Building and Construction Authority

We shape a **safe**, **high quality**, **sustainable** and **friendly** built environment.

Our ref: APPBCA-2015-03

30 Jan 2015

For enquiries, please contact:
Building Engineering Group (#12-01)
Tel : 1800-3425 222
E-mail: bca_enquiry@bca.gov.sg

See Distribution List

Dear Sir / Madam

GUIDELINES ON PRE-CONSTRUCTION SURVEY PRIOR TO CARRYING OUT CONSTRUCTION WORKS

Objective

This circular is to inform the industry of guidelines on carrying out pre-construction survey before commencing the prescribed types of construction works.

Background

2 Regulation 32(1) of the Building Control Regulations requires that where any demolition of any building, or any piling or foundation works, any tunnelling works, or any site formation works (including excavation works) are to be constructed or carried out, the builder shall, before commencing such works, carry out a pre-construction survey to establish the condition of existing buildings and structures adjacent or in otherwise close proximity to the building works.

3 A series of dialogue sessions with the Institution of Engineers Singapore and Association of Consulting Engineers Singapore were held to discuss and work out a set of guidelines on pre-construction survey when carrying out project developments. The objectives of the guidelines are to provide guidance on the extent of pre-construction surveys and good practices for the industry when carrying out pre-construction surveys.

Guidelines on pre-construction survey for project developments

4 The Guidelines contain five sections on good practices for pre-construction survey prior to carrying out the following construction works, namely:

a) Section A : Demolition works;
b) Section B : Piling works;
c) Section C : Excavation works;
d) Section D : What builder should do if entry for pre-construction survey is not possible
e) Section E : Areas of responsibility when there are more than one builder in the project.

5 A summary of the guidelines is in the Annex attached, and an illustrated copy can be obtained from BCA's website at:
http://www.bca.gov.sg/Professionals/BuildingControl/building_control.html

For Clarification

6 If you need any clarification, please contact me or Mr Lim Shiyi at Tel 1800-3425222 or email bca_enquiry@bca.gov.sg. Thank you.

Yours faithfully

ER. DR POH TEOH YAW
DEPUTY DIRECTOR, BUILDING ENGINEERING GROUP
for COMMISSIONER OF BUILDING CONTROL

ANNEX

Guidelines on Pre-construction Survey for Project Developments

1. These guidelines outline the minimum zones for pre-construction survey to be conducted for project developments where any demolition of any building, or piling or foundation works, tunnelling works, or site formation works (including excavation works) are to be constructed or carried out, and good practices when carrying out pre-construction surveys.

   Section A: Guidelines for Demolition Works
   - Demolition for landed development
   - Demolition for building up to five storey height
   - Demolition for building more than five storey height

   Section B: Guidelines for Piling Works
   - Non-displacement and small displacement piles for landed development
   - Displacement piles for landed development
   - Non-displacement and small displacement piles for non-landed development
   - Displacement piles for non-landed development

   Section C: Guidelines for Excavation Works
   - Excavation for landed development
   - Excavation for non-landed development with basement or underground space

   Section D: Guidelines on what builder should do if entry for pre-construction survey is not possible

   Section E: Areas of responsibility when there are more than one builder in the project

2. The builder should carry out the pre-construction survey and investigation in consultation with the Qualified Person (QP). The QP should determine adequacy of the extent and scope of survey, including consideration for the need to survey the pre-existing tilt of buildings. The QP should review the survey report and identify any pre-existing structural defect for all the buildings being surveyed. As part of the impact assessment report required under Regulation 33, the QP shall specify on plan the necessary preventive and protective measures to be taken to prevent damage to the adjacent buildings arising from the works.

Section A: Guidelines for Demolition Works

Demolition for landed development

3. The pre-construction survey shall be carried out for a zone of not less than 10 metres from the edge of the building to be demolished.

Demolition for building up to 5 storey height

4. The pre-construction survey shall be carried out for a zone of not less than 35 metres from the edge of the building to be demolished. Demolition of substructure below ground water level, if any, will be classified under ERSS works.

