It is important to highlight the candidate's role & responsibility and scope of works in the project to facilitate examiners in formulating questions for the examination.
- To enhance candidate's chances of passing the AC examination, published technical papers in journals and proceedings of recognised conferences shall be included in the report.



3.1 GEOTECHNICAL AC

- **Compulsory Examination Project Report** shall be made on experiences related to design of slopes greater than 25 meters in height.
- This compulsory submission can also be made on experiences related to retaining wall design greater than 10 meters; walls can be of Reinforced Concrete, Reinforced Earth/Soil, CBP, secant wall (not related to basement design) or any type of Gravity Wall.
- **Supplementary Examination Project Report** can be made on design experiences related to design of basements greater than 2 levels, foundations and ground treatment for embankments greater than 5 meters in height.



- 2 (two) reports shall be produced by the candidate, at least one of which must be a compulsory report.





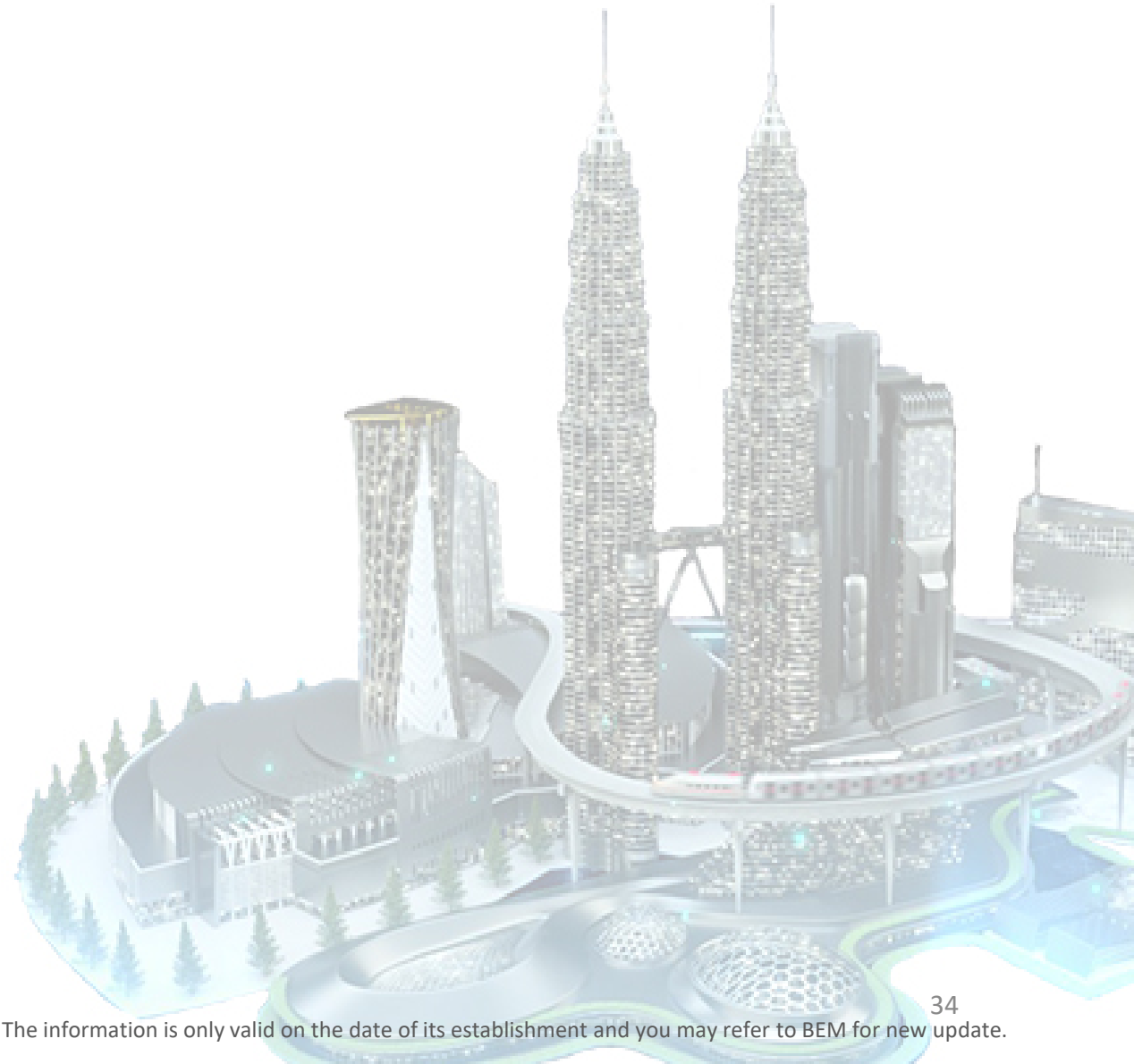
3.2 STRUCTURAL AC

- **Compulsory Examination Project Report** shall be made on experiences related to design of buildings exceeding 20 storeys with basements not less than 2 levels.
- **Supplementary Examination Project Report** can be made on design experiences related to special structures, e.g. space frame structures, transfer structures etc or buildings that will result in complex interactions with existing buildings.
- 2 (two) reports shall be produced by the candidate, at least one of which must be a compulsory report.



FAQ's

- [AC FAQ's](#)



THANK YOU



“Committed To Engineering Excellence”

BOARD OF ENGINEERS MALAYSIA

Tingkat 11 & 17, Blok F Ibu Pejabat JKR

Jalan Sultan Salahuddin, 50580 Kuala Lumpur

<http://www.bem.org.my>

enquiry@bem.org.my or complaint@bem.org.my.

Tel: 03-26912090; 03-26107095/96 Fax: 03-26925017