Demolition for building more than 5 storey height

5. The pre-construction survey shall be carried out for a zone of not less than 50 metres from the edge of the building to be demolished. Demolition of substructure below ground water level, if any, will be classified under ERSS works.

6. Table 1 summarises the guidelines for demolition works.

Table 1. Guidelines for Demolition Works

Type of Development	Guidelines for Demolition Works
	Minimum zone of pre-construction survey (from the edge of building to be demolished)
Demolition for landed development	10 m
Demolition for building up to 5 storey height	35 m
Demolition for building more than 5 storey height	50 m

Section B: Guidelines for Piling Works

Piling works for landed development

7. Piling works for landed development are classified into 2 categories as follows:

(a) Non-displacement and small displacement piles (E.g. Micro bored piles, steel H-piles)
The pre-construction survey shall be carried out for a zone of not less than 10 metres from the project site boundary for landed development.

(b) Displacement piles (E.g. RC piles, jacked-in steel pipe piles (closed ended))
The pre-construction survey shall be carried out for a zone of not less than 20 metres from the project site boundary for landed development.

Piling works for non-landed development

8. Piling works for non-landed development are classified into 2 categories as follows:

(a) Non-displacement and small displacement piles (E.g. Micro bored piles, steel H-piles)
The pre-construction survey shall be carried out for a zone of not less than 40 metres from the project site boundary for non-landed development.

(b) Displacement piles (E.g. RC piles, jacked-in steel pipe piles (closed ended))
The pre-construction survey shall be carried out for a zone of not less than 60 metres from the project site boundary for non-landed development.

9. Table 2 and Table 3 summarise the guidelines for piling works for landed development and non-landed development.

Table 2. Guidelines for Piling Works – Landed Development

Type of Piles	Guidelines for Piling Works for Landed Development
	Minimum zone of pre-construction survey
Non-displacement piles and small displacement piles such as micro bored pile, steel H-piles	**10 m**
Displacement piles such as RC piles, jacked-in steel pipe piles (closed ended)	**20 m**

Table 3. Guidelines for Piling Works – Non-Landed Development

Type of Piles	Guidelines for Piling Works for Non-Landed Development
	Minimum zone of pre-construction survey
Non-displacement piles and small displacement piles such as bored pile, steel H-piles	**40 m**
Displacement piles such as RC piles, spun piles, jacked-in steel pipe piles (closed ended)	**60 m**

Section C: Guidelines for Excavation Works

10. In carrying out detailed impact assessment to define the extent of the preconstruction survey in conjunction with the builder, QP(Design) may carry out detailed assessment to define the extent of preconstruction survey on a case-by-case basis. The QP shall consider the following as a minimum unless substantiated with appropriate justification.

Excavation for landed development

11. The pre-construction survey shall be carried out for a zone of not less than 15 metres from the project site boundary surrounding the site.

Excavation for non-landed development with basement or underground space

12. For development founded on good soils (i.e. medium dense to very dense sand and gravel, and firm to hard silt and clay), the pre-construction survey shall be carried out for a zone of not less than 30 metres from the project site boundary, or 3 times the maximum excavation depth (including localise pits), whichever is the larger of the 2 values.

13. For development founded on soft soils (e.g. marine clay) **without** fluvial sand / peat / peaty clay, the pre-construction survey shall be carried out for a zone of not less than 60 metres from the project site boundary, or 6 times the maximum excavation depth (including localise pits), whichever is the larger of the 2 values.

14. For development founded on soft soils **with** fluvial sand / peat / peaty clay, the pre-construction survey shall be carried out for a zone of not less than 90 metres from the project site boundary, or 9 times the maximum excavation depth (including localise pits), whichever is the larger of the 2 values.

15. Table 4 summarises the guidelines for excavation works for landed development and other development with basement or underground space.

Table 4. Guidelines for Excavation Works

<table>
<tr><td rowspan="2">Type of Development</td><td colspan="2">Guidelines for ERSS Works</td></tr>
<tr><td colspan="2">Minimum zone of pre-construction survey^</td></tr>
<tr><td>Landed development</td><td colspan="2">15 m</td></tr>
<tr><td>Type of Development</td><td>Types of Soils</td><td>Minimum zone of pre-construction survey^</td></tr>
<tr><td rowspan="3">Non-landed development with basement or underground space</td><td>Good soils♦</td><td>30 m or 3H*</td></tr>
<tr><td>Soft soils† (e.g. marine clay) without fluvial sand/peat/peaty clay</td><td>60 m or 6H*</td></tr>
<tr><td>Soft soils† with fluvial sand/peat/peaty clay</td><td>90 m or 9H*</td></tr>
<tr><td colspan="3">Note:
1. Maximum excavation depth include localise pits;
2. ^For cases with two values, the larger of the two values should be adopted.
3. ♦Good soils refer to medium dense to very dense sand and gravel, and firm to hard silt and clay.
4. †Soft soils refer to very loose to loose sand and gravel, and very soft to soft silt and clay.
5. * H is defined as the maximum excavation depth.</td></tr>
</table>

Section D: Guidelines on what builder should do if entry for pre-construction survey is not possible

16. In the event that the builder is unable to gain entry to the properties in the zone of pre-construction survey, the builder shall –
    a) survey the exterior face of the property;
    b) keep records of attempts to contact relevant owners for permission to conduct preconstruction survey (e.g. records of registered mail);
    c) keep record of refusal by owner to allow access to conduct survey.

Section E: Areas of responsibility when there are more than one builder in the project

17. For projects with main Qualified Person (QP) and main Builder appointed for all 3 types of works (i.e. demolition, piling and excavation works), main builder to conduct pre-construction survey covering the largest of the minimum zones for the proposed 3 types of works

18. For projects with main Qualified Person appointed, but different QP and Builder are appointed for demolition, piling and excavation works, the main QP is to instruct the first appointed builder for the site to carry out pre-construction survey covering the largest of the minimum zones for the proposed 3 types of works. Each builder will be responsible for distributing the reports to the owners of the surrounding properties according to their respective zone of pre-construction survey for their works.

19. In the event that there are any damage to properties within the respective builder's zone of pre-construction, developer/Qualified Person should facilitate the rectification works before the next type of works commence.

DISTRIBUTION LIST

ASSOCIATIONS / SOCIETIES

PRESIDENT
INSTITUTION OF ENGINEERS, SINGAPORE (IES)
70, BUKIT TINGGI ROAD
SINGAPORE 289758
ies@iesnet.org.sg

PRESIDENT
ASSOCIATION OF CONSULTING ENGINEERS, SINGAPORE (ACES)
18 SIN MING LANE
#06-01 MIDVIEW CITY, SINGAPORE 573960
secretariat@aces.org.sg

PRESIDENT
SINGAPORE CONTRACTORS ASSOCIATION LIMITED (SCAL)
CONSTRUCTION HOUSE
1 BUKIT MERAH LANE 2, SINGAPORE 159760
enquiry@scal.com.sg

PRESIDENT
SINGAPORE INSTITUTE OF ARCHITECTS (SIA)
79 NEIL ROAD, SINGAPORE 088904
info@sia.org.sg

PRESIDENT
SOCIETY OF PROJECT MANAGERS (SPM)
MACPHERSON ROAD P.O.BOX 1083
SINGAPORE 913412
sprojm@yahoo.com

PRESIDENT
SINGAPORE INSTITUTE OF BUILDING LIMITED (SIBL)
70 PALMER ROAD,
#03-09C PALMER HOUSE
SINGAPORE 079427
josephine@sib.com.sg

PRESIDENT
REAL ESTATE DEVELOPERS' ASSOCIATION OF SINGAPORE (REDAS)
190 CLEMENCEAU AVENUE
#07-01 SINGAPORE SHOPPING CENTRE
SINGAPORE 239924
enquiry@redas.com

PRESIDENT
SINGAPORE INSTITUTE OF SURVEYORS & VALUERS (SISV)
110 MIDDLE ROAD #09-00
CHIAT HONG BUILDING, SINGAPORE 188968
sisv.info@sisv.org.sg

PRESIDENT
SINGAPORE STRUCTURAL STEEL SOCIETY (SSSS)
1 LIANG SEAH STREET
#02-11/12 LIANG SEAH PLACE
SINGAPORE 189022
secretariat@ssss.org.sg

PRESIDENT
GEOTECHNICAL SOCIETY OF SINGAPORE
C/O PROFESSIONAL ACTIVITIES CENTRE
NUS FACULTY OF ENGINEERING
9 ENGINEERING DRIVE 1
SINGAPORE 117576
geoss@nus.edu.sg

PRESIDENT
PROFESSIONAL ENGINEERS BOARD, SINGAPORE (PEB)
52 JURONG GATEWAY ROAD, #07-03
SINGAPORE 608550
registrar@peb.gov.sg

PRESIDENT
BOARD OF ARCHITECTS (BOA)
5 MAXWELL ROAD
1ST STOREY TOWER BLOCK
MND COMPLEX, SINGAPORE 069110
boarch@singnet.com.sg

DIRECTOR
PROTECTIVE INFRASTRUCTURE & ESTATE
DEFENCE SCIENCE & TECHNOLOGY AGENCY
1 DEPOT ROAD #03-01J, SINGAPORE 109679
oyewhing@dsta.gov.sg

DEPUTY DIRECTOR
PROJECT DEVELOPMENT & MAINTENANCE BRANCH
MINISTRY OF EDUCATION
1 NORTH BUONA VISTA DRIVE
OFFICE TOWER LEVEL 9, SINGAPORE 138675
eng_wee_tong@moe.gov.sg

DIRECTOR
BEST SOURCING DEPARTMENT
PUBLIC UTILITIES BOARD
40 SCOTTS ROAD #18-01
ENVIRONMENT BUILDING
SINGAPORE 228231
koh_boon_aik@pub.gov.sg
lim_kim_tee@pub.gov.sg

DEPUTY CHIEF EXECUTIVE
INFRASTRUCTURE & DEVELOPMENT
LAND TRANSPORT AUTHORITY
1 HAMPSHIRE ROAD
BLOCK 8 LEVEL 1
SINGAPORE 219428
chong_kheng_chua@lta.gov.sg

DEPUTY DIRECTOR
PROJECT DEVT & MGT SECT 1 (C&S)
BUILDING QUALITY GROUP
HOUSING & DEVELOPMENT BOARD
HDB HUB
480 LORONG 6 TOA PAYOH
SINGAPORE 310480
lkh4@hdb.gov.sg

DIRECTOR
TECHNICAL SERVICES DIVISION
JTC CORPORATION
THE JTC SUMMIT
8 JURONG TOWN HALL ROAD
SINGAPORE 609434
chwee.koh@jtc.gov.sg

DIRECTOR
BUILDING
PEOPLE'S ASSOCIATION
9 STADIUM LINK, SINGAPORE 397750
foo_soon_leng@pa.gov.sg

PRESIDENT
THE TUNNELLING AND UNDERGROUND
CONSTRUCTION SOCIETY SINGAPORE (TUCSS)
C/O CMA INTERNATIONAL CONSULTANTS PTE LTD
1 LIANG SEAH STREET
#02-12 LIANG SEAH PLACE, SINGAPORE 189022
info@tucss.org.sg

PRESIDENT
SOCIETY OF ROCK MECHANICS AND ENGINEERING GEOLOGY
1 LIANG SEAH STREET
#02-12 LIANG SEAH PLACE
SINGAPORE 189022
srmeg@cma.sg

DEPUTY CHIEF EXECUTIVE OFFICER
SENTOSA DEVELOPMENT CORPORATION
33 ALLANBROOKE ROAD, SENTOSA
SINGAPORE 099981
agencies_circulars@sentosa.com.sg